SOUTHWESTERN MONUMENTS

MONTHLY REPORT

JANUARY, 1936

DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS
JANUARY, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent. Hugh M. Miller, Acting Assistant Superintendent. John H. Diehl, Associate Engineer. Robert H. Rose, Assistant Park Naturalist. Dale S. King and Louis R. Caywood, Junior Park Naturalists. A. T. Bicknell, Custodian on Special Detail. Robert L. Cole, ECW Clerk. Luis Castellum, Temporary Clerk-Stenographer.

GENERAL FIELD MEN: Charles A. Richey and Harry Langley, Resident Landscape Architects. J. B. Hamilton, Associate Engineer. J. H. Tovrea, Chief Engineering Aide. Andrew Clark, Topographer. Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian. Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 669, Santa Fe, New Mexico. Earl Jackson, Custodian.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian. Charlie R. Steen, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. W. H. Smith, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin L. Jackson, Custodian. Frank Fish, Park Ranger.
14. Natural Bridges---Blanding, Utah. Zoke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona. Paul Beaubien, Temporary Ranger.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2225, Tucson, Arizona. George Boundey, Custodian. Martin Evenstad, Park Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Donald Erskine, Ranger In Charge.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian. Barry Mohun, Utility Man.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, In Charge.
25. Yucca House---Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
February 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for January, 1936:

TRAVEL

	January, 1936	January, 1935	January, 1934
Aztec Ruins	225	298	131
Bandelier	254	233	72
Capulin Mountain	350	300	400
Casa Grande	3,370	2,327	2,272
Chaco Canyon	260	361	300
Canyon de Chelly	10	9	___
Chiricahua	250	---	---
El Morro	4	0	---
Gran Quivira	287	---	370
Montezuma Castle	612	321	960
Natural Bridges	---	---	---
Navajo	---	---	---
Pipe Spring	307	348	454
Saguaro	800	---	---
Sunset Crater	80	---	---
Tonto	751	425	---
Tumacacori	1,607	888	1,498
Walnut Canyon	285	---	---
White Sands	4,402	---	---
Wupatki	106	60	34
Yucca House	---	---	---
Actual Reported Registration	13,960	5,370	6,491

The 18 monuments which reported both in 1935 and 1936 showed an increase from 5,370 to 7,856---2,486 visitors, or 46.2 percent.

The ten monuments which reported both in 1934 and 1936 showed an increase from 6,491 to 7,378---887 visitors, or 13.6 percent.

Thus, it would appear that January, 1936, as a travel month was 46.2 percent better than the same month in 1935; 13.6 percent better than the same month in 1934. General heavy increase in travel is shown all through the Southwest, particularly in the southern part of the area. This is notable, because some monuments reported increases despite adverse weather conditions.

GENERAL

C20 WEATHER

January throughout the Southwest has been colder than the same month last year with the singular exception of a warm area apparently surrounding the San Francisco Peaks, including Walnut Canyon and Wupatki Monuments. Northeastern New Mexico also experienced weather slightly warmer than the rest of the Southwest. Excellent moisture conditions brought about by good snows are found at Gran Quivira, El Morro, and Bandelier. The southern part of our area is still suffering from lack of moisture.

100 ADMINISTRATIVE

121 MONUMENT INSPECTIONS BY SUPERINTENDENT PINKLEY

Superintendent Pinkley made a one-day trip to Tumacacori to re-check certain architectural data in the light of recent investigations.

122 INSPECTIONS BY SPECIAL FIELD REPRESENTATIVES

Lyle Barcume, associate landscape architect at Bandelier January4; at Canyon de Chelly several times during month.

Associate Engineer J. B. Hamilton and Chief Engineering Aide Paul Duvic at Canyon de Chelly January 3.

Regional Wildlife Technician Adrey Borell at White Sands and Tumacacori.

Associate Engineer J. H. Diehl at White Sands.

Landscape Architect A. C. Kuehl and Superintendent Guy Edwards (Grand Teton National Park) at Pipe Spring.

123 INSPECTIONS BY NATIONAL PARK OFFICERS

Acting Assistant Superintendent Hugh Miller at Chiricahua Jan. 21-24.

180 PUBLICITY

The White Sands National Monument float, donated by public-spirited citizens of Alamogordo, New Mexico, won first prize in its division at the El Paso (Texas) Sun Bowl Carnival, January 1.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 MAINTENANCE, UNUSUAL

CASA GRANDE---Sewage disposal system still giving trouble and requiring maintenance with makeshift methods.

CAPULIN MOUNTAIN---road up the Crater in very bad condition. Is really unsafe, and needs maintenance.

220 IMPROVEMENTS

CHACO CANYON---minor museum improvements effected during month.

SAGUARO---Register stand built. Temporary ranger quarters being constructed with aid from the University of Arizona in the University storehouse on the monument.

WALNUT CANYON---Cistern cleaned and now in first-class shape.

230 NEW CONSTRUCTION

AZTEC RUINS---ECW work progressing with sheds torn down, patio work almost completed, and cleanup under way.

BANDELIER---CCC barracks moved and Museum Building footings completed and walls are at three-foot height. Residence road drainage structure complete as far as grading is concerned. Telephone conduit trench completed. Tree and shrub planting carried on all month. Water line excavation to 10,000 gallon reservoir completed and reservoir about

75 percent excavated. All materials on job for this project.
Timber crew in Santa Fe National Forest has delivered all vigas and lintels for Museum and Quarters No. 1 buildings.
The quarry crew had worked steadily producing building stone for the museum, quarters and other building projects.
A small crew has been working on carved signs for the monument and has recently started supplying signs for other southwestern monuments.

CANYON DE CHELLY---Custodian's residence 90% complete
Well complete. 98 feet 5 inches deep; 6-5/8 inches (O.D.) diameter. Pumping 2,880 gallons per hour, the level remains constant at 41 feet. Fine cooperation from Indian Irrigation Service.

CHACO CANYON---Boundary fence complete except for minor cleanup.
Custodian Miller reports excellent job by contractor despite hardships. 12,672 rods of fence, 18 gates, 2 cattleguards, 106.953 cubic yards of concrete.

CHIRICAHUA---ECW progress as follows:
1400 additional feet on Sara Deming Trail, making a total of 4,900 feet.
200 additional feet of heavy construction on Echo Trail.
1500 square yards of backsloping on Bonita Highway. About 2,000 cubic yards of material moved.
Headquarters Ranger station 75% complete.
Bath house 60% complete.

PIPE SPRING---ECW work as follows:
Ditch diversion 90% complete.
80% of rock laid for walk from west building to Fort.
Considerable road widening accomplished.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

CANYON DE CHELLY---Custodian Budlong deeply appreciates efficient cooperation of Indian Irrigation Service in well drilling. Especial thanks to Mr. C.A.Burns, engineer, and Mr. Burt Cravath, driller.

CHACO CANYON---Soil Conservation Service has been forced to lay off men for lack of funds to buy materials for large basket dams in revetment work. This work should proceed while ground is frozen and would result in much protection to important ruins.

400 FLORA, FAUNA, NATURAL PHENOMENA

430 ARCHEOLOGY, PREHISTORY, HISTORY

BANDELIER---Mrs. Betty Jackson discovered a six-room cliff dwelling, the only one known to occur on the shady side of Frijoles Canyon, one half mile above Ceremonial Cave.
---Excavation for a box culvert disclosed a fragmentary skeleton. No accompanying artifacts.
---Another bison tooth discovered. Previous one identified in 1934.
---Small six-room ruin uncovered by grading behind utility area. No damage, fortunately.

CHACO CANYON---"Prehistoric turkey nest" found 10 feet below surface

in arroyo near Pueblo III ruin. Eggs removed in block and placed in museum.

440 INSECT CONTROL

CASA GRANDE---Infestation of mesquite trees requiring examination by forester. More than 20 trees badly damaged.

460 BIRDS

BANDELIER---Merriam Turkeys unusually tame.

GENERAL---Total of 579 birds now banded by six stations.

WUPATKI---Turkeys still in high country, which is unusual. Flock of dozen introduced Scaled Quail noted at Heiser Spring.

470 ANIMALS

BANDELIER---Beaver have ascended into monument within half mile of camp. Cutting about 50% of young cottonwood growth.

WALNUT CANYON---Herd of 19 deer noted on monument.

WUPATKI---Deer reported as still in high country. Unusual.

500 USE OF MONUMENT FACILITIES BY PUBLIC (see travel figures on page 1)

530 NEWSWORTHY VISITORS

CASA GRANDE---January 9, Dr. W. H. Campbell of Desert Laboratory of Southwest Museum; Jan. 10, Arthur Snyder, state supervisor of vocational education; Jan. 17, W. Ross Teel, Indiana state archeologist; Jan. 20, Amos Alonzo Stagg, famous football coach; Jan. 24, W. L. Simpson, U. S. Commissioner in Grand Teton area, Wyoming.

TONTO---Amos Alonzo Stagg, January 19.

WHITE SANDS---Giovanni Bassett, editor of "Popolo d'Italia," Milan, Italy.

WUPATKI---Alexander Woollcott, noted author and critic, and Joe Hennessy, January 4-5, "to be somewhere where no one could call him up to say his maiden aunt had just been arrested for disorderly conduct."

600 PROTECTION

650 SIGNS

WALNUT CANYON---Reports need of better signs at entrances on Highway 66.

900 MISCELLANEOUS

MAIL COUNT

Incoming, official	1,307
Incoming, personal	759
Outgoing, official only	1,590
Telegrams, incoming	13
Telegrams, outgoing	23
Total number of pieces handled	3,692

Cordially,

Frank Pinkley, Supt.

REPORTS FROM MEN IN THE FIELD

EL MORRO

By Even Z. Vogt, Jr.

Travel to El Morro is at a standstill. Visitors for the month number four, two from Gallup, one from the Gamerco coal mine, and myself. No one has been inside the monument grounds, except myself, since the 5th of the month. The entrance road leading from the main road into the monument is covered with two feet of hard crusted snow. A solitary rabbit path leads across the cattleguard. I made an attempt last Sunday to drive my car into the monument; after bucking the snow for 20 feet, I stuck in a snowdrift and spent an hour shoveling and backing out into the main road. Then I decided it would be better policy to leave the car in the road and plow through the snow on foot to the register.

After looking at a practically blank register, I waded through knee-deep snow around to the south side of the Rock where it is warm, sunny, and dry in most places.

If the administration building were to be built on the north side, it is clear that a snow plow would be needed to open the road for the ranger or custodian. Either that or he would have to find a nice warm cave and hibernate during the winter months.

There are about six inches of ice on the water in the cove. I was unable to remove the pipe which siphons the water down to the cabin before the water froze, because homesteaders insisted on hauling water all through December. The pipe is not being damaged and could not be removed without a great deal of chopping, so I think I shall leave it in the pool.

From the water cove one can see that the prehistoric hand and foot trail leading down from the top of the Rock to the water in the rincon could not have been used in the winter time. The snow clings to that side of the cliff and completely covers the old hand and foot holes. But, I guess, the pueblenos didn't need to come down for water when there was snow on top to melt. If they did come down to the rincon for water, it must have been quite a sight to see several old Indians dressed in deerskins and shivering around trying to keep warm chopping a hole in the ice with their stone axes.

El Morro is pretty this time of year. Three colors dominate the picture that is seen by the visitor. The snow, clouds, and rocks are more or less white. The green of the evergreen trees is quite dark and colorless compared to the dark blue of the distant Zuni Mountains and the beautiful blue of the New Mexican sky. Other colors which make up minor parts of the picture are the grays of the oak trees and sagebrush, the browns of the tree trunks, and the slight traces of red coloring nearby mesas.

But one can hardly appreciate this beauty when the snow oozes down inside overshoes and cools one's feet to a much lower degree than is comfortable and clouds gather for another storm which promises to cover the monument with another foot of snow.

After admiring the color of our new steps just after the application of the Copperas, I examined them two weeks later to find that some chemical reaction had taken place and the color was white, almost as if they had been whitewashed. They are still white. Although the color of the south slope of the Rock is quite light, it is far from white, and the steps do not blend into the natural sandstone at all.

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BANDELIER

By Earl Jackson, Custodian

Visitors:

Visitors numbered 284, arriving in 76 cars, from 27 states, Washington, D. C., England, Australia, Manitoba, and Ontario.

The six highest states by visitors were: New Mexico, 160; Colorado, 15; Oklahoma, 13; Texas, 9; Kansas, 8; South Dakota, 6.

Visitor attendance, discounting 10 people who came from December 22-24, inclusive, shows an increase of 11 over January of 1935. This increase is in spite of bad weather conditions.

Visitor Trip Chart:

From the first of January, 19 trips with Park Service guide were taken through the ruins. These totalled 55 people. The others were all contacted and registered, but either didn't go through on account of weather, or went through with local guides or Harvey couriers, or went through unattended in my absence from the office. Many of those going through unattended are with local people who have seen the ruins so often they feel like they partially owned the place, and specifically prefer to wander informally about the canyon to going with a guide. The average of minutes devoted to each guided party was 54.7.

Weather and Roads:

Days partly cloudy:	8	
Days cloudy:	12	
Clear days:	11	
Maximum Temperature:	51	January 15
Minimum Temperature:	2	January 18
Mean Maximum:	37	
Mean Minimum:	14.8	
Precipitation:	.60	
Snowfall:	3"	January 7
"	4"	" 18

In other words, weather has been brisk during January, with the heaviest snows since 1933. There has been a high percentage of cloudy days. Temperature has been only moderately low. Snow was 18" deep at a 1200-feet higher altitude, on Sawyer Mesa.

Roads have been bad, as is to be expected in January, but are better than they were at this season last year. They have been passable at all times, and tire chains were needed only for two days, on the steep grades of the Ramon Vigil Grant. The road to the highway is good now, with just a few very wet places.

Special Visitors:

January 8 - John Knox, of Denmark, late of Chicago, was a very interested visitor, wading through snow to see the ruins.

January 14 - Lyle Barcume, associate landscape architect from the San Francisco office, was in for a day inspection, and visited the principal ruins while here.

January 19 - L. K. Waring, instructor at Los Alamos Ranch School for Boys, was in with 14 of the boys for an afternoon stay in the ruins.

January 21 - Mrs. Ruth Cornwall Woodman, of the McCann Erickson Advertising Company, was an interested visitor. Mrs. Woodman prepared broadcasts for the National Broadcasting Company. Unfortunately, I did not know which day to expect her , and so was in Santa Fe on business the day she arrived, but she left word she had been treated very nicely by Mr. Chase and the CCC guide.

Nature Notes:

Until two weeks ago, four large turkeys were lingering in the canyon below the custodian's house. They were huge fellows, and looked very healthy. Coming down from lunch one noon in the Ford pickup truck I rounded a large boulder and had to jam on the brakes and slide on the snow for ten feet to keep from running over one of these fellows.

Recently Betty and I saw 30 turkeys on the higher land near Los Alamos Ranch School. They were unusually tame, remaining in sight of the truck for two or three minutes. If I didn't know better, I would swear they were tame turkeys. However, they are very shy if one approaches them on foot.

Recent patrols on the eastern part of South Mesa and on the Detached Section showed no turkey tracks. There were a great many coyote tracks everywhere, however. A moderate sprinkling of rabbit tracks were seen, and a considerable number of squirrel tracks - if I am correct in the distinction I made in the snow signs of these creatures.

On South Mesa we saw a lot of bird tracks, porsumably Juncos, in the snow around bunches of blue gramma grass. There must be a few seeds in these dry stalks which have not fallen yet.

Abert squirrels are very inconspicuous here in winter time, but I saw a nice one yesterday just a few feet from the office.

The beaver reported on last month as forging up the canyon from the Rio Grande kept on coming. He is well above the Upper and Lower Falls now, and has progressed as far as a short distance below the swimming pool, less than half a mile downstream from the camp ground. I should say he was cutting well over 50% of the young cottonwood growth. For the past ten days he has made no further progress, seeming content with a makeshift dam where he has several down trees in one cluster. He hasn't showed himself yet, but his trail is clear in the last snow. One tree he cut was 14 inches in diameter.

Betty has had good luck with her bird banding this month. Her report will follow on another page. (See Supplement)

Antiquities:

About a month ago Betty discovered a small cliff-dwelling on the south side of Frijoles Canyon, about half a mile above the Ceremonial Cave. It had been a talus structure, with about six rooms on the ground floor, and the rafter holes remaining in the cliff face showed it went to a third story with one room.

This find is interesting, because it is the only evidence of cliff structures on the shady side of the canyon. Of the 17 groups of ruins charted by Dr. Hewett in 1908, all save one were on the north side of Frijoles Creek, and the exception was a ground structure on the flat across from Ceremonial Cave.

This ruins find was mentioned to Dr. Kenneth M. Chapman, acting director of the Laboratory of Anthropology, and he states he has never seen or heard of the ruin before, although he was with Hewett in here in 1908 and later came in 1916 for a petroglyph survey.

Excavation for a box culvert in the road leading from the utility area to the new residence area recently uncovered the poorly preserved skeleton of a man. The skull and long bones were saved, and the position of them revealed puzzling possibilities. The bones were twisted into unnatural positions, yet the ends of them, where natural articulation belongs, were quite close together. Had the bones been washed down the arroyo from a higher point, they would not have been so close together, unless sufficient ligaments were preserved at the time to bind them. And it is improbable that a burial further up the slope would have been so shallow as to wash out before all tissue had entirely disintegrated. So it leaves the suggestion the body may have

been twisted into unseemly contortions immediately after death and buried in the wash. But it was covered with only a foot of soil, and there was no sign of slab or other lining to a grave intended for the corpse. No artifacts were found.

The interesting feature about the skull is that, although it is positively that of a man past maturity, and, from other points of evidence, not likely under 30 years of age, it shows no closure of the metopic or frontal suture. The zig zag of the suture line is as clearly defined as in a small child. It is known that normal closure of the metopic suture is complete by the age of six years. By that time it should appear as a solid piece of the skull, instead of two halves.

In the excavation for the museum foundation just a few feet north east of the Park office, workmen found a part of a bison tooth. This is the second specimen of the kind found in Frijoles Canyon, both from points a half mile apart. The specimen checks perfectly with one identified by the University of California in 1934.

If buffalo never wandered west of the Pecos, they must at least have been considered important in some respect, otherwise the Frijolitans would never have brought their teeth so far.

I might mention that a small ground ruin of approximately six rooms was found in the road cut back of the utility area. The road did not disturb the ruin, but came close enough that clean-up revealed the wall alignments barely coming to the surface.

General:

The visitor run has been quite satisfactory this month. Interest is at a high level.

The country is going to be in good shape for the summer. There is plenty of snow and plenty of moisture, and that is what makes the Southwest bloom.

Fence cutters and last year's storms wrought havoc with the fence line in the Detached Section. Am awaiting a visit from Jack Diehl to straighten me up on how to make a fence across a sandy wash with no bottom that will keep cattle out, when those same arroyos carry trees in flood time 60 feet long and two feet through the base.

The custodian looks forward with much sorry to the task of maintaining the fence which is to be built around the main 22,000 acre portion of Bandelier National Monument. In addition to arroyo troubles, there will be trouble with local cattlemen, who cut fences as in the old days, smug in their belief that they are but carrying out "an old Spanish custom." Nothing but regular fence patrol will keep wire cutters idle. Because it would take a regular patrol to stand much

chance of catching one of these bright fellows at work. A prosecution and conviction is the only graphic lesson for fence cutters.

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GRAN QUIVIRA

By W. H. Smith, Custodian

I will try to submit my monthly report for the last month, but it seems there is but very little to report. My register sheet shows 287 visitors entering the Monument in 53 vehicles. This number shows a decided increase over the previous month and a slight increase over the same month last year. As weather conditions have been extremely disagreeable for travel all through the month, it would lead one to think that travel has improved generally to get an increase in travel under these circumstances.

The ground has not been clear of snow this month and the temperature has held near the freezing point even at mid-day and far below in early mornings, late afternoons, and nights. There have been two or three snows and the ground is thoroughly wet. The travel that we have had over the road of approach has rutted it pretty badly. When it thaws enough to where one can obtain some more gravel, it will be necessary to haul about 20 yards more and distribute over the rutted and sunken part of the road. All this moisture the last month wetting up the mortar in the walls has cost us some falling of stones, too.

There have been very few visitors the past month that merit special mention. On January 19, we had two trucks of CCC boys, about 40 in number, registering from Camp No. 3808, Carrizozo, New Mexico.

The visitor charts came in about the first of the month, and we have been using them since. The number of contacts shown on the charts and the number shown on the report are not going to agree as we register any one entering the Monument for any purpose, so you will find a number of local people registering who are not contacted concerning the monument at all. I find these charts to be very interesting; for instance, we have no museum now so the majority of the visitors stay in that room only long enough to register while others who are more interested in the monument in general will spend 15 to 20 minutes going over what few things we have since the museum was robbed.

I notice that those who spend fifteen or twenty minutes in the museum room generally use an hour to cover the field trip through the missions and the Indian pueblo, but those who give our collection room only a passing glance are through with it all in but a few minutes. This only shows how necessary it is that there be a museum collection at each monument.

Or in other words, those who visit the monument for the monument's sake would spend as much time in the museum as they would in the field

trip if our collection was only as good as before it was robbed. So viewing this from the angle that these large mercantile companies do by the theory that a window display will sell merchandise, I should think that a museum collection helps sell those who visit on the monument. Consequently, in my estimation, the museum is indispensable to a monument.

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WALNUT CANYON

By Louis R. Caywood

Following is the report for Walnut Canyon National Monument for the month of January, 1936:

Visitor registration, plus those who used the facilities at the Monument, give a total of two hundred and eighty-five for the month. Because figures are missing for the month of January, 1935, no comparison in travel can be made.

The weather has been exceptionally warm and sunshiny; consequently; we have been honored with visitors every day except three during our stay of over two weeks. Last Sunday, January 19, was a record day this month with 33 registrations. Old-timers of Flagstaff advise that this winter is one of the mildest they have ever witnessed.

From January 9 to 24, inclusive, the time I have been at this monument, 114 visitor contacts were made either at the ranger cabin or at the trail entrance to the island. Nine of these were made by the H.J.P. N.W.P., who showed visitors the artifacts at the ranger cabin and told them something of the life of the prehistoric inhabitants of Walnut Canyon.

Roads are in good condition with the exception of the short distance from the ranger cabin to the Lookout Point. The trail leading into the canyon and around the Island is in very good repair. As the Walnut Canyon National Monument road is connected with Highway 66 at two points and is clearly shown thusly on all maps and as the road is signed at both entrances, one would suppose that visitors from the west (Flagstaff) would enter the Monument on the approach road from that direction. However, an average of 25% of the regular tourist traffic from the west enters on the approach from the east (Winslow), completely missing the signs at the west entrance. The remedy for this would be a larger and more noticeable sign at the west entrance. This sign, I am sure, would also bring in more visitors because many going east who fail to see the signs at the west entrance will not come in from the east because of having to retrace their route west again in order to see the Monument.

Bird banding activities for the month are rather meager, but considering that the traps were set only a week gives promise that next

month will see quite an increase. Nine new bands were used in banding the following:

2 Rocky Mountain Nuthatches
1 Mearns Woodpecker
1 Rednaped Sapsucker
3 Redbacked Juncos
1 Pigmy Nuthatch
1 Gray Titmouse

We were honored last night (January 14) by an overnight visit from Sallie and Jimmie Brewer of Hopatki. They arrived about nine o'clock just as we were about to retire. We decided that a game of Bridge should mark this special occasion, but Jimmie and I were so busy talking Place names, etc., that we were badly beaten.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

Visitors for the month of January numbered ten persons. Four of these were Government officials, and one a relative of one of the officials. These five drove to the rim of the canyons in two parties, averaging sixty minutes each party. The remaining five persons arrived at this Monument at a time when the road to the rim was covered with snow and ice. They had no tire chains for the car, and were unable to drive to the rim. They were local residents, however, who will soon make the drive to the rim when the road is in better condition.

The canyons are practically impassable, as usual. The stream is quite large, and usually frozen over except for a few spots where there is running water. The Soil Conservation Service trucks, equipped with big tires, have been going within the canyons once a week, and have regularly been breaking through the ice and getting stuck. They have a tractor within the canyons, however, and the trucks very conveniently manage to become stuck near the tractor, which is used to pull them out. Two days ago one had the misfortune to get bogged down just within the mouth of the canyon. On that occasion another SCS truck and the Park Service pickup were chained together, a hundred feet of wire cable connected from them to the stranded car, and we managed to extricate the one that was stuck. It had broken through the ice, and flowing water washed the sand from around the wheels.

Weather for the month has been about the same: nothing to boast about. Minimum temperature, 1 degree above zero, on the 9th; maximum 57, on the 15th. We have had six falls of snow, totalling but 5.3 inches. Roads have been from fair to poor.

The Custodian's Residence is about ninety per cent completed. We had hoped to be moving in about this time, but a number of matters

needing correction before the building will be accepted have arisen, and it is feared that such corrections may delay our moving for some little time. But the thought of having a real house in which to live is too good to be true, especially to the Honorary Custodian Without Pay. I have lived in six different places since first coming here, having moved twice before the H.C.W.P. arrived at this Monument to be the H.C.W.P. She is already figuring on the number of yards of curtain material needed, and the total yardage is appling -- especially with such material listed around $1.75 a yard. Then there is the matter of furniture for the house. At present we possess one steel table (government) and two cots (borrowed). With two bedrooms in the new house, bath (no furniture needed), enormous living room, office, dining alcove, kitchen and service porch . . . but this is the monthly report.

The well is finished. Moving-in of the well rig was begun on January 2, and the well was finished and the rig moved to its next location by January 17. The well rig used belonged to the Indian Irrigation Service. The men employed were also of that Service. The will is ninety-eight feet, five inches in depth. Diameter of casing, 6-5/8 inches (O.D.) Water stands within three feet of ground level. Pumping at the rate of 2880 gallons per hour the water level remained constant at forty-one feet. Pumping at the rate of 1500 gallons per hour, water level remained constant at fifteen feet. The water has not yet been analyzed, but is clear and of a good taste.

I doubt if finer cooperation than that rendered by the Indian Irrigation Service in this matter could be found anywhere. Mr. C. A. Burns, Engineer, at Central Agency, Fort Defiance, has been most courteous and helpful, and I wish to acknowledge the debt we owe him for his fine cooperation and assistance. Mr. Burt Cravath, the driller in charge of the work, performed his work in the finest possible manner. He knows his work thoroughly, and went about it most efficiently. It has been a real treat to know and to work with such men, and I wish to go on record in this report as expressing my very great appreciation of what they have done, and the manner in which it was done, from start to finish.

Mr. Lyle Barcume, the government inspector (and designer) of the Custodian's Residence, has been in a number of times during the month. He has been accompanied by Mr. Laurance Cone and Mr. Saunders and brother-in-law, Mr. Eames. We have greatly enjoyed their visits.

Mr. Paul Davis, Engineering Aide to Mr. Hamilton, visited this Monument January 3, returning to Mesa Verde on the 4th.

On December 30 I attended a New Year's party held by the Canyon Chapter of Navajos, at the foot of White House Trail. About 350 Navajos were present, and their bright costumes made the gathering most colorful. They had invited me to attend, after the meeting held on

December 21. At their request I again addressed them, and believe that many matters pertaining to the work and activities of our Service were straightened out. Following this, we all partook of a most appetizing dinner. It was a real party, complete even to gifts of fruit, nuts, etc. It was also a very pleasant occasion, and I greatly appreciated both the invitation and the opportunity to talk to them.

And so we start another month. Last February we had only one visitor, due to impassable roads. We hope to do better this coming month, but refuse to be held responsible for weather or roads.

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WHITE SANDS

By Tom Charles, Custodian

There have been some heated arguments in the White Sands bailiwick in the past two weeks over the question, "What is a Contact?"

Where did that word "contact" originate and what does it mean at the White Sands? It seems plain that there is a contact with the visitors of a monument when they are crowded into the walls of a building even though they never get closer than within the hearing of the contact man's voice. But it is not so clear just what constitutes a "Contact" on the 20 mile front of the White Sands where a visitor is likely to stop at any point in a museum or in a ruins, and I imagine that visitors seek information but many of the visitors to the White Sand do not seem to care to be told just how to play in the sand and frequently, if we talk to them at all, we have to run them down.

We station our ranger at the entrance to the Sands and a party of six drive up and ask, "Is there wood at the picnic ground?" The answer is "yes" and they drive on. Undoubtedly that is a contact. But the next group barely slows up, they nod or wave a friendly greeting. Is that a contact?

The word "contact" may fit in at all the other Southwestern Monuments, but for the White Sands, it seems to me that they should still be visitors.

For 58 days we had a count for 12½ percent of the time, on Federal Highway No. 70 which passes through the monument for a distance of some 12 miles. From December 15 to January 15 there was an average of 13 cars per hour or 182 cars per day, (figuring on the basis of a 14-hour day). That gave us 5460 cars through the monument in 30 days. The most interesting part of this count, to me at least, is that 19.7 per cent of all cars through the monument stop some where along the 20-mile front and let the occupants play in the Great White Sands.

In the 58 day count we had 1063 California licenses, 970 from Oklahoma, 880 from Texas, 511 from Kansas and 289 from Arizona.

Thirty-five states, the District of Columbia and two foreign countries were represented. Another interesting fact is that while the State Tourist Bureau shows about 3 people to the tourist car, Barry's count shows nearly 4 occupants to each car.

Therefore we had 4402 visitors in the past month. About 50% or 2201 went to the Heart of the Sands. While this is the most accurate and complete count that we have ever had, it seems high.

The Sunday crowds are still good. On January 12 there were about 400 people at the turn-around in five hours. Dr. R. E. Quinn, head of the Department of Geology, Texas School of Mines, had a class of 70 with their parents and friends, about 126 in all. This group was saddened by an auto wreck about 20 miles from the Sands in which one boy was killed. It is said the accident was caused by dusty roads. On the same day, Covanni Bassett, editor of Popolo d'Italia, a paper published at Milan, Italy, was an interested visitor. Mr. Bassett was familiar with the White Sands before he left Italy and said that he made the trip largely to see the White Sands and the Carlsbad Caverns. He pronounced them the two leading attractions of America.

Here is another visitor who is no mean traveler. The manager of the Burroughs Adding Machine Company of Amarillo, Texas, was enjoying a visit from his mother and another woman from Ohio, and desiring to show them the White Sands they bundled the family up and drove over, 340 miles, spent a couple of hours here, and drove home the same evening.

Our honored guests this month were Earl Jackson and Betty of Bandelier, T. C. Miller and Family of Chaco, Willis A. Rowe and wife of Sequoia, Adrey Borell and Bettie of the Wildlife Division, and Jack Diehl.

You may be interested to know that the White Sands float won first in its class at the Sun Bowl Carnival. There were 102 floats represented.

Otto Coetz, California writer of some note, recently published a story of the White Sands. It is founded on the Indian legends as to the fertile valleys, the fine river and the prehistoric settlers. You may be interested in the last few lines:

"Visions into bygone ages, when majestic here a river
Wound its way through fertile valley, home of now forgotten man.

See the turrets of the city and the splendor of the mansions,
Swift canoes with sturdy oarsmen, flitting on the glossy stream.

Conquest by the mighty army, and destruction of the city,
Slaying of the peaceful dwellers, conflagration of their homes.

Year by year, the month of August, a memento of the carnage,
Reappeared the crimson bloodstains, in the waters of the lakes.

But revenge now followed swiftly, for the Sun-god in his anger,
Smote the ruins of his altar, and a gushing spring came forth.

Lo! Behold the living waters changed to grains of gleaming gypsum
Rising, mounting, creeping, moving, high above the fallen temple.

Ever onward crept the sand dunes until the fertile valley,
City, river, orchards, mansions, lay beneath their snowy mantle.

And the mischief loving spirits toss them playful, hither, yonder,
Scatt'ring here a magic carpet of forgetfullness and rest.

And the whispering night winds murmur, "Was this fairyland created
As a playground for the children of some future happy race?"

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CASA GRANDE

By W. J. Winter, Custodian

As expected, the travel this month showed a considerable increase. The visitor count was 3370, an increase of a thousand over January of last year and of twelve hundred over last month. The tourist season is getting into full swing -- our curb is lined with cars bearing "foreign" licenses and the general grade of visitor is noticeably higher. Also more wealth and prosperity is in evidence. Many chauffeur-driven equipages come in, and the boys are turning down enough dollar tips to pay the rent.

There were some visitors this month who were worthy of special notice. On the 9th we met Dr. W. H. Campbell, of the Desert Laboratory of the Southwest Museum of Los Angeles. January 10, the State Supervisor of Vocational Education, Mr. Arthur Snyder, came in to see the ruins. On the 17th we greeted Mr. William Ross Teel, state archeologist of Indiana. January 20, we had the pleasure of meeting Mr. Amos Alonzo Stagg, famous football coach of the College of the Pacific, Stockton, California, and retired coach of the University of Chicago. January 24 Mr. W. L. Simpson of Jackson, Wyoming, came in. Mr. Simpson is U. S. Commissioner for the Grand Teton area. January 5, the ruins and museum were viewed by a group of 80 CCC boys from the camp at Rillito, near Tucson. We are glad to see these large groups but wish it were possible for them to come on a week day instead of Sunday when we are already swamped with visitors. If I am not mistaken, the CCC camps do not work on Saturdays. Such has been the case, at least, in other areas where I have worked with them in the past.

As usual there were a number of NPS visitors to Headquarters, but

few came in to see the Monument. December 27, we met H. A. Anderson and R. L. Carlson of the seasonal ranger force at Yosemite. December 29, and 30, Earl and Betty Jackson of Bandelier paid a most welcome visit. Earl and I were inflicted on the University of Arizona at the same time a few years ago and the place hasn't been the same since.

Weather this month has been generally pretty good, though at times a 50 degree difference between day and night is apt to be uncomfortable. The maximum temperature for the month was 76 on the 11th, 14th, and 16th. The minimum was 19 degrees on the 20th. This is the coldest recorded this winter. This low temperature was at night, of course, though several unusually cold days were also experienced. During this period I was frequently called upon to defend the climate against the attacks of determined Californiacs, who miss no chances. (Chambers of Commerce please note). I think we managed to hold our own. A little moisture was noticed, the precipitation being .03.

This month we had a valuable addition to our force in the person of A. T. Bicknell, Custodian of Craters of the Moon National Monument, Idaho. Al's Monument is snowed under about this time, so instead of hibernating he got detailed down here. Al is an old timer, having spent some 15 years in Yellowstone and knows his way around. We are all mighty glad to have him here. Now, in turn, Charlie and I are wondering if we can't be detailed to Craters of the Moon next summer when the thermometer starts hitting around 115 here. Al says he could use us there all right in his summer season.

As you know, we are asked many questions concerning the cactus of this area. Last week a rotund gentleman who registered from New York asked me if the cholla cactus was poisonous and if it really jumped as reputed. It seems that a piece had gotten on the back of his hand and hung on. "Cy!" said he, "It was like a vicious creature, s'help me, it was like a vicious creature!" Though much impressed I assured him that the cactus did <u>not</u> jump and that he had little to worry about in the matter of being poisoned.

Our sewage disposal system still gives trouble. We are rigging up a makeshift pump but hope that for the first of July the Great White Father in Washington will furnish adequate funds for a proper solution of the difficulty.

An infestation has been noticed on some of our mesquite trees. The Naturalist Division informs me that it is not usual and should be investigated by a forester. Is such an expert available?

The problem of guiding is not so bothersome now that we have three men on guide duty for half of the week. Of course, if we try to give museum lectures on busy days it keeps our hands full. We tried putting the ruins trips on a half hour schedule and with three men guiding it

worked fairly well. If a man spends about 30 minutes in the ruins, then 30 minutes in the museum and the next half hour out in front directing traffic, registering, etc., it keeps things from getting too monotonous and keeps the visitor flow moving in a reasonably satisfactory manner. Under this system visitors who arrive in the first ten minutes after a party has left for the ruins are sent to join that party. All others are joined to the party in the museum. Thus no one has to wait more than 20 minutes for a ruins trip and that time may be spent in the museum if desired. If some one is in a big hurry and prefers a shortened ruins trip to waiting for the next regular one, he may be sent on to the ruins with the warning that the guide is over half through with his talk and that another regular trip starts on the half hour. Most people would rather join the museum group and take the next scheduled ruins trip. With three men working this seems to be the simplest and most efficient system. With only two men guiding there does not seem to be any satisfactory system possible. We just get along, doing a partial job, and are thankful when someone from Headquarters steps in and takes out a party -- something which we realize they should not be expected to do. However, it looks as though we shall have our three men for busy periods until April 1, which will almost cover the busy season.

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SAGUARO

By Paul Beaubien, Ranger

Left Walnut Canyon December 29 and, after a short stop at headquarters, I arrived at Saguaro National Monument New Year's day. It was like stepping into another world. Even the visitors were different.

Walnut Canyon National Monument is beside a transcontinental highway and the visitor there is in a hurry. They wish to see and learn as much as possible in a few minutes before rushing to the next scheduled stop. It reminds one of Union Depot. At Saguaro, no one is in a hurry. The visitor rolls in slowly and prefers to sit around and chat for an hour or two. If the ranger wishes to discourse on cacti, it is O.K. with them, but they would just as soon talk about something else. Here more than anywhere else, education must be "sugar-coated" for the visitor does not come to learn but just comes to have something to do.

Another difference between here and Walnut Canyon is that visitors arrive at Walnut at any time between sunrise and sunset while Saguaro is strictly an afternoon monument with most visitors after 3:00 P.M. Visitors have asked me several times where they could find some of the more rare species. Twice I've been asked if I had any to sell.

Am keeping a list of questions asked by visitors besides checking the frequency with which each is asked. Find that nearly all questions are quite sensible. Hope to be able to answer most of them before they are asked next month.

On arrival here I took quarters at CCC camp SP-11-A. Have certainly been well treated by everyone at camp. However, the evening meal is served too early to make a lengthy stay desirable. I next rented a small house about a mile and three-quarters outside of the south gate to monument. After moving, I received some 25 to 30 dollars worth of material from the University of Arizona to make a residence out of a storeroom which the University owns on the monument. So I expect to have a place to live on the monument soon.

Haven't mentioned travel figures because I haven't any that are adequate. It took some time to erect signs directing the visitor to the store room where I built a register stand. Then I found that few people would come that far (4 miles) into monument. By checking at north gate, I believe that between 30 and 35 visitors arrive per week day, with Sundays averaging around 110. As an estimate only, I believe that 800 people visited Saguaro National Monument from December 31 to January 27.

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TUMACACORI

By George L. Boundey, Custodian

Visitors for January as follows:

Unattended	228
Attended	1379
Total	1607.

The new system of counting visitors is a great success as far as our monument is concerned. It keeps us more on the alert and I think visitors will get better attention all around.

We have had an unusually intelligent class of visitors this month. Situated as we are off a main highway, our visitors make the drive to see the Mission and they are interested in everything one can tell them about the Mission, about the local population, the cacti, the birds and animals seen locally, and especially about historical points in the vicinity. From the questions the average visitor asks this winter I would say the Depression does not rest half as hard on them as it did a year ago.

The first of the month we had a visit from Mr. and Mrs. Borell of the Wildlife Division. We enjoyed their visit very much but am not enthusiastic over the idea that our local Sparrow Hawks should be protected instead of exterminated. In the winter time the water does not flow in the river, and the irrigation ditches are dry. We keep our faucets (of which there are several about the place) dripping, and I would say at least 500 different birds each day drink from our faucets. Almost every bird wintering in this section of the country comes here to drink.

When the grasshopper season is over Mr. Sparrow Hawk does just what his name implies; he goes onto a strict diet of Sparrows, not the English Sparrow, but the Song Sparrow, the Fox Sparrow, and a dozen other Sparrows which winter here. The Agricultural Department claims these seed eating birds are worth each year about four dollars to the local farmers. Just as the Indian followed the herds of Buffalos in the early days, so does the Sparrow Hawk follow these flocks of birds, watering here. There are at least five Hawks drawing rations from our song birds. Hawks are supposed to eat at least twice a day. If that is true, ten birds will be killed each day and at $4 each, that is forty dollars a day lost by the farmers; now figure three months of this poaching - no wonder the farmers are hard hit and the Government has to help them out.

Speaking of birds, we saw a White Egret on the river on one of the coldest days. There is a place where the water rises to the surface in the river, and here one can usually find several of the Great Blue Herons, but this is the first time I ever saw the Egrets in the winter time.

The Boss and Mr. Tovrea, chief engineering aide, spent part of a day at the Mission giving things a thorough looking over. We always enjoy having the Boss come down; it always seems as tho the wheels go round a little better after he has been here.

Robert Rose, Chief Naturalist from Casa Grande Ruins, with his wife, daughter, and mother, paid us a visit during the month. We are always glad to have a chance to talk things over with the Chief.

Fifty-four pupils from the Nogales High School had their annual visit and lunch at the Mission. At least a dozen schools from the surrounding country pay us at least one visit a year and a number of them come twice.

We have had some artists painting here during the month, but the spring is their usual time to paint.

D. M. Wootton and party from the Chicago, Rock Island and Pacific Railroad Company spent some time at the Mission. They were also calling on the dude ranches in the vicinity of which there are several.

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WUPATKI

By James Brewer, In Charge

Travel:

45 guests registered at Wupatki Pueblo; at the Citadel group, 63; two names are duplicated, leaving a total of 106 visitors to this monument in January, 1936; 1935, 60; 1934, 34.

States were represented as follows: Arizona, 12; California, 6; Minnesota, 2; Massachusetts, 2; Pennsylvania, 3; Ohio, 2; New York, 2; Georgia, Texas, West Virginia, Iowa, North Dakota, Colorado, Maine, Oregon, Illinois, Utah, Virginia, and Nebraska, 1 each; 1 visitor from Vancouver, British Columbia.

The new "visitor survey" or "educational contact" system brings a question to my mind. A visitor who registers at the Citadel group and then at Wupatki Pueblo is counted once. Although he has used trails, roads, and improvements nine miles away from Wupatki Pueblo and has seen a different type of scenery and pueblo, the count is the same as if he had come only to Wupatki Pueblo. Is it fair that after he comes on to Wupatki Pueblo, has used nine miles of monument maintained road, the Pueblo trails and improvements, he is still "one"? From an angle of wear and tear Wupatki should call him "two". While Sunset Crater is administered by Wupatki personnel, there is no thought of eliminating names duplicated on Wupatki or Citadel registers and Sunset Crater registers only at one or the other be counted one-half?

Weather:

December 25 to January 2 not recorded. January 2 to January 25: High temperature 68, on the 13th; low is not recorded because of inaccurate cylinder. Precipitation .02 on the 7th (snow) and a trace of hail on the 15th. (Dr. Colton has loaned me another thermometer)

On the 14th a terrific gale blew up and lasted all day, all night, and the following day, ending abruptly in a fall of hail stones.

There were 11 sunny, 8 party-cloudy, and 4 cloudy days. Altogether it has been a fair and very warm January; local sportsmen say that the deer are still up on the peaks and the wild turkeys still in the high country -- which is very unusual at this season.

Newsworthy Visitors:

Alexander Woollcott and friend Joe Hennessey on the fourth, fifth, and sixth. I heard Mr. Woollcott one Sunday evening on the radio lamenting his inability to get away from reach by phone. As he put it "to be somewhere where no one could call him to say his maiden aunt had just been arrested for disorderly conduct." I extended an invitation to Mr. Woollcott assuring him no one could reach him here by phone or wire.

If Mr. Woollcott and Mr. Hennessey enjoyed their brief stay here as much as we enjoyed having them, I'm sure they will return.

On the 8th, Mr. Van Valkenburg of Soil Conservation Service called in at the Pueblo.

Spring Clearup:

Drainage water pipes, diversion channels, room ducts, and roofs are undergoing a workout in anticipation of February rains. Vegetation that has rooted itself in back-dirt dumps is being removed so that these piles, intended to washout, will do so.

Water Report

Employing the same method reported in August, 1935, I have again measured the output of each of the local developed springs. At each spring an increase is noted excepting Heiser Minor. The outlet of this source is so nearly identical with that of Heiser Major, a matter of inches, that the decrease may have some influence on the greater increase of Heiser Major.

As in August these figures do not include two undeveloped springs, Little Heiser and a prehistoric spring one half mile west of the pueblo.

Result: (Gallons flowing in 24 hours)

	August, 1935	January, 1936
Heiser Major	1,004.65	1,178.28
Heiser Minor	421.30	225.00
Coyote Spring	1,032.43	1,200.00
Wupatki Spring	514.28	720.00
Total	2,972.66	4,023.28

Increase 1,050.62 gallons per day, for all springs.

Like Paul used to say about the travel figures at Walnut Canyon, I feel as though the round numbers look like an estimate or a guess. However, if it takes Coyote Spring 72 seconds to fill a gallon can, doesn't it run 1,200.00 gallons in 24 hours?

The Wupatki Spring pipe line has been freezing up, and I think I'd better sink it a little bit lower and add enough pipe to reach the tank. (Since talking to you I know this is best and will do it).

Windometer:

Because I am convinced that the wind at Wupatki is sufficient to supply power, lights, etc., but am without proof, I have designed the above instrument. Using the speedometer from the wrecked Dodge on Highway 89, I have constructed a fish-tail vane with a propellor. The propellor is mounted on the cable connector, the speedometer and fish-tail are bolted to a perfectly balanced horizontal bar mounted on a ball bearing and elevated on a pipe standard. When the windometer coincides with a moving car speedometer (on a still day) I think a

a fair estimate of the speed of the wind is to be had. By varying the pitch of the propeller this correlation may be obtained. However, maybe I'm nuts so if you have an opinion here I would like to hear it! (A mechanical opinion).

Quail:

While Sallie and I were measuring Heiser Spring, a covey of 10 or 12 quail came in. The man in charge of the camp says they come in every evening and eat with the chickens; also that there is another covey watering at Rodin Springs.

Trappers:

Although I have no figures on their catch, there are trappers at Arrowhead Tank, Heiser Spring (a sheep herder traps between) and at Rodin Spring.

Navajo Arts and Crafts Exhibit:

The First Anhual (?) Exhibit of Navajo Arts and Crafts at Wupatki National Monument is budding.

There are visions of many types of weaving displayed in the amphitheatre; a weaver, a spinner, a silver worker all at work; tables and racks displaying finished products; judges and awards; vegetal dye materials and their results.

Between our vision and accomplishment we see many evenings of "seed sowing" and encouragement to the potential exhibitors, collecting and rejecting exhibits, trails and disappointments; but in the end we hope for better Craftmanship and a finer appreciation of Navajo arts.

Lecture:

On Friday the 17th Sallie took Ruby B'Cai to Flagstaff, contacting the fourth grade pupils of the Emerson School who are studying the Navajo in their Geography class. With a question and answer talk by Sallie, Miss Robertson, and Ruby, they managed to keep their audience interested beyond the dismissal bell. If I remember correctly, this would certainly require a good deal of interest.

Etc.

And so to Citadel, the mail box, Sunset Crater, and on to Walnut Canyon where Louis and I have a pitched battle of place names scheduled for this evening.

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SUNSET CRATER

By James W. Brewer, In Charge

Visitors January, 1936, 80; 1935 and 1934, not recorded. (The first travel figures for 1935 were taken up on March 25, at which time 53 visitors had registered since December 25, 1934. No register was provided in January, 1934.)

States were represented as follows: Arizona, 16; California, 10; Colorado, Massachusetts, and Maine, 3; Ohio, Nebraska, and Missouri and Minnesota, 2; Michigan, Texas, New York, Pennsylvania, Georgia, and Oklahoma, 1.

On January 20, K. & F. Al Ravif of Nya, Arabia, registered in Arabic or Arabian (no, no, I can't read it--he registered in English also). Just to find out if the Arabic is "registration" and not a remark I am sending the line off for translation and will let you know later what he wrote.

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TONTO

By Woodrow Spires, In Charge

Another month has rolled by with nothing out of the ordinary happening.

The weather has finally broken; we had two light freezes this month, neither hard enough to crust the water, only a thin crust around the edge of the drip. The minimum for the month was 32 degrees, while the maximum reached 72 degrees. Most of the days were very pleasant with sunshine. One cloudy and two part cloudy days being recorded. Precipitation was less than .50. I guess at that we are lucky; reading the papers I see there in the east a low of 56 degrees below zero was recorded, and some of my visitors tell me how they go for weeks at a time without seeing the sun while the thermometer hovers around zero.

Travel for the month shows a decided increase over the same period last year, when between December 22 and January 25, 425 people visited the monument, while this year between December 26 and January 25, 757 visited the monument. This gives an average of 24 a day this year against 12 last year, or an increase of 100%.

Here is a resume of SYM Stencil 16. Total visitors at the monument 757, total time guiding 7945 minutes, total visitors taking field or ruins trips 556, total number of field and ruins trips, 93, total time field and ruins trips 6235 minutes, average time field or ruins trip 67 minutes, average group field or ruins trip 6, total visitors museum trips 407, total museum trips 84, total time museum trips 1710 minutes, average time museum trip 20 minutes, average group museum trip 5 -- special trips to the Upper Ruin are so few (3) that I only counted them as separate field trips.

TONTO (CONT.)

On Wednesday, January 15, I was honored with a visit by W. A. Rowe and wife. In the summer Mr. Rowe works as assistant naturalist in Sequoia National Park. Incidentally Mr. Rowe trained the animals for the picture, "Sequoia." That afternoon I closed shop early and accompanied him to the A-Cross CCC Camp, where he gave a lecture and showed some colored slides; it proved very interesting as well as educational afternoon and evening.

Sunday, January 19, Amos Alonzo Stagg, "The Grnad Old Man of Football," spent two hours visiting his first group of prohistoric ruins.

Thanks to Mr. Whitehead of the Southwestern Aboretum, I now have two Rainbow Cacti which are, "so cute," according to most of the women visitors.

The car count which I started last month has progressed no further as there has been no spare time this month. The earliest party was 7:30 A.M., while the latest was 7:00 A.M. A total of six parties were guided after 5:00 P.M. during the month.

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CHACO CANYON

By T. C. Miller, Custodian

General:

The Custodian was absent from the Monument on annual leave, from December 22 until January 5. Junior Naturalist Caywood was in charge of the monument during my absence.

While away we had the pleasure of visiting the Carlsbad Caverns again. Several changes in trails and lights had been made in the past four years. On January 4, we visited the playground of Custodian Charles, the White Sands National Monument. I have seen the White Sands many times before, but it is much prettier now, since it belongs to the National Park Service. Sorry to have missed the Red Lakes, but I had the pleasure of shaking hands with Tom Charles and I took his word for the red water. Mr. Charles told me that they were running 85 cars per hour on off days, Boss! That is some travel record. Tom has a good monument with lots of room,and lots of visitors. I told Mr. Charles where he could see another wonder, and I think he was about half way convinced that the White Sands did have a little competition.

I think it is rather funny to hear each Custodian and Superintendent tell about their Park or Monument. I think in the last month's report that Custodian Winter did not mention all that was on his mind about the best monument in the Southwest, and if I remember right one Bozo had the best Cattle Guard in the world or something. Of course, if that is all that boy has, let him have a good time; I am not men-

tioning any names, but at least the boy is honest. The more I see and hear of these Monuments, the more I think of Chaco.

The approach roads into this monument have been passable all the month. Two light snows, sunny days and cold nights have been noted. Weather conditions have been excellent for the most of the month.

Weather Statistics:

Maximum, 48 on the 15th; minimum was 1 below on the 2nd. Precipitation - .28 inch of melted snow was recorded for the month.

Travel:

260 people entered the monument in 68 cars, represented six states. The travel has been light this month; that is, actual visitors that were interested in the ruins. Travel through the monument has been very good, but only a few visitors were registered in the museum and conducted through the ruins.

Soil Conservation Project:

On January 17, 39 men were laid off because the ground was frozen until it was almost impossible to work the Soil. 11 Men were retained to quarry rock for future use on the revetment work and the building of the basket dams in the Chaco wash. Much could be accomplished at this time on the basket dams if we had the money to buy materials. While the ground is frozen the trucks can haul big loads in the Chaco wash, but after the thaw comes these rocks will have to be carried quite a long distance by men. All revetment work around the ruins has been suspended, waiting to hear something definite from the Washington office about buying the materials to construct the big dams.

On January 4, Project Manager McKinney and Naturalist Caywood were out photographing the ruins and washes in the Canyon, 11 miles east of headquarters. While walking up one of the large side arroyos they found what they call a prehistoric turkey nest, at least ten feet under the present ground level and only a few feet from a Pueblo III site. The eggs were removed in a large block of clay and placed in our museum for study. Boss, if you have any of that preservative left, please send me a can to preserve these turkey eggs and other things of interest that we have in our museum.

Chaco Fence Project:

The monument boundary fence that has been under construction since October 14 is now complete, except a little cleanup work which will only require a few days to complete. The contractors' men have suffered many hardships the past two months. Cold, wet, and muddy at times, it has been a hard job from start to finish. The contractor has pushed the work just as fast as he possibly could under the circumstances. Much time has been spent going and coming from work; at times it was almost

impossible to get the trucks out to the job. Trucks were sticking in the mud when it was wet, and in the sand when it was dry. Daily inspections were made by the Inspector Mr. Williams and the Custodian. We now have a fence of which we are proud. Much credit is due Mr. Williams, who engineered the building of the fence; it is a good job. The fence will keep out all stock and mark the Monument boundary for many years to come.

At my request, Associate Engineer Hamilton sent Paul Duvic, Chief Engineering Aide, to measure the fence. Following is the measurement made by Mr. Duvic, which should go on file for future use:

Main portion of Monument------	9,881.7	rods,	Gates 13.	Cattleguards 2
Section 24----------	1,270.3	"	" 1.	
Section 25----------	1,083.4	"	" 4.	
Detached Portions----------	410.7	"		
Extra----------	27.9			
Total	12,672.0	Rods		

Concrete in Corner, brace and Strain posts--- 94.553 cubic yards.
Concrete in Cattleguards---------- 12.4 " ".

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AZTEC RUINS

By Johnwill Faris, Custodian

We well realize that time waits for no man, but it is hard to realize that time has slipped up on us like it has. We are still checking over the report for December, in accordance with your suggestion in the last "Broadcast," and here it is time for the January report.

Anyway, Boss, every minute of the New Year has been full of action of some kind. We are somewhat disappointed with our visitor record for the month, in that it falls short of last January, while weather and road conditions are on a par, if not better. The fact remains, however, that visitors for the month total 225 -- a very good month average for similar time over a six-year period.

We feel that these visitors received a very complete setup of our attraction. It is interesting that during this season of the year we would have visitors from both England and Australia. It is very interesting,too, to note that almost without exception these visitors take pains to tell us how much they enjoy our attraction, and how far ahead of the other nations this country is in the public service that is covered by "Our National Park Service."

It is often a source of worry to them, that our people do not take a greater interest, and that they often, seemingly, just take the Park Service for granted. It has given this monument great pride in being

one of the units which is, not once but several times, mentioned as one of the outstanding wonders of the world.

A feature, too, that is interesting -- not once have I noticed an American tourist that has traveled in other countries, but what in going through have called to our attention how wonderful such and such feature in such and such country was to them. Of course, I appreciate that many, many American citizens have traveled that never mention their travels, but with very few exceptions the foreign visitor always calls attention to the wonderful features covered by the Park Service, and how superior it is to that of their own country. I certainly do not want this to infer that we feel the American public is unappreciative of our efforts. As a general rule, we find most of our visitors very appreciative.

Regular monument routine has been average for the month. Mr. Hart has been making every attempt to outline our various duties and responsibilities in such manner that it might be much easier to check up on the way we are keeping up all ends. We find, too, that the interest headquarters is showing as indicated by the last "Broadcast" and the recent inspection forms is most invigorating.

This monument feels, Boss, that these new policies are going to do more to build up our monuments than any CWA, FERA, WPA, or any other work program. I do not wish to belittle any of these programs; they have all aided wonderfully in the advancement of our work, but all their worth is more or less from the physical or material standpoint, and these new developments are calling upon improvement of individuals.

I know from my own experience that, while we take every pride in our monument and its appearance, that we get more or less discouraged in that in the past your duties have made it impossible for you to get around more than once or twice a year. Maybe then for only an hour or two. Well, the result was that we could have spent a week scrubbing our comfort stations, raking the court, etc., and you and your party may never see the features that represented so much toil. True, we had the satisfaction of knowing that we were ready had you noticed that particular point, but even then it was sometimes discouraging. Now we will know that our efforts will pass the most rigid inspection. And, Boss, I do not want you to think that many things get by you unnoticed. I meant in the above that since we did not particularly pass by the very point that meant all the work, that we might feel that it was unnoticed. Anyway whatever was the case, I sincerely feel that conditions are going to be improved, and this monument is most pleased to note the present trend in the betterment of our monuments. You have the assurance of both Mr. Hart any myself that we will do all possible to cooperate and shall endeavor always to have our monument ready for the most critical inspection without a minute's notice.

The Southwestern Monuments Stencil No. 16 is interesting, but I am a little confused as to just how it will function in the midst of our busy seasons. Often times, Boss, one guide will start the party, join up with the other guide, have visitors join up with him, take the other party, etc., and I am wondering just how it will work out on the report. Then, too, in the busy season it is going to be hard in many cases to know just how long we are with each party, remember the number in each party, time in museum and field trip, etc., especially as we often in summer do not stop for even a few minutes from early morning until late at night. Perhaps you who have tried this through a busy season can give us some clews as to just what to do in this case.

The E.C.W. work here is moving along as well as can be expected. We are very much elated over the fact that at last we have some projects approved and have a few dollars at our disposal. We hope to end the sixth period without a single project unfinished. Of course, that is with the understanding that the house be counted out entirely.

One feature of the CCC work that is a blessing to this monument is the fact that we now have all but one of the old sheds torn down. This one we will have to leave until the end of the period, but we certainly plan to have it down before we lose the boys entirely. The small patio in the rear of the Administration Building will also be complete in a very short time.

The regular monument duties of the Custodian were no heavier than usual. Other than the CCC work and that of the office, Mr. Hart has shared largely in most duties. Your Custodian made one trip off the monument for lecture purposes to the Durango Chamber of Commerce annual banquet. Several trips were made to Durango in connection with the ECW work.

Closing a very pleasant month with the anticipation of starting on one even more interesting, we are.

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CHIRICAHUA GEOLOGY REPORT

By Norman Smith, Jr. ECW Geologist

Your letter signed by Park Naturalist Robert H. Rose on December 16, 1936, has been received. The weekly report forms were extremely welcome.

My work here will end about the first of February. By then I will be able to detail all locations of geologic interest on the trails. In fact, I can do that now. The rest of my time here will consider extensions of the scenic rocks beyond the present boundaries of the monument,

with a review of literature on the geology of the general region and some time to write my report.

As to samples of the rocks for display and use by Park personnel it seems agreed that Massai Point is the best place. Some kind of a structure there to protect them from the weather seems desirable. It, of course, will have to be designed by the Division of Plans and Design after the Naturalist Division decides on the size. The size will depend on the number and size of specimens. After a review of my notes, I will decide the number suggested by field work. But the naming and description of rocks will have to wait for examination under the microscope. This examination may also indicate more or less number of specimens necessary to be wholly representative. In which case a geologic map may be indicated as more justified than seems the case so far in my examination. If so, by that time a topographic map will be available and a geologic map can be made at the same time specimens are located for enrollees to extract and transport to the site of the exhibit. From the details of my report a naturalist-guide should be able to distinguish the several varieties of lava so as to point out or mention them in his talks with visitors.

I noticed the topographic map of Chiricahua mentioned in your monthly bulletin as tho the map was completed. I am told it is not completed so I hope it will be soon. I refer to the work of Mr. Andrew Clark which would of especial value to a geologist such that my return here for a week or two after the map is ready would be worth while.

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CHIRICAHUA

By Wm. Stevenson

Following is the monthly travel report for Chiricahua National Monument:

During the month 250 tourists arrived in 58 cars. The increase over the past month is undoubtedly due to the ideal weather conditions.

Norman Smith, ECW geologist, has been compiling a great deal of data, on the rock formations of the monument, which will prove valuable to the ranger force. In the past some of the "dudes" have been able to embarrass us.

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CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Sup't.,

I herewith submit the following report for the month of January:

Fourteen hundred feet have been completed on Sara Deming Trail this month, making a total of 4900'. Approximately 500 feet remain

to be constructed for a tie to the old Balanced Rock trail. The crew will then be started at Masaai Point to make the connection thru by way of Balanced Rock.

Echo Trail can show only 200' completed this month; however, a great deal more yardage has been handled than in any previous month.

Fifteen hundred square yards of bank have been sloped on the Bonita highway. The highest rock bank was worked this month, and it is estimated that XXX cubic yards of material have been moved.

The Ranger Station at Headquarters Area is 75% complete. The roof is finished, window frames are in place, walls are plastered, and the flagstone porch and the fire place are completed.

The Bath house is 60% complete.

January 21-24, we were visited by Hugh M. Miller, Acting Assistant Superintendent, Southwestern Monuments.

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BANDELIER FORESTRY

By James Fulton

During the first part of this month, I devoted my time toward the completion of Bandelier's 1936 fire atlas and fire control plan. Last year's plan and atlas, constructed by me, were the first for this monument. The new atlas is a revision of the old one, but it is still incomplete. Next year, new information will be available which will permit the atlas to present itself in a complete form.

The last two weeks of January, I am engaged in cutting timber for vigas and lintels to be used in the new museum. The timber is being cut on the Santa Fe National Forest About ten miles west of the headquarters area. Twenty inches of snow at the scene of the timber operation complicate matters a little; but, at the same time, the snow makes a good skidding surface. A caterpillar tractor is being used to snake the logs to the loading point; a tractor-skid pole combination loads the logs on a trailer; and the timber is hauled to the building site to be converted into vigas and lintels.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

This month has been a great month for the stockmen. Cattle and horses are fatter than any month in the year for a good many years, something very unusual. No extreme cold weather and two or three small snows and very even temperature both day and night has been experienced. This partly accounts for the splendid livestock condition.

Visitors, between three and four hundred, have called on our monument this month.

Roads and trails: The trails are in fair condition, but the roads are in a deplorable state of affairs. The road must be taken care of soon or the park entrance closed, as it is not right to permit the public to travel the road two-thirds up the mountain, then on a narrow road find an unsurmountable barrier in the way of a rock slide and not a place to turn around. I have repaired the road two different times this winter and before long it is going to need it again. However, it is passable right now.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Have had the usual Arizona weather throughout the month -- meaning clear and warm by day, with temperatures dropping at night. In proof that we have some winter climate, some of the mesquite bushes still have green leaves.

Our register book shows 612 names for the month. Registrations from 28 states and one party from British Columbia appear.

Reports on roads leading into the monument are that they are full of chuck holes, and badly corrugated, which is to be expected because of the long spell of dry weather.

Since you fellows in the office are giving this monument so much credit for the decrease in number of visitors to the Southwestern Monuments, I feel that it might not be amiss for me to say a word or two. It would seem that you have me pretty well cornered. And you know it is claimed that even a rat will fight when cornered.

Some, if not all of you, will recall that back in 1933, when the present parking area was put in use, when all cars, picnic parties, overnight campers, and etc., were shut off from the lower grounds, that I ventured the prediction at the time that it would bring about a big decrease in the number of visitors to the monument -- that people from the near by towns, the Pioneers of the Verde Valley (400 or 500 strong) would go elsewhere to picnic.

I respectfully submit the following figures for your consideration: They, I think, will bear me out in my contention that the decrease in numbers is due entirely to Arizona people.

Have just checked the last quarter of the travel year of 1935 against that of 1934 for the same period. Results: 1935 was off 20% as against 1934, and we had 40% more out of state registrations in 1935 than in 1934.

After all, the new parking area has its advantages, as national parks and monuments are not administered entirely for local people and picnic parties. Naturally, when you have locals or picnic parties on the ground, they require more or less of your time, leaving less time to devote to other visitors. As to the new method of checking visitors, will have to check over a period of a year before any very definite conclusions can be drawn as to how far off we have been in the past.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

Again I sit down to make a report of the activities of Pipe Spring National Monument, which is always a pleasure after it is in the mail, especially when there isn't very much to report.

The travel has been about normal, with the total number of 307. Of this number I have given guide trips to 53 in and about the fort and monument. Ten went through the fort while I was working in another part of the monument, and before I could get to them they were ready to go on their way.

Among the visitors to the monument this month were Al Kuehl and Carter of the Landscape Division, Superintendent Guy D. Edwards of the Grand Teton National Park, and Mr. Knight of San Francisco. These men spent 30 or 40 minutes with me visiting and going over the E.C.W. projects so that we have our differences settled up to now. Don't know what will develop later.

In one of my field trips with a visitor we discovered an "Indian death warrant." The lead was from an old time rifle and has been fired into some soft material as indicated by the way it is mushroomed. Its measurements are one half inch at the base, one inch across the mushroomed nose, three-quarters inch long, and it has all the markings of a homemade slug. This slug was found at an abandoned camp site of the early Indians, about one half mile south of the month. It is only a guess as to what the bullet was meant for when fired.

January 21, with my family, I went up the hill to the Major Powell monument and placed a marker there, gave the date of the discovery by the CCC boys and a copy of the survey note, together with a warning to those that might pass that way not to destroy or deface the mound or grounds there.

Our weather has been very ideal for work and the CCC's are getting a lot of work done on their projects. The road from Pipe Spring to Fredonia, Arizona, has been widened to Federal standards, most of the turns have received a trimming, and gravel has been hauled on eight miles of the road. Mr. Draper, Superintendent of the E.C.W. work, tells

me that they will have about ten or eleven miles of road graveled this week, but didn't know how much longer they would work on the road. I do hope that they can find time to finish up the road before the summer travel starts.

While I think about it, I want to put in an order for a sign, 3' x 5' or about that, to be placed at Fredonia directing the travel to "Pipe Spring National Monument 15 miles, An Old Mormon Fort."

I am wondering if Superintendent of the Grand Canyon National Park would want "Grand Canyon National Monument on this sign, too, as the road leads by Pipe Spring.

The E.C.W. work has not progressed on the monument as rapidly as it should; the reason is that they have been changing men until they have had three or four new bunches on the jobs this month.

But as it is, the following projects have been coming along well:

E.C.W. 308 Ditch Diversion; which is 90% complete below the road, just the finishing up touches to it. In working this ditch they have also been working the campground grading of the road and camp sites, so when it is all leveled off there will only be the hauling of the gravel on the camp road and that part will be complete.

ECW. 718 Walks; Rock 80% laid from the west building to fort.

These three projects are the only ones that have been worked because there has been a "tie up" on the funds to purchase material for the other projects, but this I understand has been taken care of. Mr. Draper tells me that as soon as he receives authority he will purchase the material for these other projects on the monument.

I am attaching to this report, the report called for on S&M, Stencil No. 16, for January up-to-date. This new duty has added to my necessary personal equipment. Which, I am wondering, will be the most economical, one of the $1.25 type or the higher priced time keepers? It seems like my luck with watches is very limited as they usually stop in about six weeks regardless of their guarantee to run a year and a day.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

I wish to thank you for your very kind letter dated January 23, also to submit my report for this month.

It seems I have more invitations to speak than I can fill---there are so many classes and groups of people that are interested in the scenic wonders of southern Utah and especially in the Four Corners country, and,

of course, Natural Bridges and the many caves and ancient buildings are very easy subjects for me to talk about. I hardly ever show up on the street but some one asks me about my work and the many interesting objects in the country. So I am intensely interested and am doing all in my power to create interest in the monument I represent.

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BANDELIER E.C.W.

By H. B. Chase, Project Sup't.

The moving of CCC barracks No. 1 was completed this month and construction of the Museum building on the barracks site was started. To date all footings are in place and approximately one half of the walls are completed to a height of three feet.

Grading, and construction of the drainage structure included in the residence road project, is complete this date. Surfacing of this road will follow as soon as power and telephone cables are installed underground along the gutter line.

The trench for the telephone conduit leading from the floor to the canyon rim has been completed.

Tree and shrub planting has been carried on all month along the entrance road and vacant areas adjacent to the road.

Water line excavation to the 10,000-gallon water reservoir has been completed and excavation for the reservoir structure is about 75% complete. All materials for construction of this project have been delivered to the job and some preparation complete for hoisting the concrete.

A timber crew working in the Santa Fe Forest area west of the monument has cut and delivered necessary timber for vigas and lintels for the museum and Quarters No. 1.

The quarry crew has been in operation all month quarrying and shaping building stone for the museum, quarters, and other building projects.

A small crew has been working on carved signs for this monument and recently work has started on signs for other monuments in the Southwestern district.

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HEADQUARTERS STUFF

BRANCH OF EDUCATION

By Robert H. Rose, Park Naturalist

Staff:

During the month of January, Junior Naturalist King and the writer

have been at headquarters except for a short field trip to Tucson to which later reference will be made. Junior Naturalist Caywood has been on relief duty throughout the month. During the latter part of December he left for Chaco Canyon where he remained until Custodian Miller's return early in January. From Chaco Canyon, Caywood went to Walnut Canyon to assume charge after the transfer of Ranger Paul Beaubien to Saguaro. Later sections of this report are given over to the reports of Messrs King and Caywood.

Museum:

During the month special attention has been given to the following problems relating to museum activities:

1. The Study Sketch of the proposed Tumacacori Museum was studied. Comments and suggestions were prepared and forwarded to the Museum Division and to the Field Division of Education.

2. Material for the Geology Case of the Bandelier Museum now under construction is being collected. This work involved writing ECW Regional Geologist Vandiver in regard to geologic cross sections and specimens; and the Field Division of Forestry for panaroma pictures desired in the exhibit.

3. About 110 negatives of photographs of the Kino Chain of Missions were classified, indexed and appropriately labeled and segregated for the making of slides and enlargements in the Berkeley Laboratories. It is hoped that we can make a picture album from one complete set of these pictures for use at Tumacacori National Monument. A second set of these enlargements will be kept for use in exhibits in the proposed museum plans for that monument while the third set will constitute file records here at Headquarters.

4. Lantern slide binding; acknowledgement of receipt of 23 botany presses from Field Division of Education and recording their distribution among monuments; attending to correspondence with Field Division of Education relative to lantern slide cabinets, slides, enlargements, case layouts for the Bandelier Museum, and other matters; and the forwarding to Berkeley of copy of a chart prepared by Jr. Naturalist Caywood for Chaco Canyon Museum, were among detailed work done.

Educational Contacts Records:

Early in the month each monument having personnel was contacted with reference to supplying estimates and records on visitor service for the months of the current travel year thus far passed. In each letter some of the special circumstances in handling visitor traffic at each monument were outlined. Replies have been received from practically all custodians

to date and tabulations are being prepared. The records for January, 1936, are being received with monthly reports. Once this matter is brought up to January 1 on the best estimates obtainable, then actual records will be available for each month thereafter. In the Southwestern Monuments Report for this month there will be found a tabulation for the travel year ending September 30, 1935. This tabulation indicates the possibilities in studying the records now coming in for the current travel year.

Memorandum to Custodians No. 95 was prepared and distributed. This communication calls attention to the difference between total travel and total educational contacts. It stressed the need for keeping closer check upon total monument travel. The Educational Contacts records will tell the story of visitor service. A file on educational contacts records has been sent to the Washington Office and to the Field Division of Education in order that Southwestern Monuments might receive recognition among all National Park Service units with respect to educational contacts work being done.

My daily memo book shows that from about an hour up to several hours were given to contacts work at Casa Grande on eleven different days. For the most part these were days during which monument personnel was short-handed due to days off of custodian and ranger.

Custodian Joyner of Devils Tower National Monument wrote concerning the methods of recording visitor service and asked for complete sets of forms and instructions. These were forwarded to him for whatever service they might be to him in working out a system of records for that monument.

Clerical Work and Personnel:

Considerable correspondence was handled with reference to temporary and permanent ranger applications and appointments. With the approach of the summer season more and more letters of application are received and answered.

Clerical:

During the month some progress has been made on preparation of preliminary estimates for Museum and Education for the Fiscal Year beginning July 1, 1938. This goes over into February as unfinished work. The matter of the Geographic Place Names report is also incomplete due to all material such as maps and pamphlets not yet being received.

A complete file has been organized in the naturalist office on educational contacts and monthly travel; a number of general information letters were handled during the month; and the complete set of prints of Grent's negatives of the Kino Chain of Missions taken during the recent Reconnaissance Survey, has been organized and indexed. Other detailed clerical work which will not be itemized was done.

Field Trips:

First, under Field Trips I might mention the trip made to Nogales, Sonora, on the occasion of a day off duty. Stopping in at Tumacacori, I had a good visit with Custodian Boundey and Ranger Evenstad. Mr. Boundey made a donation of certain interesting museum specimens to the Casa Grande Collection; educational contacts records and uniform regulations were discussed; and Mr. Boundey assured me that the album on Kino Missions pictures would be valuable in their daily contacts work.

On January 24 and 25 Junior Naturalist King and the writer attended a conference of CCC Educational Advisors and guests held at the Hotel Santa Rita in Tucson. The conference emphasized chiefly the ways and means of carrying out educational programs in the CCC Camps. Valuable information was obtained on how we might cooperate in furthering this program in camps under our supervision. Contacts made with the various educational advisors proved especially valuable to us in furthering the spirit of cooperation with them.

Special Lectures:

1. On Friday evening of January 31 the writer gave an illustrated talk of Arizona's National Monuments to the CCC boys of the Grazing Division Camp at Eloy, located about 20 miles southeast of Coolidge. Attendance, Approximately 200.

2. On the occasion of the conference in Tucson referred to under Field Trips just above, Mr. King and the writer each gave talks of about 15 minutes in length on work being done by the CCC Camps among the national monuments, attendance about 35. Mr. King also stressed the good work educational advisors of CCC Camps are in position to do in discouraging illegal digging for archeological materials.

Report of Jr. Naturalist Dale S. King:

Approximately 10 days on December Monthly Report.
Two days guide service at Casa Grande National Monument.
Two days at ECW educational conference at Tucson.
Slightly less than two days on correspondence.
Half day keeping bird banding files current.
One and one half days cataloguing library accessions.
One day irrigating newly planted trees.
Three days planning map case for proposed Bandelier Museum.
Half day conferring on accumulated museum plans for Bandelier, Tumacacori.
One day on advance January Report material.
About six days preparing comments of ranger guide service at Casa Grande.

Report of Jr. Naturalist Caywood:

Following is my report covering the month of January, 1936:

Field Work:

The entire month was spent in the field on relief duty at Chaco Canyon National Monument and Walnut Canyon National Monument.

While at Chaco, December 25 to January 6, relieving Custodian Cal Miller who was away on annual leave, I took quite a few pictures, under instructions from Headquarters, of the following ruins showing the condition of the walls:

1. Talus Ruins
2. Pueblo Bonito
3. Little Pueblo Alto
4. Hungo Pavi
5. Wijiji
6. Shabik'eshchee Village
7. Arroyo House

Although the walls of many of the unexcavated ruins are still standing they are in critical condition. Each summer rain and winter snow with its subsequent thaws and freezes levy their toll on the walls. Walls at Little Pueblo Alto, Wijiji and Hungo Pavi are still standing to a considerable height, but sections are in bad condition and in order to stand many more years some form of bracing and repair should be resorted to. Even while visiting the ruins and photographing them I often heard rocks fall from the walls and on the snow covered ground fresh fallen dirt and stones could be seen.

On the excavated ruins, Chetro Ketle, Talus Ruin and Pueblo Bonito, there is much needed repair work to be done. The repair work done by Neil M. Judd after excavating Pueblo Bonito has held up very well considering the severe attacks of weather, but the time has come when the weaknesses in these repairs are being brought out daily, especially during the winter months. The chief causes of ruins disintegration at Pueblo Bonito would come under the following headings:

1. Undermining of walls at floor levels and ceiling or beam hole levels.

2. Improper or no drainage.

3. Cracking of cement capping which allows water to seep into the walls, either washing out the mortar or freezing and bulging the walls, or both, with the result that the wall falls out from beneath the capping and the capping then caves in.

4. Uncapped walls begin to lean and weather conditions soon cause them to fall.

The other excavated ruins and also the unexcavated ruins are gradually falling into a more ruinous state. In Chettro Kettle the repaired walls in the deep excavation done last summer have begun to crack from the pressure of the tremendous weight above. At Talus Ruin, which was partially excavated during the past two summers, 1934 and 1935, walls have fallen since last summer's work.

The solution to these problems would be of several classes. The most important at the present time would be to repair and brace the excavated walls at both Pueblo Bonito and Chettro Kettle. If this is not possible, it might be well to spend a smaller sum and fill in all of the excavated rooms and brace the standing walls with earth. This, of course, would detract from the features of the ruins and leave only smaller sections of standing wall, but in the end would preserve the ruins for a period until repair work could be done. Another important way to reduce the tremendous depreciation in the ruins would be to forbid further excavation of any kind unless the parties excavating also have sufficient money to repair the walls and preserve the features.

Those who have not had the experiences of excavating and the thrill of finding the lost treasures of these old people have missed much. Those who have excavated know the thrill and satisfaction of finding and properly removing museum pieces, and discovering the kind of houses that were used for living and ceremonial purposes. To those who have excavated comes the feeling of sadness and shock to see what was only recently a beautiful piece of masonry which had stood buried for hundreds of years now nothing but a pile of rocks and dirt. Such walls can never be replaced.

Lewis McKinney was very nice in offering to take me to many of the out-of-the-way ruins, including Wijiji, Shabik'eschee Village and Arroyo House. Together we climbed Fajada Butte where I saw the names of Richard Wetherill and Ales Hrdlicka inscribed there in 1899. It was a very windy day and after finally reaching the top my "beaver board" hat blew off over the edge of the cliff. I will say this for those hats, that although you can't keep them on your head on a windy day they stand a lot of punishment, for mine only had a few nicks in it when we finally found it a couple of ledges below the top. There was plenty of ice and snow on the Butte that day and climbing was not so good, but McKinney finally persuaded me to climb up the last crumbling sandstone ledge that had considerable ice on it and quite a drop below. We did succeed, however, in finding a better way down.

H. E. Williams, fence inspector, was kind enough to show me the bad places around Chettro Kettle, Talus Ruin and Pueblo Bonito. When Cal returned he took me around to more of the bad walls and places where there is no drainage. All of these places were photographed and sent into Headquarters.

During one of the snow storms while there I labeled the four masonry charts which were already in the museum with a heading of "Chaco Masonry" and worked up "The History of Chaco Canyon" which I sent into Headquarters for approval.

Visitors were certainly among the missing during my two weeks' stay. Much snow and the condition of the roads prevented travel unless absolutely necessary.

Birds were also scarce, but I noted the following species: Desert Horned Lark, Rocky Mountain Woodpecker, White-rumped Shrike and the Shufeldt Junco.

We left Chaco Canyon after seeing Col, Mrs. Miller and the four children safely back to their home roost on January 7 and arrived at Walnut Canyon January 8. We certainly enjoyed our stay at Chaco and hope we are fortunate enough to return there again.

Everything at Walnut was found in good condition. The cistern was being cleaned the day we arrived and was finished the next. So far there haven't been any storms to fill it up again. I am afraid we have outclassed Bud at Canyon de Chelly with running water 'cause we have to run four or five miles after ours.

There had evidently been quite a storm here shortly before our arrival as there was ice and snow in evidence. Ice and snow on the walk leading up to the cabin had to be cleaned off with pick and shovel. One of the large signs in front of the cabin had partially blown down, but I've fixed that up now, so let it blow.

I made a thorough inspection trip of the ruins on the monument and found that no vandalism had been perpetrated.

After feeding the birds for a week the traps were set with the following results to date: 2 Rocky Mountain Nuthatches banded, 1 Mearns Woodpecker banded, 1 Rednaped Sapsucker banded, 3 redbacked Juncos banded, 1 Pigmy Nuthatch banded, and 1 Gray Titmouse banded. We have also had 29 repeats. Winnie is becoming quite bird-minded and does most of the banding. One afternoon she had both the Rednaped Sapsucker and the Mearns Woodpecker in the one Two-Compartment Trap that is being used. When I came home from the Island she was so excited she could hardly tell me about it.

We have seen one herd of 19 deer on the monument including two bucks. Individual deer and small herds are seen rather frequently.

For travel and further details at Walnut Canyon see the Monthly Report for this Monument.

SOUTHWESTERN BIRD BANDING TOTALS

Species	Bandelier		Casa Grande		Chaco		Montezuma		Navajo		Pipe Spg.		Walnut		Wupatki		Total
	Prior	Jan	Prior	Jan.	Prior	Jan.	Prior	Jan	Prior	Jan	Prior	Jan	Prior	Jan	Prior	Jan	
Bluebird,Ch-b													215				215
Crossbill,Bend.													17				17
Chickadee,Mtn.									6				3				9
Creeper, R.M.		2															2
Dove,W.Mourn.			2														2
Finch, House			76														76
Flyc't'r,Ar.-c			2														2
Gldfnch,Gr-bkd													2				2
Jay, Long-cr.	8																8
Jay,Woodhouse		1							6								7
Junco,Gr-hded		16							8								24
Junco,Mntana									9								9
Junco,Pnk-sded	4	1															5
Junco,Rd-bcked	21	4							2				10	3			40
Junco,Shufeldt	4	2							13				5				24
Mckngbird, W.			1	1													2
Nuthatch,Pyg.		13											23	1			36
Nuthatch,R.M.		1											4	2			7
Owl, W.Horned			1														1
Phoebe, Say			17														17
Quail,Gambel			10	11			5										26

SOUTHWESTERN MONUMENTS 40-3 MONTHLY REPORT FOR JANUARY, 1936

Species	Bandelier		CaseGrande		Chaco		Montezuma		Navajo		Pipe Spg.		Walnut		Aztec		Total
Roadrunner			3														3
Robin,Western													7				7
Spsoker,R-nap.													3	1			4
Spsoker, R.M.													2				2
Siskin, Pine													1				1
Solitaire,Town.													7				7
Sparrow,Gambel			46	11													57
Sparrow, W-crn.									6								6
Swallow, Ro-wg			3														3
Thrasher,Bend.			3														3
Thrasher,Criss			7														7
Thresher,Sage															2		2
Titmouse,Gray														1			1
Towhee,Gr-tail															1		1
Woodpecker,Gila			6														6
Wdpker,RM Hairy		1															1
Wdpker, Mearns													8	1			9
Wren, Cactus			27	1													28
SUB-TOTAL	37	40	204	84	0	0	5	0	50	0	0	0	307	9	3	0	
TOTAL		77		228		0		5		50		0		316		3	679

STATISTICAL SUMMARY OF EDUCATIONAL CONTACTS FOR JANUARY 1936

SOUTHWESTERN NATL. MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATTND.	LECTURES OUTSIDE		MISCELLAN.		TOTAL CONTACTS (No Report)	TOTAL TRAVEL
	PERM.	TEMP.	NO.	ATT.	TIME	AV. ATT	AV. TIME	NO	ATT	TIME	AV. ATT	AV. TIME	NO	NO:	ATT.	NO.	ATT.		
CHIRICA	3/165																		
CASA GR	2		45	172	1428	3.8	32	48	172	647	3.6	15		3		1	80	503	285
SAND DUNE	1		19	55	1340	3.0	55											55	254
CASTILLO	1		2	5	130	2.5	30									1	350	355	10
CAPULIN	2/165		3	33			37											33	350
CASA GR	2	1	337	2028		3.7	37	223	803	4234	3.6	19		37	10			5820	5370
SHOO	1		3	10	370	3.3	123	1	2	20	2.0	20						12	220
CHIRICA	0	0																0	250
CAPULIN	1/5		1	3		3												3	4
CASA GR	0																	0	0
GRAN QUIV	1		12	86	405	7.3	36	2	23	38	21	18						130	287
HOVENWEEP	0																	0	0
MONUMENT	2		77	407	3035	5.3	39	103	510	2283	5.1	22						917	695
NAT. BRGS.	0	0												12	1023			1035	NO REPT
NAVAJO	1/165																	NO REPORT	
PIPE SPG	1-Lab.		16	79	465	5	29											79	357
RAINBOW	0																	0	0
S. CA. 40		1		250														250	800
SUNSET	0		1	20	09	3	8											26	80
BONTO		1	93	526	6235	5	67	84	407	1715	5	20						943	751
TUMACACO	2		124	1329	3825	8	52											1,379	1,607
WALNUT		1	24	97	455	4	61									10	19	116	285
WHITE SD.	1/5		417	609	3447	4	13									1	400	2,009	4,402
WUPATKI		1	9	26	350	3	39							1	35	1	2	63	106
YUCCA H.	0	0																0	0
*														3	250			250	
	12.5	5	1232	7663	4268			461	2708*				128	1072	18	1883	12	421	14047	14044

9220

*Lectures by Headquarters Personnel.

January 1936 educational contacts tabulations for Southwestern Monuments will be found on the previous page. Some comments and explanations are in order since this is the first appearance of the monthly tabulations. Reclassification of a few individual entries is necessary but totals will not be changed. Some items such as the special talks by Custodians have not been included but for February a revised tabulation will be published.

This matter of defining "educational contacts" has come up in a few of the field reports. Regularly organized guided field and museum trips present no difficulty since educational contacts under each heading are merely the total number of visitors who received each type of service. Other circumstances present greater difficulties, but an illustration will clarify some points. Suppose that a ranger stationed at Chiricahua knew nothing of the history, geology and botany of the monument and that he occupied his time checking cars; informing people where to camp; telling people the distance and condition of the road to Massai Point; directing them over the best routes to nearby cities; and in performing other services to visitors not related to a knowledge of the history and science of the region. This ranger would report TRAVEL, but he is not justified in reporting all visitors under EDUCATIONAL CONTACTS. Then, the question arises as to just what we are going to do about reporting this vast amount of general service related to assisting visitors? In this case it is not the educational contacts methods that are weak; it is the methods of reporting all of these general activities that need improvement.

Now, consider the Chiricahua ranger who performs all of the above types of services not classed under "educational contacts" and who, in addition, succeeds in getting visitors out of their cars where they can see interesting pictures, specimens and other materials the ranger has assembled. These stimulate visitors to ask questions and he spends anywhere from five minutes to a half hour, telling visitors where to obtain finest views; something of the processes of Nature that fashioned the region; and in calling attention to, and in interpretation of, special exhibits visitors can see along the roads and trails. At once we see the services this ranger gives are dependent upon his thorough knowledge of Chiricahua. He might interest people still further in the Indian history in which the Monument prominently figures. There is no question here but what this ranger is performing educational service and he should report as educational contacts the total number of people to whom he has given this type of service. The problem here is not whether this service falls under educational contacts but lies in how to classify it in tabulations. There are of course borderline cases in which no set rules can be laid down and where individual judgment of the field men must be relied upon just as a man is expected to exercise judgment in reporting his other monthly activities under their proper headings.

BRANCH OF ENGINEERING

By J. H. Tovrea

Mr. J. H. Diehl, Park Engineer, returning from Field Headquarters, San Francisco, spent a few days at Southwestern Monuments' Headquarters. He then went to Carlsbad Cavern National Park and spent the balance of the month supervising construction and surveys. He also had some maps and estimates made for the Resettlement work at White Sands National Monument. At the end of the month he left Carlsbad for Platt.

Transitman Andrew Clark and crew were at Carlsbad Caverns National Park for the month making topographical surveys for proposed trail work.

Chief Engineering Aide J. H. Tovrea was at Headquarters for the month on map work and office detail.

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CLOSING

The new year has taken a flying start, Chief, and we are pretty well satisfied with it thus far. We got the breaks in the Budget and, on the last reports, we were still riding the crest of the waves in the appropriation bill. It certainly looks like we are going to be in a position to deliver better service next year to an increased number of visitors than we have ever been able to give thus far, so why shouldn't we be elated?

You have noted, no doubt, in the tabulation at the head of the condensed report, the increased run of visitors and we take it this is an indication of increased business during the spring and summer season.

For the first time we are trying to build the Condensed Report on the standard system so that, should you ever want to do so, you can make a quick reference to any portion of it; or does anybody ever want to make a quick reference to a Superintendent's Monthly Report? If you like it this way we will continue it, only we will run our travel at the head of the report instead of down in the body where it might get lost. After all, we have a feeling that the visitor figures make up one of the most important sections of any report and should have the right-of-way.

You will note on the Personnel Page that Donald Erskine has joined on with us and is to be at Walnut Canyon National Monument after a little breaking-in period at headquarters.

Al Bicknell, whose native heath is up at Craters of the Moon National Monument, is talking to visitors at Casa Grande like an old time bone-digger, but I suppose when spring opens up he will be wanting to go back to the "finest National Monument in the system!"

I wish you would call the attention of Mr. Tolson and Mr. Vint to

the El Morro Field Report in the matter of the snow on the north side of the Rock and the south side being warm and sunny and dry in most places. Possibly we had better call a conference up there on the north side of the Rock about the middle of February to pick the site for the administration area. We might even make it a two or three day conference and see who volunteered to camp on the north side of the Rock. Of course, if it were necessary for the prevention of vandalism or any other good reason, we would not hesitate to ask our personnel to live on the disagreeable side of the Rock, but there isn't any particular reason why he should be asked to endure two or three months more winter when, from the administrative standpoint, the comfortable side of the cliff would serve just as well.

These are interesting nature notes in the Bandelier field report. And of course it would be Betty Jackson who discovered a new dwelling in Bandelier! You will remember it was she who last month walked into the Montezuma Castle and found a filled doorway which Jack and I had been overlooking all these years when we almost called the Castle home because we worked around in it so much. Why couldn't she come along in the good old days before Chief Clerks when I was keeping my own filing system? She would have been invaluable as a finder of lost papers.

Gran Quivira did well, I think, seeing how far it is off the main travelled road, to draw 257 visitors in January. If you had driven in over that last 27 miles in bad weather you would understand how badly those people wanted to see ruins.

We are getting our first authentic information on January visitors at Walnut Canyon and some interesting points are developing. The H.C.W.P. sent in an interesting letter the other day dealing with the daily life at Walnut and containing some nature notes we are going to run in the next issue of the Broadcast.

I want particularly to call your attention to the fine cooperation of the Indian Service noted in the Canyon de Chelly field report. Let me add my word that we have found this same willing cooperation over at the Central Agency of the Navajo Indian reservation in the several times we have had to call upon them.

The White Sands report raises a very pertinent question: "What is a contact?" To tell the truth we have had a lot of doubt along that line ourselves. We wish the Educational Division would give us the major points of information on what constitutes a contact and then maybe we could make some ground rules to fit some of the special cases that occur in our monuments.

Note that interesting observation in the Saguaro field report on the differences of visitors between Walnut and Saguaro.

The Tumacacori field report speaks of Mr. Tovrea and myself visiting

the mission but doesn't tell how much fun we had climbing around over the top of the tower, the dome of the sanctuary and so on, nor of the fireworks caused by the explosion of archaeological, architectural and historical theories dealing with the Mission.

The Wupatki report is up to the usual good standard, and you will please note the reference to the Navajo Arts and Crafts Exhibit. I think this is a splendid idea.

Tonto travel is booming. A typographical error makes the latest car arrive at 7:40A.M. instead of 7:00 P.M.

We are glad to see by the Chaco field report that the fence project is finished. It is a good piece of work well done.

I wouldn't want to pour any oil upon the troubled flames by mentioning it in public, but you will note that Aztec now advances from "The finest Monument in the park system" to, "one of the outstanding wonders of the world." Page Chaco Canyon.

We are hoping great things for the E.C.W. geological report for Chiricahua. If it is detailed enough, we would like to publish it as one in the series of Special Reports we are getting out of this office.

I thought when I saw those hearty remarks about Montezuma Castle attendance going out that we would get a come-back and you will notice it in this month's field report.

Here in the office we all had a laugh at the Pipe Spring statement that his monthly report was always a pleasure - after it was in the mail! So say we all of us!

And you can't hold a man like Zeke Johnson down by snowing his monument in the winter time! He just goes where people are and talks to them as you will note by his report.

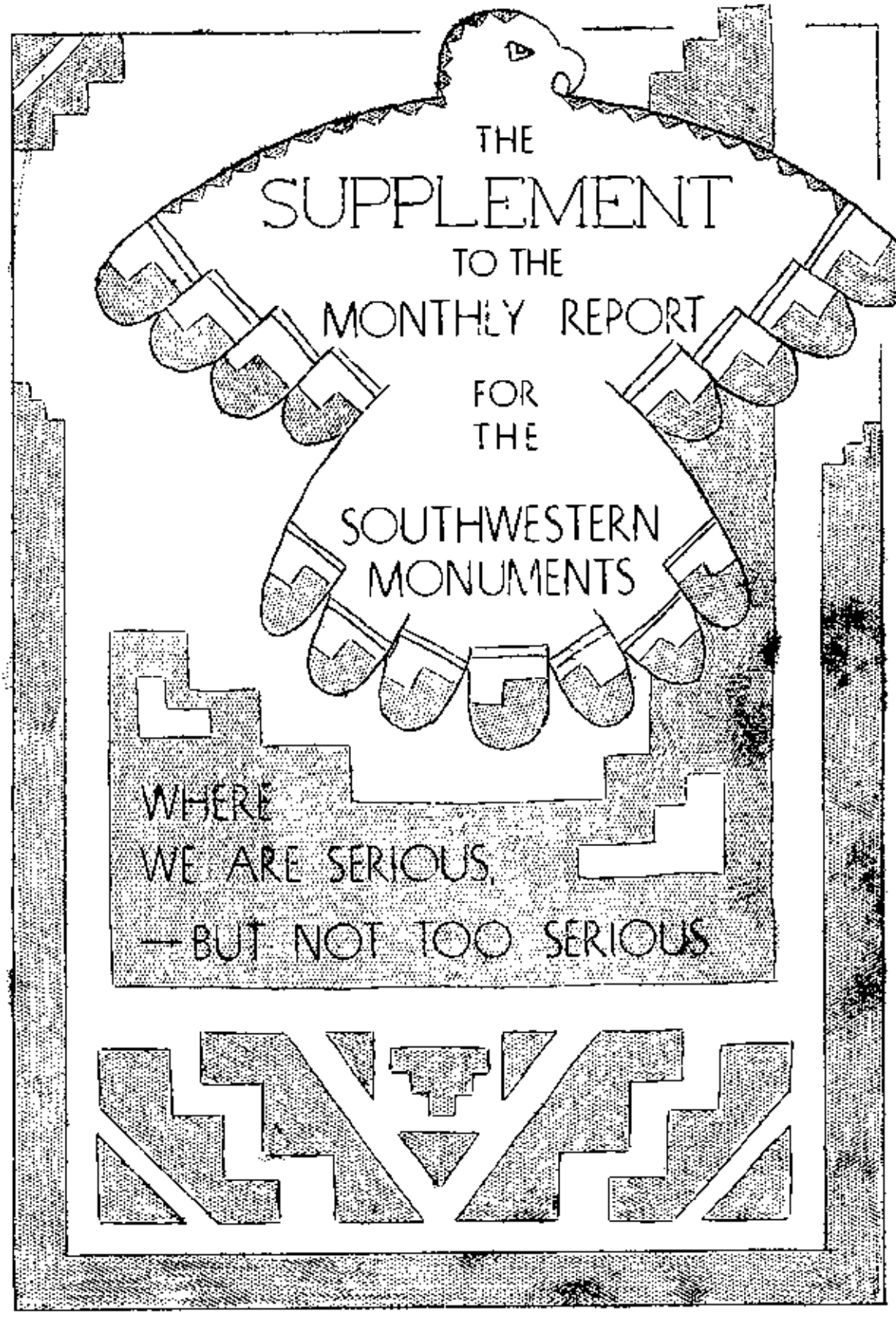
The two E.C.W. camps have been doing good work as usual. In the expressive phrase of our friend 'Gene Baird, Bill and Rub are "a pair to draw to and beat the world."

Taking it bye and large we have no complaints to make about January; if our desert gods stay with us through the next eleven months as well as they have the past one, we will have our plans well along toward a much improved service to the American Public.

Cordially,

Frank Pinkley

Superintendent.


THE
SUPPLEMENT
TO THE
MONTHLY REPORT
FOR
THE
SOUTHWESTERN
MONUMENTS
WHERE
WE ARE SERIOUS,
—BUT NOT TOO SERIOUS

NATIONAL MONUMENTS NEAR TUCSON ARE BEING IMPROVED

THREE FEDERAL SPOTS SHARING PARK PROGRAM

Federal Funds Used for Work on U. S. Wonders In South Arizona

Taking full advantage of federal emergency conservation allotments, the national park service is beautifying, improving and refurbishing three of its national monuments in this area. The work, going on for more than a year, is to be continued for an indefinite period, including restorations and preservations which will aid greatly in perpetuating these magnificent historic sites.

In the Saguaro national monument east of the city in the Rincon foothills, the area but recently set aside as a national monument has received a full year's benefit of pioneer development work. The location of a CCC camp greatly aided this work and the camp force was first set to work on a general renovation of the area. General cleanup of trash in the camp area, and the obliteration of old shacks, together with the landscaping of the park after the clean-up, has already been accomplished.

A system of roads and trails is now being constructed and a drilled well will provide water for the proposed camp and picnic grounds. The road system is represented in a six-mile loop road which has been located and surveyed. Two miles of this road is starting construction. The road starts at the south gate and follows the Rincon foothills back by Observatory hill and desert, looping around back to the starting point. The road will give the best possible views of the great cactus forest, and the area is permanently guarded by a park ranger.

The Tumacacori national monument, with its ancient mission, is another center of attention and activity on the part of the park service. Preliminary plans have been drawn for a large museum building which will be constructed as soon as funds are available and which will house the relics of the ancient structure. Exhibits in the proposed building will include models, built to scale, of some of the other missions of the "Kino Chain" extending down into Sonora. Restoration paintings and drawings showing what Tumacacori might have looked like before its partial destruction by the Apaches will be added.

There will also be drawings of interior restorations such as altars and the pulpit, much of which is contained in the accompanying feature on this restoration. Plans are also underway to complete the adobe wall around the boundary of the monument. Half of this wall was constructed several years ago.

Survey of Old Missions Reveals Interesting Data to Aid Tumacacori Restoration Work

[Editor's Note—Much of the romance and accurate historical data the National Park Service is weaving into its program of restoring Tumacacori Mission is to be found in these excerpts from the report on Tumacacori restoration, prepared recently by J. H. Tovrea of the National Park Service]

By J. H. TOVREA

When we pass through the great arched doorway of the old Mission San José de Tumacacori, it is usually only a matter of a few minutes before we start wondering what it was like before native and vandalism destroyed so much of it. Even those who are not particularly interested in old mission cannot help wondering what the ruined altars were like years ago. Perhaps some carry away with them a mental picture of the unfinished bell tower and vaguely try to visualize what it might have been. Those of us who visit the structure often, though, find that this wondering gets in the blood and becomes a sort of mild mania. If, eventually, we find ourselves staying awake nights pondering over little flakes of plaster which have different textures, or faded dabs of paint which once might have been parts of intricate and vivid designs, we will begin to find answers for some of the whats and whys.

Last fall the National Park Service decided that answers, or clues to unravel some of Tumacacori's architectural problems might be found by a survey of the twenty-odd missions in Sonora, Mexico, which belonged to the same chain as our own Tumacacori. This thought brought action, for a party of six men was sent into Mexico to gather as much data and material as possible for museum exhibits, historical research and architectural detail. The time was limited to three weeks, so the party had to work fast. A lot of the time was consumed in travel between the missions, as the roads were poor and there was a certain amount of official clearance to be obtained at each site. The party was composed of two architects and an archeologist-historian from San Francisco, a photographer from Washington, D. C., and a geologist and myself from the southwestern monuments headquarters. The party obtained some valuable data in the form of measured plans and sections of the better preserved missions, but the time was so limited that many of the details could not be measured though all were photographed. There is no doubt that a wealth of museum material was obtained and the expedition was, I believe, a successful one.

Work Began 13 Years Ago

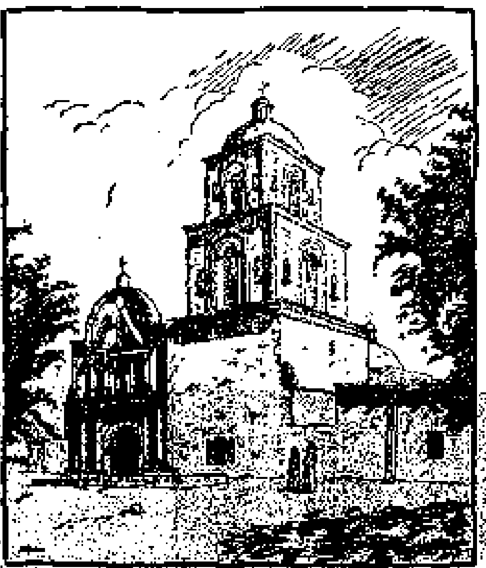
My interest in the trip was concentrated on what could be found that would relate to Tumacacori in the way of restoring to it some of her lost details.

Some 13 years ago, Superintendent Frank Pinkley of the national park service, started wondering about Tumacacori and set to work putting pieces of the puzzle together. His job was harder than ours because he had to start at the beginning. Now, with parts of the problem solved, it is easier for us to work out other parts. Some of the answers to various parts of Tumacacori's problem outlined in this report are accompanied with substantial and logical proof. Others are based on comparative observations of the other missions in the chain, and still others can be boiled down to the very best and latest guess.

I found that all of the missions in the chain that we visited were quite radically different from one another with the exception of Caborca, which is practically a twin of the mission San Xavier near Tucson, Arizona. If any of the missions is at all like Tumacacori, it is probably San Ignacio, and it was from it that I gathered data which helped conceive a restoration of Tumacacori's side altars, pulpit, choir loft rail, and balustrade. It also gave me a mental picture of what Tumacacori's interior looked like when it was complete with choir loft and altars. It resulted in my mind substantiating Pinkley's idea that by restoring Tumacacori's choir loft illusions of greater height and size of the nave would be created, and the entire picture would be more in keeping with what the builders meant it to be. Without these illusions the nave is out of focus and when we say to the visitor as he enters the door, "Look, this is the nave which the padres built over a hundred years ago," we are showing him a distorted picture. The padres would have had the visitor view the nave through the arched opening that upheld the front end of the choir loft, for through this archway the room would appear longer than it actually was, and as he walked forward and looked up, his memory of the low ceiling of the balcony loft would make the ceiling of the nave seem higher by comparison.

The missions as a whole made me feel that since the buildings were designed to impart a feeling of loyalty and sanctity, so should such a feeling be re-created in Tumacacori, as nearly as would be practicable. This could be done in part by restoring some of the altars complete to the [illegible]. When the visitor enters San Xavier he tiptoes and whispers and is doubly impressed by what he sees. At the present time the interior of Tumacacori could be [illegible]

[illegible]



This drawing by J. H. Tovrea of the National Park Service shows how the Mission San José de Tumacacori will look when the program of restoration is completed.

several good arguments which would indicate that the present building has been remodeled and enlarged. Briefly, they are the presence of plastered foundation walls on each side of the nave—which would indicate that at one time there was an altar alcove on each side of the nave. The opening into these alcoves is clearly outlined by the unbonded adobe brick. The average height of these cracks is eight feet. Excavation has shown also that there were foundation walls crossing the nave just in front of the sanctuary arch and behind what was the choir loft arch. This would indicate that the nave at one time might have been confined within these limits, or, at least, was of a different plan, even though the length and width were the same. Let us assume, then, that the plan of the church was radically altered at one time. Now, how about the elevations of the side and end walls of the nave? No one has committed himself, to my knowledge as to what change might have taken place here. I have always wondered about the two-foot offset on the outside of the nave side walls. It has been a question in my mind for a long time whether this offset was caused by changing the wall thickness from approximately five feet to three feet—walls in the original plans of the building, or if it indicated an addition which raised the height of the building, or was a change in plan after the offset point was reached.

Unfinished Bell Tower

The mystery of the unfinished bell tower will probably always keep us guessing, but the more we think about it and compare it with the bell towers of the other missions of the chain, the more pressing our guessing becomes. Why it was not finished has been boiled down to about three or four stock answers which can be found in almost any "Mission" book. It is the question, what would the bell tower have looked like if it had been finished, that we will try to answer.

There are two schools of thought regarding this question. School No. 1 contends that if the tower had been finished it would have consisted of the present single story above the roof line of the nave, topped with a dome, lantern and cross. School No. 2 believes that it was intended to add another story to the present one, making the tower two stories above the roof line of the nave, and on top of the second story a dome, lantern, and cross. The second story would be smaller both in height and outside measurement than the present first story. At one time I was a somewhat doubtful School No. 1 advocate, but after I had studied the problem for some time, I finally jumped down off the fence and organized School No. 2.

It is my hope that restoration drawings or painting of the mission will be made by the government, and exhibited in the museum at Tumacacori. I believe the public would be very interested in seeing what the mission and its surrounding buildings looked like before they were destroyed, and in what certain unfinished portions might have looked like if they had been completed. Of course, we can never be positive about the unfinished bell tower, but we can follow the line of the most logical reasoning on the subject, whether it be for one story or for two.

Should Act Now

Twenty years from now if someone asks the ranger at Tumacacori detailed questions on what parts of the mission are original and what parts are restored, the ranger is going to be embarrassed —because the chances are that he will not know. As a matter of fact, he might be embarrassed right now, if questioned closely, because there is no record of what is old and what is restored; which, of course, is not the ranger's fault. I would respectfully suggest that the national park service make detailed measured drawings of the walls of the buildings, showing all restored portion. If this is not done soon this very necessary information will be lost forever.

Twenty years ago we could have made, probably, drawings in true color of almost all the designs on the interior and facade of the mission. Today, I would say that 90 per cent of them have weathered away; but there is enough left to make it possible to work out what has been lost. Twenty years from now it is probable that even these traces will be gone. One man could record accurately this information in the form of detailed colored drawings in two week's time. This record would greatly assist in the working out of a restoration of the high altar in the sanctuary. I made a color study of the nave cornice at Tubutama. This simple record will preserve forever this particular detail. Similar records of Tumacacori would preserve, as well as recreate the colored details.

Magnificent at Time

If we could see the mission as it was a hundred years ago and compare it with the surrounding buildings which had low roof lines and severely plain walls, there is no doubt that the comparison would make the mission look quite magnificent and stately. It has always been the aim of the Catholic church to construct their buildings of a magnitude that would make them the center of interest in comparison with surrounding buildings. If high roofed buildings had existed at the site of Tumacacori before it was constructed, the mission would have been built on a larger scale, probably. If the existing buildings had artistic wall ornamentation, then Tumacacori would have been even more artistic and ornate. In other words, the church was always built to attract the eye, both by its height and by its ornamental facade.

My idea of a museum would be to make it as unobtrusive as possible, by keeping its roof line low and unbroken and its wall surfaces plain and simple. By doing this the mission would be seen by the public more as the padres who built it meant for it to be seen by their public.

REPORT ON MISSION SAN JOSE DE TUMACACORI

By J. N. Tovrea

When we pass through the great arched doorway of the old Mission San Jose de Tumacacori, it is usually only a matter of a few minutes before we start wondering what it was like before nature and vandalism destroyed so much of it. Even those who are not particularly interested in old missions cannot help wondering what the ruined altars were like years ago. Perhaps some carry away with them a mental picture of the unfinished bell tower and vaguely try to visualize what it might have been. Those of us who visit the structure often enough find that this wondering gets in the blood and becomes a sort of mild mania. If, eventually, we find ourselves staying awake nights pondering over little flakes of plaster which have different textures, or faded dabs of paint which once might have been parts of intricate and vivid designs, we will begin to find answers for some of the whats and whys.

Last fall the National Park Service decided that answers or clues to unravel some of Tumacacori's architectural problems might be found by a survey of the twenty-odd missions in Sonora, Mexico, which belonged to the same chain as our own Tumacacori. The thought brought action, for a party of six men was sent into Mexico to gather as much data and material as possible for museum exhibits, historical research, and architectural detail. The time was limited to three weeks, so the party had to work fast. A lot of the time was consumed in travel between the missions, as the roads were poor and there was a certain amount of official clearance to be obtained at each site. The party was composed of two architects and an archeologist-historian from San Francisco, a photographer from Washington, D. C.,and a geologist and myself from Southwestern Monuments Headquarters. The party obtained some valuable data in the form of measured plans and sections of the better preserved missions, but the time was so limited that many of the details could not be measured though all were photographed. There is no doubt that a wealth of museum material was obtained and the expedition was, I believe, a successful one.

My interest in the trip was concentrated on what could be found that would relate to Tumacacori in the way of restoring in picture form some of her lost details.

Some eighteen years ago, Superintendent Frank Pinkley of the National Park Service started wondering about Tumacacori and set to work putting pieces of the puzzle together. His job was harder than ours because he had to start at the beginning. Now, with parts of the problem solved, it is easier for us to work out other parts. Some of the answers to various parts of Tumacacori's problem outlined in this report, are accompanied with substantial and logical proof. Others are

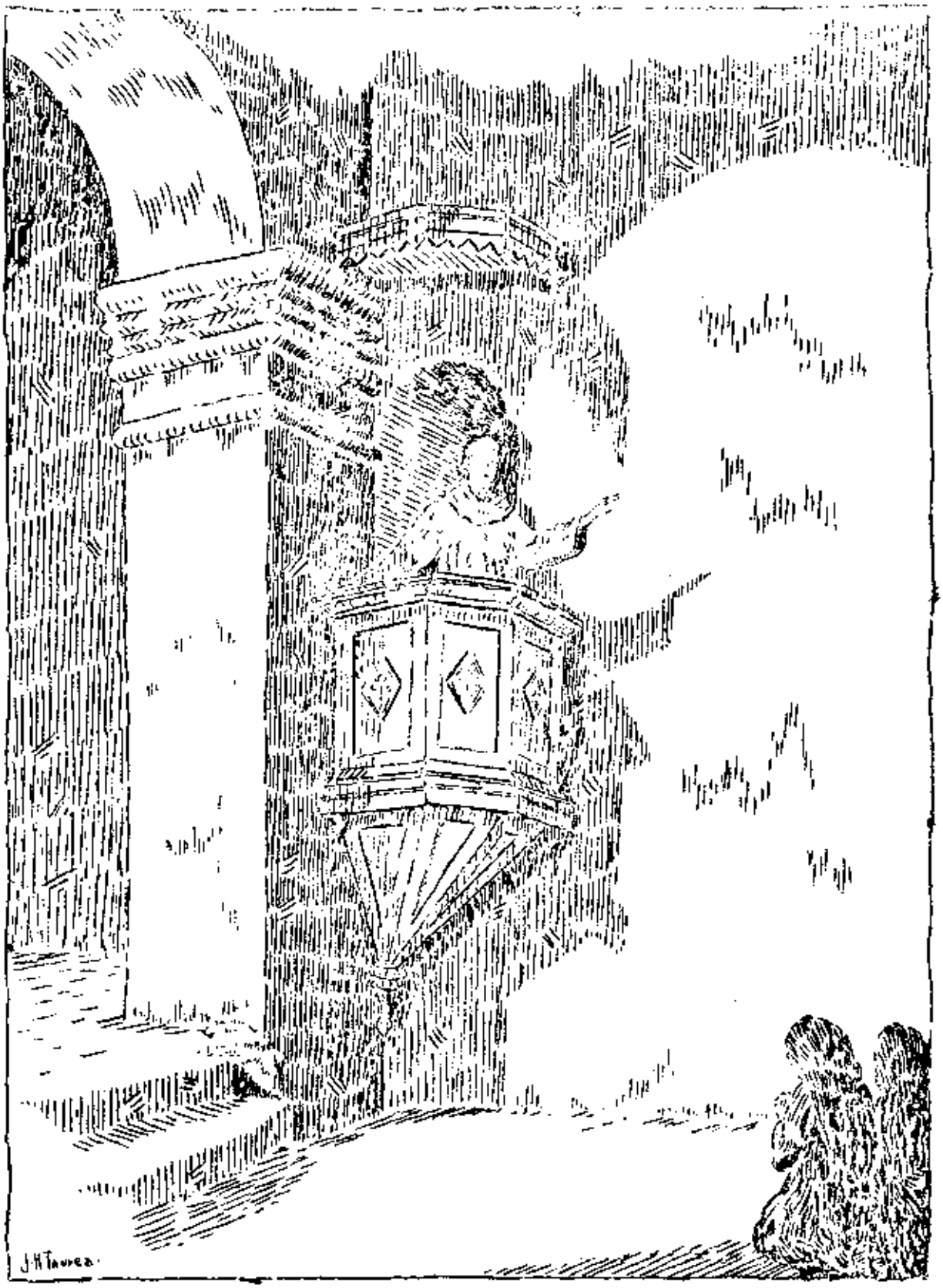
based on comparative observations of the other missions in the chain; and still others can be boiled down to the very best and latest guess.

I found that all the missions in the chain, that we visited, were quite radically different from one another with the exception of Caborca, which is practically a twin of the Mission San Xavier near Tucson, Arizona. If any of the missions is at all like Tumacacori, it is probably San Ignacio, and it was from it that I gathered data which helped conceive a restoration of Tumacacori's side altars, pulpit, choir loft rail and balustrade. It also gave me a mental picture of what Tumacacori's interior looked like when it was complete with choir loft and altars. It verified in my mind Superintendent Pinkley's idea that by restoring Tumacacori's choir loft, illusions of greater height and size of the nave would be created and the entire picture would be more in keeping with what the builders meant it to be. Without these illusions the nave is out of focus, and when we say to the visitor as he enters the door, "Look--this is the nave which the padres built over a hundred years ago," we are showing him a distorted picture. The padres would have had the visitor view the nave thru the arched opening that upheld the front end of the choir loft; for thru this archway the room would appear longer than it actually was, and, as he walked forward and looked up, his memory of the low ceiling of the balcony loft would make the ceiling of the nave seem higher by comparison.

The missions as a whole made no fool that since the buildings were designed to impart a feeling of mystery and sanctity, so should such a feeling be re-created in Tumacacori, as nearly as would be practicable. This could be done in part by restoring some of the altars complete to the image in the niche. When the visitor enters San Xavier he tiptoes and whispers and is doubly impressed by what he sees. At the present time, the interior of Tumacacori could be mistaken for the interior of an old banquet hall, a fortress or even a storage room. A little restoration here and there would make it impress the visitor that it was the interior of a place of worship and he would be getting a truer picture of the mission.

PULPIT RESTORATION

When I entered San Ignacio, the first detail to catch my eye was the pulpit. The eye is drawn to it immediately because it is a spot of color against the plain grey-white wall. In the dim, shadowy light of the nave the bright colors of this pulpit are softened so that they blend together and assume a velvet-like texture. Indians like bright colors and would no doubt concentrate their attention on this particular spot when the padre was addressing them. All that was left of the Tumacacori pulpit at the time it was decided to restore it, were a few marks on the plaster wall. These marks proved two things; 1. That the floor beams projected at right angles from the two walls behind the pulpit and, 2. That three and one-half feet below the floor level, in



·PLATE·2-PULPIT·RESTORATION·

the corner formed by the intersection of the two main walls, was a mark which indicated the presence of an ornament which might have terminated the point of an inverted pyramidal corbel that supported the floor of the pulpit. With this scanty evidence to work from a square pulpit floor was constructed with the corbel below. This construction was then plastered over. If a pulpit of this square shape were used the speaker could not have faced his listeners in a graceful manner unless he faced directly south where he would be looking along the line of the east wall, or directly west where he would be looking at a wall seventeen feet away and not at his listeners.

It would seem that the ideal horizontal section of a pulpit for this particular situation would be a quarter round, which would permit the speaker to face any direction in the space of ninety degrees. For the purpose of ornamentation, however, this section would not be very satisfactory, as well as being a difficult one to build out of wood. All of the pulpits which we studied in the other missions were some portion of an octagon, depending upon their position. This octagon shape gave the same effect as a circle, was easier to construct, and when ornamented was more pleasing to the eye. The one at San Ignacio looked so appropriate for Tumacacori, if modified a bit, that I made a rough water color of it. Using this as a model, I have made a restoration drawing of a pulpit for Tumacacori. (Plate 2). This pulpit would meet the requirements established by the marks left on the walls by the original pulpit and would, I believe, resemble the original very closely. The construction would be of wood and the colors similar to those of San Ignacio's pulpit. If this pulpit were restored, I believe it would create a pleasing contrast to the present drab interior.

ALTAR RESTORATION

Tumacacori had seven altars--three on each side of the nave and the high altar in the sanctuary. One can imagine how impressive the interior of this old mission must have been when all these altars stood complete, each one enshrining the image of a saint. Could not this picture be more clearly imagined by the visitor if one of these altars were completely restored? The possibilities of such a restoration are shown by the drawing in Plate 3. This particular altar is the first side altar on the left as we enter the building. All that remains of it now is the base, and the lower portion of the altar proper. The flat top has been restored. Existing evidence to support the accuracy of this restoration drawing is in the form of marks on the plaster wall showing the outline of the gabled moulding that frames the altar background, and the small remaining fragments of one of the columns, and one end of the lintle.

The ornamental designs on the column and lintle are painted and were suggested by the designs on other altars of the chain. At least two of the old carved wood images, which are now at San Xavier, belonged

at one time to Tumacacori. I would suggest that models of these images be made, full size, colored true to the originals and restored to the altar niches at Tumacacori. One of these image models in the niche of the restored side altar would make it a complete restoration.

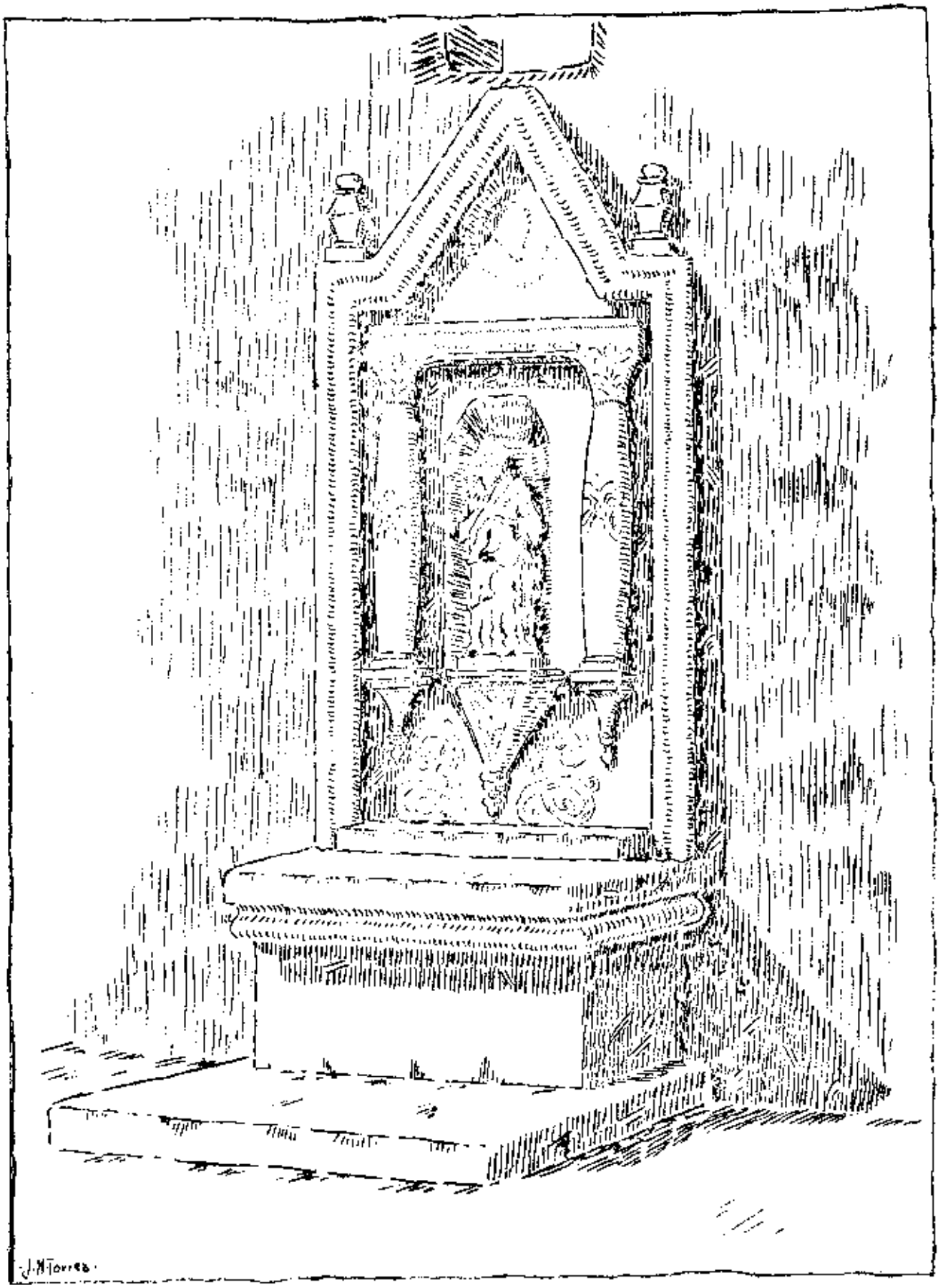
CHOIR LOFT RESTORATION

A complete restoration of the choir loft has been advocated for several good reasons--the primary one being that of improving the perspective view on entering the building. The arch support at the front of the loft can be easily and accurately restored from photographs of the original arch. The floor we must assume to be of burned brick, as are the loft floors of most of the other missions. The railing and balustrade must be copied also from existing ones in the other missions. Detailed drawings of these existing balustrades were made on the mission trip and are filed ready to use in the event this restoration is ever attempted.

A DISCUSSION OF THE ORIGINAL PLANS

Records show that three buildings were constructed at Tumacacori at different periods, for the purpose of holding religious services. Whether these three missions were three distinct buildings or two buildings, one of which was remodeled and enlarged to make the third, is a question for debate. Last winter, under the competent supervision of Mr. Paul Beaubien, Archeologist, the area east of the present mission was excavated and a number of foundation walls and floors were uncovered and mapped. One rectangular shaped set of foundations, in particular, could have been those of a small church, and is considered by some to be the foundation of the second church at Tumacacori. At one end of the rectangle the foundation walls seem to offset inward for a distance equal to the breadth of the foundation to form what might have been a sanctuary. However, the fact that at the point of offset the two walls are joined together by just the meeting of their respective corners, leads me to believe that they were the foundations of two different buildings constructed at different periods; and I do not think that these foundations represent those of a church, though it is possible.

On the other hand, there are several good arguments which would indicate that the present building has been remodeled and enlarged. Briefly, they are, the presence of plastered foundation walls on each side of the nave--which would indicate that at one time there was an altar alcove on each side of the nave. The opening into these alcoves is clearly outlined by the unbonded adobe brick. The average height of these cracks is eight feet. Excavation has shown also that there were foundation walls crossing the nave just in front of the sanctuary arch and behind what was the choir loft arch. This would indicate that the nave at one time might have been confined within these limits or, at least, was of a different plan, even though the length and width were



·PLATE·3·SIDE·ALTAR·RESTORED·

the same. Let us assume, then, that the plan of the church was radically altered at one time. Now, how about the elevations of the side and end walls of the nave? No one has committed himself, to my knowledge, as to what change might have taken place here. I have always wondered about the two foot offset on the outside of the nave side walls. It has been a question in my mind for a long time whether this offset, caused by changing the wall thickness from approximately five feet to three feet, was in the original plans of the building; or if it indicated an addition which raised the height of the building; or was a change in plan after the offset point was reached.

VAULTED ROOF?

Referring to Plate 5, let us study the wall section. If this section were designed in the original plans of the building, a section of this shape could have been designed for only one purpose; namely, that of supporting a barrel vaulted roof. If the wall had been designed primarily to support a flat roof, the designer would surely have used a three-foot wall section all the way up. It is well to bear in mind that when the present roof was restored there was no evidence that a vaulted roof had covered the walls; but, at the same time, it might have been the intention of the designers to use the flat roof temporarily and eventually replace it with the highly favored barrel vault.* It is a well known fact that the padres were clever architects and that when they built a vaulted roof it was well designed and did not fail through structural weakness. In fact, they had a tendency to over-design; that is, to construct their walls even a bit thicker than was necessary in order to be sure that their buildings would not fail. Churches in Mexico which they built four hundred years ago (some of which would hold a half dozen of the Kino missions), are still in use today and are structurally sound.

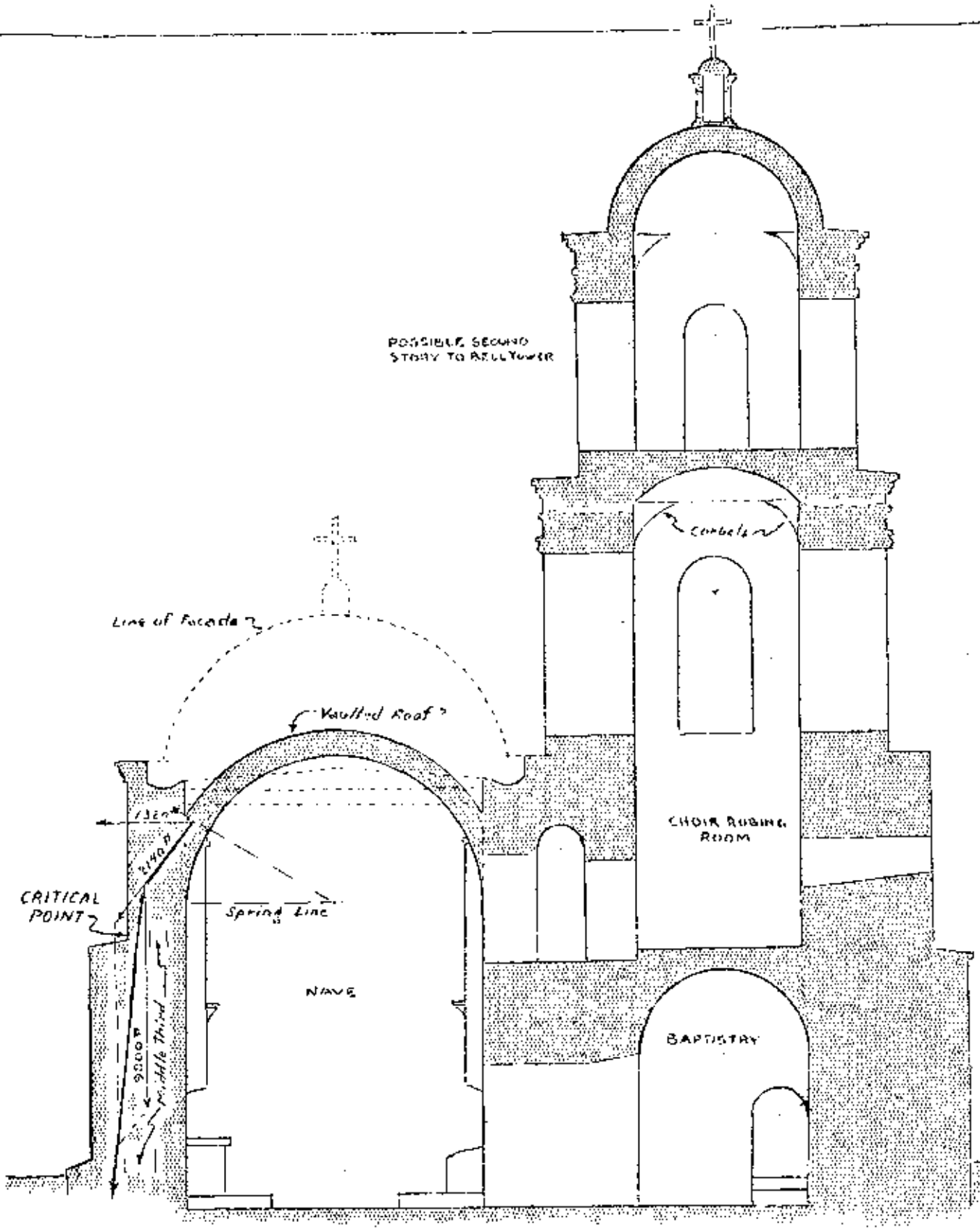
Referring again to Plate 5, let us actually determine whether this section would support a vaulted roof. Since the width of the nave is the same as that of the sacristry, it can be assumed that the proposed vault for the nave would have the same thickness as that of the one that now exists over the sacristry. The spring line of the intrados of the arch is a point fixed by the fact that the proposed vault could not be higher than the north wall supporting the dome over the sanctuary. The stress diagram shows a resultant thrust of 8140 pounds per linial foot, acting at an angle of 38 degrees from the face of the vertical wall. The center of gravity of the wall section can be calculated to be 2.42 feet from the vertical face of the wall and the weight of the

* This change was actually made at San Ignacio but, due to lack of foresight in making the walls thick enough at the time of construction, great outside buttresses had to be built to brace the nave walls.

wall section creates a force downward of 9,800 pounds per linial foot through the point of the center of gravity. The resultant force between the thrust of the arch and the weight of the wall section completes the line which the thrust of our proposed vault would travel. This line of pressure is the heavy line shown on the wall section. It will be noted that the wall section is divided into thirds at the base of each of the two different wall thicknesses. When a wall section is designed to carry an arch, it is so designed that the line of thrust always stays within the middle third of the wall section. If it runs outside of this middle third, the section is considered unsafe and apt to fail. It will be noted that the thrust line of our proposed arch runs considerably outside of the middle third, both at the offset point and at the base of the section--which are the two critical points. We know then that if a barrel vaulted roof were built there would be great danger of the side walls failing.* Therefore, since the padres were efficient designers and ever tended to over-design, I believe we can safely say that the two-foot offset was not a part of the original plans of the building. That eliminates one theory and leaves us two; namely, that the plans were changed when the offset point was reached, or, the portion of the building above the offset was an addition to the building. I believe that the five-foot section of wall was started with the idea of using the vaulted roof--otherwise a narrower wall section would have been used. I believe that it was intended to carry this thick wall up to the point where the spring line of the arch we figured starts. When the point was reached which is now the offset point of the walls, plans were changed.1.There could be several periods when Tumacacori was abandoned by the padres due to Indian attacks at Tumacacori and other missions farther south. 2. It is possible also that since the Indian labor was not particularly skilled and was very slow, the padres decided to use a flat roof instead of a vaulted one, and so the wall was made narrower from the offset point on up. It will be noted that on each side of the main entrance there are buttress-like columns. (Plate4). It seems logical to assume that they were used to support the back part of the choir loft. However, if this were true, they would be superfluous construction; as the choir loft beams would receive their proper support and bearing in the front wall of the building, and a beam under them would not be necessary. I puzzled over those peculiar columns for a long time before an apparently simple answer presented itself to account for them. When the plans

*This does not, however, rule out the possibility of the intention to use a lighter vaulted roof than the one figured here. It has been my theory that, for lack of funds, they could not erect a barrel vault at the time but designed the walls so the flat roof could later be removed and the barrel vault substituted with the least amount of trouble.

Mr. Tovrea however tells me a thinner section would probably be dangerous, due to the fact that the line of pressure could more easily fall outside of the middle third in a thinner section. - Frank Pinkley



·PLATE·5·

·SECTION·THRU·MISSION·

1/8" Scale

were changed and it was decided to use the flat roof which could be taken care of by a three-foot wall, the designer could easily take care of the offset on the side walls of the nave by putting it on the outside of the building where the break would make the elevation even more pleasing. But the front of the building, the main facade, would be practically ruined if the offset ran across it and divided it into two elements. So in this place he put the offset on the inside of the building where it could be nicely concealed by the choir loft floor. Any offset on the inside of the nave that could be seen would cut down the apparent height of the ceiling. There is nothing much harder to do than to make a radical change in a good set of plans and still keep them good. This is especially true when the building planned is half built. Though Tumacacori is hardly an architectural jewel, it is an interesting building with many pleasing features. The fact that the building is still quite presentable should reflect even more credit to the padre architects.

THE UNFINISHED BELL TOWER

The mystery of the unfinished bell tower will probably always keep us guessing, but the more we think about it and compare it with the bell towers of the other missions of the chain, the more accurate our guessing becomes. Why it wasn't finished has been boiled down to about three or four stock answers which can be found in almost any Mission book. It is the question what would the bell tower have looked like if it had been finished, that we will try to answer.

There are two schools of thought regarding this question. School No. 1 contends that if the tower had been finished it would have consisted of the present single story above the roof line of the nave, topped with a dome, lantern and cross. School No. 2 believes that it was intended to add another story to the present one, making the tower two stories above the roof line of the nave, and on top of the second story a dome, lantern and cross. The second story would be smaller both in height and outside measurement than the present first story. At one time I was a somewhat doubtful School No. 1 advocate, but after I had studied the problem for some time, I finally jumped down off the fence and organized School No. 2. I will try to be impartial and give both sides of the argument so that the reader may draw his own conclusions.

There are three drawings in the report which will be used to illustrate the discussion. Plate 8 shows a restoration with a one-story bell tower; and Plate 6 shows a restoration with two stories.

The arguments in favor of the one-story bell tower are:

1. The brick corbels in the corners at the top of the unfinished tower might indicate that the final dome had been started when work was stopped. It could, however, be a domed ceiling between the two stories

such as we find at Caborca and San Xavier.*

2. The architectural balance would not be any too good with two stories. This is true; but it is also true that the balance is not any too good with one story either. So it might be a question of choosing the lesser of two evils.

3. The fact that they used broken brick to finish the north side of the present tower might show that they did not intend to build another story or they would have had more brick made and would not have had to use the broken pieces. This argument is not a very strong one because they could always make more brick and the use of the broken pieces might have been prompted by economy.

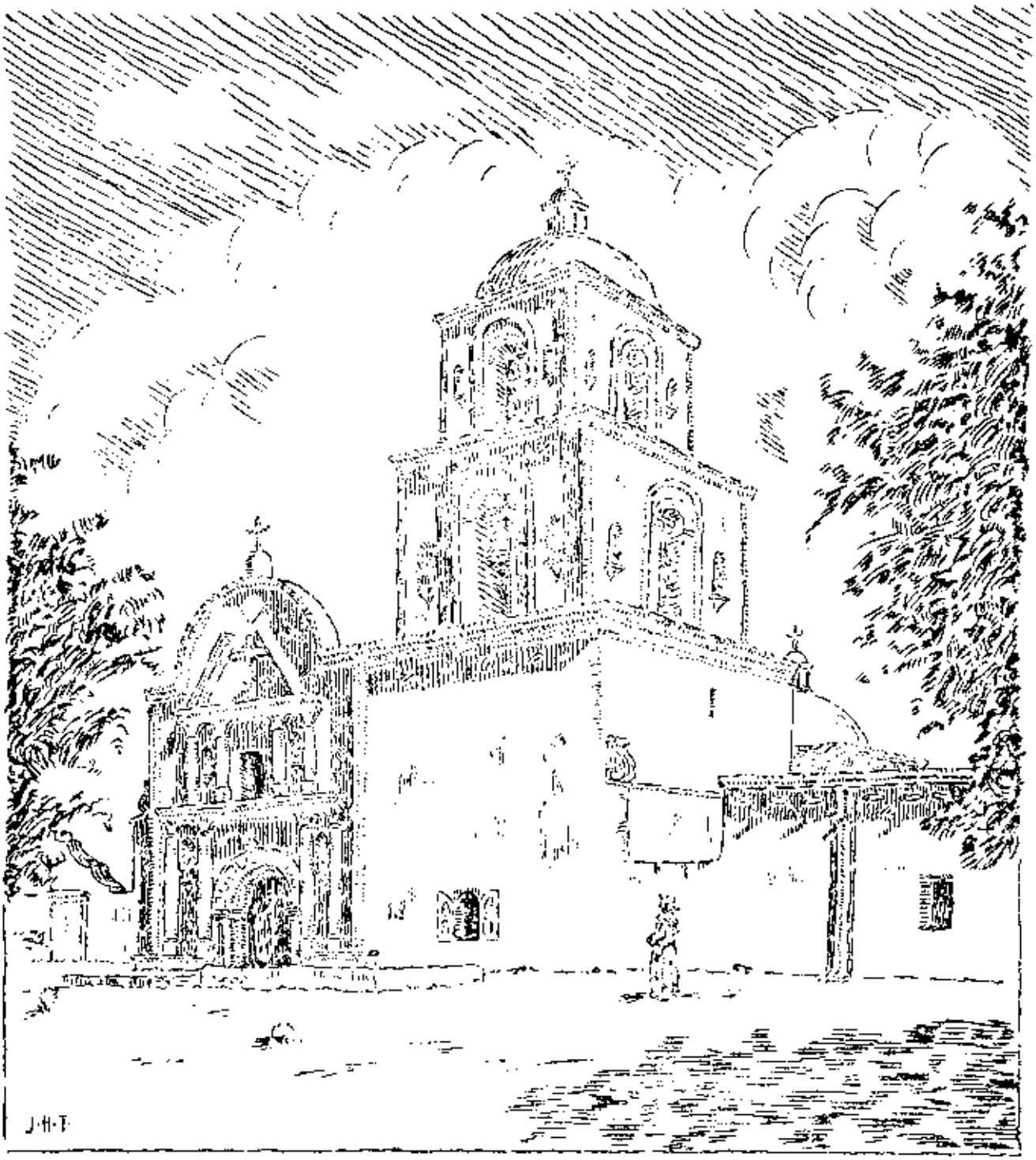
The arguments in favor of the two-story bell tower are:

1. The baptistry side walls have the tremendous thickness of nine feet. This extra heavy wall must have been built for the purpose of supporting a heavy load.** Going up to the choir robing room we find a wall thickness of seven feet six inches--which is two feet thicker than the lower side walls of the nave. Moving on up to the first and only existing story of the bell tower, we find a wall thickness of five feet three inches--which is two feet thicker than the upper walls of the nave. One can hardly believe that this extra two feet of wall thickness was laid just for the sport of laying brick; and it is well to remember that burned brick, which is quite a bit more difficult to manufacture than adobe, was used in the bell tower?***The fact that they used even the broken pieces indicated to me that they prized their burned brick highly and would not have wasted it on unnecessarily thick walls. According

*In which case we should find an outside stair on the existing arches as we do at Caborca and San Xavier. (San Ignacio has no stairway which might indicate that ladders were used in some cases.)

**One fact which has been overlooked is the passageway inside the north, west and south walls of the tower in the first and second stories. These walls might, partly because of this passage and partly because they were to carry a much heavier load, be much thicker than the nave walls. It is true the factor of safety is much greater than necessary, but did the Padres know that?

***The bell arches and piers are not built solidly of burned brick. A shell of burned brick is back-filled with a mexture of adobe mud and rock plums. You can see this in the south niche in the southwest pier where the brick shell is broken and the back-fill is visible. - Frank Pinkley.



·PLATE·6·TUMACACORI·
·RESTORED·

to the standards set forth in the building, it would seem that the minimum thickness of a bearing wall would be that of the upper wall of the nave--or three feet three inches. If we put a second story of this wall thickness on the existing story of the bell tower (as is shown in the section drawing in Plate 5), there would be an offset of two feet between the two outside wall surfaces of the two stories. This offset would correspond with the two offsets formed by the difference in the wall thickness below, giving the tower a pleasing pyramidal shape. Any question as to whether this second story wall thickness would carry the weight of a dome overhead is immediately settled by the fact that the same wall thickness carries the large dome over the sanctuary.

2. No other mission in the chain has less than a two-story bell tower. They are all two stories.* This is not a conclusive argument, but it does indicate the trend or style of bell towers. The church of San Francisco at Guadalajara, Mexico, which was built in the sixteenth century, is a church which has very much the same architectural composition as Tumacacori. This church, like practically all the churches of Mexico, has a two-story bell tower.

3. The corbels in the existing story of the tower might have been put there for the purpose of supporting an octagon shaped second story similar to that of San Francisco. I believe that this shape would be more pleasing than the square one I have shown in Plate 6.

It is my hope that restoration drawings or paintings of the mission will be made by the government, and exhibited in the museum at Tumacacori. I believe the public would be very interested in seeing what the mission and its surrounding buildings looked like before they were destroyed, and in what certain unfinished portions might have looked like if they had been completed. Of course, we can never be positive about the unfinished bell tower; but we can follow the line of the most logical reasoning on the subject, whether it be for one story or for two.

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*Cocospera is an exception to this statement.

All two-story towers in the Kino chain either have an outside stair to get to the second story, as Caborca and San Xavier, or have no floor between the stories.

The reason for this is that the arches were practical bell arches which were expected sooner or later to support bells. If there was to be no stairway to the supposed second story of bell arches at Tumacacori -- and certainly none was intended, - and there was to be a floor in the upper story carried on the corbels and dome started on the existing arches, how were the bells in the upper arches to be rung? (A ladder by Gum!!) F.P.

FACADE RESTORATION

When the Powell Expedition passed by Tumacacori in 1849, one of the members of the party took the time to make an excellent drawing of the facade of the mission together with a long line of buildings to the east of it. The drawing was made in pencil at a very small scale, so that it is quite hard to interpret some of the details. Though some portions of the walls and buildings were then partially in ruins, I have, by a careful study of the picture, been able to work out a complete restoration drawing of the facade together with the high adobe wall on the west and the buildings on the east.

Referring to the drawing (Plate 8), let us analyze the details and I will try to explain why each was restored as it is shown. In order to clearly show the details, it was necessary to make the drawing more or less a working perspective, showing each detail clearly and leaving nothing to the imagination. This did not help the artistic value of the drawing, so please consider it for its working value.

Beginning at the left of the drawing, let us analyze the large archway through the adobe wall. The Powell drawing shows just the beginning of this arch--perhaps two feet of it above the first column west of the mission. The irregular shape of the top of the fragment indicates that the upper portion of the arch was not a concentric circle. The design shown on my drawing is typical of gateways in old Mexico and California Missions, so it is safe to assume that this design is very close to the original. On the west wall of the nave at the point of offset are two scroll shaped buttresses--one at each end of the building. The Powell drawing vaguely shows these and Mr. Pinkley's memory of the marks left by the originals gave me a basis for the design. The Powell drawing clearly indicates that the four columns of the first story of the facade extended down from their present level and rested on bench-like foundations. I have shown the window above the arched doorway as being covered with bars. I doubt if this were true, as iron bars were hard to transport to this new country, and wooden shutters closing from the inside of the building would probably have served the purpose. I have shown a dome on top of the existing story of the bell tower to show what might have been planned for the unfinished tower. It is my belief, however, that a second story was planned for this tower; a discussion of which I have already given. The buildings east of the mission were rather sketchy on the Powell drawing, but a careful study and comparison with a plan of the foundations (Plate 4) excavated last year, made it possible to work out a restoration. The dome shown is a doubtful guess at what the Powell artist shows and it is too far to the east to check with the possible church foundation that was excavated.

I was able to work out graphically the probable location point of the artist when he drew his picture. This point was on a line

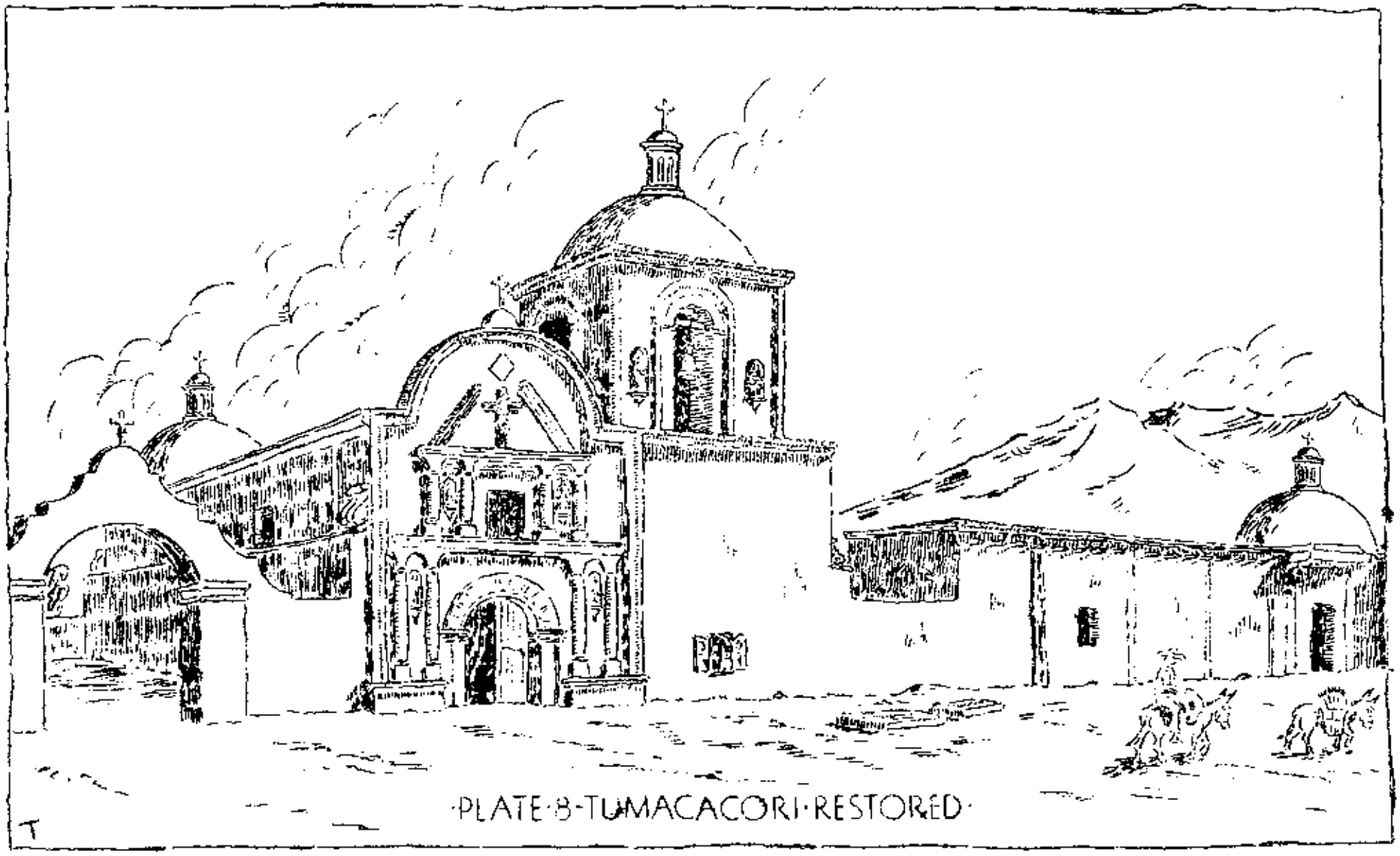


PLATE B-TUMACACORI RESTORED

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extending from the northwest corner of the mission in a southerly direction, just missing the gate column farthest west from the front of the mission. I plotted the line on the map of the excavated foundations which showed this gateway. I then drew an imaginary picture plane across the southwest corner of the mission; next I moved a point on the known line to a position where the proportion between the distances shown on the Powell drawing for the north and west walls of the mission were the same on the picture plane of the plan. This theoretically fixed the position of the artist and the more accurate his drawing was, the closer he was to this position. In order to check the accuracy of his drawing and thereby check the accuracy of my theoretical point, I located it on the ground at Tumacacori and found that the Santa Rita mountains shown in the background were in almost perfect position in relation to his drawing and the mission also compared well for perspective. Therefore, I assumed my point to be very close to the position of the artist. Returning to the plan of the foundations (Plate 4), I projected lines from this point to various points on the east foundation walls. This gave me distances on my plan picture plane which I could check against the Powell drawing, and in this way I had a basis for making a check comparison of the drawing against the plan of the excavated foundations.

I believe this working study gives an accurate foundation for a more artistic presentation rendering of Tumacacori restored, with the exception of the single story bell tower. A rendering of this nature would be of great interest to the visitor.

RECORDS

Twenty years from now if someone asks the Ranger at Tumacacori detailed questions on what parts of the mission are original and what parts are restored, the Ranger is going to be embarrassed--because the chances are that he will not know. As a matter of fact, he might be embarrassed right now, if questioned closely, because there is no record of what is old and what is restored; which, of course, is not the Ranger's fault. I would respectfully suggest that the National Park Service make detailed measured drawings of the walls of the buildings, showing all restored portions. If this is not done soon this very necessary information will be lost forever.

Twenty years ago we could have made, probably, drawings in true color of almost all the designs on the interior and facade of the mission. Today, I would say that fifty percent of them have weathered away; but there is enough left to make it possible to work out what has been lost. Twenty years from now it is probable that even these traces will be gone. One man could record accurately this information in the form of detailed colored drawings in two weeks' time. This record would greatly assist in the working out of a restoration of the high altar in the sanctuary. I made a color study of the nave cornice

at Tubutama. This simple record will preserve forever this particular detail. Similar records of Tumacacori would preserve, as well as re-create the colored details.

SUMMARY

A brief study of the other missions of the Kino chain convinced me that some restoration was necessary at Tumacacori in order to present it truely to the public as a mission. I have tried to show that perspective, atmosphere, and interest would be improved by the restoration of the pulpit, side altar, and choir loft. The respective restorations are detailed and the methods of arriving at these details are outlined.

As a matter of historical interest I have tried to prove that the plans of the mission were changed when the offset point of the nave walls was reached. In this discussion I proved that the present building could not safely carry a vaulted roof, and explained the presence of the two buttress-like columns on each side of the entrance.

For the purpose of restoration drawings I have tried to prove that it was the intention of the architects to have a two-story bell tower above the roof of the nave. This discussion points out some interesting comparisons on various wall thicknesses.

I have explained how I arrived at the various details of the restoration drawing shown in Plate 8. This drawing not only shows the missions, but also some of the other buildings and walls which existed at one time.

On the matter of records I have tried to impress the necessity of immediately making detailed drawings, showing the location of all restored parts of the mission, and showing all existing painted designs. It is pointed out that a record of the existing designs will assist in working out a restoration of the high altar.

There is no doubt in my mind that the study of the other missions in the Kino chain will continue to bear fruit as I continue to work on the many problems which still remain at Tumacacori.

ADDENDA

The Proposed Museum

Needless to say, I am deeply interested in Tumacacori, and anything that relates to the mission. The proposed museum is so intimately connected with the mission that I feel justified in commenting on the plan which has been submitted. Any criticism which I make of the present plan

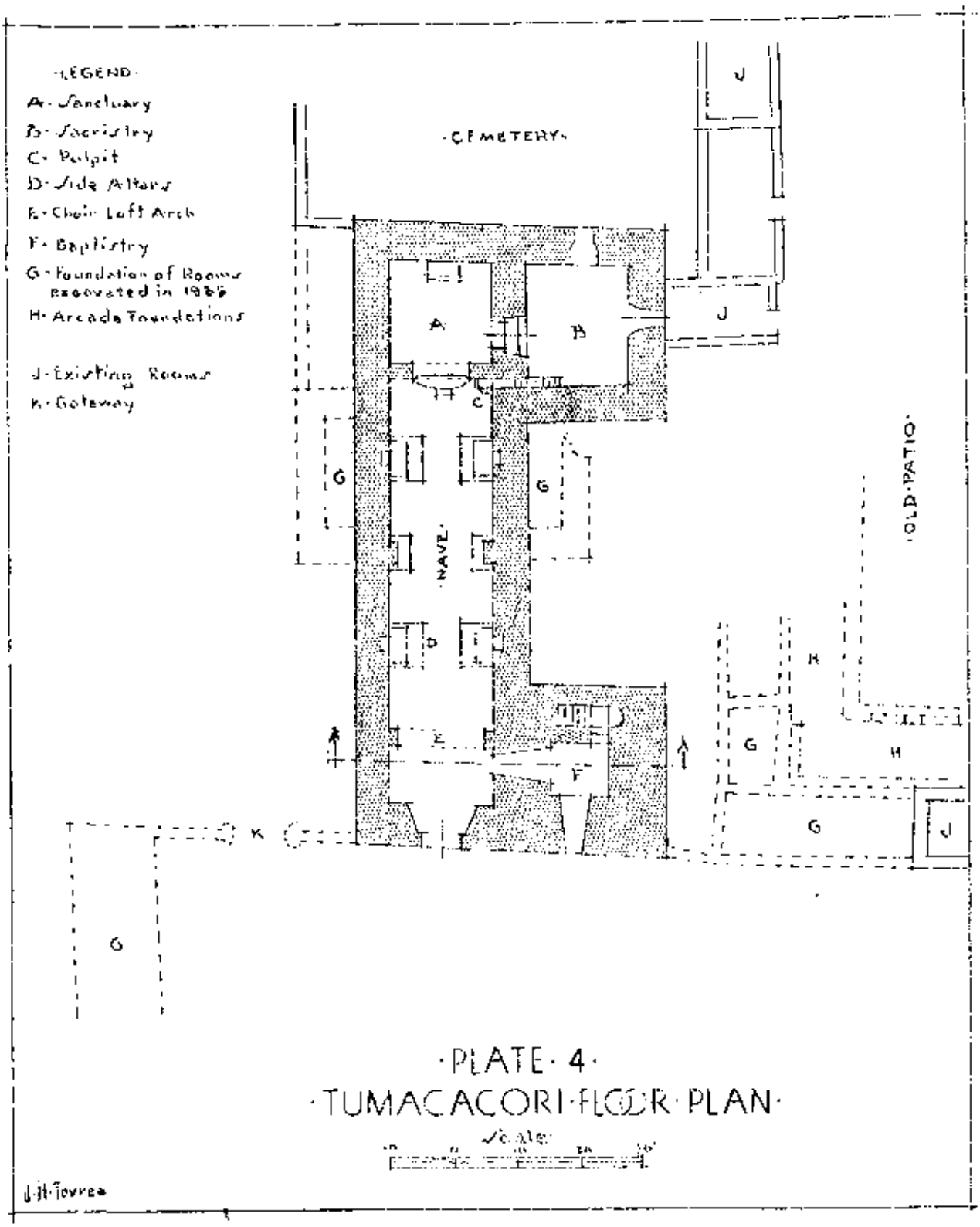


PLATE 4

TUMACACORI FLOOR PLAN

Scale:

J.H. Jovrea

of the proposed building, is activated solely by my desire to preserve Tumacacori and present it to the public in the best possible manner.

If we could see the mission as it was a hundred years ago and compare it with the surrounding buildings which had low roof lines and severely plain walls, there is no doubt that the comparison would make the mission look quite magnificent and stately. It has always been the aim of the Catholic Church to construct their buildings of a magnitude that would make them the center of interest in comparison with surrounding buildings. If high roofed buildings had existed at the site of Tumacacori before it was constructed, the mission would have been built on a larger scale, probably. If the existing buildings had artistic wall ornamentation, then tumacacori would have been even more artistic and ornate. In other words, the church was always built to attract the eye, both by its height and by its ornamental facade.

Now suppose the present proposed museum is built at Tumacacori. It is a modern building with plastered walls and having a two-story effect when seen from the outside. Over the main entrance is a large colonaded loggia, to the right of which is a wall surface which has an ornamental niche. The cornice is also topped with ornaments. This modern building is fourteen feet longer than the mission, almost as wide, and is five feet higher than the top walls of the nave. Furthermore, the location of the building is such that the public must see it before they see the mission. Since the building is actually longer and taller than the mission, it is certain to dwarf the apparent size of the mission. The nice architectural balance of the proposed building will emphasize the crudeness of the mission. In a few words, it is my thought that the public will be admiring and studying the museum building instead of the mission--if the proposed structure is erected.

If we look at Plate 6, the drawing of the mission impresses us that Tumacacori is a rather nice looking church. Now compare it side by side with a drawing of a church like San Francisco. The result would make Tumacacori look smaller and cruder. Comparisons may either improve or injure the appearance of a building. Is there any sound reason why we should injure the appearance of Tumacacori when we can improve it by building the proper sort of building close to it?

My idea of a museum would be to make it as unobtrusive as possible, by keeping its roof line low and unbroken and its wall surfaces plain and simple. By doing this the mission would be seen by the public more as the padres who built it meant for it to be seen by their public.

If the proposed museum were planned to be a restoration of the long low building shown on the right of the mission in Plates 4, 6, and 8, and was built on the site of this original building, it is my belief that two objectives would be accomplished. One of the original buildings would be restored, and the mission, instead of suffering by contrast,

would have its appearance improved. Enough of this building could be restored to amply take care of all administrative needs. A colonade once existed on the north side of this building, facing the old patio east of the mission. This could be restored also as part of the museum building. The one possible objection to this plan is an administrative one. This objection would be that visitors might enter the mission without registering at the museum first. This objection could be overcome by building a low adobe wall in front of the mission in the form of an atrium or courtyard, the gate of which would be an exit only.

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PEYOTE NOTES

BOYCE THOMPSON SOUTHWESTERN ARBORETUM
Superior, Arizona.

Mr. Frank Pinkley
Casa Grande National Monument,
Coolidge, Arizona.

Dec. 17, 1935

Dear Mr. Pinkley:

I notice in the Report for November by Tom Charles, White Sands, that he mentions "White Sage" as being gathered for the "Peyote" ceremonials of Indians. Will you kindly have him collect seeds and a herbarium specimen and mail them to us so that we may grow some of the plants. Then if you want to add "a fragrance or sweet perfume" to headquarters, we might let you smoke a leaf or two.

The use of the word "Peyote" as a drink does not seem to be quite proper, but should be applied to the various cacti which are as follows:

From THE CACTACEAE

Vol. III, Pg. 64, under Lophophora williamsii. This species is known variously as pellote, peyote, etc.

Pg. 107, under Strombocactus disciformis. It is called pellote or peyote in Mexico.

Page 184, under Astrophytum asterias. Senor Solis says that the plant is known as peyote.

Vol. IV, Pg. 59, under Pelecyphora aselliformis."** and is also called peote, and peyote, also peyotillo and pectillo."

From OUR NATIVE CACTI

Pg. 60 & 61, a description of the use of Lophophora, etc. It is the plant known as Peyote, Pellote, etc. The use of the Peyote spread

PEYOTE NOTES (CONT.)

from the Southern tribes to the North, etc.

Pg. 146. "What is the Peyote?" See Pg. 60.

From MANUAL OF POISONOUS PLANTS

Pg. 637. "under the name of Pellate (Anhalonium sp.), the Indians of the Rio Grande Valley of Mexico have for ages used the tops of this plant which they commonly call "mescal button" or "Mescal bean". The use has extended to Indians in Oklahoma and Indian Territory and it is said, to the Tama Indians of Iowa."

From BULL.TORREY BOT. CLUB, Vol. 23, #2, Pg. 38.

***"my attention was drawn to a plant, called Peyote, which**". ***"It is said to be the Peyot or Peyotl of northern Mexico," Vol. 23, #3, Pg. 116. ***"by a mention of the Peyote (Anhalonium fissuratum Eng.) of the rocky highlands of Western Texas and Northern Mexico, a plant which, when chewed, is said to produce a sort of delirious intoxication."

Sincerely yours,

Fred Gibson

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HOW TO TELL ABOUT "RINGS" By Earl Jackson

For a year and a half I have been struggling along without a museum chart to help me explain the tree-ring dating system to visitors who have never heard of it. I have worked out the following explanation which clicks, and am passing it on in the hope it may help some of you other men in the field without charts. I don't claim the explanation is perfect, but would very much appreciate any constructive criticism on it.

"Folks, do you see that big pine over across the creek?" (Pointing at a tall pine). "Let's suppose we were to saw that tree down. The cross-section would show that it is made up of concentric rings, starting with tiny rings at the center and ending with very large ones at the outside.

"Those rings show the growth of the tree. Ordinarily a pine grows one of those rings each year. So by counting the rings you tell how old the tree is. Suppose that tree we have cut is three hundred and fifty years old, having that number of rings.

"Now in wet years a tree grows a thick ring. In dry years the ring is sometimes quite thin. By this habit of growth we learn that rainfall comes in cycles. There will be a period of wet years, and a period of dry years. These make up a weather cycle.

"No two weather cycles ever leave exactly the same record in tree rings. Nothing in Nature is ever perfectly duplicated. So that each set of rings explaining a weather cycle is separate and distinct from every other set in its arrangements of thick and thin rings. The tree-ring specialist studies the growth rings under a microscope, and draws a chart of them.

"Suppose we find in this Indian ruin a pine timber which was used as a ceiling support. We saw the log in two and find it has 75 rings. We make a chart of the rings, as we did on the larger tree.

"Then we compare the two charts. If we find any part of the charts which show identical arrangements of rings, we will know the two trees were growing at the same period in history. Suppose we find that the outermost, or younger, twenty-five rings of the ceiling timber show exactly the same alternation in thickness and thinness as the innermost or older twentyfive rings of the large tree we have just cut.

"We have worked out a time sequence, or chronology. We have learned the year in which the ceiling timber was cut, by working back from the living trees. In other words, we have cross-dated - brought one date over to tie into or overlap with the other one.

"The ceiling timber of the ruin was cut 325 years ago. How do we know? The tree we cut was 350 years old. The timber when cut was 75 years old. The first 25 years of growth of the mature tree are the same as the last 25 of the timber. So the first 50 years of the timber carry the date back to 400 years ago. And so, 325 years ago an Indian cut a timber to complete the ceiling of his house with."

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VISITOR IMPRESSIONS

By Drs. Dorothy & John Keur

Dear Boss,

We herewith submit for your scrutiny a more or less irregular and irrelevant report of our ramblings among the Southwestern Monuments during the past four summers. The "we" stands for Dot and John Keur, self appointed eastern representatives and boosters for the Southwestern Monuments and their personnel. We have tried to induce many of our friends to visit the monuments; we have shown them our collection of over a thousand pictures of the glorious country that is yours; we have read them choice selections of adventures from our diaries. We

wish to thank all our friends of the Southwestern Monuments for the courtesies they have shown us and our eastern associates; notably Dr. and Mrs. Strayer of Teacher's College, Columbia University.

In preparing this report, we had quite an argument as to how we should title our literary efforts. Dot said "I'll call the part I write: Travels with a Donkey", but I voted for:"Exploring the Southwestern Monuments with camera, notebook, tent, tire chains and one long handled shovel," and so shall it be called. That shows who is boss in our family. Here Goes:

CHACO CANYON. My first contact with the Monuments was in 1925, when, as a forest engineer and confirmed bachelor, I visited White Sands, Bandelier, Natural Bridges and Chaco Canyon, on a hitch hiking trip from Louisiana to California. Six years later, our contacts with the family of the late George H. Pepper, who worked at Pueblo Bonito in 1896; and Dot's interest in the field of anthropology started us on a 10,000 mile trip to the Southwest. We have repeated our visits every summer since that time. Our original interest and first love was Chaco Canyon, where we worked on, in and around Threatening Rock and the cliff cavities. Messrs. Julian, Patterson and Miller have been of invaluable help to us, supplying us with food, shelter and other necessities of life. The Springsteads also contributed more than their share. Hence, people in the east here think that Pueblo Bonito is the name of our summer home. We are so much at home there that we no longer worry about the condition of the road from Thoreau.

We are acquainted with the large amount of Chaco Canyon material at the American Museum of Natural History, only a small part of which is on display. Would it be too much to hope for a museum at Bonito where some of this extra material could be displayed?

Last summer, we were greatly worried about the walls of Bonito, which had fallen here and there, but Cal will put a stop to that, even if he has to stand there, holding up the wall with his broad shoulders. We sincerely hope that the land situation at Chaco will eventually be straightened out. We recall with much pleasure the many happy contacts made at Chaco, with N.P.S. men, anthropologists, archaeologists, entomologists, geologists, traders, Navajos, prehistoric mummies, and just people

AZTEC RUINS. We were surprised at the changes that had occured at Johnwill's monument in the last few years. They told us some stories in the town of Aztec about the man on the flying trapeze over at the ruins. So we went to investigate, and enjoyed Johnwill's performance, flying through the air with the greatest of ease, via the wooden lintels. When we visited the ruins, the museum was very crowded, but we see by the monthly reports that the situation is quickly being remedied. I used to worry about the drainage problems, but Bob Rose's report seemed

to solve all difficulties. Three cheers -- the barn is gone, so we hear. We still like the Aztec Ruins, in spite of Cal Miller's insidious propaganda.

BANDELIER. An almost unbelievable change within eight years. A beautiful road leading to the floor of the canyon, a wonderful trail system and an excellent CCC camp greeted us. We liked the Ceremonial Cave, and could sit by the hour enjoying the view. Paul Reiter did a fine job framing the wall paintings. Earl Jackson was in Santa Fe at the time of our visit; we were sorry to miss him. A visit to this monument adds new beauty and appreciation to Bandelier's "The Delight Makers." How about a labeled nature trail from the parking area to the Ceremonial Cave?

CANYON DE CHELLY. We visited here in 1934 and 1935. Will we ever forget the hospitality of the H.C.W.P. and Mrs. Cozy? No, a thousand times no. I am sure that if Cozy hadn't pushed us out of the trading post we would still be looking at his museum of blankets, pottery and paintings. In 1934, we camped near the head of the White House Trail. We used to clamber laboriously up and down the unfinished trail, to the mild astonishment of Mr. Gray. This year,(1935) with the trail complete, we fully realized the efforts of the Park and Indian Service in helping the Navajo and incidentally giving the poor white a short cut to the mystic beauty of White House. Both years, we hiked [illegible] Chelly nearly to Monument Rock, and rode horseback in del Muerto up to Antelope House. The last time, Mr. Caywood staged a private rodeo for our special benefit, which we greatly enjoyed. Mr. Budlong thoroughly examined our credentials and equipment. We hope that he never had occasion to regret that he gave us permission to camp near the head of the trail. I certainly cleaned that campsite thoroughly....

No monument in the Southwest makes us feel so insignificant while contemplating its majestic grandeur.

CASA GRANDE. Well do we remember our arrival at headquarters late at night, tired, dusty and worn. We were greeted and revived by the kind ministrations of the Boss, Nancy Margaret and the Roses. We had the entire camping ground to ourselves at night. Next morning we thoroughly enjoyed the three and a half hour inspection of the ruins under the personal direction and stimulation of the Boss himself. You surely gave us a grand tour, and Dot and I still argue now and then about some of the points discussed during that trip. The design of the labyrinth, the two "lined up" holes in the walls, the Hohokam material, etc., have been subjects of debate. We consumed so much time here that the graph of the length of our visit in the next monthly report went clear off the top of the page. Our visit to headquarters was one of the highlights of our 1934 trip.

MONTEZUMA CASTLE. We visited here when Mr. Jackson was on leave. The fishes treated us royally. Charlie Steen and Frank spent the greater

part of the day showing us the many unique features of the monument, while Corabeth spent the remainder of the day feeding us. We were sorry that we couldn't stay longer, but we are hoping to revisit here....if for nothing else, then to see and admire the latest little Fish. We hope that the water problem is solved by now.

NAVAJO. First we stopped at the unusual and charming home of the Wetherill's at Kayenta. We received directions on how to reach Betatakin, and little did we then realize that it would take us a good 24 hours to make the trip. I don't know to this day how we ever managed to push our 1929 Ford over Marsh Pass. But that was only the beginning. After turning off the road, we were stuck for four hours in the sandy newly completed trucktrail. We decided to keep away from the truck trail after that experience, which we managed to do so well that we lost our way, and got nowhere. Wearily we made camp. Next morning we retraced our trail, and finally arrived at the Roricks, disappointed at having missed the famed ruin. But Mr. Rorick, bless him, took pity on the greenhorns from New York, jumped in his truck, and guided us all the way to the rim of the Tsegi. We hiked down the trail, and were repaid a thousandfold for all our trails and tribulations as soon as we got our first unforgettable glimpse of Betatakin, in its exquisite setting. A delightful afternoon was spent with Milton Wetherill hiking, exploring and talking. May we suggest the placing of a few signs along the road to encourage the weary pilgrim in search of prehistoric beauty, so that he shall not fall by the wayside and miss that gem of all the ruins, Betatakin.

TONTO. Up the steep trail to the fence we climbed. Our Apache guide produced an imposing bunch of keys to open the lock of the gate. He tried each and every key without success, but it wasn't his fault, he said, it was "the 'Mexican' boy, he fool around with lock." We discovered later that he was referring to Charlie Steen, who had left for Montezuma. We held a short conference and decided to scale the fence, which we did quite readily. "If the Boss could have seen us," said Dot, "he would have lost his faith in fences." Our climbing was well rewarded; the ruin has many interesting engineering features. By the time we had climbed back to the right side of the fence again, our guide produced a key that did fit the lock, and proceeded to demonstrate that he could open it.

WALNUT CANYON. We had a short visit with Paul Beaubien and verified the presence of walnut trees in the canyon. Some of the cliff rooms here could probably be restored effectively.

During our travels we also visited Gila Cliff Dwellings, Wupatki, Hovenweep, Yucca House, and Saguaro; each with its peculiar interest. In due time, we hope to explore them more thoroughly.

With best wishes to our friends among the personnel of the Southwestern Monuments and with grateful appreciation of their services, we are, sincerely,

COMMENTS ON RANGER GUIDE SERVICE AT CASA GRANDE NATIONAL MONUMENT

By Dale S. King, Junior Park Naturalist

Location

Casa Grande National Monument is located on State Highway 87, a main-traveled all-weather artery, 57 miles south of Phoenix, 67 miles north of Tucson, Arizona.

A paved entrance road, six-tenths of a mile in length, stubs off the highway, ends at the Administration Building and parking area.

Climate

The middle Gila River Valley in which the monument is situated can be said to possess two seasons; seven and one half months of extremely pleasant winter weather, with warm sunny days and cool to cold crisp nights; four and one half months of notably unpleasant summer weather, with very hot days and nights, insects, thunder showers, and dust storms.

About the middle of May, winter breaks into summer. Approximately the end of September, or early in October, summer changes somewhat less abruptly into early winter.

Travel

During the National Park Service travel year of 1935, 27,095 persons visited the monument and were conducted through portions of the ruins, the museum, or both. Approximately 5,000 additional persons used other facilities of the monument---picnic area, comfort station, etc. This latter group requires only moderate attention from the Custodian and Ranger but does consume a considerable portion of the maintenance time of the janitor.

Casa Grande's 27,000 visitors in 1935 were distributed seasonally as follows:

June.....1,359		
July.....1,198		
August.....1,376	VALLEY SEASON	
September....1,691		
October.....1,825	Sub-total, 7,449;	Average about 1,500 per month
November.....2,389	PLATEAU SEASON	
December.....2,463		
January.....2,327	Sub-total, 7,179;	Average about 2,400 per month
February.....2,923		
March-------3,335	PEAK SEASON	
April.....3,766		
May.....2,443	Sub-total, 12,467;	Average about 4,100 per month

Although division lines between the above seasons are arbitrarily drawn, they will serve to illustrate periods of activity at the monument and their relative importance.

Note that Casa Grande essentially is a "year-around" monument. There is experienced no such cessation of visitor contact work during any season as is the case in certain parks and monuments which are almost completely unvisited during the winter or inclement weather. The three travel seasons arrange themselves in the ration 1:1.6:2. Yet this ratio does not mean guide work is cut 50 per cent in summer and 20 per cent in autumn---as a matter of fact, there is little decrease. Number of groups remains almost the same, and guides make almost the same number of talks, but parties are composed of fewer people. Moreover, summer work is complicated by uncomfortably hot weather.

Mental Attitude of Visitors

Visitors to Casa Grande are usually in a hurry; they display to a marked degree the same tendency to rush through the monument's attractions that they display in other monuments and parks, according to statements I have heard in conversations with other Park Service men. I believe this tendency is more acute at Casa Grande than at any other unit in the Southwest, because of the following factors: (1) the monument is so accessible that people feel no spirit of accomplishment at having made the trip; (2) the monument's position about halfway between the two largest cities in Arizona leads many groups to say "On our way to Tucson (or Phoenix) we'll drop off at the Ruins for a few minutes and show them to our guest/" (3) the pleasing entrance gate and the view of the protective roof over the Casa Grande attract many idly curious people who have no idea what they are going to see, and do not have the time to see anything.

The most common type of group which visits the monument is composed of two or three Arizona residents who have seen the ruins several times themselves but are bringing a guest to see the sights also. This usually does not make for a long stay. The next most common group is the bona fide tourist who usually is interested in the monument even before he gets here. This is the best brand of visitor. The third most common group is the family of cotton pickers, or itinerant farm workers---ignorant, dirty, eager to tell the guide all about Indians and the arrowhead their father found on the farm in Oklahomaor Texas. This class forms the majority of visitors during the summer season, and arrives in such numbers the guides are kept fairly busy.

What the Visitor Sees

Casa Grande's 127 prehistoric mounds are scattered irregularly over 472 acres of flattish desert covered fairly well with mesquite, creosote, and salt bush. The six major domiciliary "mounds" have been named the first six letters of the alphabet, and have been excavated partially.

Compound A, which contains the Casa Grande, or Great House, has been about two-thirds excavated, and is the largest compound on the monument. The Casa Grande itself, a four-story watchtower-apartment house, is protected by a large sheltering roof, but other excavated walls have no protection whatsoever save an ineffective coating of concrete on a small proportion, which was experimentally applied several years ago.

Following is a listing of the attractions of the monument in the order of their present importance to visitors (1) Casa Grande, Compound A and middens, (2) Museum, (3) Compound B, Compound E ("Clan" House), Compound F. Further excavation and stabilization will bring the "ball court," and Compounds C and D into prominence, and also other smaller structures or exhibits in the vicinity of the Administration Area.

Personnel

Present personnel consists of a Custodian and a Ranger, both Civil Service appointees. An intermittent janitor-laborer spends approximately half of his time on Casa Grande affairs, the other half on Headquarters matters.

There are no temporary ranger or ranger naturalist positions provided for peak travel seasons.

This 2½-man personnel, although not sufficient, places Casa Grande in an enviable position far above that of most other Southwestern Monuments. Ample protection is provided, and presence of a laborer to perform maintenance releases the Custodian and Ranger for almost uninterrupted visitor contact work. It is true that the Custodian is forced to spend a small proportion of his time on such affairs as maintaining fuel supplies, overseeing repair of light and sewage systems, etc., but such duties require less time and are less arduous than in several other monuments with less personnel.

Present Visitor Contact Procedure

From time clock figures which have been kept since July, 1934, it can be said that the average group of visitors spends 56 minutes on its guided trip---32 minutes in the Casa Grande and Compound A, 23 minutes in the museum.

When the visitor parks his car and steps on the porch of the Administration Building, he is greeted by the Custodian or Ranger and asked to sign the registration book. The party is then accompanied into Compound A where the guide attempts to give a short background talk telling who the people were, what type of life they led, and a brief history of the Casa Grande insofar as dates are known. Visitors at this point always are eager to go into the building itself, and very little groundwork can be laid.

Then the guide leads the way through the various rooms of the Casa Grande, following a narrative sequence which through experience has proven satisfactory. Much factual detail concerning the building is given.

After Compound A, visitors are sometimes (according to degree of interest) led to the top of the large East Midden where a view can be had of the relationship of Compound B. E, and A, as well as providing a fitting place for some popular discussion of stratigraphy and dating.

Then the group is taken into the museum where the other 23 minutes are spent in discussion of material culture and mortuary customs. A few heterogeneous baskets and pickled reptiles are placed in the Custodian's office, which is the last room entered. There is little chronological or subjective arrangement of the present museum; exhibits are almost totally non-graphic; the whole impression is one of a crowded collection rather than an illustrative or interpretative museum.

Pressure of visitor traffic rarely permits time for guides to accompany especially interested parties to compounds other than A.

How does this method function?

Briefly, I think the scheme a failure and unworkable. Perhaps the following facts will be self-explanatory:

Under the present system visitors are accompanied during every minute of their stay, because (1) the ruins must be protected from vandalism as well as interpreted, and (2) the museum must also be protected as well as explained, inasmuch as it is completely non-self-guiding.

Only two men, supposedly, are available for guiding, yet frequently four, five, or more groups will be on the ground. They will not have come in a bunch,---they will have dribbled in at moments when joining to another party is inconvenient.

When a party starts for the ruins, and another car drives up within five minutes, it is very feasible to join the latter group to the former. They miss some of the important background lecture, but usually are informed by the tactful guide before the ruins trip is over. If, however, the second party comes after a five minute interval, "join-ons" are awkward, for they have missed so much of the early talk they ask questions which have been covered previously, and thus cause repetition which is boring to the first party which must listen to it again. Since the first group realizes it is being taken through as a unit, it rather resents interruptions caused by later groups. When the guide has completed the ruins talk for the first group, he knows he has several other groups which have not heard the whole story, and yet he cannot give this information except in abridged form because he must take the whole group to the museum--the other guide having come to the ruins with a group in the meantime.

Joinings are easily made at the beginning of the ruins trip or at the beginning of the museum talk. Later joinings are very awkward. The normal answer, obviously, is to have groups wait twenty or less minutes for the next ruins or museum trip to start, so that they can be joined easily.

This, unfortunately, is impossible. Several experimental attempts have been made to induce people to wait. It does not work. There is no comfortable or interesting place to rest. The Administration porch is cold in winter, hot in summer. If visitors are turned into the museum to browse around, they stay an average of 17 minutes per party, gain little interest or information because the museum is not arranged properly, does not contain graphic exhibits, and is not labeled. They look around at the most interesting exhibits for a while, spend some time in front of the pickled snakes, and then come out on the porch and wander around, peeking into the office windows, sneaking out the back door and heading for the ruins unaccompanied, or go out to the gate and wait impatiently for the guide to take them to the ruins. An intelligent group which might have spent a pleasant hour in the museum with a guide, or three quarters of an hour in a self-guiding museum, stays about a quarter of an hour in the present museum, and then does not wish to go in again after their ruins trip, because the old hurry complex commences to operate.

In the past, headquarters personnel aided in handling heavy traffic. Actual figures as to the participation of headquarters personnel in guiding activities at Casa Grande have not been worked out, but it is sufficient to say that a large amount of time was taken from general work to solve the problem at one monument. Happily, this situation is now corrected; with the exception of a day off a week for each Casa Grande man, guiding by headquarters staffman is compensated for by aid from the monument in certain other activities.

UNEVEN QUALITY

The present scheme produces a very uneven quality of service. Service is excellent for parties which happen to arrive on the ground when no other visitors are present; it deteriorates rapidly for each succeeding party which arrives while others are on the grounds. If it were possible to assign a guide to each party, guide service theoretically would be perfect, but, of course, this is impossible. It would result in an inordinate number of guides, busy only a relatively small proportion of their time, and with nothing to do the rest of the time.

MIXED GROUPS

Due to the impossibility of selection of types of parties to be joined to one another, the present system produces very mixed groups indeed---a fine group of intelligent people joined by a group much lower in intelligence and education, for example. Such a heterogeneous collection certainly fails to receive the type of trip each component desires.

"INDEPENDENT" PERSONS

It has been noticed that a certain small proportion of visitors desires freedom even to the extent of failing to gain the usual amount of information. This type of person feels "herded" when he or she must be accompanied by a guide. They wish to look around at a pace dictated by their own wishes; they want to gain their own individual impressions rather than to have information neatly laid before them by the guide's lecture. This group is perhaps more numerous than the average ranger suspects, because most of them are courteous and will submit, although secretly unwilling, to the accepted routine. There is no provision made for this type of person in the present scheme.

VISUALLY-MINDED PERSONS

Under the present system of guiding at Casa Grande, the person who most readily gains perceptions by means of his auditory senses is favored. The visually minded person is slighted, somewhat, particularly in the museum. It is true he sees "what", but the "why" is transmitted vocally, and he is handicapped in learning in this fashion. Psychologists say that visually-minded persons out-number all others.

DEAF PERSONS

Many visitors, if not deaf, possess some hearing defect which reduces their enjoyment of a spoken lecture to a great extent. These unfortunate persons might gain a lot of enjoyment in a museum, but find little in the Casa Grande museum to engross them.

Effect on Guiding Personnel

The man who guides steadily at a small but heavily visited monument like Casa Grande possesses one of the most fatiguing, monotonous jobs in the National Park Service, I am sure.

It is well known that a speaker who gives two or three speeches a day has done a full day's work. Casa Grande men must guide at least six hours---talking almost every minute---per day in the winter season and almost that much during other seasons. They have to handle groups of all sizes and descriptions. They are on a mental strain every minute to be in readiness for questions pertaining to everything under the sun. Yet it is not the unusual party or question which causes the fatigue--- it is the interminable repetition of the same primary questions which brings monotony.

Due to existing circumstances, guides at Casa Grande must travel the same old merry-go-round: From the porch to the Casa Grande, back through the museum. He gives the same old talk, keeping abreast of modern developments, of course, but inevitably falls into a set routine, varying it only through the desperation of boredom. When the Casa Grande guide has given

his talk four to six times a day, six days a week, for six months, he has run the gamut of possible variations. He is stale. It takes a rare question to snap him to awareness of the intriguing aspects of his subject.

It is physically impossible to maintain a high degree of service throughout the day. The guide holds the visitors spellbound on the first morning trip; he does almost as well the second trip. If the third trip follows closely, he is temporarily tired of his subject, and his talk certainly shows it, try as he will. Lunch hour provides a respite, and the fourth talk is not so bad. He consumes quantities of cough drops during the afternoon, and practically all his sparkle is gone---he hasn't the energy or enthusiasm to hold or interest his visitors as he should.

In many parks it is the custom to allow an afternoon off for the man who is to make the campfire lecture that night. He talks only for an hour or a little more. The Casa Grande guide has no preparation work to do, but on busy days his parties often average 30 persons, sometimes reaching 40. He gives six identical"campfire lectures" a day and knows that the next day will be the same---and the next week---and the next month. And he realizes there are many things he can do to improve his monument and the service given therein, yet he does not have the time. Almost every guide develops at some time or another that peculiar irritation which public contact produces. This does not make for energetic guides or good service.

SUGGESTIONS FOR IMPROVEMENT

Divorcement From Headquarters

Casa Grande's present setup is that of a 2½-man monument. It is my firm opinion that it should be treated as such. In all fairness to other monuments in the Southwest, to headquarters, and to the monument itself, Casa Grande should be accorded no privileges not shared by other monuments.

Protection against vandalism of Casa Grande's ruins is amply taken care of by the present setup. The monument is small; there is no patrol work necessary, and no fire hazard. The only question, therefore, is how well or ill the visitors are handled. Heavy travel makes Casa Grande an acute problem, but this same problem is found at other monuments not close to headquarters---Bandelier, Aztec, White Sands, Montezuma Castle, Walnut Canyon, Tumacacori. A visitor at Casa Grande is no more important than a visitor at any other monument.

The burden of helping out at Casa Grande rush periods has fallen chiefly to the Naturalist Division in the past. Why should the Park Naturalist spend a day guiding 50 visitors through the Casa Grande, when that very same day 50 visitors wandered around Sunset Crater, saw no interpretative exhibit whatsoever, and went away wondering why the government set aside that small crater? Perhaps the Naturalist could

have spent the day more profitably devising a trailside exhibit for Sunset which for years would have helped portray to thousands of visitors Sunset's exceedingly interesting place in the Southwestern scheme. Such illustrations could be multiplied a hundredfold.

As mentioned above, this phase is no longer a problem, because Casa Grande and headquarters are now well separated in function. I stressthe point only to emphasize its not-to-be-forgotten importance in possible future arrangements.

Possibilities for improvement in interpretative methods in the Southwestern Monuments are illimitable. Spending full time on their problem, the Naturalists would and will be far behind for many years. Theoretically, they should allot only four percent of their time to each monument; actually, they must adapt their work to a ratio dictated by the acuteness of each monument's needs. Casa Grande was over-emphasized for a short time,---not through the fault of any person, but because of circumstance.

PROPOSED VISITOR CONTACT PROCEDURE

Busy Days

When the first party shows up in the morning, one man should greet them in the usual manner and take them to the ruins as usual. The other man remains at the museum to greet newcomers and act as museum attendant.

The ruins guide gives the little "background talk" outside the building, and then goes through the building, following a set sequence as to rooms entered. As the museum attendant sends more parties to join him, he greets them thusly: "How do you do? If you care to join this party you are welcome to do so. We have already seen part of the building, but you will be taken through that part just as soon as this trip is finished." If the visitors do not care to join, he politely tells them they must do so, or not enter the building. This is necessary because of the constant vandalism problem. The ruins guide keeps going through the building in the same routine, and keeps track of where each party joined him. As each party finishes its circuit, he suggests that they might be interested in the museum, if they have not already seen it.

When the ruins guide's vocal chords fail him, or he needs a drink of water badly, or is completely "fed up" or fatigued, he excuses himself for a moment, and exchanges stations with the museum attendant.

When, as sometimes happens, the ruins guide finishes with his group and has no more visitors in the ruins, he is at liberty to stay there, or even better, return to the museum and rest until the next party arrives, when the process is repeated. The two men can keep approximately tab on the amount of ruins and museum time they each spend, and can even up their work by alternating days or half days.

The museum attendant, in the meantime, has been on duty in the museum and greeting visitors. He is ever ready to answer questions, which are invariably forthcoming, and usually lead to a completely guided trip. Yet visitors feel a certain freedom, and know they can look around undisturbed if they so wish.

As each new group comes on the porch, he greets them, asks them to sign the register book, stamps the time clock records. He then sends them to the ruins. However, a good museum attendant will quickly size up his groups, and will remember the type of visitors then in the ruins. If, for instance, the level of intelligence and interest seems to be fairly high among visitors he has sent to the ruins, and low grade party shows up, the museum attendant will turn the latter into the museum and thus keep the type of visitors in the ruins trips as homogeneous as possible. When the low grade party has finished its museum trip it goes to the ruins, but the guide there has had an additional 23 minutes of uninterrupted trip with his good group. This system is not perfect, but is better than the one now used.

Trail Trips

It will be noted that the above system rarely gives any opportunity for guided trips to exhibits or compounds other than Compound A.

This deficiency should be corrected by a system of self-guiding trails:

(1) Short trip including Ball Court, Compound B, and Compound E.

(2) Longer trip including the above-mentioned and also F.

When a group appears particularly interested after their trip, through Compound A, the possibility of seeing some of the other ruins should be suggested by the museum attendant or ruins guide, and many visitors will gladly take the self-guided trips and gain a great deal of additional pleasure from the monument.

These trails involve no trail building, for already existing paths can be used. But vegetation and points of interest in the ruins themselves should be labeled, and the labels should correspond with a guide leaflet, containing ground plans and full explanations. This leaflet can be worked up very easily by headquarters naturalists cooperating with Casa Grande personnel, and can be mimeographed cheaply.

As Mr. Pinkley has suggested, the starting points of these trails should be "blind," else they will be over-run by picnickers and irresponsible persons. The visitor should be unaware of the existence of the trail until the ranger points out an inconspicuous marker some 200 feet away in the brush, and tells the visitor to walk to the marker where the trail begins.

Self-Guiding Museum

One of the most important steps to be taken immediately is to make the museum capable of acting as a self-guided unit in emergency. Personnel is so limited in proportion to visitor totals, that emergencies at Casa Grande are rather the rule than the exception.

I feel that the museum should be a very flexible and varied unit. It should be completely graphic, interpretative, delineative, and labeled sufficiently so that independent or deaf persons can go through it unaccompanied and yet have a clear idea of the exhibits and their place in the scheme. The hurried visitor should be able to rush through and see just as much as he wants or as little. Labels on exhibits should be curt and concise---expanded labels and descriptive matter can be included in a museum handbook, for the deaf or the thorough-minded. The museum should be arranged so that nothing interferes with a guided trip, for these, when executed well, produce the ultimate in visitor service.

By no means should the museum be without an attendant or docent. Always should a guide be available to persons who want one, and the guide should be keenly on the lookout for persons who are too timid to ask for one. I do not want the attendant to be seated at a typewriter when visitors are present; he should be obviously available.

To make a museum of this type at Casa Grande or any other monument is a work of years. Yet the Casa Grande museum should be rearranged so far as is possible with the present available space, so that, upon emergency, it will give greater service than at present.

Urgent is the need for more space. Construction of a new wing of the building would provide exhibit room for Casa Grande's large collection, and, more important, free the Lobby so that it could be used as a gathering place, and a comfortable spot to rest in.

Days Off

For the good of the service and of the men, each man should have one day off each week. Otherise, fatigue and monotony will seriously impair a man's effectiveness.

Days off should be taken in the early part of the week when traffic is lightest. When one man is off duty, the only solution is for the other to make trips at scheduled intervals of at least an hour. Visitors will have to wait, or else see just the museum. When in the ruins, a sign on the registry book should read "Visitors will please register, and join the guide in the ruins."

It seems a pity that persons should receive poor service in order to give a man a day off, but such a system must be used until additional personnel solves the problem. Moreover, at other monuments visitors often

must go partially unsatisfied occasionally; why is one monument more important than another in this respect?

Headquarters staffmen can aid a little by directing visitors to the ruins or into the museum on such days, but when the rights of all monuments are considered, should spend very little time at this. The door to the Headquarters Office (leading off of the entry porch) should be painted or exchanged for one of translucent glass, so that visitors will not feel erroneously that they are getting poor service while there are many men available. The present lettering on the door should be retained. It explains that the offices are Headquarters and not Monument offices.

Lunch Hours

One man's lunch hour should be from 11:30 to 12:30; the other from 12 to 1:00. From 12 to 12:30 a sign on the registry desk should state, "Ruins and museum closed from 12 to 12:30. Next trip, 12:30 p.m."

On days off, ruins and museum should be closed from 12 to 1:00 for the man's lunch hour, and an explanatory sign should state this.

Annual Leaves

Relief during these periods will be given, as in the case of other monuments, by the traveling Junior Naturalist.

Sick Leaves

These shall, when necessary, be taken care of by the same method used for other monuments---relief by the traveling naturalist, or substitution of a cheaper method, when available.

Work Schedule

CUSTODIAN: Experience has proven that a Custodian needs the equivalent of four days a month for general maintenance duties: overseeing repair and maintenance on quarters, machines, sewage, water and light systems, and attending to the thousand and one odd jobs that spring up when a man is in charge of a small hamlet of 25 persons, their quarters, and almost a square mile of fenced ruins.

In addition, the Custodian needs the equivalent of two days' time for correspondence and reports. In addition to his governmental reports, he has to answer many letters of inquiry concerning the Monument.

Moreover, the Custodian should be allowed about four days a month for improvements to his monument: construction of new museum exhibits, installation and improvements of self-guiding trails; care of ruins, planting of flora, etc.

The Ranger needs one day for assembling travel and weather reports and aiding in preparing the monthly report. He also should be allowed

the equivalent of four days a month to spend on improvements.

It seems a trifle peculiar to ask for eight man days per month for improvements, yet the monument would benefit greatly if such a system could be instituted. It would give better service to visitors, and would prove infinitely beneficial in the long run. Of course, such work will lessen eventually but it will be a never-ending problem.

Need for More Ranger Service

Discussion of time for improvements is utterly out of question with present personnel. It is almost impossible to maintain the status quo. A pressing need is manifest for an additional man during the months of November through May, inclusive. Such a man would equalize the brand of service given at the Monument, would clear up relief problems on days off, lunch hours, etc., during the peak travel period.

There is little need for an extra man at the monument during the summer months. Therefore, the appointment should be Ranger-archeologist to the Southwestern Monuments, detailed to Casa Grande for the mentioned period, and to any one of several critical monuments in the northern part of the area during the summer. Such a flexible arrangement would be highly beneficial.

If not allowed a full time permanent man, a request for a temporary from November through May, inclusive, should be pressed urgently. The monument should have an extra guide at that period by all means.

Business Hours

For efficiency purposes, eight hours of guiding are all that can reasonably be expected from a man, yet during spring and summer months visitors keep coming until dark, sometimes necessitating the turning on of lights to show the museum.

Last summer, for the first time, the entrance gates were closed at five p.m., a guide finishing with whatever parties were on the ground at that time.

Insofar as I know, this move was almost perfectly successful. Visitors demurred occasionally, but at no time did their feeling approach resentment. Occasionally a car opened the gates and came on in. If they were really interested, someone always took them through.

I hope this custom will be continued. I should like to see it improved by placing a sign on the gates when closed "Ruins and museum closed at 5:00 p.m. Picnic grounds always open." A sign at the picnic grounds forbidding visitors to walk to the ruin would just about complete solution of the late visitor problem.

It has been proved by time clock records that during summer months, better efficiency can be gained by having one man on from 8 a.m. to 5 p.m., and the other from 9 a.m. to 6 p.m. One man can handle all parties between eight and nine, yet a man is needed after five to finish with groups already on the ground when the gates are closed. The staggered reporting hour, then, handles this situation nicely. It should be used, however, only from March through September.

SUMMARY AND CONCLUSIONS

1. Casa Grande is located on a main highway, halfway between Arizona's two largest cities, in a winter tourist district.

2. Climate is very pleasant for seven and one half months a year; very hot and disagreeable for four and a half months.

3. Casa Grande receives about 27,000 or more visitors per year, the peak being from February through May, inclusive. November through January are the next busiest months, but June through October produces much travel also. Therefore, men at the monument experience no cessation from guide activities.

4. Winter visitors are of high quality in distinct contrast to summer visitors who mostly are itinerant cotton workers.

5. About six major ruined villages and more than 100 trash mounds occur on the 472 acres of the monument. Visitors usually see only one village and the museum, but much further development is possible to provide other attractions.

6. A Custodian, a Ranger, and a half-time maintenance man compose a force which is inadequate during winter months, (yet places Casa Grande above most other monuments in the Southwest).

7. Visitors are all personally conducted through the ruins (32 minute average) and the museum (23 minute average). It is usually impossible for the small force to accompany visitors to other ruins on the monument. The museum is not arranged to function as a self-operating unit in emergencies or busy periods. There are few graphic or pictorial exhibits.

8. Visitors come at irregular times and joing them to an already-started party is awkward under the present system. There is no comfortable interesting place where visitors can be induced to wait for the next guided trip. Consequently each group has to be taken when it arrives, and in the past much aid has been given by headquarters personnel.

9. Under the present "2½ man", service is very uneven in quality. Some visitors receive very good service, while a party that happens to arrive on an inconvenient or busy hour receives poor service. It will always be impossible to have enough guides to assign one to each arriving party,

because such a procedure would lead to an enormous ranger force, busy only a small proportion of its time.

Visitors have little chance to sit down and relax under the present system and are fatigued at the end of an hour or less.

There is no chance to group parties according to quality; most information has to be gleaned by the auditory sense; independent persons resent "herding"; deaf persons miss much valuable information.

10. Guiding duties are very strenuous. Rangers must talk about six hours a day in busy seasons, and heat makes fatigue just as pronounced in the lesser traveled season. Monotony and fatigue produce uneven quality of service.

11. In fairness to the monuments, Casa Grande is and should remain on exactly the same footing as other Monuments insofar as headquarters help is concerned. Headquarters should relieve only at annual leave periods, times of sickness.

12. To best handle visitors with the present personnel, one guide should be stationed in the ruins, one in the museum. The museum attendant answers questions and greets all visitors, sending them to the ruins or holding them in the museum, which gives him a chance to make up parties according to community of interest. The men trade off when the ruins guide becomes fatigued. The ruins talk is given in a set sequence, and visitors receive a full trip whenever they join on.

13. Self-guiding trail trips to other ruins should be introduced. Guide leaflets should be prepared.

14. The museum should be made self-guiding so that it will function in time of emergency, and will be of interest to deaf and independent visitors. Exhibits should be made graphic. A lobby and more exhibit space is needed urgently.

15. When one man is off duty, the other should make trips at hour intervals.

16. Staggered lunch hours will be satisfactory if the ruins and museum are closed for a half hour from noon to 12:30 p.m.

17. The Custodian should be allowed the equivalent of four days time a month on administrative work; four days on improvements; two days for correspondence and reports. The Ranger should be allowed four days for improvements; one day for his reports. This would necessitate additional personnel.

18. A ranger-archeologist should be appointed to Southwestern Monuments

Headquarters, and should be detailed to Casa Grande from November through May, inclusive. This man can be used to great advantage in northern monuments in the other months.

19. The present system of closing the gates at five o'clock in the evening during summer months should be maintained, but certain portable signs should be used to explain to visitors that ruins and museum are closed but the picnic area is open.

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BANDELIER BIRDS

By Betty Jackson

The traps are really getting results this month. I've banded 40 birds in all, belonging to 9 species. They are as follows:

Grey headed Juncos	16
Red backed Juncos	4
Shufeldt Juncos	2
Pink sided Juncos.	1
Pygmy Nuthatch	12
Rocky Mt. Nuthatch	1
Rocky Mt. Creeper.	2
Rocky Mt. Hairy Woodpecker	1
Woodhouse Jay	1

The Juncos are still interested in the fine chick feed I'm using, whereas all the others came for suet, in the Potter and Woodpecker traps.

I haven't much to report on birds seen around the canyon. They are few and far between, except the Juncos. Those, by the way, feed on grama grass in the canyon and on the mesa.

There are some robins on the Detached Section, and of course the Solitaires. There are a few of these also in the canyon. The ravens have increased to 22 by the last count. There has been difficulty in keeping the garbage pit covered, because birds, probably these ravens and buzzards, are industrious scavengers.

There are a lot of Rocky Mountain Hairy Woodpeckers on the monument, well scattered, however. I saw a large flock of Chestnut-backed Bluebirds, with what I am quite sure were a few Mountain Bluebirds.

The Canyon Wrens are still here, whistling on the sunny side of the canyon all day. One of them hides in the restored room right below the glass-covered wall painting.

I tried to get a picture of the turkeys Earl mentioned, but the film has not been developed as yet. It will probably turn out to be

one grand blur. He was flying by the time I snapped the picture. Other more common birds I will have pictures of soon, Nuthatches and such.

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CONTACT STATISTICS

By Robert Rose

Opposite Page 494 in the December 1935 Monthly Report is found a tabulation of educational contacts among Southwestern Monuments for the Travel Year ending September 30, 1935. The occasion for compiling this information was the preparation of the Annual Report on Educational Contacts which is called for each year by the Washington Office. The recent Memorandum No. 92, together with Forms 16, were prepared and distributed to custodians for the purpose of getting a more accurate check on educational contacts at the monuments. For the want of even approximate records in the past, the tabulations are certain to be weak in spots. However, it is believed that as a whole they indicate the status of affairs in general for 1935.

Accompanying this discussion will be found a chart entitled "STATISTICAL SUMMARY OF 1935 EDUCATIONAL ACTIVITIES." Summarizations are made by individual monuments. Do not expect letter perfect accuracy in this chart for again it must be noted that the data are based on many monuments upon estimates. However, if there are appreciable discrepancies between the data on the chart and the actual conditions as you know them, write me about them and proper acknowledgement and revisions will be made in subsequent monthly reports.

At first glance the chart looks rather formidable but as it is tested for a few items it becomes quite simple. The following interesting observations seem to be worthy of note:

1. For Bandelier, Montezuma Castle, Tumacacori and Wupatki, field trip contacts are shown as exceeding the total travel listed for these monuments. Field trip contacts under existing conditions at these monuments do not, and cannot, exceed the travel count. This discrepancy is due to the travel figures submitted by custodians at the close of September 30, 1935, not being the same as travel figures totaled from the monthly reports month by month. Fortunately these discrepancies are not large and do not appreciably change the percentages on the form.

2. Custodian Tom Charles has submitted a number of sample forms 16 for different days at White Sands. Data he has submitted proves we have greatly underestimated contacts for White Sands. Contacts at White Sands will probably top 10,000. At any rate, records kept there in as much detail as it practicable for a part-time custodian on a full-time job, are going to bring the facts out into the open.

3. Accurate records at Bandelier, Canyon de Chelly, Montezuma, Casa Grande, Tumacacori, Wupatki and other monuments will doubtless reveal field trip contacts as something less than 100% of total travel. While it is desired that the records shall show this difference, it will not radically change relationships as worked out on the chart.

4. Custodian Carroll Miller's October, November, and December, 1935, figures indicate museum attandance as something less than field trip contacts. This will be brought out in the report for the current travel year.

5. Note the following details of interest:

Casa Grande:

Shows 200% contacted.

" about 1/4 the total contacts for Southwestern Monuments
" nearly 2/5 of all the museum contacts in the system
" about 1/6 of the total S. W. Monuments travel.

White Sands:

Shows about 1/6 of total travel.

Shows that if there were full time help and a museum the total contacts could be approximately 70,000 at that monument alone. Without this help and without these facilities, the very best possible is being done. This 70,000 would be the equivalent of about 1/2 the present total museum contacts in Southwestern Monuments and about 1/4 the present field trip contacts.

6. There is a great difference in time required for making group contacts among various monuments. At Casa Grande and Aztec, groups will average between 30 and 50 minutes while at Bandelier, De Chelly, Navajo, and others groups of the same size will require from an hour up to perhaps a half day or more. Hence in considering this chart on Statistical Summary, don't fail to take this into account. As this system is further developed a method of working in this time element will be perfected.

7. Note that museum contacts at Casa Grande and Aztec Total approximately 38,000 which is nearly 50% of the total museum contacts in the system. These are the only monuments at present having structures built specifically for museum purposes. There are 18 monuments listed as having no museum facilities whatever for visitors.

STATISTICAL SUMMARY OF 1935 EDUCATIONAL CONTACTS

MONUMENT	TRAVEL	EDUC. CONTACTS	PERCENT CONTACTED FIELD AND MUSEUM	TOTAL PERCENT CONTACTD	PERCENT TRAVEL IS OF TOTAL TRAVEL	PERCT. CONTCTS ARE OF TOTAL CTS.	PERCT FIELD CONTACTS ARE OF TOTAL FIELD CONTACTS	PERCENT MUSEUM CONTACTS ARE OF TOTAL MUS. CONTACTS
ARCHES	300	60-Field	20.0%	20.0%	0.2%	0.03%	0.1%	0.0%
AZTEC	10,738	10,738-Field 10,738-Museum	100.0% 100.0%	200.0%	5.4%	10.8%	8.5%	14.8%
BANDELIER	12,381	13,225-Field	100.0%	100.0%	6.2%	5.6%	10.5%	0.0%
DE CHELLY	958	958-Field	100.0%	100.0%	0.5%	0.5%	0.8%	0.0%
CAPULIN	24,000	4,810-Field	20.0%	20.0%	12.4%	2.4%	3.8%	0.0%
CASA GRAN.	27,345	27,095-Field 27,095-Museum	99.9% 99.9%	200.0%	13.8%	27.2%	22.2%	37.3%
CHACO	6,565	6,235-Field 6,235-Museum	95.0% 95.0%	190.0%	3.4%	6.2%	4.9%	8.6%
CHIRICAHUA	6,420	4,000-Field	62.3%	62.3%	3.3%	2.8%	3.2%	0.0%
GILA CLIFF	100	000	000	000	.1%	.2%	0.0	0.0%
HOVENWEEP	200	000	0.0	0.0	.1%	0.0%	0.3%	0.0%
MONTEZUMA	14,919	14,110-Field 15,110-Museum	100.0% 100.0%	200.6%	7.8%	15.2%	11.9%	20.8%
GRAN QUIVIRA	4,649	4,519-Field 4,519-Museum	97.2% 97.2%	195.0%	2.3%	4.6%	3.6%	6.2%
NTL. BRIDGE	700	487-Field	69.6%	69.6%	.4%	.3%	.4%	0.0%
NAVAJO	446	460-Field	100.0%	100.0%	.2%	.2%	.4%	0.0%
PIPE SPGS	4,896	1,686-Field	34.4%	34.4%	2.5%	.3%	1.3%	0.0%
RAINBOW	430	00	0.0	0.0	.2%	0.0	0.0	0.0%
SAGUARO	9,900	2,420-Field	24.4%	24.4%	5.0%	1.2%	1.9%	0.0%
SUNSET CR.	5,688	85-Field	1.5%	1.5%	2.9%	0.1%	0.1%	0.0%
TONTO	5,350	3,305-Field 5,398-Museum	51.0% 100.0%	151.0%	2.7%	4.4%	2.6%	7.4%
TUMAC/CORI	13,081	13,976-Field 3,425-Museum	100.0% 24.4%	124.4%	6.6%	8.7%	11.0%	4.7%
WALNUT	11,326	8,356-Field	74.0%	74.0%	5.7%	4.2%	6.6%	0.0%
WHITE SNDS	33,912	5,965-Field	17.3%	17.3%	17.1%	3.0%	4.7%	0.0%
WUPATKI	1,369	1,505-Field	100.0%	100.0%	0.7%	0.8%	1.2%	0.0%
YUCCA H.	300	000	0.0	00.0	.2%	0.0%	0.0	0.0%
EL MORRO	2,475	1,827-Field	74.0%	74.0%	1.3%	0.9%	1.4%	0.0%
TOTALS	198,478	199,342 (126,822-Field 72,520-Mus.	)		100.6% *	100.2% *	101.1% *	99.8% *

*Check totals

RUMINATION

By The Boss

And again comes the stencil cutter's monthly cry: "Boss, it's time to ruminate!" By this we know that January is past history and we are here setting up a landmark to show how far we have come and which way we are headed.

Chief, the boys have put together another good Supplement. It has become a sort of habit with them.

We are lifting Tov's report on Tumacacori and are going to run it as a separate booklet in a new series of Southwestern Monuments Special Reports, of which this will be Number 1. I think it is a very definite contribution to the growing body of Tumacacori literature and should not be lost in the files. As it happens, the Second Special Report will probably deal with Tumacacori, as we expect it to be Paul Beaubien's report of the excavations last year. Other Special Reports are in the background and will come up in due time.

Fred Gibson, of the Boyce Thompson Arboretum, comes to our aid with some Peyote notes for which we thank him. I don't know whether or not you know it but Fred is a sort of a relative of the National Park Service, being a brother-in-law of Herb Maier, so we don't hesitate to go over and bother him a good bit with our problems.

Earl's method of handling the tree ring problem is good. We are waiting for some of the other men to come in with additions and variations and will probably have something more for next month. The need for this explanation is great because so many of our visitors have only a hazy idea of what it is all about and when they see that terrifying word, dendro-chronology, on a chart, they are willing to give up.

We were certainly pleased to get that nice letter from Dot and John Keur and are glad to share it with everybody on the mailing list because it shows you what our visitors think of our Monuments. I don't say that all visitors get as much pleasure out of their visit as these two do, the reason for this being that these two bring so much in the way of enthusiasm, energy and knowledge along with them. I have noticed that they always leave the man on the job pepped up when they make one of their all-too-infrequent visits.

Dale King, in his "Comments" gives a pretty good cross-section of some of our trails and tribulations at one of our twenty-five Monuments, and I trust you will find it interesting reading. We around headquarters have held several interesting Taurian sessions on this particular copy as it was coming through the mill, and there are still some differences of opinion among us as to the value of some of the suggestions here offered, though we have agreed to give them a trial and see how they work out. I wouldn't be surprised if we had some further reports on this a little later on.

Betty the Birdbander comes in with a nice article on her work the past month in which you get the idea that she is having a pretty good time trying to take pictures of wild turkeys, etc., and you are not wrong in assuming it, either.

As another evidence that we are visitor conscious, in addition to Dale's studies mentioned above, you will note that Bob Rose comes in with a flock of figures dealing with educational contacts. On the face of them we are bound to admit that figures never look so very inviting, but these will repay a little study. It certainly startled me to find, according to this tabular matter, that Casa Grande and Montezuma Castle have 58% of the total museum contacts and 42% of all contacts among the 199,342 contacts made in our twenty-five monuments. Granting that there must be some errors in this table, the above facts stand out so plainly that they cannot be questioned. It rather puts a point on the fact that these two are our best monuments to use for studying visitor reactions in both museums and ruins.

I might report to you here, since you don't get a copy of it, that the Broadcast seems to be doing pretty effective work along its own special line. It is an inside circular for our own aggregation and only goes outside upon written request, and I believe it is helping to bridge the miles down in this corner of the country and keep us all better acquanited. It is the fourth of our informational outlets and the four of them are going to cover our field pretty well. They are the Monthly Report; the Monthly Report Supplement; the Special Reports; and the Broadcast. Each has a definite job to perform and if we can do about half as much as we hope to do with them the job will be well done.

Incidentally, we were rather thunderstruck when a big eastern library wrote us that one page in their copy of last month's report was blank and would we please send them a fair copy. Does that mean those fellows read our stuff that closely? And here is one of the Big Shots in the archaeological field who takes time out to sit down and write us that the December Report is our all time high; that we are doing good work and to keep it up. Does such a letter make us feel good? We are perfectly willing to admit that it does!

Cordially,

The Boss.

Cafewood

SOUTHWESTERN MONUMENTS

MONTHLY REPORT

FEBRUARY, 1936

DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS
FEBRUARY, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent. Hugh M. Miller, Acting Assistant Superintendent. John M. Diehl Associate Engineer. Robert H. Rose, Assistant Park Naturalist. Dale S. King and Louis R. Caywood, Junior Park Naturalists. A. T. Bicknell, Custodian on Special Detail. Robert L. Cole, ECW Clerk. Luis Castellum, Temporary Clerk-Stenographer.

GENERAL FIELD MEN: Charles A. Richey and Harry Langley, Resident Landscape Architects. J. B. Hamilton, Associate Engineer. J. M. Tovrea, Chief Engineering Aide. Andrew Clark, Topographer. Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian. Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 569, Santa Fe, New Mexico. Earl Jackson, Custodian.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Dudlong, Custodian.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian. Charlie R. Steen, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. W. H. Smith, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin L. Jackson, Custodian. Frank Fish, Ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona. Paul Beaubien, Temporary Ranger.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2725, Tucson, Arizona. George Boundey, Custodian. Martin Evenstad, Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Donald Erskine, Ranger in charge.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian. Berry Mchun, Utility Man.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, In Charge.
25. Yucca House---Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
March 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for February, 1936:

TRAVEL:

	February, 1936	February, 1935	February, 1934
Aztec Ruins	297	278	374
Bandelier	252	254	65
Capulin Mountain	500	350	200
Casa Grande	3,043	2,923	2,571
Chaco Canyon	379	207	78
Canyon de Chelly	5	---	---
Chiricahua	300	---	---
El Morro	---	---	---
Gran Quivira	129	216	300
Montezuma Castle	436	1,167	1,035
Natural Bridges	---	---	---
Navajo	---	---	---
Pipe Spring	137	27	436
Saguaro	2,000	---	---
Sunset Crater	74	---	---
Tonto	784	599	---
Tumacacori	1,512	2,116	1,146
Walnut Canyon	187	---	---
White Sands	3,794	---	---
Wupatki	70	50	50
Yucca House	30	---	---
Actual Reported Registration	13,859	8,288	6,255

The ten monuments which reported both in 1934 and 1936 showed an increase from 6,255 to 6,745 --- 490 visitors, or 7.8%, or about one-twelfth.

The twelve monuments which reported both in 1935 and 1936 showed a considerable decrease; from 8,228 to 7,474 --- 754 visitors, or 9.15%.

Thus it would appear that February, 1936, as a travel month was one-twelfth better than the same month of 1934; about 9.15%, or approximately one-tenth poorer than the same month in 1935. Poor travel weather has been general all over the Southwest.

GENERAL

010 MATTERS OF UNUSUAL IMPORTANCE

TONTO---Woodrow Spires, in charge, was able to stop a party of pothunters who were excavating on the shore of Roosevelt Lake. Arrangements now perfected with the Forest Service will prevent much vandalism in this area in the future. See page 109.

NUPATKI---Plans well under way for a small arts and crafts exhibit June 5 of the handicraft of the Navajos of Nupatki Basin. Mr. and Mrs. Brewer, in charge, doing excellent work. Museum of northern Arizona cooperating to full extent. It is hoped the exhibit will become an annual affair, and will aid in promoting a renaissance of old Navajo art in the region. See page 102.

030 WEATHER

The first half of February was relatively warm and conducive to travel, but weather became stormy during the latter portion. Snow made impassable roads to the following monuments: Canyon de Chelly, Yucca House, Hovenweep, and El Morro. So much precipitation argues well for spring range conditions, however. Tonto Basin and other southern cattlemen report the finest grass expectations in many years.

100 ADMINISTRATIVE

120 Monument inspections by

121 Superintendent Pinkley inspected the new residence at Canyon de Chelly February 6.

122 Special Field Representatives

V. W. Vandiver, regional ECW geologist, spent several days studying the old lake bed at White Sands.

A. E. Borell, regional ECW wildlife technician, spent several days at White Sands concerning work being done there under the Resettlement Program.

Norman Smith, junior ECW geologist, spent most of the month at Bandelier working up popular interpretation of the region's geology for future guide and museum use.

123 National Park Officers

Acting Assistant Superintendent Hugh M. Miller inspected the Canyon de Chelly residence February 6 and 26.

Ansel F. Hall, chief, Field Division of Education, visited Aztec Ruins and Navajo during the month.

Resident Landscape Architect Charles Richey during the month made trips to Canyon de Chelly, White Sands, Chaco Canyon, Aztec Ruins, and Bandelier.

Resident Landscape Architect Harry Langley made inspections at

Chiricahua and Tonto.
Associate Engineer Jack Diehl reached Chiricahua, Tonto, and Bandelier, on business trips.
Jr. Naturalist King made inspections at Tonto, Montezuma Castle, Bandelier, and Saguaro. He also visited Walnut Canyon and White Sands.
Jr. Naturalist Caywood visited Wupatki February 17.

180 PUBLICITY

WHITE SANDS---"Fortune" for February carried a picture of White Sands.
Southwestern Headquarters prepared 2,000 copies of a small informational folder for White Sands.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 MAINTENANCE, UNUSUAL

CASA GRANDE---Faulty sewer system has to be pumped out into open trench. An old engine and pump temporarily solve the difficulty, but the system needs repair urgently. See page 109.
Six feet of ruins wall fell recently. Stabilization funds needed badly. See page 109.

TONTO---Entrance road and trails in bad shape due to heavy rain. Trail foreman working on trails, but is unable to maintain entrance road.

220 IMPROVEMENTS

CHACO CANYON---Temporary cattleguard constructed near Fajada Butte.

SAGUARO---Facilitating building owned by University of Arizona remodeled by Temporary Ranger Beaubien into convenient office.

WUPATKI---Two roofs of prehistoric rooms inspected and repaired.
Fine sand covering put on another roof.
Room 72 reconstructed to 4'6" height for drainage control.
Wupatki spring output increased about 400 gallons by new pipe and valve.
Set of stone steps replaced with better ones. See page 100.

230 NEW CONSTRUCTION

BANDELIER ECW---10,000-gallon storage tank formed and poured. Laying of intake and return pipes in progress.
Additional underground power line cable from Headquarters Building to campground comfort station installed.
Planting and obliteration continued.
Museum Building to lintel height and portal connection with Headquarters Building placed. Timber crew shaped vigas, lintels and beams all month.
Quarters No. 1 walls at 2' average height.
Carving crew worked all month. Shipment of completed Wupatki signs were being crated at end of month.

Quarry crew worked continuously all month.
Some maintenance on canyon floor and entrance roads.
---In general, progress was good, considering inclement weather and reduced company strength. See page 115.

CANYON DE CHELLY---New residence completed.
Some material has arrived for water and sewer systems. See page 88.

CHIRICAHUA ECW---Sara Deming Trail now completed for 5,400 feet.
300 feet completed on Massai Point-Balanced Rock Section.
800 Square yards of bank sloping on Bonita Canyon Highway. Excess material used to obliterate borrow pits. A total of 1,000 cu. yds. moved.
Headquarters Ranger Station 90% complete.
Bath House 70% complete.
Chiricahua-Portal telephone line now under construction for 3/4 mile.
See page 89 for detailed report.

GRAN QUIVIRA---Pipe, rods, and pumping equipment on hand in readiness for construction of pump house.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 Cooperating Government Agencies

CHACO CANYON---Soil Conservation Service, with only 10 men on the crew, doing good work. 4,000 cu. yds. of dirt arranged in arroyo-preventing dikes on canyon floor. 1,200 cu. yds. of rock quarried for future revetments. 115 sausage dams completed in side arroyos. See page 94.

320 Cooperating Agencies Other Than Government

At the annual meeting, February 4, of the Northern Arizona Society for Science and Art an amendment to the constitution was passed providing one member of the Board of Trustees to be selected from the U. S. Indian Service, or the National Park Service. See page 102.

350 Donations and Accessions

CANYON DE CHELLY---Custodian Budlong was loaned two interesting stereoptican photos of Canyon de Chelly taken on the Lieut. Wheeler Expedition of 1873. These photos will be duplicated for National Park Service files, and new pictures will be taken from the same location to show deterioration in the White Lower Ruin. See page 88.

400 FLORA, FAUNA, NATURAL PHENOMENA

410 Ranger, naturalist, and guide service

SAGUARO---A convenient botanical trail has been laid out by Temporary Ranger Beaubien near the Ranger Station. Has no appearance of artificiality, and aids in contact procedure at this rather difficult

SAGUARO FLORA (CONT.)

monument. See page 87.

430 Archeology, Prehistory, History

WUPATKI---Partial fossil footprint (Cheirotherium?) discovered by James Brewer in Moenkopi Sandstone. See page 101.
Mr. Brewer also discovered two date seeds, apparently washing out of a prehistoric midden. See page 131.

440 Insect Control

CASA GRANDE---Dr. Donald DeLeon inspected mesquite infestation. Sample has been sent for study. See page 108.

460 Birds

GENERAL---348 new birds were banded this month in Southwestern Monument Banding Stations, bringing the fiscal year's total up to 1,023. Casa Grande, in the midst of its banding season, made a particularly good showing. See pages 125, 128.

BANDELIER---See page 139 for February list. Turkeys feeding in canyon.

CASA GRANDE---Owls, wrens, phoebes, other species have started nesting.

CHAN QUIVIRA---Hundreds of robins and bluebirds wintering at this monument. Feed on juniper berries.

SAGUARO---Two Curve-billed Thrasher nests within 75 yds. of Ranger Station.

WALNUT CANYON---Two hen turkeys seen in front of Ranger Station.

WUPATKI---See page 107 for February list.

470 Animals

BANDELIER---Beaver which are invading Frijoles Canyon have ceased upstream progress and may be starting colony. See page 113.

WALNUT CANYON---Ten deer seen on monument.

WUPATKI---Three antelope seen. Antelope Ground Squirrels coming out of hibernation.
Trapper between two sections of monument has shipped more than 100 coyote and bobcat skins this winter. Also four badger skins. See page 102.

500 USE OF MONUMENT FACILITIES BY PUBLIC

TRAVEL---See page 81.

500 USE OF MONUMENT FACILITIES BY PUBLIC (Cont.)

530 Newsworthy visitors

BANDELIER---Clint Anderson, WPA representative for 11 western states; E. J. Johnson, International Rotary president; W. J. Jenks, vice-president of Norfolk and Western Railroad; Charles H. Lamke, mayor of Albuquerque.

CASA GRANDE---George Parker Winship, author of "The Coronado Expedition, 1540-1542" in the 14th Annual Report of the Bureau of American Ethnology; A. M. Hyde, former Secretary of Agriculture; former Senator David A. Reed of Pennsylvania.

TONTO---Frank Lloyd Wright, noted architect, and a group of protegos.

WHITE SANDS---Mrs. Ruth Woodman, associated with radio program department of 20 Mule Team Borax Co.; Mr. and Mrs. Tom Cramer of U. S. Potash Co.; Mrs. Inez Sizer Cassidy of New Mexico Magazine; Mrs. Elizabeth Willis de Huff, Harvey lecturer; D. M. Wooten and I. C. Bruce of Rock Island Railroad regarding a detour including White Sands.

WUPATKI---J. E. Shirley, manager of transportation at Grand Canyon.

900 MISCELLANEOUS

Mail Count

Mail:	
Incoming personal	654
Incoming Government	1,126
Total Incoming	1,780
Outgoing, Official only	1,413
Total Mail	3,193
Telegrams:	
Incoming	38
Outgoing	47
Total telegrams	85
Grand Total pieces handled	3,278

Respectfully,

Hugh M. Miller,
Acting Superintendent.

REPORTS FROM MEN IN THE FIELD

SAGUARO

By Paul Beaubien, Ranger

Have been here two months now and still have some problems unsolved. With only one car reaching the ranger station for each four or five visiting the monument, this ranger isn't doing his duty. Junior Naturalist Dale King stopped a few minutes last Sunday. He saw about 100 people between the north gate and the ranger station but there was only one car at the latter place when he arrived. Then, some of the parties that do reach the station do not stop or only wait long enough to get road information. Of the estimated 2,000 people entering the monument this month, 503 reached the ranger station while only 382 can be listed as educational contacts.

Had quite a bit of rain this month, and Pantano wash, between here and Tucson, was unfordable on several occasions. Also, the rodeo at Tucson seemed to cut into the normal run of visitors.

Am beginning to feel proud of my knowledge of desert plants (there are more plants here than just the cacti) but also realize I'll be able to learn something more every day for some time to come. Alfred Whiting, an ethnobotanist from the University of Michigan, has already made three trips here to help me get educated. He is now doing some graduate work at the University of Arizona but spent last summer working in northern Arizona. He is largely responsible for the trail signs at Walnut Canyon.

With material furnished by the University of Arizona, I have finished working over one end of the facilitating building on the monument. So have respectable quarters, but do need a water supply.

Have a loop trail about 60 yards in length, which leads by some 40 species of the more interesting plants to be found here. These plants range from tobacco to saguaros. Many of them have been transplanted from short distances through the kindness of Mr. George Keller, a foreman from CCC Camp SP. 2L-A. I understand that transplanting isn't something the Park Service always approves but it seems the thing to do here. After all, this is an outdoor museum and not a garden. (Ed. Note: The transplanting has been done well -- it has no appearance of artificiality.)

For nature notes, I'll add there are two Curve-billed Thrasher nests within 75 yards of the ranger station. One, containing two eggs, was noted February 16, while the other, with three eggs, was seen February 23.

****

CANYON DE CHELLY

By Robert R. Budlong, Custodian

We have very little to report this month. However, our records show a marked increase in visitor attendance for this month, compared with the same month last year. The increase is exactly 400%. Last February we had but one lone visitor. This month we had five. Of these, two were local residents. The remaining three were government officials on an inspection trip. Our two bona fide visitors were unable to get to the canyon rim, the roads being too muddy, so they were taken to the nearby sand dunes and immediate vicinity. Time devoted to this group, ninety minutes. These dunes constitute one of the many attractions at this national monument, and many of our visitors go to see them.

Weather for the month varied from miserable to worse. There were four days of very high winds. Precipitation occurred on ten days, with a total of .65 inch. Maximum temperature, 59 degrees, minimum 8. On the 16th we had snow, hail, sleet, rain, high winds, a sandstorm, and some lightning and thunder. Roads have been nearly impassable most of the month. The canyons are still well filled with flowing water, and no attempts to enter them have been made during the month

On the 6th we were paid a very short visit by Superintendent Pinkley, Hugh Miller, and Chuck Richey. As usual, they didn't stay very long, departing the same day they arrived.

The Custodian's Residence is not yet finished. The contractors had hoped to ask for an acceptance on the 23rd, but the work has gone slowly.

Some of the material has arrived for the remaining work on the water and sewer systems, and it is hoped that before many more months have passed the house will be supplied with water. The water reservoir must be waterproofed, pipe must be laid from the new well to the reservoir, a pump house must be built and pumping machinery installed, and a supplementary septic tank must be constructed.

One of the officials of the Soil Conservation Service recently sent me two very interesting photographs of Canyon de Chelly. They are stereoscopic photographs taken by Lieutenant George M. Wheeler's Expedition of 1873. One is of White House Ruin, the other of the "Circle Wall" in Canyon de Chelly. In the former, the upper ruin at White House appears exactly as it does today, but the lower ruin is far larger. I am rephotographing these prints for the files of this national monument. When vegetation returns, with warmer weather, I shall take other stereoscopic photographs of these two subjects from exactly the same locations as these old ones, sending a set to the official who so kindly sent me these early photographs. The spelling of the name of the canyon on these early prints is very interesting. It is "Cañon de Chelle."

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CHIRICAHUA

By Wm Stevenson

I herewith submit the following travel report for the month of February.

During the month 300 visitors arrived in 65 cars, the majority of the tourists arriving the last week of the month.

In view of the increasing travel, I am designating two enrollees to send as guides for the month of March.

****

CHIRICAHUA E.C.W.

By Wm Stevenson, Project Superintendent

I submit herewith the following report for the month of February.

Sara Deming Trail was completed to the old Balanced Rock Trail this month, making a total of 5400 feet. The crew started working on the Massai Point Balanced Rock section February 21. Echo Trail shows 300 feet completed this month.

Eight hundred square yards of bank have been sloped on Bonita Highway. The material has been used in the obliteration of borrow pits on the highway. One thousand cubic yards were moved.

The Ranger Station at Headquarters Area is 90% complete and the Bath House 70% complete. Work on the buildings was retarded this month by the illness of Carpenter Foreman French.

The Chiricahua-Portal Telephone Line has progressed well during the month. Three-fourths of a mile is now under construction.

We were visited this month by Harry Langley, Resident Landscape Architect and Jack Diehl, Park Engineer.

****

GRAN QUIVIRA

By Wm. H. Smith, Custodian

Travel is far below the regular mark for the month, but Mr. Boundey tells me that it has snowed every other night since I have been gone. So much snow has kept the roads in such a bad state that I have only 129 visitors entering the monument in 48 vehicles. This is the poorest month yet this year.

Delivery has been made on the pipe and rods and pumping equipment for the well here. Now all we need to have water here is to get the material installed, and we are looking for the foreman in to do the work some time in the next few days.

Taking the month here as a whole it has been an unusually quiet month before I left and Mr. Boundey says that there has been but little of interest since he came here. But perhaps I had better let him tell that part of the story as I am going to ask him to send in some material for the report and tell you what his impressions are of the "best monument in the southwestern group."

Mr. Boundey and I changed locations for the first few days of February, and I found the Tumacacori Mission very interesting and was surprised to find it in such a good state of preservation, although it is not as old by a goodly number of years as our mission here. On my way back from the Tumacacori National Monument I came by the Casa Grande Ruins and spent a short while there. That was my first visit to headquarters.

Mr. A. T. Bicknell conducted the group that I was in through the monument and let me here say that Mr. Bicknell can make it mighty interesting for his visitors. Every minute of the trip was interesting. The museum collection at the Casa Grande is so nicely arranged and is such a complete collection that if I was not afraid it would give the headquarters staff the big head over it I would have to say that it was more interesting than the New Mexico State Museum at Santa Fe.

Well, at any rate they are both very interesting monuments, but in the future years when Gran Quivira has been as well developed as they are and there are good roads by it, will naturally in my opinion be far superior to either of the monuments.

***

By George L. Boundey

Mr. Smith has asked me to add a few lines to his monthly report.

We reached Gran Quivira the night of February 4. The last 60 miles the roads were very bad. The first two weeks it snowed every other night with much wind to pile the drifts.

Our visitors, tho not great in number, were all pleased with their visit. One party of four from Albuquerque came the very worst day we had and remained two hours. I found that visitors who came in and warmed up before visiting the ruins seemed to get more from their visit than those who were chilled. Mr. Smith's idea of a warm office or museum where people could rest for a bit before making the tour is very good.

One of the most interesting features of this country to me is the immense number of birds, especially robins and blue birds, which winter here. Usually there are hundreds in a flock and they feed on the juniper berries which are so plentiful here in the forest.

GRAN QUIVIRA (CONT.)

Late one evening I had two Pueblo Indians from the vicinity of Santo Domingo Pueblo. They were much interested in the Pueblo ruins here, and I am sure I learned far more from their description of the kivas, plazas, etc., than I could have given them. Their idea of the water supply is that cracks or fissures have occurred in this lime stone formation and absorbed the springs on which these ancient inhabitants were so dependant.

A photographer, who is making a tour of all the missions in the United States and Mexico, made us quite a visit one day. Two artists spent part of a day sketching and photographing the church ruins for some advertising material the Chamber of Commerce of Mountainair is having placed along the highways.

Gravelling of the first 13 miles of the highway between Gran Quivira and Mountainair is now under way, and Dr. Buer of Mountainair says work on the Mountainair end of the highway is to start soon. With good roads from the north and east, this monument will never lack for visitors.

****

WHITE SANDS

By Tom Charles, Custodian

Mr. Miller of Chaco must have been impressed with the crowds at the White Sands when he reported that we had 85 cars an hour, "on off days." I'm like the man with the wife who said his horse was "sixteen feet high" when she should have said sixteen hands high. If Miller says 85 cars an hour it is 85 cars an hour. I'm for him. "The more I see of Miller, the better I like Chaco."

I would dislike for any of the Park Service Fraternity to think that I am "tooting my own horn;" far be it, but surely it will not be amiss to call attention to the fact that for three consecutive Sundays, when blizzards and sub-zero weather were sweeping the rest of the country, children were playing barefotted in the Great White Sands.

The trek of eastward traffic has begun. Last Sunday I contacted a family from South Dakota and while the baby played barefooted on the warm hillside the father told me that he heard over the radio that morning that it was 48 degrees below zero in his home town. They had been in California and it was urgent that they get home but when they left the Monument they said, "This weather is hard to resist, we may be in no hurry to leave." Similar incidents occur each Sunday.

Possibly it is the weather which is increasing the percentage of visitors from the total traffic on the highway. Last year we calculated that 18% of the total traffic stopped and played in the Sand. The January count showed that about 23% stopped, but the February count shows 31.3%. Therefore, while the travel has dropped from 134 cars in 8 hours in

December and 85 cars in 8 hours in January to 49 cars in the same time in February, our actual visitors have not decreased in proportion. We had an average of 43 cars stop each day in December, 35 cars each day in January, and 26 cars each day in February. Barry's count shows approximately four people to the car. At that rate we have had 2808 week day visitors from January 20 to February 20. In addition to these we had 986 Sunday visitors. The week day number is arrived at by figuring the percentages of three eight hour counts each week and multiplying the average per hour by 14 in order to get the 24 hour total. This gives us a total of 3794 visitors from January 20 to February 20.

It is disappointing that only a third of the visitors see the Heart of the Sands. Seeing the Sands from the highway is like trying to see the Carlsbad Caverns from the mouth of the cave. And the sad part of it is that it is our fault. There should be some display of the beauties and pleasures of the Heart of the White Sands brought up to the highway. The small folders which you have recently printed will help, but the goal is a museum and a continuous ranger. I feel that I owe the tourist the same sales talk and the same effort as though It were costing him $2.50 to get in. When we properly "sell" this monument to the traveling public it should increase our visitors to 80% of the traffic.

Vincent W. Vandiver, geologist, spent three or four days at the monument this month studying the old lake bed. Apparently he found it very interesting. Watson Aitch's boys guided him to the place where they found the skeleton of a mammoth several years ago; he drove over the Sands and across the lake and came out, down toward the beds of bicarbonate of soda. In fact he took in the outline of the old lake bed quite thoroughly. He stated that the geology of that section is worth a few months' study.

Among other interesting visitors this month was Mrs. Ruth Woodman of New York City, in company with Mr. and Mrs. Tom Cramer of the U. S. Potash Company. Mrs. Woodman is out in the interest of radio programs for the Twenty Mule Team Borax Company

Inez Sizer Cassidy, Editor of New Mexico Arts and Artists in "New Mexico" Magazine and head of the State Writers' Project, visited the Sands in company with Mrs. Elizabeth Willis De Huff who puts on illustrated lectures nightly at the La Fonda Hotel in Santa Fe, for the Santa Fe railroad. Their reaction to the Sands was shown in Mrs. Cassidy's exclamation "This is one place I'm satisfied - it is truly one of the wonders of the world." Mrs. De Huff asked for pictures of the Sands that she might use them in her lectures at the La Fonda.

D. M. Wooten, manager of Vacation travel of the Rock Island Railroad from Chicago, and I. C. Bruce, General Passenger Agent from El Paso, visited the Sands with the idea of eventually putting on bus accommodations from their passenger trains at Alamogordo to the White Sands.

WHITE SANDS (CONT.)

Chuck Richey was in for a few hours, enroute to California and Mr. and Mrs. Borrell have returned from Washington and are still here.

Eight or ten members of the Masonic Grand Lodge of Texas spent Sunday at the Sands. One of them suggested that he felt like Mark Twain when he saw the Pacific Ocean, he "Thought it was a success."

You may also be interested in the fact that Lieut. Bibo from the Reclamation Camp below Las Cruces brought 150 men over for a day in the White Sands. They occupied 7 trucks and the officer's car and drove approximately 80 miles each way.

That "Fortune" for February carried a picture of the White Sands under the caption, "The Fine White Sands of Alamogordo." And that we had a letter from Switzerland wanting pictures of the White Sands.

That two Alamogordo business men were in the Heidelberg restaurent in Chicago and found that all the ash jars in the elaborate lobby were filled with White Sand from Alamogordo.

That Jack Voyde and Wilmer Hamilton of this place almost started a riot in their old home towns in Texas when they took White Sand and poured it in piles in the grocery stores. The natives thought, of course, that it was sugar.

I was also interested in the fact that Mrs. Fred Kasson, a total stranger, of Elk Falls, Kansas, asked for help in preparing a White Sands program for her reading club.

But probably the best news of all is that we have had some dandy Southwest winds already and the hills are higher, whiter, cleaner, more beautifully rippled and more free from tracks and trash than they have been in weeks. We have had a most excellent job of house cleaning already this spring.

As we go to press, who should walk in but George and Mrs. Boundey, headed back to Tumacacori. You know, White Sands is George's old stamping ground, when he and Gene' Baird and Eugene Manlove Rhodes were boys together. I often wonder if those boys had anything to do with making the "giants tracks" or burying the mammoth or sowing any of the wild oats which we find out there.

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CHACO CANYON

By Thomas C. Miller, Custodian

General:

Weather conditions were excellent for the first half of the month; visitors were coming in good and the roads were nice and dry. From the 15th of the month to the present date, the roads have been in the worse

condition than they have been any other month this winter. At times the roads have been impassable, as they are today. If this report should be late you will know that I could not get to the railroad in time to mail it. Any way, I am planning to start in with it early tomorrow morning.

Weather Statistics:

Maximum for the month was 51 on the 21st. Minimum was 9 above on the 5th. Precipitation, 1 inch of rain and melted snow was recorded for the month.

Travel:

379 people entered the monument in 144 automobiles, coming from the following states: Arizona, California, Colorado, New Mexico, Oklahoma, Texas and South Dakota.

Special Visitors:

Custodian Faris was a visitor on the 4th. Mr. Faris made the trip to a good monument for a good cause. The 3/4-ton Dodge truck was returned to Aztec Ruins and Johnwill brought Mr. Williams home. We were very glad to return the truck in good shape to Aztec Ruins, and we surely appreciate the loan for the past several months.

Resident Landscape Architect Richey was here on the 10th. to inspect our Soil Conservation Camp.

Soil Conservation Service:

The work with this camp has proceeded in a satisfactory manner. Only a small crew of 10 men are employed. To date 4000 cubic yards of dirt have been moved and placed in dikes along the canyon floor, to turn water into the main wash at designated places. This will serve to prevent new arroyos being made. 1200 cubic yards of rock have been quarried and stacked for future use in the revetment work. 115 sausage dams have been made in the side arroyos. These dams are made by excavating the earth on both sides of the arroyo, then wire mesh is used to keep the rock in place.

Chaco Fence:

The Cook & Ransom Construction Company completed their contract and departed on January 27. The final estimate was made by Associate Engineer Hamilton.

During the month of February a temporary cattle guard was constructed near Fajada Butte. The material was purchased locally.

The Chaco Wash has been up for the most part of the month. On several occasions a little more than three feet of water was recorded on our water gauge at the bridge. The water gaps in the wash are no more, that is they were covered up with ice, snow, driftwood and sand, and are

CHACO CANYON (CONT.)

now under three feet of water, which means a new set of water gaps when the water goes down.

I think I know how to build a good water gap that will not have to be replaced every time it rains. Since I am the one that has to maintain the fence, with your permission I will build them my way, it might not be any better looking, but it will be much easier and cheaper to maintain.

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TUMACACORI

By M. O. Evenstad, Park Ranger

Custodian Boundey has just returned from Gran Quivira National Monument, and has delegated to me the task of getting out the monthly report for February. So here goes:

During the period of January 26 to February 25, 1936, we had 1,512 visitors. These people came from 35 of the states and the following foreign countries: Canada, China, France, Germany, and Mexico. Ten different parties represented Canada, and we had a like number from our neighbor from the south.

A high percentage of our visitors are now from out of the state, and a large number of these from the eastern and north central states where there is now so much sub-zero weather. They are either lucky in choosing this winter for a trip to our Sunny Southwest or else they had a tip from the weatherman. We also find a fair representation on the register from this state and the neighboring states of New Mexico and California. Quite a few of the visitors go into Mexico for a short trip, judging from their conversations.

On the whole, the visitors for the last month grade quite high in appreciation and interest. The four-day rodeo at Tucson, 20 to 23, did not result in any noticeable increase in the travel, as the corresponding days of the previous week proves to be slightly over the rodeo week in travel. Everything in Tucson was crowded to overflowing as far as accommodations for tourists were concerned, as several of our parties told me they had to drive to Nogales to find a place to sleep.

After supper on the 21st, the family and I bundled into the sedan and drove in to Tucson to hear the famous violinist, Jascha Heifetz, and we felt well repaid for the trip, even though we had to occupy stage seats, not other being available. I also found several of the Casa Grande Ruins bunch occupying similar seats at the recital. Really, didn't know that so many of them were musically inclined.

On the evening of the 7th, Dr. W. H. Smith, with Mrs. Smith, and his son, Elbert, with family arrived for a stay under the transfer plan recently inaugurated by headquarters. We were, indeed, glad to make their acquaintance and enjoyed their visit with us very much. They

had a little bad luck in getting here, as they had to be towed in for the last five miles. The doctor almost convinced me that he has a great monument at Gran Quivira, and if he gives as interesting a talk to his visitors on Gran Quivira as he gave us here, that monument only needs good roads to make it one of the show places of the Southwest. They left for Gran Quivira on the 19th to return via headquarters and Casa Grande Ruins.

The weather during the month has been quite moderate, with a good many partly cloudy days, and a couple of sprinkles of rain. The nights have been quite cool with frost a good share of the time. There has been enough wind to pump our water without any help from the gasoline engine. Many of the trees along the Santa Cruz River are bursting forth with foliage, and a little more rain should bring out some of the slower varieties. Various birds are busy feeding on the grass seeds on the monument, and there are many indications that spring is fast approaching.

The month has been taken up with the customary routines, with guide work getting the lion's share. Our need for some kind of a museum is becoming more apparent every day, judging from inquiries by the visitors. The installation of a museum, with suitable exhibits would very likely double the time of the tourists stay, and would also, no doubt, result in increased travel.

A conservative plan on some restoration of certain units would enhance the value of the monument, without a doubt. Personally, I think that Toyrea's report on Tumacacori is a very good document, and serious consideration should be given his recommendations. I think he has drawn a good picture that is good food for thought. There may be administrative objections to his idea of a museum, but there is a lot of merit to it too. With this, I will close the report, hoping that you will overlook the fact that it is rather hurriedly written.

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MONTEZUMA CASTLE

By Frank Fish, Ranger

I report the following as the February history:

Weather:

The first half of the month was ideal from the standpoint of the visitor, sunshiny days and cool, crisp nights. The last part of the month has been stormy, resulting in a sharp drop in visitors.

Roads:

During the month a section of the State Highway between Prescott and Jerome has been closed from 10 a.m. to 2 p.m. daily. This leaves the Cherry Creek road as the only means of travel to the Monument from Prescott. While the road by Cherry is not considered bad by local

people, visitors from the east in some cases return by Oak Creek, Flagstaff, or Ashfork to Prescott in order to escape it.

Visitors:

Guests at the monument number 436 for the month. Of this number 362 registered and 74 were locals, repeaters, or did not register. One party from Eaton's Ranch, Rimrock, has been down six times in the last 10 days, bringing someone different each time. One remark by a member of the above party, although in the nature of a bouquet, reflects more to the Park Service than to any individual, so will pass it on. "Some of us hard-boiled business men that are always kicking about taxes and the cost of government think that the money spent to preserve things of this type is worth while."

One party of CCC boys was in during the month from the Mayer Camp. It was of much interest to me to compare the actions of this group with any other group of young men, even from the schools of higher education. Instead of throwing candy wrappers, cigarette stubs, etc., around, I was repeatedly asked where to place them.

Official Visitors:

Dale King, junior naturalist, made an inspection of the monument on the 14th. We were very glad to have him and hope to see him back again some time in the near future.

Official Leave:

Custodian Jackson was called to San Antonio, Texas, on the 11th, due to his brother's illness. A recent letter to Mrs. Jackson tells of his brother's death. Mr. Jackson is expected home in a day or two.

General:

During the past month, spare time was spent in giving the monument from the parking area to and including around the ruins a thorough raking and cleaning.

Larger fallen limbs suitable for use have been gathered and added to the fuel supply.

The guest ranches report good business with all accommodations taken and a number of future reservations made.

New mines are being developed in the nearby territory, with the R.F.C. offering loans to those prospects showing required indications of good ore bodies.

Range conditions are excellent so, all in all, the present indications are good for this year.

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El Morro

By Evon Z. Vogt, Jr.

Travel to El Morro for the month of February has been absolutely nil., unless I could be called a visitor. I spent a day at the monument on the 9th of the month. The roads were practically impassable at that time, but by leaving early in the morning when the ground was still frozen, I managed to drive the car to within a half a mile of the monument. Where the road is not blocked with snow it is a bottomless boghole. From Ramah north there was very little snow at that time, but from Ramah south the country was covered with a foot of hard crusted snow. This morning we found eight inches of wet heavy snow on the ground. When this melts the ruts that lead on down the middle of the El Morro Scenic Highway will be deep enough to stick even the cars with the highest clearance. If you get out of the ruts you slip into the ditch at the side, so it's just like jumping off a hot stove into a bed of cactus. You'll be a nervous wreck in either place.

One can make a check-up on the visitors by looking at the snow-blocked entrance road. Nobody has bucked those drifts yet, nor will they for a couple of weeks. The register is blank and a cold wind sings through the pines. Unless there is a let up in the current weather, I predict light travel for the month of March also.

The premises are in good shape. The ranger's cabin has not been bothered. The trails are bound to erode somewhat from the melting snow. The only thing that will have to be watched closely is the water cove. Another week of blizzards and enough snow will fall, melt, and run off the top of the rock to fill the pool, which will run over and wash an arroyo down through the reclaimed area. If it keeps on snowing, next week end will see me at the monument bailing water out of the pool and pouring it where it will run off and do the least damage.

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Aztec Ruins

By Johnwill Faris, Custodian

The month of February has rolled around so fast that it is time to write another report before we can get settled down to the fact that February is here at all. Our visitors total 287 which is slightly above that of last February. Mr. Hart has been complaining that the bad weather we have been having of late certainly cut in on our visitor run, but I find upon looking up this same month a year ago, that our work and the number of visitors were both affected by severe weather. So I guess that this is about the time of the year that we must expect some interference. Comparing our section with others around us, this has been a very mild month, and only a few days have been disagreeable.

The few days we were not able to work this month has made quite a lull in the work that is being done with our CCC boys. One day that they miss means actually many man days, and we are sincerely hoping that the Gods are on our side for the balance of the sixth enrollment period,

since we have a mighty big program outlined, and we hope to finish before the first of April.

Regular monument activities have been no greater than usual. It was our pleasure to have with us this month a representative from both the Landscape and Educational Divisions. Mr. Richey was in and went over the E.C.W. work, and only a day or so ago, Ansel and Mrs. Hall stayed overnight with us. It was Mrs. Hall's first visit, so we know that the triplets will hear about a mighty interesting ruin. One feature I didn't like particularly was the fact that Mr. Hall called from Gallup and told us he was coming, and Bert Hart swept the museum three times that afternoon. You can see, Boss, that if we had many visitors like that and they all informed us they were coming in advance, that the cement floors could not stand up under the strain. Anyway, the lobby floor looked mighty nice, and we were mighty proud of it.

Am a little interested, Boss, in the remarks of Dale in his comments on visitors, and the inference that all personnel should be given a day a week off in order that they not become stale and thus lose the efficiency they might otherwise deliver. Will the facts prove that seven days a week make one stale and less efficient? What about yourself and some of the rest of us, that never thought of a day off for months at a time? Did we become stale and less efficient? Did service rendered suffer in the early days because we did not get a day a week off, and an hour for lunch? Is it not a little queer that seemingly today a man's efficiency must be so carefully guarded that he is in need of these rest sessions, days off, etc., and yet that same individual can play bridge, dance, until all hours of the night, and he never gives a thought to the efficiency he is always crying about. I certainly do not mean that such might be the case with any individual within our Service, but I want to differ a bit regarding a few of Dale's notes. A person to master the piano, blacksmithing, of any of the professions, does not get as far away from it as possible, forget all about it, etc., and feels that there are very few places in the Park Service that one is tied down to his work to the extent that he is mentally incompetent if not allowed a day a week off, but that we do not have about eight days in each week to get the things done that are needed in order that we might really give efficient service. Considering the things we had at our command a few years ago, and the things that aid us now, I can not see for the life of me, that the service was much less five or ten years ago, than it is right now, and we never even thought of a day off, nor did we spend much time bewailing the fact that our efficiency would be materially decreased since we had swallowed our lunch in about ten minutes in order to get to a party of visitors that might be waiting. Think, Boss, how much more efficient we might have been, (if the party had waited at all) had we placed a nice printed label on the register stating that we were on the verge of fatigue, and that we were in the process at that very moment of a complete rejuvenation and that in exactly 22 minutes and 52 seconds we would be in tip top shape and at their very command. Well, well, enough

of that, Boss, I hadn't realized that I had worked myself up to such a state. The fact of the matter is, I think, that Dale is baiting some of these easy boys, because I have personally talked shop to Dale until all hours of the night, and I didn't notice any evidence of a complete break-down, and I know too, from your reports and letters, that Dale is hitting the ball many weeks without any time off, and yet he comes out in the report with something like that, and has all our rangers thinking they are terribly abused. (This is not intended for my ranger by any means). I make every attempt to warn him of the pitfalls of the printed page, and all the green pastures they seemingly contain.

The month has been one of vigorous action from the CCC angle. The boys are rushing things to completion and yet trying to do everything that we want done. We have added a sewer line and three cesspools to our program. This is to care for all our spare time. I think we can get it all done, and I know we could, Boss, were it not for the fact that we can only work five days a week. For goodness sake don't let Dale get a hold of the fact that the E.C.W only work five days a week or he will want to throw all our rangers under the E.C.W. setup.

Any way it is a great life, we get a big kick out of playing the game, and so, Boss, without even a day off, we tackle another month.

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WUPATKI

By J. W. Brewer, In Charge

500 Use of Monument Facilities by Public

56 guests registered at Wupatki Pueblo; at the Citadel Group, 21; seven names are duplicated, leaving a total of 70 registered visitors to this monument in February, 1936; 1935, 50; 1934, 50.

Largest single day was January 26 on which 19 visitors registered. With one exception, and that also on January 26, all parties at Wupatki Pueblo were contacted with field lectures. One party of two was contacted at both the Citadel (by me) and the Pueblo (by Sallie). "SWM Stencil No. 16 enclosed.)

States were represented as follows: Arizona, 12; California, 6; New York, Ohio, and Colorado, 2; Virginia, West Virginia, New Mexico, Iowa, Minnesota, Washington, Texas, and Pennsylvania, 1.

530 Newsworthy Visitors

Dr. Colton and Miss Katherine Bartlett were here on the first collecting measurements from lower rain guages.

Mr. J. E. Shirley, Manager of Transportation at the Grand Canyon, and party came the 29th; Mr. Shirley visited these ruins fifteen years ago, coming in by horseback; he thought the appearance of Wupatki much

improved since its partial excavation.

020 Weather

January 25 to February 9 temperatures not recorded. February 10 to 25, high 61 degrees on the 20th; low 20 degrees on the 4th. Precipitation .014 inches. This is somewhat short of our February, 1935, precipitation which was 1.68 inches.

There were six sunny days, four partly cloudy, and 14 cloudy days.

200 Maintenance, Improvements, New Construction

210 MAINTENANCE

Roofs of Rooms 1 and 4 were inspected and minor repairs made.

Roof of Room 63 was covered with a final three inch layer of Moencopi. The material, shale and fine sand, was hauled from the vicinity of the tank.

230 NEW CONSTRUCTION

The north half of the west wall of Room 72 was reconstructed to an average height of four feet, six inches, on the inside of the room. This was done as a drainage control measure.

220 IMPROVEMENTS

After removing the gooseneck and lowering the pipe line at the tank I installed three lengths of ¾" pipe and a shut off valve. The spring output jumped from 770 gallons per day, as reported in January, to 1122.07 gallons per day. Since none of the other neighborhood springs have had this sudden increase I attribute it to the change in the pipe line, although no leak was found in the old pipe.

The make-shift stone steps near Room 49 were torn out and will be replaced with new ones.

400 Flora, Fauna, Natural History

430 ARCHEOLOGY, PREHISTORY, HISTORY

While handling Moencopi Sandstone slabs reconstructing a wall of Room 72, I found one containing a partial foot print. Two of the toe tracks most clearly defined resemble in size and shape the Cheirotherium track cast described in the September Monthly Report, 1935,(page 231). While the track does not seem to be complete, I believe, when it is properly displayed in connection with the more perfect cast it will explain how a natural cast is formed.

460 BIRDS

Bird notes taken during February are as follows: (If specific dates not given the bird has been seen commonly during the past month). Golden Eagle (Clyde Peshlacai says the young have been in the nest since last full moon -- February 7th); Red Shafted Flicker, 14th, 16th, 19th, 21st; Horned Lark (Ocotocris alpestris sp?); Rock Wren; Sage Thrasher; Western Robin (hundreds); Mountain Bluebird (hundreds); Townsend Solitaire (dozens); White Rumped Shrike, 16th; House Finch, 16th. Two Red Shafted Flickers have been several times frightened out of a hole in the east wall of Room 41.

470 ANIMALS

Three head of Antelope were observed between the Citadel and Highway 89 on the 17th by Winnie Caywood and the HA-CWP.

A few scattered Antelope Ground Squirrels have been seen.

The trapper at Arrowhead Tank reports having shipped a total of over a hundred skins; four of the pelts were badger and the balance coyote and bobcat.

900 MISCELLANEOUS

MUSEUM OF NORTHERN ARIZONA ANNUAL MEETING

At this meeting on February 4 there was passed an amendment to the constitution of the Northern Arizona Society for Science and Art providing that one member of the Board of Trustees be selected from the U. S. Indian Service or National Park Service.

Following the business meeting Dr. Colton gave an illustrated talk on Hawaiian Volcanic Eruptions, including the recent eruption of Mauna Loa, part of which activity Dr. and Mrs. Colton witnessed. The lecture was of especial interest to us because of the similarity of the Hawaiian and Flagstaff volcanic areas; in some of the slides the general aspect of the country might have been mistaken for scenes northeast of Flagstaff. Interesting, too, were pictures of the rough "cindery" type of lava known as "aa" and smooth billowy surfaced type of lava known as "pahoehoe;" the "aa" type is common in the San Francisco Mountain region, but Dr. Colton said that the only example of "pahoehoe" he has seen is at Sunset Crater.

Most surprising view, to me, was one showing people walking on the crust of the lava, under which was flowing molten lava.

NAVAJO ARTS AND CRAFTS EXHIBIT

Because the majority of our local Indians were gathered at the

hogan of Nescai Yazzie for a sing on the night of February 7, Sallie and I attended, thinking it a good opportunity to announce the exhibit.

February 7 was the night of the last full moon so the date was set for the fourth following full moon, June 5, (the exhibit to be on Saturday and Sunday the sixth and seventh).

After explaining the idea to Clyde we waited a long while as he translated and informed the gathering. Several times he repeated "non e shosha yazzie" and after they had discussed it at length I asked Clyde the meaning of the Navajo term -- to learn they were calling our exhibit "Little Gallup Ceremonial."

The show was met with great enthusiasm and some of the oldsters suggested a revival of early day crafts. Peshlacai Etsedie has promised to make a "Navajo saddle" and to encourage the women to employ vegetal dyes in their exhibit weaving.

After seeing the response given, I mentally shifted the exhibit from the amphitheatre to the open space opposite the cook shack.

Clyde, Emmett, and Hal want to build an exhibit hogan and brush shelter.

Encouraging cooperation has been received from Dr. and Mrs. Colton.

Sallie has been unanimously elected Field Representative and will contact the hogans.

CAYWOOD'S VISIT

On February 17 Louis and Winnie Caywood brought Don Erskine, Walnut Canyon's new temporary Custodian, to Wupatki. The visit was primarily for a discussion of place names, of which 50 odd were added to the list; secondarily, to acquaint Don with Wupatki and the Brewers with the Don.

WINDOMETER

This instrument, described in the January report, has been sent to the T.W.A. airport at Winslow for correlation with their accurate instruments.

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SUNSET CRATER

By J. W. Brewer, In Charge

74 guests are registered at Sunset Crater between January 26 and February 12; none is registered after February 12. Unsettled weather and snow fall probably account for the sudden and complete drop in

traffic. (1934 and 1935 not recorded)

States were represented as follows: Arizona 13; California 12; Illinois and Oklahoma 2; Iowa, Alabama, Connecticut, West Virginia, Texas, Kansas, Michigan, and Indiana 1; Washington D. C. 1; Nome, Alaska 1; Toronto, Canada 1.

Another large yellow pine has blown across the Sunset Crater road, this time between the Crater and Highway 89. The road within the Monument boundaries remains clear.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

Again I have to stop and make an account of my doings and the happenings here at Pipe Spring. It seems like this monthly report gets around so often there has not been anything worth reporting until I get out my daily record and see just what I have recorded and I find that four weeks have gone by bringing many things to report.

The weather seems to be first as we have been having so much rain, wind, and cloudy weather that we are beginning to wonder when we will have some dry ground again. Starting February 2 with a light snow and rain, we have had storms every few days, getting harder each time, until yesterday there was a good spring rain making the water run down the roads and washes.

The storm has stopped the CCC boys from work five days this month and slowed up their work because of mud. But, due to the CCC boys, the road to Fredonia is practically all graveled, with the exception of the Cottonwood Wash and three or four small spots.

The road is in very good condition for so many storms. Four inches of rainfall reported at Kanab, Utah, a lot for this country. When the work, as planned by the camp is complete, we will have a good road to Highway 89. Coconino County road officials are planning to make a good road from Fredonia to the Indian Reservation, a road about one mile in length. So, if good roads have anything to do with travel, we ought to have an increase in visitors this summer.

The travel this month has been low due to the storms. Visitors were from Utah, Arizona, and Ohio, 11; local travel, 126; total for the month, 137.

I gave two lectures to the CCC boys this month: attendance 15 and 17. The boys are getting a better idea of what the national parks are trying to do for them, as there is hardly a day goes by but what someone has some question regarding the Service.

The E. C. W. work has shown a marked improvement in the monument this month as the following projects are nearing completion:

E.C.W. 718 Walks. West walk complete. Walk in front of east cabin, complete. Excavation for the walk to fort, complete, but the laying of the rock I had stopped on account of the finding of what has proven to be an old dugout -- report later in this report.

E.C.W. 131 Boundary Fence. New posts cut, peeled and on the ground.

E.C.W. 710 Parking Area. The dirt moved from the diversion ditch above the road was used on this project which is now 75% filled and graded.

E.C.W. Superintendent Draper has planned to complete these four projects before this bunch of boys leave here about the 23rd of March, and I think they can if the weather does not hold them up any more.

As I reported in a letter to Al Kuehl, February 16 the boys found some stubs of juniper posts while they were excavating for the walk from the east cabin to the fort. These posts, I am satisfied, were the back of the dugout made by Whitmore and McTyre, 1863.

The dugout being in line of the walk, I had the boys stop work on it till something was decided about whether we would replace the dugout now or not.

Some time last fall I wrote you that I was trying to get a place at Moccasin to which I could move my family. I have finally got that place fixed up and we hope to be able to move into it next Wednesday.

I am going to fix the west upstairs room of the lowest house as an office and living quarters, so that the rest of the Fort will be open to the visitors, which they will enjoy.

In speaking of moving makes me thing of the time I moved here ten years ago this month. Incidentally, we had a lot of storm in 1926. I came here with a horse, two dogs, table, no chairs, a few dishes, and bedding, - and what changes have taken place since then!

Once a place of activity for cattlemen and the watering of hundreds of cattle, now none are allowed to come here to water.

Once a stopping place on the main highway between Zion and Grand Canyon National Parks with a yearly travel of 26;000; now only a few hundred.

Once means of irrigation of 15 or 20 acres, now only the meadow and shade trees to beautify the monument.

Once buildings in a ruined state, now practically restored to the condition when built.

Once rooms barren of all furniture of pioneer life, now a few pieces of prehistoric Indian and pioneer relics are place to break the barrenness of them.

Once a poor place for campers, now the beginning of an ideal camp ground.

Once a poor road which took hours to get over; now it takes only minutes.

Once the wind blew and the stoves and fireplaces smoked with every breeze, and IT IS THE SAME TODAY AND IT WILL ALWAYS BE SO IN THE FORT.

All in all, I have enjoyed my life here at the monument very much and hope that I will be able to continue my services for some time to come.

I am mailing you the last two copies of the Pipe Post published by the CCC Camp here; they have put out some very fine publications.

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WALNUT CANYON

By Louis R. Caywood Jr. Naturalist

Following is the report for Walnut Canyon National Monument from January 25 to February 19, 1936:

Weather conditions were very bad during all of February causing muddy roads and consequently resulting in comparatively little visitor travel. From January 25 through February 1, the weather was good and over 100 visitors came to view the Canyon. Visitors numbered 167 during my stay. Of this total 132 personal contacts were made either at the Lookout Point or the Ranger Cabin.

February 2 a snow storm raged all day with the result that roads were almost impassable. The snow remained on the ground only a short time, but the roads continued to be muddy for quite a time. A number of fallen pine trees, blown down by the terrific wind, were observed both on and off the monument; none, however, fell across the roads. A tree, which had blown across a main road near Flagstaff, caused quite a serious accident to residents of Flagstaff. Starting Tuesday night, February 11, to the present a snowfall of from one to four inches fell every night. This ceased to be a joke after the third night as the walks had to be cleaned off each morning.

During the period of my stay bird banding was successful. 24 new

bands were used in banding the following:

1	.....	Pigmy Nuthatch
2	.....	Shufeldt Juncos
21	.....	Redback Juncos

On Friday morning, February 14, Donald Erskine arrived to relieve me at this monument and that evening Dale King of the headquarters staff paid us a visit en route to Bandelier National Monument. We were very glad to see these boys, and are sure Donald Erskine will thoroughly enjoy his stay here as we have.

On Monday, February 17, I took Don to Wupatki National Monument to meet the Brewers and visit the monument. He was very much impressed and said he was anxious that his wife see the Pueblo there.

We have not seen any deer in the vicinity this month and are wondering if they have a special stomping ground during snow storms. Several Abert squirrels have been noted on the monument, and on February 18 a Goshawk was seen flying through the pine trees.

Now on February 19 I am turning the monument over to Donald Erskine who I am sure will take splendid care of the place. He will give the total visitor travel at the end of the month and add his remarks.

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By Donald Erskine, Ranger

As Louie stated in his part of the report, travel has been very poor due to the terrible condition of the roads. Since he left last Wednesday I have had only 20 visitors, and have contacted 17 of them, making the total for the month up to and including the 25th, 187 visitors with 149 contacts.

Most of the time since I've been here there has been very stormy weather with snow every day except three days, and the roads have been getting steadily worse. The only time they are passable without chains is in the early morning when they are frozen. Sunday I had to pull a new Buick from Wisconsin out of the mud, and today I furnished hot water, soap, etc., to a man from Washington who had been forced to put on his chains while stuck in the mud. Incidentally he also had to change his shirt. It has been over a week since an Arizona car has been on the monument. I gues the home folks know better than to try the mud.

I have continued bird banding where Louie left off, and most of the Juncos should be banded by now. Adding my efforts to Louie's gives the following:

1	.....	Pigmy Nuthatch

5 ..... Shufelt Juncos
25 ..... Redback Juncos

Over the past week-end I had a most welcome visit from my wife. She stayed with me from Friday until Monday, and I now feel very much alone in the world since she left. After pulling the Buick out of the mud Sunday it took the combined efforts of my wife and myself to convince the (in my wife's words) lovely old lady, that we could not accept the $5.00 she was trying to force on us. (Yes, it was really $5.00.)

Last Saturday the H.R.W.P. and myself saw about ten deer just off the monument on the east road. Several had beautiful sets of antlers. Shouldn't they be shedding them pretty soon? I wouldn't mind finding a nice set. Also this afternoon I came within 100 yards of two hen turkeys in the picnic grounds in front of the Ranger Station.

After being here less than two weeks I still feel free to think that Walnut Canyon is very much all right.

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CASA GRANDE

By W. J. Winter, Custodian

This report is rather hastily dashed off in small bits, as we are meeting visitors in great numbers and, with Charlie detailed off to Tonto, Al and I are kept on the jump.

Travel this month was 2,540. This included two groups of CCC boys, 21 on February 9 from SP-6, near Tucson, and 50 on February 23 from the camp at Windelman. A few newsworthy visitors were noticed. February 2 we met George Parkery Winship of Dover, Massachusetts. Mr. Winship is the author of "The Coronado Expedition, 1540-1542," in the 14th Annual Report of the Bureau of American Ethnology. Since this work deals with our part of the country it is particularly interesting to us. February 16 the ruins were visited by Mr. Arthur M. Hyde, former Secretary of Agriculture. February 18 we were interested to meet Colonel G. D. Pope of Detroit. We had often seen the name of "Dr. Pope, U. S. Army," on the south wall of the north room of the Casa Grande. Colonel Pope informed me that Dr. Pope was his father, and had been in Arizona as an Army surgeon in the 70's, at which time he had left his name on the wall. Colonel Pope also said that the name of his Grandfather, Charles D. Poston (now buried at Poston's Butte) was supposed to be somewhere on the wall. We looked for it for a few minutes but did not find it. You may possibly have seen it. February 23 we greeted former Senator David A. Reed of Pennsylvania.

NPS visitors were few this month. February 18 we were glad to meet Dr. Donald DeLeon of the Branch of Forestry in Berkeley, accompanied by C. R. Willette of Yosemite. Dr. DeLeon was kind enough to inspect

the mesquite infestation reported last month and said that if we sent him a sample he would get us the dope on it. The sample has been sent.

Weather this month hasn't been bad, though a bit wet at times. Minimum temperature was 25 on the 7th, Maximum 79 on the 22nd, which being a holiday encouraged quite a number of visitors to come. Precipitation was 1.63.

I am glad to report that we finally got our sewer pump working, thanks mostly to the services of Al Bicknell, who got our old motor into running order and set up the pump. Now the usual couple of hours daily pumping is done by the motor in about twenty minutes. Of course, this is only a make-shift, as the water is pumped out into an open ditch, which is bad enough now but will be worse when the weather gets hot. So, we are still praying for the funds for a new sewer system.

Speaking of funds, I regret very much to report that about five cubic feet of the top of the east wall of Compound A fell off the other day. When will we get the appropriations to properly preserve these ruins?

Signs of spring have appeared in quantities in the last few weeks. Ground squirrels and lizards are running around. The owls who own the Casa Grande have a nest on top of the east wall of the center room. Phoebe are also noticed nesting in the ruins. Ocatillo leaves are coming out. The Custodian and Ranger show signs of Spring fever -- or do they show that all the year around?

Ranger Charlie Steen was borrowed by the Naturalist Division a couple of weeks ago and accompanied Park Naturalist Rose to Winkelman where he gave a talk to the CCC camp. He returned alive and unharmed so I gather that the talk must have been a success. In fact a number of the boys came down to see the ruins the following Sunday, so apparently Bob and Charlie are good salesmen.

One of the better wisecracks this month seems to have come from the H.C.W.P. We made a trip to Phoenix February 14, which as you know is the State holiday called Admission Day, being the date upon which Arizona was admitted to the Union. The banks are closed on that day and this was noticed by the H.C.W.P., who queried "Why do they put up a sign saying 'Admission Day' when they won't let you in?" Not an unreasonable question, when you stop to think about it!

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TONTO

By Woodrow Spires, In Charge

February will probably go down in history as the most phenomenal month ever witnessed here. Just think, eight days of rain and to cap the climax, the engineers arrived to lay out the proposed new road.

TONTO (CONT.)

During the last month we have encountered weather which has been unheard of in this country since 1919. Precipitation for the last month totaled five inches. It was recorded on eight of the 14 cloudy days and four part cloudy days. The temperature has been very mild, without a freeze. 68 degrees was the maximum and 33 degrees the minimum.

The cattlemen of this region are looking forward to one of the best years in the history of Arizona's cattle industry. One cowman told me he would get a 95% calf crop with sufficient feed to carry through the summer.

The visitor count for the month shows a decrease of 33 persons or 4% which can easily be accounted for by the weather report. The following figures are derived from SWM Stencil No. 16:

Total visitors at the monument	724
Total guiding time	7020 minutes
Total visitors taking field or ruin trips	82
Total time spent in field and ruin trips	5420 minutes
Average time of field or ruin trips	66 "
Average group for field or ruin trip	6.32 Persons
Total visitors for museum trips	452
Total number of museum trips	81
Total time for museum trips	1600 Minutes
Average time of museum trips	19.76 "
Average size of museum groups	5.58 Persons

Special trips to the upper ruins were so few that I counted them as regular field and ruin trips.

Checking last year's travel count for the same period (January 25 to February 25) I find 599 persons visited the monument against 724 for the same period this year. This is an increase of 125 persons or 20%.

This month's special visitors report looks as though I was copying the Southwestern Monuments personnel. Leading off with Dale S. King, Don Erskine and Charlie Steen on February 10, with King and Erskine repeating on February 13, King spending the night. February 18 Watson Smith of Cincinnati, Ohio, who spent last summer with Ansel F. Hall's Rainbow Expedition and who at present is studying "Ho-Ho-Kam" at Gila Pueblo. February 19 the engineering crew, consisting of Mr. Andrew Clark and the new Mrs. Clark, Venla, and Mr. and Mrs. Carl Schmidt (Boss you sure have to give these engineers credit for being able to corral good cooks) arrived for about two weeks of road location work. February 20 Mr. Jack Diehl, Associate Engineer for the Southwestern Monuments, and Harry Langley, Landscape Architect, arrived. (This is what Amos and Andy would call check and double check.) Mr. Diehl to check on Andy and Carl and Mr. Langley to check on Mr. Diehl. February 22 Frank Lloyd Wright, world famous architect, and a group

of 21 protege camped on the north slope of the monument and spent a couple of hours viewing the style of architecture of the upper ruins. February 23 Mr. Diehl and Charlie Steen returned, Mr. Diehl for a stay of a couple of days and Charlie for a week. During Charlie's stay he will attempt a little ruins stabilization and catalog the Museum collection.

February 13. The first systematic inspection under the new rules was carried on by Dale S. King.

February 22. While hauling wood I accosted a party of pot hunters on the lake shore. These men were obviously semi-professional, as they knew the difference between our local types of pottery. After telling them I represented the Federal Government, they began to tell me how they were out of work and had wives and families they had to support. So, upon a very conscientious promise that they would never again be guilty of the same offence, I let them go. The water users and Forest Service have thrashed out the matter of controlling the lake bed and the Forest Service won out so now we can curb all pot hunting in this vicinity.

The rains in the last month have certainly played havoc with the trail and road.

Boss, I guess I'd better close this before my secretary (Beth) gets writers' cramp, and you have to try deciphering some of my hieroglyphics.

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BANDELIER

By Earl Jackson, Custodian

Visitors:

Visitors numbered 252, arriving in 79 cars, from 25 states, Washington, D. C., Dutch East Indies, and Montreal, Canada. Only 11 states and Washington, D. C., represented by cars.

The six highest states by visitors were: New Mexico, 189; Iowa, 12; California, 11; Texas, 8; Maryland, 7; Colorado, 6.

Visitor attendance shows a decrease of 42 under February of 1935. In view of very bad weather conditions, I am surprised attendance was not much lower.

Weather and Roads:

Days partly cloudy: 7.		Minimum temp..... 8. Jan. 29.
Days cloudy.....16.		Mean Maximum..... 41.4
Days clear ..... 8.		Mean Minimum..... 22.6
Maximum temp.....54.	February 23.	Precipitation..... .85

Snowfall..... 4.95 inches. Jan. 29, Feb. 13,16,18,19.
Rainfall..... February 11, 14.
Icestorm..... February 3.

Weather has been severe. While we have escaped the dust storms of a year ago, we have had much more consistently stormy weather, about a quarter inch more precipitation, and only eight clear days. Instead of having two or three good storms, there have been several small ones scattered through the period, and the high percentage of cloudy days has prevented the soil drying on the surface.

Roads have been in the worst condition I have seen them yet. For several periods of a few hours at a stretch they were impassable without chains, and sometimes even then with difficulty. They have been so wet that a road grader could do very little good.

Visitor Trip Chart:

Twenty five parties of visitors were taken through the ruins, numbering 125 people. Average time per trip was 59.28 minutes. Eight parties, numbering 31 people, were talked to without ruins trips, averaging 16.87 minutes per party. All visitors to the monument were contacted and registered. A great many of those who did not take guided trips did not go through the ruins, but took in the view from a distance and left.

Special Visitors:

January 25 - A Mrs. Harley, of Baltimore, Maryland, made her second return visit to the monument, accompanied by Mrs. J. W. Hyler and sons, of Denver, Colorado, Mrs. Harley is one of our best boosters.

Janunry 26 - George J. Hoffman and Worth D. Ross, of the U. S. Bureau of Public Roads, were interested visitors.

February 1 - Superintendent A. L. Brown, of the Colorado School for the Deaf and Blind, was in with a party of 14, 12 of whom were deaf. The party included members of the basketball team of the school, who had come to Santa Fe to play the team of New Mexico's Deaf and Dumb School. Mr. Brown relayed practically my entire lecture to them by talking with his fingers. I advise any man who read this to carefully refrain from mentioning to their wives possibilities for rapid finger speech to supplement tongue action.

February 12 - Clint Anderson, W.P.A. Field Representative for 11 Western states, brought in a party of distinguished Rotarians. Mr. E. J. Johnson, president, International Rotarians, and wife, were in the party. Accompanying them were Mr. W. J. Jonks, vice-president of the Norfolk Western Railway, of Roanoke, Va., and wife. Charles H.

Lambke, Mayor of Albuquerque, was with the party.

Charles A. Richey arrived for landscape and building inspection, to depart on February 14.

February 13 - Jack Diehl was in and out after a brief inspection.

Norman Smith, junior geologist, E.C.W., arrived, and has been had at in getting material for a geologic report on Bandelier National Monument.

February 17 - Dale King, Junior Park Naturalist from Headquarters, arrived for a four day stay.

Nature Notes:

The beaver which was reported to be coming up the canyon appears to have decided to settle down for a while. For some time now no more progress has been noted upstream. A. B. Groce, Landscape Foreman here, says there must be two beavers. He has seen one, in its hole under a rock ledge.

Patrol up Frijoles Canyon to the Upper Crossing, six miles from headquarters, reveals over a foot of snow on the shady side of the canyon. Turkey tracks were not in evidence at the Crossing, but a great many were seen from about a mile below that point to as far as the custodian's residence, in places where the snow was melting and showing only in spots.

Betty's bird banding report will be found in the Supplement.

General:

Visitors to Bandelier must be really interested. One day it snowed continuously all afternoon. A party from Albuquerque came in, spent two hours having a picnic lunch in the open snow storm, then took the guided trip through the ruins and extended their hike until nearly dark. It takes real interest to do that in snowy and freezing weather.

We are going to have a real museum yet. The walls of the building are half finished, and going ahead in good shape. Dale King's visit was much appreciated. While he was here we worked and re-worked museum charts and maps until they haunted me in my dreams. We have had excellent cooperation in preparation of charts from the staff of the Laboratory of Anthropology in Santa Fe. Dr. Mera, staff archeologist, has been especially generous in time and labor devoted to our pottery and culture charts. Dr. Chapman, acting director of the Laboratory, gave valuable suggestions on the color scheme for the museum. Sid Stallings, tree ring specialist, has promised us material for an exhibit layout in dendrochronology. The State Museum has promised us considerable artifact

material when we get ready to display it. This material was uncovered by the School of American Research, under the direction of Dr. E. L. Hewett, director. He has promised us all possible aid in museum development, and Paul Reiter, curator of the State Museum, has pledged assistance.

If all the museum plans work out as we fondly imagine they will, I will feel a bit sorry for the rest of you fellows, for your museums will have to take a second instead of a first place.

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BANDELIER FORESTRY

By James Fulton

Current Project:

This month I have had the job of hewing lintels and dressing vigas for the museum and residence which are now in process of construction. The lintels were made by first scoring the log with an axe and removing the bulk wood. Then an adze is used for putting the finishing touches on the lintel.

Suggested Projects:

For some time I have felt the need for two lookout tree ladders on this monument. One should be on Corral Hill and the other should be near the Upper Crossing. These locations are indicated on an accompanying map. Such ladders would constitute fast, safe methods for fire crews to locate fires.

Since I have been here, I have used Corral Hill several times as a lookout hill for locating reported fires. This hill affords a good view of most of the South Mesa and of some of the country south of Alamo Canyon. Also, it is in a central location making it handy to routes of travel. In addition to being a good secondary lookout hill, I have found it to be satisfactory for making topographical reconnoissance of beetle infestations.

The Upper Crossing lookout tree is close to the trail and would serve the purpose of locating fires in the country along the west boundary between Frijoles Canyon and Alamo Canyon. It is best to approach a fire in this part of the country by driving to the Upper Crossing and then taking the trail across Frijoles Canyon. (This agrees with the idea carried out in the Bandelier Fire Atlas Hour Control Map.) If a crew were to meet with this situation, a lookout tree would be a big help at the point indicated.

In my opinion, no other ladders are needed. On other parts of the Monument, the trails hit high points which afford suitable views of the country.

According to specifications used by Grand Canyon National Park, these ladders are constructed of angle iron in suitable lengths, with a rise of 13", and in width 13". They are fastened to the tree with lag screws allowing 6" between the tree and ladder for foot trend. The ladder is then wired for lightning protection. Dark green paint on the ladder and no unnecessary limbing of the tree causes the completed job to present a natural appearance.

In all, these two ladders would require no more than forty dollars for material and they could be fabricated in the blacksmith shop.

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BANDELIER E.C.W.

By R. B. Chase, Project Superintendent

The 10,000 gallon concrete water storage tank was formed and poured this month, the laying of the intake and return supply line is now in progress. About the 10th of March the concrete will have its final set at which time inside forms will be removed and the tank put into operation.

Additional underground power line cable from Headquarters building to the camp ground comfort station has been installed.

Tree and scrub planting has been in progress all month together with some road obliteration work along the road leading to the former utility area.

The museum building is now constructed to lintel height and portal connection has been placed between the headquarters office building and museum. A timber crew has worked all month on shaping vigas, lintels and beams for this building.

Quarters No. 1 has gotten well under way this month with all wall construction an average of two feet above floor grade.

The carving crew has continued to work all month on signs. The signs ordered for Wupatki are now complete and this date being crated for shipment. We hope they will prove satisfactory.

And still our quarry crew is a continuous operation, this project probably being the nucleus of a large percent of our work.

Some maintenance on the entrance road and canyon floor road has been done during the month with considerable more coming as the frost and snow leaves the ground.

Our progress this month has been very good considering two principle conditions, weather and company strength. A number of days work have been lost due to bad weather but mainly progress is hampered by shortage of men. At present our company strength is 149 which means

approximately 115 men to the work projects and when these are divided it means each foreman is asking for another crew.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

Reporting happenings from Capulin Mountain National Monument for February, 1936:

Only about 500 visitors to the old Volcano this month, however, mostly out of state visitors. The road is getting in such poor conditions that many visitors have refused to drive up and have walked the two miles to the top via the road.

Weather conditions have been ideal for the stockman, and the traveler. Several light snows and some moisture all during the winter, but roads have been open and good all over the country near here all winter. In general, have had a mild winter. The thermometer. The thermometer reached 11 below in the forepart of the month, and this week it reached a high of 45 and a low of 15 regularly, daily.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

I am glad to report that all is well with me as another month comes to a close. February has been a very wet month in this country. I have stayed at home more than usual and haven't contacted as many people as I would like to have done. It looks like spring is just around the corner and I am sure itching to get back on the job.

It looks like I will have a busy season this year for I am getting many letters asking about Natural Bridges and the scenic San Juan. And won't I be glad to get back! I don't like the city life. I am just like the long-horned cow longing for dry summer range.

I was horrified to learn of the tragic death of Roger W. Toll and his companion. Superintendent Toll was the last one to write in my book at the monument last fall, and we had a short trip planned together for this season. I surely mourn his loss. It's just too bad. I have sent a card of sympathy to his wife at Denver.

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NAVAJO

By John Wetherill, Custodian

I am sending you a list of guests who were unable to visit the monument on account of the bad roads. The road is not bad on account of the weather, as there is no mud or snow to bother. They are washed out from last summer rains. We have never had a road that anyone would want to put a good car over, and a bad car cannot get through when the roads are at their best.

Some 15 years ago a missionary wanted to get members for his congregation. He started in by giving them meat, bread, beans and coffee. It was only a short time until he had his church filled. He found it was costing him more than he could afford and he cut off the meat; a few members dropped out. The expense was still more than he could stand and he cut out the bread. He still couldn't stand the gaff, and he cut out the beans. There was only one old cripple left. The Missionary asked the old man what was the matter. The old man told him, "No beans, no Jesus." I think that is the matter with my report "No beans, no report." (Or a darn poor excuse of a report.)

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HEADQUARTERS STUFF

DIVISION OF EDUCATION

By Robert H. Rose, Park Naturalist

The staff of the Division of Education during the month has consisted of junior park naturalists King and Caywood, and the writer. Caywood's relief service in the field which began in the latter part of December, 1935, continued through January and until February 20, when he was relieved at Walnut Canyon National Monument by Ranger Don Erskine. Caywood has been on museum planning work in the office since his return. Mr. King made one field trip during the month between the 13th and 22nd inclusive. Further reference will be made to the activities of Messrs. King and Caywood. Except for a short field trip of two days the writer has been in the office for the entire month.

Educational Contacts Records:

In the January Monthly Report it was announced that a revision of the January Statistical Summary on Educational Contacts would be necessary. This condition arose out of the fact that a great deal of study of all of the Form 16 reports was required in order to classify the various contacts at all of the monuments. Accordingly, there will be found at the close of this report a revised "Statistical Summary for January 1936." The total of contacts has not been changed; only subtotals under the different headings show revision. It is believed that further revisions will be unnecessary and that the system is now workable.

Late in December, 1935, the field men were asked to submit figures on educational contacts for October, November, and December according to the best estimates and records available. These data have been organized and I am pleased to include at the close of this report the contacts records for the last quarter of 1935. This makes a total of five months of these records included in this February 1936 report bringing the tabulations up to date for the travel year.

I wish to emphasize Superintendent Pinkley's observation of last month to the effect that these figures are yielding interesting results. He remarked concerning the visitor records for Walnut Canyon. It was quite a surprise, now that we have had Park Service representative there in mid-winter, to find a pretty constant flow of visitors into that monument. The reason this was practically unknown heretofore is because of the fact we have not been able to staff that monument during the winter months.

Another surprise that turns up is the actual record of the man-sized job at Tonto National Monument. We have known that Tonto had fair travel during the winter. However, observation of the records of visitors, group by group, is impressive.

Some of the field men have doubtless been wondering just why we attach importance to the "Minutes Devoted to Group" column on the daily report Form 16. The entry is provided for both field trips and museum lectures. This is done for the purpose of evaluating the whole educational contacts problem at each monument. Remember, in the January report, page 40-5, a distinction was clearly drawn between TRAVEL REPORTS and EDUCATIONAL CONTACTS. I further emphasized that in certain monuments a ranger may be so busy handling checking duty and in doing general informational and protectional service as to be unable to perform educational contacts service. Thus, let us at once recognize that these educational contacts records are solely for the purpose of evaluating the educational program at each monument. Your activities in checking traffic, policing campgrounds and general premises, giving general informational services, supervising construction, and in other work connected with the administration of your monument should be carefully reported under other headings. In some monuments these duties are so heavy as to require practically all of the time of the man in charge while in other monuments the whole time of all personnel is taken in educational contacts. It is squarely up to field men in preparing their monthly reports to itemize their other activities quantitatively and under their proper headings since the educational contacts reports were not designed to cover the whole field of activity. I think rereading Page 40-5 of the January Monthly Report will make these points clear.

Clerical Work and Personnel:

A great deal of general correspondence has been handled during the month by naturalist staff members. Museum planning has occasioned considerable correspondence with the Museum Division, Field Division of Education and the various monuments concerned. Added to this there has been an increased number of requests for general information reaching this office from prospective visitors. An informational leaflet on White Sands National Monument was mimeographed. Only 3,000 copies were made since improvement in content and arrangement will probably be desired as we see how they are received. Assistance in editing and publishing the

Monthly Report, keeping books catalogued to date and maintaining the bird banding records are among other routine office work accomplished.

Museum Plans:

1. Museum planning for Bandelier, Montezuma Castle, Tumacacori, Aztec and Casa Grande has received the attention of the staff during the month. Junior Naturalist King has completed detailed specifications for some of the Bandelier Museum case layouts and these have been forwarded to the Chief of the Museum Division for clearance. After this clearance is secured they will be ready for the preparators at the Field Division of Education.

2. Within the past five years general reports covering the proposed museum at Montezuma Castle have been prepared by the writer, Custodian Earl Jackson, and others. No detailed case layouts had as yet been designed. Accordingly, Jr. Naturalist Caywood has been working on the exhibits layouts. A part of the total appropriation estimated for exhibits and museum equipment is now available at Field Division of Education and upon completion of this plan work can begin.

3. An earlier report on the Tumacacori Museum prepared by Dr C.P. Russell has been re-studied. A number of the exhibits proposed by Dr. Russell were listed as early projects under the program for Tumacacori now set up at Field Division of Education. The writer has given personal attention to the Tumacacori exhibits program.

4. The museum project for Casa Grande has been discussed with Custodian Winter and some general conclusions have been arrived at. Only museum equipment is provided for in the Casa Grande setup. The project for Aztec Ruins National Monument Museum will consist in completing the whole project for Aztec prepared by Louis Schellbach of the Berkeley Office.

Field Trips:

Jr. Naturalist Louis Caywood returned to Headquarters on the evening of February 20 after relief detail through February, to that date, at Walnut Canyon National Monument. Please consult the monthly report for Walnut Canyon prepared by Mr. Caywood, and his brief report contained in this general report, for a more detailed account of his activities.

Jr. Naturalist Dale King left Headquarters February 18 and returned on February 22. During this field trip he inspected the Bandelier Museum now under construction and gathered material at the Laboratory of Anthropology for the preparation of exhibits.

On February 24 the writer made a short field trip to Deming, New

Mexico, returning the evening of the 26th. Word was received about six P.M. of the accident near Deming, resulting in the death of several persons including Superintendent Roger W. Toll and George Wright, chief of the Wildlife Division. Details were lacking and accordingly the writer left on short notice for Deming to render any possible assistance.

Special Lectures:

A total of 520 outside lecture contacts were made from Headquarters during the month. These include the 100 attendance at the lecture given by Ranger Charlie Steen at Winkelman CCC Camp. These are detailed as follows:

1. The report of a lecture before the Eloy CCC Camp by the writer was reported for January although it more properly belongs to this month since the date was January 31. The talk was centered around Arizona's National Monuments. This camp is located about 20 miles east of Casa Grande National Monument. The attendance was 200.

2. On the evening of February 11 the writer gave an illustrated lecture before the boys of WalkerCanyon CCC Camp located about 10 miles west of the Tumacacori to Nogales Highway. The subject was "Cliff Dwellings and Pueblos of Arizona." Attendance was 200.

3. On the afternoon of February 17 the writer talked to a group of 20 members of the Conservation Club of the Phoenix Union High School. The subject was "Conservation in the National Parks and Monuments." The group seemed to be vitally interested in the type of conservation exemplified in the national parks and monuments. It is complimentary to the school to have a club interesting itself in problems pertaining to conservation.

4. For the evening of February 19 an illustrated lecture was scheduled for the CCC Camp at Winkelman, Arizona, some 80 miles northeast of Casa Grande National Monument. Ranger Charlie R. Steen gave the program with the writer as operator of the slide machine. "Every-day Life Among the Prehistoric Indians" was the subject chosen by Mr. Steen. These boys are quite isolated from larger towns and cities and judging by their reaction and splendid attention, Mr. Steen's talk was a real treat to them. Attendance was 100.

Report of Junior Naturalist King:

Approximately ten days were spent on the January Monthly Report.

From February 6 to 12, my time was occupied with routine naturalist and office matters. Leaving Headquarters February 13, I made inspections at Tonto, Montezuma Castle, Bandelier, and Saguaro National Monuments. Four days were spent at the Laboratory of Anthropology at Santa Fe and at

Bandelier National Monument on museum exhibit matters. During the time, plans for three cases were practically finished, and many details worked out for several others. Acknowledgements of the cooperation received from other agencies have been mentioned in the report of Custodian Jackson.

A museum storage case was delivered to White Sands National Monument and then I returned to Headquarters February 23 to be occupied with further Bandelier museum work and routine duties for the remainder of the month.

Report of Junior Naturalist Caywood:

The greater part of the month was spent at Walnut Canyon National Monument which monument was turned over to Ranger Donald Erskine on February 19. At that time I returned to Headquarters, Coolidge, Arizona. For the full report covering my activities at Walnut Canyon during that period see the monthly report.

Since funds are now available for the preparation of several museum exhibits for Montezuma Castle National Monument, I was given the project of making up a proposed museum exhibits plan with the hope that final plans for museum exhibits will soon be decided on by the Naturalist Division, Southwestern Monuments, and actual work will be started on the exhibits. Four of the remaining five days of the month were spent working on this plan and one day was devoted to helping the personnel of Casa Grande National Monument with visitor duty.

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DISCUSSION OF CONTACTS

By Park Naturalist R.H.Rose

Following are educational contacts tabulations for October, November, and December, 1935, and January and February, 1936. Tabulations for the last three months of 1935 are based upon the best estimates and records available. Those for the first two months of the new year are compiled upon actual records kept by field men on Form 16. Now that the records are current for the travel year it will not be difficult to keep them current each month.

October 1935:

Following are some observations from the October tabulations:

Field Trip Contacts-----	1,045	groups----	6,760 attendance
Museum Lectures---------	389		8,805
Museum Unattended-------	175		1,481
Lectures Outside--------	3		115
Miscellaneous-----------	313		1,157
	1,925	groups----	18,518 Educational contacts.

November 1935:

Following are observations from the November tabulations:

Field Trip Contacts	1,072 groups	6,354	attendance
Museum Lectures	295 groups	1,859	
Museum Unattended	171	1,365	
Lectures Outside	7	485	
Miscellaneous	156	584	
	1,701 groups	10,647	Educational Contacts.

December 1935:

Following are observations from the December tabulations:

Field Trip Contacts	926 groups	4,769	attendance
Museum Lectures	284	1,508	
Museum Unattended	30	1,793	
Lectures Outside	1	20	
Miscellaneous	70	402	
	1,311 groups	8,492	Educational contacts.

January 1936:

Following are observations from the January tabulations:

Field Trip Contacts	964 groups	6,566	attendance
Museum Lectures	461	3,008	
Museum Unattended	126	1,072	
Lectures Outside	80	2,283	
Miscellaneous	12	1,156	
	1,585 groups	14,047	Educational Contacts.

February 1936:

Following are observations from the February tabulations:

Field Trip Contacts	1,141 groups	7,200	attendance
Museum Lectures	474	3,369	
Museum Unattended	81	731	
Lectures Outside	11	1,084	
Miscellaneous	96	460	
	1,803 groups	12,824	Educational Contacts.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR OCTOBER 1935

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATT'D		LECTURES OUTSIDE		MISC.		TOTAL EDUC. CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV. TME	NO	ATT	TIME	AV ATT	AV. TIME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165																		(NO REPORT)	
AZTEC	2		135	1155	3750	9.2	30	125	1155	3520	9.2	20							2,310	1,155
BANDELIER	1		75	449	4500	6	60										40	150	599	659
DE CHELLY	1		24	64	2820	2.8	117												64	64
CAPULIN	1/165																		)	1,200
CASA GRANDE	2		285	2281	11545	8	37	94	300	1380	3.5	20	175	1481					4,562	2,281
CHACO CANY.	1		63	205	8150	3	130										40	150	355	615
CHIRICAHUA	)																		(NO REPORT)	
W. MONEO	)		18	160	1134	9	63										1	2	162	160
GILA CLIFF	0																		(NO REPORT)	
GRAN QUIV.	1		48	239	1920	5	40												239	239
HOVENWEEP	0																		(NO REPORT)	
MONTEZUMA	2		105	556	4200	5	40	120	600	2400	5	20							1,156	666
NATL. BR.	0																		(NO REPORT)	
NAVAJO	1/165																2	5	5	(NO REP)
PIPE SPGS	1-Lab		23	90	575	4	25												90	220
RAINBOW	)																		(NO REPORT)	
SAGUARO																			(NO REPORT)	
SUNSET CR.	0																		(NO REPORT)	
TONTO		1	58	231	4640	4	80	50	250	1000	5	20							481	332
TUM. CACONI	2		142	711	6390	5	45												711	711
WALNUT CAN.		1	28	138	560	5	20										30	150	288	687
WHITE SDS.	1/5		28	420	2240	15	80										200	700	1,120	3,507
WUP. TKI		1	16	90	640	5.6	40								1	115			205	100
YUCCA	0		2	10															10	12
IDCTRS																				
TOTALS	12.2	3	1045	6760	52074			389	2805	7780			175	1481	1	115	313	~~1005~~ 1157	12,318	12,608

* 12 Permanent Custodians and Rangers, full time; no ranger naturalists and 1- temporary ranger.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR NOVEMBER 1935

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATT'D.		LECTURES OUTSIDE		MISC.		TOTAL EDUCA. CONTACT	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV. TIME	NO	ATT	TIM	AV ATT	AV. TIME	NO	ATT.	NO	ATT.	NO	ATT		
ARCHES	2/165																		(NO REPORT)	
AZTEC	2		74	403	2442	5.2	33	74	409	1480	5.2	20							818	429
BANDELIER	1	1	60	308	3000	6.5	60										50	200	528	528
DECHELLY	1		9	23	355														23	30
G. PALIN	1/165																		0	200
CASA GRANDE	2		309	2165	10815	7	35	100	800	2100	8	21	171	1365					4,330	2,165
CH.CO C.NY	1		54	176	4850	3.3	90												176	528
CHIRICAHUA	0																		0	175
EL MORRO	0		12	45	900	3.8	80										1	4	49	45
GILA CLIFF	0																		(NO REPORT)	
GRAN QUIV.	1		40	200	1400	5	35												200	340
HOVENWEEP	0																		(NO REPORT)	
MONTEZUMA	2		60	300	2400	5	40	75	325	1500	5	20							625	445
N.TL. BRID.	0																		0	125
N.V.JO	1/165																		0	NO REPT
PIPE SPRING	1-Lab		35	349	1050	10	30												349	610
RAINBOW	0																		(NO REPORT)	
SAGUARO	0																		(NO REPORT)	
SUNSET	0																		(NO REPORT)	
TONTO		1	50	248	3500	5	70	46	275	920	6	20							523	396
TUM.C CORI	2		285	1141	15650	4	55												1,141	1,141
WALNUT C.		1	16	85	910	5.5	60										25	80	165	334
WHITE SANDS	1/5		67	800	4020	12	60										70	300	1,100	2,930
WUPATKI		1	11	85	440	8.5	40												85	93
YUCCA	0																		0	10
HDQTERS															7	485			485	
TOTALS	13.2	4	1072	6354	52382			295	1859	6000			171	1365	7	485	156	584	10,647	11,309

*12 permanent custodians and rangers, full time; no ranger naturalists; no temporary rangers.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR DECEMBER 1935

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUCN. CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/135																		(NO REPORT)	
AZTEC	2		55	391	1760	6.5	32	55	501	1100	6.6	20							782	331
BANDELIER	1	1	19	95	720	5.5	30										18	65	130	130
DEVILLY	1		7	23	610	3	30										1	4	27	23
CAPULIN	1/165																		0	500
C. SA. GRANDE	2		243	1390	7681	5.7	32	60	345	1200	5.7	20	30	1793					3,525	2,135
CHACO	1		25	90	2375	3.3	95										15	75	157	330
CHIRICAHUA	0																		)	120
EL MORRO	0		5	14	375	3	75										1	3	17	NO REPT
GILA CLIFF	0																		(NO REPORT)	
GRAN QUIV.	1		30	150	1200	5	40												150	200
HOVENWEEP	0																		(NO REPORT)	
MONTEZUMA	2		75	375	3000	5	40	119	475	2380	4	20							850	508
NATL BRIDG.	0																		(NO REPORT)	
NAVAJO	0																		(NO REPORT)	
PIPE SPG.	1-Lab		21	84	420	3	20												84	214
R. INDO	0																		(NO REPORT)	
SAGUARO	0																		(NO REPORT)	
SUNSET CR.	0																		0	55
WONTO		1	50	270	3920	5	70	50	300	1000	6	20							570	302
TUMACACORI	2		388	1311	18698	4	57												1,311	1,311
WALNUT C.N.		1	13	71	780	5.5	60										15	75	146	283
WHITE SDS	1/5		50	500	1500	10	30										20	180	680	1,840
WUPATKI		1	8	55	240	3.5	40												55	63
YUCCA HOUSE	)																		(NO REPORT)	
HDQTRS															1	20			20	
TOTALS	13.2	4	926	4769	46277			284	1676	5680			30	1793	1	20	70	402	8,492	8,525

*12 Permanent Custodians and rangers; no ranger naturalists; No temporary rangers.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR JANUARY 1936

SOUTHWESTERN NAT'L. MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATT'D		LECTURES OUTSIDE		MISC.		TOTAL EDUC. CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT.	TIME	AV. ATT	AV TM	NO	ATT.	TIME	AV. ATT.	AV. TME	NO.	ATT.	NO	ATT.	NO	ATT		
ARCHES	1/165																		(NO REPORT)	
AZTEC	2		45	172	1428	3.8	32	48	178	847	3.7	18	1	3	1	180			535	225
BANDELIER	1		17	51	1015	3.0	60										2	4.0	55	254
DE CHELLY	1		2	5	120	2.5	60								1	250			255	10
CAPULIN	1/165		3	33	200	11.	67												33	350
CASA GRANDE	2	1	337	2938	12336	8.7	36	223	1869	43948	8.4	19.	127	1060					5876	3370
CHACO	1		3	10	370	3.3	25	1	2	20	2.0	20							12	260
CHIRICAHUA																			0	350
EL MORRO	1/5		1	3		3.0													3	4
GILA CLIFF	0	0																	0	0
GRAN QUIVIRA	1		12	88	425	7.3	36	2	42	35	21	18							130	287
HOVENWEEP	0																		0	0
MONTEZUMA	2		73	376	2940	5.2	41	103	510	2203	5.1	22					4	32	918	696
NAT. BRIDGES	0	0													12	1068			1,068	No REP'T
NAVAJO	1/165																		(NO REPORT)	
PIPE SPRING	1-Lab		16	79	465	5.0	29												79	307
RAINBOW	0	0																	0	0
SAGUARO		1															1	200	200	800
SUNSET	0																9	20	26	80
TONTO		1	93	536	6235	5.8	67	84	407	1715	5	20							943	752
TUMACACORI	2		174	1379	9876	8.0	57												1,379	1,607
WALNUT		1	24	97	1455	4.0	61										(10)	19	116	285
WHITE SANDS	1/5		155	735	2700	4.8	18								2	* 400	52	674	2,309	4,402
WUPATKI		1	9	26	350	3.0	39								1	35	1	2	63	106
YUCCA HOUSE	0	0																	0	0
HEADQUARTERS															3	250			250	
TOTALS	13.5	5	964	6,508	49,375			461	3008	3221			128	1072	20	2,283	12	1155	14,047	14,044

* Includes 400 at two showings of White Sands moving picture reels.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR JANUARY 1936

SOUTHWESTERN NAT'L. MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATTND		LECTURES OUTSIDE		MISC.		TOTAL EDUC. CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT.	TIME	AV. ATT	AV TM	NO	ATT	TIME	AV. ATT.	AV. TME.	NO.	ATT.	NO	ATT.	NO	ATT		
ARCHES	1/165																		(NO REPORT)	
AZTEC	2		45	172	1488	3.8	32	48	178	847	3.7	18	1	3	1	160			533	225
BANDELIER	1		17	51	1015	3.0	60										2	4.0	55	254
DE CHELLY	1		2	5	120	2.5	60								1	350			355	10
CAPULIN	1/165		3	33	260	11.	87												33	350
CASA GRANDE	2	1	337	2938	12336	8.7	36	223	1869	45948	8.4	19.	127	1069					5876	3370
CHACO	1		3	10	370	3.3	25	1	2	30	2.0	20							12	260
CHIRICAHUA																			0	350
EL MORRO	1/5		1	3		3.0													3	4
GILA CLIFF	0	0																	0	0
GRAN QUIVIRA	1		12	88	425	7.3	36	2	42	35	21	18							130	287
HOVENWEEP	0																		0	0
MONTEZUMA	2		73	376	2940	5.2	41	103	510	2209	5.1	22					4	31	927	696
NAT. BRIDGES	0	0													12	1068			1,068	No REP'T
NAVAJO	1/165																		(NO REPORT)	
PIPE SPRING	1-Lab		16	79	465	5.)	29												79	307
RAINBOW	0	0																	0	0
SAGUARO		1															0	200	200	800
SUNSET	0																9	26	26	80
TONTO		1	93	536	6235	6.0	67	84	407	1715	5	20							943	751
TUMACACORI	2		174	1379	9876	8.0	57												1,379	1,607
WALNUT		1	24	97	1455	4.0	61										10	19	116	285
WHITE SANDS	1/5		255	735	2700	4.8	18								2	* 400	58	274	2,209	4,402
WUPATKI		1	9	26	350	3.0	39								1	35	1	2	63	106
YUCCA HOUSE	0	0																	0	0
HEADQU'RTERS															3	250			250	
TOTALS	13.5	5	964	6,568	9,375			461	3008	9220			128	1072	20	2,283	12	1156	14,047	14,044

* Includes 400 at two showings of White Sands moving picture reels.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR FEBRUARY 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM ATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUCN. CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165																		(NO REPORT)	
AZTEC	2		57	243	1780	4.3	31	51	244	1055	4.8	21			2	420			907	287
B. MOHLER	1	1	25	135	1482	5.4	60										8	21	156	252
DE CHELLY	1		1	2	90	2	90												2	5
C. PULIN	1/165		2	9	150	4.5	75												9	500
C. SA GRANDE	2	1	334	3043	14497	7.9	38	256	2532	5330	9	21	81	711	1	100			5,186	3,043
CHACO CANY	1		3	22	955	2.5	104	2	6	135	3	68							28	379
CHIRICAHUA	0																		0	300
EL MORRO	0																		0	0
GILA CLIFF	0																		(NO REPORT)	
GRAN QUIV.	1		48	129	1743	2.7	36	11	35	199	3.3	18							165	129
HOVENWEEP	0																		(NO REPORT)	
MONTEZUMA	2		69	308	2503	4.5	36	73	299	1370	4.1	18.8							607	436
NATL. BRID	0														3	112	3	30	142	0
NAVAJO	1/165																14	35	35	0
PIPE SPG	1-Lab.		7	13	190	2	27								2	32			45	137
RAINBOW	0																		(NO REPORT)	
SAGUARO		1	106	383	3538	3.6	33												383	2,000
SUNSET CR.	0																11	35	35	74
TONTO		1	82	519	5420	6.3	66	81	452	1600	5.5	20							971	724
TUMACACORI	2		254	1432	8215	5.6	32												1,432	1,512
WALNUT		1	23	144	1512	6	62										8	13	157	187
WHITE SNDS	1/5		56	781	4445	14	80										13	295	1,076	3,794
WUPATKI		1	12	37	455	3	38										9	31	68	70
YUCCA HOUSE	0																		0	30
HDQ'TERS															3	420				
TOTALS	13.2	6	1141	7800	46955			474	3349	9680			81	711	11	1084	96	460	12,824	13,859

*12 Permanent Custodians and Rangers; no ranger naturalists; and 1 temporary ranger.

** 1-radio broadcast on subject of Aztec; Station KIUP, Durango, Colo; Feb. 18/36

WILDLIFE REPORT

By Regional Technician Adrey Borell

(Extracts from Mr. Borell's report for the period Dec. 19, 1935, to January 14, 1936):

SAGUARO NATIONAL MONUMENT. Dec. 19, 26, 27, and 30.

(1) Weather: mild and sunny most of the time; a little rain and some cloudy weather.

(2) Scientific studies: Work here was the at request of Supt. Pinkley and the Washington Office, and involved the study of possible boundary changes and the report that mountain lions were killing a large percentage of the calf crop. There is agitation to have a large area of grazing land now in the monument returned to its former National Forest status. I have requested maps of the area, and when they have been received, will make a special report on suggested boundary changes as soon as the maps are received.

Two cattlemen said that the cows which range in the foothills come out with the usual number of calves, but those which range higher up on the mountain come out with very few calves. One permittee claimed the mountain lions get between 30 and 50 calves each year from 500 cows. He claims to have found several freshly killed calves about which were lion tracks. The cattlemen of that area have offered a bounty of $30 or $35 for each lion killed. The cattlemen agreed that if control is to be carried on it should be done by a Federal lion hunter. They also agreed that private lion hunting parties should not be permitted on the monument even if control is authorized. Most of the time there is no Custodian or Ranger there to enforce any park regulations.

Mr. Gorsuch, Mr. Winn, and Dr. Vorhies said the Rincon Mountains (part of which are in the monument) were formerly well populated with lions. They seemed to think that since deer and peccaries are present but not numerous, and since grazing is permitted, some control of lions is justified.

Mr. Williams of the Biological Survey in Phoenix told me he has three lion hunters in the southern part of Arizona, and expected to send a hunter into the Rincon Mountains in the near future. Said he had no instructions relative to hunting on the portion of the Rincons lying within the monument. Unfortunately, I was unable to discuss the subject with Mr. Frank Colcord, biological survey hunter, who has hunted lions in the Rincon Mountains.

The upper portion of the monument is extremely steep and rough, and I think the lions can pretty well take care of themselves. All reports indicate that lions are relatively numerous in the Rincon and adjacent Catalina Mountains. I suggest that Mr. Williams be asked for a report on all recent lion hunts in the Rincon Mountains, and recommendations regarding control of lions be based on the results of these hunts.

Some interesting information on birds and mammals was obtained. This

will be included in my report on suggested boundary changes as the wildlife is important in that connection.

(3) ECW Supervision: Practically all of the present work consists of obliterating old roads among the giant cactus.

CASA GRANDE NATIONAL MONUMENT. December 21,22,23, and part 31.

With Supt. Pinkley, Park Naturalist Rose, and Engineer Diehl went over wildlife work and boundary problems of Saguaro, White Sands, Tumacacori, [illegible] Wupatki, and other southwestern monuments. Considerable time was given to plans for the development of White Sands extension, and the museum at Bandelier.

Prepared six bird skins during evenings as demonstrations for naturalist force.

Twenty four species of birds were recorded. Three of those were new records for the monument:

1. Lincoln Sparrow, one, Dec. 21, prepared as specimen.
2. Virdin, one Dec. 23, one Dec. 31.
3. Burrowing Owl, one Dec. 22.

TUMACACORI NATIONAL MONUMENT. December 29.

Work here was the result of a report that hawks were over-abundant and were taking toll of song birds, that pocket gophers were destroying the cactus, and ground squirrels were damaging the mission ruins.

Hawks: This monument contains only 10 acres and is located in the edge of a wash which is overgrown with willow, cottonwood, and brush. Hills and valleys border the creek. This makes ideal habitats for small birds and several species of hawks. I saw one marsh hawk, one prairie falcon, one sparrow hawk, and one sharp-shinned hawk. The latter two had been shot recently.

Custodian Boundey said that sparrow hawks and sharp-shinned hawks are the chief offenders and frequently catch birds about the mission. He feels that control is desirable. Undoubtedly, sparrow hawks do take some birds at Tumacacori, but I believe that a careful study would show their food to consist mainly of insects and mice. Be that as it may, sparrow hawks are interesting birds and worthy of complete protection.

It is generally recognized that sharp-shinned hawks feed primarily on small birds. Since the area is ideal for sharp-shinned hawks they probably do kill a good many birds on the monument. There are several factors involved in any control campaign and I do not think control of hawks should be authorized in any park or monument unless some species upon which they prey is in danger of extermination. A great many small birds, especially

members of the sparrow family, winter at Tumacacori, and I don't think their numbers will be noticeably affected by the hawks.

It has been the practice to clean up the monument about four times a year. Most of the weeds, grass, and lower dead branches from the mesquite are removed and burned. This cleanup destroys much valuable shelter for small birds, and undoubtedly increased the kill by hawks. Clean-up should be confined to the area immediately around the mission and residences.

Pocket Gophers: A number of cacti and agave plants have been killed by pocket gophers which eat the roots and pulpy bases. Gophers are numerous and widely distributed over the area. I believe that control of gophers about the buildings where they are destroying cacti is justifiable.

Ground Squirrels: Mr. Boundey showed me several places where squirrels have dug burrows into the walls of the ruins. Since the ruins are the principal feature of the monument I think that rodents which burrow into the walls should be controlled.

There are a good many exotic plants growing about the mission and residences. Some of these or their ancestors were planted by the Spanish padres, but others have been planted recently. Study should be made to determine which species were planted by the padres and which have been planted recently. Those planted by the padres should be preserved for their historical significance, but the recently planted ones should be replaced by native species as rapidly as opportunity offers.

Eighteen species of birds were recorded; of special interest were three Inca doves.

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ENGINEERING

By Associate Engineer J. H. Diehl

On the 8th of February a trip was made to White Sands National Monument, where engineering matters and points of construction were discussed with John A. Happer, project manager for the Resettlement Administration Project adjacent to the monument. Returned to Carlsbad that same night.

On February 12 I left Carlsbad for Bandelier National Monument where on the 13th the various projects under ECW construction were gone over with Project Superintendent Chase and Landscape Architect Richey. Returned to Carlsbad on February 14.

The afternoon of February 17 I left Carlsbad Caverns for Casa Grande National Monument, arriving the afternoon of the 18th. Superintendent Pinkley was absent on official business in Washington.

On the 19th, with Acting Superintendent Miller, and Landscape Architects Langley and Richey, various monument matters were discussed.

Leaving Casa Grande National Monument the morning of the 20th with Architect Langley we drove to Tonto National Monument, where with A. E. Clark of the survey crew a route was flagged on a maximum grade of 8% for the survey of a proposed entrance road. Langley and myself returned to Casa Grande that same evening.

Leaving Casa Grande with Mr. Langley the morning of the 21st, we met R. D. Sias, ECW inspector for State Parks, and together the three of us went out to Saguaro National Monument and looked over suggested changes on the approved plan for a road project to be constructed by the State Park CCC Camp in that vicinity. Leaving Mr. Sias in Tucson on our return about 1:00 PM, Mr. Langley and myself went on to Chiricahua National Monument that evening where we covered the various ECW projects with Project Superintendent Stevenson on February 22.

On February 23 we left Chiricahua in the morning. Dropping Mr. Langley in Tucson, I stopped at Casa Grande for a couple of hours and then drove on to Tonto National Monument that night.

February 24 and 25 assisting Clark and Schmidt (my survey crew), with the help of Ranger Steen, the preliminary road alignment was staked, 7200 feet in length from the parking area to a connection with the Apache Trail Highway.

The afternoon of the 25th I visited the cliff dwellings at Tonto with Ranger Steen and offered some suggestions as to stabilization, leaving about four o'clock and returned to Casa Grande National Monument.

The 26th and 27th were spent on office work at Coolidge.

On the 28th I drove to Mountainair, New Mexico, and on the 29th went out to Gran Quivira National Monument to attend to engineering duties pertaining to the pump installation, and drove on to Alamogordo, New Mexico, that night.

The remnants of my survey crew, Clark and Schmidt, were at Carlsbad Caverns on topography until February 18, when they left for Tonto National Monument, where they will be busy for the balance of February.

Chief Engineering Aide J. H. Tovrea has been busy the entire month on maps and plans at Headquarters, Southwestern Monuments, Coolidge, Ariz.

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CAPULIN GEOLOGY

By Regional Geologist Wegemann

On the evening of July 13, Mr. Evison and I drive from Estes Park to Denver. Here I leave him about 11:00 P.M. to take the train East and

after a few hours' sleep start at daylight for Raton and Santa Fe. I reach the latter place about three o'clock on Sunday afternoon and leave at 7:30 the next morning for Capulin National Monument.

As I drive up the excellent graded road which leads to the top of the extinct volcano, I note peculiar smooth plains in the layers of lapilli which form the side of the mountain. It occurs to me first that these plains may be slip plains between successive layers of lapilli, but Mr. Farr, the custodian, tells me that other geologists have suggested that these plains are former surfaces on which vegetation grew and that they white deposit along them which I took for Alkali, may in reality be wood ashes.

There are three colors of lapilli, black, red and buff, and I note also that there are two colors of lava, black and red, the red being the more recent. These are represented in the flows at the base of the volcano. The crater, with its lowest side toward the west, is very typical.

At the end of the road I leave the car and climb the rim to one of the high points from which I obtain an excellent view. There must be some fifteen volcanic vents in sight from this one crater, and a very interesting study could be made of this entire region. The number of volcanoes should be determined and their locations mapped. The number of the eruptions represented by the lava flows should be determined, and the relation of these flows to the flows capping the mesas near Raton. Low dip is apparent in some of these lava flows and this may be due to the angle of flow at which the lava solidified, although it may be due also to recent movement. On one of the flows in the plain I note crescent shaped flow lines developed where the lava cooled near its edges and flowed forward in the middle.

After visiting the volcano I called upon Homer J. Farr, the custodian in Capulin, and had an interesting talk with him. He cannot be at the volcano all of the time, and there is great need of descriptive signs calling the traveler's attention to the phenomena which are easily observed but which he does not understand. I have seldom seen an area which exhibits so well the phenomena of volcanic eruptions and I feel that it is well worthy of intensive study and that some arrangement s should be made for signs on the ground and possibly for the printing of a booklet descriptive of the geology.

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Yucca House
Arches
Aztec Ruins
Canyon de Chelly
Casa Grande
White
Valley
Tuzigoot
Sunset
Saguaro
Rainbow Bridge
Pipe Spring
Wupatki
Natural Bridges
Montezuma
Hovenweep
El Morro
Gran Quivira
Southwestern Monuments
Supplement
To the
Monthly
Issued
Serious - But
Not Too Serious

NAVAJO STUDY PROJECT

By Betty Budlong

Canyon de Chelly National Monument is situated, as all familiar with the Southwest know, in the heart of the Navajo country. Primarily, the 83,000 acres of land which comprise this area were set aside for the preservation of things prehistoric and of an archeological value, as well as for the scenic grandeur and beauty of the two canyons, del Muerto and de Chelly, and their numerous tributaries.

We have here, however, a most unique situation. From the rim of the canyon the interested visitor, looking across to the opposite side, beholds a pueblo cliff dwelling, silent and inscrutable, fading agelessly into its hiding place on the ledge of a sandstone wall. Looking next to the floor of the canyon, he discovers a Navajo hogan, teeming with life, a trim little peach orchard vivid behind it, a square of dark earth near by which will yield food to a people living and vital.

The story of the folk who inhabited the cliff-dwelling is a fascinating legend to our visitors. The people of the hogan are a tangible reality and, as such, arouse an immediate interest in the person to whom this country and knowledge of its inhabitants, past and present, may be either familiar or quite new.

For this reason, ethnology will play as important a part as archeology in the development of the monument if we are to glean from it the richest and finest possibilities that it has.

One of the projects upon which we are working will ultimately cover all phases in the life of the Navajo Indian; his mode of dress, his means of transportation, his food, the various types of homes he builds, his arts and crafts, etc. A great deal of this material will, of course, be assembled in photographic form, thus incorporating the so-important visual side of museum exhibits and education. That which can be had in specimen form will be displayed in a simple and lucid fashion and more detailed material filed away for the use of the student and those who wish to explore the subject more thoroughly.

With the cooperation of the Home Economics Department of the Indian School at Chin Lee, we have been working on the art of native weaving of rugs and blankets. Last fall and early winter, a Navajo girl conducted a class one day a week, and the children, under her supervision, carried the wool through all its stages from "sheep to loom." This included, briefly: washing the wool in suds obtained from yucca (or soapweed) roots; the use of a white clay found on the hills around Chin Lee which, when rubbed into the wool, renders it very white; carding (black and white wool are carded together to produce gray); spinning of the warp, woof and marginal threads (the warp thread is spun many times until it is about the consistency of heavy string; the marginal thread consists of two strands of second spinning, or woof, thread which are spun together

on the short end of the spindle. This thread is used to edge the rug); dyeing with all native dyes and, finally, the weaving of a small rug. I attended many of the classes and Bob came as often as he could with his camera and took photographs. Several times during the fall we made trips to the canyon rim to gather dye plants, but are waiting now for spring to bring the majority of these. I have obtained a most comprehensive paper on Navajo dye plants which will aid us greatly in making a fine collection at that time when, armed with plant presses, we start out to comb nearby areas of the reservation.

Among those that we have obtained, with representative skeins of dyed wool and the formulae used, are: juniper, sagebrush and mistletoe which, when combined, give a mustard yellow color to the wool; Mormon tea, which produces a delicate mauve; mountain mahogany root bark, which gives a reddish brown, and the leaves from the wide-leaf yucca, which give a light tan. In addition to these, we have 30 or more formulae for native dyes, but we will be unable to obtain specimens of the plants and skeins of wool dyed according to these formulae until the coming summer.

The plant or plants are boiled in water for an hour or so before the spun wool is added. The two are then boiled together for a time varying anywhere from one to three hours depending upon the depth of color desired. Often a mordant, such as alum or juniper ashes, is used in this dye water to "set" the dye, but the use of this varies with individual preference and is not always considered necessary. A plant boiled in an iron vessel will sometimes give a very different shade from the same plant boiled in a container of some other metal. Black and brown wool are usually intensified, seldom being left in their natural state. Navajo women jealously guard formulae that they concoct from the rarer plants and it is often very difficult to obtain information readily. However, as time goes on and we become better acquainted with them, we are in a position not only to help keep alive the, at present, have for Canyon de Chelly and the Southwest as a whole, access to invaluable records for future generations.

This project has given us an excellent introduction to the art of weaving and dyeing, but we are prone to consider it more in the nature of a preliminary step. This summer, we plan to have one of the best rug weavers in the community make a rug for us in an old, unbordered pattern, using native dyes throughout. Every step in the preparation of the wool and dyes, the setting up of the loom, and the process of weaving will be photographed in detail. Specimens of dye plants will be photographed, pressed, and labelled with common, Navajo and scientific names. When the rug is finished, we shall buy it and use it as the nucleus of a major exhibit in the future museum. This exhibit, as we now visualize it, will be arranged in panels containing specimens, photographs and other pertinent data, these, in turn, arranged with the completed rug in a natural order of sequence. Thus, when the "rug-minded"

visitor steps into the museum he may obtain, in a short space of time, a comprehensive idea, not only of how the Navajo woman weaves her rug, but through what preliminaries she must go before the actual weaving begins.

So it is that the life of the living Indian will be presented to our visitors along with geology, botany, zoology, archeology, and the many other related sciences, a study of all of which is a part of our work here at Canyon de Chelly National Monument.

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BIRD BANDING NOTES

By John E. Fast

(Ed. Note: One of the Southwestern Monuments' finest friends is John E. Fast, Chicago manufacturer, who,with his gracious wife, has been spending the winter season near Casa Grande National Monument for several years. Becoming interested in archeology, he last winter made a rather thorough survey of anthropomorphic and zoomorphic forms on Hohokam pottery. This project is still under way, and Mr. Fast's interest has led him to continue his archeological studies at the University of Chicago.

Through the medium of the Southwestern Monuments' Monthly Report and Supplement, he developed an interest in bird banding. The following notes tell of his experiences during the month of February.

During February, Mr. Fast banded almost as many birds as the Casa Grande station had banded during six months. His scrupulous carefulness makes him an invaluable collaborator, and the members of the Naturalist Staff wish to take this opportunity of expressing their thanks for his fine work.)

At the suggestion of Junior Park Naturalists King and Caywood I am putting down on paper for your files my experiences in bird banding during the month of February. As a good friend of your Service of some years standing, and a regular winter visitor to your pleasant locality, the boys suggested that I take a couple of bird traps that were not in use and see what I could do as a cooperative bird bander at my own quarters, Vah-Ki Inn. For the sake of the record I should explain that this adjoins the Monument property, is separated only by an irrigation ditch, and is covered with the same type of vegetation, mostly mesquite and creosote bush. As far as the birds are concerned it is one continuous piece of land. From headquarters to my temporary home is very nearly half a mile.

The first two days of my bird trapping resulted in 19 Gambel sparrows, perky little fellows, with black and white stripes on the head, in the adults, and brown and buff stripes in the immatures. These

were promptly taken over to headquarters, banded, held safely overnight and released there the next morning. One of those concluded that there was no danger in traps, so promptly got caught over there at 11:30 A.M., and then returned home for his evening meal, to be caught again, here, at 4:30 P.M. No other of these 19 birds has been caught again, at your traps ("repeated," is the bird banders term), yet 15 have repeated over here. They evidently have a limited area they call home, and return to it promptly when taken away.

This was astonishing to me, and I thought it would be interesting to test still further their homing instinct. I began to collect birds in lots of five in small transfer cages, taking as many full lots of five as I could gather each day before noon. I then released them, five at a time along the road to Phoenix, five the first mile, five the second mile, five the third mile, etc., up to ten miles. Newly banded birds, repeats, adults, immatures were all the same to me except that a bird sent on this mission and again caught was excused from further service. I released them all before noon to give them the best chance possible. The Phoenix road is toward the northwest. The bird book states that Gambel Sparrows migrate northwest and spend the summer in the territory from Montana to Oregon, and north through Western Canada and as far as Alaska, so that the sparrows might be expected to say to themselves, "Well, we thumbed a ride this far anyway," but - no - back they came, and are still coming. The record of birds which flew back to Vah-Ki is as follows:

One mile ------ five	six miles ------ one
two miles ----- one	seven miles ---- one
three miles --- two	eight miles ---- none
four miles ---- one	nine miles ----- one
five miles ---- none	ten miles ------ one

It may be expected that more are back, but are too smart to enter traps again. Migration takes place in about six or eight weeks, and it will be interesting to note after that time how many additional ones have returned and been caught. All of these returning birds practically have to fly over the traps at Headquarters, yet none have been taken there.

A White-rumped Shrike caused the next excitement. A shrike is also known as a Butcher Bird. It subsists on small birds, grasshoppers and other insects, and occasionally impales them on thorns for its future food supply, much as a butcher hangs meat on hooks (or used to, at least). It is a dressy bird, with black and white contrasts, and a black band extending around its head, similar to the popular idea of a bandit. It is a villain, all right. One was noticed one morning walking around a sparrow trap, doing its best to get at the birds inside. A small, two-compartment trap, without bait, was placed near the sparrow trap in the hope that the shrike would walk into it, since it was so absorbed in its

nefarious intentions. This was repeated several mornings, as there were a half dozen or so sparrows in the trap each morning. The fourth morning it was caught in this way and is now proudly (?) wearing band No. 36-191404. Mr. King released it at Florence, nine miles east of here the next morning. I wish I could have sent it many more miles away, because two new shrikes showed up the next morning, to take its place, and a week later, Mr. Caywood saw a shrike near here with a shiny new band on its leg. One morning I found a dead Gambel Sparrow in a trap and a shrike sitting in a nearby tree. Later that day the same two-compartment trap contained a small, frightened, exhausted but otherwise unharmed Gambel Sparrow in one side and a shrike in the other. The shrike was banded, securely boxed and given to a party of tourists who agreed to release it at Tucson, 66 miles southeast.

The second fatality occurred several days ago, when another dead Gambel Sparrow was found in a trap, with a pathetic lot of tiny feathers around. Shrikes are one of the two kinds of birds that the Biological Survey at Washington permits bird banders to shoot, and then only when they become a serious menance to trapped birds and when they cannot be caught and transported far away. Drastic action is now contemplated by Messrs. King and Caywood, but for the present we hope to capture the others. The other bird that can be killed is the English Sparrow, which is noisy and dirty, but whose principle fault is that it chases other birds away.

Three Cactus Wrens have been banded. They seem to enjoy human society. There are several around the house all the time. One sits up on the chimney every morning and gives its characteristic call or line of chatter. A pair are transporting nesting material to a mesquite tree quite near the house. They appear to be full of curiosity. One was caught in a two-compartment trap without bait, but near a larger trap containing Gambels. It repeated the next morning in the sparrow trap. I am going to try nesting materials, cotton, string, etc., as a bait for them and other nesting birds.

On February 6 I caught a male Arizona Cardinal. "Cardinalis cardinalis superbus" is the technical name, and superbus is certainly a fitting term, with his bright scarlet coat tastefully trimmed with a little black. He was an upstanding bird that fought every second of the time he was being banded, but did not appear to be frightened at any time. He was released and showed up again in two days, and walked into the trap again. That time I did not subject him to the indignity of handling him, but simply opened the trap, taking one chance in a million that he was not my bird but one that someone else had banded.

Mr. Caywood and I put in a few active minutes one dark evening trying to catch a Say Phoebe with a net in the large porch of the Inn. We finally succeeded after much ridicule and almost hysterics from our wives. They said we looked so silly prancing around with flash lights

SOUTHWESTERN BIRD BANDING TOTALS

Species	Bandelier		CaseGrande		Chaco		Montezuma		Navajo		Pipe Spr.		Walnut		Wupatki		Total
	Prior	Feb.	Prior	Feb.	Prior	Feb.	Prior	Feb.	Prior	Feb.	Prior	Feb.	Prior	Feb.	Prior	Feb.	
Bluebird,Ch-b.													215				215
Cardinal,Ariz.				1													1
Crossbill,Bend.													17				17
Chickadee,Mtn.									6				3				9
Creeper, R.M.	2																2
Dove, W.Mourn.			2														2
Finch, House			76	53													129
Flicker,Red-sh		1															1
Fl'c't'r,Ariz.			2														2
Goldfnch,Gr-bkd													2				2
Jay,Long-crstd	2																2
Jay, Woodhouse	3								6								9
Junco,Gr-hded	33	16							8								57
Junco,Mntana									9								9
Junco,Pnk-sded	5	2															7
Junco,Rd-backed	3	1							2				13	25			49
Junco,Shufeldt	6	1							13				5	5			30
Mckngbird, W.			2														2
Nuthatch,Pyg.	12	9											24	1			46
Nuthatch,R.M.	1	1											6				8
Owl, W. Horned			1														1

Species	Bandelier		CasaGrande		Chaco		Montezuma		Navajo		Pipe Spg.		Walnut		Wupatki		Total
Phoebe, Say			17	1													28
Quail, Gambel			21	1			5										27
Roadrunner			3														3
Robin, Western													7				7
Spacker, H-nap.													4				4
Spacker, R.M.													2				2
Shrike, W-rum.				2													2
Siskin, Pine													1				1
Solitaire, Town.													7				7
Sparrow, Gambel			57	217													274
Sparrow, W-cr.									6								6
Swallow, Ro-wng			3														3
Thrasher, Bend.			3	1													4
Thrasher, Criss.			7														7
Thresher, Sage															2		2
Titmouse, Gray													1				1
Towhee, Gr-tail.				2											1		3
Towhee, Spurred		1															1
Woodpckr, Gila			6	1													7
Wdpkr, RM Hairy	1																1
Wdpkr, Nearas Wren, Cactus			28	6									9				9 34
SUB-TOTAL	73	32	228	285	0	0	5	0	56	0	0	0	316	31	3	0	
TOTAL		105		513		0		5		50		0		347		3	1023

and small nets like some weird sort of ballet. Anyway, Mr. (or Mrs.) Say Phoebe is wearing band No. 36-21800.

House Finches are tiny little birds. The male is tinged around the head and shoulders with red, a beautiful little bird with a cheerful song. They appear in flocks at my drinking pool every afternoon. The ramada or shelter at the Monument picnic grounds is their favorite roosting place. Messrs. King and Caywood and I repaired to this ramada with nets one night (wives remaining at home, by request). We caught and banded that evening 31 house finches, with a smaller number of repeats.

On the 24th I trapped and banded a Bendire Thrasher. This is a handsome grayish brown bird a little larger than a roben. Its mate sat in the tree above the trap and kept up a constant singing all the while the bird was there, and when I took it to headquarters to be banded, since I did not have a #2 band, the mate stayed in the tree, calling until the bird was brought back. The song resembles that of the Mockingbird, but does not have its range of variation or quality of mimicry. After it was banded I brought it back to where it was caught so as not to disturb too violently its routine. Its mate flew down to it, but presto! out of a nearby tree came another one not noticed before. The three of them scrambled, hopped and fluttered around for a few seconds and when the dust had cleared away I had lost track of which was which, but one was sitting in a nearby mesquite tree and two were hopping up and down and fighting precisely like two young roosters. This continues intermittently around the place for about half an hour.

I have been fortunate to be able to band during the month of February 212 birds composed of the following:

1 Arizona Cardinal
1 Bendire Thrasher
1 Say Phoebe
2 White-rumped Shrikes
3 Cactus Wrens
204 Gambel Sparrows

Two of the Gambel Sparrows were banded as immature birds a year ago at the Monument, and returned to the same home grounds as adults after their long journey to the far north last summer.

Working with these birds has been an extremely pleasant experience, and I am grateful to your people for the opportunity of doing it.

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BANDELIER BIRDS

By Betty Jackson

There has been so much warm weather this month that the birds were often able to find their own food, but the total new banded birds got up

32, of eight species. These are:

Grey-headed Junco, 16; Red-backed Junco, 1; Pink-sided Junco, 2; Shufeldt Junco, 1; Rocky Mountain Nuthatch, 1; Pygmy Nuthatch, 9; Spurred Towhee, 1; Red-shafted Flicker, 1.

Two of the formerly banded Pygmy Nuthatches died, apparently of exhaustion when I didn't visit a trap for four hours. One I practiced on, the other is a bird skin. It's not too handsome, but my fingers had difficulty maneuvering around a bird so small.

The birds seen around the canyon are about the same as last month. Besides those banded there are Robins, Solitaires, Long-creasted and Woodhouse Jays, Rocky Mt. Hairy Woodpeckers, Chickadees, Chestnut-backed Bluebirds, Canyon Wrens, and a Sharp-shinned Hawk.

We nearly ran into a big Red-Tail on the Ramon Vigil Grant the other day. He swooped right in front of the car, and we could see every feather.

Turkey tracks can be seen in the mud almost down to the Chaves' house. They are probably hunting the new sprouts that are coming up everywhere among the grass and weeds.

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DATE SEEDS

(A premature report) By J. W. Brewer

In Dale's Bandelier Museum Comments (December, 1935) on page 479, Plate A, there is an illustration on the upper left, first above the boxed P. V similar to a midden to which I refer (which I call an "over the back fence" type of midden).

Part of such a midden occurs at the base of the low westernmost wall of Wupatki Pueblo; the southern part was removed by CWA and left a vertical face to slough off with every rain.

Having found some interesting sherds washing and falling out of this exposed face I have kept my eye on the spot for whatever might come to light. Late in January I was very surprised to see clinging to the face of the mound, about 6 inches below the surface, what appeared to be a date seed. Picking it up I noticed another almost buried one (the second seed was certainly in situ).

Never having heard of date seeds associated with a prehistoric ruin, I started investigating. At the Museum of Northern Arizona prehistoric dates were unknown. However Mr. A. F. Whiting, Curator of Biology, took the seeds to Mr. D. W. Albert of the University Date Farm who made the following statement:

1. The seeds are definitely date seeds.

2. Their condition indicates that they are old.

3. Assuming them to be typical (i.e. not extreme variations) they are not the imported Dromedary Date of today.

4. Possibly they are the Khadrowi variety which at one time was imported by the same firm.

5. So far as he knows, there is no other evidence to indicate the presence of date culture in prehistoric times.

6. Date seeds, from Europe, were distributed by the Spanish priests during the 16th century.

My theory is not, of course, that the seeds were the product of local palms, but that they are the products of trade--whether prehistoric or historic remains to be settled.

Mr. Watson Smith, Associate in Research Archeology with M.N.A. contributed the following interesting reference: (Bandelier in "Contributions to the History of the Southwestern Portion of the United States," Papers of the Archaeological Institute of America, American Series, V., 1890, speaking of Cabeza de Vaca's wanderings through Sonora, just previous to his reaching the Yaqui River)

> "It was only when they ascended the foothills of the Sierra Madre and penetrated into the deep gorges and valleys of that extensive mountain area, that a fertile land met their eyes, and at last they found Indians settled in small but more permanent villages--Indians who cultivated maize, who owned turquoises, although in small quantities, and who traded parrot's feathers for green stones, far in the north. The houses of these Indians were made of palm leaves tressed and plaited, and some of the buildings had earthen walls and a dirt roof.
>
> "All this is significant and enables us to identify the region, though not the exact locality.
>
> "A species of large green parrot inhabits the pine forests of the Sierra Madre as far north as latitude 30 ---- --North of the Sierra Madre no species of the parrot tribe is permanent-----
>
> "Palms are found in the Sierra Madre and its tributary chains. They are especially fan-palms, and the houses of the aborigines of Sonora were often made of that material". (to which Bandelier puts the following foot-note) "At Arizpe, in the valley of Sonora, there is one specimen of the so-called date-palm----I have seen----small specimens of the

DATE SEEDS (CONT.)

date-palm on the crest of Bacatehac, between Granados, on the upper Yaqui River, and the village of Bacadehuachi, on the outskirts of the Sierra Madre---"

Dr. Colton suggests a stratigraphic survey of the mound in which the date seeds were found, and we may be lucky enough to get Mr. L. L. Hargrave out here to do it when their excavation permit is granted for 1936. More later.....

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SEVENTEEN YEARS AGO-

Blackwater, Arizona
March 6, 1919.

Dear Mr. Mather:

I submit the following report on the conditions at the Casa Grande Ruin National Monument for the month of February, 1919:

During the month 387 visitors and 135 automobiles have entered the reservation. The weather has been very pleasant and the roads have been in good condition throughout the month.

We have had no income and have made no disbursements during the month. We have left $141.81 from our allotment made by Service Letter of September 9, 1918.

During the month I made a trip, under your instructions, to the Grand Canyon and the Petrified Forest. This took me away from this reservation from February 21 to the end of the month. I have been so busy that I have had no time for research work and that is a mtter to be regretted. I like to keep a little new work under way all the time, for I find that it doubles the interest of visitors to see something in the act of being opened. I wish in another year we could arrange to spend about $300 in experiments with test pits and trenches. My test pits on the elliptical mound have interested hundreds of visitors since I have opened them.

I have installed a telephone which is connected with the local switchboard in the town of Florence ten miles to the east of us. This has already saved several trips to town and will give me telegraph and telephone connections out over the state. You might change my telegraph address from Casa Grande to Florence, Arizona. The operator in Florence can send a message out to me at once over the telephone while from Casa Grande it has to wait over until the next day and come up on the stage to Blackwater by mail.

Cordially yours,

Frank Pinkley, Custodian
Casa Grande Ruin.

Blackwater, Arizona.
April 7, 1919.

Dear Mr. Mather:

I have the following report to make on the administration of the Casa Grande Ruin National Monument for the month ending March 31, 1919.

TRAVEL AND TRAVEL CONDITIONS

388 visitors and 173 automobiles have entered the reservation during the month. I think this represents a normal month of travel for this season of the year. The 31st of March closes my first year of service for the National Park Service, and during that year I have had 2962 visitors. I did not get instructions to check the number of automobiles until last fall so I am unable to give the actual number of machines.

In my report for September, 1918, submitted under date of October 1, I had the following paragraph on roads:

> "In my monthly report for July, under date of August 3, I spoke of a prospective issue of road bonds which our neighboring county on the south, (Pima), would vote upon September 10. I am now able to report that the bonds carried, the vote being nearly two to one in favor of them. It now remains for the proper Federal authorities to approve the issue. The plan contemplates the expenditure of about $40,000 on the road between Tucson and Casa Grande, (the town). Working in with this bond issue, the reclamation part of the Indian Bureau is to open bids on a combined diversion dam and bridge to be located just above Sacaton on the Gila River. If this bridge goes in it will make a through road along the line to be covered by the bonds above mentioned, from Tucson to Phoenix. This will put the Casa Grande Ruin between two good highways running from Tucson to Phoenix."

All bids failed on the diversion dam and bridge mentioned here, and, although the road money was to be expended, I had little hope of our Monument gaining much benefit. The bridge project is now being revived and there seems to be a very good prospect for the road to go through from Tucson to Phoenix. In that case I shall expect an increase in our number of visitors as soon as this bridge is built.

FINANCES

There has been no income during the month, and the disbursements have been $11.62 for reference books for office use, and $18.38 for material for repairs for the Custodian's house. This brings our total

expenditures from our allotment of $500 up to $388.16.

WEATHER:

The weather has been beautiful all month. The country generally has had good winter rains and range conditions are still good, but the grass is now drying up. More rain will be needed in the next week or two if the range stays good. All roads from Phoenix south to the border are in good condition and the usual heavy winter traffic seems to be using them, both the state travel and the through traffic to the coast.

GENERAL:

I was absent from the reservation on official business on March 17-18-19-20 and March 24-25. The first trip was to the Tumacacori Mission and Nogales and is detailed in my monthly report on the Tumacacori Mission. The second trip was to Tucson to attend a meeting of the Arizona Archeological and Historical Society, devoted to the Tumacacori Mission.

Cordially yours,

Frank Pinkley,
Custodian, Casa Grande Ruin.

**

Blackwater, Arizona.
May 7, 1919.

Dear Mr. Mather:

I have the following report to make concerning the administration of the Casa Grande National Monument during the month of April, 1919.

VISITORS:

During the month 445 visitors and 194 automobiles entered the Reservation. This compares with 480 for the same month last year and so must represent about the normal number of visitors for the month of April.

FINANCES:

There was no income during the month and no disbursements. We have $111.84 of our allotment of $500 made September 8, 1918, on hand, but have some bids out for signs which will use up $50 or more of it in May.

ROADS AND ROAD CONDITIONS:

We had very little rain during the month and the roads in Southern

Arizona are drying out and breaking up under the traffic. If we have no rain in May, and under normal conditions we expect very little during that month, the roads will get in bad condition and automobile traffic is liable to fall off.

Under a new state law passed at the recent session of the legislature, the board of supervisors have appointed a road commission of five members who are now studying road conditions with a view to submitting a comprehensive plan of improvement and asking the people to vote the bonds to carry out the plan. This bond election will probably be held next fall and a part of the plan is to surface twenty odd miles of the road running from Casa Grande on the Southern Pacific out nearly to the Ruins.

RESEARCH WORK:

My time has been so taken up during the month with the routine work, the handling of visitors and attending to the work going on at the Tumacacori Monument, that I have found no time for research work.

For some time I have had in mind an idea of trying some restoration studies of the ruins as they must have looked when they were inhabited. So far as I know this has never been tried with this group of ruins. I think it will prove interesting.

GENERAL CONDITIONS:

Water is getting scarce on the desert and range stock is drifting in on the desert near here and getting in on the reservation. They bother considerably around the well and around the various compounds looking for water. Nothing can be done toward keeping them out until the reservation is fenced.

Cordially yours,

FRANK PINKLEY
Custodian, Casa Grande Ruin.

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WOOLLCOT AT WUPATKI

(Reprinted from the "Coconino Sun," Flagstaff, Ariz.)

Alexander Woollcott, celebrated author, critic and radio broadcaster, was guest of custodian and Mrs. Jimmie Brewer Saturday to Monday at Wupatki National Monument, northeast of here.

Several weeks ago Mr. and Mrs. Brewer in their snug apartment in the second story of the main pueblo at Wupatki listening to a Woollcott broadcast, heard him say he wished he could get away from New York to some place where there was no telephone and he couldn't be disturbed by someone calling up to say his maiden aunt had got into a jam and needed

his help. Jimmie wrote Mr. Woollcott that Wupatki, 14 miles away from the nearest phone, and as far from the nearest neighbor, was the ideal sanctuary.

He soon received a cordial reply in which Woollcott said his next cross-country itinerary would not include Flagstaff; then, while he and Mrs. Brewer were at Carlsbad, New Mexico, a few weeks ago, another letter came announcing that he would come through here.

Immie met the Woollcott Cadillac east of town Saturday afternoon and piloted it to Wupatki. With Woollcott was Joseph Hennessy, also of New York, who, though he had nothing to say about himself or his work, is believed to be a prominent Columbia professor and author.

The guests had a fine time at Wupatki, easy to understand by anyone who knows their delightful host and hostess. Sunday they visited and explored dozens of the ancient Indian ruins in that region, Woollcott evincing great interest, though he did say that such a strenuous day outdoors was something unusual for him, as for years since the World War in which he enlisted as a private and saw service in France, he has been notorious among his intimates as unalterably opposed to exercise of any kind and lovingly partial to soft couches and deep easy chairs. He told Jimmy that a big easy chair was his idea of the nearest earthly approach to heaven.

Mr. Woollcott left convinced he had slept in the oldest inhabited house in the United States. It was started in 1074, tree ring research shows, and the Brewer living quarters were built in 1135.

The guests came here from Los Angeles and left Monday morning to spend that night in Gallup. On their way here they spent Friday night at Kingman.

Woollcott known throughout the world in the last few years through his radio talks and his books, among the latter the big seller, "While Rome Burns," has for a much longer time been about the best known and liked New York theatrical first-nighter and critic. His celebrated book on Mrs. Fiske and her views on acting, actors and the problems of the stage, in 1917, and "The command is forward," in 1919, are among his most successful earlier works. He has been on the editorial staff of the New York Times since 1909, dramatic critic since 1914, was member editorial staff Stars and Stripes at the American front and with the American army of occupation. He is a bachelor, born in Phalan, N. J., 45 years ago this month.

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L. R. Caywood

SOUTHWESTERN MONUMENTS

MONTHLY REPORT

MARCH, 1936

DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS
MARCH, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent. Hugh M. Miller, Acting Assistant Superintendent. John H. Diehl Associate Engineer. Robert H. Rose, Assistant Park Naturalist. Dale S. King and Louis R. Caywood, Junior Park Naturalists. A. T. Bicknell, Custodian on Special Detail. Robert L. Cole, ECW Clerk. Luis Castellum, Temporary Clerk-Stenographer.

GENERAL FIELD MEN: Charles A. Richey and Harry Langley, Resident Landscape Architects. J. B. Hamilton, Associate Engineer. J. H. Tovrea, Chief Engineering Aide. Andrew Clark, Topographer. Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian. Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 669, Santa Fe, New Mexico. Earl Jackson, Custodian.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian. Charlie R. Steen, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. W. H. Smith, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin L. Jackson, Custodian. Frank Fish, Ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona. Paul Beaubien, Temporary Ranger.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2225, Tucson, Arizona. George Boundey, Custodian. Martin Evenstad, Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Donald Erskine, Ranger in charge.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian. Barry Mohun, Utility Man.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, In Charge.
25. Yucca House---Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
April 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for March, 1936:

TRAVEL

	March, 1936	March, 1935	March, 1934
Aztec Ruins	858	933	429
Bandelier	429	427	260
Capulin Mountain	404	417	459
Casa Grande	2,705	3,365	2,785
Chaco Canyon	407	308	208
Canyon de Chelly	25	0	---
Chiricahua	350	---	---
El Morro	10	4	---
Gran Quivira	152	293	305
Montezuma Castle	530	597	1,056
Natural Bridges	---	0	---
Navajo	---	4	---
Pipe Spring	119	195	817
Saguaro	2,000	---	---
Sunset Crater	136	53	---
Tonto	816	746	---
Tumacacori	1,573	1,987	1,215
Walnut Canyon	350	---	---
White Sands	4,685	---	---
Wupatki	104	38	17
Yucca House	---	4	---
Actual Reported Registration	16,315	8,728	7,336

The 14 monuments which reported both in 1935 and 1936 showed a decrease from 8,728 to 8,040---688 visitors, or 7.8%.

The 10 monuments which reported both in 1934 and 1936 showed a decrease from 7,336 to 7,107---229 visitors, or 2.8%.

Thus, it would appear that March, 1936, as a travel month was eight percent poorer than the same month in 1935; almost three percent poorer than the same month in 1934. Weather conditions, apparently, are entirely responsible. Although the northern portion of our area experienced a mild month, the heavily traveled southern monuments drew rain and cold for their weather allotment, and travel decreased.

000 GENERAL

020 WEATHER

The northern part of our area experienced a rather mild month of March except for heavy snowfall late in the month. Wind bothered visitors a little at Chaco and Wupatki; dust appeared at Bandelier and Canyon de Chelly. Southern Southwestern Monuments which usually attract heavy travel in this month were visited by relatively cold and wet weather. Tonto, alone, received its normal quota of travelers. Ranger and forage conditions generally appear as promising. There has not been enough moisture to enable the Gila Desert to bloom with last year's abundance, however.

100 ADMINISTRATION

120 MONUMENT INSPECTIONS BY SUPERINTENDENT PINKLEY

Superintendent Pinkley and Acting Assistant Superintendent Miller visited the following monuments on business matters: Canyon de Chelly, Mar. 13; Bandelier, Mar. 14; Chaco Canyon, Mar. 16 and 17; Aztec Ruins, March 18.

Acting Assistant Superintendent Miller also visited Canyon de Chelly for an inspection of the custodian's new residence February 27.

123 VISITS BY NATIONAL PARK OFFICIALS

Aztec Ruins: Ahrens and Cully, ECW, Denver Office. W. H. Wirt of Berkeley Office. Superintendent Nusbaum of Mesa Verde National Park.

Bandelier: W. H. Wirt, ECW.

Canyon de Chelly: Kenneth Saunders of Mesa Verde National Park.

Chaco Canyon: Custodian Faris and Ranger Hart of Aztec Ruins; Regional Wildlife Technician Borell.

Chiricahua: R. R. Robinson, master mechanic, Yellowstone; Ranger A. T. Bicknell; Regional Wildlife Technician Borell.

Gran Quivira: Associate Engineer Diehl, February 29 and March 14.

Pipe Spring: Landscape Architects Langley and Keeling; Park Naturalist Presnell of Zion National Park.

Tonto: Raymond Higgins of Oklahoma City Office.

Tumacacori: Master Mechanic Robinson and Ranger A. T. Bicknell.

Walnut Canyon: Ranger Frank Fish of Montezuma Castle.

White Sands: M. C. Huppock, assistant director, National Park Service Recreational Demonstration Group; W. H. Wirt, regional forester; Adrey Borell, regional wildlife technician; Vincent Vandiver and Dr. Lewis, geologists.

Wupatki: Ranger Steen, March 18; Ranger Erskine, March 23.

180 PUBLICITY

White Sands: Reference to this monument will appear in "Our Desert

CONTINENTAL AIRPORT (CONT.)

130 PUBLICITY (CONT.)

Neighbors," by Edith M. Patch, McMillan Publishing Company. The monument also will receive publicity in the Continental Oil Company's exhibit in the Texas Centennial at Dallas. See Page 147.

Wupatki: Science News Letter for February 15 carried an account of "Hopi Spinach," published last year in *Southwestern Monuments Supplement to Monthly Report*. See Page 163. "Arizona Highways" published an article on "ball courts" which mentioned Wupatki. See page 162.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

220 IMPROVEMENTS

Canyon de Chelly: Two lines of drainage trench run around new residence to prevent water damage. See page 165.

Chaco Canyon: One man used 10 eight-hour days painting tops of steel fence posts, building new water gaps, and maintaining fence. See page 158.

Pipe Spring: Old comfort station torn down and site obliterated. Another comfort station remodeled. See page 159.

Wupatki: Trail between Rooms 16 and 38 filled to suitable height and landscaped with loose rock material. See page 162.

230 NEW CONSTRUCTION

Bandelier: ECW progress as follows: (See page 147)

1. Roofing of Quarters No. 1 being applied. Rough plumbing is installed and interior partitions are ready for plaster. Building will be turned over to carpenters for inside finish work April 1.
2. Landscape crew worked half month on planting and obliterating. Other half month was spent completing grading slopes in Detached Section highway.
3. 450 additional feet of sewer line completed. This finishes the project. Residences are connected.
4. Storage tank (10,000 gallon capacity) and all connections completed.
5. Work continued on sign project. Many signs completed and shipped.
6. Museum building construction delayed pendin, receipt of lighting and ventilation plans.
7. Small quarry crew worked all month.

Canyon de Chelly: Custodian now removing forms, waterproofing water reservoir preparatory to further work. See page 165.

Chiricahua: ECW progress as follows: (See page 149).

1. Massai Point-Balanced Rock Trail now complete for 1,000 feet.
2. Echo Trail advanced 250 feet. Heaviest construction now complete.
3. 600 sq. yds. of banksloping on Bonita Highway completed. Material was used to obliterate borrow pits.
4. Sugar Loaf Trail approach widened for purposes of visibility.

230 NEW CONSTRUCTION (CONT.)

5. Ranger station 100% complete.
6. Bathhouse 100% complete.
7. Three fireplace and table sets constructed at Massai Point. One pit toilet moved.
8. Planting project under Foreman Fulton started.
9. Topography crew under Andey Clark finishing topographical map.

Gran Quivira: Pump house and water system work under Foreman Gipe progressing. Tank pit dug; lumber, cement, gravel on ground. See page 169.

Pipe Spring: ECW progress as follows: (See page 158).

1. Fencing project complete.
2. Diversion ditch project complete.
3. Parking area almost leveled but work is waiting on acquisition of truck to haul gravel.
4. Walk construction stopped until decision is made concerning historic dugout which was discovered in line with one of the walks.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon: Bert Coddington, agronomist, and L. V. Compton, biologist, both of Soil Conservation Service, conferred during the month concerning rodent control on the monument in devastated areas. See page 152.

Wupatki: National Forest Service is cooperating on proposed cattle guard on west boundary. Tentative arrangements are for Forest Service to provide material, Park Service the labor. See page 161.

350 DONATIONS AND ACCESSIONS

Aztec Ruins: Earl Morris, Carnegie archeologist, kindly donated to the museum a copy of his invaluable excavation field notes. This acquisition greatly supplements our museum catalog, and will prove of increasing value from now on. See page 164.

White Sands: The collection of mammal and bird study skins previously made at White Sands by Adrey Borell, regional wildlife technician, transferred from the University of California, which had been storing them for us, to a storage space under the care of Custodian Tom Charles. Are available now for interested visitors and scientists. See page 168.

400 FLORA, FAUNA, NATURAL PHENOMENA

400 FLORA

Pipe Spring: Water line needed to irrigate 35 planted trees. See page 158.

400 FLORA (CONT.)

Wupatki: Ethnobotanical specimens received which had been identified by University of California through Field Division of Education Office. See page 148.

450 ARCHEOLOGY, HISTORY

Wupatki: Broken culinary olla which had washed out of ruin was repaired. See page 148. Party of local men re-started work on the long abandoned Penny Mine near the monument. See page 148.

460 BIRDS

91 new birds banded in Southwestern Monuments during March. Wupatki and Tumacacori, both important stations, started activities. Casa Grande station using colored bands on Gambel Quail, Cactus Wrens to facilitate life habits study. See page 287.

470 ANIMALS

Bandelier: The beaver which have been progressing up Frijoles Creek have constructed a sizable dam and seem ready to settle down. See page 146.

500 USE OF MONUMENT FACILITIES BY THE PUBLIC (See travel figures on P. 139)

530 NEWSWORTHY VISITORS

Bandelier: George Parker Winship of Harvard University; Jan Diemer, former consul from Holland; Spencer I. Baird, district counsel Reclamation Bureau; Frank Vesely, state land commission; C. M. Adams, sanitary inspector for U. S. Public Health Service.
Casa Grande: Drs. Charles and Will Mayo, Rochester, Minn.; Watson Smith, member of 1935 Rainbow Bridge Expedition; Dr. C. L. Fenton, paleontologist.
Chaco Canyon: John C. Frost, United States Geological Survey.
Gaguro: Dr. Ira L. Wiggins, Stanford University.
Pontoc: Mr. Nance Gladwin and Miss Emily Cross of Gila Pueblo.
Tumacacori: Dr. Ira C. Bartle of San Luis Obispo, California, authority on fungi and spores.
White Sands: Leo McClatchy, Oklahoma City Newspaperman; Edith Patch, University of Maine, preparing book, "Our Desert Neighbors,"; M. L. Dempsy, chief clerk, New Mexico highway department; Mrs. Clyde Tingley, wife of New Mexico's governor; Henry E. Riggs, dean emeritus, School of Engineering, University of Michigan; Phillip Blossom, assistant curator, University of Michigan Museum.
Wupatki: Dr. W. J. Jakin, Marine biologist, University of Sydney, Sydney, Australia.

600 PROTECTION

630 ACCIDENTS

Aztec Ruins: Miss Segerburg, Durango, Colorado, fell while descending into Great Kiva and broke her leg. Is recovering nicely. See page 180.

640 DESTRUCTION OF ANIMALS

Chaco Canyon: National Park and Soil Conservation Service experts are making study of possible rodent control in especially eroded areas in this canyon. See Regional Wildlife Technician Adrey Borell's report on page 180.

650 SIGNS

Bandelier: Under ECW this camp is making signs to be used at various necessary places throughout the Southwest.

660 SANITATION

Casa Grande: Present defective sewer system may prove health menace in near future. See page 171.

900 MISCELLANEOUS

MAIL COUNT

Incoming:		
Government	1509	
Personal	864	
		2373
Outgoing:		
Government only	1547	
		1547
Total mail handled		3,920
Telegrams		
Incoming		58
Outgoing		47
Total correspondence handled		4,025

Cordially,

Frank Pinkley

Frank Pinkley
Superintendent

REPORTS FROM MEN IN THE FIELD

BANDELIER

By Earl Jackson, Custodian

VISITORS:

Visitors numbered 429, arriving in 124 cars, from 34 states, Washington, D. C., France, England, and Czechoslovakia. Only 24 states were represented by cars.

The six highest states by visitors were: New Mexico, 311; Texas, 17; Colorado, 15; Michigan, 9; Oklahoma, 9; California, 9.

Visitor attendance shows the biggest March in history, but only by an increase of two people over March of 1935. You might almost think I had juggled the figures to get that result.

The peak day was March 15, with 99 visitors.

Weather and Roads:

Days partly cloudy:	6.
Days cloudy ------:	5.
Days clear -------:	10
Maximum temp. ----:	65. March 9.
Minimum temp. ----:	20. Feb. 25 and March 23.
Mean Maximum -----:	56.9
Mean minimum -----:	27.9
Precipitation ----:	.44 Against .10 for March, 1935.
Snowfall (traces)-:	Feb. 25 and March 23.
Rain and sleet ---:	March 22
Dust storms ------:	March 5 and March 11.

Weather has been mild, with a low percentage of stormy and windy days. However, dust was heavy for five days. With considerable more moisture than for the same period last year, the travel record is encouraging.

Roads, during the greater part of the month, have been good, and at the present time are in excellent condition. At no time have they been anywhere near impassable.

Visitor Trip Chart:

Forty-six parties of visitors were taken through the ruins, numbering 151 people. Average time per trip was 56.7 minutes. Seven parties, numbering 16 people, were given talks without ruins trips, averaging 18.6 minutes per party. All visitors to the monument were contacted and registered.

Special Visitors:

February 29 - A. Hackenschmidt, Ladislaw Koldo, and Elmar Klos, from Czechoslovakia, were interested visitors. They are studying motion picture technique in the United States, with the aim in mind of developing motion picture advertising in their own country.

March 2 - Mr. and Mrs. George Parker Winship were in. He is the assistant librarian in charge of Rare Documents at Harvard. He wrote the Coronado Report (14th Annual Report B.A.E.)

March 5 - W. H. Wirt arrived for regular E.C.W. inspection. Jan Diemer, former Consul from Holland, now representative of newspapers and magazines for that country, was an interested visitor.

Selden E. Tracy, who was the chief engineer for the picture "Mutiny on the Bounty," was a visitor.

March 6 - Norman Smith, Junior Geologist, E.C.W. left, after a three-week stay.

Jerry Morse, former landscape architect at Bandelier, was in for a day.

March 7 - Mrs. Frank Kentnor, of the Rancho de Taos guest ranch, was in for the first time since the development work began here, and spoke highly of it. Mr. and Mrs. Spencer L. Baird, of Denver, were in. Mr. Spencer is District Counsel, Reclamation Bureau.

March 8 - Frank Vesely, State Land Commissioner, paid a return visit.

March 12 - Mr. and Mrs. P. R. Robertson, of Chicago, Illinois, were enthusiastic visitors. Mr. Robertson is the builder of Robertson Cameras, used in several divisions of the government.

March 13 - Carl F. Beall, range supervisor, Forestry Indian Service, and Joe A. Wagner, junior range examiner, were in on business with the Custodian. C. M. Adams, Sanitary Inspector for U. S. Public Health Service, was a return visitor with a party of friends.

March 14 - Superintendent Pinkley and Assistant Superintendent Miller were in for an official visit of one day. As usual, the Boss' visit straightened out a thousand and one questions which had been more or less hanging fire until he could come in.

Nature Notes:

The beaver, or beavers, (we can't tell for sure if there are two or one) which were working up Frijoles Canyon have built a good sized dam a quarter mile below the swimming pool, and this has the appearance of being intended for permanent quarters. Depredations in tree growth

are practically at a standstill.

Betty's bird banding is also at a standstill. With warm weather and spring coming on, the birds have forsaken their winter boarding places, and she has banded only two new ones - Grey headed Juncos. The other day she saw her first Red-winged Blackbird in the Canyon, and four Mourning Doves have made their appearance recently.

Bill Sharpe, Procurement Officer, living in the Technician's quarters now, advances a new theory as to why the Indians may have left this canyon. He thinks bed bugs drove them out.

General:

Picnic parties are again using the camp ground, although the deciduous trees haven't started to leaf out. Travel indications are looking better than they have since I have worked here. The Fred Harvey Indian Detour is doing the liveliest business in many long months. Nearly everyday brings at least one Harvey party to Frijoles Canyon, and frequently there are two.

The experiment we are carrying out with the Visitor Question Survey is quite interesting. It makes one sit back and reflect that, after all, there is a surprisingly high number of intelligent queries. And when this 30-day question list is turned in to you, you will read a list which, for intelligent answering of all issues, would require the presence of a New International Encyclopedia.

Discovered, the other day, two new ruins on South Mesa which I had not seen before. Each consists of about a dozen rooms, and each is situated on a crest of a low ridge, at the end. From one I followed a prehistoric Indian trail for a quarter mile in the direction of Frijoles Canyon before it was lost under the pine litter of the forest floor. These ruins, as far as I know, are not named. They are interesting because of the surprising amount of decorated pottery. Over fifty percent of the sherds seen were decorated, and a few glaze specimens were seen, so the dates of them would be, at the earliest, in the early culture horizon of Frijoles Canyon. A considerable number of sherds was gathered, these to be identified by type by Dr. Mera and used in the stratigraphy case of the Bandelier Museum.

****

BANDELIER ECW

By H. B. Chase, Project Superintendent

Roofing of Quarters No. 1 is in progress at this time, all rough plumbing installed and inside partitions constructed ready for plaster. The building will be turned over to the carpenter crew for inside finish work on April first.

About half of the month was devoted to planting by the landscape crew, the balance of the month to fine grading road slopes along the road in the detached section of the Monument. This month's work completed the road slope project.

An additional 450 feet of sewer line was completed this month. This installation completes the sewer line project and connects the residence area development with the sewer disposal system.

The 10,000 water storage tank with all connections was completed and now ready for use. Additional water consumption by the Army of late has hindered filling the tank to capacity. However, after removal of the camp this storage tank will prove valuable in keeping an ample storage of water for Headquarters and Residence Areas.

Additional signs for this and other monuments have been completed and shipped this month.

Construction of the Museum has been stopped all month awaiting the arrival of lighting and ventilation plans.

A small quarry crew has been in operation during the month quarrying and shaping building rock as needed for the Quarters project.

Our Forestry Foreman, Fulton, has been detailed to the Chiricahua camp since March 17 for a period of six weeks to assist in planting and forestry work on that monument.

****

BANDELIER FORESTRY

By J. Fulton, Forestry Foreman

The first week in March my crew completed work on the vigas and lintels for Quarters No. 1 and for the museum. The lintels contained a total of 1900 Bd.Ft.; 1045 lineal feet of vigas were cut and finished.

On March 9 and 10 I was engaged in some bark beetle control work. A 57' Pinus ponderosa, 28" in diameter, which was infested with Dendroctonus barberi, was cut near the hotel. Also, it was necessary to cut 28 landscape-planted trees in the camp ground and parking plaza. Four were Pinus edulis, twenty-three were Juniperus monosperma, and one was a Pinus ponderosa. All these trees were simply piled and burned.

The next four work days, I had a crew on digging the ditch for telephone and power conduit between the residences, utility yard, and the office.

On March 17 I left Bandelier to go to Chiricahua National Monument. I expect to be here until about April 15 on a tree-planting project. Al-

though the growing season will soon begin, I believe we will be able to get the job done in time. The planting is going along fine at this time.

****

CHIRICAHUA

By Wm. Stevenson, Project Sup't.

I herewith submit the following travel report for the month of March.

Due to the increase in travel during February, three enrollees were assigned as guides this month; also signs were made up to direct tourists to the points of interest.

During the month 350 visitors arrived in 80 cars representing 14 states. Travel did not increase as rapidly in March as would have been expected, but cold weather accompanied by flurries of snow the latter part of the month kept many of the local people away.

****

CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent.

I herewith submit the following report for the month of March.

Work continued throughout the month on the Massai Point. Balanced rock trail 1000' have been completed to date. Echo trail advanced 250' this month. The heaviest construction is now done on this trail.

Six hundred square yards of bank were sloped on the Bonita Highway; most of the material was used in the obliteration of borrow pits.

The approach road to Sugar Loaf trail was widened at its junction with Bonita Highway to permit greater visibility.

The Ranger Station at Headquarters Area is 100% complete. The Camp Ground Bathhouse is 100% complete.

Three fireplace and table sets were constructed at Massai Point and one pit toilet was moved to Massai Point from the headquarters area.

Forestry Foreman Fulton arrived from Bandelier March 18 and work was started immediately on the planting project.

Andy Clark and Carl Schmidt arrived March 9 to complete the Topography map on the Monument.

Visitors for the month include R. R. Robinson, Master Mechanic of Yellowstone National Park, A. T. Bicknell, Ranger, Casa Grande National Monument, and A. E. Borell, ECW Wildlife Technician.

TONTO

By Woodrow Spires, In Charge

This draws to a close the busiest month I have so far encountered. Lots of visitors and plenty of new plants and flowers to identify. It is quite surprising the botanical knowledge that some of the visitors possess.

You will probably think by my weather reports I am in training for a California real estate salesman this winter. This month we have had 2.39 inches of precipitation which fell in the form of snow, sleet or rain and six cloudy and four party cloudy days. I was unable to read the figures, but guessing would say 32 degrees for the minimum and 75 degrees for the maximum.

Visitor count for this month shows an increase of 92 visitors, or 12.7% over last month. This I account for by fewer cloudy and disagreeable days. The following figures are derived from SWM Stencil No. 16:

Total visitors at the Monument.....	816
Total time guiding.....	.....7250 Minutes
Total visitors taking field or ruin trips.....	444
Total number of field or ruins trips.....	93
Total time field or ruins trips.....	5100 Minutes
Average time field or ruins trips.....	61.2 Minutes
Average groups field or ruins trips.....	4.7 Prs.
Total visitors Museum trips.....	454
Total Museum trips.....	93
Total time Museum trips.....	1550 Minutes
Average time Museum trips.....	16.6 "
Average group Museum trips.....	4.8

Special trips to the upper ruin were so few that I counted them as regular field and ruins trips.

Checking last year's travel count for the same period (Feb. 25 to March 25), I find 749 persons visited the Monument against 816 for the same period this year. This is an increase of 67 persons, or 8.2%.

This month's supply of newsworthy visitors took quite a setback as compared to last month's.

Steen returned to headquarters February 29. Engineering crew left March 5. March 7 Raymond Higgins, N. P. S., Oklahoma City, accompanied by his mother, stopped in for a brief visit of their first Cliff Dwelling. March 20 Mr. Norce Gladwin and Miss Emily Cross of Gila Pueblo were interested visitors.

I believe I had the prize visitor for this month. March 9, a big 12-cylinder Cadillac drove up and a woman got out and walked down to

the Museum and requested a trip and proceeded up the trail. After some 20 minutes of puffing and panting intermingled with four or five rests, she was within 12 feet of the entrance to the ruins. Looking up she said, "Oh, this is the ruins"? Then turned around and started back down.

Tomorrow the W. P. A. crew should be here to begin work on the new latrines. This morning we had about one hours of snow which melted as fast as it fell. About two more storms like the last two and the entrance road will be impassable.

I could use the blotters for the botanical press to full advantage now as there are a great many flowers in bloom.

Yesterday I received one of the finest cakes you ever read about in a package addressed to "Custodian, Tonto National Monument, Roosevelt, New Mexico. There was no name in the package, only an address which I have so far been unable to find in the register. Anyway I accepted the cake.

About the only advantage, I can see, of being in the cabin while it is raining, is that it retards the force of the falling drops. It might save a person from being beaten to death by a hard rain but he would drown so what is the difference. It is starting to rain again so I will close so as to be able to apply myself in finding a dry spot.

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CHACO CANYON

By J. C. Miller, Custodian

General:

March has lived up to the name this time, with very little precipitation and plenty of high winds. The road to the south has been in fairly good this month, while the road to the north has been tough because of the blow sand. Many cars and trucks have been sticking in the sand north of Escavada Wash.

The travel has been fair but uncertain all the month. It is hard to realize that winter has gone and spring is here. The grass and weeds are starting to grow, the Prairie dogs are out, barking again. There is quite a large variety of birds in the canyon now. Ranger conditions are about average.

Weather Statistics:

Maximum temperature 82 on the 13th; minimum temperature 15 on the 11th. Precipitation .09 inch rain and melted snow was recorded for the month. Greatest precipitation in 24 hours was .07 inch on the 22nd.

Travel:

453 people entered the Monument in 162 automobiles, coming from the following states: Arizona, California, Colorado, Minnesota, Michigan, Ohio, New York, New Mexico, Oklahoma, Texas, and Washington.

Museum and guide service was furnished to 70 people in 16 parties. 1,566 minutes were devoted to the visitors. Six of the major ruins of the Monument were visited by our visitors during the month. The farthest ruin from headquarters that was visited by car was 11 miles east by road.

Special Visitors:

John G. Frost, U.S.G.S., and Clifford Carr, Farmington, with Ranger Hart, Aztec Ruins, visited the Monument on the 11th.

Bert Coddington, Agronomist, L. V. Compton, Biologist, Soil Conservation Service, and Adrey Borell, Wildlife Technician, National Park Service, arrived on the 12th to study the rodent control problem here in the Canyon. Mr. Coddington and Mr. Borell departed on the 13th. Mr. Compton stayed over until the 15th in order to look the project over more thoroughly, this being his first trip here. They agreed to poison rodents within 100 yards of any dam site in the canyon.

Superintendent Pinkley, Acting Assistant Superintendent Hugh Miller, Headquarters, Superintendent Nusbaum, Sam Ahkeah, Mesa Verde National Park, and Custodian Faris, Aztec Ruins, arrived on the 16th. Superintendent Nusbaum, Custodian Faris and Mr. Ahkeah departed the same day. Mr. Pinkley and Mr. Miller departed the morning of the 17th.

Drs. Hewett and Fisher, School of American Research, arrived on the 20th and departed on the 21st. They informed us that they plan to start construction on their headquarters building, south of Chaco Wash and near the Gap, within ten days.

Improvements:

One man was used ten 8-hour days during the month, painting tops of steel posts, building new water gaps and maintaining fence.

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YUCCA HOUSE

By T. C. Miller

I inspected Yucca House and Hovenweep on the 20th and returned to Chaco on the morning of the 21st.

Nothing unusual to report on those monuments this trip other than the roads were good. The ruins show no evidence of recent vandalism.

The country in general around those monuments is in better condition for spring range than it is around Chaco.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Am happy to report a very interesting month at this monument. While we are off in number of visitors, the ones we have had proved to be very interested. The total number for the month were 590, of which 279 climbed the ladders.

Highway 79 is still under construction between Jerome and Prescott. Is closed from ten in the forenoon until five in the afternoon, every day and some days is closed all day. Our mail comes in on stage from Prescott by way of Highway 79. Several days during the past month we did not get any mail---the stage being unable to get through. For the last week the weather has been stormy, which naturally cuts down on the number coming in. On Sunday, the 22nd, it rained all day and is one of the few days since I have been here that we did not have a visitor. However, we are all thankful for the storm. We had been getting in on the tail end of some of these Kansas, Texas and Los Angeles dust storms. The air is much better since the storm.

While I question the monthly report being the place to air out our ideas concerning the day off each week, I can't resist saying a word or two since last month's report came out, where, it seems, an issue is being made of same. I can remember the good old days when we did not get a day off each week. But things have made a decided change since that time. We were not having so many visitors to take care of at that time, so many reports to make out, or so much statistical data for the education of the Educational Department. Personally I think Dale King was absolutely right in his contention that one should have one day off duty each week, and that it makes for a better service. And since Congress has seen fit to give it to us, I for one am in favor of taking it. I still maintain that if a man is on the job for six days and does anything while he is on the job that he is entitled to a day to do as he sees fit. I think you if this gets by.

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WALNUT CANYON

By Charlie Steen, Park Ranger

While waiting for a snow plow to come free us, I will make my contribution to this month's Walnut Canyon report.

Travel for the month was 360 - an average of about six cars a day entered the monument until the 21st. Since Saturday not a single car, with one exception, has been in. The exception was the car of Don and Marie Erskine who have twice bucked mud and snowdrifts in

order to get home. The second time, however, they needed a span of houses.

The Dodge pickup is half a mile off the monument on the east entrance road bogged down in a mud hole and I hope to be able to persuade the snowplow crew to pull it out. I am pretty sure they will pull the car out for it is right in the middle of the road and the plough will be unable to get around it otherwise.

To go back to the beginning, I left Casa Grande National Monument on the morning of the second and arrived at Walnut Canyon that evening. The first visitors during my stay arrived next morning just as I was getting ready to go to the canyon and take a look out the trail. I had never been around the island, and I am afraid those poor ladies didn't get a whole lot out of the trip. They went as far as the last flight of steps on the trail and apparently didn't quite believe or trust me when I told them that, "Surely the dwellings must be just below us." At any rate, they turned back and I had to make a special scouting trip around the trail to find out where things were.

Walnut Canyon is apparently the favorit picnicing spot for the people of Flagstaff, and during my stay here I have had some slight difficulty with college students wishing to leave their names on walls and with drunks, whose delight is to throw bottles and rocks down the trail. No serious disturbance took place.

Spent a day at Wupatki with the Brewers and enjoyed their hospitality and a trip around the old stamping grounds. Wupatki, as you know, was my introduction to Arizona and the Park Service. At Citadel I recalled a certain sheep chasing incident in which Dale King took a prominent part.

Saturday night I went to Chimopovi to witness a Katchina dance for the. The dance didn't get under way until eleven and I decided to camp on the second mesa that night and get up early in the morning. The fly in the ointment was that early in the morning the snow started to fall, and I had a devil of a time getting back to the monument, and that also explains why the Dodge is or stuck out on the east entrance road.

Tried to band some birds but caught nothing but Pigmy Nuthatch repeats. One Red-backed Junco had the nerve to enter a trap, but I didn't recognize him and had to release him. I also spent five minutes watching a pair of Long-crested Jays make up their minds that a government sparrow trap was not fit place for a self-respecting jay to be seen in.

On the twentieth I recorded three pairs of Northern Violet Green Swallows and one pair of White-throated Swifts in the canyon just below Observation Point.

By J. D. Erskine, Park Ranger

Inasmuch as my time at Walnut this month was only a matter of four days, I hardly feel that I have much to add to Charlie's report. It seems that I was rather unlucky, as the weather just started to clear up during th- end of February, and the day before I left was the first day that the roads were passable without chains. Now, Charlie tells me that the weather was ideal, warm, and sunny all during his stay until last Saturday night when it started to storm appropriately for my return to Walnut.

Incidentally, this storm from which the N.R.W.P., Charlie and myself are just recovering was the most severe this winter. Along with the six inches of snow there was a terrific wind and bitter cold, resulting in drifts as deep as three feet, with most of the drifts in the middle of the West Entrance Road.

As I look over the registration sheets I note that by far the greatest number of visitors were from out of state, apparently tourists. Arizona contributed the greatest number from one state, naturally, with a count of 110. California followed with 42, Illinois 24, New Jersey 16, and the balance being divided quite evenly with 29 other states and Ontario, Canada, being represented. The only Park Service visitor was Ranger Frank Fish from Montezuma Castle National Monument who stopped for his first visit to this Monument. Charlie has already given the total travel as 360. Contacts were made with 245 of these visitors.

In concluding this report I must request that someone from Headquarters write to the weather man to see if something can be done about this weather. I sincerely hope that neither my wife or I will have to again go through a four-days as tough as the past four. Briefly summarized our troubles were: first my wife in our Chevie slid off the road into the ditch in the mud 25 miles this side of Pipe Spring, and I pulled her out with 1500. Then I had the misfortune to be unable to stop upon meeting a snowplow on a blind curve near Jacob Lake in the Kaibab Forest, and turned 1500 over an embankment to save hitting the plow or my wife in our car.

Then after getting to Walnut in our Chevie we started out to get Jimmie Brewer to help bring back 1500. On the way out of Walnut Canyon we went in the ditch, but the Chevie managed to pull itself out after much fussing. Then while towing 1500 the 176 miles back to Flagstaff, my Chevie had two flat tires from stone bruises.

Then we stuck head-on in a snowdrift trying to plow our way into Walnut on the West Road, and had to walk over a mile through drifts over our knees in the face of a bitter cold wind and driving snow to get to a farm house to get help and to get warm in the case of my wife. With the help of a team of horses that towed us over a mile we managed

to get into the Ranger Station.

Then today Charlie and I had no luck at all trying to get the Dodge out of its mud hole with my Chevie. We couldn't even budge it, so believe the frame is frozen solid to the road. Perhaps the snow-plow tomorrow will have better luck. When all our trouble is over we will be able to look back and laugh, but I surely hope we are nearing the end of it now. The H.R.W.P. is surely being initiated quite violently into the life here in the Southwest.

Now I'll close hoping that next month will see the March "lion" dead and buried.

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SAGUARO

By Paul Beaubien, Ranger

766 visitors reached the ranger station this month, but only 606 are listed as educational contacts. I believe 2,000 visited the monument. A higher percentage came the four miles to the Ranger Station this month than last because of improved signs.

This makes the fourth time of watching a register when I thought I would have all states represented. But after the final check-up, 12 states were not present. New Mexico and Nevada were among the missing while a third neighboring state, Utah, was only claimed by one visitor. The first twelve states, listed in the order of frequency with which they were represented, are: Arizona, Illinois, New York, Ohio, California, Michigan, Wisconsin, Iowa, Pennsylvania, Minnesota, Indiana, and Nebraska. Evidently, Saguaro National Monument attracts the mid-westerner.

Cold, damp weather slowed traffic for the last week but a few hardy individuals came every day. In the warmest weather, some visitors drive up still trying to find the barren sandhills of the desert they expected. It gives me an opportunity to tell how the plants have adapted themselves to their environment. But it is difficult to arouse enthusiasm about desert plants in a rain.

The eggs of the two Curved-bill Thrasher nests, mentioned in last month's report, have hatched and the young have already left the nests. With snow on the Tanque Verdes twice in the last week, I suppose the youngsters think they are in a cruel world.

A few deer have been seen (different days) by three parties of visitors. Also, a rattlesnake was seen on the 14th.

In the January report, I wrote of keeping a list of questions asked by visitors. Later, I decided the list was an index of my inefficiency as a ranger and destroyed it before the Boss found how much

I hadn't told the visitors. In regard to the sensible questions, I try to beat the visitor to the punch, while the "dumb" questions are not important. Speaking of "dumb" questions, I don't think it makes any difference to most visitors how I get my boots off at night even if they can't see the ends of the laces. However, keeping a question list at a monument where a museum is planned, might prove worth while.

Dr. Ira L. Wiggins of Stanford University, while preparing for a trip to Mexico with Drs. Shreve and Mallery of the Carnegie Desert Laboratory, took time to spend half a day here to give me the benefit of his knowledge of desert plants. Maybe Bob Rose should insert another column in his educational contact stencil to provide for those instances when a ranger receives instead of gives.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

The monthly report will be in the most part that of Ranger Don Erskine, who arrived here March 1 to take my place while I was detailed to guide service at Casa Grande Ruins for three weeks. So I will let Don speak for himself as to how he got along with the Monument and Fort the past 22 days.

The week from February 26 to March 1 was not very busy in travel, and I spent most of the time cleaning up and getting things in shape so that Don could handle the irrigation and other necessary things that needed doing to keep the monument going.

I am very pleased with what has been done here while away and think Don a very capable ranger who will be a good fellow to have in our Southwestern Monuments.

I want to say that I was very much satisfied with the chance to make the change to learn the methods of another monument and there come to know the weaknesses and strong points of my own. Also to give me more determination to improve. I appreciate the privilege of meeting and shaking hands with the bunch at Casa Grande---a grand lot they are. My only regret is that I can't meet them more often.

Attached is the contact report for the month as given by Don. Will let Don take the floor now.

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By J. D. Erskine, Park Ranger

The report for Pipe Springs from March 2 through March 21 follows:

My stay at this monument in the land of cowboys and wild horses has been most enjoyable and I have learned a great deal. Travel to the monument in the way of tourists has been almost nil, and the two

cars from states other than Arizona and Utah (local people) came only unexpectedly on their part. One came from Oregon and the other from Illinois. The Illinois party ended up in giving a show at the CCC Camp and then staying all night in their house car on the Monument. All the rest of the travel has been either local stockmen or CCC boys. Forty-one persons signed the register during my stay, but as some of them were CCC boys who just wanted to sign something and didn't stay long enough to learn anything about the Fort, I haven't included them in my contact report. I gave conducted trips through the Fort to 29 persons. I can only estimate the total number of persons who passed through on the road or stopped for water. I believe my figure of 119 is fairly accurate.

Many stockmen are hauling all their water from Pipe Spring, and many days there are several trucks lined up waiting to fill their drums.

On Wednesday, March 11, I was honored with a visit by Landscapers Langley and Keeling. They spent several hours going over Park projects with me and had lunch as my guests at the CCC Camp. Also on Friday, the 13th, Park Naturalist Presnell of Zion National Park stopped for a few minutes as he passed through.

The weather has been practically ideal in the sense that it has been clear every day that I have been here with the exception of a trace of rain on one day, and last night it rained hard all night, and turned to snow toward morning. Roads this morning are very treacerous. The temperature has been moderate with an estimated minimum of about 32 degrees and a maximum of about 80.

The ECW projects on the Monument are all completed as far as they can be without money being appropriated for supplies and the use of a truck for hauling gravel. The fencing of the Monument is complete, as is the diversion ditch. Most of the leveling of the Parking Area is completed, but nothing further can be done with a truck for hauling gravel which is also the case with the camp ground road. The walk construction is complete as far as it can be until something definite is done toward the development of the old Whitmore-McIntyre dugout, which is in the line of one of the walks.

Most of my time has been spent irrigating the trees that were planted last fall. About 35 of the trees are so located that water will not run to them, so I have had to haul it in a drum in the truck and syphon it out to each tree. That has taken considerable time, and a pipe line of some sort is badly needed to assure those 35 trees of getting an adequate supply of water.

With the arrival of the new bird traps from Berkeley, I think that this should become an excellent bird banding station, as the water supply makes this a natural place for birds to congregate and also it is a

stopping place for birds in their migrations. During the last week especially I have noted quite an increase in the number of birds. Probably this increase is due to migrants. I have tried to identify as many as possible, but am sadly at a loss for some of them. However, those that I have identified are as follows: English Sparrow, Gambel Sparrow (both adult and immature), House Finch, Western Rober, White-rumped Shrike, Meadowlark, Red-shafted Flicker, Hammond Flycatcher, White-throated Swift, Killdeer, and Western Crow.

The only change I engineered in the Monument during my stay was the destruction of the very unsanitary and old men's rest room. With the help of two CCC boys I removed it and obliterated all trace of it, and then by building a partition through the Women's Rest Room a double ended building resulted which will solve the problem for a Men's and Women's Rest Room in the same building. While this will serve for now, an improved rest room of some type will be needed before Pipe Spring will be able to offer rest room accommodations up to Park Service standards.

After a most interesting three weeks during which I made trips to Zion National Park, and Toroweep in Grand Canyon National Monument, I turn the Pipe Spring National Monument back to Leonard Heaton.

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AZTEC RUINS

By Johnwill Faris, Custodian

The best March in the history of the Monument, since I have been custodian---with 402 visitors. This is over double last March.

Weather conditions as a whole have been good and the passes open most of the month. This may account for a number of them, and then, too, I think that travel is picking up a little early this year. Both Mr. Hart and myself have noticed that several parties are out-of-state cars, and many from distant points.

The CCC boys have been quite interested and several parties this month have consisted of these boys. We are especially glad to show them through, and feel that it gives them a little more pride in the work they are doing, to see what it is all about. Mr. Hart has taken all of the 52 who are working here at the present time, and the boys seem to enjoy the explanations given. We are using a chart worked up by one of our CCC boys in our museum now, and I think that they feel a little proud that hundreds of visitors see work they are doing, and the work they can do.

March broke another record, and one that we are not so proud of. This month marks the first accident of any nature to a visitor in the six years I have been here. On one of the trips this month, a lady fell in descending the Great Kiva and broke her leg. She is getting

along very nicely and I want to go on record and state that I never saw more self-control than was displayed by Mrs. Segerberg. She lives in Durango, and was taken home soon after preliminary treatment was given by the local Doctor. It has been my pleasure to have visited her several times in the hospital, and she is more cheerful and radiant even with her injury than many of us are from day to day. While we regret the mishap the worst way, and trust that such may never occur again, the visit or two that it brought about, has made us acquainted with some mighty fine people that we might have never known had it not occurred.

We were visited by several folks from the inside this month. Of course, the visit you and Hugh Miller made us tops the list, and we wish that you would repeat. One thing I can promise, Boss, Hugh will be surprised at a thing or two the next time he drops in. We profited materially by your visit and know that we would if you were to come back every week in the year.

Most of our other visits were from the ECW men. Both Mr. Ahrens and Mr. Cully of the Denver Office and Oklahoma City branch were in a few days ago. Mr. Teyssier, Camp Superintendent, has been down several times, and, last but not least, Mr. Wirt of our own ECW work. Mr. Wirt was in for a few hours yesterday and expressed himself very favorably concerning the work that the boys have been doing. You saw for yourself, Boss, that the boys have been doing a mighty nice piece of work for us, and it is going to be rounded off in a very creditable manner. This week is stormy and two days have been idle on account of storm, but with reasonable good weather for the balance of the month, we hope to finish every project that we have started.

Jesse Nusbaum from Mesa Verde was in for a few minutes a week or so ago. It was my pleasure to accompany him to Chaco and I enjoyed it very very much. In the six years that I have been at Aztec this is the first time that I have been with Mr. Nusbaum for over a few minutes at a time. Now that I have a taste of what it is like I hope that the opportunity to do so again comes real often.

Mr. Earl Morris, our old standby, contributed again this month with one of the most important gifts we have ever received. He sent us a copy of his work notes, and in them are listed every artifact that he has taken from this Ruin with the room number and piece number of each item. From these notes it is possible for us to identify every article on display as well as the many many pieces that we have in storage. Many features that we have not been certain of, we can now locate and determine exactly just what and why it is classified. We can never reciprocate for what Mr. Morris has already done for us and now with this latest contribution, we simply mark it down as a life's task and proceed the best we can.

AZTEC RUINS (CONT.)

Things are working into shape, Boss, for a very pleasant season, and we are certainly proud of the Monument we have to offer this summer. We are laying plans now for the month following and before it is too far gone we hope to have under way plans for finishing our parking area, plans for the installation of our museum developments as they are being set up in Berkeley. It is very probable that we will even give our office over to the museum people, and with a little alteration that we are hoping to get, we will have as neat a museum set-up as one could hope to see.

So, Boss, with the CCC still going strong to finish up all our projects, the plans that we have outlined for the Month of April, I think that I had better keep in step and bid adieu to March, one of the best months in our lifetime.

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WUPATKI

By James W. Brewer, In Charge

500 Use of Monument Facilities by Public

Sixty-one guests registered at Wupatki Pueblo; 53 at the Citadel Group; 10 names are duplicated, leaving a total of 104 registered visitors to this Monument in March 1938; in 1935, 33; in 1934; 17.

Largest single day was Sunday, the 6th, on which 15 visitors registered

Of the 18 parties to the Pueblo this month 12 were contacted.

States were represented as follows: Arizona, 6; New Jersey, 4; Washington, Oregon, California, Illinois, 3; New York and Wisconsin, 2; West Virginia, Pennsylvania, Connecticutt, Florida, New Mexico, Texas, and Rhode Island, 1. Foreign travel consisted of one party each from British Columbia and Australia.

550 Newsworthy Visitors

DR. and Mrs. Colton and Katherine Bartlett brought Dr. and Mr. W. J. Dakin out on the 4th. Dr. Dakin is a Marine Biologist with the University of Sidney, Australia. (If you followed the accounts of the Australian "shark murder" you will remember Dr. Dakin's statement regarding the slow digestive organs of a shark).

U.S.F.S. visitors: Mr. and Mrs. E. H. Oldham on the 7th. (Ed and I talked over the possibilities of installing a cattle guard in the forest fence on our west boundary, the Forest Service to provide materials, Park Service labor. Ed also suggested the possibility of running a phone line to the Forest Service ranger house a quarter mile west of the Pueblo, employing the top fence wire.

N.P.S. visitors: Ranger Charlie Steen on the 16th. On his day off Charlie showed me some things I did not know about the Citadel surroundings---the mailman who takes a walk on Sunday! Custodian and Mrs. Erskine dropped in on the 23rd to invite us to Jacob's Lake the following day.

020 Weather

February 25 to March 1: High 35 degrees; low 28 degrees; precipitation none. March 1 to 25: high 71 degrees, on the 3rd, 13th, 14th, and 17th; low 24 degrees, on the 23rd. Total precipitation. 24 of an inch--trace of rain on the 22nd and snow on the 25th. On the morning of the 25th everything within sight was white for the first time this winter. There were 19 sunny days, 4 part cloudy, and 6 cloudy days. From the 7th to 17th, inclusive, we had 11 consecutive sunny days with some wind.

100 Administrative

180 PUBLICITY

Science News Letter (February 15) carried an account of "Hopi Spinach" growing on the Monument published last year in this Report.

Arizona Highways (February) ran on article concerning ball courts, mentioning Wupatki and showing photos of our court and of Wukoki (whether in or out of our boundary, we have taken Wukoki into our hearts).

200 Maintenance, Improvements, New Construction

230 NEW CONSTRUCTION

Trail between Rooms 36 and 18 was filled to a suitable uniform level and width and landscaped with fallen wall material.

400 Flora, Fauna, Natural History

FLORA

A list of pressed plant specimens has been returned identified in part. Some were not identified because I had not taken the specimens at the precisely correct time. In the cases of incomplete identification I will collect another specimen. In this I will be guided and greatly aided by the thoughtful notes added to the list, such as "too young."

430 ARCHAEOLOGY, HISTORY

From partially excavated Room 7 a larger than average, much broken pot washed out. I collected the pieces and put them together on

a slack Sunday afternoon. The olla is of coarse paste, rough smudged exterior; the interesting feature is a row of 5/4-inch rolled rosettes just below the neck.

Of historical interest is the fact that a "mining" party did some work in the long-abandoned Doney Mine; this mine was dug by Bon Doney in his search for old padre-buried treasure. The recent searchers, after hauling a load of second-hand lumber to the shaft and spending two or three days replacing some of the old timbers, abandoned the work.

460 BIRDS

On the 9th three V's of unidentified ducks or geese flew north, west of the Pueblo.

The Mountain Bluebirds observed so often in February were seen only twice this month--on the 3rd and 15th.

Newcomers are: Western Mockingbird (12th); Cedar Waxwing (20th); Brewer Sparrow (20th).

On the evening of the 12th Sallie, Clyde, and I went to Doney Crater to see the mine improvements. Upon our arrival an eagle left is nest above the mine shaft. Clyde and I climbed to the top and observed two eggs in the nest. Last month I reported Clyde as saying the young eagles were then in the nest; this must have been an error either in Clyde's moon count or in my interpretation of his statement.

BIRD BANDING ACTIVITY: Believing water to be our best bird bait I have installed the following: To a discarded gas drum painted green and daubed brown I soldered at the bottom a shut-off valve and short length of copper tubing. With landscape consideration I concealed this in a juniper tree, with the tube directly over a natural basin in the sandstone. After filling the barrel (the rotary hand pump again) I allowed it to drip several days before placing a homemade beginner's trap over the water. The trap I made of $\frac{1}{2}$" mesh wire; it looked as though it might injure a frightened fluttering bird so I lined the three vertical sides with cardboard. Contrary to expectation the card board has not retarded the capture of birds. In about two hours' time I banded 15 Solitaires and one Cedar Waxwing. A second station of the same construction has been installed and is still in its "invitation stage."

470 ANIMALS

After leaving the Pueblo on the 20th Mr. J. R. Perhune wrote: "Saw a coyote and two antelope near our "road" through the cinders. Not such bad going. Enjoyed Sunset Crater."

A larger than usual number of scorpions has been captured by the Honorary-in-charge-without-pay. The largest specimen was taken on the 16th, under the In-charge's bedroom slippers; it measures five and ½ inches from end of claw to stinger on tail; the specimen was drowned in alcohol and is now in a homemade mount. We would be very interested in learning more about these very close neighbors; if there is an entomologist who would like to specialize in scorpions we will furnish him with a fine series of preserved specimens.

GENERAL

NAVAJO ARTS AND CRAFTS EXHIBIT

May I take this opportunity to thank your office for the speedy cooperation in getting the memo books mimeographed and to us so promptly. It is a great help in keeping things organized since already six articles have been brought in for exhibit. A rug came in from near Grand Falls; I did not know we would draw them from such a distance. Peter Peshlacai has made and deposited with us four miniature saddles depicting the evolution of the saddle. Also by Peter--a model hogan and miniature figure weaving.

SUNSET CRATER

We bucked into the Sunset Crater road and shoveled out without getting the figures. Phoned Walnut Canyon upon our arrival in town and learned they are all snowed in. I contacted Jim Walkup to plow the road. Charlie says the chuck is holding out o.k. so guess they are all right. Seems to me Don and Marie have earned a rest.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

Travel has maintained a fair flow during the month despite the condition of the road and trails. Between four and five hundred visitors during March came. It appears that a wide variety of visitors has called on us this month. We have had a number of visitors from Georgia, Mississippi, and Tennessee. Since better cars and better highways, folks are visiting more during the winter than before.

Weather has been very fine all during this month---only a few days of heavy wind and all the old-timers here predict a return to normal of the spring snows for April. Here's hoping!

Wildlife in the Monument remains about the same as usual. I notice this spring we have about six or seven deer, entirely too many porcupines and the usual amount of Cocktail (Cotton tail) rabbits. Have numerous requests this spring for photos of the Monument and am sending what I can.

CANYON DE CHELLY

By Robert R. Budlong, Custodian

Twenty-five persons visited this National Monument during the month of March, 1936. Twenty of these were bona fide visitors; the remaining five were here on trips of inspection of the Custodian's Residence. The twenty bona fide visitors made four trips, totalling 660 minutes, averaging 165 minutes per group. There were three trips to the rim and one trip down the White House Trail. During the month of March, 1935, there were no visitors.

Weather has been mild most of the month. Roads have been rough, but passable, most of the time. As I write this report it is snowing, but it can not last very long.

Maximum temperature for the month, 70 degrees, on the 18th; minimum, 14 degrees, on the 11th. Precipitation, .35 inch; greatest range of temperature in 24 hours, 53 degrees, on the 20th. We have had some high winds and several days of heavy haze, presumably from some southern dust storm. The canyons have been impassable the entire month. Warm weather has resulted in rapid melting of the snow and ice, and after the first few warm days, the roar of the water in the canyons could be heard for a considerable distance.

Two official inspection trips of the Custodian's Residence were made during the month: Acting Assistant Superintendent Miller from Headquarters and Mr. Kenneth Saunders of Mesa Verde National Park were here February 27 and 28. Mr. Saunders was accompanied by his wife and Mr. and Mrs. Ramos and daughter Consuelo. Superintendent Pinkley and Acting Assistant Superintendent Miller were here on another inspection trip March 13, departing (as usual) the same day.

Two lines of drainage trench were run around the Custodian's Residence during the month, to prevent damage by water. The house is built in an excavation several feet in depth, at the base of a hill. Considerable grading will have to be done in the future, but the trenches protect the house from drainage from the hill in the meantime.

At present I am working on the water reservoir---removing forms, waterproofing, etc. Considerable work remains to be done on both water and sewer systems, before the house can be occupied.

Two trips were made by the custodian during the month, with an official of the Indian Service, to other points on the Navajo Reservation. Mileage was clocked, photographs taken of some of the more picturesque scenery, etc. These were one-day trips, the object being to familiarize myself with the roads and country nearby, since many of our visitors wish to take side-trips on the reservation, and often ask detailed questions concerning roads, scenery, points of interest, etc.

Generally speaking, March has been a quiet month. It is expected that April will see the start of the tourist season at this National Monument.

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TUMACACORI

By Louis R. Caywood, Jr. Park Naturalist

Custodian George Boundey and family left here Monday, March 16, for Gran Quivira National Monument, and I arrived on the 17th on relief duty. Consequently, my remarks for this month will be short.

The weather was warm and fair and very conducive to travel through the 20th of March. However, from that date on, we have had lots of rain, high winds and the thermometer has dropped several degrees. The surrounding mountains show quite a lot of snow. Visitor registration has dropped noticeably in the last few days due to this change in weather.

The total number of visitors to the monument for the period of February 26th to March 25th, was 1573. Of this number, 1452 were conducted through on guided trips. The total registration for March, 1935, shows 1837.

Noteworthy visitors to the Mission were - Miss Florence M. Warner, Federal Relief Administrator for the State, on March 6th, Dr. Ira C. Bartle of San Luis Obispo, California, noted authority on fungi and spores, who explored the ruins of the Mission for deathless germs, on March 14th. In an article which appeared in the Tucson Star, March 24, Dr. Bartle said that the spores, buried for more than two centuries in adobe walls of the old mission, may be resurrected by modern science and examined under the microscope. He found evidence that the organisms have been in a state of suspended animation and would resume normal life when placed in favorable conditions.

Sunday, March 15, six pupils of the Art Class, University of Arizona, spent the day at Tumacacori making drawings of the Mission. Ranger and Mrs. Martin Evenstad were honored with an unexpected visit March 14, 15 and 16 from Ethel Evenstad's sister and brother-in-law, Mr. and Mrs. John A. Stormon and their two sons. Mr. Stormon is Secretary of the International Peace Gardon, Rolla, North Dakota.

On March 17, Mr. Bicknell and Mr. Robinson, both of the National Park Service, were Monument visitors. Mr. Mahroni Young, designer and sculptor of the Kino Memorial, which was dedicated in Tucson, Sunday, March 15, was an interested visitor to the Mission on March 20.

Bird Banding promises to prove very interesting at this monument. During the short time that the traps were set the following birds were banded: 2 Canyon Towhees, 4 Greentail Towhees, 1 Cactus Wren, 1 Bandire Thrasher and 1 Arizona Cardinal. I hope to have a great many more to show for April.

WHITE SANDS

By Tom Charles, Custodian

There was an interesting group of visitors at the White Sands this month. Leo McClatchy of Oklahoma City, a prominent newspaper man of the Pacific Coast for many years, now publicity man for a department of the National Park Service, was with the party which had the fatal accident at Deming. On his way home he spent a couple of days at the White Sands and took some 15 or 20 pictures to try out on the Rotogravure Sections. M. C. Huppock, Assistant Director of the Park Service Recreational Demonstration Group was here for a day or two in the interest of the monument. Bill Wirt, regional forester, visited the monument and his friends Mr. and Mrs. Adrey Borell, who were camped at the White Sands.

Edith M. Patch, from the University of Maine, with three consultants, spent a few days at the Sands in preparation for a text book, entitled "Our Desert Neighbors," to be published by the McMillen Publishing Co. It seems queer to me that out of all the interesting insect and animal life at the Great White Sands, Miss Patch should select an inconspicuous white spider as the White Sands' contribution to the story. M. L. Ormsby, Chief Clerk of the New Mexico Highway Department, visited the monument and asked for enough sand to supply the sand tables at the State School for the Deaf at Santa Fe; Mrs. Clyde Tingley, wife of Governor Tingley of New Mexico made her first visit to the Sands on Wednesday, March 11. She rode over the hills in both an automobile and on the surf board and declared the, "thrilling."

Officials of the Continental Oil Company were here to make arrangements for a White Sands exhibit in their new building at the Texas Centennial, Dallas. Henry E. Riggs, dean emeritus of the School of Engineering at Ann Arbor, with a party of six visited us one day to take a final look.

Oza K. Ataullah of Herat, Afghamistan, wrote in the registration book, "A dream in white splendour; I have seen nothing like it in the world."

Phillip Blossom, assistant curator of the University Museum at Ann Arbor, spent 10 days in the vicinity of the White Sands. Mr. Blossom is an assistant to Dr. Dice who named our famous white mouse "Apache Gypsi." Our investigation leads us to believe that he would have been justified in naming him "Geronimo Gypsi." Apparently he is the wily warrior of the tribe. His feet are small, his leg muscles large and powerful. He shovels sand with all four feet in action; one lone mouse can move 400 pounds of sand in a single night. It is claimed that he has no family ties---male and female fight to death if confined together. Except for a few hours or a few days in the mating season he has no friends. He is the lone wolf of the Great White Sands.

Local geologists and other students of the Sands are greatly interested in Vincent Vandiver's geological report of the Sand's origin. It is probably the most exhaustive report ever made on the White Sands and seems to SATISFY with the possible exception of one question, "Why here and no place else in the world?"

An event in the White Sands office this month was when Adrey Borell brought his mounted specimens of birds and animals ready for the museum cases. Mr. Borell left on March 22 after spending several weeks at the Sands, studying the wildlife at the Artesian well and on the Sands.

Professor V. E. Shelford, of the Department of Zoology, University of Illinois, advises us that he is conducting a field tour and giving a course in Animal Ecology in the Southwest this summer. It is understood that his party will consist of about 28 graduate students with teachers and other specialists. Their schedule shows they will be in the vicinity of the White Sands from July 4 to July 9. They expect to spend the heat of the days in the adjoining mountain section and conduct the study of the Sands at night.

The Alamogordo Chamber of Commerce has announced May 2 as the date of the 1936 White Sands Play Day, honoring 3,200 school children. On account of the intense heat in the Sands and no shade, the party will start at 2:00 p.m. and extend into the night with band concerts, Mescalero Apache Indian dances by Indian scouts, and wind up with community singing by moonlight. It is believed the crowd will greatly exceed that of last year which was 3,500.

Our Sunday count has nearly doubled this month. On Sunday I stationed the Assistant Custodian (W O P) at the side of the road with instructions, or probably I better say with a request, to count cars and occupants. There were 64 cars that went to the Turn-around that afternoon. Yesterday afternoon, in the midst of an old-fashioned dust storm with visibility running from zero to half a mile, there were 41 cars that drove to the Heart of the Sands in 4 hours. Our Sunday visitors this month are as follows: February 23, 357; March 1, 391; March, 8, 521; March 15, 443; total Sunday visitors, 1712. Barry's count for 92 hours this month shows an average of 89.74 cars per day with 33.143 percent stopping in the Sands. This gives us 2,973 week day visitors this month. Total visitors, 4685.

Registration at the Turn-around was 747 with 34 states and six foreign countries represented.

Vincent Vandiver and Dr. Lewis, Park Service geologists, dropped in for a look at the White Sands, just in time to get their names in our list of distinguished visitors.

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GRAN QUIVIRA

By W. H. Smith, Custodian

I will try to submit something for the report as Mr. Boundey arrived late in the month and he has asked me to send in something. Up to the time I turned it over to Mr. Boundey I had registered 152 visitors entering the Monument in 40 vehicles. This number I believe is below the same month last year.

On February 20 Mr. J. H. Diehl, associate engineer, came in and located and staked the ground for the pressure tank and engine house. Mr. Gipe, foreman in charge of the water work here, arrived on March 9 and began work on the eleventh. He has the pit dug for the tank and his lumber and cement and gravel are on the ground if he had enough reinforcement to complete the job he could begin pouring the concrete as soon as the forms are made. Taking it on the whole the work has progressed nicely. On date of March 14 Mr. Diehl came by again for a few minutes and was well pleased with the progress made on the job.

Well, as this will be my last report to make to you folks I will make it short and turn this over to a man that can do better by it than I ever have done. Mr. Boundey arrived on date of March 18 and took charge on the 19th. May he enjoy the future here as I have enjoyed the past. Here is wishing the entire Southwestern Monuments' force many more pleasant and prosperous years.

By George Boundey

Mr. Smith has asked me to add a few lines to the monthly report.

The family and I arrived at Gran Quivira on the 19th. We found everything going along nicely. Mr. Gipe is busy with the pumping plant and assures us we will soon have water on the monument for daily use.

At present they are hauling water in barrels about six miles.

The weather is much more spring-like than when we left here three weeks ago, and we are looking forward to a good summer season for visitors.

About 13 miles of the road to Mountainair is newly surfaced and about 20 miles of the road from Gallina Station are also surfaced. When both these roads are completed, it is bound to bring visitors to this Monument.

Everyone is sorry to see the Smiths leave. He has done a good work up here. Will endeavor to follow out Mr. Smith's policies as far as possible.

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CASA GRANDE

By W. J. Winter, Custodian

The visitor count this month was 2,705. This count is taken from our stamped time slips as tabulated on SWM Stencil No. 16. This I believe is more nearly accurate than the count from the register, as some people are bound to get away without registering and others whom we see registering fail to put down the whole party. We can't very well stand over everyone while they are at the book. The number in each party as recorded on the time slips, however, is by actual count, one by one. I use the Veeder counter regularly. So, while there may be a few who escape being counted in this way, it is certain that the count is not too big and is closer to being complete than is that from the register.

The weather was very nice up until last Sunday, March 22. Temperatures had been running close to 90 and the nights were not as cold as they had been. Sunday we had a bad dust storm until noon, when it began to rain. Weather has been cold ever since and is just now starting to warm up again. Maximum temperature was 88 on the 19th and 20th and minimum 31 on the 27th. Precipitation was .34.

We met a few visitors this month who are worthy of special mention. February 28 Dr. Charles Mayo and Dr. Will Mayo, famous surgeons of Rochester, Minnesota, brought a party to see the ruins. March 3 we greeted former Governor Huntley Spaulding of New Hampshire. March 11 the Monument was visited by Watson Smith, of last summer's Rainbow Bridge Expedition, who has been doing archeological work for the Museum of Northern Arizona and the Gila Pueblo. March 17 we met A. J. Chitty, United States Marshall of Tacoma and Seattle, Washington. March 24 the ruins were inspected by Dr. C. L. Fenton, paleontologist of West Liberty, Iowa.

The only large group was a party of 90 school children from Eloy, Arizona, on March 13. No NPS visitors are recorded, all who came in being for Headquarters only.

It seems, Boss, that my grey hairs are not as noticeable as I thought they were. A few weeks ago an old lady from a party of visitors came in the museum door and looking at me said "Well, what are you, a guide?"

"Well," said I, "I am acting as such."

"Hm'm," says she, "A young student, perhaps!" And swept on, leaving me silenced.

March 3 we were very glad to see Leonard Heaton of Pipe Spring. We enjoyed having Leonard here, and he held down the Ranger's position quite capably. We were all mighty sorry that he had to leave on the 20th and sincerely hope to see him again some of these days.

On a day off a few weeks ago, the H.C.W.P. and I visited Saguaro National Monument. That monument has more possibilities than I had realized. We found it highly interesting and well worth seeing. In addition to the natural attractions of the place Paul has a very interesting little trail along which he takes visitors and tells them about the cactus and other plants they see. Paul was plenty busy, too, when we were there, several carloads arriving before we left.

We are still having our troubles with maintenance here. I am still waiting hopefully for funds for a new sewer system. In the meantime, we continue to pump surplus water out into the open ditch which more or less disposes of it. When the wind blows from the direction of that ditch and pump, it is unpleasantly noticeable around the public contact area of the administration building, parking space and picnic grounds as well as the residence area. To say the least it is a poor advertisement for the Park Service, and I cannot help but think that it may be a menace to health when the warm weather comes.

Part of our electric plant has also been out of order for some days. If the trouble were mechanical we probably could have fixed it, but, being electrical, we had to find an electrician and electricians are few and far between in this neck of the woods. Finally the Indian Service kindly loaned us a man, but as yet the trouble remains unlocated. All of which darkens my sunny nature as I contemplate the electric line running right past our fence. If we just had a few dollars to bring that line into our monument, what a saving it would mean in money, time and vocabularies! With the installation once made the upkeep would be about one-third of what our troublesome system costs now, so eventually there would be a great saving to the government. Therefore, let us pray.

For relaxation (?) we are working on Bob Rose's question survey. He will have more to say about that when it is finished. In the meantime, visitors' questions are being recorded whenever possible, and wotta list!

Speaking of questions, visitors, etc., I was interested to read Johnwill Faris' remarks last month about not needing a day off. I am mildly curious to know if he would feel the same way after lecturing on the same subject for six hours a day for ninety days.

Ranger Charlie Steen returned the other day after his exchange detail to Walnut Canyon. It appears that he had almost uninterrupted sleep there for the last week because of the quantity of snow. Now he wants it to snow here. I never liked snow myself, but I am beginning to recognize its advantages.

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EL MORRO

By Lyon Z. Vogt, Jr.

Travel for the month of March was sixteen times heavier than for the month of February. This month's visitors total sixteen. Two were local people and the rest were from Minnesota, Alabama, Kentucky, Iowa, and Pennsylvania.

The custodian and I made a careful inspection of the monument today. We were surprised and pleased to find a big caterpillar and grader on the El Morro Scenic Highway. It is Indian Service equipment grading up the rain road of this part of the Navajo Reservation. They are wisely following the same course which was laid out so as to serve El Morro, the El Morro Airport, the Navajos living south of Ramah, and all the Atarque country. The men working on the road receive orders from the Central Agency and are doing a fine job of improving the road.

We found the ranger's cabin unmolested and the inscriptions unmarred. The water in the cove has reached a point just a foot and a half below the spillway. The end of the pipe line which I left in the water all winter was undamaged. I shall start the water siphoning next week to prevent homesteaders from driving over the reclaimed area when they start to haul water.

The little clumps of transplanted grass sod in the reclaimed area are getting green already and this year they should mature and produce seed. The ground in the middle of this area has settled more than three feet during the winter.

The lower part of the trail leading up the south side of the Rock was found to be in excellent shape having not been washed at all by melting snows. But up above we found that all the steps which had not been replaced by concrete were disintegrating to such an extent that it will be necessary to replace them with concrete steps before the end of the year.

And say, Boss, nobody has ever explained why the Copperas which was put on the new steps by Harry Brown turned snowwhite. It makes them look as artificial as a marble stairway in a Long Island mansion.

With better weather and improved road conditions, travel in April should be more nearly normal.

By Lyon Z. Vogt, Sr.

I arrived home from the mine at Summitville, Colorado, on the 2th and have been enjoying my family to the limit ever since. My trip from Colorado was easy for my car except the last 15 miles, which were an unforgettable struggle, emphasizing again the great need for road work at this point.

EL MORRO (CONT.)

In Santa Fe I met my old college room-mate and friend C. Arthur Bruce of Memphis, who motored out with me for a few days' visit. In pulling my car out of the mud at one place he pulled the frame of his car apart. His disgust at the continued neglect of the roads was such that his remarks were really worth recording. One was "Coronado may have conquered this country, but no one has been able to do so since then."..... "I'm going to try to get control of this region so I can give it back to the King of Spain." Another "Hereafter I'll address you: Evon Z. Vogt, Mud,New Mexico."

At that I was able to see some improvement since the lane leading through the farmed basin of the Ramah valley has been graveled and the Indian Service has begun grading south of the ranch en route to El Morro Airport.

It now becomes our duty to see that this improvement swings around beyond that point so as to reach the Monument also. Since my arrival I have been asked to secure some of the large culverts lying unused at Paxton Springs for this road. I think that as I return to Colorado thru Santa Fe that I can get whatever culverts are needed by seeing the State Highway Department.

My friend Bruce became so wrought up about the roads that he is taking his club in hand upon his return to Memphis in behalf of this country. Since men like Senator Pat Harrison and Joe Robinson are his personal friends, he is going to make an appeal to them in the interest of road improvement.

In the mass of mail at my home I found the very colorful announcement of the Coronado Quarto Centennial to be held in New Mexico in 1940. The Coronado Commission, Albuquerque, New Mexico, headed by Dr. J. F. Zimmerman as president and Gilberto Espinosa as secretary has done well in getting this well-written announcement before the public. In it the re-enactment of Coronado's entry into the Zuni country and his visits to the pueblos and passage thru the state with his camp at a point near the present Bernalillo are described. We read also "Other events will take place at Inscription Rock, where the records of so many later Spanish explorers, carved by them in living stone, are as legible today as they were centuries ago. Even pre-Coronado historic background will receive attention at the ruins of Chaco Canyon, Pito de los Frijoles and Puye."

I am writing Mr. Espinosa to get a supply of these announcements and will surely make it a point to see him in Albuquerque as this celebration which will give proper place to our wonderful history and be a year-long program is a matter which has long been close to my heart. I am anxious to do whatever I can to further it and make it a success along authentic lines.

I am sure our monuments and the Park Service will be called on for much cooperation and that during that year our travel interest throughout this fine southwest plateau country should increase as never before.

The visit today to El Morro was delightful, an occasion long to be remembered, and I am thankful that my son and I took the time to go over all features slowly. We even mounted on the trail to the top of the great mesa to drink in the view, to talk about future excavation of the ruins.

Then we crawled under the fence and made our way thru the piñon woods to hunt out the "hogan" of my old friend Rafael. We finally located his humble home and knew from the smoke curling out of the hole in the roof that he was at home.

We found him seated on a sheep skin, side of the fire where the sun shone down thru the smoke hole. His daughter was just finishing combing his snowwhite hair with her sacaton brush.

Rafael must be close to 90 now but very alert and active. He was delighted to see us. His interest in my mining activities came out right away and I was glad that I happened to have a small piece of ore in my pocket to show him. His eyes were able to spot the free gold which glistened in the sun and stirred up plenty of conversation in the Navajo language among all members of his family, all of whom wanted to see the "Picture rock."

His grandson is ailing badly with T B and has lost one-fourth of his weight since I last saw him. Rafael assured me that both Navajos, Dick Jose Pino and old Carrissoso, had been there to sing for his welfare and that their medicines and influence had brought about an improvement in his condition. Despite all that I hope to get the boy moved to some Indian Service Sanitarium where he can get the mild, eggs and nourishing food which will enable him to get well if it is possible.

In closing let me thank you for the Monthly Report you have sent me to my Colorado address and to express to all those who contribute to it my appreciation of their combined efforts in producing every 30 days what I regard one of the most valuable and interesting reports in the entire country.

I'll be returning to mines, mills, and metallurgy in a few days, but always El Morro and the Park Service are in my mind when I think of home.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

Some time ago a very fine friend of mine, Dr. J. E. Brodus, who represents the Standard Optical Company of this city and broadcasts for 15 minutes every tuesday evening over KSL on the subject "Seeing the Scenic West, with Dr. J. E. Brodus," asked me if I would like to use his time. Consequently, Tuesday, the 24th, I gave the talk herein enclosed (see Supplement).

In being introduced by the Doctor, He made mention that there was a booklet of 74 pages published by the National Park Service that could be had for the asking. Be that I had a supply on hand of the "Glimpses of Our Monuments!" Now we are swamped with requests for some, and I have only one left. What can I do? Can you send me some or tell me where I can get a supply? I need 50 or more already, and I believe I'll need two or three times that many. If they are out of date, is there any other literature on the Bridges? I had several telephone calls congratulating me before I left the studio. The lead man at KSF said those programs were heard by at least a quarter of a million people. So, if I include them in my next report, I'll have a real report, ha, ha!

I have the promise of another evening about the second or third Tuesday in April. I had so many asking for a treatise on the Natural Bridges that I have only one left, and I must have something to send out. Just yesterday the boss of the American Auto Association asked me for some folders and said he surely needed something on the monument for so many people were asking for information. Oh, I must have some folders or something to send out; it embarrasses me to tell people I have nothing. Please help me out.

I feel just a little proud of what I have done this month. Had a fine outing of five days with four men, making the circle trip through San Juan on through Monument Valley, Tuba, Lees Ferry, Zion and Bryce; the first time I ever made the trip as a guide with nothing to do but sit back and try to look wise. Then I had my first experience over the Radio, and, as a result, have been flooded with telephone calls asking about the best time to visit the monument. I have also had several chances to speak at various classes and small socials. I am also glad to report that the State Road Commission has promised to do a lot of work on the road from Blanding out to the monument. They have done away with the horse outfit that they have had on the San Juan road and have out on a new caterpiler tractor. Therfore, I am looking forward to better roads

I have been told unofficially that there is a move on foot to greatly enlarge the monument and change the name to Escalante. Oh, I hope and pray that the name will never be changed, for the name Escalante would mean nothing to the Natural Bridges. When I am officially notified of the change of the enlargement of the monument, I

MAY have some suggestions as to its name. I am just raring to go now and will be at the monument just as soon as I can get over Elk Ridge. Then I'll repair my trails and be ready for the rush. I am sure I will have plenty of visitors this season.

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HEADQUARTERS STUFF

BRANCH OF EDUCATION By Robert H. Rose, Park Naturalist.

March, 1936, has been a very busy month for the Division of Education. With the exception of short field trips detailed later in this report, Junior Park Naturalist King has been at Headquarters for the entire month. Junior Park Naturalist Haywood was in the office between February 25 and March 16, inclusive, after which he left for Tumacacori to spend the remainder of the month on relief duty.

Educational Contacts Records:

Several days at the beginning of the month were required to bring educational contacts data up to date. The statistics for the months of October, 1935, to February, 1936, inclusive, were tabulated and these will be found in the Division of Education report for February. The statistics for March are found at the close of this report making a total of six months of the current travel year for which we now have educational contacts data. Nearly all difficulties and minor technicalities seem to be satisfactorily worked out, and it now appears that further revisions of the data will not be necessary.

Examination of the tabulations for the past six months shows convincingly that Southwestern Monuments has no open and closed seasons as far as the educational program is concerned. With the exception of the December, 1935, "low" of 8,492 educational contacts, these contacts are well over 10,000 visitors per month.

For some time we have been considering a survey of the questions usually asked by national monuments visitors. It was our thought that the results of such survey might serve some useful purpose. For example, the results might give us a better idea of what the function of our museums should be; the type of questions and the answers may give us a still better idea of the degree of simplification required in exhibits and labels; and we will at least obtain concrete evidence that the rangers among our monuments whose chief duties are public contacts must possess a great deal of general and specific information about their monument and the region as a whole.

Such survey on all of the monuments would be of interest if carried out over a period of time. However, in only a few monuments

are so situated where we can easily collect data. Accordingly, such survey is now being carried on at Casa Grande, Pinto, Montezuma, Aztec and Bandelier. In the report for April we expect to include a report on the results of this question survey.

Administration, Clerical Work and Personnel:

A list of items desired for inclusion in the Preliminary Estimates for Fiscal Year 1938 was prepared and submitted; a volume of letters of application and requests for general information was handled; some 300 posters were wrapped and mailed to various civic organizations, schools and others who might appreciate getting them; and 1500 forms 10 for distribution to monuments were made. Attention was also given to matters relating to permanent and temporary personnel.

For a period of about a week Messrs. Pinkley and Miller were in the field and as Acting Superintendent the writer handled the usual volume of routine office matters in their absence.

For a long time we have needed a photographic file for pictures for which we do not have the negatives. Superintendent Pinkley developed a system for photos accompanied with respective negatives. During the month the writer gave several days' attention to developing the new photographic file. All photographs have been assorted according to monument or subject and placed in suitable containers for filing. There now remains the rather huge task of entering some 900 to 1,000 legends and numbers. At least we now have all photos classified and organized in such manner that additional accessions can be properly cared for.

Museum Plans:

The following progress has been made during the month with reference to preliminary museum exhibits plans:

1. First in order of importance is the preliminary exhibits plan for Montezuma Castle. Junior Naturalist Caywood drew up a preliminary plan. After the initial preparation the plan was discussed among headquarters staff members. Certain suggestions were offered and revisions made. As specifications for each exhibit are worked out, revisions for the better are certain to be made. The completion of this preliminary plan is another important step forward in our program of museum planning.

2. Junior Naturalist Dale King has been making progress on drawing up detailed specifications for exhibits to be placed in the Bandelier Museum. This is the next step which must be taken even though the preliminary plan is thoroughly done.

Several case layouts for Bandelier have been worked out by him in detail such that they can be used by museum preparators at once without modifications.

3. The Aztec Museum has been studied and a plan worked out for more efficient utilization of existing exhibits space.

Gifts and Accessions:

Several important accessions have been made during the month among which are the following:

1. A consignment of books on Southwestern subjects for the headquarters library and to be placed in circulation as much as is practicable, received from the University of California, Berkeley.

2. A number of volumes of the B.A.E. Reports have been received now giving us a more complete series of these publications.

3. "A Manual for History Museums" and "Small House Museums" were received.

4. Twenty-five copies of Caywood's and Spicer's publication on "Tuzigoot" were presented to the library and the individual monuments.

5. Several consignments of metal self-guiding trail labels have been received from the CCC laboratories of the San Diego Exposition working under direction of the Field Division of Education.

Field Trips:

Junior Naturalist Caywood was in the office until March 17 when he left for Tumacacori National Monument to work on relief duty. The completion of the Montezuma Castle Preliminary Exhibits Plan was his most important accomplishment during this time.

With the exception of short field trips to Saguaro and Tumacacori, Junior Naturalist King has been on Headquarters assignment during the whole month.

The writer had no trips to other monuments during March. No special lecture contacts were made.

Report of Junior Naturalist King:

10 days on February Monthly Report.
Mimeographed: Navajo Arts and Crafts exhibit entry books for Wupatki;

bird banding record cards.
Wrote 34 letters.
Completed and sent to Field Division of Education for approval plans for two cases at Bandelier National Monument. Much of the ground work of these cases had been laid capably by Custodian Earl Jackson at Bandelier.
Kept natural history and bird banding files current.
Arranged botanical identification procedure with Boyce Thompson Southwestern Arboretum staff.
Prepared two skins (Cactus Wren; Wilson Snipe) for Headquarters study collection. Birds had been accidentally killed and were brought to us for saving.
Started 15 mesquite seedlings for landscaping purposes.
Half day investigating purported cave in ruin south of Eloy.
Two trips to Saguaro; one to Tumacacori.

Report of Junior Naturalist Caywood:

February 25 to March 16 spent at Headquarters, Southwestern Monuments, Coolidge, Arizona. During this time work was done on the following projects:

Eleven days were spent on Proposed Museum Exhibits Plan for Montezuma Castle National Monument; three days, writing article on the figures on Hohokam pottery, in conjunction with Mr. J. E. Ghost, to be used in the Supplement; one day spent in assisting personnel of Casa Grande National Monument with visitor guide duty. On the afternoon of March 11 went with Dale King to see ruin reported near Eloy, Arizona. One and a half days spent working on Place Names for Wupatki National Monument and one day mailing out Tuzigoot reports.

The remainder of the month, February 17 to 25, spent at Tumacacori National Monument on relief duty. During this time the Proposed Museum Exhibits Plan for Montezuma Castle National Monument was completed.

***

BRANCH OF ENGINEERING

By J. H. Diehl, Associate Engineer

At Tonto National Monument, Transitman Clark and Rodman Schmidt completed the field survey for a new road alignment, early in the month and left their notes at Coolidge with Engineering Aide Tovree who immediately started preparing the necessary plans in hopes that an allotment for construction might be obtained.

However, Superintendent Pinkley was advised in Washington that no funds were to be had at this time, and so far we have been unable to get the requested boundary extension to this monument, across which the proposed road would connect with the State Highway.

The existing road to Tonto is passable, but the amount of visitor travel to this monument certainly justifies construction of a new road and expenditure for further development of the headquarters area.

Transitman Clark and Rodman Schmidt moved down to Chiricahua National Monument, where with the assistance of CCC enrollees they will endeavor to complete the topographic survey for a map of this monument.

Under ECW Superintendent Stevenson at Chiricahua National Monument, Engineer Foreman Harris is staking the location and making the necessary property ties for the telephone line to connect with Portal, Arizona.

The monthly allotment of ECW funds reduced for the seventh period from $4,000 to $2,833.33 is going to greatly handicap any building construction in the coming period as the amount allotted leaves such a small balance for purchase of materials and supplies, beyond the regular payroll, gas, oil, and incidental expense.

This same condition also affects the operation of the ECW program at Bandelier National Monument, where we will not be able to construct the proposed telephone line, but we must also abandon the construction of the fence project, material for which has already been purchase---owing to the cost of operating a fly camp for this construction.

At Gran Quivira National Monument, work finally was commenced about the middle of this month on the installation of the pump and pressure tank for water supply. Weather conditions have been rather unfavorable retarding progress, and Foreman Gipe will most likely spend most of April on this project and constructing water lines.

While plans have been slow in reaching project Foreman Hopper of the Resettlement Administration at White Sands National Monument, he has kept his men busy mainly on the dike construction and the fence project.

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PROPOSED RODENT CONTROL AT CHACO CANYON

By Adrey Sorell, Regional Wildlife Technician

In accordance with advice from the Washington Office I attempted to learn the advisability of rodent control at Chaco Canyon National Monument. Rodent control had been requested in order to facilitate the erosion control work being conducted on the monument by Soil Conservation Service.

On February 25, I went to Gallup, but found the road from there to Chaco Canyon was impassable. However, I was able to discuss the matter with Associate District Manager W. C. McGinnies, Regional Biologist E.D. Eaton, Engineer Clifford, and Assistant Biologist L. V.

Compton, of the Soil Conservation Service. We arranged to make a trip to Chaco Canyon as soon as the roads were open.

On March 12 and 13, Assistant Biologist L. V. Compton, Assistant Agronomist H. H. Coddington, Project Superintendent Lewis McKinney, Custodian P. C. Miller, and I went over the erosion and rodent problem at Chaco Canyon. The area has been overgrazed, and erosion is in an advanced stage. We found rodents numerous in the canyon portion of the monument. Our short survey indicated that Kangaroo rats, antelope ground squirrels, and white-footed mice are abundant. Cottontails are fairly common, and there are two very small colonies of prairie dogs. Harvest mice are present, and probably pocket mice also. Pocket gophers are scarce.

From my observations in the field and from discussions with representatives of the Soil Conservation Service, I believe that rodents may encourage erosion or hinder control in the following ways: (1) the larger rodents such as kangaroo rats and ground squirrels burrow into levees which have been built to control flood waters; (2) These large rodents, along with the smaller ones, gather seed planted to revegetate levees or denuded areas; (3) In some cases rodent burrows may carry water through the more stable surface soil, thus causing slopes of arroyos to sluff more rapidly, or might possibly start new lateral arroyos; (4) In some cases where rodents are numerous they may consume enough vegetation and seed to be a factor in checking natural growth of vegetation.

The party agreed that at Chaco Canyon only the first two points will be of importance. Rodent burrows in levees might easily cause breaks, and when the levees are seeded rodents will undoubtedly take a portion of the seed.

So far not enough research work has been done to determine definitely the role of rodents in erosion and re-seeding operations. How far various species of rodents will forage into the open, or what percentage of small seed such as grass might be taken, is not known.

If control of rodents were undertaken along the main Chaco Wash and its many lateral "headers" it would involve control over most of the canyon, an area seven miles long and about one mile wide. Since erosion along the main wash and its laterals is already so terrific, the small amount of increased erosion due to rodent work does not justify an attempt to control rodents along all of the washes. (Reference to photos in original report)

The party agreed that the prairie dogs should not be destroyed, as this would mean elimination from the monument of an entire species. There are only two small colonies of prairie dogs (a total of about 15 individuals) in the canyon; neither colony is very close to proposed

levees. Furthermore, there are no other colonies nearby which might spread into the canyon if those now present were destroyed.

Regional Biologist Eaton told me that rolled oats poisoned with strychine is used in controlling rodents on Soil Conservation Service projects. Cottontails, and some birds such as horned larks, members of the sparrow family, and possibly others may be killed by the poison grain. I suggested trapping as a means of control, but the Soil Conservation Service representatives felt that this method would be impractical, due to the great expense. Coyotes, foxes, and badgers are present, and a few may be killed through eating poisoned rodents.

Re-seeding and rodent control (if authorized) will be done some time before the end of June; that is before the summer rains. Erosion and rodent control work is done under the supervision of Soil Conservation Service. Labor is done by Navajo Indians employed through CCC funds.

The monument is now fenced and domestic stock excluded. I believe the work of Soil Conservation Service and the exclusion of grazing will do much toward checking erosion.

RECOMMENDATIONS:

Considering the fact that erosion in Chaco Canyon is terrific and will eventually result in the loss of important archeological ruins unless checked, and the fact that the Soil Conservation Service is spending a great deal of time and money attempting to control this erosion, I recommend the following:

(1) That the National Park Service authorize rodent control within 100 yards of each levee or other area which has been or is to be re-seeded.

(2) That in this special case the Park Service authorize the use of poison grain in rodent control although it is against the general Park Service policy.

(3) That no control be undertaken along arroyos or in other areas where artificial re-seeding is not contemplated.

(4) That no poison be distributed anywhere in the vicinity of the two prairie dog towns.

All members of the field inspection party and Regional Biologist Eaton agreed on these recommendations.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR MARCH 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUCN CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165																		(NO REPORT)	
AZTEC	2		80	462	2840	5.8	35	80	439	1461	5.5	18	1	2					889	902
BANDELIER	1		47	151	2614	3.2	56										6	14	165	429
DE CHELLY	1		4	20	660	5.0	165												24	25
CAPULIN	1/165		4	23	300	5.8	75												23	498
CASA GRANDE	2	1	351	2705	12120	7.7	35	349	2701	14783	8.2	10.2	34	38.)					3410	2705
CHACO CANY	1		16	70	1463	4.4	92	16	70	254	4.4	16.5							140	453
CHIRICAHUA	0																		(NO REPT)	35)
EL MORRO	0																		0	16
GILA CLIFF	0																		0	(NO REP)
GRAN QUIV.	1		42	140	1683	3.4	40												140	152
HOVENWEEP	0																		0	(NO REP)
MONTEZUMA	2		95	518	4490	5.5	47	98	490	1657									1917	590
MTL. PARK	0														5	310	6	70	380	(NO REP)
NAVAJO	1/165																		(NO REPORT)	
PIPE SPGS	1-Lab		13	38	395	3.)	45								2	31			69	119
PETRIFIED	)																		0	(NO REP)
SAGUARO		1	105	633	6375	5.7	30												600	200
SUNSET CR.	0																		(NO REPORT)	
TONTO		1	93	444	5750	4.7	61	93	454	1553	4.8	16.6							898	616
TUMAC/CORO	2		227	1458	9572	6.5	44												1458	1573
WALNUT CYN		1	70	227	8600	3.2	36										8	24	245	360
WHITE SNDS	1/5		40	436	1950	11	49										143	772	1208	4665
WUPATKI		1	18	56	564	3.1	33										17	51	107	104
YUCCA HSE	0																		(NO REPORT)	
HDQTRS																				
TOTALS	13.2	5	1274	7,348	55,323			535	3474	9934			85	691	7	341	174	931	12,785	15,379

*12-permanent custodians and rangers; no ranger naturalists; and 1 temporary ranger.

**1-fifteen minute radio broadcast by Zeke Johnson; Station KOL, Salt Lake City, Utah. No estimate of contacts thru radio broadcasts is made.

SIX MONTHS TABULATIONS SUMMARY
OCTOBER 1935 - APRIL 1936 INCLUSIVE

MONTH	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D		LECTURES OUTSIDE		MISC.		TOTAL EDUCATNL CONTACTS 6-MO	TOTAL TRAVEL 6-MO
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
OCTOBER	1045	6760	389	2805	175	1481	1	115	313	1157	12,318	12,698
NOVEMBER	1072	6354	295	1859	171	1365	7	485	156	584	10,647	11,309
DECEMBER	926	4769	284	1508	30	1793	1	20	70	402	8,492	8,585
JANUARY	964	6568	461	3008	128	1072	20	3283	289	1156	14,087	14,044
FEBRUARY	1141	7200	474	3369	81	711	11	1084	96	460	12,824	13,859
MARCH	1274	7348	535	3474	85	691	7	341	174	931	12,785	15,379
TOTALS	6422	38999	2438	16023	670	7113	47	4328	821	4690	71,153	75,724

SIX MONTHS TABULATIONS SUMMARY BY MONUMENTS
OCTOBER 1935 - MARCH 1936 INCLUSIVE

MONUMENT	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D.		LECTURES OUTSIDE		MISC.		TOTAL ED. CTS	TOTAL TRAVEL
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
ARCHES											(NO REPORTS)	
AZTEC	445	2832	433	2812	2	5	3	600			6,249	3,069
BANDELIER	226	1170							134	454	1,624	2,252
DE CHELLY	47	137					1	350	1	4	491	152
CAPULIN	9	55									65	3,850
CASA GRD	1909	14582	981	8159	668	7108	1	100			29,889	15,699
CHACO	175	565	19	78					55	225	868	2,565
CHIRICAH												1,295
EL MORRO	36	222							3	9	231	225
GILA CLIF											0	(NO REPT)
GRAN QUI	220	946	13	78							1,024	1,347
HOVENWEEP											0	(NO REPT)
MONTEZ	447	2403	588	2788					4	31	5,192	3,401
NAT. BR							20	1490	9	100	1,590	125
NAVAJO									16	40	40	(NO REPT)
PIPE SPG	115	633					4	63			696	1,607
RAINBOW											(NO REPORT)	
SAGUARO	271	989							1	200	1,189	4,800
SUNSET									20	61	61	209
TONTO	432	2256	404	2136							4,394	3,381
TUMACAC.	1440	7432									7,432	7,855
WALNUT C	180	756							96	361	1,117	2,136
WHITE SD	396	3678					2	400	738	3121	7,193	21,158
WUPATKI	72	349					2	250	27	84	583	536
YUCCA	2	10									10	52
HDQTRS	-	-	-	-	-	-	14	1175	-	-	1,175	---
TOTALS	6422	38959	2438	16023	670	7113	47	4328	1104	4690	71,113	75,714

*Three radio broadcasts and two showings Park Service films during period.

DISCUSSION OF CONTACTS

By Park Naturalist Robert H. Rose

Records on educational contacts for the last six months are now available with the appearance of the Statistical Summary for March. Therefore, it is appropriate to take inventory of these tabulations and determine what facts are being revealed. In order to facilitate such study, condensed tabulations by months and by monuments have been prepared. These tabulations occur on the previous page. Following are some observations:

1. These tabulations show convincingly that we have no "closed season" during the winter months among the Southwestern Monuments. Total travel varied from a low of 8,923 for December to a high of 15,379 for March while educational contacts varied from a low of 8,495 in December to a high of 14,467 in January.

2. There is a consistent comparison between travel and educational contacts for each month of the past six months. In other words, as travel increases our educational contacts also increase, and vice versa. Generalizing, we would say that the greatest variations in travel occur at monuments where we have personnel which accounts for educational contacts fluctuating in the same manner as the travel.

3. The figures on educational contacts give a pretty accurate picture of the magnitude of the educational problem at various monuments during the winter months where we have personnel. The most astonishing surprise of the entire group is White Sands. Custodian Tom Charles has attempted to get a close check on travel and to contact about as many people as possible. The results show that White Sands ranks third among Southwestern Monuments in number of Educational contacts made while the same monument has first rank in travel. Tonto shows consistently heavy travel and no let up in opportunity for giving educational service. Walnut Canyon, generally thought of as a closed, "snowed in" monument during most of the winter had an average of nearly two groups of visitors daily (counting 98 "Miss" groups).

4. Tabulations show 14,023 contacts through museum lectures and guided service compared with 7,118 museum visitors not given guided service. Of the latter, 7,108 of these were at Casa Grande. Personnel shortage, making it necessary to use the museum as an assembling place, accounts for the inability to give these groups personal attention during their museum visits.

* In the two tabulations on the previous page, the total travel in as well as the total educational contacts should check. The travel shows 75,724 in one table and 75,714 in the other - a discrepancy of 10 or 1/100 of one percent. Educational Contacts show 71,153 in one table and 71,113 in the other, a discrepancy of 40, or 1/20 of one percent. While these discrepancies are negligible in their effect on the totals, an attempt

will be made to reconcile the two tables in new tabulations for April.

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CLOSING

I wonder if anyone noticed that the February Report didn't have a "Closing." Since that was one of the best reports the Southwestern Monuments has ever produced, I am proud to say I didn't have anything to do with it! I was in Washington during the month and got back to headquarters about the day the report went into the mail. Dale said he was afraid to fake the "Closing" and the "Ruminations" under my name because if he didn't do a good job he might get blown up for it and if he did do a good job I might step out from under and leave him to do them in the future!

March is behind us and we pause here t look back over it and see if there is any lesson to be learned before we jump off into April.

The personnel sheet remains unchanged from February but will probably show some changes next month due to the early temporaries going on and a couple of changes of stations among the regulars.

The attendance figures on page 108 are nothing to write home about, but it must be remembered that we have overhauled our system of counting visitors in the last year, and the '36 figures are conservative figures as compared with the two former years. Personally, I don't think visitors are falling off as indicated by the totals shown, but the difference is due to the change in methods of counting. I am confirmed in this opinion by a couple of thousand miles of travel which I made during the month in which I inquired of gas stations, cabin grounds, hotels, etc., as to the travel and how it checks with last year at the same time, the almost invariable reply being that there were more people on the road this year and that they were spending more both in total and per individual.

The incoming and outgoing mail count shows that the office has been busier than ever and I know from personal observation that the figures don't lie.

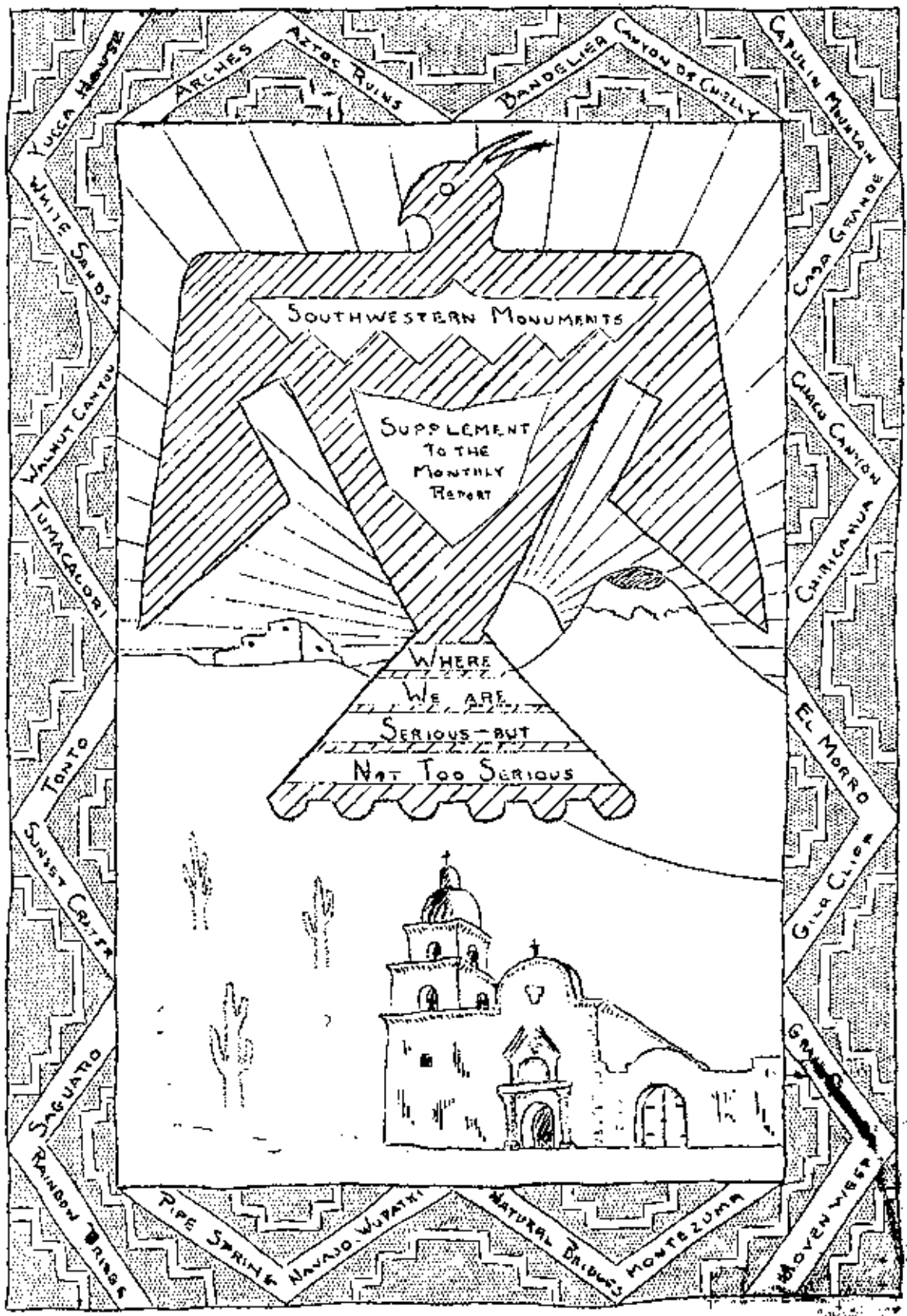
I told you in January you couldn't hold Zeke down; that he just went and hunted up people to talk bridges to; and in the Supplement this month we are giving you a transcript of what he talks. I think you will agree with me that it is mighty well worth while. Zeke, by the way, writes in to Bob Rose and wants credit for 250,000 educational contacts for that talk!

On the whole, we are going strong down in this district and it looks like there is plenty of work ahead to keep us busy.

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.


Arches
Aztec Ruins
Bandelier
Canyon de Chelly
Capulin Mountain
Casa Grande
Chaco Canyon
Chiricahua
El Morro
Gila Cliff
Gran Quivira
Hovenweep
Montezuma
Natural Bridges
Navajo Wupatki
Pipe Springs
Rainbow Bridge
Saguaro
Sunset Crater
Tonto
Tumacacori
Walnut Canyon
White Sands
Yucca House
Southwestern Monuments
Supplement to the Monthly Report
Where We Are Serious — but Not Too Serious

LIFE FIGURES ON HOHOKAM POTTERY

By John E. Fast and Louis R. Caywood.

In the Southwestern United States many different tribes of prehistoric people existed in various localities for long periods of time. Living apart and under different conditions they developed along different lines, and expressed themselves in different ways. The knowledge we have of them is derived from a study of imperishable objects which they left in their houses, graves and rubbish heaps.

In the Gila and Salt River valleys of southern Arizona there lived a people we today call the Hohokam, which is a Pima word meaning "People who are gone." The Pima tribe, together with the closely related tribe, the Papago, which today occupy part of the territory of the Hohokam, may be their descendents. They were different from other prehistoric people in a number of ways.

A characteristic difference is the method of construction of their houses and walled villages, the latter now named compounds. All walls were made of caliche, a native earth found as a sub-stratum about three feet below the present surface. It was mixed with water to make a mortar of a thick consistency which was piled up in layers of approximately twenty to thirty inches by use of the hands.

Another peculiarity of the Hohokam is that they cremated their dead, and after cremation they placed the calcined bones in a pottery vessel or with broken pieces of pottery and buried them. The designs on a great many vessels are of a red or maroon color on a creamy or buff background called Red-on-Buff. The designs are usually well executed, and occasionally portray figures derived from life; human, animal and insect forms, which occur on plates, shallow bowls, jars, ollas and a few special shapes. These figures are usually from three quarters to one and one half inches in height. On the larger vessels they are repeated many times, extending around the vessel in many rows.

Some human figures join hands in what is evidently a circular dance of action and grace. There is also the effect of a circle of animals each stalking the one immediately ahead, and a circle of feeding birds. A whole jar or plate of large size or a repaired one with more than half of the original pieces is rare. It can be inferred that shapes were similar to other utensils of the same period which bore geometric figures: crossed lines, squares, dots, and various other elements. Smaller utensils such as plates and small jars are more likely to have only a few figures and occasionally only one.

It was thought that a minor contribution would be made toward an understanding of Hohokam lives by gathering together and reproducing as many figures representing life forms as possible. Some are shown on the plates following. The pottery of the Mimbres Valley is well

known for its representation of life forms, but many are highly imaginative and exaggerated. For instance, there is a piece showing a man on the back of a grasshopper; there is no mistaking the grasshopper. This is clearly impossible, yet it establishes the fact beyond question that grasshoppers existed during or before the time of the Mimbreños. Although this may be suspected or assumed, where else can one obtain as positive a confirmation of that fact? Similarly, it is hoped that Hohokam figures, when many more are obtained, will show something definitely which is now only suspected.

The plan followed was to visit all collections of Red-on-Buff pottery available, and to photograph the figures. Nearly all figures were secured, however, from fragments of former sites of archeological investigation. The amount of broken pottery, literally tons of it, that comes from an archeological excavation in the southwest can hardly be realized by one not familiar with the work.

Photography rather than sketching was used, because it was necessary to reproduce accurately. One figure may be either a deer or rabbit, another may be either a quail or a parrot, and a less accurate reproduction would tend to throw the identification one way or the other. From a photographic print an outline tracing was made on white cardboard by means of a carbon paper under the print. The tracing was then filled in solid with black India ink.

Much of the design on Hohokam pottery is quite easily rubbed off, and many figures had to be examined closely to make certain of the exact outline. However, the contrast between the bluish-red markings and the buff background was more pronounced in the photograph, when a suitable color filter was used over the lens, than when inspected by eye. In all except ten cases the figures are about eighty percent of the size of the originals, which was the largest percent of reproduction that could be obtained with the cameras at hand. The ten referred to were usually much larger figures in the originals, and were made smaller purposely, as the smaller size was more suitable for reproduction. Two of the figures were built up or re-assembled from a sherd that showed several repeated parts of figures but no complete ones. Each part of the completed figure occurs somewhere on the sherd. With these exceptions, great care was taken to avoid supplying missing parts and lines. For instance, the figures with a basket and staff in one hand (Plate II) would probably hold a crook as do other figures in the same plate if the sherd had not unfortunately been broken off at that point, but this is only a probability and cannot be definitely known.

The figures seem to have been drawn one feature at a time. For instance, a bowl with a line of repeated turtles appears to have had all the bodies painted in first, and the legs and heads added after completion of the bodies. This is evident because the color concentrates in a drop at the end of the brush stroke, visible because it

is a much darker bluish-red than the rest of the line of color, and often when the painter drew the appendages the paint had been thinned and was slightly lighter in color. There is a sureness in the stroke of the brush, which must have been nothing more than a chewed piece of yucca blade or a twig, and a fascination in their repetitive technique that is most interesting, and yet the lines themselves are extremely crude.

No facial features in the human forms are even attempted, excepting rarely a dot representing an eye; in fact, an attempt to make the facial outline with the tools that were available, would have detracted from the artistic value of the product. The little figures are, nevertheless, realistic, and perhaps in many cases portray the life of the times without the least imagination on the part of the observer.

The dancing figures (Plate I) seem almost to be in motion, and the action which they show is characteristic of the social and religious dances of the present day Indian. Today we know that both the Pimas and the Papagos gather from miles around for the social and ceremonial dances. These are gala affairs which everyone attends dressed in his best and all thoroughly enjoying themselves.

In Plate II the figures with the crook predominate. Besides being a utility implement it might have some ceremonial significance, as it appears as part of the regalia of the dancing figures. In modern times the Pimas occasionally used their burden baskets supported by a tumpline across their foreheads. Some of the baskets in the drawings may have been earlier forms of burden baskets. Below is the hump-backed flute player so common to the Pueblo region.

The animal figures which seem to represent dogs, deer, antelope or rabbits (Plate III) are very common, but in form are so much alike that it is hard to tell what kind of animals they are. Below them on the bottom row of Plate III are two figures which are clearly scorpions. The middle figure has not been identified.

On Plate IV bird figures are numerous and a number of different birds are found. Probably the most common is clearly the quail of this region, the Gambel Quail. Others might be Road Runners. Some of the longer-legged birds might be wading birds, probably common at that time in the Gila River Valley.

The last are the reptiles shown on Plate V. Three bird figures are also shown on this plate. The first one may be a Turkey Vulture; the second shows what may be a flock of eagles or hawks. The third was not identified. The reptiles seem to be turtles, lizards and Gila Monsters.

This short paper is only a beginning in the study of figures on Red-on-Buff pottery. It is hoped that it may inspire others to do more work along this line.

Appreciation is gratefully expressed to the following institutions and individuals for their kindness in permitting the writers to study their collections and photograph desirable specimens: The Gila Pueblo Globe, Arizona; The Casa Grande National Monument Museum; The Arizona State Museum, Tucson, Arizona; The Heard Museum, Phoenix, Arizona; and the private collections of Mr. Walter C. Smith, Coolidge, Arizona, and Mr. Carl A. Moesberg, Sacaton, Arizona.

PLATE I

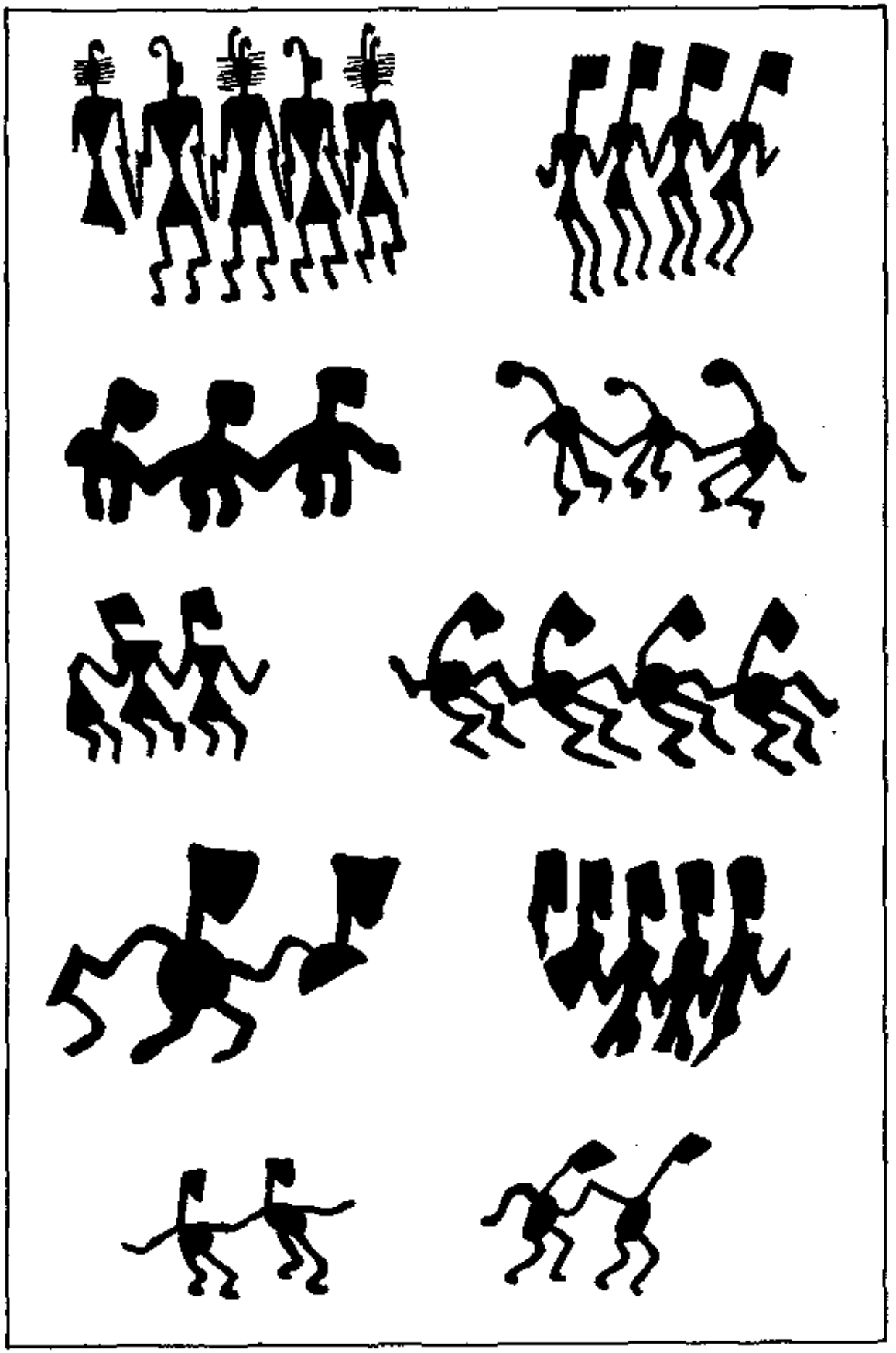
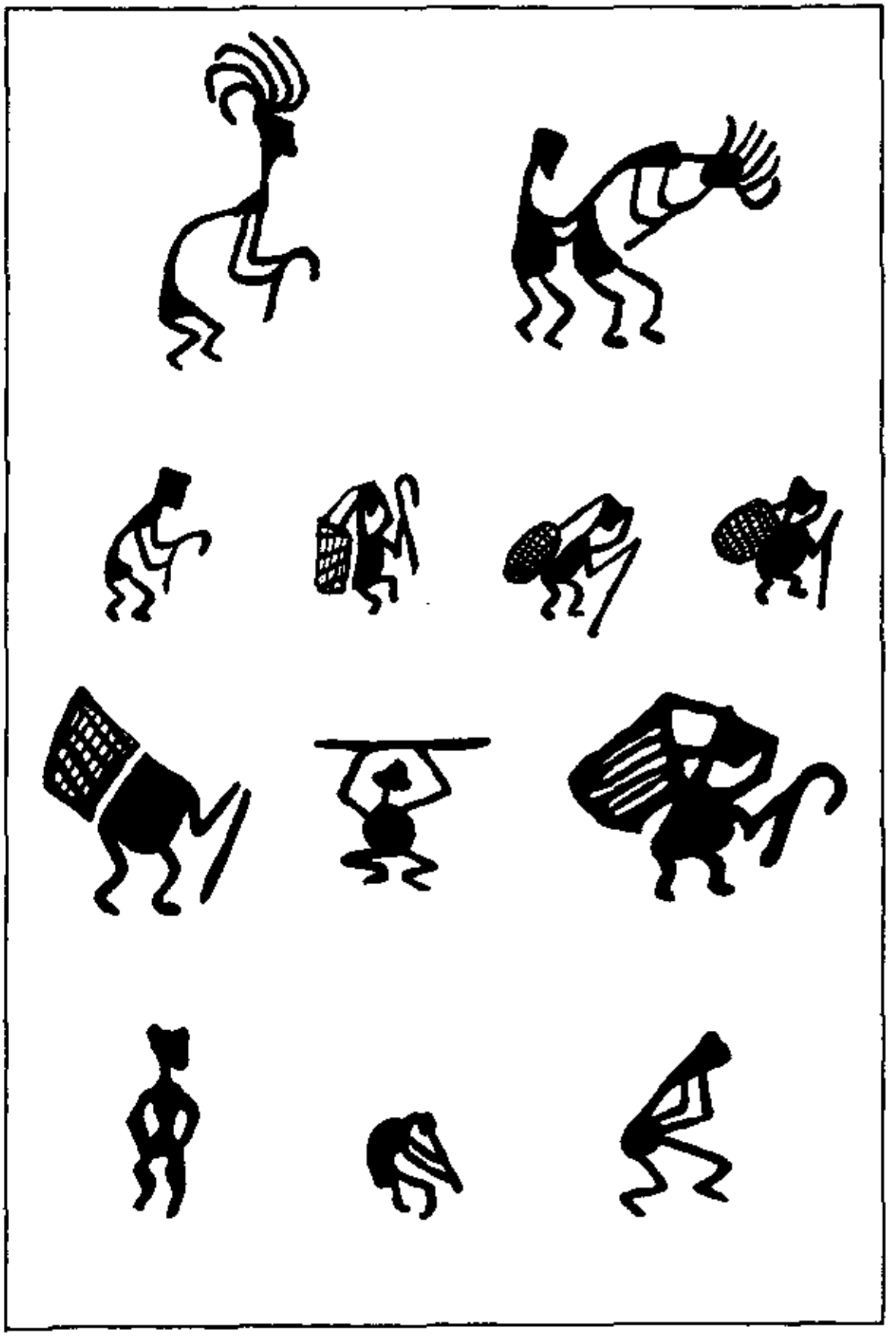


PLATE II.



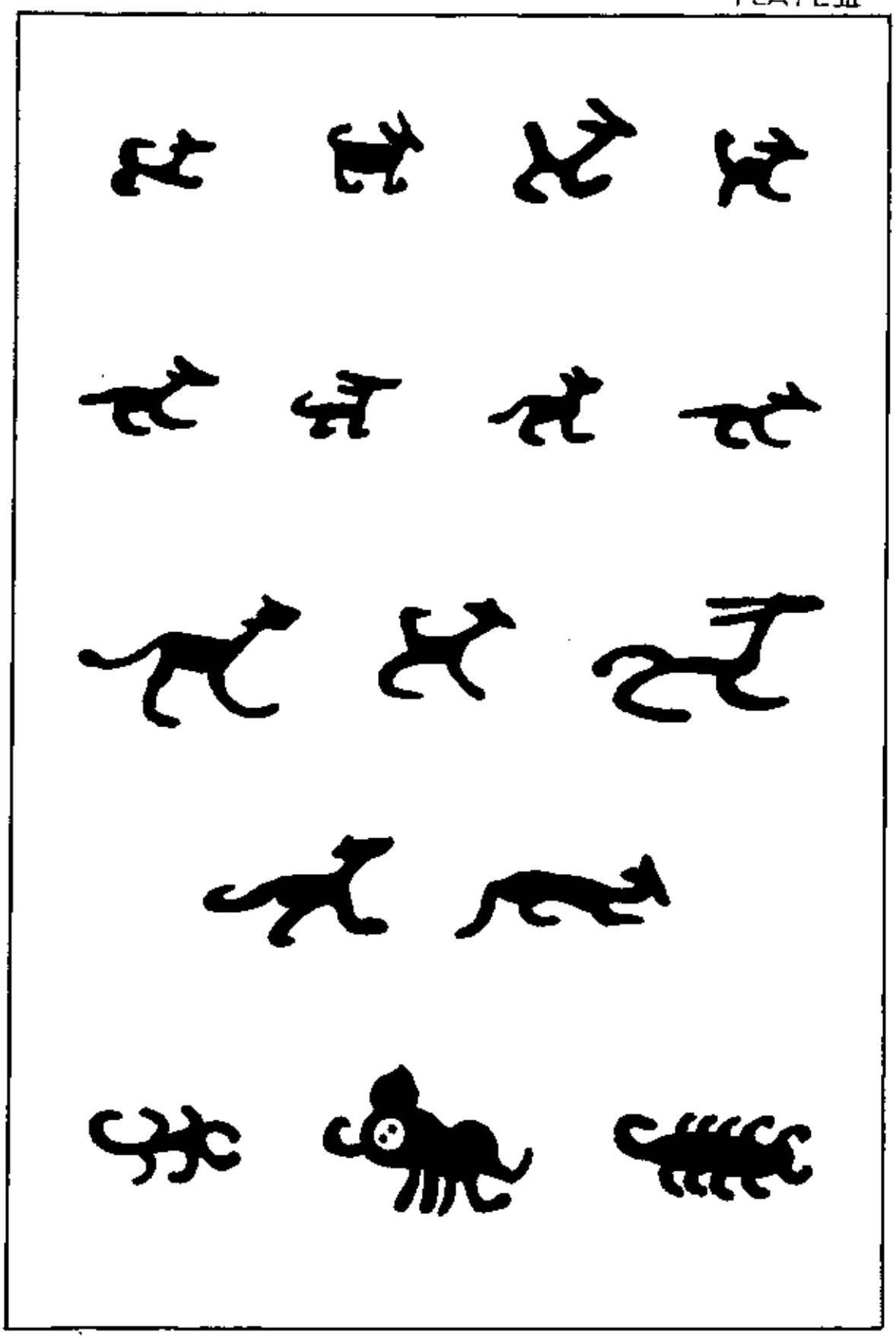


PLATE IV

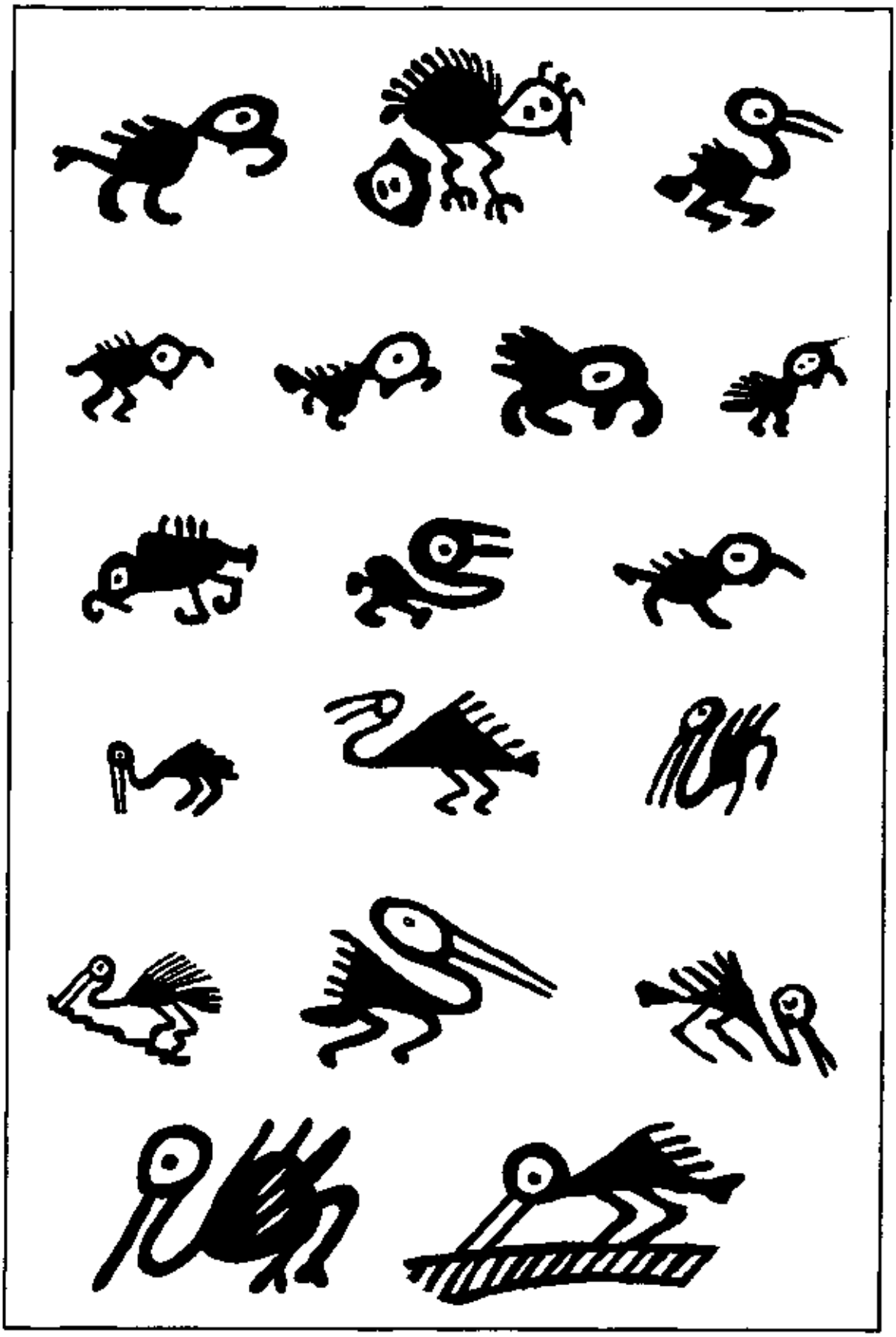
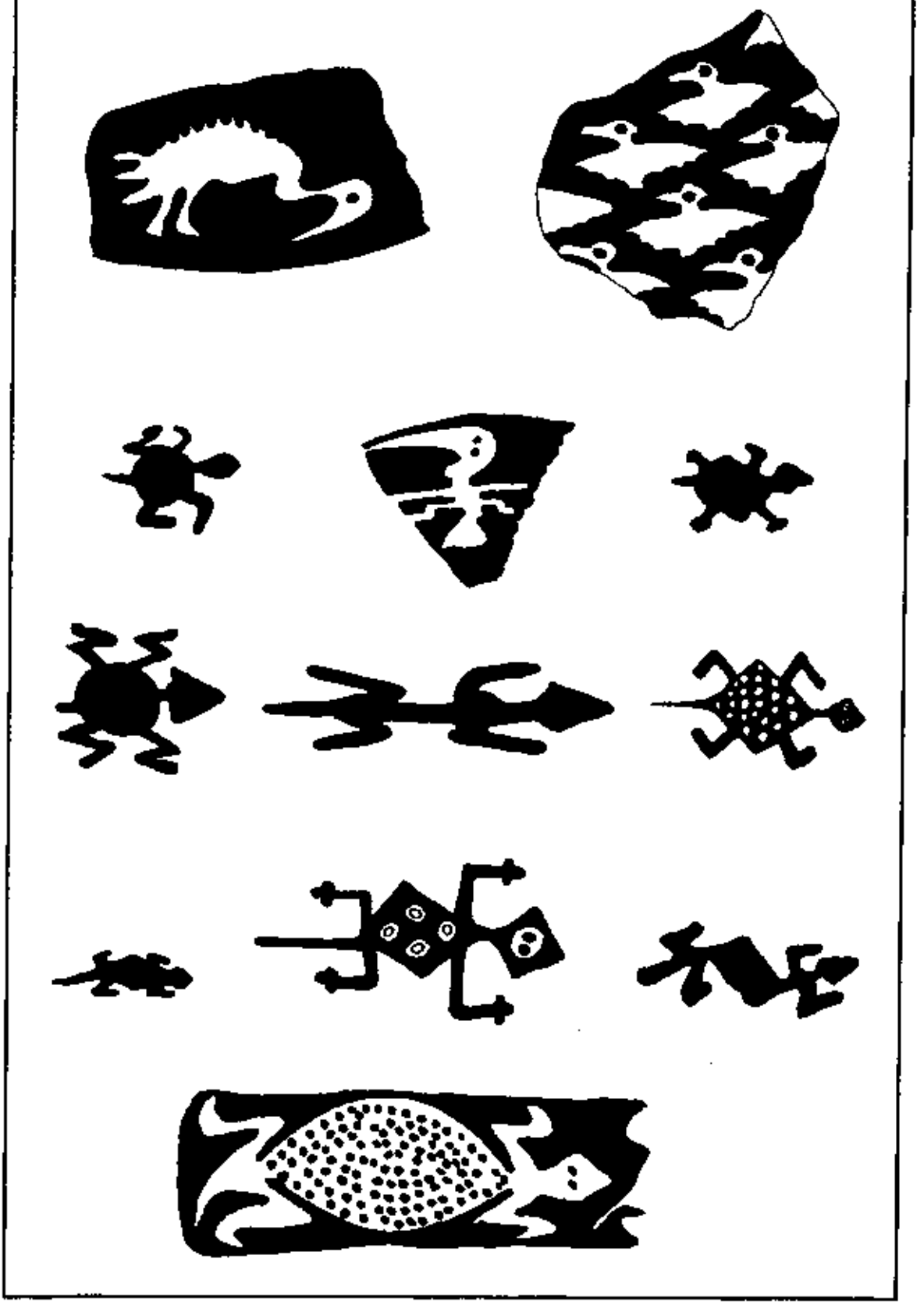


PLATE V



PROPOSED MUSEUM EXHIBITS PLAN FOR MONTEZUMA CASTLE

FOREWARD:

The thought of a museum plan for Montezuma Castle National Monument goes back a number of years. As early as September, 1932, Robert Rose, Park Naturalist, Southwestern Monuments, submitted to the Director a Museum Development Plan for Montezuma Castle National Monument. Three years later there appeared in the Supplement of the Southwestern Monuments Monthly Report for February (1935) a Discussion on a Montezuma Castle Museum by Earl Jackson, Custodian of Bandelier National Monument. With these discussions as a background and with the help of reports which have been written on the archeology of the Verde Valley, I am submitting for criticism an Educational Survey and Proposed Museum Exhibits Plan for Montezuma Castle National Monument.

The exhibit plans given here are not in finished form and imagination will have to be used in some instances to visualize what the completed display will look like. However, there is enough information given on each exhibit to stimulate a final plan to be worked up if these preliminary plans are approved.

This preliminary survey and plan is being sent to the personnel of Southwestern Monuments and others primarily interested in museum plans and in the archeology of the Verde Valley. It is hoped that all criticisms and suggestions will be made and forwarded to this office as soon as possible so that changes can be made in this proposed plan and the whole incorporated into a final draft to be used as working plans for museum development at Montezuma Castle National Monument.

Louis R. Caywood
Jr. Park Naturalist.

Coolidge, Arizona
March 31, 1936.

GENERAL EDUCATIONAL SURVEY

LOCATION AND ACCESSIBILITY:

Montezuma Castle National Monument is located in Yavapai County in the Verde Valley of central Arizona near the famous Jerome-Clarkdale mining district. It is reached by excellent major and minor highways. Going north from Phoenix one passes through Prescott, then over State Highway 79 through the mining towns of Jerome and Clarkdale reaching Montezuma Castle National Monument after a total of approximately 175 miles. From Flagstaff, which is on U. S. Highway 66, one travels by way of colorful Oak Creek Canyon, a distance of about 75 miles to the monument. There are other routes over less improved roads which visitors often take in the summer months when on camping trips or extended outings. One of these is either from Globe or Phoenix via Roosevelt Dam and the huge Tonto Natural Bridge near the small town of Pine and on to the monument.

ANNUAL TRAVEL:

The monument attracts year around travel and has averaged more than 14,000 visitors for the past three years. The heavy season is from June to September with an average of 1800 per month. During the remainder of the year registration is usually between 1000 and 1200 per month. Out of state travel runs well over 50% of the total. Length of time spent at the monument varies from one hour to three or four hours. With better educational facilities for interpretation this time should uniformly increase.

VISITOR CONTACTS AND EDUCATIONAL FACILITIES:

The study of visitor contacts made during 1935 shows that more than 30,000 contacts were made for the year ending December 31. With such a number of contacts it is necessary to maintain high standards for the entire year and under existing facilities this is not possible. The present so-called museum is only one small room used to house a portion of the display collection of artifacts for educational purposes. Open shelves, poor cases and bad lighting do not enhance the specimens on display.

EDUCATIONAL FEATURES:

Montezuma Castle National Monument, primarily archeological, is noted for the excellent example of prehistoric cliff-dwelling built in a cavity of the limestone cliff of Beaver Creek. C.W.A. excavations uncovered interesting house remains of both the cliff-dwelling and cavate types about 100 yards southwest of Montezuma Castle. One structure was called Castle A during the excavation work which was done on it. These newly uncovered house remains, the Montezuma Castle and a number of small cliff dwellings make up the main archeological features of the monument.

Other features of interest are the geology, the history, the ethnology and the flora and fauna of the region.

Geological features of the valley bring out the fact that what is now a fertile valley at one time was an enormous lake. The limestone stratum covering the valley floor was formed by deposits of sediments in a lake which finally found an outlet where the Verde River now runs south through narrow canyons to merge with the Salt River.

History, too, could be employed to make a fitting display at this monument. Espejo seems to have passed through a portion of the Verde Valley to look at some mines north and east of the present site of Prescott early in the year 1583. In 1598 two members of Onate's expedition, Farfan and Quesada, probably visited the same locality from the Tusayan region. Again in 1604 Onate and party passed through this country in search of gold and silver mines. American conquests began as early as 1836, but the main influx of pioneers did not come until 1860 when silver and gold mines discovered near Prescott drew large numbers of early settlers. Camp Verde, or Fort Verde as it was sometimes called, was first established in the spring of 1864 and was known as Camp Lincoln. It was moved five miles south, or to the present location in 1866, and named Camp Verde. It was abandoned as a military post in 1891. Indian conflicts and contacts were so numerous during this period that it might be well to work in the history and the ethnology of the region as a complete exhibit. The ethnology of both the Yavapai and Apache Indians, but especially the Yavapai, could be well worked in at this point.

A fitting exhibit portraying the flora and fauna of the region might well be put into the museum plan at this time to be worked out at a later date.

TRAILSIDE EXHIBITS:

A trailside exhibit of a model of the Montezuma Castle constructed to detail should be placed below the ruins for those who cannot climb the ladders to the ruin. This suggestion has been made several times before and should seriously be considered at this time. Of the total number who visit Montezuma Castle, only three-fifths climb the ladders and enter the ruin.

The model should be so made that it can be easily taken apart, that is, the front walls and the roofs hinged or set in slots so that they may be easily opened or removed to show the interior features of the rooms in addition to the exterior features. The model should be constructed at Montezuma Castle so the person doing the work will have access to the original at all times.

MUSEUM DEVELOPMENT PLAN

LOCATION OF BUILDINGS:

The location of the proposed museum building will be where the present parking area and ranger residence now are. Visitors will park their cars, register at the museum building and then conducted over a woodland nature trail to the area below Montezuma Castle and to the west of Montezuma Castle where additional cliff dwellings and some cavate dwellings are to be seen.

PURPOSE:

The Museum and Administration Building Unit should provide space for the following:

1. A lobby where visitors will register and assemble for ruins trips.
2. Offices for the custodian, ranger and visiting personnel.
3. Rooms for exhibits to portray the educational features of the region.
4. Storage and preparation rooms.
5. Library.
6. Rest rooms.
7. Basement for heating unit.
8. Dark room (in basement).

ARCHITECTURAL FEATURES:

The Pueblo style of architecture adopted according to Verde Valley prehistoric pueblos should be used for this unit.

Windowless museum rooms should be built, and the deep, electric lighted cases similar to those adopted for the Bandelier Museum with the movable backs should be used for best results.

Indirect ventilation should be provided with a hook-up to the heating unit for the intake so that in summer the same pipes may be used for conducting fresh air to the rooms, as were used in the winter for warm air. Outlets should be provided in the tops of the walls above the cases. No light should be able to pass through these outlets. Wide interior and exterior doors are necessary for proper movement of cases and material to insure mobility and the least possible damage to specimens. Door openings should have 40" clearance.

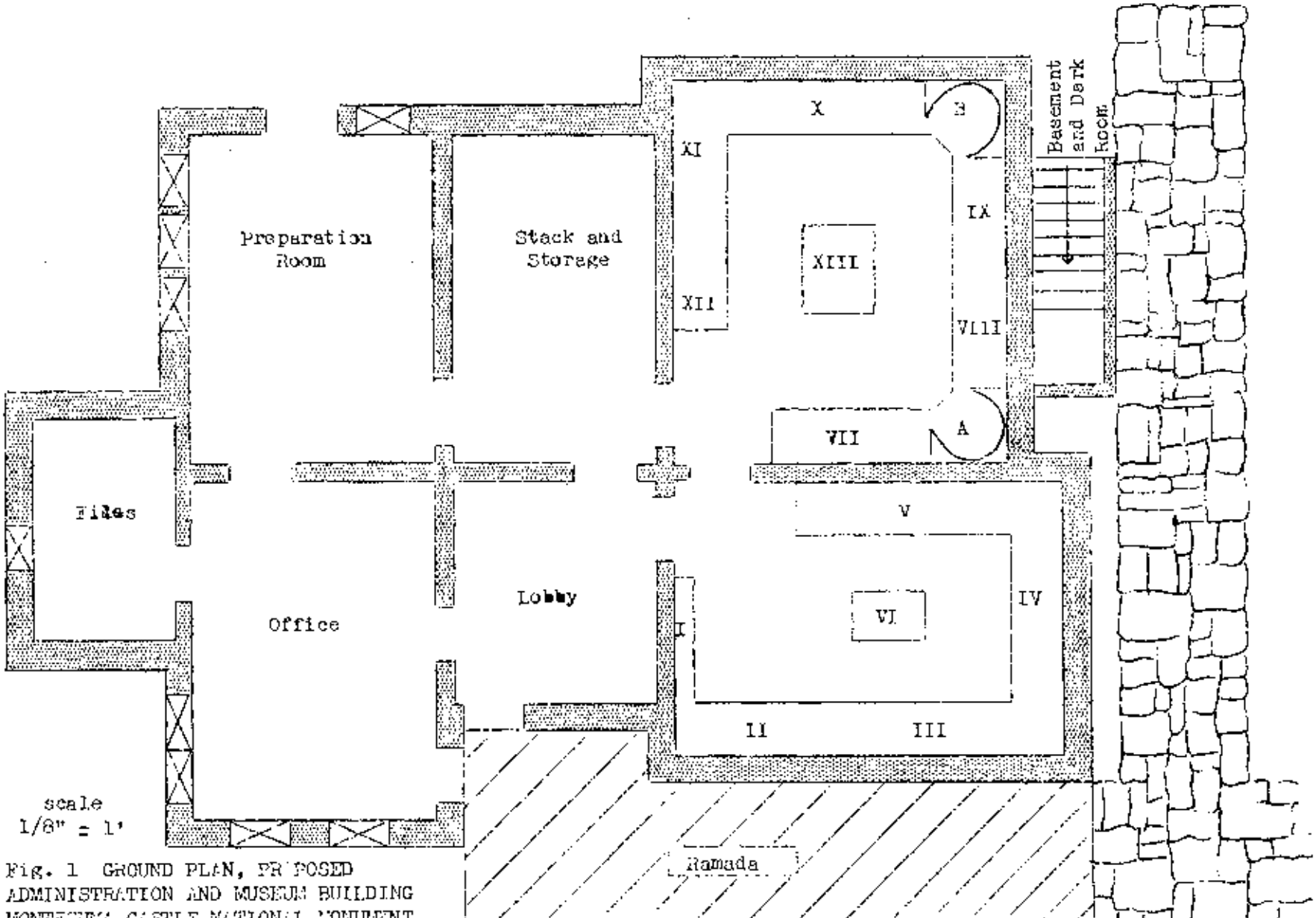


Fig. 1 GROUND PLAN, PROPOSED ADMINISTRATION AND MUSEUM BUILDING MONTEZUMA CASTLE NATIONAL MONUMENT

PRELIMINARY DISCUSSION

"Montezuma Castle" is a misnomer. It is not a castle in the sense of being the home or habitation of a single owner, but was a communally owned apartment house. Montezuma, the ruler of the Aztecs of Mexico City and vicinity, probably never knew that this structure existed.

The archeology of Montezuma Castle should be concerned primarily with the archeology of the Verde Valley in the vicinity of Montezuma Castle and with prehistoric culture groups bordering this region. To obtain a clear conception of what might have taken place in prehistoric times it is best briefly to outline the geography of the Verde Valley and show its influence on the peoples who chose to make their homes in this locality.

The Verde River heads in the region of Prescott, Arizona, and to the northeast of Prescott. Granite Creek and Chino Creek converge into what is called the Upper Verde. By the time the stream reaches the region known as the Middle Verde, in the valley where we find Montezuma Castle, its waters have been added to by a number of streams flowing from the north, some of which head in the region around the San Francisco Peaks north of Flagstaff, Arizona. Other streams flowing from the north (no flowing streams enter the Verde River from the south) come down canyons that have cut through the Mogollon Rim. The main streams from the north, that add water to the Verde, in the order that they join are Sycamore Canyon, Oak Creek and Beaver Creek on which Montezuma Castle is located. From the broad fertile valley of the Middle Verde the river flows through a narrow canyon, which it has cut to drain an immense lake which covered the entire Middle Verde Valley during past geologic time, according to geologists. The Lower Verde is the region from this narrow canyon to the confluence of the Verde River with the Salt River.

The valleys of the Verde River were once densely peopled with aboriginal tribes and the period of evident occupation covers several years or longer, according to information produced by excavations. Mountain and Plateau areas close around the Middle Verde Valley make access difficult from every side except through the canyons entering the valley. Beyond these mountain ranges and plateaus lie other culture areas where groups of prehistoric peoples once lived, and it is the interrelation between these groups and the peoples who lived in the Verde Valley which makes the archeology of Montezuma Castle so interesting.

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PROPOSED EXHIBITS

A museum plan and discussion for Montezuma Castle National Monument includes the following parts, arranged in their relative importance:

1. Archeology
2. Ethnology and History
3. Geology
4. Flora and Fauna

ARCHEOLOGY

Exhibit I. - Map case one foot deep.

A. Map of North America (Plate I) showing archeological culture areas in outline. The Southwest will be shown as a shaded area by colored hatching.

B. Map of Arizona (Plate I) showing topography, roads, towns, important ruins and National Monuments and Park areas.

Exhibit II. - Wall case three feet deep.

This exhibit will serve as an introduction to the type of people living in the Verde Valley during the time Montezuma Castle was built and inhabited.

The most common questions asked by visitors will be answered in a chart hung at eye level. The answers will be as concise as possible. Below this chart will be examples of the clothing worn by the prehistoric Indians. A number of good specimens are already in possession of the Park Service at the present Montezuma Castle Museum, and no doubt, others will be obtainable from local collec-

8'

ARCHEOLOGICAL AREAS OF NORTH AMERICA

RUINS IN ARIZONA

ARIZONA

EXHIBIT I

PLATE I

SOUTHWESTERN MONUMENTS 558 SUPPLEMENT TO MARCH, 1938

tions in the Verde Valley as a great deal of such material is available.

A drawing or water color similar to those made for the Aztec Ruins National Monument Museum, will show a prehistoric man and woman in typical dress. Below this will be a bust of a Pueblo Indian with a headdress resembling an example found in Hidden House in Sycamore Canyon in the Verde Valley. This headdress is now on display at the Arizona State Museum, University of Arizona, Tucson, Arizona. For other examples of this type of headdress see Hodge, Handbook of American Indians North of Mexico, B A E Bulletin 110, Plate 27. This headdress may have been typical of some of the older men of the pueblos.

A panel of Exhibit II will be devoted to the Physical Anthropology of the prehistoric Pueblo Indians of the Verde Valley. A great deal of material in excellent condition is available for this display. At Montezuma Well burials are uncovered from which human bones in good state of preservation are taken and no doubt enough of these would be given to supplement what are already on hand at Montezuma Castle.

At the top of the panel will be a chart showing the comparative stature between these people and other prehistoric inhabitants of the Southwest, also modern American Indians and Asiatics as tabulated by Hooton and others. Below the stature chart will be displayed bones uncovered during excavations in the Verde Valley. Two pelves, one male and the other female, will prove interesting to a great many visitors. Long bones also, to show size and, if possible, pathology so that visitors will realize that we today have almost the identical diseases that these early people had.

The last section of the display will be three skulls arranged in the various positions, ; i.e., norma frontalis, norma lateralis and norma basilaris. These to be placed on small upright stands. One of these, preferably the norma frontalis, will show the green facial bones and mandible, so commonly found in burials in this region. Undoubtedly before burial the face was painted with copper oxide and penetration into the facial bones took place during decomposition of the flesh.

Exhibit III. - Wall case three feet deep.

A. At the right of the case and taking up about one quarter of the first exhibit, will be a panel containing a History Chart of the Verde Valley with a copy of an old print of Montezuma Castle above and a copy of an old map of the Verde Valley below. These two copies can be made from prints in an article by Dr. E. A. Mearns entitled, Ancient Dwellings of the Rio Verde Valley, in the October, 1890, issue of Popular Science Monthly.

The reason for having the History Chart at this particular spot is to act as an introduction to archeological and ethnological

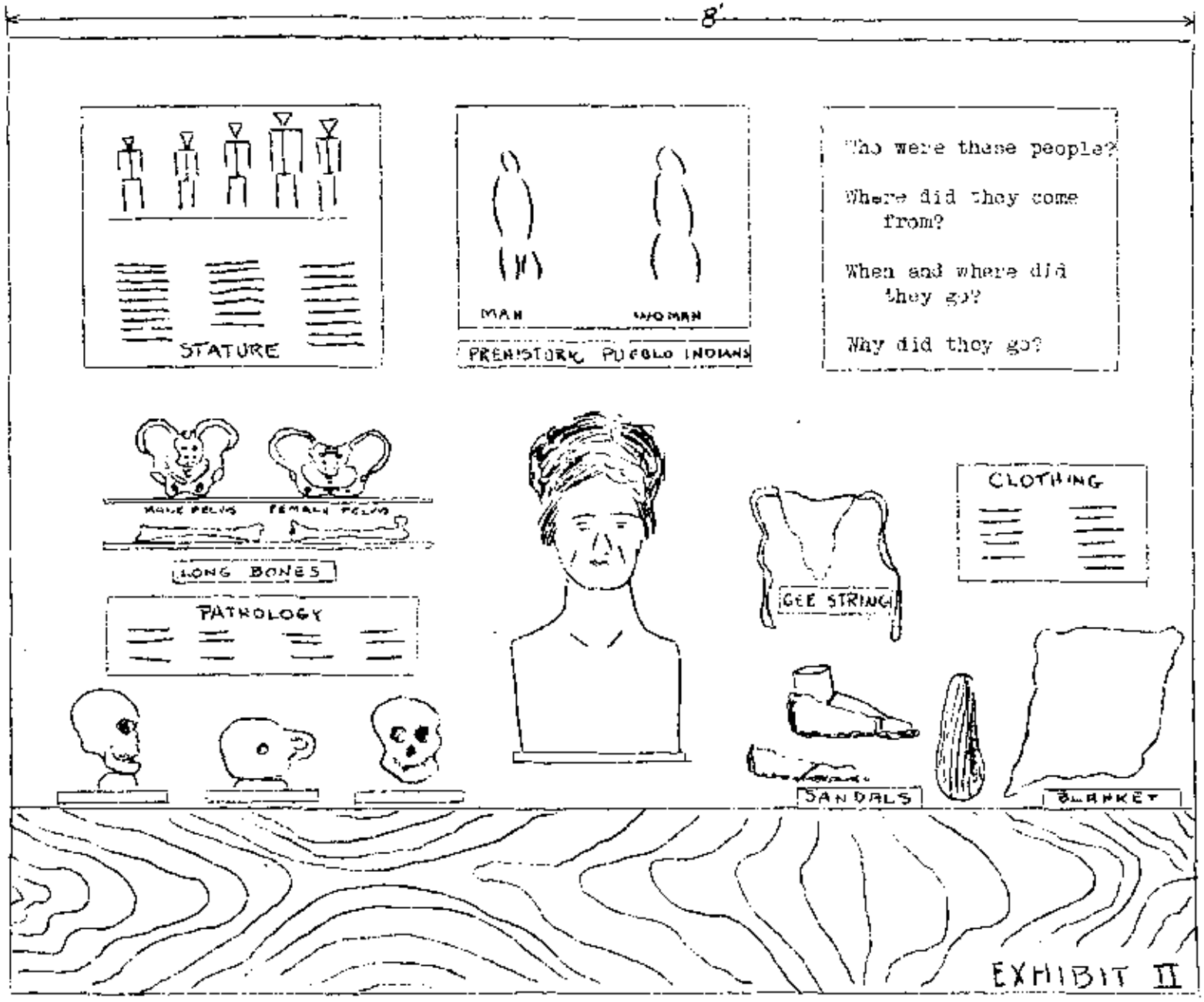

8'
STATURE
MAN
WOMAN
PREHISTORIC PUEBLO INDIANS
Who were these people?
Where did they come from?
When and where did they go?
Why did they go?
MALE PELVIS
FEMALE PELVIS
LONG BONES
PATHOLOGY
CLOTHING
GEE STRING
SANDALS
BLANKET
EXHIBIT II

PLATE II

PLATE III

EXHIBIT III
Early photo of Montezuma Castle
HISTORY CHART
1300
1700
1600
Copy Early Map Verde Valley
STRATIGRAPHY CONTROL LABEL
Chart 1
Chart 2
Chart 3
Chart 4
10'
pithouse
sterile earth
artifacts
plaster
section

investigation. It will contain information pertaining to the first Europeans who came into the valley, why they came and what they found. As the chart goes from the earliest to the latest, reading from bottom to top, it will be much like the stratigraphy chart which follows. It will also give complete information on archeological surveys and excavations, and will be the introduction to the results of archeological work which will be shown in succeeding exhibits.

B. The second section of Exhibit III, will be a stratigraphy similar to the one at Aztec Ruins National Monument but in addition to stratigraphy will tell why tree rings are not important in dating ruins in this region, and will show how ruins are relatively dated by sherds. House types will also be mentioned in the labels explaining the stratigraphy. Approximate dates of occupation in the valley will also be given. For details see Figures, 2, 3, 4 and 5.

DETAILS OF EXHIBIT III

Stratigraphy Control Label:

Stratigraphy, or the study of deposits of trash, has been most important in the working out of the development of peoples. It can be done today by going out to the city dump grounds and studying the deposits of trash. If the city is reasonably old and the earliest part of the dump is found and dug into, all kinds of queer articles of the gay 90's would probably come to light. There would be wagon parts, the remains of bustles, corset stays, etc.

The trash of the early 20th century was dumped on top of the things just mentioned and here among the ashes and dirt would be found parts of early automobiles, etc. Trash of the 1920's would be on top of this and so on until the trash of yesterday would be the last deposit.

Trash mounds of the prehistoric Indians are even better than those of today because the people usually threw their rubbish outside their front doors. When the house was finally abandoned or burned down, it fell into ruins and a new house was built on top of the remains of the old and its rubbish pile. In this manner deposits or accumulations resulted, sometimes to considerable depths, and if carefully excavated a true picture of the development of the people who lived there can be worked out. Such an excavation is called a stratigraphic study. The section below is an idealized cut through an old ruin and should be read from the bottom to the top to be properly interpreted.

Chart 1:

In the lowest stratum (Greek meaning layer) there is found a pit and the plastered walls of a pithouse (see drawing), the earliest house

type of these people when they passed from the stage of wandering hunters to that of a sedentary agricultural-hunting life. On the floor of this crude house there is found charred corn and several pottery fragments (sherds) showing that they were farmers and made pottery vessels.

Charcoal is found in large quantities on the floor. This may mean that the house was fired or caught fire and abandoned. The charcoal cannot be dated by the Douglass Method of Tree Ring Dating because the original wood was sycamore, cottonwood and juniper---none of which can be dated. Only pin, Douglas fir and pinyon can be dated. No ruin in the Verde Valley has been dated except Tuzigoot because of the lack of datable material.

The dates generally given for this early period when people were living in pithouses is before 900 A.D.

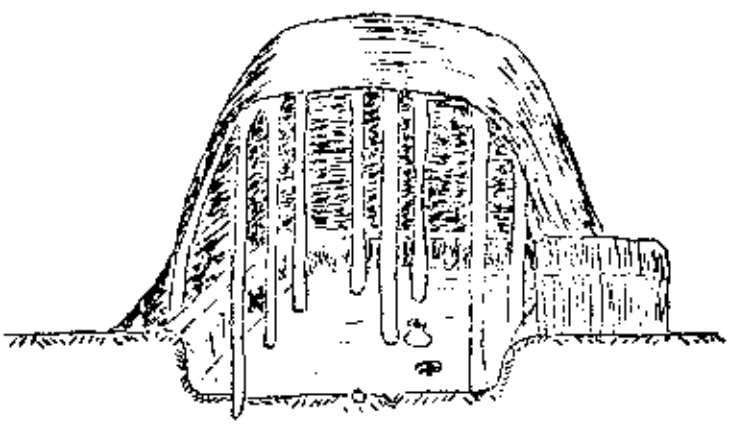


FIGURE 2----PIT HOUSE

EARLIEST TYPE OF DWELLING FOUND IN THE VERDE VALLEY

Chart 2:

In the next layer of debris there are found sherds which are different from the sherds found on the pithouse floor. Although no house remains are shown it is know from other locations that the house was a crude building of only one or two rooms built on the ground level (see drawing). The association between sherds and house types is a very common method of determining the relative age of prehistoric ruins in the Southwest. In the region around Flagstaff, Arizona, where yellow pine grows and was used for building purposes in a house type which gave a certain date there was found on the floor of the old house a

certain kind pottery. In a ruin in the Verde Valley which cannot be dated from the old charred beams the same kind of pottery was found; so it is believed that the pottery, which is identical, was made at the same time and a relative date is given to the Verde Valley house type. The approximate dates for this period would be between 900 and 1150 A.D.

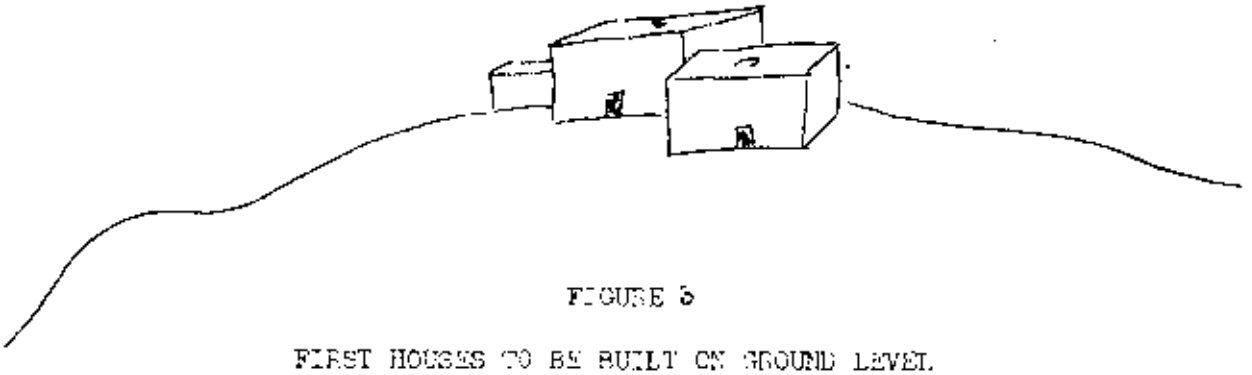


FIGURE 5

FIRST HOUSES TO BE BUILT ON GROUND LEVEL
THE BEGINNING OF THE HUGE PUEBLOS OF LATER TIMES

Chart 3:

In the third stratum from the bottom there is more evidence of human occupation than before in the form of more sherds, more ashes from their fires and more bone tools and bone splinters. A much larger population might have existed here at that time.

The evidence of walls are plainly shown, and are made of rough and irregular rocks. At this time the houses were built in pueblos of many rooms or in multi-storied cliff-dwellings.

The people at this state of development had reached a rather high degree of civilization, comparatively speaking, but still there is no evidence of a definite religious structure, such as a kiva, found in the Verde Valley. Further to the north are found many kivas in villages and further to the south in the Hohokam country no kivas are found. In the Verde Valley midway between the areas with and without kivas there are none found. Does this point to the fact that the people were from the south?

The relative dates for this period are between 1050 and 1300 A.D.

PHOTOGRAPH OF MONTEZUMA CASTLE

Chart 4:

In the top stratum are found as much or more evidence of occupation as in the previous stratum. There is a marked change in pottery type. A new yellow ware with brown decoration (Jeddito Black-on-yellow) is found which has its origin to the north and east in the Jeddito Valley. This was the first indication that led archeologists to believe such pottery was traded in rather than made here. Now it is quite generally believed that almost all of the decorated pottery found at Montezuma Castle and Tuzigoot was trade ware.

This last period dates after 1300 A.D. How long the people lived in the region after that time is not known. All of the large pueblos and cliff-dwellings were occupied during this period.

PHOTOGRAPH OF TUZIGOOT

Exhibit IV

A. Pottery Chronology.

A pottery chronology for the Verde Valley will be made up from data gathered at Montezuma Castle National Monument during the C. W. A. excavation and research, from Tuzigoot and from the studies of pottery of northern Arizona by the Museum of Northern Arizona. Typical sherds are to be used in the chronology and if

FLAGSTAFF
Little Colorado River
MONTEZUMA CASTLE
NATIONAL MONUMENT
Verde River
PRESCOTT
NORTH CENTRAL
ARIZONA
PHOENIX
Salt River
POTTERY CHRONOLOGY
P IV
P III
P II
P I
BM III
NAME
EXHIBIT IV

PLATE IV

possible photographs of type vessels will be used. On the right of the chronology will be a relative age sequence made up according to the best knowledge that we now have.

B. Map of north central Arizona.

On this map will be shown the culture groups of the area under consideration. These groups will be shown in colored shaded areas with any overlapping that we know exists. The map will show all topographic features and ruins of the Verde Valley and surrounding regions. Also possible trade routes will be shown in dotted lines on the map. As there is a salt mine in the valley near Camp Verde which we know was used by the prehistoric Indians we are almost positive that this commodity was used in barter. Also due to climatic conditions it was possible to raise cotton in the Verde Valley and because of the abundance of textiles we think that cotton and cotton goods were used for barter. In turn we find that most of the pottery found in the region is trade ware; so no doubt these peoples used their natural resources and products to trade for objects from other regions. All of these points will be brought out in the exhibit.

EXHIBIT V. - Wall case.

Hunting in the Verde Valley

From the number of animal and bird bones found in the debris and in the room fills during excavation, there must have been a great deal of hunting activity among the Verde Valley pueblos.

Two hunting scenes, one showing the pueblo men hunting deer, and the other portraying them hunting ducks on the river, will be used as top pieces for the case. The deer scene will show the colorful redrock country to the north of the Verde River. The other will be a typical Verde River scene with the river bordered by tall reeds, which grew there in prehistoric times. These reeds are now almost extinct, but at that time were very plentiful and were the thatch used in roofing the rooms.

Below these two large pictures, will be pen and ink drawings of some of the animals and birds which were hunted and used for food and for other purposes. Below each picture will be the bone from which identification was made.

Below these pictures of birds and animals will be labels telling; (1) what the Verde Valley must have been like when inhabited by the Indians, (2) the uses made of the animals and birds - food, clothing, ornaments and utility, (3) why the Verde Valley is barren today. In the second chart, reference will be made to the fact that no turkey bones have been found in the Verde Valley.

HUNTING DEER IN THE RED ROCKS

HUNTING DUCK ON THE VERDE RIVER

BEAR | BADGER | BEAVER | DEER | RACCOON | MALLARD | MACAW | GOOSE | WOOD IBIS

THE VERDE VALLEY IN PREHISTORIC TIMES

USES OF ANIMALS AND BIRDS

WHY THE VERDE VALLEY IS BARREN TODAY

8'

EXHIBIT V

PLATE V

A second section of about four feet of case space will show weapons used for hunting in prehistoric times.

Exhibit VI. - Center Case.

Bone and Stone Tools and Technology.

This exhibit will show representative types of bone tools, and the bones they were made from with accompanying explanation telling how they were made.

Representative stone tools will also be shown and an explanation given on how they are made and from what material.

In the text on the labels, comparisons will be made between bone and stone implements of adjoining culture areas.

Exhibit VII. - Wall Case.

Farming in the Verde Valley:

For intensive farming on small plots, no doubt as great a population could have subsisted per total area in the Verde Valley as in any other section of the Southwest. This is further borne out by the great number of large pueblos bordering the Verde River.

Irrigation must have been employed, but not in such tremendous projects as the Hohokam employed in the Salt and Gila valleys to the south. There is evidence of a small irrigation canal leading from Montezuma Well toward Montezuma Castle. Water could have been brought out of the Verde River by the use of dikes and ditches, which have long since disappeared.

The agricultural products raised here were as numberous as those raised by the Hohokam. Cotton must have been an important crop in addition to the food staples, corn, beans and squash.

The exhibit on farming will bring out the points mentioned above in a large label. There will be enlarged photographs of the old canal near Montezuma Well and of Montezuma Well itself.

Examples of prehistoric foods will be shown in jars at the bottom of the case.

Prehistoric farming implements will complete the exhibit. The axe, planting stick, hoe and spade, were the most important tools used in clearing and cultivating the land.

Following Exhibit VII will be a diorama (A), showing a typical farming scene in the Verde Valley.

PLATE VI

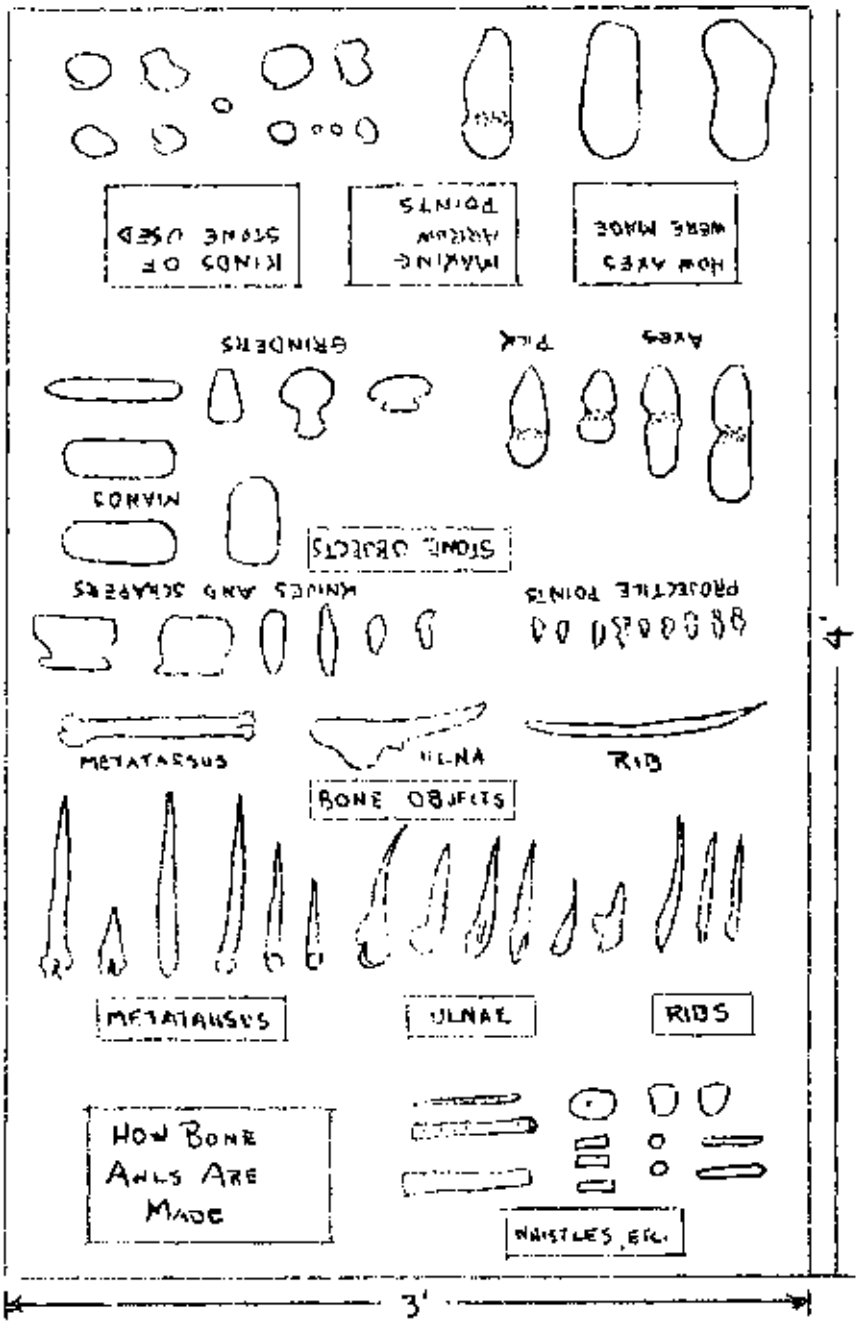


EXHIBIT VI — CENTER CASE

DITCH
DIKE
Modern Irrigation on the Verde
Farming in the Verde Valley
MONTEZUMA WELL
Axe Used in Clearing Land
HOE
Planting Stick
Spade.
FOODS
CORN
BEANS
BEANS
SQUASH
OLD CANAL
EXHIBIT VII

PLATE VII

PLATE VIII

Salt Mining
Salt Mine
Map of Turquoise and Salt Mines in Southwest
Turquoise Mining
Turquoise Mine
Pointed Pick from Verde Mine
Turquoise Jewelry
Juniper Bark Torch from Salt Mine
Salt
Turquoise
EXHIBIT IX
6½'
Cotton Bales and Fibre
Cloth Twilled Weave
Matting - Twilled
Apocynum
Cotton Cloth
Twilled Mat
Yucca Leaves and Fiber
Coiled Weave
Basket
Carrying Basket
Water Basket
Meal Basket
EXHIBIT VIII
6½'

Exhibit VIII. - Wall Case.

Textiles:

The textile display will be made up of specimens of basketry, matting and cloth found in ruins in the Verde Valley.

To supplement and explain these specimens, there will be drawings mounted in the back of the case to show the methods of weaving employed in the various textiles on display.

The raw materials used in making textiles will be shown and the methods of preparing these materials will be explained. Cotton was the most important fibre used, but yucca and apocynum were also used in the making of textiles.

Exhibit IX. - Wall Case.

Prehistoric Mining:

In the past it was erroneously thought, especially by the early Spanish Conquistadores, that the Indians of the Southwest and their ancestors, the prehistoric inhabitants had mined precious metals. This thought led to the organization of marvellously equipped expeditions to the Southwest. Coronado was the first to lose his fortune, and return a broken but wiser man. In all his wanderings, even to Gran Quivira in what is now the state of Kansas, not an ounce of precious metals did he find.

Turquoise was a common form of jewelry among the Indians and was mined by them in various places, but this did not interest the gold greedy Spanish whose retrospect was on the gold of the Incas.

Today, many of the uninformed who visit ruins cannot be convinced even by strong arguments that there are not treasures of precious metals still buried beneath the floors or in the walls of the ruins.

This exhibit will certain a large map of the Southwest, showing all turquoise and salt mines that are known to have been used by the prehistoric Indians. There will be labels on both salt and turquoise mining and photographs of both mines. A picture of the present salt mine at Camp Verde, which was originally used by the Indians will also be shown.

Below the maps, photographs and labels, will be implements used in the mining of salt and turquoise.

Picks used in salt mining are numerous in the Verde Valley and will be part of the display. If possible, one hafted example

PLATE IX

BASKETRY
PIONEER HISTORY
YAVAPAI ETHNOLOGY
YAVAPAI
CAMP VERDE
WICKIUP
EXHIBIT X

will be obtained or made up for exhibition purposes. A juniper bark torch will be made to show what was used for lighting purposes while working in the mine.

Specimens of salt from the salt mine and raw turquoise from a turquoise mine will be on a small stand at the bottom of the case. Above these, will be examples of prehistoric jewelry; necklaces, inlay work, pendants, etc.

Following Exhibit IX will be Diorama B - depicting a mining scene in the Camp Verde salt mine during prehistoric times. Several Indians will be at work with one holding a torch for the others to work by.

Exhibit X. - Ethnology and History:

A. Ethnology in the Verde Valley is limited to the Yavapai who are a Yuman speaking tribe. Culturally, they seem to resemble closely the Apache.

As the Yavapai are limited to the region of north central Arizona with only a few groups of importance today, and these mainly in the Verde Valley, it is most important to have a complete exhibit on the ethnology of these people at Montezuma Castle National Monument.

Yavapai baskets are considered among the best of the various kinds of baskets made by Indian tribes of the Southwest. As good a collection as can be obtained will be shown with any other objects of interest.

A model of a Yavapai wickiup will be made for this exhibit.

Labels telling of Yavapai life and customs will be printed and placed on the back panel of the case. Photographs of Yavapai Indians in old dress, if obtainable, will be shown.

B. Following the ethnology exhibit, but part of the same case will be a brief sketch of the first American settlements in the Verde Valley, and the difficulties that existed between the Indians and Americans when Camp Verde was established.

Such information can still be obtained from old-timers in the region, from the Indian Agent at Camp Verde and from the Arizona Historical Museum at Prescott, Arizona.

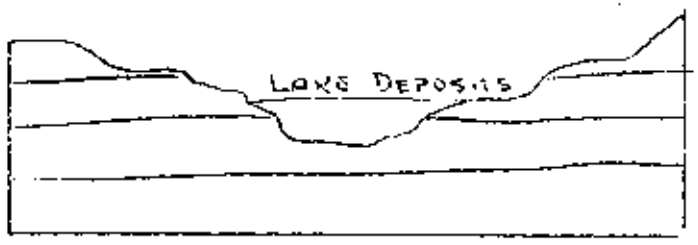
THE ORIGIN OF THE LIMESTONE CLIFFS

PHOTO OF BEAVER CREEK; WHITE CLIFFS AND CASTLE

LABEL

PHOTO OF SALT MINE

LABEL



GEOLOGIC CROSS-SECTION

LAVA NOTCH VERDE RIVER

MAP OF BEAVER CREEK REGION SHOWING EXTENT OF ANCIENT LAKE

COLORED AREA COVERED BY LAKE

MONTEZUMA WELL

BEAVER CREEK MERIDIAN

REDWALL LIMESTONE PHOTO

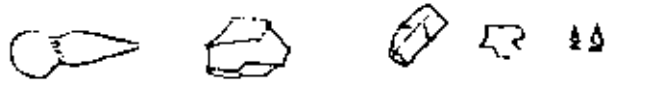
ROCKS OF THE MONTEZUMA REGION

VERDE LIMESTONE

REDWALL LIMESTONE

LAVA FROM GRAY

SUPAI FORMATION



ROCKS USED IN MAKING STONE TOOLS

PLATE X

EXHIBIT XI

Exhibit VII.

Although Montezuma Castle is not a geologic monument there is a great deal which should be told of the geology of the Verde Valley.

During tertiary times or before a neck of lava dammed the lower end of the valley and made a huge lake out of what is now the Verde Valley. Thick deposits of limestone were deposited in tertiary times. There limestones were laid down over redwall limestone.

The lake outlet finally cut through the lava which dammed it and the lake was drained. Since the time of draining the stream (Verde River) has cut down through the Verde limestone some 80 - 100 feet.

Exhibit XII. - Wall Case.

Flora and Fauna

The contents of this case is problematical at present, and could only be made up after a thorough investigation of the region around Montezuma Castle is made.

Exhibit XIII. - Center Case.

This will be a relief model of the Verde Valley, made according to scale and painted to resemble the rock formations of the valley; i.e., the Redrock country red, the Verde Valley limestone a pinkish buff, the porphory of the Black Mountain a dull red, etc.

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SCENIC S. UTAH

A recent radio talk by Zeke Johnson

Friends:-

When it's spring time in the Rockies, and the birds begin to sing, men's hearts year for the wide out-of-doors, for the mountain ranges and the canyons, for the beautiful parks and monuments. Just to rest! to look! and listen.

Then the thought comes, where shall we go?

Let me tell the Radio Audience, that I have a trip in mind, that will please both old and young. Let's leave Salt Lake and start for San Juan County, Utah, a distance of 325 miles, the land of charm and beauty, take highway #50 via Price, Greenriver to within three miles of

Thompson Springs, then turn due south on highway #47, where you will cross the Colorado River at Moab. Here you will see the high red ledges in all their splendor, towering some 1,500 feet above the level of the valley. You will also see where the Silvery Colorado enters the Box Canyons never to come out again til it has flowed through Cataract, Glen, Marble, and the Ground Canyons, to be impounded in the lake at the great Boulder Dam.

Then you look to the east and see the grand La Sall Mountain with its peaks towering high above timber line, the second highest mountain in the state. Sixty-five miles brings you to the town of Monticello. On the way you pass by the Looking Glass Rock, and just to the left you see a beautiful arch. You will be amazed at the coloring in the ledges. Twenty-five miles southwest from Monticello, under the south rim of the Blue Mountain, you arrive at Blanding.

At this point ask for Zeke Johnson, Custodian of Natural Bridges. If he is not in town, he will be at the Monument. Any of the attendants at service stations or stores will direct you, and tell you to fill your tanks with gas. Then go west over a 50-mile dirt mountain road not too good, not too bad; - just a crooked slow road but you won't mind the two and a half hours it takes to get to the Bridges, as you will be immensely interested in every mile.

The first 23 miles are through a forest of Pinyon Pine and Juniper, crossing West Water Canyon, Brushy Basin and Cottonwood. After you begin to ascend the Elk Mountain, and you see the sign, "Goblet of Venice," be sure and walk the 300 yards, and see the most beautiful specimen of wind erosion ever seen by man. Just a big red rose standing 13 feet high (five tones of rock are estimated in it) and standing on a 16-inch base. You will need your cameras and plenty of films. Five miles farther puts you up into a beautiful forest of yellow Pine and Aspen. You will be thrilled every moment as you ride through this wonderful grove of trees that almost tower to the sky, and at an altitude of eight to nine thousand feet.

Through this beautiful forest at the left you will look into arch canyon. Just stop and walk 25 yards, have your field glasses ready to look out at the four corners of Utah, Colorado, New Mexico and Arizona and see as far as the eye can reach into all four states. Then drive on and as you approach the highest divide between the Bears Ears, stop and look at the great panorama before you, to south, east and west, many mountains and beautiful Monument Valley in the distance. Fifteen miles down the mountain and through a forest of Pinyon and Juniper brings you to the Great Natural Bridges.

The Owanchomo (Rock Mount Bridge), so called from the conical rock mound on it, is probably the oldest, for it has been carved and chiseled by erosion until its span is comparatively a narrow strip of rock. Viewed

at a distance, one is surprised that it supports its own weight. It is the smallest of the three bridges, and yet it has a span of 200 feet, being 35 feet wide on top but only 10 feet thick in the center. It rises 108 feet above the stream bed of a short, unnamed canyon at its confluence with Armstrong Canyon. This is locally known as the Edwin Bridge.

Three miles down Armstrong Canyon, at its junction with White Canyon, the Kachina or, as it is better known, Caroline Bridge, is reached. A symbol carved on this bridge recognized as that of the Kachina, the sacred dancers of the Hopi Indians, gives it its name. This is the most massive of the bridges. Rough hewn, it gives an impression of great weight and strength. The huge fragments of rocks and piles of sand and gravel in the canyon in the immediate vicinity are in harmony with the bridge, as if the master workman, not yet having finished his work, had not thought it necessary to clear away the debris. This bridge has a span of 186 feet, a width of 49 feet, and a thickness of 107 feet at its smallest part. It rises to a height of 205 feet above the stream bed.

About 2½ miles above the Kachina in White Canyon is the Sipapu, the Portal of Life. All Pueblo Indians believe they come into this world from a lower world through a hole or opening, called by the Hopi "Sipapu." After death, they return through the opening to the lower world, where they remain a period before going to the sky to become "Rain Gods." The Sipapu, or as it is also know, Augusta Bridge, is the largest. It has a span of 261 feet, is 40 feet wide, and 65 feet thick at its smallest part, and rises to a height of 222 feet above the stream bed. It has been so carved and smoothed and is so beautifully proportioned that it is difficult to realize its great size. Nature has carried out the general scheme by providing a more beautiful setting than in the case of the other two bridges.

There are numerous ruins of cliff dwellings in the vicinity of the bridges perched in the canyon walls in almost inaccessible places.

The natural bridges are the result of stream erosion in an elevated region. Doubtless hundreds of similar bridges have been formed and destroyed in past ages, and many more will be made and later destroyed in the ages to come.

Beds and meals are available at the Custodian's camp at the EDwin Bridge for those who wish to spend additional time in this wonderful region.

South of Blanding are such scenic attractions as Monument Valley, the Goosenecks of the San Juan River, the Navajo reservation, Hope Villages, and a return trip by the way of Lees Ferry Bridge to Bryce and Zion Canyons and Cedar Breaks.

Roads will be open by May 1 this year and I will be looking down the trail ready to welcome you to San Juan County and the Natural Bridges National Monument.

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TABIRA'S WATER SUPPLY

(Ed. Note: In response to several recent allusions to the source of water during ancient days at Tabira, now Gran Quivira National Monument, Clar T. Hagen, acting chief, Western Division of Historic Sites and Buildings, gathered the following quotations which will be of interest to the field.

Mr. Hagen notes "Although descriptions by persons who visited Gran Quivira about a century ago may not provide the correct solutions, their statements contain pertinent suggestions which it seems deserve thorough investigations on the ground.")

"Benjamin David Wilson's Observations on Early Days in California and New Mexico." Edited by Arthur Woodward. Printed in the Annual Publication of the Historical Society of Southern California, Los Angeles, 1934, pages 95-96.

".....I wish to revert to my second Gila expedition, in the winter of 1835 - 6.

"Myself, and expedition, six men all told, once found ourselves absolutely without anything to eat, the only result to us was great weakness. On the evening of the sixth day getting off our mules, we felt so weak that we became very much alarmed about our condition, so I had no other recourse but to shoot my faithful mule, that I had ridden over a thousand miles, it being the only animal that showed any flesh. I feel sorry about that mule yet, the killing of which occurred some forty-two years ago. On our return as before mentioned to intercept the Mission caravan, after crossing the Del Norte, at the head of Jornada, going eastward to the River Pecos, we had the misfortune to find no water till the fifth day at night. On the fourth day, crossing an arid sandy plain leading North to South between the two parallel mountains, we saw to the North of us in the midst of this plain a large building, which encouraged us to believe that our water trouble was at an end; we went to the building and found it to be a large Church. On the northern side of the building saw evidences that there had been on that site a very large town, the Church itself was built of stone, and stood almost in a perfect state of preservation, while all the other buildings had decayed. We spent the whole day looking for water without any success. Just at night I discovered on the eastern side what satisfied me were the remnants of a concrete aqueduct. Camped there that night, next morning endeavored to trace the aqueduct, which led easterly to a mountain range. Spent the whole day in tracing it, to

ascertain which was the gorge it entered, believing we should find water there. Our hopes were gratified, and our terrific sufferings ended. I had already had the experience of six days without food, and five without water, and state that the suffering caused by the former bears no comparison with that of the latter. No living man unless he has had the opportunity of feeling it, or seeing it with his own eyes, could realize how much flesh a man may lose in five days without water. Every joint in our bodies ached, our eyes sunk in our heads as if we had been dead a week, and the bones seemed to be pushing through the skin. After my return to Santa Fe narrated our discovery of that building, and some enthusiastic men went in search of it, they called it the Grand Quivira..."

Mr. Woodward's note 16, page 139.

"This was the famous, almost mythical place, "La Gran Quivira" for which Coronado sought. He found his rainbow end in a grass thatched Wichita village many weary miles out upon the plains, not at all the city of gold he hoped to discover. The name Grand Quivira was applied to this particular ruin many years later. Gregg described this ruin or rather series of ruins located in northeastern Socorro county, New Mexico, on a desolate mesa, one hundred and fifty miles south of Santa Fe. It was probably a pueblo of the Piros Indians, known as Tabira. It was first visited by the Spaniards in 1581. A mission church, the ruins of which Wilson and his party found, was originally built in 1628, a newer and larger church being erected in 1644. The site was abandoned between 1670 and 1675 because of Apache raids. The immediate water supply of the mission was kept in artificial reservoirs, no doubt supplied by the aqueduct mentioned by Wilson. These reservoirs were of course dry when visited by the trapping party, hence their trouble in locating the headwaters which originally flowed through the zanja...."

"Gran Quivira"

Description of Grar Quivira in the period 1831-1839. Extract from Commerce of the Prairies, by Josiah Gregg - New York 1845 - Printed in Reuben Gold Thwaites, Early Western Travels. Cleveland, 1905 - Vol XIX pages 301-302.

".....In every quarter of the territory there are to be seen vestiges of ancient excavations, and in some places, ruins of considerable towns evidently reared for mining purposes.

"Among these ancient ruins the most remarkable are those of La Gran Quivira, about 100 miles southward from Santa Fe. This appears to have been a considerable city, larger and richer by far than the present capital of New Mexico has ever been. Many walls, particularly those of churches still stand erect amid the desolation that surrounds them, as if their sacredness had been a shield against which Time dealt his blows in vain. The style of architecture is altogether superior to anything

at present to be found north of Chihuahua -- being of hewn stone, a building material wholly unused in New Mexico. What is more extraordinary still, is, that there is no water within less than some ten miles of the ruins; yet we find several stone cisterns, and remains of aqueducts eight or ten miles in length, leading from the neighboring mountains, from whence water was no doubt conveyed. And, as there seem to be no indications whatever of the inhabitants' ever having been engaged in agricultural pursuits, what could have induced the rearing of a city (365) in such an arid, woodless plain as this, except the proximity of some valuable mine, it is difficult to imagine. From the peculiar character of the place and the remains of the cisterns still existing, the object of pursuit in this case would seem to have been a "placer," a name applied to mines of gold-dust intermixed with the earth. However, other mines have no doubt been worked in the adjacent mountains, as many spacious pits are found, such as are usually dug in pursuit of ores of silver, etc.; and it is stated that in several places heaps of scoria are still to be seen.

"By some persons these ruins have been supposed to be the remains of an ancient Pueblo or aboriginal city. That is not probable, however, for though the relics of aboriginal temples might possibly be mistaken for those of Catholic churches, yet it is not to be presumed that the Spanish coat of arms would be found sculptured and painted upon their facades, as is the case in more than one instance. The most rational accounts represent this to have been a wealthy Spanish city before the general massacre of 1680, in which calamity the inhabitants perished -- all except one, as the story goes; and that their immense treasures were buried in the ruins. Some credulous adventurers have lately visited the spot in search of these long lost coffers, but as yet none have been found."

See also note 124, page 301.

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APPRECIATION

(Ed. Note: Here is a mighty pleasant letter a visitor sent back to one of our men:)

Just a note to tell you again how much Mrs. Shattuck and I enjoyed the visit to Casa Grande. To refresh your memory we were the couple you took so much time with on February 29, in the rain. We both feel quite honored and very fortunate that we had such luck as to have you show us through Casa Grande. We went there interested and came away very enthusiastic, it makes an enormous difference how a subject is presented and explained. After our visit to Casa Grande we went to all the other National Monuments on our route through Arizona. We had a very fine visit at Tonto and also want to express our appreciation for

the courtesy shown us by all of you men in charge of these very interesting places. At Tonto and Montezuma Castle the men who showed us around spoke up, just as you did, when they found out that I was a little hard of hearing. We both think you have established a very fine thing in these National Monuments, handled by interesting and capable men.

We failed to ask you for a pamphlet on Casa Grande but would like to obtain one if such exists. Also if there happen to be any good books on the subject, would it be asking too much to have you inform us of them? We have really become very much interested in this subject and are looking forward to the time when we can again visit the various ruins. We also took your advice and drove down to the Mission of San Xavier Del Bac and found it interesting also.

Thank you again for a most enjoyable two and one half hours at Casa Grande and I sincerely wish that I had some way in which I might be able to return the visit.....

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GREAT AMERICAN FAMILY

By Earl Jackson

A Three Act Play

Act I

Scene: The Park Office and Parking Area of a National Monument. In the background are the high cliff walls of a canyon, and in the cliff are the ruins of prehistoric Indians dwellings.

Cast: Pa Jones.
Ma Jones.
Jack Jones, son, about 19 years old.
Ruth Jones, daughter, about 18 years old.
Bill Smith, the Park Service Ranger-guide.

Ranger - (Greeting Joneses as they drive up.) Howdy, folks. In to see the ruins?

Pa Jones - (Getting out of car.) Well, I don't know. Where are we? Where is the Monument?

Ruth - Yes. Where is the Monument? That sign back on the highway said we'd see a monument.

Ranger - This is the Monument. This canyon is a part of it. The Monument is a reserve ---

Ruth - (Getting out of car.) Oh, Jack! Look at all the funny holes! (Pointing to cliff caves.)

Ma Jones - Ranger --- you are a ranger, aren't you, or are you an Army Officer --- where are the Indians? (Gets out of car after Jack

crawls over door). Oh, those horrible roads. The dust and those hairpin curves. How can you stand it?

Ranger - The Indians don't live here any more. Visitors come here to see where the Indians used to live three hundred and fifty years ago. I will be glad to guide you through the ruins and explain them to you, if you will just step over to the office and register.

Ruth - Oh, Dear! No Indians! And that man on the highway told us we would see Indians.

Jack - Nerts! I knew it'd be a fake. What'd I tell you ---

Pa Jones - Quiet, Jack. Listen to what the policeman has to say.

Ranger - If you'll just step inside and register ---

Ma Jones - What? Do we have to pay, after driving fifty miles to get here? What are the charges?

Ranger - There are no charges, Lady. All you do is sign your name on the big register book, so the government will have a record of how many visitors come here, and from where.

Ruth - Do we have to register?

Ranger - You are not forced to, but the Park Service appreciates it.

Ruth - Oh, goody. I'll write my name as Myrna Loy, from Shanghai. (They proceed into the register room.)

Pa Jones - (About to sign.) Shall I sign for all of them?

Ranger - That will be fine. Mr. and Mrs. and Family.

Ruth - Oh, Daddy, I want to sign my name. (Pa Jones signs "Mr. and Mrs. and family.")

Ranger - I beg your pardon. I didn't mean sign just Mr. and Mrs. and family. I meant to put your names after it. "Mr. and Mrs. Brown and family," or "Green and family.")

Jack - Pop, I'm ashamed of you. Ain't you got no larning'?

Pa Jones - Sorry, I'll fix it. (Correcting the signature, adding family name.)

Ranger - Thanks, folks. Now you're registered, we can start the trip. It will take ---

Ma Jones - (Pointing to register book) Pa! Sakes alive! Look who's been here! The Herrings from Sandy Wash, just as sure as I'm alive.

Pa Jones - (Looking at register.) So it is. Well, let's get going. The gentleman is waiting for us.

Ma Jones - (Excitedly). Those people live in the next town from us. When did they register?

Ranger - The date there shows they were in yesterday.

Ma Jones - Oh, maybe you remember them. Do you remember a green car with a Kansas license and two people in it?

Ranger - I'm sorry I can't place your party. There were several Kansas cars in yesterday.

Ma Jones - Oh, but you must have remembered this one. The man was about as tall as Pa there, and he used to be a professor.

Ranger - I'm sorry. He didn't tell me if he was.

Ma Jones - Oh, so you saw him?

Ranger - I don't know.

Pa Jones - Oh, come on, Ma. Let them live in peace. We're in a hurry. Ranger, where are the things you are going to show us?
Ranger - Up the canyon this way.
Ruth - Oh, Ranger, don't tell us we have to walk?
Ranger - Yes. You walk through the principal groups of ruins. The trip lasts about an hour, and you walk nearly a mile round trip. It's a good trail.
Ma Jones - (Throwing up her hands.) Mcerciful heavens! A mile did you say? I could never do it in this hot sun and dust.
Jack - Aw, come on, Ma It'll be fun. Maybe we'll see an Indian.
Ma Jones - I won't budge a foot from this car. Why, the idea! Walk a mile to see those black holes in the cliff? I can see them from here.
Pa Jones - (Disgustedly.) All right, Ma, you can stay here. I can't understand you. You were the one who wanted to come.
Ma Jones - (Vehemently) Lay the blame on me. That's just like you, Fred Jones. How did I know you had to go to the end of nowhere to reach this place? And besides, it's you and Jack who are always afraid we'll miss something.
Pa Jones - (Wearily) All right, all right. Now I'm here I'm going to see it. Are you coming, Jack and Ruth?
Jack - Sure, Pop.
Ruth - Yes, Daddy dear, if Mr. Ranger doesn't walk too fast.

Act II

Scene: The trail which leads up the canyon into the ruins. Ma Jones has stayed behind in the car. The rest of the Jones Family is with the Ranger. The trail is narrow, and Ruth pushes past Pa to walk beside the Ranger.

Ranger - You can see quite a number of the caves as we walk along. The ones the Indians lived in are those large ones at the bottom of the cliff. The others are the result of weathering. They dug their houses out with stone picks.
Ruth - Ranger, are we in Arizona now?
Ranger - Why, no. This is New Mexico. Arizona is three hundred miles West.
Ruth - Then why do you have Arizona on your belt buckle?
Ranger - Because I went to school over there.
Jack - Say, Mr. Ranger, I thought you said the Indians didn't live here any more. I just saw one, in that cave. (Pointing.)
Ranger - You did? Where? Oh, that is one of the CCC boys prowling Along the cliff. The Indians left here at least three hundred and fifty years ago. We think they probably moved down onto the Rio Grande River.
Pa Jones - Then they weren't killed out by enemies?
Ranger - We think not. These were a peaceful, agricultural people, but they were well able to take care of themselves. Drouth was likely the reason for their departure.

Jack - Oh, I see. Say, Pop, that was the way we'll have to be leavin' Kansas if the dust storms don't stop, ain't it?

Ranger - Now here we see one of their kivas. A kiva was an underground ceremonial chamber, and only the men seem to have entered them. They ---

Jack - Ha ha ha!. Ruth, I told you! Women did all the work, and the men ruled them. See, like he just said, women weren't holy enough to go into the kivas.

Pa Jones - He didn't say that, Jack. Let him explain.

Ranger - It probably wasn't a question of holiness, but a division of function. Men took care of most religious matters, of hunting, fighting, while women did the farming and took care of the home. (They climb a trail to the foot of the cliff, where the caves are.) Now here is one of the typical cave houses. You can look inside the door and see the pick marks on the ceiling, and the smoke blackening on the walls.

Jack - (Noticing small door opening.) These people must have been pygmies.

Ranger - No. We have learned postively that the prehistoric Indians were about the same size as modern Indians. That low door was likely designed for protection so that ---

Pa Jones - Well, I've always heard they were little fellows. Why a fellow I know back home has the mummy of one, a little tiny thing. You could tell it was a grown man, though, by the size of its teeth.

Ranger - Well, all I have to go on is the evidence we dig up. We find lots of the skeletons, and they are the same size as modern Indians. Science tells us there were no pygmies in this country. Maybe your mummy had its first teeth instead of its last ones.

Pa Jones - But you could see them. They was just like buck teeth and --

Ruth - Oh, look at the pretty blue berries on this tree. Ranger, what kind is it?

Ranger - That is a juniper. It is commonly called a cedar, but we have no real cedars growing wild in this country. This variety is the One-seeded Juniper. Tear open a berry and you'll see ---

Jack - Say, that's interestin'! They make gin out of Juniper berries don't they?

Ranger - I don't know. Now as I was saying, here is a nice cave room. Notice it has a smoke hole above the door. And there is a little hole near the foot of the wall ---

Ruth - Oh, don't tell! Let me guess. It's to let the cat out, isn't it?

Ranger - (Solemnly) Yes. (They walk on a few feet.)

Jack - (Noticing a tall spire of weathered rock.) Say, Pop, I guess that's the Monument. Ranger, isn't that the monument?

Ranger - No, that isn't the Monument. That's just a natural formation. The Monument is a reserve of land ---

Ruth - Oh, I remember. You described the monument a while ago. Well, where do we see it?

Ranger - (Desperately.) Pretty soon. (They walk a few feet farther)

Now here is an interesting room. Notice how they put the plaster on this wall to cover up the black. They plastered it just high enough so that ---

Ruth - Oh, Ranger, that's fascinating! You know, I've always wanted to meet a real archaeologist, and I believe you are one. How do you get to be one.

Ranger - It's best to go to a University and take courses in it. Then, some colleges have summer schools in the field which ---

Ruth - It must be frightfully romantic, digging up dead things and all. But I don't suppose they'd let poor little me dig. They don't allow girls to dig, do they?

Ranger - Why, sure, if they are really interested.

Ruth - Daddy, I am going to study archaeology.

Pa Jones - Ruth, don't alarm me. No offense intended, Ranger. Only if Ruth happens to meet a young Geologist she will want to study Geology, and if she meets a ---

Ruth - Daddy! You brute! (And so the trip through the ruins goes.)

Act III

Scene: Back at the Park Office and the car, where Ma Jones is.

Ruth - Oh, Mother, it was the most wonderful thing I ever saw. All those cute little holes, and little doorways. They must have been the littlest people.

Ma Jones - (Grumpily) Well, I'm glad somebody enjoyed this trip. I nearly burned up here in the heat. Now maybe we can get on the road to Taos. (They family get in the car).

Pa Jones - Well, Ranger, I certainly thank you for your courtesy and help. You've made it mighty nice for us.

Ranger - You're certainly welcome. I hope you can come again. Perhaps there will be something else I can show you.

Ruth - You've been perfectly delightful, And I've learned so much my poor head is simply going round and round ---

Jack - (Whistles "The Music Goes Round and Roung.)

Ruth - And I'm going to write a term paper on this place, and then I'M coming west again and study archaeology, aren't I, Daddy? And I'll ask Mr. Ranger to help me.

Ranger - If I can help, I will be glad to.

(Jack starts car, and races motor. As they drive off a chorus of Goodbyes comes from all save Ma Jones, and Ruth sticks her head out the rear window and blows a kiss at Ranger Smith, dropping a lace handkerchief at the same time. Smith stands till they are out of sight, then goes to the fountain, where icy water is gurgling. He soaks his head under the water for some minutes, and then straightens up, to find that the Brown family from Creosote Flats has arrived for a guided trip.)

Finis.

NORTHEAST BUILDING

By the Boss

Several years ago, about 1926 or 1927, we were expending some money on wall protection in Compound A at the Casa Grande National Monument. Mr. George L. Boundey was supervising the work and was running a gang of two or three Indians. He was underpinning the worst walls with adobe and protecting the tops of the walls and the bad places with a coating of cement. Also, in order to prevent capillary attraction from taking ground water back up into the walls after a rain, we decided to run a trench a foot wide and a foot or more deep along each wall, carry our cement coating from a foot below ground level up to a foot or more above ground level and then backfill the trench.

When we started into the repair of the building which we know as the Northeast Building in Compound A, Mr. Boundey made some interesting finds. His original drawing of the job turned up in the files the other day and is copied here in order that the data may not be lost.

This building had been excavated by Dr. J. Walter Fewkes back in 1906-1908 and we never thought of finding anything when we started our repair work. I afterward recalled, however, that while Dr. Fewkes had gone under the floors of the Southwest Building and the rooms up the west wall of the Compound, he had, due either to lack of time or money, stopped his shovels at the floor levels in this Northeast Building.

Upon starting our trenches along the inside of the walls and getting beneath the floor level, Mr. Boundey began finding some interesting things and we finally determined to go through the whole site since we had to move between a third and a half of the dirt in our repair job.

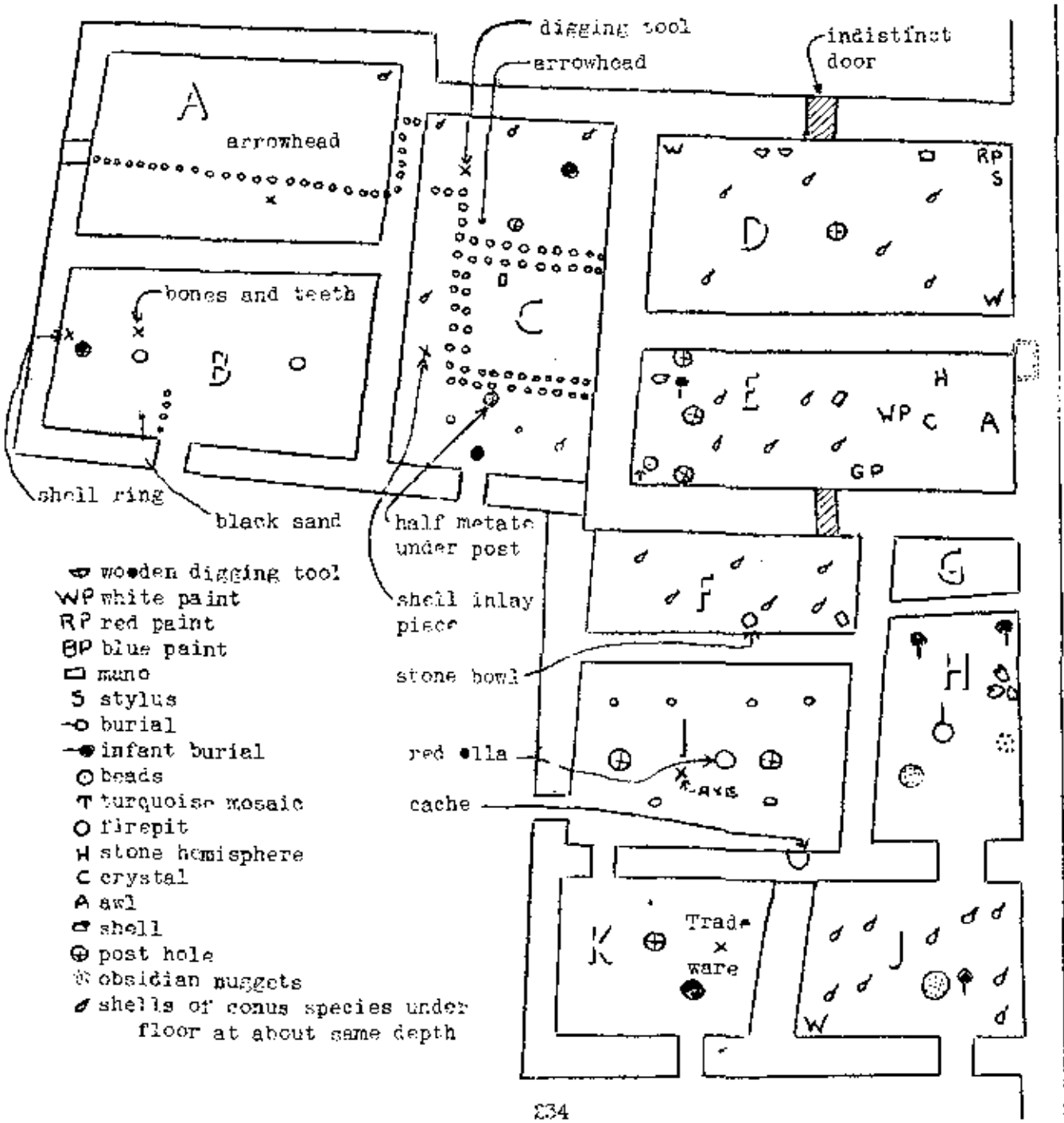
We found that an older house had stood on this site; that its walls were of the reinforced type of construction, having vertical poles embedded in the walls, and that this older house had been razed in order to erect the present Northeast Building. This older house was not so large as the present one and the people living in it had thrown some of their trash out to the south forming a small mound of material which had been levelled out and covered up by the south part of the present structure. This accounts for the trade ware which was found under the floor of room K. We could trace the foundations of this older house under the floors of rooms A and C but did not definitely locate them under D and E. This was not due to careless working because the whole job was very carefully done. We did not examine the plaza outside the walls of the upper house, but I have not doubt the foundations of the old house could be traced under the plaza to the north and west of room A.

The plan reproduced here is self-descriptive and needs little comment, but especial attention should be called to the location of the turquoise mosaic which was found near the southwest corner of room E. These are the finest pieces of turquoise mosaic which have yet been found in the United States and are on display in the museum at Casa Grande National

NORTHEAST BUILDING - COMPOUND A
CASA GRANDE NATIONAL MONUMENT

Room H---Peculiar roof construction of matted juniper bark. Extended over firepit

Room K---Trade ware (Jeddito Black on Yellow) 18" under floor. No conus shells



Monument. It appeared to us that it had been buried under the floor for safe-keeping during the habitation of the present house and for this reason we believe it belons to the late period of Compound A.

The numerous small shells seemingly scattered purposely under the floors not only here but in many other rooms at Casa Grande give rise to the qestion of whether or not there may have been some ceremonial idea connected with their burial under the floor at the time the house was built. It is not unusual to find shells under the footing of the posts which supported the main beam in the roof. Might there not have been some idea that by offering these shells, which came from the home of the water God, from the great water to the southwest, where, as far as they knew, all the water in the world was stored, they could gain the good will of the water God and be assured of plenty of water for their crops as long as they lived in this properly dedicated house?

****

"THRONE" ROOM IN "CLAN HOUSE"

The plan here shown is that of the large room in the "Clan House" at Casa Grande National Monument. This is the room which has the so-called "throne" in it, shown here by the hatched portion of the wall a little to the right and below the center of the room.

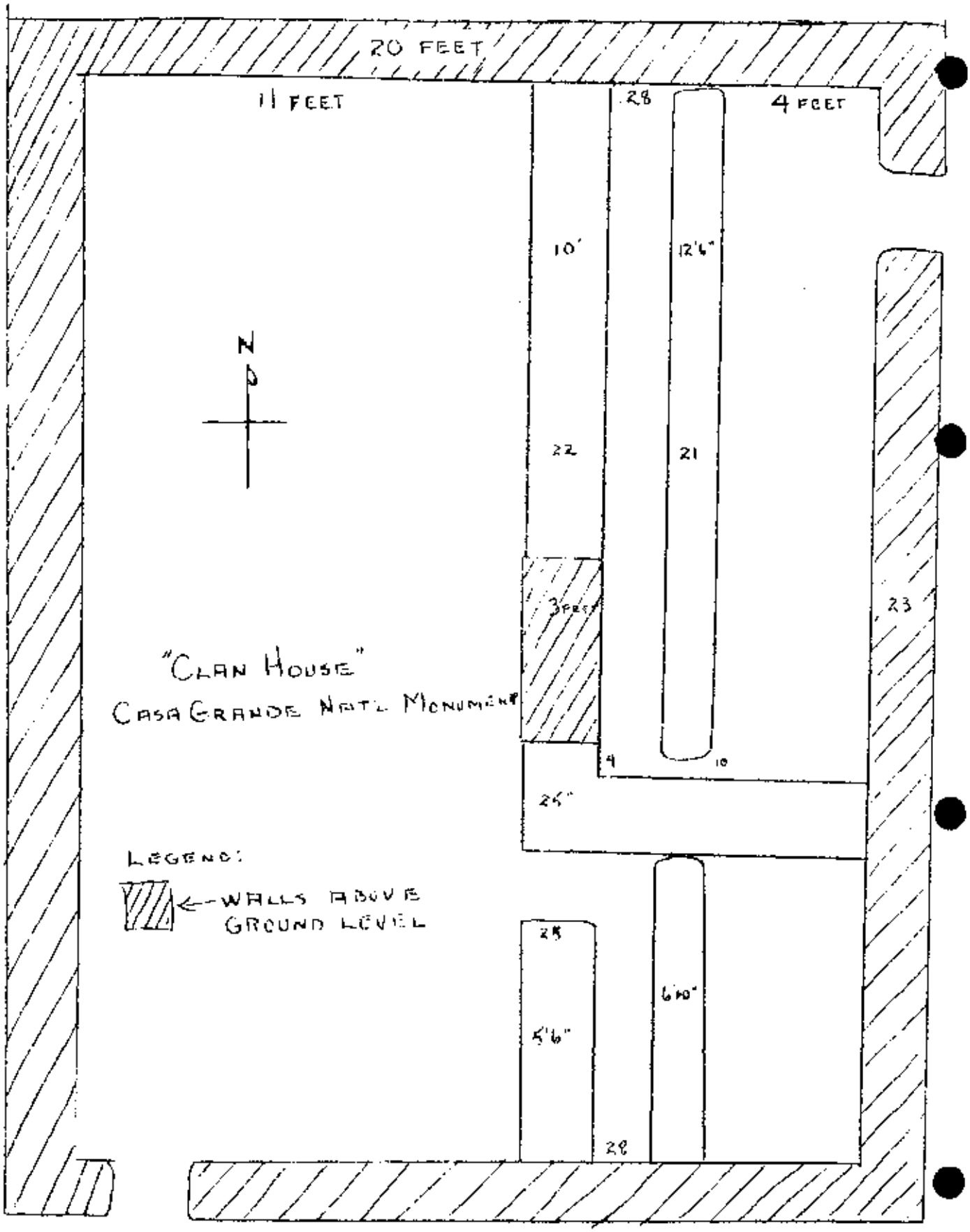
In repairing the walls of this room in 1926 or 1927 we ran trenches beneath the floor along the footing of the walls in order to bring a cement coat up from a foot or more underground to prevent ground sapping by capillary attraction.

In running these trenches we found the footings of walls underneath the floor of the room and discovered that the so-called "throne" is a portion of one of these older walls which was left sticking up through the floor.

The wall to the south of the "throne" is abutted against the south wall of the room, showing that it was built after the south wall and it now stands about five feet above the floor.

There seems to have been a double reconstruction, for these foundations under the floor would fall into at least two periods. After the last reconstruction the "throne" and the piece of wall to the south of it were left standing while the remainder of the walls were torn down to or below the floor level. What purpose these two stub walls served has never been determined.----FP

****


20 FEET
11 FEET
28
4 FEET
10'
12'6"
N
22
21
23
3 FEET
"CLAN HOUSE"
CASA GRANDE NAT'L MONUMENT
9
10
24"
LEGEND:
←WALLS ABOVE GROUND LEVEL
25
5'6"
6'10"
26

MORE ABOUT PEYOTE

(Ed Note: In a recent letter to Custodian Tom Charles, Director Fred Gibson of the Boyce Thompson Southwestern Arboretum comments thus:)

"Unless we become too much involved, more elucidation of Peyote seems to be needed at the present time. There is apparent confusion about the use of the name "Mescal Button" which means only the dried portions of the cacti cited in the list that I made and has no relation to the Mescal plant, which is any of several kinds of Agave species or Century plants, not in the least related to cacti.

"As for the Texas town called Peyote and Mr. Gitton's explanation of its origin, which undoubtedly refers to the shrub or in some cases a small tree, Sophora secundiflora, common names "Coral bean" and "Frijolillo." This plant bears coral-red beans that are very poisonous. The story goes that if one eats a quarter of one bean that he becomes very intoxicated, a half bean makes him crazy and a hole bean is sure death. I find no reference to it being called Peyote. Some of the cacti with that name do grow near there and it is likely that the town takes its name from that source, rather than from the shrub.

"I would like very much to get some seeds of the White Sage for planting here in our gardens, if not too much trouble for you to collect and mail. A very small quantity is all that is needed.

It looks like the Peyote business has picked up and maybe some of us will be convinced before it is over, so let's have it...."

****

BIRD BANDING

A total of 211 new birds were banded at Southwestern Monument stations during March.

Casa Grande, finishing up its heavy banding season, carried the main burden, banding 164. Operators at this station were aided immensely by John E. Fast, who made a specialty of Gambel Sparrows, and started a specific study project of that interesting little winter visitant. Approximately 55 Gambel Quail now carry colored bands as well as numbered ones, and we hope to make some interesting observations in the future.

Particularly heartening was the beginning of banding at Wupatki and Tumacacori, both potentially important stations.

Walnut Canyon and Bandelier were hampered by weather conditions which have made trapping difficult.

SOUTHWESTERN BIRD BANDING TOTALS

Species	Bandelier		Casa Grande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
Bluebird,Ch-b.	Prior	Mar	Prior	Mar	Prior	Mar	Prior	Mar	Prior	Mar	Prior	Mar	Prior	Mar	Prior	Mar	
Bluebird,Ch-b.													215				215
Cardinal,Ariz.			1									1					2
Crossbill,Bend.													17				17
Chickadee,Mtn.							6						3				9
Creeper, R.M.	2																2
Dove, W.Mourn.			2	9													11
Dove, Inca				2													2
Finch, House			129														129
Flicker,Red-sh	1																1
Fl'c't'r,Ariz.			2														2
Oldfinch,Gr-tkd													2				2
Jay,Long-crstd	2																2
Jay,Woodhouse	3						6										9
Junco,Gra-hded	49	2					8										59
Junco, Montana							9										9
Junco,Pnk-side	7																7
Junco,Red-tkd	9						2						38				49
Junco,Shufeldt	7						13						10				30
Mockngbird,W.			2														2
Nuthatch, Pyg.	21												25				46
Nuthatch, R.M.	2												6				8
Owl, W. Horned			1														1
Phoebe, Say			18	1													19
Quail, Cambel			22	36													58
Roadrunner			3	1													4
Robin, Western													7				7

Species	Bandelier		CasaGrande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
Spacker,R-nape													4				4
Spacker,RockyM.													2				2
Shrike,White-r.			2	1													3
Siskin, Pine													1				1
Solitaire,Town.													7			15	22
Sparrow,Gambel			274	129													403
*Sparrow,Lincoln				1													1
*Sparrow,W'Vesper				1													1
Sparrow,Wh.-cr.							6										6
Swallow,Ro-wng.			3														3
Thrasher,Bend.			4	1								1					6
Thrasher,Criss.			7														7
Thrasher,Sage															2		2
Titmouse, Grey													1				1
*Towhee, Canyon												2					2
Towhee,Cr-tail			2									4					6
Towhee,Spurred	1																1
*Waxwing,Cedar																1	1
Woodpckr,Gila			7	1													8
Wdpkr,RM Hairy	1																1
Wdpkr, Mearns													9				9
Wren, Cactus			34	1								1					36
*---new species to this listing																	
SUB-TOTAL	105	2	513	184	0	0	50	0	0	0	0	9	347	0	2	16	
TOTAL		107		697		0		50		0		9		347		18	1229

RUMINATIONS

Chief, I wasn't far wrong when I told you back there in Washington that I had better get back on the job or the boys would find out how useless I was. Everything was well greased and running smoothly when I arrived at headquarters and started to making a hand again with the work. All the accumulation that four weeks put on my desk was the yellows and a very few pieces of special mail. From which I take it I am getting to be a big executive since I can persuade some one else to do most all the work.

Blessings on Charlie Brill's head for making us introduce that system of filing yellow copies consecutively! A man can come in from the field after a week or two weeks or, as in this case, a month away from his desk and all he has to do is to read a thousand yellows and he knows what went through the office while he was away. And that is only one of the blessings Charlie Brill left with us too.

This thing of finding out that the Southwestern Monuments didn't all evaporate while I was out of the district has shown me the possibilities of taking a vacation this summer or next fall. The last vacation I took lasted about ten days and then Mr. Albright wired that he was coming into my district and I had to hurry home and try to convince him that we were needing twice as many men and twice as much money as we were getting. We were fairly successful in proving our point too, but that is another story.

You have, I hope, noticed this ruckus which has started among us as to whether or not a man should have a day off every week. It looks like we are progressing or at least changing our viewpoint from the old days when there wasn't any argument about it; we just didn't have the day off. As you know, Al Bicknell is wintering with us down here and he and I occasionally tell a few lies about the old times as old-timers will in order to keep the fires of argument burning, as it were. Al is an old hand around the Yellowstone and it is great to hear him tell of all the joys of winter patrol; he does it so well that I had much rather hear him tell it than go up there and experience it myself. By the way, as soon as Al gets through building a few more craters up there in the Craters of the Moon National Monument he is going to move down here and join our crew.

We thought we were going to get results from all this crying in the wilderness about studying visitors. Carl had some funds we thought we could use for putting a real psychologist among our monuments and spend six months trying to find out what a visitor thinks and why. We built several large air castles, refused to consider half a dozen willing but ignorant youngsters and had just won our way through to one of the few men in the United States who knows much about museum visitors and were dealing for one of his right hand men to take on our problems when word came out of your office that we couldn't hire a psychologist with those funds, and so our brilliant bubble broke.

So, as you will note in the Supplement, we are going on guessing the best we know how what the visitor is going to think when he gets into the Montezuma Castle museum and have worked out a basic study of the case set-up there. It looks pretty good to our boys, but of course this is only the primary stage and it is going to have to run the gantlet in the offices of Carl and Ansel and to go many amendments and improvements before it reaches the final stages.

I still think, however, that while we are studying the reactions of bugs and birds and beasts and flowers, it would be good business to put a couple of experts on the study of visitor reactions. After all a visitor ought to grade as high as a bird if it is a matter of aiding the scientist who has been hit by the depression, I guess the psychologists are about as depressed as the scientists in these various other fields.

A word of thanks is due Mr. John Fast who not only collaborated on getting the material and writing the article on the Hohokam pottery figures in this Supplement, but who furnished the plates to illustrate it. Mr. Fast is one of our Honorary Research Students Without Pay who comes out from the East each winter and stays with Mr. and Mrs. Smith, over at the Vah-ki Inn, for a couple of months while he works hard at some of the problems which worry us and appeal to him. He has gone back home now, but we are looking forward to having him with us again next fall.

Unfortunately, in the rush of the last two months, we have been unable to find time to get out a Broadcast, but we are hoping to find time for one in April before all this gossip of the District which we have picked up as we went hither and yon gets too old.

Cordially,

The Boss

L. R. Cayward

Southwestern Monuments

Monthly Report



APRIL 36

DEPT OF THE INTERIOR
N P S

SOUTHWESTERN MONUMENTS
APRIL, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

As of May 1, 1936:

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Acting Assistant Superintendent; John H. Diehl, Associate Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists. Luis Castellum, ECW Clerk.

GENERAL FIELD MEN: Charles A. Richey and Harry Langley, Resident Landscape Architects; J. B. Hamilton, Associate Engineer; J. H. Tovrea, Chief Engineering Aide. Andrew Clark, Totographer; Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico, Johnwill Faris, Custodian; Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 609, Santa Fe, New Mexico. Earl Jackson, Custodian.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian; J. Donald Erskine, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings--- Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. George Boundey, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin L. Jackson, Custodian; Frank Fish, Ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian; Milton Wetherill, Trail Foreman.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2235, Tucson, Arizona. Louis R. Caywood, Custodian; Martin C. Evenstad, Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, Ranger in Charge.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian; Darry Mchun, Utility Man.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, In Charge.
25. Yucca House---Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
May 1, 1936

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for April, 1936:

TRAVEL

	April, 1936	April, 1935	April, 1934
Aztec Ruins	701	554	579
Bandelier	742	643	440
Capulin Mountain	600	500	500
Casa Grande	3,436	3,766	2,747
Chaco Canyon	791	472	217
Canyon de Chelly	22	101	---
Chiricahua	550	---	---
El Morro	42	---	---
Gran Quivira	239	373	207
Montezuma Castle	1,054	1,350	1,335
Natural Bridges	---	---	---
Navajo	---	---	---
Pipe Spring	96	212	87
Saguaro	1,200	1,520	---
Sunset Crater	289	273	---
Tonto	876	812	---
Tumacacori	1,700	1,687	899
Walnut Canyon	647	314	---
White Sands	5,709	---	---
Wupatki	146	101	12
Yucca House	---	22	---
Actual Reported Registration	18,830	12,700	7,023

The 15 monuments which reported both in 1935 and 1936 showed a decrease from 12,678 to 12,529---149 visitors, or 1.1 percent.

The 10 monuments which reported both in 1934 and 1936 showed an increase from 7,023 to 9,495---2,472 visitors, or 35.1 percent.

However, the supposed decrease in 1936 probably is explained by more accurate counts now being taken; for all monuments at which accurate counts can be kept (except outlying ones such as Gran Quivira, Pipe Spring, and Canyon de Chelly) showed substantial increases. Our conclusion, therefore, is that the monuments received in April, 1936, about 35 percent more visitors than in 1934; about 20 percent more visitors than in 1935.

000 GENERAL

010 MATTERS OF UNUSUAL IMPORTANCE

White Sands: Seventy-five carloads of people---some from as far away as 100 miles---traveled an estimated 25,000 "man miles" to attend Easter services at this monument. It was visited by a total of 1,558 visitors that day. See page 248.
Wupatki: See page 255 for progress in preparation for the Navajo exhibit June 6 and 7.

020 WEATHER

Summer has almost arrived for our southern monuments, although Chiricahua received a little snow the first part of April and Gran Quivira was visited by a dust and a snow storm. Weather in the north has been variable, but has been conducive to travel save at Pipe Spring which was visited by a near-hurricane (see page 264) and Canyon de Chelly. The range appears somewhat dry, but there seems to be plenty of moisture in the regions around Tonto and El Morro.

100 ADMINISTRATIVE

120 MONUMENT INSPECTIONS BY SUPERINTENDENT PINKLEY

Tumacacori: With Chief Engineering Aide Tovrea, Superintendent Pinkley visited this monument April 8, and discussed various architectural and historical problems with the local staff.

122 INSPECTIONS BY SPECIAL FIELD REPRESENTATIVES

Junior Naturalist King: inspected Tonto April 5, Montezuma Castle April 6, Aztec Ruins April 7. Visited Tumacacori March 31, Walnut Canyon April 8, and Bandelier April 9 and 23.
Associate Engineer J. H. Diehl: Made inspections at Gran Quivira three times, White Sands three times, also Bandelier.
Artist Lawrence Moffett: Of Field Division of Education at Aztec and Wupatki.
Regional Wildlife Technician Borell: Walnut Canyon April 10; Bandelier April 13-19.

123 MONUMENT INSPECTIONS BY NATIONAL PARK OFFICERS

Mr. Frank Kittredge visited White Sands.
Mr. W. H. Wirt visited Pipe Spring.

130 CIRCULARS, PUBLICITY

Headquarters: Prepared Southwestern Monuments Special Report No. 3,

180 CIRCULARS, PUBLICITY (CONT.)

"Sunset Crater Geological Report," by Vincent W. Vandiver. Prepared 300 informational leaflets for Pipe Spring.
White Sands: "Denver Post" ran a picture of White Sands in the Easter Rotogravure section. See page 250.
"El Paso Times" gave publicity to Easter services at the "Crystall Bowl." See page 250.
White Sands was mentioned in "Colliers," April 11. See page 250.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 MAINTENANCE, UNUSUAL

Capulin Mountain: Road to crater in very bad shape. See page 263.
Casa Grande: Leathers in water pump and armature in Kohler had to be replaced. Money spent this year on repairs to electric system would have paid electric light bills (using USIS power line) for years to come. Sewer system still a health menace, particularly as weather becomes warmer. See page 274.
Chaco Canyon: Removal by University of New Mexico of their power line makes immediate replacement necessary. See page 268.
Montezuma Castle: Picnic tables being painted.
Pipe Spring: One-third of Upper House roof blown off by high wind. Repaired and new roof anchored by custodian. See page 264.
Tumacacori: Pump Valves clogged. Repaired with relief labor. See page 261.
Wupatki: Pipe line of Wupatki Spring clogged and was flushed. Is inadequate and needs replacement badly. See page 253.

220 IMPROVEMENTS

Pipe Spring: Army is rehabilitating the meadow pond for a swimming pool. Is temporary in character. See page 264.
Tonto: New latrines finished and painted. Old ocotillo fence taken down. See page 276.
Walnut Canyon: Entrance signs of Highway 66 put up. Warning sign on ruins trail installed. Registration stand repainted dark green to lessen name scratching. See page 258.

230 NEW CONSTRUCTION

Bandelier E.C.W.
1. Museum construction restarted. Vigas in place and portion of aspen ceiling in place.
2. Quarters No. 1 to be ready for occupancy May 18. Cabinet work progressing. All other finishing work completed, and paint crew busy.
3. Excavation, footings, fireplaces finished on Quarters No. 2,

230 NEW CONSTRUCTION (Cont.)

and walls at three foot height.
4. Rock quarry worked all month.
5. Sign crew in operation all month.
6. Some planting around Administration and Utility buildings.
7. Progress was slowed due to diminished crew of only 60 men available for work. Ranks are now refilled.

Chiricahua ECW. See page 262.
1. 600 additional feet constructed on Massai Point-Balanced Rock Trail, making total of 1600 feet.
2. Echo Trail now complete for 6,000 feet.
3. Poles set for 2½ miles on Massai Point-Portal telephone line.
4. During first two weeks of month 70 trees were planted on camp ground and adjacent area.
5. Excavation for buildings in utility area started April 23.
6. Seventy additional enrollees arrived April 25.

Gran Quivira: Satisfactory progress on pump. Water has cleared sufficiently so that it is being stored. See page 247.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Wupatki: National Forest Service has delivered two sets of steel rail cattle guards for western boundary. Trail Foreman Brewer will furnish labor of installation. See page 255.

330 COOPERATING AGENCIES OTHER THAN GOVERNMENT

Chaco Canyon: University of New Mexico began construction of their headquarters building south of Chaco Wash April 13. See page 268.
Soil Conservation Service have accomplished much work in Hungo Pavi Canyon. See page 268.
Wupatki: Museum of Northern Arizona very kindly loaned 26 bird skins to aid in field identification of species and handing. See page 254.

350 DONATIONS AND ACCESSIONS

Aztec Ruins: Three case exhibits delivered from Field Division of Education at Berkeley: (1) History of Aztec Ruins, (2) Prehistoric Peoples of the Southwest, (3) Tree Ring Exhibit. Custodian Faris reports he is very pleased with them. See page 271.
Pipe Spring: New donations are an old wood chisel and a photograph of Dudley Levett, one of the original group who gave the name to the Monument. See page 266.

400 FLORA

El Morro: Pinyons heavily loaded with small cones. Promise heavy crop of nuts next autumn. See page 277.
Wupatki: Common names of identified plant specimens being worked up for trailside label copy. See page 254.

430 ARCHEOLOGY

Bandelier: A hitherto unmentioned group of eight to ten cave rooms discovered half mile upstream from Ceremonial Cave. Best preserved front section thus far reported from Frijoles Canyon. See page 281.
Saguaro: Large Hohokam site on the monument needs more adequate protection. See page 260. Ranger reports interesting old lime kilns supposedly associated with Camp Lowell in 1873. See page 260.
Wupatki: Room 7 which contains restorable sherds and possibly other artifacts needs work by archeologist-trowelman to save material which is washing out. See page 254.

460 BIRDS

General: 108 new birds banded in monument banding stations during the month. Fine record turned in by new station at Pipe Spring.
Walnut Canyon: See page 258 for April bird notes. Wild Turkey seen on east entrance road.
Wupatki: See page 254 for April bird list.
Bandelier: See page 322 for April bird notes.

470 ANIMALS

Bandelier: Beaver have left recent workings, apparently. See page 280.
Gran Quivira: Unusual number of rattlesnakes. Custodian sees two to four a day near buildings and ruins. Is forced to control. See page 248.
Wupatki: Five antelope seen near Merriam Crater. See page 254.

500 USE OF MONUMENT FACILITIES BY PUBLIC

530 NEWSWORTHY VISITORS

Aztec: Governor Tingley of New Mexico
Bandelier: Dr. Warren G. Hubert, College of the City of New York; Fred C. W. Parker, secretary of Rotary International; Mr. and Mrs. Raymond V. Ingersoll of Brooklyn, N.Y.; Dean H. E. Hawkes, Columbia University.
Casa Grande: James E. Van Zandt, national commander of Veterans of Foreign Wars; Col. Frank Van Vleck, one of founders of Sigma Xi, national scientific fraternity; W. B. Hare, U. S. Weather Bureau; Charles Amsden, author, and secretary of Southwest Museum; John McGregor, dendrochronologist of Museum of Northern Arizona.

530 Newsworthy Visitors (cont.)

El Morro: Frank Vesely, New Mexico Commissioner of Public Lands.

Saguaro: Dorothy Disney MacKaye and Milton MacKaye, authors.

Tonto: Prince Shah Mir, Tiflis, Caucasus; Prince and Princess Czetwertynski, Warsaw, Poland; Elmer Rising, Harvard University.

Tumacacori: Frank Van Vleck of Navy Department; Dr. Homer L. Shantz, President of University of Arizona; Leo Borah of National Geographic Magazine; A. R. Grosherder, H. D. McVary, and A A. Sundin of Mt. States Tel. & Tel. Co. Mr. and Mrs. H. F. Brett of U. S. Veterans Facility, Legion, Texas.

White Sands: Signal Corps commanded by Major McDonald practicing sending and receiving radio messages in unique conditions; Dr. Crosby, Dr. Cornell, Dr. Bishop, and Miss Wright of U. of Rochester, studying entomology; Prof. A. N. Seyre, USGS; Dr. Ross Calvin, author of "Sky Determines;" Dr. Pegtly, dean of U. of Arizona law school.

Wupatki: Viscount Leopold Leiboriski of Czecho-Slovakia; Prince and Princess S. Czetwertynski of Warsaw, Poland; Tony Richardson, western author; Carl Beck and Maxwell Yazzie of SCS; Mark Radcliffe and Tom Dodge of USIS.

600 PROTECTION

610 POLICE PROTECTION

Montezuma Castle: Name "Ruth" scratched on plaster afternoon of April 19 or 20. See page 270.

620 FIRE PROTECTION

Walnut Canyon: 500-acre fire burned to within two miles of boundary. See page 258.

900 MISCELLANEOUS

MAIL COUNT:

Incoming:		
Government	1,369	
Personal	714	
Total Incoming		2,083
Outgoing:		
Government only	1,834	1,834
Telegrams:		
Incoming	43	
Outgoing	45	
Total telegrams		88
TOTAL CORRESPONDENCE HANDLED		4,005

Cordially, Frank Pinkley

REPORTS FROM MEN IN THE FIELD

GRAN QUIVIRA

By George L. Boundey, Acting Custodian

Visitors for the month equal 229.

The last ten days of the month the weather has been fair but the fore part was windy with much dust. On the 5th we had quite a heavy snowstorm which left the roads in bad shape when it started to melt.

Engineer Diehl was up inspecting the new pump and pressure system three times during the month. He seemed to be well satisfied with the progress Mr. Gipe is making with the well, and the water is sufficiently clear to begin pumping into the tank today.

Have started a general cleanup of the mission and grounds. The rattlesnakes are very plentiful. With the stone wheeled away and the grounds thoroughly raked think I can keep the snakes at a distance from the buildings. The paths leading to the south plaza and those winding thru the pueblo ruins am making 6' wide so there will be little danger to those walking in the paths.

The snakes---probably owing to higher altitude---are smaller than the desert varieties being three and three and a half feet long, and occasionally a "side-winder."

Last Friday I took the high school students to Quarai, the old mission and pueblos 12 miles northwest of Mountainair. There were 16 of them and all seemed to enjoy the outing. Mr. and Mrs. Baker took us thru the ruins and gave a very interesting talk on the old mission. The work there has been done by CCC boys. The old church and monastery have been cleaned out, picnic grounds provided and, though smaller and less imposing, many visitors are coming there from all over the state. The Bakers leave next week to take charge of excavations at another project, but they think a local caretaker will be appointed.

A great many birds, many of them new to me, are visiting the locality; immense flocks of Evening Grosbeaks are especially noticeable.

A Parent. Teachers Association has been formed in the village and with my projector am going to put on a number of pictures of parks, monuments, wildlife, etc. I gave a talk on Tumacacori when I was up here the first time and they seem quite anxious to continue the lectures.

This monument is dependent on good roads---something they have never had up here during the major portion of the year. Once the road question is solved, there will be no end of visitors to this monument.

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WHITE SANDS

By Tom Charles, Custodian

I was about to say that I hope you have had the flu, but it doesn't seem to be the proper "approach." If you have had it and the fever that hangs at 100 to 101 degrees for weeks, with a potential flare of another two degrees and a bulldog determination not to recede one point, not even under an ice pack, then it will be easy for me to make you understand why there are so many things I have not done the past two weeks. If you haven't had the flu, I can't make you understand anyway.

One of the things I missed was the opportunity to take Chief Engineer Kittredge and Jack Diehl over the dunes and down along the east side of the old lake bed, between the Sands and the lake, over the proposed "beach drive." It would have been an opportune time for the poppy fields were making a gorgeous background for Vincent Vandiver's selenite hills. There is some other flower over there, too. I do not want a "run in" with the botanist but there are thousands of acres of a red flower as brilliant as the painted-cup. The stems are 18 inches to two feet tall and they grow higher along the foothills than the poppies, beginning where the poppies leave off.

By the way, do poppy fields mark battle grounds? It was along this old Mexican ox cart trail to the west of the White Sands that two or three companies of Negro soldiers were attacked by the Apache Indians in the early sixties. The few remaining Negros finally took refuge at Hospital Springs at the northwest corner of the monument and the poppies grow back along the trail for a dozen miles or more.

I missed the visit with Major McDonald and his Signal Corps of armored trucks, practicing the sending and taking of radio messages under the field conditions of the Great White Sands. I missed Dr. Crosby and wife of Cornell, and Dr. Bishop and Miss Wright of the University of Rochester in their search for new types and "new styles" in insect life which is so plentiful at the edge of the Sands.

Worst of all, Boss, I missed the Easter service. I see a smile spread over some of the office "mugs" as they read that line but it was an UNUSUAL service. Seventy-four carloads of people attended and drove over 25,000 man miles to attend. Many of them come distances of over 100 miles. The service was opened by assembly singing of the Doxology, then America, led by the Alamogordo Rotary Club. Reverend E. E. Baird, presiding, then said:

> "Here we find ourselves in a vast expanse of God-made beauty. Its very whiteness and purity are suggestive of the purity of God's original creation. Whatever of contamination and corruption there is in the world came into it by the hand of man. But the purity of these white sands and the brightness and joy of this Easter morning reminds us of Him whose

resurrection we are met to commemorate---Our Lord and Savior, Jesus Christ."

After the opening prayer there was singing, both solos and by the assembly and a short sermon by Dr. J. M. Perry, recently of Dallas, Texas. Even considering the early hour I was sorry to have had to miss it.

All day long the Easter-egg hunters were tearing up the sand hills out by the turn-around. One thousand and thirty nine people were counted at the end of the road in seven and a half hours. Adding the usual percentage which stops along the 20-mile front, we had 1558 visitors on Easter.

Barry counted cars 15 days this month: March 25, 26, 27, and 31, April 1, 2, 3, 7, 8, 9, 14, 15, and 16; a total of 93.5 hours or 7.2 hours per day. He counted 564 cars or an average of 6.33 cars per hour through the monument. Applying this on the basis of 14 hours per day we had 2,127 cars through the monument on the 24 week days. Former counts show that these cars carry an average of four people per car; therefore, we had 8,508 people through the monument in the 24 week days and 36% of them stopped and played in the Great White Sands, a total of 3,063 week day visitors. Our Sunday count shows as follows: March 22, 309; March 29, 160; April 5, 176; April 12, 1,558; and April 19, 443.

Week day visitors	3063	
Sunday visitors	2646	
Total	5709,	from Mar. 21 to April 20, incl.

Our Sunday cars carry an average of 4.76 people per car.

From now on I guess I am going to have to arrange for a night count. If I add that to my present duties will you give me "overtime?" Last Saturday the boys turned in their count at 4 p.m. and after that a State College group came over from Las Cruces, staged a soft ball game and a wienie roast. There were about 30 in the party. The next morning there was evidence of several other good sized parties at the Sands the night before. My estimate is that over half of the attendance at the Sands for the next five months will be after 4 p.m.

Among the distinguished visitors this month were Chief Engineer Kittredge of San Francisco; Prof. A. N. Sayre, formerly of Kansas University and Pennsylvania State, now with the U.S.G.S; Major McDonald and his squad of 30 signal service men of the U. S. Army; Dr. Crosby and wife of Cornell; Dr. Bishop and Miss Wright of University of Rochester; Dr. Ross Calvin, author of "Sky Determines," and Dr. Fegtly, Dean of the Law School, University of Arizona.

On Easter morning the Denver Post carried a 6 x 8 photogravure picture of the White Sands with a picture of Old Faithful of the Yellowstone and Point Imperial of Grand Canyon, under the title: "Western Wonderlands." By the side of the Sands picture were the following lines: "Shadow seams in wind woven fabric. Intricate ripple patterns stand out in the rays of the setting sun at White Sands National Monument, Alamogordo, New Mexico."

The day before Editor Hunter said in his Personal Column of the El Paso Times: "Alamogordo will have an Easter service absolutely unique; there will be a sunrise song service in the "Crystal Bowl," in the very heart of the White Sands, reached by the new highway which penetrates far into this wierdly white fairyland..... No other crowd, anywhere in the world, will assemble in such a setting as the Crystal Bowl in the White Sands National Monument."

Jim Marshall, special writer for Colliers, in his "Untaming the West" April 11, was apologizing for his eastern friends not getting off the paving: "We fooled 'em one place," he quotes Joe Bursey of the Tourist League, "We built a highway right past the White Sands, one of the Natural Marvels of the state and they had to look at it."

Dr. Ross Calvin of Silver City who made such elaborate references to the White Sands in his book, "Sky Determines," last year was at the Sands again Tuesday gathering additional information and new inspiration for a new book which will be published soon.

Everything now points to a record crowd for the Annual Play Day, May the second. Thirty-two hundred Otero County children are on their toes, nearly a dozen towns are cooperating through their schools and divic organizations to make this a real get-together meeting for the entire southern part of the state. Let's hope for favorable weather and not too hot.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

This custodian was mistaken last month when he thought that the month of April would mark the beginning of the visitor season at this national monument. Weather was fickle, and succeeded in discouraging visitors.

Total number of visitors during the month, 22. Of these, 17 persons viewed the canyon from the rim, 3 descended the White House trail; 2 rode horseback within the canyons for a short distance. Total time, [illegible] minutes; total trips, [illegible]; average time per group, 218 minutes. To break down these figures still further: Rim view trips, 4; total time, 615 minutes; average rim trip, 154 minutes. Horseback trip, 1; total time, 420 minutes (seven hours.). Trail trips, 2; total time, 480

minutes; average trail trip, 240 minutes.

Now, Boss, you see why we need personnel. Each group averaged three persons. There were only seven groups. Total, 22 persons. Personnel stationed here, 1. (If the H.C.W.P. reads this, I'll alter that last figure to 1½ as a special concession). Last June, for example, we had 179 visitors. Let us suppose this meant 60 groups, average time 216 minutes, as was the case this month. Or total time of 216 hours. Figuring eight-hour days (which we don't) that gives us 27 days of time. But the records indicate that those 179 visitors were here on only 20 days. If we spent those 20 days, all day long with visitors (eight-hour day) we would have a total of only 160 hours, and the first figures showed 216 hours taken. It comes to around 11 hours each day, for 20 days. Now, let's figure a visitor increase of 100 per cent in the near future. If they averaged this month's time per group, and persons per group, and in June we get 360 visitors in 20 days, we get 120 groups, average time 216 minutes, total time taken in taking care of those visitors, 432 hours. That will mean that we'll be giving good service to visitors 21½ hours a day. Now, if someone will PLEASE refer this matter to Dale King, who speaks of a day a week off, to Johnwill Faris, who says he doesn't know what a day a week off is (I'll bite, what is it?), to Headquarters, with gates opened at 8 a.m. and closed at 5 p.m., and then to the Washington Office and the Bureau of the Budget, I'll appreciate it.

Weather was not so good during the month. We had .10 inch of precipitation, over a period of three days. We had a trace of snow, several sandstorms, and a thundershower. Maximum temperature during the month, 85 degrees, on the 14th; minimum, 15 degrees, on the 2nd, 6th, and 7th. Roads are now very rough, and were totally impassable for several days, due to rain and snow on the mountains between here and Gallup. Peach trees within the canyons have bloomed, and cottonwoods have good-sized leaves on them. The canyons have been discharging much water, and have been impassable the entire month.

Work on the water reservoir was completed during the month, and it is now completely patched, waterproofed, and ready for water. I have brought in some of the pumping machinery from Gallup, have ordered pipe, and as soon as it arrives, the work on the laying of the line from well to water reservoir will begin. The pipe should be out some time within the week.

Norman Jackson, of Montezuma Castle, paid us a fine visit during the month. We wish he might have stayed longer, and are going to expect him to visit us again when the canyons are passable. I'm sure we can readily convince him that here we have the "finest National Monument in the entire Park Service," if he is not already so convinced.

On the 8th we had the great pleasure of a visit by Mr. and Mrs.

D. O. Johnson, of West Portal, Colorado. Mr. Johnson is District Forest Ranger at West Portal, and we are hoping that they, too, may be able to return here when we can get them within the canyons by car or horse.

On April 22, Ranger Robert Hart of Aztec Ruins, and Mr. John A. Frost, of the U.S.G.S., paid us an all-too-brief visit. The E.C.W.P. took them up on the rim and down the trail. They are anxious to return when the canyons become passable, and we are anxious to have them do so. I understand that Johnwill sent Ranger Hart over here to see a REAL Monument. Mr. Hart was appalled at the size of this Monument, for which he could hardly be blamed, being so used to a Monument more in the nature of a sidewalk alongside a paved highway. C'mup and see us sometime, Johnwill!!

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WUPATKI

By James W. Brewer, In Charge

500 Use of Monument Facilities by the Public

71 guests registered at Wupatki Pueblo; 108 at the Citadel Group; 33 names are duplicated, leaving a total of 146 registered visitors to this Monument in April, 1936; 1935, 101; 1934, 12.

Of the 24 parties who visited Wupatki Pueblo I contacted only 16. This is largely due to my having to spend so much time away from the Pueblo itself repairing road failures of the P.I Chevrolet.

States were represented as follows: California, 21; Arizona, 15; Texas, 4; New York and Illinois, 3; Pennsylvania and New Mexico, 2; Oklahoma, Missouri, Maryland, Colorado, Rhode Island, Washington and the District of Columbia, each 1. Foreign countries: China, Australia, Poland, and Checho Slovakia.

530 Newsworthy Visitors

Prince and Princess S. Czetwertynski of Warsaw, Poland, at the Citadel on the 5th.

Viscount Leopold Leiboriski of Checko Slavokia (his spelling), also on the 5th.

Mr. Oakley of Soil Conservation Service on the 22nd.

Mr. and Mrs. Tony Richardson on the 22nd; Tony Richardson was born and raised on the Reservation and has written historical articles and western stories.

On the 24th Mr. Carl Beck and Maxwell Yazzie of S.C.S. brought Mr. Mark Radcliff and Mr. Tom Dodge of U.S.I.S. to the Pueblo to ascertain the location of the camp of Peshlacai Etsedi. Sallie guided them over the back roads to the hogan.

100 Administration

123 VISITS BY N.P.S. OFFICIALS

On the 21st Artist Moffett of the Berkeley office took detail for the Wupatki model under construction.

We had a very pleasant luncheon with Project Superintendent Hub Chase and Mrs. Chase on the 23rd.

And a good but too short chat with Junior Park Naturalist Dale S. King on the 24th. Relying solely on my faulty memory, Dale is the first headquarters visitor we had had since January 11!

020 Weather

March 25 to April 1: high 68 degrees, on the 31st; low 26 degrees, on the 27th; precipitation, trace on the 31st. Four cloudy and two extremely windy days. April 1 to 24th: high 80 degrees, on the 24th; low 25 degrees, on the sixth; four overcast cloudy days; on the 13th and all succeeding days billowy cumulus clouds gather in the P.M.; two traces of precipitation, on the 4th and 18th.

210 Maintenance, Unusual

On the 17th the three-quarter mile pipe line from the spring to the stone tank became clogged. The fault being with the catchment basin, I tore the stone slab cover off and cleaned out the basin and flooded the pipe line with clean water.

The basin should be covered with concrete box and removable trap door. If the pipe were to clog permanently it would entail considerable expense as well as inconvenience. The line is old and the joints are rusted together so that cleaning would be impossible. I think some provision for improvement of the "water system" should be included in the budget.

300 Activities of Other Agencies in Monument

320 COOPERATING GOVERNMENT AGENCIES

The National Forest Service (Coconino Forest) has delivered to the fence line gate two sections of steel rail cattle guard. As per my agreement, upon arrival of the understructure I will offer

labor (personal).

COOPERATING AGENCIES OTHER THAN GOVERNMENT

The Museum of Northern Arizona has very kindly loaned us 26 bird skins to aid in field identification and banding. The majority are sparrows.

400 Flora, Fauna, and Natural History

FLORA

A list of common names for our identified plant collection has been forwarded by Ranger Charlie Steen. We hope to get some labels for the trail-side specimens.

430 ARCHEOLOGY, HISTORY

Room 7 is badly in need of a trowelist. Please send us a ranger qualified to remove the many restorable sherds.

460 BIRDS

The Western Robin seems to have departed; none has been observed since the 7th. Other birds observed during the month are as follows: Townsend Solitaire (banded 29); White-rumped Shrike; Pinyon Jay (increasing); Red Shafted Flicker (not observed since the 6th); Brewer Sparrow; Western Redtail Hawk; Golden Eagle; Say Phoebe; Gambel Sparrow (escaped from gathering cage); Brewer Blackbird; House Finch; Rock Wren; desert Black Throated Sparrow; Meadow Lark (Western?).

470 ANIMALS

Sallie reported five head of antelope near Merriam Crater on the first.

Tony Richardson saw seven head between Wupatki and Sunset Crater.

On the 16th our road was obstructed by a porcupine who refused to move; I got out to take his picture, which of course proved he would move if I wanted him still.

900 General

After many hours of coaxing mileage, after much uncertainty about ever getting back, the pickup has finally gotten beyond my control. One by one the plugs quit, until none could produce a spark of encouragement. I pulled the timing system apart and put most of it

back where it belongs, but must have misplaced something because when I turned the motor over it burst into flame and I had to use a fire extinguisher to save it. I think now I should have saved the fire extinguisher. But then maybe we can get some replacement parts from the National Museum.

With this thought in mind Sallie, her brother Jack, and I proceeded to tow the remains to Flagstaff with Sallie's car. Three miles from the Pueblo the strain began to show on the roadster; around the next corner the fuel pump went the way of the ton-ees sparks and we were afoot. We worked over it until noon but, because of the bad company it was in, it too refused to function. We finally walked back to the Pueblo and lunched; then Jack, who had to return to Tucson and school that day, walked to Highway 89 (14 miles). He got a ride and located Don and Marie Erskine who helped us to town and rehabilitation of Sallie's car.

NAVAJO EXHIBIT

The area selected for the Navajo Exhibit lies directly south of the quarter corner marker on the north side of Section 30, T 25 N, R 10 E. Fingers of Moencopi sandstone hide this site from the Monument itself; it is in a natural basin with an inconspicuous opening into Deadman's Wash on the northeast. Here is little vegetation (typical Navajo country). The floor of the basin is a mixture of cinder and sand. In the west central part of the floor the hogan will be constructed. This will then naturally face the display area to the east. The pine posts are now on the ground and as soon as a couple of forked pines are hauled in and peeled the hogan will be built. Some juniper posts have already been hauled to the site and are ready to use in constructing brush shelters. I am trying to get some pine siding with which to build portable rest rooms that can also be used as Monument property during the balance of the year.

I have reclaimed the three road signs furnished by the MMA to indicate the Monument boundaries and lay down the law; I intend to repaint them and place them at the highway on the days of the exhibit.

Here I'm going to turn things over to Sallie who will tell you something about the exhibits and prospects.

I've been very cautious, even in my private expectations, about the quantity and quality of the exhibits in this first attempt; we probably won't know two weeks before the date set whether we'll have 15 or 50 rugs. But we do know by now that our friends of Wupatki Basin completely understand our wish for a simple exhibit of the best craftmanship of the Navajos; there was some natural confusion at first with the more usual "see-the-strange-Indian-and-his-odd rugs"

type of affair, to which the Indian is brought by promise of payment, food, gambling, etc. We want to play on their interest and pride of workmanship, and offer them examples of good work, old half-forgotten crafts, etc., and a probable market for their products. Working from that angle, we won't have as many Navajos the first time as would come if there were horse-racing, etc., but we are sure that in the long run our purpose will be served much better.

Of course this is a busy time of year for them--lambing just over, and shearing to come--but the winter is a favorite time for weaving, and next year we hope they will have most of their exhibits ready before the flocks take most of their time.

The children have been the most active contributors so far; nearly every one of them seems to have some aptitude at leather work, carving, drawing.

The local medicine man has promised to bring some "old things"; we are anxious to have good examples of pots, baskets, old type blankets, as well as newly revived vegetal dyes to show the Navajos; it is fun to see their interest in the things most of them have forgotten how to make. Van Valkenberg loaned an old dress which we haven't been able to keep as a surprise---by now I think everyone has been up to see it. Dr. Colton has offered to loan a few old blankets from the Museum; we would be very glad to get any such material. And we're hoping that any of you who can will come and see our "show."

P.S. The exhibition hogan will be a "5 and $\frac{1}{2}$ axe hogan." The hogan usually built for nite dance or mountain chant is a "six axe hogan." The unit of measure being the length of an axe handle!

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SUNSET CRATER

By James Brewer, In Charge

289 visitors registered at Sunset Crater National Monument this month; 1935, 273; 1934, no record.

States were represented as follows: California, 76; Arizona, 33; New York, 5; Illinois; Kansas, 4; Ohio, Texas, 3; Oklahoma, Washington, New Mexico, 2; vermont, Idaho, Indiana, Oregon, Rhode Island, Georgia, 1 each. Foreign countries: Poland and Belgium.

On the 15th Sallie, Jack and I drove to this monument to give it a spring cleanup. All cans, rags, bottles and litter were loaded into the roadster and hauled to Wupatki's dump pile.

We climbed to the Crater and while Jack walked around it I descended into the crater. When we met at the saddle on the west ridge each of us

had a collection of volcanic specimens and Sallie a collection of plants.

Jack took a fragment of each numbered specimen to Tucson where he will have them analyzed for our identification. After a cleanup at the minor squeezing-up we hauled our load to the Pueblo.

I hope to soon get into a huddle with Geologist Vandiver and order directional and informational signs for Sunset visitors enlightenment.

The cinders are very dry and roads are loose and bad.

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WALNUT CANYON

By J. Donald Erskine, Park Ranger

The travel figures for Walnut Canyon for the month of April reached 647, nearly double the total for March. Education contacts were made with 360 of these, and contacts other than educational were made with 45 more.

The travel was mostly from Arizona and California with California showing 183 visitors to Arizona's 228. The rest of the travel was spread out among 23 other states and several foreign countries. The foreign countries represented were: Philipine Islands, the West Indies, Holland, Argentina, South Africa, and Poland which contributed a Prince and Princess S. Czetwertynsk.

We were honored by visits from quite a number of Park Service people. First to arrive were Dale King and his mother on April 6. On April 10 Wildlife Technician Russell Grater, Ranger Natt Dodge, Ranger and Mrs. Worley, all from Grand Canyon, visited the Monument. On April 13 Ranger Duane Jacobs and family from Yosemite were here. Then on April 16 Chief Ranger Brooks and Mrs. Brooks from Grand Canyon stopped to see the ruins. On April 17 Ranger-Naturalist Paul Nesbitt stopped en route to Yosemite. On April 23 ECW Project Superintendent Chase and wife from Bandelier National Monument were here while I was taking a day off to see the Grand Canyon. And then I suppose I should include the two visits by Sallie and Jimmie Brewer from Wupatki on April 9 and 19. On the 19th I towed Jimmie's Chevie in from Wupatki with my own Chevie. Jimmie, I'm sure, joins me in wishing that sometime the Park Service will feel inclined to buy some good cars.

The weather on the whole has been good during the month. Since the first week of April the days have been warm and sunny and apparently typical summer weather without the thunderstorms. The first two weeks of April were very windy with snow two days during the first week. The past week has seen cloudy but warm weather. During the bad weather I have had to pull two cars out of the mud on the East Entrance Road.

During the month I put up the official Park Service Entrance signs at both the East and West Entrance Roads, where they meet U. S. 66, and I think they will help travel considerably as they are much more readable than the old signs. Also the official Park Service warning sign was placed at the parking area where all must see it before going to the Lookout Point of the Ruins. The stand in the Lookout where the registration book is kept was painted green in the hopes that a darker color would discourage those who feel the urge to write or carve their names in improper places.

Since the weather has been nice many picnic parties have used the Monument facilities. Only one camping party stopped during the month when three girls from California spent the night in the camp ground April 7. Also a picnic party appeared one night at nine o'clock and stayed until after eleven. On April 9 in the afternoon I was at the Lookout when I heard the strains of a beautiful chorale coming from the direction of the Ranger Station. Upon investigating I found the A Capella Choir from Arizona State Teachers College practicing in the little canyon in front of the Ranger Station. They were rehearsing the numbers they were to use at the Easter Sunrise Service at the Grand Canyon. It was a real treat to be able to hear them, and to meet the Director, Eldon Ardrey, I wish they would come every week, as both Marie and I are very fond of choral music.

On April 16 a request from the Stafford Grade School at Stafford, Kansas, was answered with a letter describing Walnut Canyon and the National Park Service.

Unless we have more rain or snow within the next month, I'm afraid that Paul will have to haul all his water from town. On April 2 I went down into the cistern to investigate the water depth, and found it only two feet deep, and now it is only one foot deep. While down at the bottom I removed a mouse that had fallen in. Incidentally we are not using cistern water for drinking purposes.

Also while on the subject of water I might mention that the ground cover now is very, very dry. Yesterday, April 24, I noticed smoke rising in the west about one o'clock. It looked very distant, so at first I paid no attention to it, but as it grew steadily worse I decided to investigate. My phone being out of order it was necessary to go to town to find out from the Forest Service where it was, and by that time it had swelled to large proportions and seemed to be up Walnut Canyon several miles from the Monument. After ascertaining its location, I hunted on many side roads until I found the head of the fire. The Forest Service had had men on the fire since eleven in the morning, but they hadn't sent enough men at first, and it got out of control when the wind came up in the afternoon. About the time I arrived two loads of CCC boys arrived. By seven o'clock last evening the fire was entirely circled and fairly well under control, so I left it to the Forest Service men to finish.

The fire burned over at least 500 acres and burned to within a short distance of Walnut Canyon about two miles above the monument. With the high wind I was somewhat worried that it might reach the Monument, but about six in the evening the wind died down and the fire with it. The cause of the fire was a burning truck belonging to a wood-cutter, who was badly burned himself in attempting to extinguish the truck.

Bird banding this month shows very meager results with 1 Shufelt Junco, 4 Red backed Juncos, and 1 Pigmy Nuthatch being banded. As yet the birds are not entirely dependent on us for water, so I haven't thought it wise to set up the water trap. However, more are coming for water each day, so It will soon be profitable to set it up.

The Sparrow trap is worthless now, as a pesky chipmunk chases the birds from it each time I bait it, and then promptly gets caught himself. At present most of the water I put in the bird bath is consumed by hundreds of bees.

The nature notes I have put down are as follows: March 27 a coyote seen on the East Entrance Road; March 28 Chestnut backed Bluebirds first seen; April 8 several Rock Wrens were seen in the canyon; April 9 saw many Violet Green Swallows and White-Throated Swifts flying in the canyon; also April 9 a Goshawk flew low through the trees in front of the Ranger Station; also April 9 I noted many lizards and several horned toads, with the numbers increasing daily since; April 11 an unidentified hawk sat in the bird bath for a half hour; April 15 saw several Slender-billed Nuthatches, a pair of Mearn's Woodpeckers, and a pair of Ruby-crowned Kinglets drinking at the bird bath; the same day a state highway patrolman reported seeing a Wild Turkey on the East Entrance Road; it occurred to me that the Robins must be mating now as they sing until quite late; April 16 two Lewis Woodpeckers drank at bird bath; April 17 several Western Chipping Sparrows were seen foraging in the back yard of the Ranger Station; April 13 I went to the bottom of the canyon and saw a pair of Spurred Towhees (have never seen them on the rim). The canyon wildflower display is just coming in and another week should see many more flowers out.

In closing I feel a deep regret that this will be the last report I will be privileged to make for Walnut Canyon. Marie and I have grown to love it here, and will be sorry to leave when we are relieved next week by Paul Beaubien.

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SAGUARO

By Paul Beaubien, Ranger

Haven't much to report this month, and I've been interrupted a lot trying to do that. Two of this morning's visitors, Mrs. Dorothy Disney MacKaye and Mr. Milton MacKaye, are authors, and were here to learn more about cacti and rangers. Mrs. MacKaye has a serial beginning soon in the Woman's Home Companion, while Mr. MacKaye's stories

have appeared in Saturday Evening Post, Redbook, etc. In a story nearing completion, Mr. MacKaye has a ranger arrest the villain for mutilating a saguaro. I suggested it would be better to have his villain arrested for shooting a deer. They departed promising to talk with you at Casa Grande, to find how "tough" a ranger should be.

Heard sometime ago that Dr. Shantz had been asked to prepare an article on the Cactus Forest for the National Geographic Magazine.

In regard to travel statistics, 681 visitors reached the ranger station, and 488 are listed as educational contacts. Probably, 1200 visited the monument. Since warmer weather, the steady "repeats" are finding a cooler place to picnic. It's unfortunate that the winter visitors did not see the desert in bloom. Some of the more showy plants are now at their best, but most easterners have departed. Have had only a car or two a day recently, but today, with some clouds and cooler weather, I've had six parties.

A few days ago, I visited a large Hohokam site, commonly believed to be on land included in the National Monument. Some one has excavated a few rooms, but there are still acres to protect or dig. I had been told there were lots of pictographs nearby but I only found a few in the short time I spent there.

Of interest also are some old lime kilns about a fourth mile southeast of the ranger station. Local informants say they were operated by soldiers when Camp Lowell was moved to a new site in 1873. (Camp Lowell became Ft. Lowell, 1879). The kilns present the same appearance as the lime kiln at Tumacacori National Monument.

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TUMACACORI

By Louis R. Caywood, Acting Custodian

During the past month visitor travel was heavy, with a total of 1,700 to the Monument. Of this total, 1,542 received guide service while 158 used only the facilities of the Monument. Forty-two states were represented, also five foreign countries; namely, France, Italy, Mexico, Canada and Scotland.

As Tumacacori lies on the International Highway, U.S. 89, the direct route to Guaymas, Sonora, a winter playground for American tourists, it is here noted that a great many of our visitors had been to Mexico or were contemplating visiting our southern neighbor. Also a great number of Mexican visitors from the states of Nayarit, Sonora, and Sinaloa visited the Monument on their way to or from their homes in Mexico.

During the month two important events were held at Nogales which attracted many visitors to that border town and incidentally to

Tumacacori Mission. One event was Frontier Nights, a bang-up celebration of the days of '49. All Nogales, both Arizona and Sonora, male citizens let their whiskers grow long and fancy and packed around young cannons while the female citizens wore the voluminous skirts and pantaloons and petite hats of the old days. This affair last from April 15 through the 19th. The other event was the 45th Annual Convention of the Arizona State Medical Association. Two hundred and fifty-eight attended this convention, which is said to be the largest number of delegates in the history of the state association. Governor B. B. Moeur addressed the convention on April 25 and on that day 75 physicians departed by special train for Guaymas, Sonora, to continue the convention on the Gulf of California.

On April 8 we enjoyed a very pleasant visit from the Boss and Chief Engineering Aide Tovrea of Headquarters. Both were a big help in showing us some of the fine points of architecture in the Mission and our only regret is that they couldn't have stayed longer. I know the Boss will say that we're never satisfied.

Other important visitors of the month were as follows: Paul Beaubien of Saguaro National Monument and his parents. Paul is our nearest Park Service neighbor and we wish we were able to see more of him. He brought some exotic cactus from Saguaro which I planted in the Cactus garden here at the Mission. Dale King of the Headquarters staff brought his mother down to see the border town and the Monument. We enjoyed their visit very much.

Mr. Frank Van Vleck of the Navy Department, Washington, D. C., was an interested visitor on April 2. Dr. Homer L. Shantz, President of the University of Arizona, and Mr. Leo Borah, a member of the editorial staff of the National Geographic Magazine, spent a short time seeing the Monument on April 6. Three officials of the Mountain States Telephone and Telegraph Company, Mr. A. R. Grosheider, Secretary and Treasurer, Denver, Colorado, Mr. H. D. McVay, Arizona Manager, and Mr. A. A. Sundin, District Manager, Tucson, were also Mission visitors. Mr. and Mrs. H. F. Brett of the U. S. Veterans' Facility, Legion Texas, Winnie's mother and dad, were our guests from April 11 to the 17th.

On Sunday morning, April 19, the windmill failed to pump anything but air. Examination of the well proved that the cribbing had fallen in and loose pieces of rotten wood had gotten into the pump valves. Lumber to make new cribbing was bought in Nogales on April 20 by Ranger Evanstad and arrangements were made through the courtesy of Mr. O. Smith, Chairman, Santa Cruz County Board of Public Welfare, for four men to report April 21 to clean the old cribbing and loose dirt out of the well and replace this with new cribbing. Four days were spent on this project and a very good job has been done under the able supervision of Ranger Evenstad.

Again the deathless germs begin their lives anew: A letter recently received from Dr. Ira B. Bartle of San Luis Obispo, California, thanks us for allowing him to take samples of adobe to see if they contained spores. Following is an excerpt from his letter:

> "A vigorous growth developed from the sample under the belfrey, in 24 hours with 94 colonies and 131 colonies in 43 hours. The samples from the Mortuary were much slower growth and of a greater variety of bacteria."

Now for our bird banding activities. Twenty-six new bands were used this past month in banding the following:

Arizona Cardinal	8
Canyon Towhee	3
Greentailed Towhee	1
Bendire Thrasher	2
Say Phoebe	4
Western Mourning Dove	1
Gambel Quail	1
Gambel Sparrow	1
Western Lark Sparrow	4
Cactus Woodpecker	1

With the coming of nesting season banding activities will be discontinued for the present.

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CHIRICAHUA

By Wm. Stevenson, Project Sup't.

Following is the monthly travel report for April.

During the month 550 visitors arrived in 150 cars. Twenty-two states and Canada were represented.

Travel was very slow during the first half of the month due to light snows and cold weather. However, since Easter, many tourists have been taking advantage of the camp grounds for overnite stops.

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CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Sup't.

I herewith submit the following report for the month of April:

Work was discontinued on the Massai Point-Balanced Rock trail April 10 due to shortage of men; however, 600' were completed this month, making a total of 1600'. Echo Trail is now completed for 6000'.

Poles and wire are on the ground for the Massai Point-Portel telephone line. Two and a quarter miles of poles have been set this month.

Planting in the camp ground and adjacent areas was continued for first half of the month. Seventy trees have been planted to date.

Excavation for buildings in utility area was started April 23.

Seventy one enrollees are due in today and will be available for work projects shortly after May 1.

Hub and Mrs. Chase of Camp NM-1-N, Bandelier National Monument, New Mexico, were here April 17-19 for a most welcome visit.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

In reporting the activities of Capulin Mountain National Monument, for April, I submit the following:

Visitors:

Approximately 600 visited the Monument. I have noticed several from St. Louis, Tulsa, Oklahoma City, and some from Chicago. For some reason or other Capulin Mountain appears to be going in for "big town" visitors. In spite of the road being in poor condition, all visitors go on to the top this spring and mostly take the trail and go around the rim. This is largely due, I suppose, to the fact that the weather all this month has been just like summer.

Weather:

We have had exceedingly warm and dry weather all thru the month with only about three windy days. I believe the average temperature for the month to be fifteen degrees warmer than the average April. Although nothing is getting green, this is due solely to the extreme dryness.

Roads and Trails:

The road is in poor condition caused by the constant falling or sloughing of rock and cinders and ash. The trails are in splendid condition, and the camp sites and camp stoves are also in excellent shape. It might be mentioned that the trails are all directly on top of the rim and they keep in good shape. The camp sites have been used a great deal this spring.

The Custodian promises at least two or three days with team giving the road a much needed dressing this next week. Although funds are not available for this work, it must be done and I am just the boy to do it.

In the early days during the gold rush in Colorado, miners would work in the gold mines at half price and sometimes apparently for nothing, carrying out their pay in their shoes in gold dust. I have done the same thing on Capulin Mountain, except mine so far has mostly been cinders in my shoes, but I have enjoyed it just the same.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

Time for a report to be on its way to your office to let you know the ups and downs we have been having here at Pipe Spring. Since the last report our weather has been very changeable. The first week we had snow, sleet and rain, and a lot of wind; then we had some very warm days which lasted a week or so; then again cold days and some stormy weather, but not much storm.

On the 31st of March we had one of the hardest wind storms that I have ever experienced at this place. Commencing about 7:00 a.m., the wind began to come up and by 9:30 a.m. it was so hard and so much dirt being moved that one could not very well get around outside. The ponds that evening were as red with dirt that it looked as if it were nothing more than flood water.

I believe the height of the storm was about 1:00 p.m., when a section of the roof of the upper house was blown off. It was not just the taking of the shingles or a few of the sheeting boards, but one third or more of the whole roof in one piece, carrying it up over the tower, breaking off the flag pole and then on over the east chimney knocking off a dozen or so brick and then landing it almost down to the east rock cabin. There it was pretty well broken up. After this happened I got busy and with heavy wire, nails, boards, and hammer I went to work and tied the rest of the roof down to the ceiling and rock walls, as at times the rest of the roof would raise an inch or so from the building. I believe I have the roof tied down now so that the wind will have to take part of the rock to get the roof again.

I have everything back except the flag pole. Intend to stain the new shingles to take the newness off.

I have not had any CCC boys working on the Monument since March 24, when they finished up the Diversion Ditch, Boundary Fence, grading the Parking Area, and what they could do on the walks. It seems that Mr. Draper has the idea that the ten men were for the sixth period only and not for the duration of the camp, but I believe we will be able to get the men back again now that we have had a talk with him, and especially if we can get the money to buy the material needed for the different projects.

I will get another letter off to you regarding the visit of Mr. Wirt and Mr. Keeling and the ECW work.

I have enjoyed the bird banding work up here very much and have a page of the nature notes for the month to add to this report.

We have had several very interesting visitors this month. Among the ones that I conducted through the fort were: Mr. and Mrs. W. H. Wirt, ECW inspector; Major and Mrs. Swift, CCC Regional Commander; Captain Shrivey, new camp commander here at Pipe; Mr. Hendrix, State Superintendent of Public Instruction of Arizona. A party of the Coconino County officials were very interested in the Powell monument and Indian ruins here and said that they would do what they could to get them put into the Monument area.

Total contacts for April, 96. Local travel I estimate at 530 (have not kept a close count on the local travel). The road is in very fine condition now and it will be so that one can get through in most any kind of weather.

On March 29 about 100 of the CCC boys were shipped home, as their six months were up. This left in camp some 70-odd boys who signed for another six months. On April 18, a new bunch of boys came in, making the camp now 156. Also a new captain was sent in, Captain Packer being transferred to a Nevada camp. Captain Shrivey seems to be a very agreeable man, and I believe there will be little or no trouble between the camp and monument, as he hasalready expressed him self to the effect that he will cooperate in any way to meet the wishes of the monument to preserve the vegetation and even wants to plant grass, flowers and cactus, if we can give him the water. I told him that I did not think there would be enough to do any great amount of planting, but I would do what I could to get some water for part of the ground.

The Army is now working like beavers to get the meadow pond in shape for a swimming pool. It is being lined with flagstone rock and cement in the cracks, so it ought to be almost water tight. There is only one thing that I don't approve of and that is the placing of the rock upon the banks as the lieutenant is planning, but I can see his point of having something for the boys to stand on so that they will not track so much dirt back into the pond. What I have asked him to do is place the rock not higher than the water level and let the grass and weeds grow up to cover the rock edges.

Yesterday, April 23, the Utah ECW Division of Grazing sent in a bunch of trucks and truckdrivers, and they hauled out everything that belonged to the ECW even to the office supplies that had not been used, and all broken tools; in fact, they have not a thing in which they can work with, and it is not certain when new or old equipment will get in here so that boys can go back to work. The headquarters for this ECW

camp is now in Albuquerque, New Mexico.

The trees in the camp ground are beginning to show signs of life and I do belisve that I am going to get a large number of grow. It is a little early as yet to say how many are growing, and how many I will have to replant next year.

I have added to the museum collection an old wood chisel, and have the promise of the photo of Duddly Lovett who with Amon Tenny and Bill Hamblin gave the name of Pipe Spring to this place in 1858. I have also gotten the cooperation of the President of the Daughters of the Pioneers of Kanab Camp to put in a good word for the Pipe Spring Museum and have convinced her that this place is the most likely place for the old pioneer furniture and relics. I have at every opportunity asked and mentioned the museum at Pipe to old-timers and about different pieces of relics, so maybe we can get it furnished as we want it.

Bird Notes:

I commenced trapping for birds March 31, with two Government sparrow, one woodpecker, and a warbler trap. I have also made one three-leaf-clover trap and started a four-compartment trap.

These traps I have had set in the meadow and by the old Fort. To date only the sparrow traps have caught anything of the birds traped. I have banded 43 Gambel Sparrow, 1 Nevada Savannah Sparrow. There were several birds, mostly sparrows, that I could not determine their names so I let them go.

I have had seven repeats of the Gambel Sparrows so far. Most of them have drifted further north, and other birds are coming in. The only feed that I have been using is some of the table crumbs from the CCC Camp.

The Flycatcher is back and is making a nest in the Old Fort, this time in the east room downstairs of the lower house on some braces of the ceiling joist. Also another nest is being made on the lower porch.

Did one good turn yesterday for the birds: made a killing of seven cats. Found a nest with one old cat with six little ones so finished there on the spot. Most of the dogs have been disposed of;one hound still stays around, however. It has been taken off several times but keeps coming back, and I haven't a gun to keep it away.

Would like some cards, about two dozen, date file and 100 band number file cards.

Lizards are coming out and have tried to identify some of them, but there are so many descriptive words for each lizard that I have about decided to leave the lizards to some one else to name. When it is the

classification I can get that, but the genera and names given to them---well I just can't get it yet. If you don't need the lizard book for a few weeks, I may get so that I can read the description of the lizards and name some of them.

A few snakes have been found by the CCC boys and killed for the skins, which they send home or put on their belts.

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CHACO CANYON

By Thomas C. Miller, Custodian

General:

The approach road to the south has been passable all the month with some maintenance and construction by the Indian Service. The approach road on the north has been impassable part of the month because of the blow sand north of Escavada Wash.

The Custodian attended a meeting, by invitation, held at Farmington by the Chamber of Commerce on the 21st. Governor Tingley and members of the State Highway Commission were present. I believe much good will be done to our road. The State now has machinery and men working on the road. The Indian Service agreed to put four dump trucks on the sand bed, hauling shale and building up over the sand dunes. At this time the road to the north is in better shape than I have ever seen it. This will increase our travel 50% from the north.

Weather:

The last five days in March and the first few days in April, we had our part of the wind storms. The Monument has more sand beds, caused by blow sand, than any time in history. After the wind storms the weather has been excellent.

Weather Statistics: Maximum temperature 76, on the 15th; minimum 11, on the 2nd; precipitation 21 inch of rain and melted snow was recorded for the month.

Travel:

791 people arrived in 98 automobiles, trucks and school busses. Coming from the following states: Arizona, California, Colorado, Conn., Kansas, Maryland, Minnesota, New Mexico, New York, Pennsylvania, Okla., Texas, Tennessee, Utah, West Virginia and Washington, D. C. Museum and guide service were rendered to 210 people in 25 parties during the month.

Meeting with Indian Service Officials:

A meeting was held in the Monument at Mocking Bird Canyon with Indian Service officials on the 10th. The purpose of the meeting

developed from a request made by Mr. Ed Sargent to the Indian Service that the Indians would have to be removed from his driveway on Section 22, the land belonging to the National Park Service, on which Mr. Sargent has a driveway for his sheep. It seems that the Indians were making Mr. Sargent pay from $30 to $50 every time he crossed this driveway with his sheep. It was learned at the meeting that the Indians were not charging Mr. Sargent to cross the Monument land, but were charging him to cross Section 14, just outside the Monument boundary. It seems that these Indians at one time owned this section of land, then in 1932 their allotment was cancelled in an exchange of lands with the Railroad Company. Mr. Sargent has the land leased from the Railroad Company. The Indians have lived there all their lives, have their homes and farms there, so they thought they owned the land. Officials present at the meeting were: Mr. M. Ratcliff, in charge of lands on the reservation; Mr. John Tyler, stockman; Mr. Marvin Long, senior clerk, Indian Service; and the Custodian of this Monument. It was strictly an Indian Service problem, and other than being present I took no part.

Special Visitors:

Dr. R. G. Fisher and Professor Stanley J. Milford, University of New Mexico, arrived on the 11th, and departed on the 12th. Mr. Hugh. C. Lewis, Department of Grazing, with headquarters in Salt Lake City, Utah, was a monument visitor on the 11th. Mr. A. E. Stover, Eastern Navajo Agency, and party were here on the 11th. Mr. Ed. Sargent, rancher, and also member of the State Highway Commission, was here on the 16th. H. M. Land, post office permit inspector, was here on the 17th.

Visiting Park Service Officer:

Custodian Jackson and family, Bandelier National Monument, was a visitor on the 21st.

Activities of Other Agencies in the Monument:

The University of New Mexico began construction on their headquarters building south of the Chaco Wash on the 13th. Formerly our water system at this monument was furnished by the University, that is, the Custodian's residence and the public camp ground, has been furnished with water from their well. In order to put water to their new headquarters building, with the pipe that they had on hand, they took up their line. We are now hauling water from the Government well, a distance of a quarter of a mile. We are badly in need of a water system at this time. We have enough water in the well, but no money available to pipe the water to the Custodian's house and the public camp ground.

The Soil Conservation Service has been working in Hungo Pavi Canyon this month. Much has been accomplished on erosion control.

Boundary Fence and Cattle Guards:

Regular inspection trips have been made by the Custodian. The fence has not been molested this month other than a few of our 17 gates have been left open. It was necessary to make trips on horseback to move stock out of the Monument and close the gates.

The two cattle guards on the main road through the Monument are fast becoming bridges. The one in the Gap on the south is almost leveled up with blow sand. These cattle guards were built by contract and there were no provisions made in the plans so that they might be cleaned out. It will be necessary to drill holes through the concrete head walls, large enough that the sand can be shoveled or raked out.

Yucca House and Hovenweep National Monuments:

After the meeting at Farmington mentioned elsewhere in this report, I inspected these monuments and returned to Chaco on the morning of the 22nd. Found everything in good shape. From evidence found around the ruins the early visitors havebegun to visit those places. The roads were pretty good.

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MONTEZUMA CASTLE

By Martin Jackson, Custodian

Weather:

Good weather conditions prevailed throughout the month, few cloudy days with some snow on the mountainous regions nearby. With the Easter vacation period ideal weather greeted the large crowds traveling at that time. Spring-like days are still holding out and so far we have had no complaints of hot weather.

Roads:

In general the roads have been excellent during the month. The roads in the valley proper have been even better than usual while the road up Oak Creek Canyon has been beyond reproach. However, the section of the State Highway 79 between Jerome and Prescott, one of the main arteries into the valley, has been in almost impassable condition during the full month. Had it not been for this, our total of visitors would undoubtedly have been much higher. It is thought that this section of road will not be completed before another three weeks or month.

Visitors:

The total number of visitors for the month numbered 1,054, 563 of which made the Castle trip.

Special Visitors:

Ranger D. D. Jacobs and family of Yosemite, California, Cashier

James Luther and wife, Carlsbad, New Mexico, and Dale King from Headquarters were with us during the month. Dale's trip, an inspection tour, occurred on April 6.

General Cleanup

During spare time and after hours during the month our regular cleanup of the grounds in the Castle and Picnic areas was undertaken ana accomplished. At present writing the grounds are in very presentable shape to greet the expected great influx of summer visitors.

Facilities

The picnic tables on both the lower and upper picnic grounds are in process of being painted at the present time. We have received signs from Bandelier quite recently and have erected most of them. We are still awaiting, however, sign posts from the Coolidge office to replace destroyed signs at neighboring road interesections. We hope these will be forthcoming before the summer season is upon us.

Irrigation

Irrigation of shade trees around permanent buildings has been begun during the last month. This rather meager supply will probably help some but as I have mentioned before, the present water system is too small (and antiquated) to do full justice to the needs of the monument. It is hoped an adequate water system will be established in the near future. If this is not done the work of planting all the trees in the immediate area of the permanent buildings, will be wasted as the present system will not take care of both the needs of the visitor and that of the trees and other vegetation.

Vandalism

The name RUTH (the "H" not crossed) was scratched in the plaster of one of the rooms in the Castle during the past month. The name was inscribed on or before April 20, 1936, and can be practically placed either the afternoon of the 19th or 20th. Since receiving notice from the Department of Justice in Phoenix, that they are charged with the duty of investigating violations "of the law on Government Reservations," we will, with the permission of the Coolidge office, turn this matter over to them at once. Unless some example is made of one of these violators there will be vandalism from time to time that is unavoidable.

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AZTEC RUINS

By Johnwill Faris, Custodian

Again the visitor record scores with one of the best like months since 1930. Visitors for the month total 701, and the same month in 1930 we showed 814. Figures for the years 1933, 1934, and 1935 were

468, 579, and 554, respectively, so we are quite proud of this year's showing.

Things have been moving along in good shape at the Monument. We started the month out right with a visit from Dale King, which also included one of these much dreaded inspections, and instead of it being dreaded in the future we are actually looking forward to the next one that we might see how much better we can present our show than we did the last time. Both Mr. Hart and I welcome these regular inspections and certainly do not feel that your office is snooping into our field. Our Monument benefited materially from the last one (or shall I say the first one), and we trust that each one shall point out a feature that we can correct and thus enable us to become that much nearer the standard that is the goal of the monuments area.

In addition to the inspection that Dale gave us, his visit was certainly worth while since it gave us an opportunity to go over much of our museum work and get it lined up for the summer season. We were still thinking over Dale's visit when Mr. Moffett from the San Francisco office drove in with several new case displays for the Monument. These were set up and in operation only a few days after they arrived, and we are testing them thoroughly and acquainting ourselves before the regular season hits us. We are very well pleased with them and instead of making it more difficult to explain the features as we imagined they might, we find that the new displays are working out fine, and that it is possible to get even a clearer picture across than it was before. Again Aztec takes its hat off to the boys in Berkeley and admits that they know their stuff.

We enjoyed Mr. Moffett's visit very much and hope that they send out their men quite often. In addition to meeting some splendid fellows we get a great deal of information first hand and realize the purpose of the displays and what they are intended, making it a great deal more simple to explain. We, meaning both Mr. Hart and myself, were scared to death of the history case as it first presented itself on paper, and upon installation we find that it is one of the most interesting cases in the museum.

This month finishes up the work of the ECW and we benefited greatly from the work here. As you mention, the sewer is the greatest benefit, but then the other work is of lasting benefit and enhances the value of our monument considerably. These past few weeks have been spent in general cleanup and rocking some of our ditches. Both of these items are needed badly about this time of the year, and the boys helped out a lot.

We are thinking about our parking area and hoping that we can get it completed before the visitors start coming too fast. There are several methods of doing it that we are considering at the present time; as soon as we decide on one, I guess that there is nothing to keep us

waiting very long for the completed unit. This, too, will be a big help to the monument and a need that is certainly being of long standing.

We were honored this month by a visit from one of our colleagues in the Service. Earl Jackson, Betty, and Mr. and Mrs. Morris were in for a short visit. We greatly regret that they could not have lingered longer, but realize that they wanted to get back to their own monument. It is asheme the way we custodians feel that our monuments will fall to tiny bits if we are not right on the ground almost constantly. Anyway, Boss, they are our babies and we just can not help worrying about them.

This month also brought us a visit from the Governor of the State of New Mexico, and the party that accompanied him on his tour of the northern part of New Mexico. The Governor has been very kind in his mention of our attraction and never comes by this section that he does not come out if only for a few minutes. We are proud that he feels this way about it and trust that we merit the consideration that he is giving us. In several of his speeches he has mentioned the Aztec Ruins and their value to the State.

We are in the midst of one of our prettiest seasons of the year right now. The numerous orchards in this section of the country are all in bloom right now and it is simply beautiful to see.

We have promise of some oiled roads in the county and since the State of Colorado is also planning a big road program of this section of its state, I feel that within the next year or two we might normally expect a large increase in the number of visitors.

Must get to other things, Boss. I am planning to make an official trip to the towns of Albuquerque and Santa Fe, and find, in order to attend certain meetings, that it is necessary for me to leave Sunday and I have a lot to do yet. Will write you in detail as to the results of this trip. It has promise of being very worthwhile to the monument, and I trust that I shall find this to be true.

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CASA GRANDE

By W. J. Winter, Custodian

The visitor count this month was 3,436. This seems to be somewhat higher than usual. It includes the following special groups:

March 27 - 24 in University of Arizona baseball squad.

April 3. - 36 of Social Science class of Pima Indian school at Sacaton.

April 3 - 60 of beginning archeology class of University of Arizona, Tucson.

April 7 - 20 21th J. W. Lesueur of the Mormon temple at Mesa.

April 9 - 100 in a motorcade promoting U. S. 80, "The Broadway of America," en route to a convention in California.
April 11 - 23 from the Roskruge School of Tucson.

April 12 - 175 attending the Easter sunrise service held at the ruins by the churches of Coolidge and Florence. This was not as well attended as in previous years because of the number of other similar services being held within a radius of 60 miles.

April 17 - 20 from the Juvenile Detention Home in Phoenix. So-called bad boys, but really not so bad as near as I could tell. In fact, I rather enjoyed showing them around.

Only one NPS visitor is recorded. Ranger D. D. Jacobs of Yosemite stopped to see us April 3. Of course, a number of others were in, but were calling on Headquarters, not the Monument.

A few other newsworthy visitors were noticed. March 26 we were visited by James E. Van Zandt of Altoona, Pennsylvania, National Commander of the Veterans of Foreign Wars. April 4 we met Colonel Frank Van Vleck of Washington, D. C., one of the founders of Sigma Xi, honorary scientific fraternity. April 15 we were pleased to greet W. B. Hare, climatologist of the U. S. Bureau in Phoenix. April 18 we were very glad to meet Charles Amsden, Secretary of the Southwest Museum of Los Angeles. April 19 there came John C. McGregor, Curator of Archeology of the Museum of Northern Arizona, Flagstaff. This custodian was not around while he was here and was mighty sorry to have missed him, as we are old schoolmates.

The weather warmed up a bit this month, reaching a maximum of 103 on the 17th from a minimum of 28 on the 2nd. Precipitation was zero.

Perhaps I should have listed this under "Newsworthy Visitors:" Our first rattlesnake of the season showed up in the ruins on April 7. Since there were so many visitors around he was speedily dispatched without ceremony. We hope to catch alive any more that show up, to be used for study purposes elsewhere.

Speaking of sneks, Ranger Charlie Steen returned April 14 from seven days' leave, spent in the old home town. We missed him considerably. Charlie says he missed us too, as around home he had to be polite to everybody. The afternoon of April 17 Charlie gave a talk to the third grade pupils of the Coolidge grammar school. Not having had much luck with the run of visitors that morning, Charlie said it would be a pleasure to talk to the third grade in the afternoon. I guess it was. The subject of the speech was "Birds" and I hear that Steen went over big, as he usually does.

The middle of the month was an occasion of great mourning around this Monument on account of the departure of Al Bicknell. Al's monument, Craters of the Moon, in Idaho, is emerging from its winter's hibernation under the snow and Al had to get back to shine things up in preparation for the summer tourist season.

The staff here is unanimous in wishing that Al could stay longer, permanently, in fact, for we think that he is the greatest asset this monument has had since the Boss moved up from the Custodianship. In addition to his practical capabilities we think that he is a swell guy personally, so surely are hoping that he returns next fall.

Took another day off this month (but perhaps we should keep that dark!) and went up the Apache Trail to visit Tonto National Monument. We arrived rather late in the evening and were sorry to miss seeing Woody who apparently had gone out to supper. We did have a look at the cliff ruin and I was glad to renew my acquaintance with the place, it having been seven or eight years since I last saw it.

This completes the list of monuments that can be visited on our days off. Others are too far away for a one-day trip so it's hard telling when we can get to see them.

We have finished Bob Rose's question survey but will let him do the talking about it as he conducted it for several monuments in addition to this one. I suppose that the dumb questions make the greatest impression on us, so much so that I was somewhat surprised to find that the great majority of questions were intelligent enough. It was, however, noticeable that many questions were asked after they had already been answered in the guide's talk. This was true with all guides. We used to charge this up to lack of intelligence on the part of the visitor, but upon considering the matter we have agreed that we really should not blame the average visitor for failing to assimilate the terrific mass of information with which he is deluged in such a short time.

Now for the monthly gripes about maintenance, inadequate appropriations, etc. I did not begrudge spending money getting our well pump fixed. New leathers were installed March 27 and water is now being pumped with considerably less loss of energy and time. I did hate to put more money into our electric plant, however. A new armature for the Kohler was necessary March 31. The money that we have spent on that plant this fiscal year was enough to pay for electricity for twenty years, at present rates, if we were hokked on to the line that runs by our fence.

Our other complaint, now chronic, the sewer system, is still very much with us. The atmosphere around the public contact area is pretty bad when the wind is from the direction of the ditch. I have oiled the open pools in an effort to keep down mosquitoes but still have many

misgivings concerning possible health conditions when the weather gets hot.

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TONTO

By Woodrow Spires, In Charge

A few more months like this one will justify a new road and a few of the other well-deserved improvements, such as a museum, a permanent custodian, and an improved picnic ground.

This monument is so situated that it is practically midway on the Apache Trail loop trip. Therefore people plan their picnic luncheons here. Several times there have been as many as three groups of picnickers here at the same time, which would make picnicking anything but a pleasure for two groups as there is only one shade tree on the parking area.

We could, for a small sum, fix up a very nice picnic area in the canyon below the cabin.

The travel and weather have been going along arm in arm until the last week when they must have had a falling out as there was a rise in temperature and a decline in visitors. Notwithstanding the last week, the month's total is 7.8% over the same period last year. The following figures are derived from SWM Stencil No. 16:

Total visitors at the Monument	878
Total time guiding	6,890 minutes
Total visitors taking field or ruins trip	546
Total time field or ruins trips	5,515 minutes
Total number of field or ruins trips	90
Average time field or ruins trips	61.2 minutes
Average group field or ruins trip	6.06
Total visitors museum trips	478
Total museum trips	88
Total time museum trips	1,375 minutes
Average time museum trip	15.6 minutes
Average group museum trip	5.4

Trips to the Upper Ruin were so few that I counted them as regular field or ruins trips.

This month brought more uninterested visitors than any previous month since I have been here.

Lots of special visitors this month: March 28, Lt. French, M. D. Reid brought 60 CCC boys from the Superstition camp.

April 1, Custodian Winter of Casa Grande, accompanied by the H.C.W.P.

and her parents, stopped by but missed me.

April 3, Prince ShahMir, Tiflis, Cancasus, was an interested visitor.

April 4, Mrs. John F. Tanner and 60 students from the University of Arizona.

April 5, Dale S. King,Jr. Park Naturalist, stopped by for a visit and an inspection.

April 8, a Prince and Princess of Warsaw Poland were interested visitors.

April 15, D. D. Jacobs and family of Yosemite National Park stopped for a couple of hours.

April 16, Mr. & Mrs. James Luther of Carlsbad Caverns National Park were extremely interested visitors.

April 26, Mr. and Mrs. Elmer Rising of Harvard, at present illustrating the Snaketown dig for Gila Pueblo, were interested visitors.

The general work program for the month included the finishing and painting of the new latrines, the destroying of the old ocatillo fence and some cleanup work.

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EL MORRO

By Evon Z. Vogt, Jr.

Business is picking up. This month's visitors total 42. This is no stupendous number, of course, but it looks pretty big to us considering that we had only 16 visitors in March and none in February.

Newsworthy visitors include Earl Jackson, Custodian of Bandelier National Monument, and wife, and Mr. and Mrs. Frank Vesely from Santa Fe. Mr. Vesely is New Mexico's Commissioner of Public Lands. I was certainly sorry to miss Earl Jackson. I wanted to meet him and show him El Morro. This monument is usually so isolated that we seldom are honored by visits from other custodians.

The weather has been generally fair all month and roads are in unusually good condition. The road to Gallup has been smoothed down by Indian Service and county graders. A crew from the Navajo Central Agency just finished grading up the road from Ramah to the El Morro Airport. This leaves only three miles of unworked road all the way from Gallup to El Morro, and this little portion is even quite smooth.

I am glad to report that the switchback trail up the north side of

the Rock is in good condition despite an unusually large run-off from winter snows. Last spring this trail was washed badly by the run-off, but the deepening of the drainage ditches last summer apparently prevented a similar occurrence this spring.

This is the month when all farmers in this region come out of hibernation and begin their struggle for existence for another season. Bean farmers, homesteaders, and Navajos all get out their plows and harrows and really make the soil fly. There seems to be an exceptional awakening in the Ramah Valley where one ambitious farmer has even plowed up the baseball field.

The reason for this is that the Ramah Irrigation Reservoir is three feet higher than it has ever been, and farmers in the valley expect a bumper crop. The Navajos are also breaking more sod than is usual proving that this Ramah Chapter of Navajos is an industrious and self-reliant bunch who are not dependent on the government.

Last spring I reported that the piñon business would boom this fall, and now I am quite sure that it will, for all the piñon trees in this country are heavily loaded with small cones which will bear nuts this fall.

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NAVAJO

By Milton Wetherill, In Charge

I am enclosing SWNM-16, Visitors Report for March, which shows 31.

When I came up the first of the month.(March) I found that things were three weeks to a month ahead of last year at this time. The willows and Aspen are showing catkins, (flowers) and several other spring plants are in bloom.

Most of the Juncos have left, although I see a few Grey-headed Juncos. They are general the last to leave. One or two of the summer resident birds have come in but not many. Have been unable to get any banding done as the Chipmonks and Squirrels clean up the feed faster than it can be put out. (Will have to get 24 feet of 24-inch rabbit wire netting and put a fence around the traps).

Had our big snow March 22; started between one and two a.m. The first was a wet snow and melted almost as fast as it fell; snowed nearly all day. Would probably have accumulated 15 or 16 inches on the ground if it had laid on.

Trail work is slow but another week or ten days and the upper half will be finished. The switch backs on that steep rocky fill will help. I am afraid the goats will give us trouble as they do not care where they go.

Birds in Be-ta-ta-kin Canyon:

Woodhouse Jay		Shufeldt Junco
Longcrested Jay		Greyheaded Junco
Pinon Jay		Ravins
Clarks Nutcracker		Say Phoebe
Spurred Towhee		Flammulated Screech Owl
Tit-mouse		Red-shafted Flicker
Bush-tit		White-breasted Woodpecker
Canyon wren	Robin	Rocky Mountain Nuthatch

Banded two spurred Towhees, one Shufeldt Junco, four gray-headed Juncos.

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BANDELIER

By Earl Jackson, Custodian

Visitors:

Visitors numbered 742, arriving in 214 cars, from 30 states, England, Toronto, and Montreal. Only 22 states were represented by cars.

The six highest states by visitors were: New Mexico, 468; Colorado, 91; California, 34; New York, 24; Illinois, 22; Texas, 14.

Visitor attendance is quite satisfactory, being by far the biggest April in history. As compared with travel figures of 648 for April of last year, we have an increase of 13.35%.

On three separated days during the month, I checked the percentage of return visitors. In 60 visitors there were 16 returns, or 26.66%.

Weather and Roads:

Days partly cloudy:	15	
Days cloudy:	7	
Maximum temperature:	77	April 14.
Minimum temperature:	17	March 25.
Mean Maximum:	58.77	
Mean Minimum:	32.51	
Precipitation:	.79	Against 1.03 for April, 1935.
Snowfall:	4"	March 30 and April 6.
Rain and Sleet		April 5, 18, 19, and 20.
Dust Storms:		April 16.

Weather has been mild. Snow melted within a few hours after falling. Only one bad dust storm occurred, with total limit of visibility at two miles.

Roads have been good, although slightly corrugated in places. At no time has there been difficulty of approach.

Visitor Trip Chart:

Seventy-four parties took the guided trip through the ruins, numbering 284 people. Average time per trip was 59.32 minutes. Nineteen parties, numbering 63 people, were given talks without ruins trips, or with only partial ruins trips, averaging 22.52 minutes per party. All visitors to the monument were contacted and registered.

Special Visitors:

March 27 - Lieutenant Cosgrove, Sub-District Commander, CCC, was in. He is a new man in the position.

April 3 - Warren C. Hubert, Science Department, a professor in the College of the City of New York, was in with his family. They were an exceedingly interested party.

April 5 - Fred C. W. Parker, Secretary of Kiwanis International, was in for an afternoon visit.

April 8 - Jack Diehl was in and out again on official business.

Lieutenant Colonel John A. Hoag, Field Artillery, U. S. Army, was in.

April 9 - Dale King and his mother were in for the better part of a day, and out again. As usual, Dale and I exchanged much speechifying, and we jointly took his mother through the ruins. She held up admirably under the strain of having two guides take her through, although Dale allowed me to do most of the orating.

Mr. and Mrs. Raymond V. Ingersoll, of Brooklyn, New York, were visitors.

April 10 - Mr. and Mrs. Charles C. Morris, of New Haven, Connecticut, arrived for a ten-day visit with Betty and I. They are my ancestors-in-law. He is an ardent bird and nature enthusiast, and she is quite interested in archeology and ethnology.

April 11 - 15 high school students from Hollene, New Mexico, were in for an afternoon guided trip.

April 13 - A. E. Borell and better half arrived for a six-day stay. Their very elegant new trailer was the envy of all eyes except mine. The reason I didn't envy them was the ceiling was so low I couldn't stand erect under it. The trailer is exceedingly well furnished and comfortable, and I see the time when our camp ground is going to have to be modified to handle trailers as well as autos.

April 14 - Norman Appleton, parasitologist in charge of the PWA Tent Caterpillar Laboratory in Santa Fe, was out for further discussion of the caterpillar problem.

April 17 - Dr. and Mrs. H. E. Hawkes, of Columbia University, were in for an afternoon. Dr. Hawkes is Dean of the undergraduate college there. He has been here two or three times before, but is always interested in each new development.

April 19 - 24 students of the Pojoaque public school were in to picnic.

Nature Notes:

Apparently the beavers have left Frijoles Canyon. There are no signs of fresh dam or timber work, and the beaver house found by Landscape Foreman A. C. Groce is abandoned and filled with silt. If there was only one beaver, it is thought he may have gone back to the Rio Grande river to bring himself back a wife. Otherwise, living possibilities here may have been found too frugal.

The garter snakes are out, several having been seen. The lizard population blossomed out almost overnight a couple of weeks ago. Horned toads are stalking through the grass.

Birds are arriving rapidly. Bird banding is now practically a dead issue, but Betty's report will mention several spring arrivals.

General:

With the report I am submitting the requested 30-day check-up on the questions visitors ask. Of course, a lot of questions were asked that the CCC boys, who were helping guide, and myself, couldn't remember, but we got down all we could. Over the 30 days 669 visitors asked 182 separate questions, and by counting repetitions of questions we get 424 questions.

A hasty estimate of percentages of questions asked on different subjects follows:

Archeology	48.5%
Park Service	16.5%
Geography	14.5%
Geology	5.5%
History	5.0%
Nature	5.0%
Personal	5.0%
Total	100%

The commonest question asked, in fact, more than twice as common as any other was: "What is the altitude here?" The next four questions, all of the same frequency, were:

"Did the Indians live in all of thos holes?"
"Do you charge for a guide?"
"How many visitors a year do you have?"
"How far up and down canyon do ruins extend?"

Archaeology Notes:

A half mile up canyon from the Ceremonial Cave, on the same side of the stream, Betty's father discovered an hitherto unmentioned cluster of cave rooms. These rooms were eight or ten in number, and some were quite well preserved. They are located atop a very high talus slope, requiring a considerable climb to reach them. One room has the original front masonry wall almost entirely intact, and shows the sockets for the lintels. This is the best preserved front section we have found in Frijoles Canyon.

Field Trips:

On April 20 Betty and I accompanied her folks on a four day trip, to see some of the monuments I had never seen.

We motored to Aztec Ruins the first day, via Bernalillo and Cuba. Ranger Hart started us through the ruins, and presently Johnwill joined us, and together they really made it an exceedingly interesting and instructive visit. Those fellows are really on their toes.

Johnwill demonstrated his silent support of Darwin by a graceful trapeze act through one of their trick doorways, and then we went to the Museum Building and saw the model museum. I like it, but agree with Johnwill that it could be improved. I don't believe the new tree-ring explanation case is as easy to understand as the old chart he was using.

Next day we drove down to Chaco Canyon, almost got stuck in the sand on the north mesa, and met Carrol Miller as he was leaving for improtant business in Aztec. After a 30-minute chat with him we went on to headquarters, met the Missus, who also welcomed us cordially, and had lunch.

Mr. McKinney guided us through the ruins of Chettro Kettl, through Bonito, the museum, and across the Wash to the ruins of Rinconada. Although he protested that he knew very little about the ruins, he disproved the contention by rendering a very capable and interesting interpretation of the ruins.

From Chaco to Gallup the roads are as bad as they were nine years ago.

From Gallup we went southward to Zuni, then across to El Morro. Mr. Vogt was away, so we visited the monument unattended. The roads were bad, but the monument was quite worth while. We enjoyed the climb to the mesa top, the view, and the Indian ruins far more than we did the inscriptions. That is a marvelous ruin, and the abundance of pot sherds indicates quite a long occupation. It's too bad an archeologist can't stick his shovel in it.

From El Morro 40 miles over the Continental Divide to Grants is the worst road it has ever been my privilege to gaze upon. I wouldn't send the meanest man in the world over that stretch. Part of the time you can make 12 miles an hour over it. We saw the road when it was practically dry, too.

En route back to Bandelier we visited Acoma, Laguna, and the Laguna Church. A custodian couldn't have had a better educational trip.

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BANDELIER FORESTRY

By James Fulton, Forester

On April 2 I returned from Chiricahua, having started a planting project which promised to proceed satisfactorily without my continued presence.

Most of this month my time was spent at most any odd job. For the past two weeks, I have been doing painting in Quarters No. 1. In a few days the Forest Service will permit me to begin cutting timber for Quarters No. 2.

About April 29, beetles began attacking the landscape-planted trees. The extent of their damage has not been determined at this time. Next month I expect to carry out a control project and I will submit a complete report at that time.

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HEADQUARTERS STUFF

BRANCH OF EDUCATION

April was a hectic month for the Educational Staff, with its three members scattered far and wide over the west.

Park Naturalist Rose was occupied with office routine matters until April 14, when he left on an officiel business trip to Rocky Mountain National Park, remaining there the rest of the month. Mr. Rose's report of his month's activities will be included in the May report.

Junior Naturalist Caywood was stationed at Tumacacori National

Monument on relief duty. While there he made considerable progress on the museum layout plan for that monument.

Junior Naturalist King left Headquarters April 5 for a trip through several northern monuments and then to the Field Division of Education Offices in Berkeley, California. He returned to Headquarters April 24.

Report of Junior Naturalist Dale S. King

The period from March 25 to April 5 was mainly occupied with preparing the March Monthly Report.

L left Headquarters April 5 for Bandelier National Monument, making inspections of Tonto, Montezuma Castle, Aztec Ruins, and Bandelier. Walnut Canyon was also visited. Botany blotters were delivered to the mentioned monuments, and a large museum storage case was taken to Bandelier.

April 10 I left Santa Fe for Berkeley where eight days were spent in consultation with the Field Division of Education staff concerning museum problems in Southwestern Monuments.

In addition to much detail, the following are some of the problems which received attention:

1. Selection of deep wall cases to be tried experimentally in the Bandelier museum.

2. Determination upon a standard color scheme to be used in maps and charts in Bandelier museum.

3. Division of Bandelier exhibit projects to be worked upon by (a) Berkeley Laboratory (b) Custodian Jackson and Southwestern staff.

4. Final planning of two Bandelier cases and consultation with preparators and technicians.

5. Preparation of complete Bandelier layout plan for approval of Director and Educational Division.

6. Re-submission of several temporary Aztec museum exhibits to Berkeley for preparation of final exhibits.

7. Collection of several finished Aztec exhibits to be displayed at the Monument before the travel season starts.

8. Selection of one definite exhibit for Tumacacori on which to start work immediately. Same for Montezuma Castle.

9. Discussion of cases and layouts for Casa Grande and enlarged Aztec museums.

10. Discussion of museum building plans for Casa Grande, Tumacacori, Montezuma Castle, Bandelier, and Aztec.

11. Discussion with Branch of Plans and Design concerning case, heating, and lighting plans for Bandelier.

I visited Wupatki National Monument the morning of April 24 and arrived at Headquarters that night.

Report of Junior Park Naturalist Louis R. Caywood:

The month was spent at Tumacacori National Monument on relief duty. Considerable time was spent on preliminary plans for the Proposed Museum Exhibits Plan for this monument. The remainder of the time was spent in giving guide service. For further details see the report for Tumacacori National Monument.

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ENGINEERING

By John H. Diehl, Park Engineer

A. E. Clark, transitman, and C. E. Schmidt, rodman, with the assistance of CCC enrollees, have been busy the entire month on topography mapping at Chiricahua National Monument.

J. H. Tovrea, chief engineering aide, at the Coolidge headquarters office, has attended to general office matters and preparation of maps and plans.

Duties at Carlsbad Caverns National Park and in the field kept me away from Coolidge headquarters the entire month except for three days, April 15 to 18. During the time at Coolidge the Roads and Trails Six-Year Program was studied and outlined. A total amount of $2,816,000 was estimated for this program, including $61,750 for preliminary surveys. Priority of surveys over project construction is not only logical, but I believe this is the first time that a Park Superintendent has definitely gone on record to that effect.

On April 3, with Chief Engineer Kittredge, White Sands National Monument was visited and engineering problems discussed.

Two other visits during the month were made to White Sands in connection with the construction project being carried on by the Resettlement Administration.

April 8, Bandelier National Monument was visited and 7th period projects discussed with Project Superintendent Chase of the CCC camp.

His enrollment at this time below 100 was retarding progress on the various projects underway.

Three trips were made to Gran Quivira National Monument, where Foreman Gipe met with difficulty installing pipe in the well, owing to the bore at the time of drilling having gone off at an angle. This angle throws an additional strain on the pump, and friction on the sucker rods will cause future maintenance troubles. At present a pumping period of 1½ hours exhausts the water supply, but it is expected that time will increase the flow and relieve this condition.

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WILDLIFE DIVISION

(Extracts from a report of A. E. Borell, regional wildlife technician)

White Sands National Monument

(1) Weather: Heavy wind and dust storms.

(2) Scientific studies: Continued observations on birds and mammals. Migrants were first observed as follows: Spoonbills, March 15; Bufflehead, March 21; Sandpiper (Least?), March 21; Black-necked Stilt, March 21. A total of 43 species of birds were recorded. Two of these, Bufflehead and Sandpiper, Least?, were new to my previous records. This makes a total of 73. Five specimens of birds and mammals were prepared as study skins. All of these were new to the monument collection, and one, Sandpiper, was new to the monument list.

(3) ECW Supervision: Went over levee and road work several times. All work was progressing rapidly and satisfactorily.

Considerable time was spent on office work.

CHiricahua National Monument

(1) Weather: Cold, cloudy, windy.

(2) Scientific studies: Recorded 26 species of birds. Two of these, Painted Redstart and Black Phoebe, were new to the monument list. Prepared two study skins.

(3) ECW supervision: With Project Superintendent Wm. Stevenson went over all of the trails on which crews are working. The trail work deserves commendation. The trails are being kept to a minimum width, and great care has been taken to avoid

damage to vegetation and rock formations during blasting. Rock supporting walls have been carefully laid so as to give a natural appearance.

Planting of trees and shrubs in the camp ground area is now being started. I am afraid that it is so late in the spring that there will be a comparatively heavy loss among transplanted trees and shrubs.

Saguaro National Monument.

(1) Weather: Mild and sunny.

(2) Scientific studies: Ten species of birds were recorded. One thrasher nest (probably Palmer's), with four half grown young was located in a cholla.

In Phoenix, I discussed mountain lion control at Saguaro National Monument with B. E. Foster, District Agent, and H. P. Williams, Assistant District Agent, U. S. Biological Survey. These men provided the following data:

1. There are five Biological Survey lion hunters in the State of Arizona.

2. They take about 140 lions each year.

3. Lions are not numerous in the Rincon Mountains, in which Saguaro National Monument lies.

4. Not over eight lions have been taken out of the Rincon Mountains during the past three years although several hunting parties have hunted the area. There are three private lion hunters who hunt occasionally in the Rincon Mountains.

5. One lioness, containing three embroyes, was taken from the Rincon Mountains on January 14, 1936, by Frank Colcord (U.S.B.S. hunter), but he was unable to take any others during the next ten days of hunting.

Mr. Foster said he does not have enough hunters to satisfactorily cover the state, and assured me that he would be quite willing to keep his hunters out of the monument if the Park Service requested him to do so. He further stated, that if in the future, due to pressure by cattlemen, the Park Service wanted lion control, he would try to send one of his hunters if the Park Service requested him to do so.

(3) ECW supervision: Most of the Crew is working on road repair and old road obliteration. All work is being done carefully, and I saw no damage to cactic or other vegetation.

CASA GRANDE NATIONAL MONUMENT

(1) Weather: Warm and sunny.

(2) Scientific studies: Recorded twenty-three species of birds. One of these, Brewer Sparrow, was a new record for the monument. Put up three study skins (Verdin, Vesper Sparrow, Brewer Sparrow) which were new to the monument collection.

(3) ECW supervision: With Superintendent Pinkley and Park Naturalist Rose went over ECW, museum, and wildlife programs for White Sands, Chiricahua, Saguaro, Chaco Canyon, and Bandelier National Monuments.

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CLOSING

Well, Chief, the record would seem to indicate that we did manage to keep busy last month and I think every one of our men will agree that the record is right.

You will notice that we have had quite a shifting of men this past month. Mr. W. H. Smith, of Gran Quivira National Monument, retires because of ill health. Mr. Boundey goes from Tumacacori to Gran Quivira where, being more or less used to pioneering conditions, he settles down to carry on the good work Mr. Smith has so well started.

Mr. Caywood transfers from headquarters to Tumacacori where he can stay in one place for awhile instead of flitting hither and yon as he has been doing this past year or so and also where Winnie's health seems to be much better.

Charlie Steen shifts across the porch at Casa Grande from Ranger, Casa Grande National Monument to Junior Park Naturalist, Southwestern Monuments, and thus becomes the shuttle which, flying back and forth, will strengthen the web of our organization during the coming year

Don Erskine comes down from the northern part of Arizona where he has been pinch hitting at Walnut Canyon, and becomes ranger at Casa Grande just as we break into the so-called dull season and the hot weather.

Luis Castellum will be our ECW Clerk, vice Robert Cole, resigned. This isn't such a big change for Luis as he will remain right here in the office, which is good news to the local volley ball players who play out on the residential parking area each Tuesday and Thursday night

Paul Beaubien is spending a day or two at headquarters as this is written and then goes up to take over Walnut Canyon for the summer

All of us, and I am sure this includes yourself, Chief, join in wishing Mr. W. H. Smith a speedy return to good health. We understand that he is going back for a visit at the old home in Arkansas this summer to rest and renew old friendships. He is the first man we have had go under the Retirement Act and we are again impressed with the wisdom and justice of that act. We have had no more faithful and enthusiastic worker in the last fifteen years than Mr. Smith and it is comforting to

know that he will continue to receive a pay check which will do much toward warding off financial worries. We of course will still consider him as one of our men to be carried on our mailing lists, to whom we can go for advice as to future development at Gran Quivira, and who will, we feel sure, always maintain his deep interest in our work.

I think you will agree with me that the reports this month are good and the men are keeping up a sustained interest in their work. That these reports of our men seem to carry a wide interest is evidenced by the following letter which turned up in the mail yesterday:

> "We have in our files some copies of Southwestern Monuments Monthly Report, beginning with February, 1935. Is this publication available for free distribution? If so we shall be very grateful to have our name placed on your mailing list to receive it regularly. If they are in print may we have the back numbers necessary to complete our file? They are January, April, June, September and November, 1935 and on to date. Our reference department will be able to make valuable use of this material."

That was from one of the largest County Public Libraries on the Pacific Coast.

And here's one from another division of our own Service:

> "If it is possible I would like to get current copies of your monthly narrative reports, and whatever back numbers are obtainable.
> "On a recent visit to Wind Cave National Park I discovered the November issue attached to the other narrative reports of the parks and monuments. There is a wealth of ideas and information contained therein which I am sure would be of immense practical value here at ----------."

If we weren't so modest, Chief, we would feel all puffed up by letters like these!

Cordially,

Frank Pinkley

Superintendent.

THE Supplement



SUNSET CRATER GEOLOGICAL REPORT

By Vincent W. Vandiver, Regional Geologist

INTRODUCTION

The almost perfectly preserved crater of an extinct volcano, known as Sunset Crater, was established as a National Monument on May 26, 1930. The name is derived from the various shades of red color of the cinders in the upper portion of the cone which gives the appearance of being illuminated by the setting sun. To the Hopi Indians Sunset Crater was called "Kana-asKatchinki" which refers to the house of Kana-asKachinas, a group of friendly spirits who are supposed to dwell in the crater. The reserve area of the monument contains much of interest besides the remarkable crater and includes very recent lava flows, fissures or vents, contacts of the different flows, and ice caves. The reserve covers 3,040 acres and is located some ten miles east of the summit of San Francisco Mountain. The distance from Flagstaff is seventeen miles. It lies approximately ten miles north of U. S. Highway 66 and is therefore most accessible to a main route of transcontinental tourist travel.

NATURE OF REPORT

H. H. Robinson has given an admirable geological report on the "San Franciscan Volcanic Field of Arizona" in the United States Geological Survey Professional Paper No. 76. Since the facts covering this area, of which Sunset Crater is a part, are presented in such detailed manner in this report that there seems no need for duplication as regards to minute description of the geology. It is not considered possible at any rate to make meritous contribution to such a treatise without months or even years of field work.

It will therefore be my endeavor on the following pages to outline briefly the geological history of the area of Sunset Crater and vicinity; to indicate certain important features connected with this history, which should be brought to the attention of the visitors, by signs along the roads or trails or in a wayside shrine, in order that they will carry away a more complete and vivid picture; and to point out my observations which you may care to consider in any development of the monument, which in my opinion will best portray the geological phenomena of the area. It is also hoped that this resume will be useful to the Rangers assigned to this monument.

PHYSIOGRAPHY

The volcanic field of the San Francisco Mountains occupies a large part of the southern portion of the Colorado plateau region, wherein is located so many of the natural wonders now included in the National Park chain. This field has an area of some 3,000 square miles. Within the large plateau area are lesser plateaus, outlined by canyons trending generally north and south (with the exception of the Grand Canyon of

the Colorado), fault scarps with the same general trend, and erosion escarpments trending mainly east and west. Strictly speaking there are no mountains in the plateau region with the exception of the volcanic masses of Mount Trumbull and the San Francisco Mountains.

The most conspicuous landmark of the San Francisco Mountains is the San Francisco Peak, which attains an elevation of 12,611 feet above sea level, rising approximately 5,000 feet above the surrounding plain. This mountain is surrounded by several other large peaks ranging in elevation from 8,500 to 10,500 feet above sea level. The general area of the volcanic field is studded with cinder cones, but since few of them are more than 700 feet in height, they appear insignificant as one drives among them. They are indeed more impressive when viewed from the tops of some of the larger peaks or if studies on the U. S. G. S. topographic map of the Flagstaff quadrangle. Sunset Crater is one of the more prominent of these cinder cones, having an elevation of 8,000 feet above sea level, and rising some 1,000 feet above the level of the adjacent country.

The drainage for the volcanic area finds its way in due course to the Colorado River. The water courses or washes are comparatively few in number and they naturally radiate from the higher portions of the field. Oak Creek is the only perennial stream existing in the region and it is fed by several large springs which come to the surface at the intersection of two fault planes at the head of the canyon. The climate of the plateau country as a whole ranges according to altitude from semi-tropical to temperate.

Robinson (1) mentions some special characteristics of the lava flows which have caused numerous minor changes in the drainage system of the area. He states that the damming of the water courses has given rise to small lakes, some of which still persist, while others have been drained by the cutting down of the obstruction that formed them, although not before they had been more or less filled with sediment. The grass covered glades, which are a picturesque feature of the landscape throughout the pine forest, generally indicates the location of former lake sites. Two typical examples of drainage modification by lava flows may be observed on the Little Colorado River at Black Falls and Grand Falls. It may be worth while to consider side trips to these two points for people visiting Sunset and Wupatki National Monuments. At least some interesting models could be made of these features for a wayside shrine which would depict the encroachment of lava on the stream and the changes resultant therefrom.

GEOLOGIC HISTORY

The Paleozoic Era of the plateau is admirably represented in the section which is exposed at the Grand Canyon of the Colorado. Various types of sedimentation are represented in this section, extending from

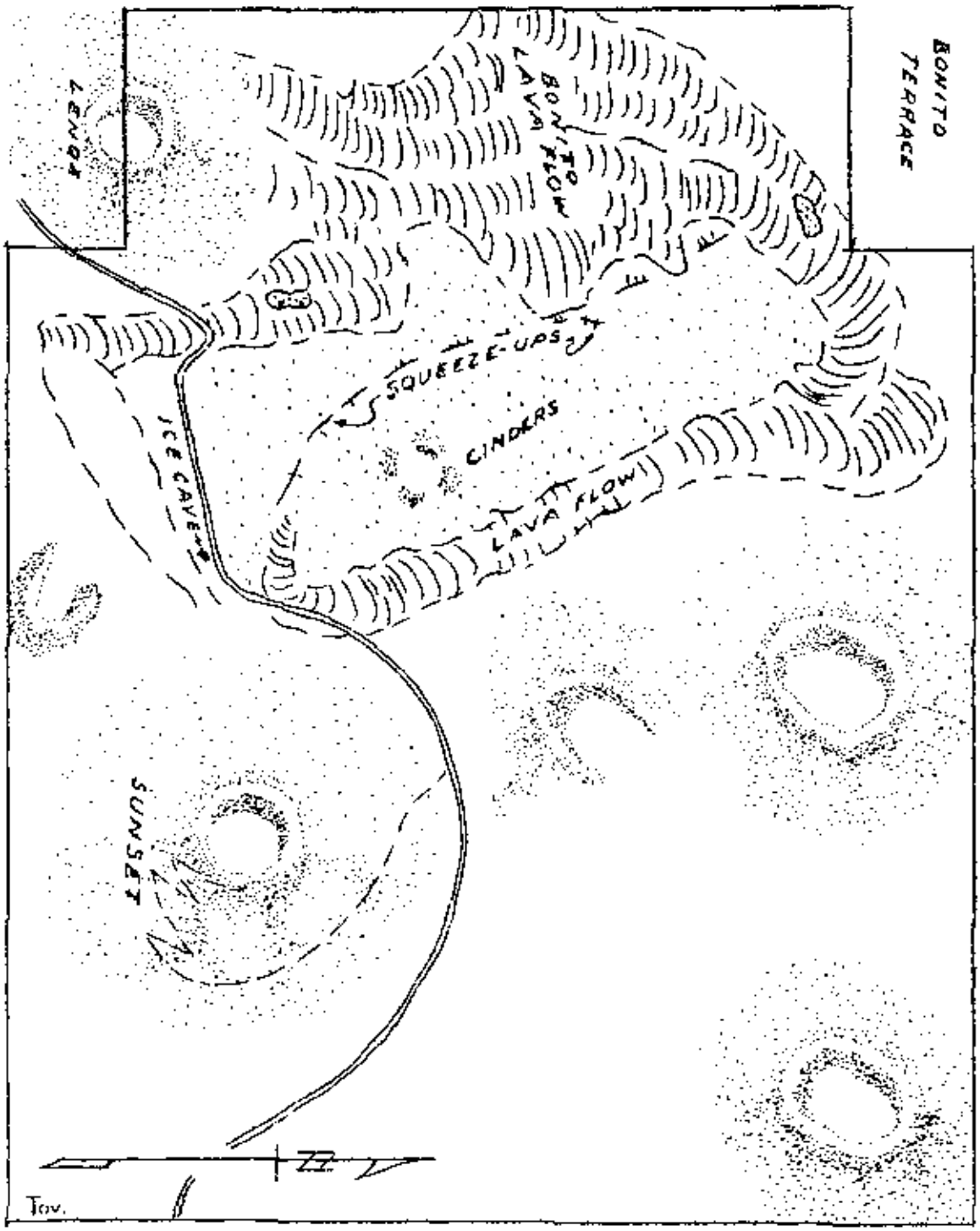


PLATE NO 1
SUNSET CRATER NAT. MON.

the Tonto platform to the rim of the canyon. Deposits of marine sediments are present which contain shells and corals; beach and flood plain deposits are represented by formations bearing sea weeds and the remains of crab-like animals; also formations of continental origin, such as great thicknesses of dune sands, containing tracks of primitive reptiles or amphibians. Thus during this era there is evidence of repeated fluctuations in the land surface with the resultant encroachment and withdrawal of the seas. At the close of the era the seas had invaded most of northern Arizona as indicated by the widespread distribution of the Kaibab limestone formation and the abundant fossil record of marine life which it includes. This formation forms the rim rock at the Grand Canyon and may be observed in most any direction near Sunset Crater.

The Paleozoic is followed by the Mesozoic Era and from a study of the formations included during this interval it is evident that there were also fluctuations of the sea during this time but in the main the lands were generally depressed. Great thicknesses of sandstones, shales and limestones were deposited on top of the Kaibab formation. At the close of the Mesozoic (Age of Reptiles) the waters retreated and the era of recent life of the Cenozoic followed.

The surface of the earth is rarely stable and constant adjustments are being made even at the present time. When strains or stresses are too great during these crustal movements, faulting and fissuring takes place, and oftentimes quantities of molten lava is poured out on the earths surface through these vents or lines of weakness. Adjustments on a huge scale were in vogue at the close of the Mesozoic when the great Rocky Mountain construction took place.

During the Miocene period of the Cenozoic the area west of the Little Colorado River was rising to form what is known as the Little Colorado Monocline. This may have been due to an intrusion of molten lava which did not reach the surface which is termed as a laccolith. Following this general uplift erosion proceeded at a much more active rate and the Mesozoic formations of the San Francisco Mountains was almost entirely eroded away. In fact parts of the Permian formations of the Paleozoic were stripped.

During the Pliocene period (late Cenozoic) we have the First Volcanic Period of the San Francisco Mountain area. Huge fissures gave vents for the pouring out of sheets of basaltic lava, from 50 to 300 feet in thickness, covering a wide area and extending from the Tonto Rim to Cedar Wash. Following in the latter part of this period the uplifting continued when great north-south faults cut the earth's crust and the Second Volcanic Period began. As tremendous quantities of lava was poured forth on the surface, such prominent peaks as Bill Williams Mountain, Kendrick Peak, Sitgreaves Peak, the San Francisco Peaks, and O'Leary Peak (near Sunset Crater) as well as others were formed. A variety of different types of lava was extruded at this time

but in general they were more acid, contained more quartz, and were therefore lighter in color than the basalt of the First Volcanic Period.

As the plateau continued to rise the erosive agencies became more severe and great canyons were carved on the surface. Several thousands of feet of volcanic rocks were no doubt removed from the crests of the San Francisco Peaks as is indicated by a projected profile of their surface. With physiographic features of the plateau much as it is today the Third Volcanic Period began. To the Third and last general period of volcanic activity in this field, covering a considerable interval of time (beginning near the close of the Second Period and extending into comparatively recent geologic time), some 200 basalt cones and lava flows over 1,200 square miles represent the volcanic activity during this period. Sunset Crater is one of the cones formed at this time. This activity certainly occurred during the quaternary period and presumably during the latter part of this period according to Robinson (1). The state of preservation of the cones and lava flows is so perfect that they may date from historic time. Due to their presence, however, in an arid to semiarid region they naturally retain a much fresher appearance than would otherwise be the case in a humid climate.

Generally speaking throughout the geologic history of the plateau there have been two opposing forces which have produced the detailed topography - erosion, which is destructive; and volcanism, which is constructive.

One question that will probably be asked many times, due to the recent character of the surface evidence of volcanic activity, and that is has the activity actually ceased in this region. Robinson (1) advises as follows on this subject: Broadly speaking it may be said to have ceased. There may be further small outbreaks of basalt, but this does not seem probable in view of the insignificant volume of the latest eruptions compared with the total volume of lava of the last general period of eruption. These very latest outbreaks may be looked upon as representing the final feeble manifestations of a long and very complete cycle of volcanism.

SUNSET CRATER

Sunset Crater is the most dominant feature of the monument. It rises to a height of about 1,000 feet from its base, and its summit has an unbreached crater about one-fourth mile in diameter and 400 feet deep. The upper portion of the cone is covered with tinted cinders and lapilli (little stones). The mountain has received its name from the rainbow effect, where the color of the cinders grades downward from the summit of the cone through the various shades of yellow, orange and red into the black material of the lower slopes. There is practically no evidence that the cone has been shattered by explosions and the fact

that erosion has not produced any noticeable change of form attests somewhat as to its recent age.

Basaltic lava is exposed around the rim of the crater. It has been altered and bleached to tones of yellow and pink by fumarole action. Hot spring minerals may be found in this zone. Sulphur crystals, gypsum and limonite are present. Fragments of sandstone and limestone which have been ejected from the crater are found around the rim. Some of the specimens of sandstone have their stratification preserved in part but the edges have in most cases been well altered due to the action of heat. Most of the limestone has likewise been metamorphosed so that it is now classed as marble.

The eastern rim of Sunset Crater is 150 feet or more higher than is the western rim. This characteristic is common among the two hundred cinder cones of the last period of activity. The fact is explained by the reason of the prevailing westerly winds during the main eruption when ash, cinders and lapilli fell in this direction and thereby building up the eastern rim to greater heights.

Because of the various indications of recent activity at Sunset Crater and vicinity, which are more or less visible to the visiting public, the determination of the age of the last eruption has always been an interesting question. Robinson (1) states that the latest cones and flows are older than the pine trees growing at the edge of Bonito lava flow, west of Sunset Peak, which would make them not less than 300 years old and possibly not more than 1,000 years old. A possible Hopi tradition of the eruption of Sunset Crater is mentioned by Dr. Colton (4). Geologists, who are generally credited with being unable to think in terms of a few years, have been content to call it a very recent cone. Exact determinations in this regard have required other means of approach. The ash from this crater undoubtedly covered hundreds of square miles. It is known that this black sand buried numerous pit houses of an ancient people (pueblo) which had been constructed on Bonito Terrace. A number of these houses have been excavated by archeological expeditions of the Museum of Northern Arizona, McGregor (5). Attempts were made to collect additional data from the sites that had been abandoned before, or at the time of the eruption of Sunset Crater. Charred beam material was particularly desirable, as well as information collected as to the nature of the ash fall accumulated above and in the sites, with data as to the pottery in use, artifacts, and types of houses contributing factors.

A trail leads to the summit of the crater and the round trip can be made in one hour if one is rushed for time. It is best however to spend at least a half day on the rim and in the event that the interesting details of the mouth of the crater fails to hold one, there is the magnificent panorama of the Painted Desert, San Francisco peaks, and the Bonito Lava flow below with its many interesting features.

BONITO LAVA FLOW

This lava flow is probably the second most important feature of the monument and is almost entirely contained within the boundaries. The map, Plate 1, which accompanies this report shows the relationship of the lava flow with Sunset Crater. This lava escaped from a vent opened through an older flow of the Third Period and spread out quietly into an intercone basin. As the lava could not flow far it has probably piled up to depths of several hundred feet.

A badly disrupted cone known as Yapuncha Crater is located in the central portion of the flow. The exact nature of this cone is not known. It is possible that it has been the source of some of the lava and that it was disrupted at the time of the flow. Another explanation is that it may have been more or less floated on the lava and thereby disintegrated.

Along the surface of the Bonito flow to the west of the above-mentioned cone and extending in a northwest direction is a large vent or fissure which has also been termed "Anosma" or "squeeze-up." After the surface of the flow had solidified, the fissure tore the surface, and semi-plastic lava was squeezed upward. In places the lava has been forced some ten feet in the air and frequently crumpled under their own weight. This type of flow seems to be rather unique among volcanic phenomena and it has been suggested that there may be some relation to the fact that the main lava flow was dammed.

The Ice Caves immediately west of Sunset Crater on the Bonito flow seems to be the principal attraction to a great many people. In fact at the time of my last visit some people were asking how they could get to the Ice Caves and seemed little concerned or anxious to ask questions regarding the multitude of volcanic phenomena about them. The cave has only been explored a few hundred feet. It is likely that the roof has collapsed in places and it may well be rather extensive. This type of cave is typical of lava flows where the lava has drained away, leaving the solidified roof standing. It is most unusual to enter the cave in summer and find it filled with ice. The details as to the method of the formation of ice caves is not fully understood. Lava is a poor conductor of heat and the cold air which settles to the bottom portions of the cave is protected to a certain extent. It is possible that some interesting information could be collected which might have a bearing on this feature if temperature readings were taken at regular intervals in the cave.

Besides the above-mentioned important points in connection with the Bonito flow there are several others worthy of attention. There are a number of fumaroles at the base of Sunset Crater and vicinity where gases escaped during the last active stage of the crater. A sink hole is shown on the map just east of the Yapuncha crater. In this case the lava flowed out from under the crust forming the sink.

The remains of a hot spring is also shown on the map. It is located very near the large fissure of "squeeze-up" previously discussed. A considerable portion of the Bonito flow is covered by a more recent ash fall. Examples are numerous illustrating this feature and it has been noted that considerable more ash fell on the southern than on the northern end of the flows. Cooling cracks, contacts of the different flows and other fascinating features are prevalent and it is considered that as the monument is developed many other interesting facts will be divulged of interest and importance.

ARCHEOLOGICAL

The Hopi legends of the Sunset Crater region have been described by the staff of the Museum of Northern Arizona. The Museum Notes (4) give a vivid picture of Yaponcha, the Wind God and the Kana-a Kachinas of Sunset Crater. We have endeavored to show how determination of the age of the last eruption of the crater has been made by a study of the remains of pit houses. This type of material when authenticated will form a most important background for a story of the monument.

FUTURE DEVELOPMENT

I do not know if detailed plans have been formulated as to the development of this monument. It seems to me that one custodian could probably take care of Sunset and Wupatki as is now the case. It is my thought that a Wayside Shrine near Sunset could portray all the facts of the monument and that directions from this point could be given to the various trails to illustrate the features in place. Exhibited in the shrine we could arrange generalized sections and inexpensive models to show the different stages of volcanic activity in this field. A collection of the various types of lava, hot spring minerals, rocks and material from the outcrops of sedimentary formations in the surrounding area and corresponding material which has been ejected from the crater would all no doubt prove of considerable interest. I believe that panorama photographs could be taken in this general area and that ink sketches could be made therefrom to serve as a guide to the various trails. Actual trail construction should be kept down to a minimum and it is thought that with the proper use of signs the visitor will be directed sufficiently to see all of the points of interest. It is possible that some sort of a guide to prominent features of the landscape will prove essential from the summit of the crater. Some of these things will of course not be necessary if a permanent ranger is maintained for this monument.

POINTS OF INTEREST

It is considered that the following features of the monument will be worth while calling to the attention of the public when it is developed:

1. Sunset Crater - Signs is what seems to be needed most at the present time especially in view of the fact that there is no permanent ranger present and there is no pamphlet available.

2. Benito Lava Flow should have markers at different points to better depict the facts for the visitor.

3. Attention should be called to the most important fissures or "squeeze-ups" with signs.

4. An explanation of what we know of the formation of ice caves might well be posted at the entrance of the caves.

5. Fumaroles, sink holes, spatter cones, hot spring remains, contacts of different flows of lava should all be marked by directions from the main road or "turn-around." A sign could very well be erected at each feature explaining briefly its origin.

I am aware that some people object to too many signs but I see no recourse under the present setup of the monument. I am sure that many people go there and see the ice cave and go away with very little knowledge of what has gone on about them. The monument is most accessible to a main artery of travel and many more people will visit the area if a little money is spent on the development. It seems to that there is every justification for some development as Sunset Crater is really one of the most important monuments in the Southwest.

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SOME EARLY HISTORY OF PIPE SPRING NATIONAL MONUMENT

By Leonard Heaton.

Our records indicate that the first white men came to Pipe Spring in 1858. This party was send out by President Brigham Young, of the Mormon Church, to explore and report on the country lying in and around the Colorado River and, if possible, make a treaty of peace with the Navajo Indians living on the south side of the River.

Jacob Hamblin was captain of the party and among the members were William Hamblin, sometimes called Gunlock Bill, one of the best rifle men in a country where expert shooters were common, Amon Tenny, and Dudley Levett. While camping at the spring, which was then without a name, some of the men played a joke on William Hamblin by telling him he could not shoot through a silk handkerchief hung at a distance of fifty steps. Hamblin accepted the challenge and failed to puncture the silk cloth, not because he could not hit it but because the silk, hung by the upper edge only, yielded before the bullet and remained unpunctured. Hamblin, somewhat vexed by the joke, turned to Amon Tenney and dared him to put his pipe on a rock near the spring, which was at some distance, so the mouth of the bowl faced directly toward the party, hamblin wagering that he could shoot the bottom out of the bowl without touching the rim. Tenney accepted the wager, laid the pipe on the rock as described and Gunlock Bill promptly and neatly shot the bottom out without touching the rim. Whence the party named the spring Pipe Spring and the name remains to this day.

The first settlement at Pipe Spring was in 1863 when Dr. James M. Whitmore and his brother-in-law, Robert McIntyre, established a cattle ranch and made some improvements. They built a dugout of earth and cedar logs, locating it about 50 or 75 feet east of the southeast corner of the present fort.

In the winter of 1865-66 the Navajo Indians were giving some trouble to the white settlers in Southern Utah and Northern Arizona and on Jan. 8, 1866, some Indians stole the cattle and sheep that Whitmore had in the pasture near the spring. The two white men discovered their loss at once and followed the trail to the southwest. At a point about four miles away they were attacked and killed by the Indians and all the clothing was taken from their bodies.

That night the Indians came back and raided the place but did not go into the dug-out where Whitmore's eight-year old boy was in hiding. The boy heard the Indians and, since his father and uncle had not returned as they had promised, decided that they had been killed. It was a night of terror for him and the next morning he started, on foot and alone, for St. George, 96 miles away, to report the killing. By noon he had reached a point ten miles from the Pipe Spring, when he met some

men who, upon hearing the news, sent the word on to St. George.

Some of the state militia, under the charge of Captain James Andrews was sent out to get the bodies of the two men and to bring the Indians to justice.

After hunting for several days in two feet of snow, the bodies were found. Also six Indians were caught who had on the clothing of the murdered men. These Indians would not talk except to say that they did not kill the white men. Thinking the Indians were lying, the militia men killed them and left them lying in the snow,

Years later, when the truth came out, it was learned that the real killers were the Navajos and a few piutes, who then traded the clothing of the victims to some more peaceable Piutes, who told the truth when they denied killing the white men but lost their lives on the evidence of the clothing which they wore. A son and brother of two of the Indians who were killed, whose name is Captain George, lives a couple of miles north of Pipe Spring.

In the settlement of the Whitmore estate the Springs and the surrounding lands were purchased by the Mormon Church. Bishop Anson P. Winson was sent out in 1868 with instructions to build a fort, improve the place and take care of the tithing cattle for the Church. Winsor's first task was to erect some temporary buildings in which to live while constructing the larger edifice. He constructed these two buildings of rock walls and juniper roofs at some distance to the northeast of the spring. This building faces east, has two rooms with a shed between. Each room has a fireplace, two windows and a door. This structure was a mass of ruins and was restored in 1925.

The second house built by Winsor is to the west of the spring and faces south. It is a two-room house with a double fireplace in the partition between the rooms. Each room is entered by a door and the west room has two windows, the east room, three. This building was restored in 1929.

Work was begun on the fort in the fall of 1869, a crew of forty men working that winter and spring. The fort is made of native red sandstone taken from the hill behind and to the west. The fort consists of two two-story buildings facing each other across a courtyard. The courtyard is closed at the ends with heavy gates. The north building was erected directly over the spring, the water flowing through the south building so the inhabitants were assured of a plentiful supply of fine water at all times.

These two buildings are gradually being restored as funds permit to their condition when built and it is hoped that before many years the fort will be furnished with the pioneer furniture of that period.

In the winter of 1871 the Deseret Telegraph Company's line reached Pipe Spring and was put into operation in December of that year. The room used for the office was in the west end of the second floor of the south building. The office was opened by Superintendent Amos Milton Musser of the Deseret Telegraph Company, who sent the following message to the Deseret News: "The office at Pipe Spring is now open with Miss Luella Stewart as operator." This lady remained for only three or four months as Bishop Winsor did not think that an operator was needed since the Indians were giving no trouble at that time. Miss Stewart was transferred to Kanab, Utah, where she was operator for several years and in that capacity sent Major Powell's messages for him when he was exploring the surrounding country.

Bishop Winsor left the Springs about 1875 and the place was later sold to private interests for a cattle ranch. It has always been a point where thousands of cattle were bought and sold each year and where herds were prepared for shipment and drives were started for the railroad.

By proclamation of President Warren G. Harding, May 31, 1923, this place became known as Pipe Spring National Monument to be administered by the National Park Service under the Department of the Interior. Here the visitor can obtain a fair idea of some of the pioneering conditions which confronted those who made the early settlements in this country and can learn something of that most interesting phase of the early Mormon settlement of Southern Utah and Northern Arizona.

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NOTES TAKEN IN AN INTERVIEW WITH ALONZO WINSOR

BY LEONARD HEATON, March, 1936

These are some of the incidents that happened in the life of Alonzo Winsor at Pipe Spring National Monument from 1868 to about 1876. Alonzo Winsor was a son of Bishop A. P. Winsor who was sent there by the Mormon Church to erect a fort and act as foreman in handling the herds of tithing cattle which were to be sent on that range by the Mormon Church.

The Winsors went to Pipe with a pack outfit in the fall of 1868 in order to look the country over and pick out the site for a fort and locate the supply of building rock.

They made their first home in the Whitmore and McIntyre dug-out which had apparently been unoccupied since its owners were killed by the Indians in January, 1866. This dug-out is located east of the fort about 150 feet and was about 20 feet long by about 15 feet wide, facing southeast. It had a fireplace in the back and a doorway in the front. The walls were worked up about eighteen inches above the ground and were made of rock. The roof was rather flat and was constructed of

juniper poles covered with loose bark and dirt making it fairly waterproof. This roof extended out over the front of the dug-out several feet, making a porch or shed.

Mr. Winsor says that there were very few trees close to the spring at that time. Mr. Whitmore had several corrals there and had probably cut all the trees that could be used in buildings.

The disintegration of the Whitmore dug-out began when the boys were having some fun with an old cow that had been taught to fight at an early age. One day while they were teasing her, the cow ran one of the boys up on the roof and tried to follow him, but she was too heavy and fell through. After that the dug-out became a trashpit until it was finally filled up.

In the spring of 1869 A. P. Winsor had 20 or 30 men sent out to him to start work on the fort. They first built two rock cabins, one on each side of the fort to be used as living quarters while the fort was under construction. These cabins were roofed over with poles, bark and dirt. The doors were home made and the windows were shipped in from Salt Lake City.

Alonzo Winsor does not remember the number of men employed but thinks it would probably have averaged 25 workers and that the construction was finished in 1870. Some of the straw bosses were: Elijah and Elisha Averett who were responsible for getting out the rock; an old Danish man was head carpenter; Joe Hopkins was the blacksmith and also worked as a carpenter; and Graham McDonald was the plasterer.

Most of the lime used for mortar came from Pocketville or Virgin City, Utah. Mr. Winsor tells that on one of his trips for lime a rain storm came up and he had to shovel out a lot of lime to keep it from breaking the wagon box. The rocks for the construction were dragged in on a stone boat from the side of the nearby hill with the aid of an old mule. The lumber was cut and hauled from the Buckskin Mountains about 45 miles east.

There was a trap door and ladder in the east room of the lower house by which men could be shifted from the ground floor to the second floor if necessary without going up two flights of steps out in the courtyard. When the ladder was not in use it was swung up against the ceiling and fastened there.

The watch tower, which was on the north house, had a pole on which a flag could be raised by getting up into the tower.

About 1870, or soon thereafter, the Mormon Church had built a small fort on the west bank of the Colorado River at Lees' Ferry where two or three men were stationed to keep the Navajos from crossing at that place.

The Indians had to swim to get across at that crossing. This fort made the Indians cross the river further north where they came out among stronger settlements and this soon caused them to give up trying to plunder the whites.

The Winsors seemed very anxious to get into the fort as they moved in as soon as the first story of the lower house was completed, having a stove in the east room and using the west room as a cellar. In the west room the water from the spring ran through and out at the southwest corner of the room.

After the fort was completed these two rooms were turned into a cheese factory. The Winsors milked on the average one hundred cows per day throughout the year, making butter and cheese which was sent to St. George, Utah, to be used by the men who were working on the Mormon Temple at that place. Mr. Winsor had besides his own sons four men to help in the milking and doing the range work among the cattle; this help would be increased considerably at roundup times.

About every two weeks small bunches of beef steers would be driven to St. George, Utah; in the spring and fall large bunches were driven to Salt Lake City to market.

Aside from the cattle industry the Winsors had another side line; that of hunting wild horses for their oils which would be sold to the tanners, and for the hair of their manes and tails which would be made into hair ropes. They would use all kinds of devices in getting the wild horses; running them down, roping them, trapping them, and shooting them. One time they caught an old mule belonging to Major Powell. To have some fun they stuffed an old pair of trousers full of grass and tied them on the back of the mule which they then turned loose among the wild horses who immediately scattered in all directions.

When A. P. Winsor left the fort he turned over to Mr. Charles Pulsipher, the new foreman, about 3,000 head of cattle. Young Alonzo Winsor remained at Pipe about a year showing Mr. Pulsipher the range and helping with the cattle.

The Winsors did not have a great deal of furniture and most of what they had was homemade. The chairs were the old-fashioned raw hide seat style; the beds had cords or rawhides ropes for springs. They also had a writing desk and a stand or two. This furniture was all taken with them when they moved to St. George in 1875.

Upon one occasion the telegraph at Pipe proved very useful. Some Navajos came out to trade their blankets for horses at Kanab. They found the men were few so they did the trading to suit themselves, taking what horses they wanted and giving in return the blankets they thought the horses were worth. They then went on to Pipe to finish

their trading. In the meantime, Mr. Winsor had received a telegram over the wire which came into the fort, telling him how the Indians were acting and to be prepared for them. He sent out for help which arrived in the night without the knowledge of the Indians who had come in the day before. The following morning it was a great surprise to the Indians to see so many armed men come out of the fort and the trading that day was all on the side of the whites.

Alonzo Winsor was under the impression that 13 Indians were killed in the episode which cost the lives of Whitmore and McIntyre. He also said his father told one of the young Indians if he told the white men where the bodies of Whitmore and McIntyre were he would not be harmed. The Indian took them out in a southeasterly direction for about four miles and there, under two feet of snow, he showed them where the bodies were, shot so full of arrows they looked like porcupines.

The young Indian mentioned above lived with the Winsors for a number of years because he said they had saved his life and he did not care to go back to his tribe. He was subject to epileptic attacks which finally caused his death as he was seized with an attack while in the hills between Moccasin and Short Creek and, falling over a cliff, was killed.

Mr. Winsor said he would like to go back to Pipe Spring once again as it had been more than 50 years since he was there. Also he said that he was very much pleased that the National Park Service had taken it over and was keeping it as a monument of the early pioneer history.

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RECONNAISSAINCE OF TONTO

By Victor R. Stoner

Five miles east of Roosevelt Dam, Arizona, there is a group of very interesting cliff dweller ruins. Although these ruins are easily accessible, practically no systematic and scientific investigation has been made of them. Pot-hunters and tourists, however, have done inestimable damage to them.

The earliest mention of the Tonto Cliff Dwellings that I have been able to find was made by Patrick Hamilton who wrote in his "The Resources of Arizona" in 1884:

"In one of the caves on the south side of the Salt River the bones of a large animal, evidently of the mastodon species, have been found... ...In another cave, on removing the debris, pieces of cotton and cotton cloth have been discovered six feet below the present floor. These relics were in good state of preservation, the cotton being of a fine silky fiber. One of the pieces of cloth showed a rude attempt at ornamentation, having small eyelets worked by some sharp-pointed instrument.

A piece of coarse matting, doubtless made from native grasses, and in a good state of preservation, was also found.....Nearly all these remains are of stone, showing that the ancient builders used that material in preference to adobe or concrete whenever they could get it."

Cushing and Fewkes visited the Tonto Ruins, but apparently their reports were never published.

James H. McClintock wrote in his "Arizona the Youngest State" in 1916:

"Fully typical of cliff dwellings in general, and yet embracing two of the largest of the kind in the Southwest are ruins in a canyon now only a couple of miles distant from the main traveled automobile road between Phoenix and Globe and about four miles from Roosevelt----..The lower is the smaller, but the better preserved. Its roughly moulded walls fill a shelf-like open cave 140 feet long, forty feet in extreme depth and thirty feet in extreme height. The exterior wall, now broken, was built upon the edge of the cavern ledge, above which was once a sheer descent of about twenty feet. The building is of three floors, even now. The rooms have notably high clearance and a few years ago still in place was a rough upper flooring from which could be touched the cave roof at front and rear. Here it was, no doubt, that the primitive home guard peered over the low parapet and where the papoose in days of yore had his playground. The lowest floor is of clay hard-trodden. The upper floors had typical construction. Fixed firmly in the walls were set slender red cypress logs, rough hewn at the ends, the work of the stone or obsidian axes appearing not unlike the tooth marks of beavers. Across the logs were laid small cypress or juniper boughs; then came the ribs of the giant cactus, then river reeds and lastly a well-packed coating of adobe clay.

"The so-called red cypress is to be found in all the cliff dwellings of the Tonto Basin region, sound and firm wherever it has been kept dry. Some of the beams, peeled of bark, are about ten inches in thickness and often twenty feet long. .....It is said to be peculiar to Arizona, yet now it is to be found in only two places. One is in a grove near the Natural Bridge, sixty miles to the northward of the Roosevelt cliff dwellings, and the other, now comprising only a few trees, is in the Superstitions, about twenty miles west of the caves.

"The upper ruin has suffered within very modern times by fire. Within both were found pottery by the wagon load, with a number of stone implement sand half a dozen corn mortars (metates). The pottery closely resembles in marking that of the valleys of the Salt and Gila with the same terrace designs, jagged lightning flashes and twice-broken lifelines (signifying nourishment). .....In the valley below are the remains of houses and of irrigation ditches one of which had been dug through hard limestone with remarkable precision and which is assumed

to have crossed the Sally May Creek by some form of high and long aqueduct. A latter-day ditch follows the same lines but at a lower elevation, for the river bed is not where it was in prehistoric days."

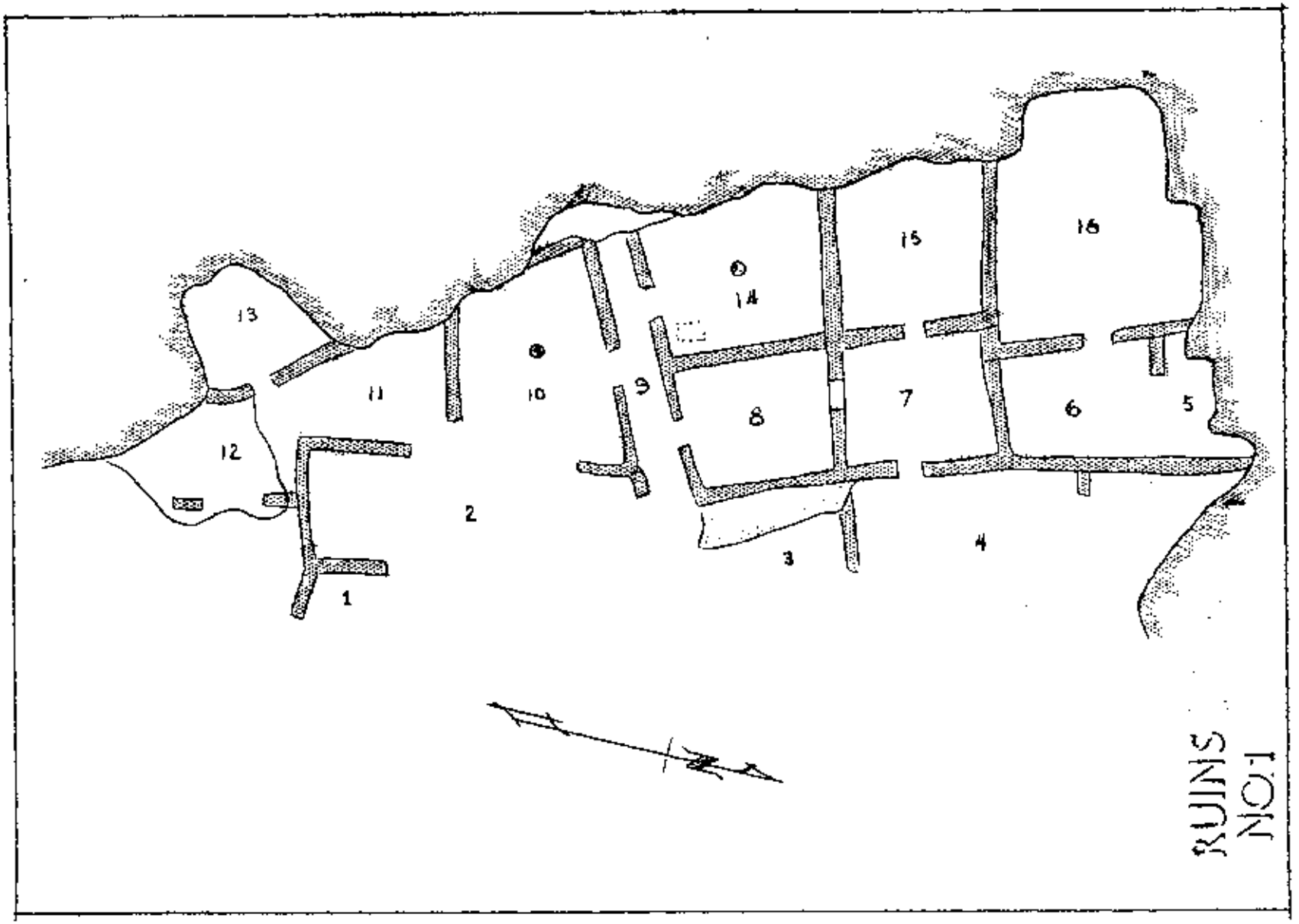
These cliff dwellings were created a National Monument in 1907 by President Theodore Roosevelt. No care was taken of them, however, and they were rapdily disintegrating under the vandal hands of tourists and pot-hunters. In order to preserve them as a point of interest for its Apache Trail visitors, the Southern Pacific Company secured permission to erect a high fence across the entrances of the caves. Later the company employed an Apache to act as custodian of them. In recent years, the National Park Service has placed a resident custodian at the Monument.

During the Christmas holidays of 1920, I visited the Tonto Cliff Dwellings and mapped and photographed them. When I visited them next in 1934, I found that a number of walls and ceilings had fallen. Particularly noticeable was a room in the Upper Ruin. This room is numbered 28 on the map of Ruin No. 2.

In December, 1920, this, the largest room in either ruin, was entirely intact, both doors and the window being tightly sealed. When I next visited the Ruin in May, 1934, both doors and the window had been broken open, and the ceiling entirely demolished. Although the room is about thirty-five feet long and fifteen feet wide, at present there are only two timbers remaining in it. One is an upright post and the other a beam about sixteen feet long. I have been unable to find anyone who knows when or by whom the room was broken open. No doubt there were valuable finds in it for otherwise it would not have been so carefully sealed by its prehistoric inhabitants. It would seem that the vandals were no ordinary pot-hunters, since the roofing timbers, of which there must have been several, were taken away. Or, possibly, the vandals used them for fuel for their camp fire, and the rains have since washed away all trace of the fire.

The Tonto National Monument consists chiefly of two groups of ruins. There are said to be other smaller ruins in the vicinity, but I have not visited them, nor do I know the exact location of them. Because of the great width of the canyon in which both these ruins are located, it is very difficult to photograph them.

The Lower Ruin is the smaller of the two. At present, the traces of 38 rooms are visible. Apparently part of the overhang of the cliff roof has fallen, and probably carried away some of the outer rooms. This is particularly evident in rooms 1, 2, 3, 4, 17, and 18. Room 9 is a hallway, two feet eight inches wide and 23 feet nine inches long. One door each opens into this hall from rooms 8, 10, and 14. Room 14 is the best preserved room in the Monument. Even at the present time, its walls and ceiling are intact, the primary beam supported by one center post. In the southeast corner of the ceiling there is a fair


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RUINS
NO.1

sized hatch, probably used as an exit for smoke rather than for human traffic, since there are two doors at the ground level, and one window. The ceiling now is very weak, due to the fact that the part of the cliff receiving the end of the primary beam has crumbled. However, in 1920 this ceiling was in excellent condition, and my companion and I made our bed above it on the last night of the year 1920.

Room 8 of this Lower Ruin is very interesting. It consists of a shallow, irregular cave in the back of the cliff, across which a substantial wall, ten and one half feet long, has been thrown. This wall does not appear to have reached the roof of the cave. If such is the case, the chamber was not likely a granary. It was probably a storage room for some article that was not susceptible to attack from rodents.

A present, there are evidences of two rooms, or a room and balcony with high parapet, above rooms 7 and 8. One large room occupied the space above the hallway and room 10. At least one story is yet visible above rooms 2, 6, 14, 15, 18, 19, and 20.

THE UPPER RUIN

About half a mile away, and three hundred feet higher, is the second ruin of this group, designated by the National Park Service as the Upper Ruin. This ruin is almost twice as large as the Lower Ruin, 64 rooms yet being visible. A great deal of the overhang of the cave roof has fallen, the canyon below being filled with huge boulders. Undoubtedly many rooms were crushed by this falling overhang.

There are a number of interesting details connected with this ruin. The sealed room which has been broken open, as mentioned above, is room 28 of this Ruin. Room 4 is a hall of varying width and forty-six feet seven inches long, with doors entering into it from rooms 7, 8, 10, and probably 9. In the cave wall in room 30, there is a natural tunnel which gives some evidences of having once been a spring. The reed ceiling of room 5, the sahuaro-rib ceiling of room 20, and the half reed and half sahuaro-rib ceiling of 21, show the variety of building materials used. The diameter of the primary poles seems to indicate that at this point the building was originally three stories high. Room 27 is about six feet higher than room 23. There a primitive step had been installed in order to reach the upper room.

Several of the plates show the type of wall structure utilized in this cliff dwelling. From a mere reconnaissance, it appears that the two groups were contemporaneous. The walls, in general, are built up of roughly shaped stone, laid ashlar-fashioned, in very thick layers of adobe. In fact, the mud mortar is about half the thickness of the stones. This is plastered over with an inch to three inches of adobe plaster. The finger-prints of the prehistoric plasterers are very abundant. The usual structural defect of the cliff dwellings--failure to tie in the

walls at their junctions--is in evidence here.

The floors are usually of tamped mud, although in some rooms, the native rock of the cliff was left untreated.

A typical first-floor ceiling and second-floor floor was constructed as follows: a large log was embedded in the walls of the room, and usually supported by an upright post in the center. At right angles to this primary beam, smaller beams were placed, being embedded in the other two walls of the room. Upon these secondary timbers layers of sahuero ribs or bamboo canes were placed. In some cases, these elements were lashed together with yucca cords. Upon this mat, large rocks, about six to eight inches thick were placed at irregular intervals. Mud was poured over and around these rocks, covering them to the depth of two or three inches.

It is worthy of note that practically all the doors in both these ruins are half-T in shape. I have found no mention of this type door in any ruin except in the nearby Canyon Creek Ruin. There, Dr. Emil W. Haury reports only two for the entire group. (Haury, 1934. The Canyon Creek Ruin and the Cliff Dwellings of the Sierra Ancha.) Generally, the lintels are of two poles about three inches in diameter. The sill, and the sill of the half-arm of the T are of flat rocks.

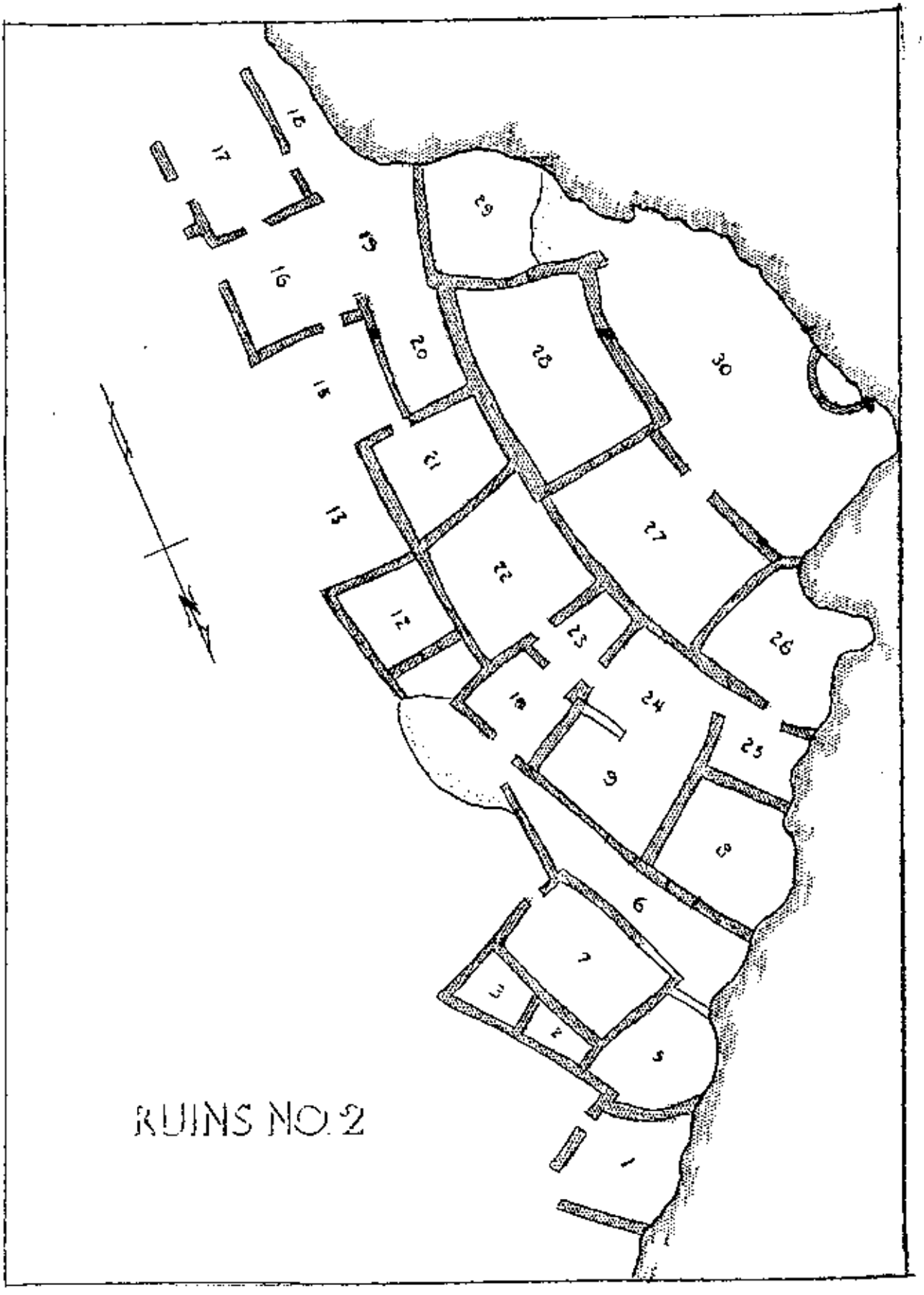
ARTIFACTS

Due to the vandalism at this group of ruins, very few artifacts are available. Their textiles seem to be among the finest of the Surface Pueblo Period. (Pueblo III-IV). The few sandals I have been able to examine are typical of the period. Two sandals from Tonto are of split yucca leaves in simple basket weave. Two of them are more carefully woven of yucca cords, with woven ties. Haury reports almost identical sandals from the Canyon Creek Ruins and the Sierra Anchas.

Several pieces of cotton cloth in over-and-under weave have been taken from the Tonto Ruins. One of these, a piece about 18 inches wide and about four feet long, is in the possession of Dr. Cron of Miami, Arizona. It is ornamented with the weft-wrap openwork technique, falsely called "eyelet work." Haury reports also a fragment of "gauze-weave" from the Tonto Ruins.

One of the most excellent pieces of prehistoric textile art was found with a burial in Tonto Ruins some years ago by Mr. Rupke of Coolidge Dam, Arizona. It is a cotton gauze upper garment woven in intricate design.

Charlie R. Steen, formerly custodian of the Tonto National Monument, reports the discovery of a fragment of a very rare weave known as the "Slit Tapestry Weave." This, a 11.5 centimeter fragment of a tump line, is described at length in American Anthropologist, Vol. 37, No. 3 (pt. 1)


RUINS NO. 2

Page 458. The only other example of textile art from the Tonto Ruin which I have seen, is a perfect yucca olla ring in the museum case of the custodian's residence.

Among the artifacts of stone which have been found here are metates, mortars, and manos; three-quarter grooved axes, and arrow-polishers. A fragment of a paint mortar is also in the Tonto National Monument museum case. An abundance of bone awls and punches have been found.

I have seen only one specimen of pottery from these ruins, an almost complete olla of Gila polychrome, about eighteen inches in diameter. In a personal interview, Dr. Haury stated that the chief wares of the Ruin are Gila polychrome and Salado redware.

Quantities of corn kernels and cobs, squash stems, and acorns in the debris of the Ruins indicate the food staples of the prehistoric occupants of these cliff dwellings. Even today, after the depredations of hundreds of visitors, great quantities of yucca quids lie about the floors of both ruins.

CONCLUSIONS

In general, the Tonto National Monument ruins very closely resemble those of the Sierra Anchu region. The masonry is almost identical. There is great similarity in their textiles. Geographically, they are neighbors, apparently culturally the same, and contemporaneous.

Although there is an abundance of wood in both the Upper and the Lower Ruins, only one piece has yielded to dendrochronology. From a loose portion of a pine pole in the Upper Ruin, Dr. Emil W. Haury secured the date 1346. (Southwestern Monuments Monthly Report, May, 1935, page 255). The last date secured in the Canyon Creek Ruins by Dr. Haury was 1348.

RECOMMENDATIONS

A scientific excavation and reconstruction program should be carried out at this National Monument. There is yet time, but within a few years, several more walls will collapse unless something is done very soon to strengthen them. What appears to be a plaited mat of pine needles is visible a few inches under the debris in room 14 of the Lower Ruin. This room adjoins the cave wall at the back, and appears to be a refuse heap. Undoubtedly it would yield much cultural material.

The talus slopes in front of both ruins should be carefully excavated. It is possible that ceremonial chambers might be found along the face of the canyon wall immediately in front of the cliff dwellings.

If a suitable museum building were constructed, it is possible that

much of the material that is located elsewhere could be returned to the museum at the Ruins.

Since this is the southernmost cliff dwelling of Arizona which can be reached with any degree of ease, it should be preserved and partly reconstructed.

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VISITOR RESEARCH AT CASA GRANDE

Some most interesting visitor research work has been conducted during the past month at Casa Grande National Monument and a preliminary report has been turned in, giving the statistics thus far gathered by Custodian Jack Winter.

In his letter of transmittal Custodian Winter says:

"AS requested in your memorandum of March 14th, a survey of questions asked by visitors has been conducted for 30 days. The period chosen was March 15 to April 15 and the results are shown on the attached sheets.

"It is believed that the 195 questions listed cover nearly all that is asked at the monument. These were asked in thirty days but it does not appear that the total would exceed three hundred in the course of the entire year.

"Of the number of times that these questions were asked it is believed that we have recorded about one fifth. Some days no one had time to record questions. Sometimes the recording was so long after the party had been guided that many questions were lost. Of course no one attempted to write down questions as they were asked in the ruins or the museum. The usual procedure was to sit down in the office after each trip and write down all questions that could be remembered. Sometimes the guide would be too busy to do even that. So we feel sure that we did not catch more than one fifth of the questions in the matter of repetition. We do believe, though, that we got most of the different questions.

"Lest anyone thinks that these questions all cover points that the guide failed to mention, I wish to say that it doesn't really matter much if the question asked has already been answered in the lecture. Some questions are asked prematurely, too, before the guide has had a chance to cover the points in his talk. Many are asked after the guide has already given the answer in the course of his talk. This last is not entirely due to dumbness on the part of the visitor. We fling such a mass of information at them that we really should not blame anyone for failing to digest the total at the first hearing. Sometimes I wonder if we should hand out so much fact verbally. It might be better and easier on the average visitor if the lectures were not so extensive but were

supplemented by a printed folder for those who were sufficiently interested. Of course, visitors should be given every opportunity to ask questions."

We agree with Jack that it seems to matter little if the guide has already made the point, certain questions will almost invariably be asked after the information has been given. We agree that this is partly, at least, due to the fact that we are handing out information faster than the visitor can absorb it. In the nature of the case this must be so because the visitor stays such a little time and there is so much he wants to know. We doubt the advisability of cutting down the talk and handing out the other information in a folder. We rather favor of giving the information to the visitor as he walks around and sees things, well knowing that a large part of it will slip out of his mind, and then giving him the folder which will, if he reads it, jog his memory and bring back the statements we made to him while he had the thing before him. In other words, the folder is a good idea but is no excuse for cutting the visitor's trip. There is no meat for argument, in these questions reported here, that we tire the visitor out and should turn him loose sooner. Visitors with museum or ruins fatigue would not be asking questions, especially questions as intelligent and as much to the point on the whole as we have here. One angle of our visitor research should be directed at determining if we do hold the visitor too long at our monuments, but these questions seem to us to have little bearing on that and that problem must be attacked in some other manner.

CLASSIFICATION OF QUESTIONS

	No. of Questions	Times asked.
1. Ruins and ancient inhabitants----------	75	973
2. Material in Museum----------	14	255
3. The Ranger-guide himself----------	11	158
4. Modern buildings on the monument--------	10	106
5. National Park Service----------	4	30
6. Wild Life----------	15	137
7. Botanical Life----------	16	138
8. Modern Indians----------	5	38
9. Monument area and facilities----------	22	220
10. Climate and weather----------	10	77
11. Other Parks and Monuments----------	3	68
12. Travel Information----------	10	109
	195	2,309

It will be noted at once that the first two classes, dealing with the ancient people, their ruins, and their material in the museum are the cause of more than 47% of the number of questions and of 53% of the number of times asked. This is as it should be; the visitors have manifested the greatest interest in the things for which we have made the

monument. Wildlife, Botany, and Modern Indians, grouped together come next.

THE SEVENTY-FIVE QUESTIONS ASKED 973 TIMES UNDER CLASSIFICATION 1, RUINS AND ANCIENT INHABITANTS, WERE AS FOLLOWS:

Times asked.	Question
64	Is this original wood?
48	What became of these people?
43	Where did they get their water? See 21-25-12-16.
41	What was the name of these Indians? What tribe was this?
41	Did you put this cement on the walls?
39	How old are these ruins?
35	Why did they abandon these villages? these compounds?
35	Do the doors indicate a small people? (see 26)
35	Is this adobe material?
33	How high was the outside wall of the compound?
31	How did they get to the upper floors? (of Casa Grande).
27	What became of the timbers? (Of Casa Grande). See 64.
26	Why did they have such low doorways? (See 35)
25	Where are the ancient canals? (See 16, 21, 12) See 43.
25	Have you found the burial ground?
25	What was that hole in the third story? (West wall, north room).
22	What are these holes for? (Ventilators).
22	How many people lived in this village? See 11.
21	How long has this roof been over Casa Grande?
21	How did they get their water? See 16-25-12.
21	Didn't they have fires in here? See 10
19	How did they light this inner room?
17	Did Casa Grande have a roof when first built?
16	Are these ruins older than the cliff dwellings?
16	Did they dig wells? See 21-25-43-12.
15	Is this the outside wall?
13	Is any excavation going on now?
12	Is this the original plaster?
12	Was anything found in these buildings?
12	Where can I see a canal? See 25-21-16-43.
11	How many people lived in this building? See 22
10	Where did they have their fires? See 21
10	How close to here did the canals come? See 21-25.
10	How high is this building? How many stories did this house have?
8	Were these people Indians? See 41
8	How does Tonto compare with Casa Grande?
8	Are these Indians represented anywhere today? See 48
8	Where did this building material come from?
7	Was this a chief's house?
7	How thick are these walls?
6	Did these people raise cattle? See 4-3-2.

QUESTIONS ASKED (CONT.)

Times asked	Question
6	Did this tribe also inhabit Pueblo Grande?
6	Did they use adobe material?
5	Do you believe they were Masons? (Belonged to Masonic order)
4	Did they grow cotton?
4	Can finger prints be discovered on the walls?
3	What crops did these people raise?
3	Did the Spainards build this building?
3	What is the evidence that these ruins date back 1,500 years?
2	Are there other walls underneath these?
2	What are the dimensions of Casa Grande?
2	Did they know how to mix straw with mud?
2	Did they grow tobacco?
2	How far is it from this village to the river?
2	Did they ever take their finger prints?

The following were asked once eash:

Did the Indians build this present roof over Casa Grande?
Were these holes used to shoot guns through? (Rafter holes).
Is that where you are excavating? (Potsherds on wall, NE corner).
In which room did Font hold mass?
Any evidence on unit of measure?
Did these people come from the north?
Any indication as to age they reached before death?
Was their culture higher than the present Indians?
Is this wall material samed used in making pottery?
Did they have engineering knowledge?
Why isn't this 1,500 years old?
Is the excavtion at Pueblo Grande complete?
Were these people related to those around Mexico City?
Nobody knows anything about these people do they? (After complete ruins and museum trip).
What points argue against the Big House as a Kiva or ceremonial house.
Did this outer wall sink into the ground this much?
Are the holes for the north star stopped up?
How do you get in there?
Isn't this odor from the Indians that lived here?
What about the dates on the walls?

The first thing that struck us about these questions are what we might call for want of a better phrase, the high percentage of hits registered? It is only in the 'once asked' list that you find a few foolish questions.

The following condensed tabulation of the most important questions seems to show what the average visitor wants to know and is given here.

for further study.

CONDENSED TABULATION OF MOST IMPORTANT QUESTIONS

	Times asked	Total
Who were these people?	41-8	49
What became of them?	48	48
Why did they leave?	35	35
What was their stature?	35	35
How many were there in village or building?	22-11	33
How did they live?		
Water questions	43-25-21-16-12	117
Buildings?	31-26-21-19-10	107
Crops, etc?	6-4-3-2	15
How old are these ruins?	39-16-8-3-2	68
About materials	64-35-27-6	132
About dimensions	38-10-7-2	52
		691

One question is remarkable for its absence: "Where did these people come from?"

We hope to report further next month on these questions.

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AT PUEBLO GRANDE

(Ed. note: Some months ago Odd Halseth, director of Pueblo Grande, Phoenix, Arizona, started to accumulate visitor questions with the idea of devising efficient methods to answer them. Temporary Ranger Paul Beaubien at Saguaro National Monument independently had hit upon the same scheme at about the same time. Foreseeing valuable possibilities, Park Naturalist Rose issued a memorandum asking monument custodians to accumulate similar data. The preceding article is an analysis of the Casa Grande report, the first received. Following are some of the questions asked at Pueblo Grande, Mr. Halseth very kindly having granted permission to use them in the Supplement. His methods differed from those used by the Casa Grande staff in that he gave writing materials to unhurried visitors, while Casa Grande men were forced to pick up the normal run of questions on regular guided trips. Other questions asked at Pueblo Grande will appear in this section of the Supplement from time to time.)

Questions Asked by College Students and Graduates:

1. Why did these Pueblo Indians move away from the site of these ruins?
2. Approximately how long did it take the Indians to dig the irrigation canals and about how much land did they cultivate?

3. I have noticed west and south of Phoenix a long ridge. Some say this is an old prehistoric irrigation canal. How about this?

4. The above ridge is prominent between laterals 16 and 17 - one-half mile south of Buckeye Road.
5. At its greatest development, about how many people inhabited the pueblo?
6. Are the Indians who visit Pueblo Grande interested? antagonistic? etc.?
7. Were the Indians at Casa Grande Ruins friendly to the Indians at Pueblo Grande?
8. Are the ruins prehistoric and if they are - what ages were they built?
9. Are there any more ruins built at the same time as these? Any nearby?
10. Were they built before or after the Casa Grande Ruins?
11. What was the nature of the tribe that inhabited them?
12. What other Indians were their friends? Enemies?
13. In what ways, if any, do they differ from the other Indians in Arizona?
14. Did they have any special methods of making jewelry, pottery, basket making?
15. What did the tribes excel in?
16. Does the timbers, if any has been found, fit into the tree ring? The theory of judging age.
17. What became of the Indians who have vanished?
18. How did the Indians live at Casa Grande without water?
19. Did the prehistoric Indian have a higher civilization than those found by white men? If so, what caused them to lose this civilization?
20. Which is the older? Casa Grande or Pueblo Grande?
21. Could this have been one of the seven cities of Cibola?
22. What did these people eat?
23. How did they prepare their food? Type of clothing? Shoes? Material? etc.
24. What was their attitude toward the sun as evidenced by location of doors or openings?
25. Size of families?
26. Is it necessary to have an extensive knowledge of archeology to get into this work?
27. What are the qualifications for entering same? Where does one apply?
28. Are the different Indian Ruins in the Southwest under Government or local supervision?
29. Why have there been no works of similar nature done in known sections of the East where Indians were known to have lived? i.e.: Mass., R. I., etc.?
30. If these present ruins at Pueblo Grande were termed "the community house" what kind of houses did the majority of Indians live in?
31. What are the ruins of?
32. What has been taken out of them?
33. Has any connection with any particular Indian tribe been found?
34. Is it possible to place the use of the various rooms or has any idea of the Indians' activities been reconstructed?

35. How does the excavation take place and how long has it been going on?
36. In what way do the Indians of North America differ from those of Mexico and South America?
37. Why did the Indians move from this site - if they did?
38. Did the Indians who inhabited the top layer of this ruin eat the same staple foods? Corn, wheat, as those living on the bottom?
39. How did the people living here tell time?
40. What mode of travel did they use?
41. Is there any connection between these Indians and those of Mexico?
42. Did these Indians work in metal as well as clay (art)?
43. Did animals of which we know nothing live here?
44. What kind of clothing did they wear? Did they make the material?
45. How do you determine the antiquity of these ruins?
46. Are there any maps of ancient irrigation canal lines?
47. Also of S. W. Ruins - giving locations and brief description.
48. Did the Indians (ancient and modern) regard gold and silver as unlucky or did they just not bother themselves to work it?
49. What is the connection, if any, between the American Indian and the Eskimo, or what is the latest theory?
50. Is it not possible that the primates could have developed in all parts of the inhabited globe simultaneously as far as conditions are concerned?
51. What are the mostly used Indian medicines?
52. When do the Indians have their ceremonies?
53. How long does the average Indian now live?
54. How did the Indians haul water in the dry seasons?
55. When the first white men came to Arizona, did they find the Indians living or using such so-called ruins as Montezuma Castle, Pueblo Grande? When were such ruins abandoned?
56. Is this ruin and the contents found within of the same type as others found in Arizona?
57. Has anything new been found in one that is not like anything found in the others?
58. Can you judge the date of this ruin from what has been found?
59. What is the description of the things that have been found in it.
60. From the findings in each ruin, is each kind of basketry, pottery, etc., are any of them similar in design? Material?
61. What are some of the designs?
62. How many are there?
63. Are there any traces as to the tribe of Indians that settled there?
64. How would it be possible for one to tell the age of the ruins and for how long were they undisturbed after the Indian vanished?
65. Were there any other nearby or were these segregated from the rest and built the ruins as a shelter from some unknown cause.
66. Are the articles being collected from the ruin itself, or from some other part of the territory?
67. What does Dendrochronology mean? What does Hohokam mean? How do you account for the holes in the floor? Were these ancient Indians

related to Mayas and Aztecs from Mexico?
68. Have these tribes known how to always make pottery, basketry and stone implements?
69. Are there any traces of related tribes around?

****

BACTERIA IN TUMACACORI WALLS

(Article from Arizona Republic, April 17, 1936)

Deathless bacteria have been aroused from a period of 249 (?) years of suspended animation and again are busy reproducing themselves.

Dr. Ira B. Bartle, who has spent most of his life in studying spores and fungi, reported success today in resurrecting the small creatures which were put to sleep 2½ centures ago by the Indians who built the Tumacacori mission near Nogales, Arizona, in 1687.

He finds the bacteria are creatures of environment and conditions just as are humans.

Last month Dr. Bartle went to the old mission founded by Eusebio Francisco Kino almost a century before Fra Junipero Serra established the California missions. From the four-feet thick adobe wall, forming the staircase to the belfry, he obtained a core of the inner adobe brick. Extreme care was taken in the procedure to insure that the specimen was not contaminated in the operation.

In sealed, sterilized tubes, he took the adobe material to his laboratory here, and succeeded in bringing the bacteria out of their lethargy.

"The samples obtained were incubated on gelatin agar and dextrus plates and showed 94 colonies to 60 square centimeters in 24 hours," Dr. Bartle reported. "These colonies are light gray, of a floculent texture and are neither elevated nor depressed, but rather flat with the surface of the media.

"In 43 hours this plate showed 131 colonies. These colonies under the microscope showed soil bacteria and spores. No fungi have been found as yet. The life cycle of the predominant spore is about 96 hours; is homosexual and reproduces by miltosis."

In duscussing the putting to sleep of these minute creatures, Dr. Bartle said:

"When the adobe is made these spores and bacteria live and multiply as long as there is moisture and oxygen. As this disappears they

begin putting on a thicker cell wall and the protoplasm thickens and contracts until eventually respiration and reproduction cease and they go into a state of suspended animation, in which condition they are immune to almost every condition except fire itself.

"You cannot freeze them under any ordinary condition and it takes strong antiseptics some time to kill them. Now the ones in the more exposed locations occasionally get a little more moisture and they start a new life cycle for a few thousand generations, and in each of these there is a loss because only the stronger ones live. It is always survival of the fittest."

KEET SEEL CANYON VEGETATION

By K. C. Karbchuer

Trees and Shrubs

Conifers	
Fir, Douglas	Pseudotsuga taxifolia
Fir, White	Abies concolor
Juniper, ground	Juniperus communis
Juniper, utah	Juniperus utahensis
Juniper, one seed	Juniperus monosperma
Juniper, Rocky Mt. red	Juniperus scopulorum
Pine, ponderosa	Pinus ponderosa
Pine, pinon	Pinus edulis
Spruce, Engleman	Picea euglemanii
Spruce, blue	Picea pungens

Other trees and shrubs

Antelope brush	Purshia trideutata
Apache Plume	Fallugia paradoxa
Aspen	Populus tremuloides
Birch bog	Betula fontinalis
Black brush	Coleogyne ramosissima
Box Elder	Acer negundo
Buckthorn	Rhaninus spp.
Cactus	Opuntia spp.
Ceanothus or Buck brush	Ceanothus fendleri
Chamuse or White Greasewood	Atriplex canescens
Chokecherry black	Prunus melanocarpa
Cliffrose	Cowania stausburi aua
Cottonwood	Populus occidentalis
Currant, golden	Ribes aureum
Currant, black	Ribes spp
Estafiata or Fringed wormwood	Artimisia frigida
Fendler brush	Fendlera spp

Other trees and shrubs (cont.)

Gooseberry	Grossularia spp
Grooseberry, Mountain	Ribes montigenum
Greasewood	Sarcobatus vermiculatus
Manzanita	Arctostaphylos pungens
Mistletoe	Phoradendron spp.
Mormon tea	Ephedra viridis
Mountain mahongany	Cercorpus intricatus
Oak, gamble	Quercus gambelii
Oregan Grape	Odostemon repens
Poison oak	Rhus toxicodendron
Prickly Pear	Opuntia chloritica
Rabbit brush, large	Chrysothamnus spp.
Rabbit brush, gray	Chrysothamnus spp.
Rabbit brush, small	Chrysothamnus spp.
Rose	Rosa fendleri
Sagebrush, common	Artimisia tridentata
Sagebrush, small	Artimisia spp.
Serviceberry	Amelanchier jonesii
Silverscale	Lepargyrea rotundifolia
Snakeweed	Gutierrezia sarothrae
Joint grass	?
Lambs quarter	Chenopodium album
Larkspur low	Delphinum arizonicum
Lobelia	Lobelia splendens
Loco	Astragalus spp.
Loco, purple	Astragalus mollissimus
Lupine	Lupinus spp.
Maidenhair	Adiantum capillus
Mallow	Malva spp.
Marisposa lily	Calachortus nuttallii
Milkweed	Asclepias spp.
Monkey flower	Mimulus spp.
Mustard	Brassica spp.
Nettle	Urtica spp.
Pentstemon	Pentstemon spp.
Peppergrass	Lepidium spp.
Phlox	Phlox spp.
Red and yellow pea	Lotus wrightii
Russian thistle	Salsola pestifer
Scarlet bugler	Pentstemon spp.
Spiderwort	Tradescantia spp.
Sunflower	Helianthus spp.
Thistle	Cirsium spp.
Virginia creeper	Parthenocissus vitacia
Wild buckwheat	Eriogonum spp.
Wild candytuff	Thlaspi coloradense
Wild onion	Allium spp.
Wild potato	Solanum fendleri

SOUTHWESTERN BIRD BANDING TOTALS

Species	Bandelier		CasaGrande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
	Prior	Apr	Prior	Apr	Prior	Apr	Prior	Apr	Prior	Apr	Prior	Apr	Prior	Apr	Prior	Apr	
Bluebird,Ch-b.													215				215
Cardinal, Ariz.			1								1	3					1[illegible]
Crossbill,Band.													17				17
Chickadee,Mtn.							6						3				9
Creeper,R.Mtn.	2																2
Dove, W.Mourn.			11	2								1					14
Dove, Inca			2														2
Finch, House			129	3													132
Flicker,Red-sh	1																1
Fl'c't'r, Ariz.			2														2
Gldfnch,Gr-bkd													2				2
Jay,Long-crstd	2																2
Jay, Woodhouse	3						6										9
Junco,Gra-hded	51	5					9	4									68
Junco, Montana							9										9
Junco,Pnk-side	7																7
Junco, Red-bkd	9						2						38	4			53
Junco,Shufeldt	7						13	1					10	1			32
Mockingbird,W.			2														2
Nuthatch, Pyg.	21												25	1			47
Nuthatch, R.M.	2												6				8
Owl, W. Horned			1														;
Phoebe, Sey			19									4					23
Quail, Gambel			58									1					59
Roadrunner			4														4
Robin, Western													7				7

Species	Bandelier		CasaGrande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
Specker,R-nape													4				4
Specker, R. Mtn													2				2
Shrike,White-r.			3														3
Siskin, Pine													1				1
Solitaire,Town.													7		15		22
Sparrow, Cantel			403	13						43		1					460
Sparrow,Lincoln			1														1
*Sparrow,W.Lark												4					4
*Sparrow,Nev-Sav.										1							1
Sparrow,WVesper			1														1
Sparrow,Wh-crn.							6										6
Swallow,Ro-wng.			3	2													5
Thrasher,Bend.			5								1	2					8
Thrasher,Criss.			7														7
Thrasher,Sage															2		2
Titmouse, Gray													1				1
Towhee, Canyon											2	3					5
Towhee,Cr-tail			2								4	1			1		8
Towhee, Spurred	1							1									2
Waxwing,Cedar															1		1
*Woodpkr,Cactus												1					1
Woodpkr, Gila			8														8
Woodpkr,Mearns													5				9
Wdpkr,RM Hairy	1																1
Wren, Cactus			35	1							1						37
*----new species to this listing																	
SUB-TOTAL	107	5	607	21	0	0	50	0	0	44	9	26	347	6	19	0	
TOTAL		112		718		0		56		44		35		353		19	1337

BANDELIER BIRDS

By Betty Jackson

Birds have been invading the canyon this month in hoards. Most of the earlier birds are still here -- Robins, Juncos, Ravens, Solitaires, Canyon Wrens, Nuthatches, Spurred Towhees, and Jays -- but even they are beginning to change their chief interest from food to mating.

On the eleventh came the White-Throated Swifts and the Rocky Mountain Evening Grosbeeks. The Swifts will stay all summer, but the Grosbeaks will go soon, if they haven't already. Ravens are mating, and should have nests, but I haven't found them yet. The Rocky Mountain Hairy Woodpeckers and the Flickers are mating, too. House Finches are becoming common in the Detached Section, in flocks of pairs, but I've only seen one in the canyon.

A Red-Winged Blackbird was here for a week early in the month, and later came a Brewer Blackbird, who is still here. He arrived on the sixteenth.

Audubon Warblers have been seen, down the canyon by Mr. Borell, and on the south mesa by me. A flock of Hoover Warblers came in while we were away, and are now to be seen flitting about the trees and bushes near the office. Though Bailey states that they are rare in New Mexico, I am sure of my identification.

Five Grey-Headed Juncos were banded.

I'm going to study hawks, and then tell you which ones came in this month.

****

RUMINATIONS

In looking over this issue of the Report and the Supplement, Chief, I am reminded of the old days when, if we wanted a thing done, we had to go out and do it ourselves. In spite of our best intentions we are liable to go soft if we don't watch ourselves and we have had such a multiplicity of hired help around to refer problems to that it is no wonder we were getting soft. Seeing, as reported in last month's Ruminations, that psychologists were not having a depression like the other experts, and therefore we couldn't hire one to study visitors for us, we have come around to where we ought to have started from in the first place and set up a little research bureau of our own.

Visitor Research will just be a side line with us, for of course our first duty is protection and the second is giving information, and with eighteen thousand visitors last month this was quite a little chore by itself, but as a side line, to keep the boys occupied, we have decided to try to find out how a visitor thinks and why. We have no

illusions about the size of the job we are tackling, for you see we have been handling visitors for a good many years to [illegible] we are competent to get the very best results out of the time and energy we expect to expend, but there is no doubt that it ought to be done and if we haven't an expert on the roll who can do it, we will just have to go out and do the best we can. Mark you, we haven't an [illegible] time and energy to waste and if I didn't think the results would more than pay for the expenditure of both we will have to make, I wouldn't start the boys out on it. We are modest up to a certain point, but, while admitting we are not experts in psychology, we think we can work just as hard gathering information as one who is, and, after we get a good body of information together and begin drawing conclusions maybe we can get an expert to come along and sit in with us.

Again was I impressed the other day when the two volumes of the December monthly reports of all the superintendents descended on my desk for perusal affording me the chance to gather pearls of wisdom. The thing that impressed me was that everything under the sun is gone into in great detail except the handling of visitors. I wonder why that is? I am not much interested in how many miles of new trails a man has built; what interests me is, how many visitors are using his trails and is there any way to increase that number? How long does his average visitor stay and why does he leave so soon?

Anyway, we are going to have some fun trying to find out what visitors think. Which reminds me of an interesting experiment described to me the other night by the fine Secretary of one of our fine western museums. It seems there was a door leading from the museum exhibit rooms back to the offices and laboratories and, although it was marked "Private. No Admittance" visitors had a great way of going through and causing a deal of bother to the officials who were interrupted thereby. Several changes of wording were tried with no better success until some one thought of the thing that stopped them cold: "For members only, <u>why not subscribe?</u>"

Odd Halseth, who is the only City Archaeologist in the United States so far as we know, is also interested in these visitor problems and has promised to share his information with us and we have the first installment of questions his visitors ask him, at Pueblo Grande Ruin in the edge of the City of Phoenix, in this Supplement.

Bob Rose happens to be in the field at this writing and we just didn't have the time to digest the material and catch up his Visitor Contact tables this month. We will probably get this done by next month and being a month late won't hurt the figures any. We have no extra funds to take on a little help over the month end rush and so we have a rather hectic time for a few days around the office if one or two of the force happens to be away as is the case this month. I wonder why it is that so many deadlines occur around the first of the month? When

anybody wants a report from a field man he thinks it is a brilliant inspiration to set the deadline on it between the first and the tenth, thinking, I suppose, that all the other Departments, Bureaus, Divisions and Sections will set theirs on the thirteenth or twenty-third and that no one else will think of the first of the month! Anyway it keeps a field man from worrying over the fact that he is a field man, so there seems to be some value to it.

Incidentally, we printed some separates of Van's report on Sunset Crater and ran them as our No. 3 Special Report. Also we printed three hundred of the Pipe Springs article by Leonard Heaton and put on special covers so he will now have something to send people who are constantly writing him for information on that monument.

Also, and again incidentally, we have received some nice compliments on that series of Special Reports from folks who matter, and the Southwestern Monuments Monthly Report is again noted in the current issue of American Antiquities. While, as I said above, we are modest up to a certain point, it doesn't keep us from pointing with pride.

Note the new Report and Supplement covers. We think Tov. did a nice job, don't you?

Cordially,

Tom Boss

GENERAL INFORMATION ON
CHACO CANYON NATIONAL MONUMENT
CROWNPOINT, NEW MEXICO

The Chaco Canyon National Monument is located in San Juan and McKinley Counties, Northwestern New Mexico. The Monument is reached by leaving Highway U. S. 66, at Thoreau and traveling 65 miles north, over an Indian Service road, to the monument headquarters. The road is well marked with National Park Service signs. It is a graded road maintained by the Indian Service. The Monument is reached on the north by traveling State road 55, south from the little town of Aztec and Aztec Ruins National Monument, a distance of 40 miles, then take state road 55 a distance of 24 miles, to the Monument headquarters. Excellent tourist accommodations may be had at Gallup on the South, Aztec and Farmington on the North.

The Chaco Canyon was proclaimed a national monument March 11, 1907. It is administered by the Department of the Interior, through the National Park Service. A permanent custodian is stationed at the Monument for the guidance and information of the visitors, as well as the protection of the Monument. It is open to the public every day in the year. The National Park Service maintains a picnic area; food and supplies may be secured at the Chaco Canyon Trading Post, at the Monument headquarters. Normally good tourist accommodations may be had at a privately-owned lodge in the Monument.

Within the Monument boundaries 18 major ruins are found. These ruins are without equal in the United States. Together with the cultural material recovered from the abandoned rooms, these ruins represent the very Zenith of Pueblo civilization in prehistoric times. No other archeological area in the entire Southwest exhibits such a high development.

Pueblo Bonito, one of the major ruins of the Monument, was intensively explored by the National Geographic Society from 1921 to 1927. Pueblo Bonito covers more than three acres of ground; in its heyday, it had about 800 rooms and 32 kivas or ceremonial chambers. Mr. Neil M. Judd, of the United States National Museum, who conducted the excavations for the National Geographic Society, characterizes Pueblo Bonito as the largest apartment house built anywhere in the world prior to about 1887, and estimates that it, at one time housed 1,200 people.

Pueblo Bonito and other ruins of the Chaco were dated by the tree ring methods, by A. E. Douglas, Director of Steward Observatory, University of Arizona. Seven beams from the western half of Pueblo Bonito gave A. D. 919 as the building time. The major construction appears to have been in the 1060's, followed by a lesser activity 20 years later. Then it dwindled away, ending, so far as our evidence is concerned, shortly after 1130.

Southwestern Monuments

MONTHLY REPORT · MAY · 36 ·



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SOUTHWESTERN MONUMENTS
MAY, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Acting Assistant Superintendent; John H. Diehl, Associate Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists; Millard Singerman, Clerk-Stenographer; Luis Castellum, ECW Clerk.

GENERAL FIELD MEN: Charles A. Richey, Resident Landscape Architect; J. B. Hamilton, Associate Engineer; J. M. Towree, Chief Engineering Aide; Andrew Clark, Topographer; Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian; Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 639, Santa Fe, New Mexico. Earl Jackson, Custodian; J. W. Hendron and Alfred Peterson, Temporary Rangers.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian; Doug Harritt, Temporary Ranger.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. M. J. Winter, Custodian; J. Donald Erskine, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. George Boundey, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin Jackson, Custodian; Frank L. Fish, Ranger.
14. Natural Bridges---Blanding Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian; Milton Wetherill, Trail Foreman.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian; Martin C. Evenstad, Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, Ranger.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, In Charge.
25. Yucca House---Cortez, Colorado. No Custodian

CONDENSED REPORT

Coolidge, Arizona
June 1, 1936.

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for May, 1936:

TRAVEL

	May, 1936	May, 1935	May, 1934
Aztec Ruins	1,172	960	669
Bandelier	833	735	330
Capulin Mountain	1,500	1,500	700
Casa Grande	2,274	2,443	1,740
Chaco Canyon	496	340	255
Canyon de Chelly	136	25	---
Chiricahua	462	---	---
El Morro	---	---	---
Gran Quivira	575	596	318
Montezuma Castle	775	1,400	984
Natural Bridges	---	---	219
Navajo	---	154	---
Pipe Spring	392	414	632
Sunset Crater	283	248	---
Tonto	365	398	---
Tumacacori	705	1,281	1,035
Walnut Canyon	648	600	---
White Sands	11,880	---	---
Wupatki	136	125	9
Yucca House	---	---	---
Actual Reported Registration	22,682	10,997	6,921

The 14 monuments which reported both in 1935 and 1936 showed a decrease from 10,863 to 10,340---523 visitors, or 4.8%

The ten monuments which reported both in 1934 and 1936 showed an increase from 6,702 to 8,806---2,104 visitors, or 32%.

Last May's estimates for travel to Montezuma Castle and Tumacacori were too liberal. This fact, in addition to a count shortened by two days due to an earlier report deadline, would lead to the surmise that May, 1936, as a travel month was somewhere between 10 and 20% better than the same month in 1935; more than 30% better than May, 1934.

000 GENERAL

920 GENERAL WEATHER CONDITIONS

Very dry and warm conditions have prevailed throughout May generally in the Southwest. Only two monuments, Chaco and Capulin, report moisture enough to insure adequate range and forage. Dust has proved a nusiance at Bandelier and Gran Quivira, but is less prevalent than usual in north eastern New Mexico in the neighborhood of Capulin Mountain.

100 ADMINISTRATION

121 MONUMENT INSPECTIONS BY SUPERINTENDENT PINKLEY

Tumacacori: With Chief Engineering Aide Tovrea May 18 concerning architectural matters. See Supplement, page 376.

122 MONUMENT INSPECTIONS BY SPECIAL FIELD REPRESENTATIVES

H. E. Bailey, botanist from Berkeley, Calif., offices: At Montezuma Castle two days making collections.
A. E. Borell, regional wildlife technician: at Gran Quivira May 6; at Chaco Canyon May 14, et seq, on rodent control. See page 351.
J. H. Diehl, park engineer: at Chiricahua May 2; at Gran Quivira May 20; at White Sands May 21. See page 366.
J. B. Hamilton, associate engineer: At Headquarters, Wupatki, Walnut Canyon, Aztec Ruins, Chaco, and Montezuma Castle. See page 367.
A. C. Huehl, resident landscape architect: At Chiricahua April 29; at Tumacacori, April 30.
Harry Langley, resident landscape architect: Walnut Canyon, Hqrs.
Chas. Richey: resident landscape architect: Walnut Canyon, Hqrs.
J. H. Tovrea: Tumacacori, Walnut Canyon, Wupatki, chief engineering aide.
V. W. Vandiver, regional geologist: Walnut Canyon

150 NEW EQUIPMENT

Chaco Canyon: New 1½-ton dump truck arrived May 15, and was immediately put to work hauling water, maintaining fence, etc., see 352.

180 CIRCULARS PUBLICITY

Headquarters: Prepared 100 Southwestern Monuments Special Reports No. 4, "The Tumacacori Choir Loft Problem," by Frank Pinkley and J. H. Tovrea; also 250 SM: Special Report No. 5, "Geological Report on White Sands National Monument," by Vincent W. Vandiver, regional geologist.
Wupatki: Southwest Tourist News carried small article on Wupatki, taken from informational leaflet which is distributed at that monument.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 MAINTENANCE, UNUSUAL

Aztec Ruins: Museum trim painted green. See page 349.
Casa Grande: Much time still being wasted maintaining make-shift sewer system which is a possible menace to health. See page 341.
Tumacacori: Three buttresses constructed to brace wall of old building now being used as office. Also house painting and cleaning. See page 331.

220 IMPROVEMENTS

Wupatki: Trail work progressing satisfactorily. Back dirt being used to construct a ramp which eliminates dangerous steps and to save prehistoric wall. See page 344.

230 NEW CONSTRUCTION

Bandelier ECW (See page 354).
Quarters No. 1 completed and ready for occupancy. Some landscaping yet to be finished.
Quarters No. 2 Masonry at door and window height. Timber crew has delivered 100 logs from Santa Fe National Forest which will be shaped for vigas and lintels for Quarters No. 2 and Residence Area Equipment Shed.
Construction of Park Refuse Burner started on north mesa near Canyon rim. Base poured and forms in place.
Flagstone floor material quarried and delivered to Museum Building. All wall, ceiling, roof, and portal construction complete on Museum. With completion of floors, building will be ready for cases.
Small amount of maintenance on Rio Grande trail.
Planting of small shrubs along entrance highway and around Headquarters area continued.
Usual rock quarry project continued through month.
Canyon de Chelly (See page 346).
Water line complete from well to reservoir and from reservoir to within 20 feet of house. Pumping started and water found to be slightly cloudy but of good taste and quite soft. Remaining line and sewer connections will be ready in two days.
Chiricahua ECW (See page 338)
1500 feet completed on Echo Trail, making total of 7,500 feet. Will reach Echo Point June 1.
All material on ground for Headquarters-Portal telephone line. Eight and three quarters miles of poles set, and all will be in place by first week in June.
Excavations for Utility Buildings 90% complete but were delayed by large amount of blasting necessary.
Topographical survey project continued. Is within about two months of completion.

230 NEW CONSTRUCTION (CONT.)

Gran Quivira: Pumping plant and new pump house completed. See pp 333.
Pipe Spring ECW (See page 333).
Eight-man gang re-started road work May 21. Grading, gravelling to be done first.
New grade laid out.
CCC swimming pool finished.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon: Soil Conservation Service work progressing satisfactorily. Have built new earth dikes near proposed headquarters area, revetments around Pueblos de Arroyo and Kin Kletsoi. 2,000 Parasela shrubs were planted for bank protection. See page 351.

320 AGENCIES OTHER THAN GOVERNMENT

Chaco Canyon: University of New Mexico pushing their Headquarters Building to completion by June 15. See page 352.
Wupatki: Coconino County Highway Department very kindly loaned truck on three occasions. See page 344.

350 DONATIONS AND ACCESSIONS

Pipe Spring: Mrs. Maggie Heaton of Moccasin, Arizona, donated a combined "bullet mold -capper, and loader." Promises Indian pottery when monument has a safe place to keep it. See page 355.

400 FLORA, FAUNA, NATURAL PHENOMENA

400 ETHNOLOGY

Wupatki: Exhibit hogan and "shade" for Navajo exhibit June 6 and 7 finished by Navajos. Photographs and notes at different stages of construction were acquired by Monument. Exhibit promises to be worth while. See page 345.

420 MUSEUM SERVICE

Aztec Ruins: Custodian Faris and Ranger-Archeologist Hart each prepared layout plans for proposed addition to Museum. These plans will be coordinated by Headquarters Naturalist staff and forwarded through regular channels. See page 349.

460 BIRDS

General: Due to heat and arrival of nesting season, monument bird.

460 BIRDS (CONT.)

banding stations were much curtailed in function. A total of 129 birds were banded, bringing the total for the fiscal year 1936 to 1,466. Pipe Spring turned in a good record concerning banding of migrating Gambel Sparrows, which gives hope of obtaining future returns for this species. Tumacacori added three interesting species to the banded list: Vermillion Flycatcher, Baird Bewick Wren, and Verdin. See page 410.

Gran Quivira: Large flocks of birds; Custodien claims they drink six gallons of water in four hours. See page 332.

Navajo: See page 337 for April bird list.

Wupatki: See page 344 for May bird observations.

470 ANIMALS

Wupatki: Three antelope seen on two occasions. Rattlesnake specimen obtained; harmless snakes occasionally discourage visitor travel on trails. See page 345.

500 USE OF MONUMENT FACILITIES BY PUBLIC see page 325)

530 NEWSWORTHY VISITORS

Aztec Ruins: Earl Morris, noted archeologist.

Bandelier: J.E.Kell, state parks division; J.J.McIntee, assistant ECW director; J.A.Chase, commander Albuquerque CCC district; Frank C.W. Pooler, regional district forester; C. C. Balcomb, F.H.Flint, Marley J. Helm, J.C.Campbell, C.B.Sandberg, of Soil Conservation Service; Frank Andrews, Santa Fe National Forest Supervisor; R.A.Livingston, Shiloh National Military Park; Mrs. Lansing Bloom, wife of noted U. of New Mexico historian; Paul Kirkhart, superintendent of schools of Protection, Kansas.

Casa Grande: Roy Kopping, brother of Guy Kopping of General Grant National Park; Ranger Charles Hutchins of Carlsbad National Park.

Chaco Canyon: F. D. Matthews and Engineers Fife and Slattery of Soil Conservation Service; W.W.Postelthwaite, W.H.Drea, and Paul Boucher of Colorado College. Stanley J. Milford inspected University of New Mexico's building. State Highway Engineers Dwyer, Sumner, and Starky studied blow sand north of Escavada Wash. W.G.Proper and Jack Snow, Soil Conservation Service photographers; Lionel Palmer, superintendent of schools of San Juan County.

Tonto: Jugo-Slavian war minister; Mrs. Jack Whitehead of Southwestern Arboretum and brother, Phillip Thomas; Ruth and Millard Henning.

Tumacacori: Mr. Underwood of Underwood and Underwood; Mr. and Mrs. H.J.Henning of San Francisco; Mr. and Mrs. H.T.Getty and Dorothy Greiner of University of Arizona faculty. Dr. John M. Provinse of University of Arizona Department of Anthropology.

White Sands: Lyman Cooley, lecturer; Lawrence Brundell, petroleum geologist from Australia; Wm. B. Mitchell, reclamation bureau; Col.

530 MISCELLANEOUS VISITORS, White Sands (Cont.)

Porterfield, Silver City, N. M.; J.C.O'Leary, Silver City, N. M. Wupatki: Dr. and Mrs. A.E.Douglass, Dr. Waldo Glock, Harry Getty, Mr. Schulman, all dendro-chronologists; Dean Cummings and Gordon Baldwin of University of Arizona; Dr. Harold S. Colton, Miss Katharine Bartlett and L.F.Brady of Museum of Northern Arizona; R.A.Livingston of Shiloh National Military Park.

600 PROTECTION

620 FIRE PROTECTION

Bandelier: Snag fire May 20; location, north rim of Alamo Canyon in Section 21; Foreman and crew of 10 cut down burning snag, built 135 feet of fire line. Subsequent patrol proved suppression work effective. See page 356.

640 DESTRUCTION OF PREDATORY ANIMALS

Chaco Canyon: Soil Conservation Service controlling rodents around dikes. A. E. Borell, regional park service wildlife technician, in charge. Using Karbo Killer and carbon bisulphide gas. See page 351.

900 MISCELLANEOUS

MAIL COUNT

Incoming:		
Government	1,316	
Personal	793	
Total incoming		2,109
Outgoing:		
Government only	1,762	1,762
Telegrams:		
Outgoing	32	
Incoming	54	
Total telegrams		86
Grand Total		3,957

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

REPORTS FROM MEN IN THE FIELD

TUMACACORI

By Louis R. Caywood, Custodian

Due to the change in time of sending in the Monthly Report our visitor record is lower than it normally would be - at least according to registration for the same month last year. Five hundred and sixty visitors were shown through the Mission on guided trips, and 145 used the facilities offered by the monument, making a total of 705.

The weather is quite hot, the afternoons lately have been cloudy and sultry. For the last two days we have had rain around us, but so far it hasn't paid us a personal visit. We have had enough wind thrown in to keep our tank filled, which is very much appreciated.

Noteworthy visitors for the month include Mr. Underwood of Underwood and Underwood the beginning of May. Mr. and Mrs. M. J. Henning of San Francisco, Southwestern Monuments enthusiasts, spent the 6th and the 8th at the Mission. We certainly enjoyed their visit and hope to have them with us again soon. They plan to visit all the Southwestern Monuments this trip, so I am sure they will be more enthusiastic than ever about our monuments when they have seen them all. On May 9, Mr. and Mrs. H. T. Getty and Miss Dorothy Greiner of the University of Arizona faculty and staff were overnite visitors. Dr. and Mrs. John H. Provinse of the University faculty visited the Mission on the 10th.

Park Service visitors were Mr. A. C. Kuehl, San Francisco, on April 30. Al said he liked the Mission and saw possibilities for architectural study. We hope he pays us another visit soon and plan our proposed Museum Building. May 18 the Boss and Tov had another "architectural bull session" here at the Mission. Martin and I learned some new architectural terms and some very fine points about the Mission. We are looking forward to another visit from the MAE (Mission Architectural Experts) next month.

House repairs and painting were done on the 4th and 5th.

Three buttresses of adobe were built against the leaning wall of the building adjoining the Mission which I have converted into an office. This was done in hope there will be an end to the tendency for a fallen wall rather than just a leaning wall. The use of buttresses and heavy piers in mission architecture seems to have been common. Wherever extra strength was needed or where a strain developed either buttresses or piers were built. Three very fine buttresses were added to San Ignacio de Caborca because of strains developing after the walls were completed.

Speaking of other missions - Winnie and I took two accumulated days off to see some of the closer missions in Mexico. After getting the necessary permits we traveled by automobile to Hermosillo one day, returning the next after seeing all the missions and churches along the way. San Ignacio, one of the Kino Missions, was the most interesting that we visited and several hours were spent taking pictures and visiting with the caretaker of the Mission.

Bird banding activities for the month were not very heavy. Seventeen new bands were used in banding the following:

Baird Bewick Wren	3
Vermilion Flycatcher	2
House Finch	2
Western Mockingbird	5
Western Horned Owl	2
Cactus Wren	2
Verdin	1
Total	17

Several new varieties will be noted in the above list.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for the month totalled 575.

The county singing societies held one of their yearly meetings at Gran Quivira and we had 355 visitors on May 10.

Our visitors are all very much interested as the roads are bad and they have made long dusty drives to reach us.

They tell us up here we are having our summer weather but woolen blankets are just as necessary now as they were in the winter time at Tumacacori.

We have had much high winds and dust during the month with scarcely any rain.

We have set up three sewer pipes with water containers on the top so that the birds may drink. I measured the water in one container and the birds drank six gallons in four hours. They come in great flocks and many are making nests in the vicinity.

They tell us up here that after the July rains both birds and

flowers are at their best, but we are noticing new blossoms nearly every day and if the land scapers acquiesce we mean to have a flower garden with only native blossoms.

Mr. Gipe has the pumping plant and pump house completed and will be leaving in a few days for Canyon de Chelly. We are going to miss Mr. and Mrs. Gipe very very much.

Mr. and Mrs. Borell paid us a visit on the 6th. It was their first visit to this monument, and they were much interested in our rattlesnake neighbors, but not one did we find for their collection. They had not been gone but a short time when one member of a party killed by far the largest rattler I had seen so far.

Mr. Diehl stopped here on the 20th and inspected the pumping plant.

Have been trying for a long time to get visitors to park at the parking ground instead of driving up into the ruins; signs did little good, so I put up a flag pole in the parking place and am having no more trouble; the minute they see old glory they just naturally swing about and stop.

Mr. Smith, recently retired as custodian here, is making a trip back to his old home in Arkansas. He had me make for him a map of Gran Quivira drawn according to scale and will give some talks on Gran Quivira to his friends in the south. We made the drawing on cloth 4 by 6 feet.

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TONTO

By Woodrow Spires, In Charge

With this report I bring to a close one of the most interesting months which I have thus far encountered at Tonto. The visitor count was much lower than expected but to offset this they have been of unusually high quality. The only way I can account for this sharp decline is the leaving of the winter visitors for the East.

Excepting a slight snow storm on the Sierra Anchas May 6, we have enjoyed a typical Arizona spring month.

The following figures are derived from SWM Stencil No. 16:

Total visitors at the Monument	365
Total time guiding	4320 minutes
Total visitors taking field or ruins trip	179
Total time field or ruins trips	3295
Total number of field or ruins trips	49
Average time field or ruins trips	67 minutes
Average group field or ruins trip	3.6

Total visitors museum trips	205
Total museum trips	61
Total time museum trips	1025 Minutes
Average time museum trips	16.8 "
Average group museum trip	3.3

Trips to the upper ruin were so few that they were included in the regular field or ruins trip.

The following newsworthy visitors have registered during the month:

May 1, Wer Minister of Jugoslavia and party.

May 1, Mrs. Jack Whitehead of the Arboretum and brother Philip Thomas.

May 3, Mrs. Hugh Miller and party from Coolidge had a (enjoyable?) picnic sharing the shade tree with two other groups of picnickers.

May 9, Ruth and Millard Henning arrived at the Monument, leaving May 13.

May 23, Ruth and Millard Henning paid a return visit on their way to Las Cruces.

Tonto solved one problem for the Hennings. They wondered if the rangers spent all their spare time thinking up the so-called dumb questions which are reported, but during their stay two elderly women came to the cabin, walked into the kitchen, and looked around, and in all sincerity asked "Is this the cliff dwelling?"

Tomorrow I expect to get started bracing the walls in the Lower Ruin which apparently is going to be rather a tedious job.

General cleanup work has occupied most of my spare time.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

Received the May Broadcast yesterday. The first things I look for are the instructions, requests and orders that you give to us in the field to help make our outfit the best in the Service. Accordingly, here is my report on the 22nd, instead of the 24th, as I have been in the habit of sending it out.

Visitors this month have fallen off some from that of April. Those who have come have been very interested in the place and expressed themselves as wanting to come and see the Fort when it is completed as to

restoration of the pioneer relics, and furniture.

Travel figures were as follows:

May guided trips:	16	Present	81,	Local	275,	Lecture CCC	36
April " "	20	"	96,	"	530	" none	
Decrease	4		15		255	Increase	36

Total for May 392 April 626

Have had another relic donated to the monument by Mrs. Maggie Heaton, Moccasin, Arizona. It is a combined bullet mold, copper and loader. It is so rusty that I have not been able to determine the make or size. Mrs. Heaton promised to give us some Indian pottery when we have some place to keep it.

On the 24th of April a CCC boy turned in a cartridge of unusual make; it was found in the bottom of the pool in the meadow when it was being cleaned out for swimming. The measurements of the cartridge are as follows: Length over all, 1-5/8 inches; Shell, 1-3/16 inches; Head across, 5/16 inch; center fire; and is marked W.R.A. Co. 22, W.C.F.

(Ed Note: Send it to Headquarters; our gun expert, Jack Winter, will identify it.)

With the collection of all the small relics I have (and I am not displaying very many of them) I am wondering if I could not get some show cases in which to put these articles.

Yesterday a crew of eight men started to work on the monument projects. Have started them on the west end of the road through the monument, and intend to finish up the road work first getting all grading and graveling done as soon as we can. Then will work on the other projects if we have funds to purchase material.

Tried to get an engineer in last week but couldn't; consequently, I called the Boss and asked him to send one in, but he wanted to know if I could not line the road up and give it a grade with my eye. I told him surely. He said "Go ahead and I will back you up on it." I got my tape and pegs and went to work with the help of a CCC boy. Think the road will be about where Mr. Cowell surveyed it in 1934 as I found four of the stakes he put in. At any rate, you will not be able to tell if the road is out an inch or two when traveling over it in a car.

The CCC boys finished their swimming pool May 20 and turned in the water that night, but it is not filling up as fast as they thought it would. It will take at least four and maybe five days to fill. There is a dance planned tonight to celebrate the filling of the pond; also some swimming was planned, but that is out.

The bird banding has been very interesting this month. In trapping the Gambel Sparrows I have noticed that they only stay here about five days and then move on, as some days I would catch 10 or more and the next few days most of my catches would be repeats; then a new bunch would come in and very few of the first bunch would be among my catches.

There have been very few catches the last few days. There are many tree birds here, and I would like to get some of the two-compartment traps to use if there are any to be had.

The birds banded for May are:

Gambel Sparrow.....	55	Repeats	46
Green Tailed Towhee	2		
Long Tailed Chat	2		

Total for May 59; April 44; Grand total 103.

I haven't done anything with the lizards this month. I have been working on some traps to catch them in. Will let you know the types of traps used after I have tried them out and the success I have with them.

The weather has been very windy and dry. It has been cloudy but have had no storms. The plant life is beginning to show the lack of moisture, and the stock watering holes are getting very low. In some places the stock are being driven to other places for water.

Thanks for the botany blotters, but I think I shall not need them a great deal this summer, as there are very few flowers coming out, and those are of the perennial kind as the seeded ones did not get enough moisture to keep them growing. Those that I have collected are few and the specimens are not of the best.

I was going to say this is about all when I happened to think that I am now wearing one of the regulation Park Service Belts. When my wife saw it she said it must belong to the "Pink Pants" class. The buckle is okay, solid brass, with gun blue finish, but the GREEN, I don't think it fits at all.

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NAVAJO

By John Wetherill, Custodian

I am enclosing report for April and also birds banded by milton. We have had some very bad weather the last month, which has limited the travel to just a few of the most adventurous. We are in hopes that we can give you a better report this month.

Mrs. Wetherill and I are out here in Berkeley "dodging cars and people" the most of the time. We may get over our fear of them in the

course of time. The desert for me is like the Texan that went to Utah. Everything in Texas was bigger and better than anything in Utah. A bunch of the boys thought they would teach him not to brag so they put a turtle in his bed. When he went to bed that night he found it. They told him it was a Utah bed bug. After sizing it up, he said, "Huh! it must be a young one." Even the noise on the desert is bigger and better than it is here.

--

By Milton Wetherill, In Charge

Enclosing report No. 16, birds seen and noted also birds banded to date.

The first part of April quiet, probably due to the windy weather, that we had at that time. The middle of the month fair, while the last few days have been partly cloudy and windy.

Have collected a few insects and plants, but they seem to be slow coming. The insects are not as plentiful as last year. Flowers are just starting to bloom. The Aspen and Birch are in leaf, with the oaks starting to swell buds.

The hill coming this way out of Shanto has been cut down about 15 feet, which will make it easier coming this way.

April bird list is as follows:

Audubon Warbler
Western Wood Phoebe
Western Gnatcatcher
Woodhouse Jay
Red-shafted Flicker
Red-nape Sapsucker ?
Canyon Wren
Gray-headed Junco
Junco oreganus ?
Tit-mouse
Mountain Chickadee
Broad-tailed Hummingbird
Sharp-shinned Hawk
Raven
Western Tanager
Black-throated Gray Warbler
Mourning Dove
Bush-tit
Robin
Pinyon Jay
White-breasted Woodpecker
White-breasted Nuthatch
White-throated Swift
Shufeldt Junco
Spurred Towhee
Say Phoebe
Ruby-crowned Kinglet
Red-tailed Hawk
Turkey Vulture
Arkansas Kingbird
Western Warbling Vireo

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CHIRICAHUA

By Wm. Stevenson

I herewith submit the following travel report for the month of May.

During the month 462 visitors arrived in 102 cars. Seventeen states and Mexico were represented.

Many visitors are now stopping at the Ranger's residence to express their appreciation of the camp ground, bathouse, and our trail system.

Echo Trail is "selling" all the visitors who can be persuaded to take the walk.

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CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Sup't.

I herewith submit the following ECW report for April:

Work has progressed well on Echo Trail this month. 1,500 feet were completed during the month, and the crew will be working on Echo Point June 1. Total trail now complete on Echo is 7,500 feet.

All materials are now on the ground for the Headquarters-Portal telephone line. Eight and three quarters miles of poles have been set this month. All remaining poles will be set by the end of the first week in May.

Excavation for the buildings in the utility area is 90% complete. This project has gone slower than expected due to large quantities of rock which have had to be blasted.

Work has continued throughout the month on topographic survey.

Forty enrollees are due May 27, which will bring the company strength to 192.

Visitors for the month - Al Kuehl, landscape architect, April 29; Jack Diehl, park engineer, May 21.

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WHITE SANDS

By Tom Charles, Custodian

The Lord still smiles on the Great White Sands.

It has been almost a year since our road crew started a campaign to get equipment to remove the sand which occasionally drifts across the road in about three places. When Chief Engineer Kittredge was here a few weeks ago, Ben Daugherty appealed to him for help. Ben knew he was

coming and had been praying for a windy day when the Chief was here. In my early days in Kansas I have seen wind storms take the four strands of a wire fence and wind them together into a solid rod; I have seen it blow fat hogs clear across the Republican River and lay them down gently on the other side; and I heard of a wind in a neighboring county that ran a crib full of ear corn out of a knot hole, shelling the corn as it went out. Leaving the grain on the inside and the cobs on the outside, so I am not a stranger to wind but I guess that Kansas never had much on the kind of a wind that Ben put on for Chief Kittredge the day he was here. Our whole force hopes that the demonstration was convincing and that it brings results.

I do not know where the story originated about a man catching a bear and not being able to turn him loose but I know just how the fellow felt, since I have gotten into this percentage business as applied to my travel count. When Barry Mohun came here six months ago, we started a count of visitors three days a week, eight hours a day. We took the percentage every way we could; the percentage that stopped along the road, that went into the monument, that went west or went east and the percentage each hour in the day. From the best of my recollection, Bob Rose put that percentage idea into our heads. It looked good and worked fine, but as time goes on the figures are a little staggering. I think they are correct and can see no reason to change them, but if this attendance keeps on climbing I am expecting a howl that I am "swelling the count."

From now on our attendance must be arrived at on percentages which we have established in the past six months count. For instance the count shows that the usual Sunday attendance compares to the week day attendance as 39 to 87; that is, every time we have one Sunday visitor we have had approximately 2-1/5 week day visitors. Our Sunday attendance for the past month has been: April 26 - 333; May 3 - 538; May 10 - 765; May 17 - 792; total Sunday attendance 2,433. Two and 1/5 times this Sunday count gives us 5,352 week day visitors. I am willing to cut that week day number in half, though some of the best informed say it is not too many. I give it to you as the result of established averages.

Here is our last month's attendance:

Sundays	2,433
Week Day visitors	5,352
Play Day	3,595
Special Parties	500
Total	11,880

The 500 listed as "Special Parties" is purely an estimate, but I know of over 20 school parties held at the Sands this month with an attendance of from 10 to 75 each. You may be interested in some of the schools and the distance which they are from the monument: Pedernal -

194 miles; Morarity - 210 miles; Ysleta - 110; Tatum - 201; Weed - 54; Eunice - 236; Anthony - 75; Las Cruces - 50; El Paso-100; Estancia - 195; Amarillo - 350; Loretta Academy - 100 miles. Amarillo sent 84 seniors who visited both the Carlsbad Caverns and the White Sands, but Eunice (and many of the others) brought their 16 young people the full 236 miles for White Sands Play day alone.

There have been very few nights during the last three weeks of school but that there was a party from some of the county or Las Cruces schools. These are among the 500 listed as Special Parties.

Speaking of parties, Boss, the one par excellent was the Annual Play Day. This is a party sponsored by the Alamogordo Chamber of Commerce, cooperating with approximately 100 teachers and in honor of 3,200 Otero County children. It was the second annual meeting and the response from every quarter and the unqualified success fixed it as an annual affair.

On account of the absence of shade at the picnic ground the committee on arrangements decided to hold the picnic as late in the day as possible and fixed the hours from 2 p.m. to 9 p.m. It is estimated that this late hour kept at least 500 children from the mountain districts away from the party. But what is 500 children, more or less, at a White Sands Play Day? There were plenty to stage four ball games, the track events, impromptu sports and the band concert, all at once and have a large crowd for each event. In the evening the Mescalero Indian Boy Scouts put on a camp fire dance at the foot of an exceptionally fine hill and hundreds of people sat in the soft, warm sand and cheered Charles Lindberg Shante-Boy and his brother scounts to an echo for the fine dances which they gave. After the Indian dances the entire assembly gathered around the fire and sang such songs as Old Black Joe, America, Oh Fair New Mexico, and others. It was some party, no accidents, no drunks, no discord of any kind.

I know that you will pardon a brief reference to a subject which we have discussed before; the matter of shade. And before we go into it, I want to thank you for your recommendation to the Director to Spend $2,000 for shade at the Picnic Ground. I am delighted that you are doing what you can to provide this necessity; for I must admit that it leaves a sting to think that 500 mountain children were deprived of the opportunity to meet with the other children of their class in the annual picnic, for want of a little shade. And even the pleasant picture of 3,000 children romping on the snow white hills cannot efface the shame of the other picture of mothers digging holes under the modern, low-slung cars, and crawling in with their little tots to get away from the excessive heat. It is a condition that calls for an apology and is not on "peak days" alone but every day in the summer season and especially every Sunday.

Among our interesting visitors was Lymon Cooley, movie-man of the well-known lectures, "Rediscovering America;" Laurence Brundell, Shell

Petroleum Geologist from Australia; Wm. B. Mitchell, Reclamation Department, Washington, D. C., with a picnic party of about 25 of the Reclamation officers and families from El Paso; Colonel Porterfield, retired capitalist, Silver City, and J. C. O'Leary, President of the Silver City Chamber of Commerce and editor of the Silver City Enterprise. Mr. O'Leary followed his visit to the Sands with a half column editorial on the beauties and attractions of the Sands and full description on how to make a visit there a Sunday outing.

Just as we go to press Jack Diehl slips in for his farewell visit. It's nice for Jack to get a promotion, but it will be hard for the White Sands force to get along without his friendly, instructive visits.

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CASA GRANDE

By W. J. Winter, Custodian

Travel this month was 2,274. This included two large groups - a Texas state picnic of 300 people on April 26 and a Townsend Club picnic of 100 on May 17. April 26 we met Roy Hopping, brother of Guy Hopping, Superintendent of General Grant National Park. May 9 J. D. Hamilton, Engineer from Mesa Verde, came in. May 17 we greeted Ranger Charles Hutchins of Carlsbad Caverns. All other NPS visitors were for Headquarters only.

The weather has been a bit warm, the day temperatures running from 88 on the 8th to 107 on the 14th, and the night temperatures from 44 on the 6th to 68 on the 15th. Precipitation was zero.

The Monument is now entirely minus the services of Charlie Steen. So now Don Carlos is the Juniorest of the Junior Naturalists. We are glad of his promotion, though we hate to lose him.

Taking Charlie's place as Ranger is Don Erskine, who has been in charge at Walnut Canyon for several months. Don is accompanied by his charming wife, Marie, and they make a welcome addition to the Monument family. H.R.W.P. Marie had one of the worst introductions to Southwestern Monuments that I have seen, as she arrived at Walnut Canyon in snow, ice and mud, and then when the weather got warm they were shifted down here to the summer furnace. Other difficulties beside the weather were involved, such as quarters, so if the gal survives it all she rates a medal.

To ease the heat situation Don has had a home-made cooling system installed (at no expense to the government) at his house. It is a window set-up which involves drawing air through dripping water and blowing it into the room with a fan. These coolers became very popular throughout southern Arizona last year. The rest of us have looked it over with much interest, as it certainly cools off the place, and that will be something to think about when the thermometer hits 115. We are wondering if the

thing might not throw an excessive amount of moisture into the air, or if the natural air here is not dry enough that it could stand a little added moisture. Don't be surprised if more of these coolers are installed. Now, if someone would only think up a heating device equally simple and inexpensive, for the winter nights, there might be less cursing of the BOPADS.

As I write this I can hear our gasoline sewer pump running. It now takes over half an hour of Don's time or mine twice a day to pump the surplus water from the hole beside the septic tank. Over 30 hours a month plus time and expesne of servicing and repairing the motor and pump is an expenditure that should not be necessary. This and the reasons of sanitation mentioned in previous reports make us fervently hope that the powers that be will soon crack loose with funds for an adequate sewer system.

To get on a more pleasant subject, it was noticed that the say-phoebe in the east room of the Casa Grande hatched their second family of the season May 23. The three young owls in the same building are grown almost as big as the two old ones. The second rattlesnake of the season was seen last night in my back yard behind the garage. Three Gila Monsters have been noticed, one on the entrance road, one at the wood pile and one on the path to the ruins. These may have all been the same one, the Naturalist Division not having banded any of them yet so they can be told apart. A ground squirrel caused some amusement by his persistent be-deviling of a bull snake, nipping at the latter's tail until he took refuge in a hole. Not a bad idea on the part of the snake and one which we might adopt next winter when the visitors get too thick.

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WUPATKI

By James W. Brewer, In Charge

500 Use of Monument Facilities by Public

91 guests registered at Wupatki Pueblo; 106 at the Citadel Group; 31 names are duplicated, leaving a total of 166 registered visitors to this Monument in May, 1936; 1935, 125; 1934, 9.

Two parties of overnight campers found only an absence of Monument facilities for the public.

States were represented as follows: Arizona, 47; California, 32; Colorado, 16; New Mexico, 10; Michigan, 7; New York and Washington, 6; Minnesota, 5; Tennessee and Texas, 3; Illinois, Nevada, Iowa, 2 each; Massachusetts, Connecticutt, Ohio, Mississippi, Oregon, Arkansas, 1 each. (SWM Stencil 13 attached) The above figures were taken on the 22nd.

530 Newsworthy Visitors

On Tuesday, the 28th, Dr. A. E. Douglass with Mrs. Douglass, Dr. Waldo Glock, Harry Getty, Mr. Hale, and Mr. Schulman were visitors. As you know, Dr. Douglass made a study of Wupatki beams, and is at present interested in obtaining student material from here. Dr. Douglass and I climbed into the cavate rooms where the catalogued beams were stored and picked them over. Dr. Douglass selected a number of specimens, some of which he remembered as old friends.

On Wednesday the 29th Dr. Byron Cummings and Gordon Baldwin brought two students to the Pueblo. They stayed long enough to see the Pueblo thoroughly, the amphitheatre, ball court, pit house, and petroglyphs. All of which requires time few visitors can or will afford. I had a very pleasant afternoon.

Dr. Colton and Miss Katharine Bartlett escorted a party of A.A.A.S. meeters from the Grand Canyon to the Citadel on the 30th. As previously arranged, I met the caravan at the Citadel; here some turned back and three cars come on to Wupatki Pueblo. Because the cinder road from Wupatki to Sunset Crater was, and still is, so dry I advised against that proposed itinerary. I know some of the party were disappointed, but was afraid that someone's car might crowd up and delay the procession.

On May 1 Mr. L. F. Brady, Curator of Geology Museum of Northern Arizona, brought another caravan of A.A.A.S. I met this party at the Citadel also, and guided them through both units of Wupatki.

Mr. Brady returned with Mrs. Brady and their guest on the 6th.

100 Administration

123 Visits by NPS Officials

Mr. J. B. Hamilton of Mesa Verde National Park registered at the Citadel on the 12th, and to our regret did not come to the Pueblo.

I've been wondering ever since J. H. Tovrea's visit if our amphitheatre is an unfinished kiva.

Mr. and Mrs. R. A. Livingston of Shiloh National Military Park visited the Pueblo on the 22nd.

020 Weather

April 25th to May 1: high 90 degrees, on the 25th; low 41 degrees, on the 30th; precipitation, trace on the 26th; five cloudy days and one sunny day.

May 1 through 22nd: High 89 degrees, on the 13th and 15th; low 36 degrees, on the 7th; precipitation, traces on the 7th and 19th; two cloudy days and 20 sunny days.

We have not had a measurable rainfall since March 25. Fifteen consecutive sunny days from the 8th to the 22nd have retarded range conditions greatly. The cinders are hot, dry, and loose and their effect on the sheep's feet is pitiful.

180 Publicity

Southwest Tourist News, May 12, contains a brief article on Wupatki obviously taken from our mimeographed circular.

210 Maintenance, Improvements, New Construction

230 New Construction

We are using the back dirt from INA-excavated rooms to form a ramp. This change will eliminate the narrow hazardous CWA stepway and stop destruction of the prehistoric retaining wall, at the same time reducing the pile of back dirt.

300 Activities of Other Agencies in Monuments

320 Cooperating Agencies Other Than Government

On three occassions I borrowed a 1½-ton truck from the Coconino County Highway Department. These hauls were for hogan and shade material

On one trip we towed the Pueblo I pickup into Flagstaff, for repairs. Being Sunday (the only day the County truck is available to me) we did not leave the Pueblo until six p.m. We hurried along because the truck had no lights mounted on it; dusk overtook us at Camp Townsend, and we went in for a Coca Cola (Atlanta, Georgia, papers please copy). We were drinking and discussing our predicament when Mr. Townsend suggested calling the sheriff's office and getting a deputy to come out and pilot us in - which he did!

400 Birds

Very casual bird notes show that Townsend Solitaire has not been seen on the Monument since the 13th, at which time I saw two at the pipe line. Both were gasping like mother's canary used to in July. Other birds observed are: Poorwill; Desert Black-throat Sparrow; Rock Wren, (the Wrens and Sparrows are common about the Pueblo now, singing and chirping from the walls and nearby bushes) House Finch; Horned Lark; Pinyon Jay; Say Phoebe; Dove; White-rumped Shrinke; Cowbird; Eagles are seen much less often than during April.

WUPATKI (CONT.)

470 Animals

Three head of Antelope were seen between Wupatki and Sunset Crater on the 17th; one, on the slope of the Crater the 22nd.

On the 18th I started down the ladder early in the morning only to be halted halfway by the dry rattle of a side-winder. I climbed up and put a shot shell into the .22 and then on into the snake. Later I learned that at Walnut Canyon a live snake cage awaits me. The fine shot did not seriously damage the snake as a specimen and it is in alcohol now.

I have no personal objection to snakes, but feel that where visitors of all kinds are welcome, snakes of all kinds are not. A large non-poisonous snake recently met some visitors on the trail, after which the visitors' interest in the Pueblo seemed slightly dampened; we thought we might have to be firm with the snake about the use of trails, but he hasn't been seen since - probably none too pleased with the encounter himself.

Navajo Arts and Crafts Exhibit

Since the advanced date has been put on the Report we think it is possible that some readers may be in possession prior to the 6th and 7th. So we again extend a "come one, come all" invitation.

The hogan was finished yesterday and here are some figures: Height - 14 feet; Diameter - 18 feet (The Indians say it is the best hogan between Cameron and Leupp). 140 to 150 tree trunks were used in the frame work. 202.5 cubic feet of dirt were used in the mud covering. 445 gallons of water were required to make the mud and harden the floor. 457 red man hours were required to haul, peel, and erect the logs, mix and apply the mud. Clyde Peshlacai and Albert Cody were the longest contributors.

One brush type "shade" is partly constructed and all the timbers are on the roadside awaiting the truck tomorrow.

The shearing slowed things up a couple of days, and if insufficient time remains to build a sweat house it can be one of next year's "added attractions."

I have kept a pictorial step-by-step record of the hogan construction as well as "Some Notes on How to Build a Hogan," which I will forward to you, hoping you'll never want to build one.

The top soil is so loose and thin it is necessary to blast a hole for each verticale post used in the shelters. Other exhibits are coming in rapidly and together with the borrowed antiques will make an exhibition.

SUNSET CRATER

By James M. Brewer, In Charge

Two hundred eighty-three visitors registered at Sunset Crater National Monument this month; 1935, 248; 1934, no record.

States represented were: Arizona, 76; California, 47; Colorado, 18; Texas, 7; Michigan, 5; Missouri, Ohio, New York, New Mexico, Pennsylvania, 4; Indiana and Oregon, 3; Oklahoma, Minnesota, 2 each; Kansas, Montana, Washington, Rhode Island, Massachusetts, Wisconsin, Kentucky, Tennessee, and Illinois, 1 each.

From Sweden came two parties of visitors.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

Have just received the last copy of the "Broadcast" and note that reports must be in to Headquarters two days earlier than usual. Since the mail leaves in less than three-quarters of an hour, I must attempt to write a report in that time. I'm afraid it will be greatly condensed.

There were 158 visitors to this National Monument during the month of May, 1936. During the month of May, 1935, we had twenty-three visitors. This month our visitors totalled 29 parties; total time, 98½ hours; average time per group, 2.4 hours. There were 14 rim trips, 6 trail trips, 3 horseback trips within the canyons, and 7 trips within the canyons by car.

The canyons were passable for cars equipped with ordinary tires for only a week. Now warm weather and high winds have caused the wet sand to dry and form drifts, and only wide-tired cars may make the trip until we get more rain.

On May 11 we started completing the water line to the Custodian's Residence. At this writing the pipe line is laid from the well to the reservoir, the line completed from reservoir to a point 20 feet from the residence. One more day's work will complete all connections from well to house. We dug up 163 feet of pipe laid last year, and laid it to the new well. Last night we started pumping, using a light pump jack and 3 h.p. motor, and secured a fine flow of water. While it is slightly cloudy, not having been pumped for four months, it is of a good taste, and seems quite soft. Sewer connections will also be completed within two days.

We were greatly pleased to have Norman Jackson of Montezuma Castle make us a return visit this month. We took him into the canyons on horseback, and showed him a small part of a real National Monument. Our horseback trips here average about seven hours each; some go as high as ten

hours. We are thinking of carrying alarm clocks, so that when eight hours have elapsed the alarm will go off, and we can get off the horses and walk home. While we don't mind the long trips, we understand that some folks believe in eight-hour days, with a day a week off duty.

Nearly mail time. But I am reminded of real consideration on the part of two of our latest visitors: They were driving to the office when they noticed a large gopher snake lying across the road. The brakes were applied just in time to keep from running over the snake. Whereupon said snake crawled up under the hood of the car, around the engine, and our very considerate visitors spent the better part of half an hour trying to unwind the snake from the engine, insisting they didn't want it to get hurt, burned, or otherwise damaged. This is a real move in the direction of conservation of wildlife. We are justly proud of both our Monument and our visitors. Both are "the finest in the Southwest."

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WALNUT CANYON

By Paul Beaubien, Ranger-In-Charge

648 visitors registered this month, and 506 are listed as educational contacts. Park Service visitors were J. H. Tovrea, Mr. and Mrs. J. B. Hamilton, Harry Langley, Charles A. Richey, Mr. and Mrs. J. W. Brewer, Charles Steen, and Vincent Vandiver.

Mr. Vandiver has filled a long felt want as he has completed a summary of the geological aspects of Walnut Canyon.

The last snow fell the evening of May 6, but it disappeared quickly. This has been a dry spring and the Forest Service expects one of the worst first seasons in history.

Since the snow, there have been 26 overnight camping parties; with as many as four parties on three different occasions. With heavier traffic, warmer weather, and a water supply, a large camp ground would be needed here.

The County has recently graded the two approach roads to the monument besides doing some improvement work on the spur road to the cliff dwellings. The Forest Service has hauled one tank of water to the cistern, and seems willing to haul another if necessary.

A large pine fell across the phone line several weeks ago. Somebody removed about 150 feet of wire at the break and this has not been replaced to date. The Forest Service will send fire fighters out by truck should a fire start, so I'm not greatly concerned about not having phone connections with the fire "lookout."

Don Erskine left for Headquarters May 6. Probably he can add some

to this report as he contacted a large group from the A.A.A.S. meeting in Flagstaff besides having first-hand knowledge of a fatality at the railroad crossing.

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AZTEC RUINS

By Johnwill Faris, Custodian

All right, Boss, just to prove to you that we read the "Broadcast," we are submitting our monthly report two days early. February, March, April, and now May, all show decided increases over the same months last year, and May, like April, has been the best of corresponding months since 1930. Just as soon now as Dale gets our temporary museum in operation, we will start singing, "Happy Days are Here Again."

Visitors for the month total 1,172.

May has been an exceedingly interesting month. We have had more fun trying to take care of all the planting put in by the CCC, obtain views for the Ecology case in our temporary museum set-up, actually drawing up plans for this arrangement, and putting our story across, than you can possibly imagine.

We started out the month with a bang, by showing 104 CCC boys from a Forest Camp at Dolores. They had wired us they would be here, so we were all ready for them, even to having an extra guide on the grounds that morning.

I have always contended, Boss, that there was not a reason in the world for enlarging our Monument, but I am about to take that remark back. If our crowds continue to increase as they have of late, I am afraid that I am going to have to try and impose on my good friend in De Chelly and see if he will not lend me some area. If he will give me those sections containing Mummy Cave and possibly the White House itself, I might tack them on to the lower end of my Monument where not too many people will notice them, and thereby not detract from our reputation too much. It will have to be pretty high standard to even consider annexing, but I know that Bud would like to have some people see them, so I will let down the bars for his special benefit.

Following close on the heels of the CCC boys Jim and Mrs. Hamilton were in on their way to Coolidge. We are going to have to get busy on our parking area pretty soon or Jim will desert us entirely. And by the the way, Boss, all jokes aside, if we put off action on the parking area much longer, we might as well include plans for enlarging it. Right now on peak loads it bulges the cement wall around the area. The nice gateway on the east wall that leads into our picnic area, was just foresight on the part of Chuck Richey and will actually act as an entrance to our supplemental parking space which will be about twice the size of our present one. Thus, we will have the esthetic value of a very compact and

adequate area, while in actuality we will have a very picturesque overflow into an equally pretty setting. I tell you, you fellows down there do not really give Chuck the credit that is due him. I know that Jim has wondered all the time what the idea of that large opening was in the East wall, but I never did tell him.

We were very happy to have Earl Morris with us for a few minutes the early part of the month. He was kind enough to go over several of the cases and offer suggestions which we appreciated very much.

James F. Zimmermann, President of the State University, sent word that he would be in and see us on the 14th, but was delayed and did not get to stop with us. We regret missing his visit very much, and hope that he will get up this way again soon. He is in charge of this big celebration New Mexico is giving in 1940 honoring Coronado, and already his efforts are beginning to show fruit. I want to ask at this time for another ranger by 1940, and please, Boss, see that the addition is given our parking area and museum by then.

The regular Monument routine has been for the month normal. No trouble to speak of. The entire Administration Building has taken on a new appearance with its bright new coat of apple green paint on all the doors and windows. We try to do this every spring not only to improve the appearance of the building, but to protect the wood from the hot sun. Since we do not do it but once a year I think it deserves mention.

The blow that killed father this month was a letter from Dale King suggesting that we get out plans for a temporary museum set-up at Aztec. Bert and I all but tore out each others hair to fix up something for him, and are wondering now if he won't get busy and draw up a temporary plan for us. I think there is a limit to what even our educators can stand, and I bet Bert and I hit it with our plan. I dare say that he finds things in our plan that he never dreamed you would expect to find in a museum. Anyway, it was great sport and we enjoyed the faith he displayed in us a great deal. We are awaiting the action of our Educational Division in purchasing the cases needed for our displays, and in a short time now invite our colleagues to "C'mup and see us," and we will show them what our Coolidge and Berkeley fellows can really do when they start out to fix up a museum. We are becoming more proud of this Division every day.

One day was spent in taking pictures for the Ecology Case, and with the plan Dale wrote us about, we feel certain that this case will prove one of the most interesting at the Monument.

An official trip to Santa Fe, early in the month, constitutes the only trip out of this section. Bert Hart called on Budlong and Miller on his days off, and tells me they are fine. Gosh, Boss, I am almost scared to use those words, but anyway that was when he went so maybe I

can get by this time. Do not let Dale, Jack, or Martin see this part.

Well, this was interrupted by a party of 27, and if Aztec becomes any better known for an ideal picnic spot combined with a couple hours of mighty interesting ruins trip, I am going to need a spare ranger before 1940, and am going to be forced to make provisions for fireplaces in our picnic area.

May has been most interesting, and we leave it reluctantly, consoled only with the hope that June will be equally as pleasant. Please extend a special invitation to the Hennings for us, and we promise them a mighty happy surprise.

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CHACO CANYON

By Thomas C. Miller, Custodian

General

Approach road to the south has received some much needed maintenance this month. The Indian Service have been over the road several times with their grader. The approach road to the north was repaired and maintained by the State. The blow sand north of Escavada Wash was much improved and almost climinated for a few days during the first part of the month. However, the first windstorm we had leveled the sand up, completely covering up our road. Since that time we have had a lot of trouble getting visitors out of that sand bed. That sand is sure giving this monument a bad reputation on roads. We are careful to explain that this sand bed is not a part of the Monument, but that does not help the visitors' feelings much. The visitors from the north are being discouraged about trying to get into this monument on account of roads. While our travel is under that of last month, we are not complaining about the number of visitors. We figure that just the very best ones get here, while the others get discouraged and turn back, so what we lack in quantity we surely make it up in quality.

Weather

Weather conditions have been excellent for the most part of the month. Weather statistics follow: Maximum temperature, 82 on the 3rd; minimum temperature, 28 on the 1st; precipitation, .50 inch was recorded for the month. The greatest in 24 hours was .28 inch on the 7th.

Range Conditions

Range conditions are very good. The grass, flowers and small shrubs are showing greater growth than ever before.

Travel

Registered by cars 496 people arrived in 162 cars, coming from 13

states. Museum and guide service was rendered to 109 people in 36 parties.

Special Visitors

F. D. Mathews, district manager, with Engineers Fife and Slattery inspected our Soil Conservation project May 1.

W. W. Postelwhaite, treasurer, W. H. Dree, dentist, Paul E. Doucher, professor of physics, all of Colorado College, Colorado, were interested visitors on the first. Dr. R. C. Fisher and Stanley J. Milford, Santa Fe, inspected work being carried on by the Univerity of New Mexico on their Headquarters buildings, on the first and second. State Highwey Engineers Dwyre, Sumner and Starkey were here inspecting the blow sand north of Escavada Wash and made the ruins trip May 5. J. L. Petterson, formerly of this Monument, and party, arrived on the 16th and departed on the 17th. W. G. Proper and Jack Snow, Soil Conservation Service photographers, were here on business on the 19th. Mr. Lionel Palmer, Superintendent of Schools, San Juan County, and party, were interested visitors on the 20th.

National Park Service Officers

Associate Engineer Hamilton arrived and departed on the 5th. A. E. Borell, wildlife technician, arrived on the 14th. Mr. Borell will be with us for some time exterminating rodents around our dikes in this monument. Ranger Hart, Aztec Ruins National Monument, and party were here looking over some good ruins on the 18th.

Soil Conservation Service

This camp has proceeded in a satisfactory manner. New earth dikes were built near the proposed Headquarters area. Revetment work was continued around the ruins of Pueblo del Arroyo and Kin Kletsoi. At this time 20 laborers and two dump trucks are being used on the project. 2000 Parasela shrubs have been planted for bank protection during the month.

Rodent Control

Trapping of rodents around the earth dikes constructed by the Soil Conservation Service in this monument began on the 15th. One Karbo Killer pump and 15 gallons carbon bisulphide gas arrived on the 16th. The pump was put in use Monday, the 18th. To date we have used 7½ gallons of the gas; it seems fairly effective. However, on porous places we have to repeat several times to kill all of the rodents. We are working long hours to complete this work as soon as possible. Mr. Borell is certainly working hard and putting in long days on this work. The Custodian has assisted in this work as much as possible. The Soil Conservation Service donated two Navajos and a biologist to assist in the work. A full report on rodent

control will be made by Mr. Borell when the job is finished.

University of New Mexico

Their Headquarters building is looking more like a house every day; they are pushing the work as fast as possible to completion by June 15, when their Archeological Field School is scheduled to start.

New Equipment

The new 1½-ton dump truck was received on the 15th. It is a good looking job and we are very proud of it. It was immediately put to work hauling water, maintaining fence,etc.

Bird Banding

Set one bird trap April 27; caught several birds and banded two. The others I did not have the heart to burden with bands on their legs, so turned them loose. I learned that you cannot trap birds with out frightening them, causing some of them to hurt their heads, so I decided I would just study the birds in other ways. No doubt I will be hearing from our Naturalist on this but that is the way I feel about bird banding. The birds banded were two Russet-backed Thrush, Hylocichla ustulata ustulata (Nutall). Band numbers 202801, 202310.

(Ed. Note: If Custodian Miller will read Paragraph 3, Page 1, and Paragraphs 2 and 3, Page 7, of his Bird Banding Manual, he will discover that his mentioned objections are ones solved several years ago by the application of proper methods which are there detailed. Our experience at Headquarters is that birds are invariably frightened at the first capture, become very tame later. Many of our "chronic offenders" have been captured 50 or more times, apparently regard the handling as the not-too-unpleasant aftermath of an easily obtained meal. "Burdening the birds with a band" is a slight overstatement, inasmuch as a recent reference in an ornithological magazine brought out the point that a band on a bird has relatively the same weight as a bracelet on a lady.)

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BANDELIER

By Jerome W. Hendron, Ranger-in-Charge

Visitors

Visitors numbered 833, arriving in 224 cars, from 35 states and the District of Columbia, Australia, Holland, China, Canada, Scotland, England, Nova Scotia, Switzerland, Italy, Mexico, Belgium, France, and Africa. Twenty-eight states were represented by cars.

The six highest states in order by visitor count were: New Mexico,

463; California, 51; Colorado, 40; Texas, 37; Kansas, 30; and New York, 20.

Visitor attendance for this month shows an increase of 98 or 13.19% over that of May, 1935, and an increase of 91 over last month. Travel has been much heavier over week ends than during the week.

Since May 15, there have been 24 return visitors either by themselves or with friends or relatives.

Weather and Roads:

Days partly cloudy	22	
Days cloudy	1	
Maximum temperature	83	May 3.
Minimum temperature	32	May 7.
Mean Maximum	75	
Mean Minimum	45.4	
Precipitation	.91	Against 1.79 for May, 1935.
Snowfall	.40	melted snow, May 7.
Rain and sleet		May 4, 15, 17, 18, 19, 23.
Dust storms		Slight, May 18, 20, 22, 23.

Weather has been good in general with the exception of a few slight rains, and a few dust storms; the heaviest one occurring on May 23, lasting most of the day.

Roads have been exceptionally good with the exception of a few corrugated places.

Visitor Trip Chart

Fifty-nine parties were conducted through the ruins, numbering 346 people. The average time per trip was 63.38 minutes. Five parties, numbering 23 people, were given talks without ruins trips or with only partial ruins trips, averaging 57 minutes per party. Several special talks were given at the hotel during the lunch hour, and also in the camp ground.

Special Visitors

May 9 - Mr. and Mrs. Chuck Richey were in, accompanied by Mr. and Mrs. J. E. Kell. Mr. Kell is connected with the State Parks Division. Chuck remained only a short while and then rushed off to Mesa Verde. May 10 - J. J. McEntee, Assistant ECW Director, was in the canyon on an inspection tour, accompanied by J. A. Chase, Commander of the Albuquerque CCC district, Frank C. W. Pooler, regional district forester, C. C. Dalcomb, F. H. Kline, Harley J. Helm, V. C. Campbell, all of the Soil Conservation Service in Albuquerque, Q. B. Sandberg of the Soil

Conservation Service, Washington, D. C., and Frank Andrews, Santa Fe National Forest Supervisor.

R. A. Livingston, Superintendent of Shiloh National Military Park, was in for lunch with his family. Mr. Livingston is making a tour of national parks and monuments.

May 13 - Mrs. Lansing Bloom paid us a short visit with a party from Santa Fe. Mrs. Bloom is the wife of Professor Lansing Bloom, of the University of New Mexico History Department. Professor Bloom is recognized as an authority on Southwestern History.

May 21 - Paul Kirkhart, Superintendent of the High School of protection, Kansas, was in with a group of his students. Mr. Kirkhart makes a trip each year with his senior class visiting a few National Monuments and other important sites. This was his fourth time in Frijoles Canyon; his last visit was in 1934.

May 23 - J. E. Koll, ECW State Park Regional Inspector, was in with J. T. Roberts of State Parks, R. D. Morgan, Superintendent of CCC Camp SP-33-T, Marathon, Texas, and W. H. Anderson, Superintendent of Camp SP-14-T, Canyon, Texas.

General

It seems pretty lonesome out here without Earl, but I heard indirectly the other day that he is going to get well soon. Here's hoping that he will soon be back with us again. He will, though, because he has the grit and determination or whatever it takes to get along, and too, he has Betty so you can bet your boots that he isn't going to let this illness keep him down.

We had what might have been a real forest fire the other night. It was about three and a half miles from here over the Alamo Canyon way. Forester Jim Fulton left early the next morning and had everything under control in a few hours. Jim likes forest fires; then he has an excuse for being tired.

I have a 5 o'clock trip to make around the ruins so this will be all 'til next month.

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BANDELIER E.C.W.

By E. B. Chase, Project Sup't.

Quarters No. 1 in the residence area was completed this month and is now ready for occupancy. Some landscape and planting work yet remains to be done on the grounds surrounding the building.

The walls of Quarters No. 2 are now constructed to door and window

height. The placing of lintels and vigas will start immediately. The timber crew has this month delivered approximately one hundred logs from the Santa Fe National Forest to the building sites of quarters 2 and Residential Area Equipment Shed for use in construction of these buildings. Hewing and shaping of this timber into vigas and lintels will start immediately.

Construction of the Park refuse burner was started this month on the north mesa near the rim of the canyon; at this time the base has been poured and all forms in place for the pouring of the structure proper.

Flagstone floor material has been quarried and delivered to the building site for construction of floors in the museum building project. All wall, ceiling, roof and portal construction has been completed and upon completion of floors this building will be ready for museum case installation. Recent preliminary case plans indicate interior plastering of this building will not be performed until the cases have been installed.

A small amount of trail maintenance work on the trail from headquarters to the Rio Grande River has been completed. Considerable work will be necessary near the lower end of this trail.

The planting of small shrubs along the entrance road and around the headquarters and residence areas has been in progress by the landscape crew.

The usual busy rock quarry operation has been in progress all month.

On May 10 this camp was visited by Mr. J. J. McEntee, Assistant to ECW Director Fechner. Mr. McEntee was accompanied on his inspection trip by Mr. Frank Pooler, Regional Forester of Albuquerque, Major J. A. Chase, District CCC Commander of Albuquerque, and Mr. K. D. Balcomb, representative of Soil Conservation Service of Albuquerque, together with other members of both the Soil Erosion Service and Forest Service. Mr. McEntee and his party inspected the entire camp and then the major technical service projects, both those now in progress and those completed in previous periods. After inspection of the entire ECW activities the party took the trip through the ruins under the guidance of the Acting Custodian, Mr. Hendron.

On April 16 the writer visited the other Southwestern Monuments' camp, located at Chiricahua National Monument, spending two days at this monument with the Project Superintendent, Bill Stevenson, going over the monument interests and project activities. This was a very enjoyable visit as well as instructive by viewing the activities of other camps. After the stay in Chiricahua I went to headquarters at Coolidge, spending two days with headquarters officials discussing Bandelier projects

and problems. En route back to Bandelier I visited Wupatki, Sunset Crater, and Walnut Canyon National Monuments, out of Flagstaff. All of them I found very interesting. This entire trip held many interests throughout and I enjoyed particularly the cordiality shown by Project Superintendent Stevenson and Mrs. Stevenson, Superintendent Pinkley and his Assistant, Hugh Miller, and staff in headquarters, and Jimmie and Mrs. Brewer at Wupatki National Monument.

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BANDELIER FORESTRY

By James Fulton, Forestry Foreman

During the first week of this month, my time was spent painting the interior of Quarters No. 2. Just before I acquired the title of Forester-Painter, the painting reached its closing stages.

Since the painting, I had charge of a timber-cutting operation. At this writing there are 100 logs containing about 11,700 F.B.M. cut, peeled, and delivered to Frijoles Canyon. This material was cut off the right-of-way of a new road the Forest Service is building over the top of Sawyer Mesa.

Maintenance of the lower Frijoles trail is a project I am just commencing. This year the trails are in much better condition than they were last year. Opening the drains last fall probably had a lot to do with this.

This is the beginning of fire season in this part of the country. We celebrated its opening by having a fire. On May 20 I used a crew of ten men to suppress a snag fire on the north rim of Alamo Canyon in Section 21. We left for the fire at 4:00 a.m., cut down the burning snag, built 135 feet of fire line, mopped-up, and arrived back at camp at 9:00 a.m. Subsequent patrol proved the suppression work was well done.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

As per your orders am getting this report out on the 23rd instead of the 25th as usual. The visitors were counted up to and including the 22nd. As you will see our count will be three days short this month, with on Sunday thrown in.

Total number of visitors registered for month were 773; total number that climbed the ladders, 343.

Roads leading in to the Castle are about the same as usual other than highway 79 which has been out for part the time during the month..

I understand that the contracts on this road are almost completed, that the road has beeen widened, the grades cut down and that it is really a pleasure to drive over it now. The road referred to above is state highway 79 between Jerome and Prescott, which has always been a very scenic drive.

Ranger Fish left on his vacation on the 15th. He said that most if not all his vacation would be spent in northern California. A letter from him since his arrival there says everything is lovely. Charlie Steen is relieving while Fish is on his vacation. Needless to say that Charlie took over the duties and went ahead without any interruption in service. You will no doubt recall that Charlie was with us a part of the summer of 1934. So it was more like coming back home than a new job.

Steen visited Tuzigoot Pueblo during the past week; says he enjoyed it very much, and that he could appreciate the work done there under the supervision of Messrs. Spicer and Caywood. However, he saw one thing there that he could not understand. Why should a wheelbarrow that had a hole worn in the bottom of the bed be patched with a Montezuma Castle "road sign." Was nicely bolted down and seemed to lend itself very nicely to that purpose. Would say in passing that I have been wondering for some time where some of our road signs went. Is it possible that this is the solution?

Park Service Visitors

Mr. and Mrs. Watt N. Dodge, ranger from the Grand Canyon, were in on the 7th.

Mr. and Mrs. H. E. Bailey, botanist from the Berkeley office, were with us for a couple of days during the month. They were gathering specimens on the monument, and we expect much good to come from their visit. To my knowledge Mr. Bailey is the only one that has studied the flora of the monument to any extent.

Mr. and Mrs. J. B. Hamilton from Mesa Verde paid us a visit on the 11th.

For the past two or three years an old White-Wing Dove has made himself rather conspicuous around the museum in that he had seemingly appointed himself as a committee of one to administer a beating to all the other White-Wings, Mourning Doves, and Quail. He disappeared during the past winter and we were all mourning his death. But on looking out the museum window on the morning of the 4th, we saw a very familiar looking White-Wing. We were all wondering if it could be the old' whitey' that we had known in the past. We only had to wait until another dove appeared on the scene. He immediately drove it away, then came back to the door of the museum and made a funny kind of a cooing noise peculiar

CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

I would say that about 1,500 visitors to the Monument this month, although there is a possibility that we would have had several hundred more had the road been in first-class condition. The custodian has been doing a small amount of rock removing and cleaning on the road the past week and this has been of some benefit. The trails remain in very good condition. There is a large strip of U. S. 64 and U. S. 87 under construction between Capulin and Raton at the present time and this is expected to divert considerable of the potential traffic that we might have to the Monument this summer; then when the road is completed of course we expect to get much more as all between Raton and Des Moines is expected to be paved.

Weather has been peculiar, some rain the latter part of the month and a very heavy rain in a small strip on the sixth, and a general rain on the 16th approximately .77 inch all over the County. There is plenty of high wind, but the dust is not so bad as other springs.

At this writing we are having colder weather than we have had for several months, and we have had more cloudy days during May than for many many months.

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HEADQUARTERS STUFF

BRANCH OF EDUCATION

By Robert H. Rose, Park Naturalist

The Educational Staff of Headquarters has consisted of Junior Naturalists Dale S. King and Charlie R. Steen, and Park Naturalist Rose. King has been on headquarters duty all month.

From May 1 through May 7, Steen was on visitor contact duty at Casa Grande while from May 8 through May 12, he completed the Tonto museum catalogue and made considerable progress on the geographic place names project. Leaving headquarters the following day, he has been on special assignments at Walnut Canyon and Montezuma Castle National Monuments during the remainder of the month.

The special assignment of Park Naturalist Rose to Rocky Mountain National Park, reported in April and outlined presently, continued into this month. Leaving Estes Park on May 13 he arrived Phoenix on May 15 and reached headquarters the same day

Headquarters and Field Personnel Changes

Effective May 1, Louis R. Caywood transferred from Junior Park

Naturalist, Southwestern Monuments, to the position of Custodian, Tumacacori National Monument.

Concurrent with the above transfer, Ranger Charlie R. Steen of Casa Grande National Monument was transferred to the Junior Naturalist position.

The status of ranger-historian, ranger, and other seasonal positions in the field is as follows:

1. Jerome W. Hendron entered on duty May 7 as seasonal ranger at Bandelier National Monument. During a period of sick leave for Custodian Jackson, Mr. Hendron has assumed responsibility for the educational program of the Monument.

2. Appointment papers are submitted for the second seasonal ranger position at Bandelier.

3. Doug Harritt, seasonal ranger at Canyon de Chelly last summer, will return to his same old job in the near future. We are glad that Doug who served so successfully last season is again with us.

4. The ranger-historian position at Casa Grande will remain vacant until some time next winter. Contrary to the situation in nearly all national parks and most national monuments, the heavy travel season for southern Arizona and New Mexico national monuments occurs in the winter.

5. Under special arrangement, ECW provides a number of student technician positions. One of these positions has been allowed for educational work in the Naturalist Office and at Casa Grande National Monument. Approval of appointment is now pending in Washington.

6. The position of ranger-historian, Chaco Canyon National Monument, has been established in lieu of the seasonal ranger position of previous seasons. Appointment to this position should materialize within a few days.

7. Evon Z. Vogt, Jr., entered on duty at El Morro as acting ranger during the latter part of the month.

8. Deric Nusbaum is to fill the new position of Travelling Ranger for the "four corners" region designated as seasonal ranger, Yucca House National Monument.

9. Zeke Johnson began duty May 1 at Natural Bridges in his same old position.

10. A seasonal ranger-historian position is provided at Navajo, and appointment should materialize in the near future.

11. Filling the Tonto seasonal ranger position is now under way.

12. Paul Beaubien has been on duty at Walnut Canyon during the month as seasonal ranger.

13.. Jimmie Brewer is being taken up on seasonal ranger status at Wupatki.

Detail at Rocky Mountain

Leaving Headquarters, Southwestern Monuments, on April 15 I arrived at Rocky Mountain National Park at 12:30 p.m. on April 18. While on this assignment the following work was done relative to getting the educational work in condition for their travel season:

1. The Headquarters and the Moraine Park museums were given a thorough cleanup. Tools, office supplies, lantern slides, books, pamphlets and relief models were segregated. The shelves and cabinets were cleaned and the floors were swept. Materials were placed in order in various places where they belonged.

2. The Arapaho Group in Moraine Park Museum, damaged considerably by pack rats, was cleaned up and such repair work done as could be performed with the materials at hand.

3. A segregation of pamphlets and separates was made and a temporary alphabetical file prepared. This file will need further improvement and breakdown but it at least affords a convenient place where pamphlets can be found.

4. Thousands of general information booklets were stored in space prepared beneath the stair steps. Approximately 50 mail sacks were cleaned and returned to the Post Office.

5. A file of cuts from Nature Magazine and used in Nature Notes was started a few days prior to my arrival. During the course of the Moraine Park Museum cleanup another mass of these cuts was found. Catalogue cards were prepared for these and identifications were made of as many as could be found in the incomplete Nature Magazine file.

6. Some time was taken for the preparation of an illustrated talk on the Southwest which was given on May 7 before the Estes Park Rotery Club.

7. About half of a lot of some 40 books, pamphlets, etc., classed as "lost" was found by searching the library and in the course of the cleanup work.

8. A scheme was worked out for a permanent mount for the labels belonging to the habitat groups in the Headquarters Museum. En route to Arizona I stopped in the E. W. Robinson Company in Denver, outlined

the type of mounts desired, and placed the order for nearly twenty of them of various sizes. The manufactured mounts should be in keeping with the excellent quality possessed by the cases and the exhibits themselves.

9. Questionnaire to CCC enrollees was prepared for the purpose of determining special talents for certain educational work. Distribution was delayed until nearer the time of the travel season.

10. A list was prepared of some $35.00 worth of books to be ordered for the park library.

All in all, as much work as possible was done toward getting the museums and the educational department generally, ready for the coming season. On May 13, in company with Superintendent Rogers, I went to Denver to take the train for home. Arriving Phoenix at 9:30 May 15, I reached headquarters the afternoon of the same day.

Administration, Clerical, Personnel

Due to Park Naturalist Rose's absence on the detail referred to above, the Educational Contacts records for April were not tabulated and published. For that reason the tabulations for both April and May will be found in the closing pages of this Division report.

Results have been received on the Visitor Question Survey which was started during March. These results were published in the April Monthly Report. Further reports on this survey are to be found in the May Supplement.

Among other items accomplished are: (1) Continuation of the enlargements file; (2) complete cleaning and tabbing of nearly 200 colored lantern slides of the Kino Missions; (3) preparation of personnel papers for various positions; (4) preparation of memoranda and general instructions in various positions; and (5) handling several items of general correspondence.

Gifts and Accessions

During the months of April and May the following gifts and accessions have been received:

(1) Three sets of enlargements of the Kino Missions pictures from the Field Division of Education.

(2) A consignment of about 200 colored lantern slides on the Kino Missions and general southwestern scenes from Field Division of Education.

(3) A consignment of University of Arizona Bulletins from the University

of Arizona Press.

(4) The publications of interest to us put out by the Colorado Museum of Natural History.

(5) About 500 fillers for a photograph album from Field Division of Education. These are being used in the preparation of a Kino Missions Album for Tumacacori National Monument.

Outside Contacts

(1) On May 7, Park Naturalist Rose gave an illustrated talk before the Estes Park, Colorado, Rotary Club; attendance about 35; subject, "Archeological and Historical Background of the Southwest."

(2) Using El Morro and Tumacacori National Monuments as the central theme of interest, Park Naturalist Rose gave an illustrated talk on the evening of May 25 before CCC Camp SCS 15-A at Tucson; attendance, 200.

Activities along other lines will be covered in the reports of Naturalists King and Steen which follow:

Report of Junior Naturalist Dale S. King:

OFFICE WORK

10 days on April Monthly Report
Wrote 46 letters
14 hours cataloging and filing library material
Sent botanical supplies to Pipe Spring, Wupatki, Navajo, and Chaco Canyon.
Sent bird-banding supplies to Tumacacori and Wupatki.
Mimeographed 500 natural history observation file cards
Three hours on Broadcast.

NATURALIST WORK

Prepared two Gambel Quail skins for study collection.
Renewed napthalene in storage cases.
Ordered trail labels for Walnut Canyon from Berkeley.
Kept botanical master file current.
Six hours on fiscal year report of bird banding for Biological Survey
Kept bird banding file current (personal time).

MUSEUM PLANNING

Completed plans for Case 2 (Physical Anthropology), Bandelier Museu, and forwarded them to Berkeley for preparation.

MISCELLANEOUS

Irrigated transplanted mesquite trees. Three hours government time, three hours personal time. Spent approximately nine hours personal time enlarging basins, replacing screens with finer-meshed ones to better protect from small rodents.

Report of Junior Naturalist Charlie Steen

May 1 - 7 - Guide duty at Casa Grande National Monument, with exception of two days sick leave.

8 - 11 - At Headquarters, Southwestern Monuments, completing the catalogue of the Tonto collection and mailing maps for designation of place names.

13 - Left Headquarters for Walnut Canyon National Monument.

14 - Spent the morning at Walnut Canyon and then left for Montezuma Castle where I relieved Ranger Frank Fish who then left on annual leave. Fish intends to return about June 26.

At Walnut Canyon I bragged a bit about my new camera and Paul suggested that we take some pictures of the artifacts which he recovered last winter at Tumacacori. My claims for the camera were substantiated by the results; some fine photos were obtained; these Paul intends to use in his report. I have also taken a number of pictures of articles in the museum here at the Castle.

With Norman Jackson five new birds were banded: two female Gambel Quail and three juvenile Say Phoebe.

VISITOR CONTACT RECORDS

By Robert H. Rose, Park Naturalist

Due to the absence of Park Naturalist Rose the visitor contacts tabulations for April were held over and appear in this report together with statistics for May. Following are observations:

1. For the travel period beginning with October, 1955, travel for May represents a new "high" of 22,833 visitors; April with 18,830 was second; March with 15,379, third; and January at 14,044 was fourth.

2. Visitor contacts termed "education contacts" for the same period show 14,204 for April as the "high"; 14,087 for January as second; 12,824 for March as third; and 12,785 for March as fourth. Visitor contacts of 10,556 for May are the lowest for the eight month

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR APRIL 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUCN CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165	0																	(NO REPORT)	
AZTEC	2	0	118	571	4321	4.8	37	110	579	1723	5.3	16	5	12					1,162	701
BANDELIER	1	0	76	303	4425	4.1	58										17	56	364	742
C.DECHELLY	1	0	7	22	1515	3.0	216												22	22
CAPULIN	1/165	0	1	6	90														6	600
CASA GNDE	2	0	378	3251	13294	8.6	38	242	2163	5890	8.9	22	180	1088					6,503	5,436
CHACO CYN	1	0	29	211	2550	7.8	88	29	176	870	6.1	30							387	791
CHIRICAHUA	0	1	18	77	3320	4.3	180												77	550
EL MORRO	1/5	0	10	42	300	4.2	30												42	42
GILA CLIFF	0	0																	0	(NO REP)
GRAN QUIV.	1	0	52	239	2730	4.4	53												239	229
HOVENWEEP	0	0																	0	(NO REP)
MONTEZUMA	2	0	144	902	6929	6.3	46	173	916	3153	5.3	18.2							1,818	1,054
NAT. BRGS	0	0																	(NO REPORT)	
NAVAJO	1/165	0	7	36	720	5	103												36	(NO REP)
PIPE SPGS	1-lab	0	20	96	432	4.8	22												96	96
RAINBOW BR	0	0																	0	(NO REP)
SAGUARO	0	1	144	489	5490	3.5	36												489	1,200
SUNSET CR.	0	0																	(NO REP)	289
TONTO	0	1	90	546	5515	6.1	61	88	476	1375	5.4	16							1,022	876
TUM.C/CORI	2	0	270	1542	9226	5.6	33												1,542	1,700
WALNUT CYN	0	1	100	343	3125	3.4	31										8	23	366	647
WHITE SNDS	1/5	0																	(NO REP)	5,709
WUPATKI	0	1	16	44	878	2.8	55												44	146
YUCCA HSE	0	0																	0	(NO REP)
HDQTRS																				
TOTALS	13.4	5	1486	8714	64809			642	4310	12411			185	1100			25	79	14,204	18,830

*12 full time permanent custodians and rangers; 1-acting custodian; 2 ranger naturalists; and 2-temporary rangers; others on miscellaneous assignments.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR MAY 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUCTN CONTACTS	TOTAL TRAVEL
	PERM	TEMP	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165	(																	(NO REPORT)	
AZT.C	2	0	147	853	5200	5.8	37	138	854	2683	6.2	19.5	4	7					1,714	1,172
BANDELIER	1	1	59	346	3741	5.9	64										5	23	369	833
C.DECHELLY	1	0	22	120	4830	6.0	220												120	158
CAPULIN	1/165	0	3	14	180	5.0	60												14	1,500
C.SA GRNDE	2	0	301	1667	8971	6.2	30	194	1099	3829	5.7	20	135	766					3,734	3,234
CHACO CNYN	1	0	36	189	2951	5.3	82	33	166	498	5.0	15							355	496
CHIRICAHUA	0	2	25	130	4790	5.3	192												130	462
EL MORRO	1/5	0																	(NO REPORT)	
GILA CLIFF	0	0																	0	(NO REP)
GRAN QUIV.	1	0	61	575	2965	9.5	49												575	575
HOVENWEEP	0	0																	0	(NO REP)
MONTEZUMA	2	0	121	602	4478	5.0	37	127	690	2357	5.4	19							1,292	773
NAT. BDGS	0	1	6	25	1040	4.0	240								2	260	22	133	418	151
NAVAJO	1/165	0																	(NO REPORT)	
PIPE SPOS	1-lab	0	16	81	400	5.0	25								1	36			117	382
R.INBOW BR.	0	0																	0	(NO REP)
SAGUARO	0	0																	0	(NO REP)
SUNSET CR.	0	0																	(NO REP)	283
TONTO	0	1	49	179	3295	3.6	67	61	205	1025	33	17							384	355
TUMAC GORI	2	0	155	560	4255	4.2	32												560	705
WALNUT CYN	0	1	95	338	3080	3.6	33	61	206	1450	3.4	24							546	648
WHITE SNDS	1/5	0																	(NO RPT)	11,880
WUPATKI	0	1	19	93	1165	5.2	93												93	166
YUCCA HSE	0	0																	0	(NO RPT)
HDQTERS															2	235			235	
TOTALS	13.4	7	1095	5972	52341			614	3222	11841			139	775	5	531	27	156	10,656	22,833

*12-full time permanent custodians and rangers;1-acting custodian; no ranger naturalists;
2-temporary rangers; and others on miscennaleous assignments.

period except for the "low" of 3,492 contacts for December.

3. The visitor contacts "low" for May (next to lowest) contrasts with the visitor travel "high" for the same month. This contrast is partly due to the following factors: (a) Due to the illness of Custodian Tom Charles, some 1500 contacts usually made for White Sands are not included; (b) Casa Grande travel drop of about 1,200 in May below the April count causes a drop of about 2,000 in contacts; (c) There is a drop of 800 to 1,000 contacts for Tumacacori; and (d) with a few exceptions, travel has decreased for monuments having museums and increased at those not having museums. This operates to cause contacts to fall off because in monuments having museums a given number of visitors accounts for upwards of double that number of contacts whereas this is not the case in monuments without museums.

CCC Assistance in Visitor Contacts:

An arrangement has been worked out at Bandelier and Chiricahua for CCC assistance in visitor contact work. Following are reports for these monuments:

	April, 1936	May, 1936
Bandelier	40 man-days	40 man-days
Chiricahua	20 man-days	40 man-days
TOTALS	60 man-days	80 man-days

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BRANCH OF ENGINEERING

By John H. Diehl, Park Engineer

Called at Alamogordo on the 2nd and visited the May Day celebration at White Sands, where not only the school children but also adults present were enjoying themselves playing and tumbling all over the sand dunes. The festivities were attended by school children and people from homes as far distant as Amarillo, Texas. Needless to say, the scars of the day were completely erased with the first light wind.

On May 20 another visit to Alamogordo was made to discuss matters with Mr. Charles and Mr. Happer pertaining to the White Sands and the work project.

May 19 at Gran Quivira I found the pump house practically finished. Foreman Gipe has done a good job with the materials at hand and the

EIGHT MONTHS TABULATIONS SUMMARY
OCTOBER 1935 - MAY 1936 INCLUSIVE---

MONTH	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL EDCATNL CONTACTS	TOTAL TRAVEL
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
OCTOBER	1045	6760	389	2805	175	1481	1	115	313	1157	12,318	12,698
NOVEMBER	1072	6354	295	1859	171	1365	7	485	156	584	10,647	11,309
DECEMBER	926	4769	284	1508	30	1793	1	20	70	402	8,492	8,525
JANUARY	964	6568	461	3008	128	1072	20	2283	289	1156	14,087	14,044
FEBRUARY	1141	7200	474	3369	81	711	11	1084	96	460	12,824	13,859
MARCH	1274	7348	535	3474	85	691	7	341	174	931	12,785	15,379
APRIL	1486	8714	642	4310	185	1100			25	79	14,204	18,830
MAY	1095	5972	614	3222	159	775	5	531	27	156	10,656	22,833
TOTALS	9003	53685	3694	23555	994	8988	52	4859	848	4925	96,013	117,387

EIGHT MONTHS TABULATIONS SUMMARY BY MONUMENTS
OCTOBER 1935 - MAY 1936 INCLUSIVE

MONUMENT	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL ED. CNTCT	TOTAL TRAVEL
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
ABOHES											(NO RPTS)	
AZTEC	710	4256	681	4265	11	24	3	600			2,125	4,942
BANDELIER	361	1824							156	533	2,357	3,827
C.CHELLY	76	379					1	350	1	4	633	532
CAPULIN	13	85									85	5,950
CASA GDE	2588	19640	1417	11421	983	6964	1	100			40,125	21,409
CHACO C.	240	965	81	420					55	225	1,610	3,852
CHIRICAH	43	207									207	2,307
EL MORRO	46	264							3	9	273	267
GILA CLFF											0	(NO RPT)
GRAN QUIV	135	1750	15	78							1,828	2,151
HOVENWEEP											0	(NO RPT)
MONTEZUM	712	3907	888	4364					4	31	8,302	5,228
NATL. BR.	6	25					22	1750	31	253	2,008	276
NAVAJO	7	36							16	40	76	(NO RPT)
PIPE SPG	151	810					5	99			909	2,095
RAINBOW											0	(NO RPT)
SAGUARO	415	1478							1	200	1,678	6,000
SUNSET C									20	61	61	781
TONTO	571	2981	553	2819							5,800	4,622
TUMACAC.	1821	9534									9,534	10,260
WALNUT C	375	1437	61	208					104	384	2,029	3,431
WHITE SD	396	3672					2	400	758	3121	7,193	38,747
WUPATKI	107	486					2	130	27	84	720	848
YUCCA HS	2	10									10	52
HDQTERS							16	1410			1,410	
TOTALS	9003	53645	3694	23555	994	8988	52	4859	1156	4925	95,073	117,377

*Three radio broadcasts and two showings Park Service films during period.

shortage of funds, but the outside appearance of the masonry will be criticized by the landscape inspector. However, it was essential that a house for protection of the pump be constructed, and with lumber materials and transportation so costly it was considered preferable to build the masonry house.

May 21 at Chiricahua National Monument the bank sloping project was covered quite thoroughly with ECW Superintendent Stevenson, and a report has been made covering this problem.

The evening of the 21st I arrived at Casa Grande National Monument where matters in general pertaining to the Southwestern Monuments have been covered with Superintendent Pinkley.

The morning of the 26th, in company with J. H. Tovrea, it was necessary to say "So Long" on my way to Oklahoma City.

A. E. Clerk and Carl Schmidt have been busy all month at Chiricahua continuing the topographic survey of the monument.

The conditions are rough and slow so that Andy estimates that two months more at least will be required to complete the work.

J. H. Tovrea, engineering aide, has spent most of the month on office work and taking care of detail assignments.

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By J. B. Hamilton, Associate Engineer

Mrs. Hamilton and I left Mesa Verde National Park the afternoon of May 6 and drove to Aztec Ruins National Monument and stayed with Johnwill and Lena Faris overnight.

Bert Hart, his wife and mother, dispensed hospitality of the true southern brand at dinner that evening.

Considerable change has taken place at Aztec Ruins since last I saw it, November 30 of last year. Johnwill has gotten a lot of useful work out of the CCC contingent he had from the Durango camp last winter. At the southwest corner of the ruins the homely old shed, which looked so out of place there, is gone. All about the Headquarters Area much planting of native shrubs and trees has been done. If they live, and they should with the care Johnwill is giving them, they will make a lasting improvement in appearances. The newly planned sewer system has been installed so as to care for the Monument needs for years, I believe. An adobe brick stucco covered wall has been built across the front of the residential area.

The seventh we drove to Chaco Canyon National Monument. It started

snowing on the way. When I struck the sand at Escavada Wash I did not know where I was, the dunes had shifted so much during the winter and visibility in the falling snow was poor. I followed some recent tracks and thanks to my semi-air wheels got through. Cal Miller tells me several tourists have wrecked cars in that sand stretch lately. He expects the Indian Service will cover the sand with shale soon.

In spite of slippery roads at Chaco we managed to see some of the work being done by the Soil Conservation Service. The temporary cattle guard, the sand filled permanent cattle guards, and the rods installed for marking the movement of Threatening Rock, if any. I also helped Cal Miller check the location of a newly excavated ruin on Monument land.

After lunch with the Millers, all six, we drove to Gallup. I had to wear chains from Crownpoint to Thoreau.

On the morning of the eighth I talked with Vogtie and tried to get to El Morro. The roads kept getting worse so I gave up about nine miles out from Gallup.

We drove that night to Roosevelt Dam, stopping for a few minutes at Petrified Forest on the way. We cut across country from Winslow through Pine and Payson, good dirt or gravel roads the whole distance.

The morning of the ninth we stopped at Tonto National Monument, where I met Woodrow Spires. We went through the lower ruins. He was wondering how to keep two tottering walls from falling with $20. I told him how I would attempt it if I had more money. One wall especially presents a difficult problem. Built on rubbish it looks as if it might fall if touched by a repair crew.

That afternoon we arrived at Casa Grande National Monument. We had the honor of having the story of the Monument told by the Boss himself. And a wonderful story it is as he told it. Talked some about problems at Canyon de Chelly and other monuments in my territory.

The tenth, Sunday, everyone at the Monument put in a hard day getting out the six-year program. I checked the El Morro steps account against Hugh Miller's books and sent the final construction report on that job. I also checked the Chaco Fencing account but could not prepare a final as there are some unsettled obligations.

Monday, the 11th, we drove via Phoenix and Prescott to Montezuma Castle National Monument. After a quick dash through the "best preserved ruin in the Southwest" and a few minutes talk with Custodian Jackson and his wife, we drove to Flagstaff via Oak Creek Canyon. That is a beautiful drive in the late afternoon.

That evening we went to Walnut Canyon, met Paul Beaubien, and from

the lookout gazed across the canyon just before dark.

The next morning, the twelfth, we drove out route 89 to the "Citadel." I should have gone on to the main Nupatki group of ruins but I wanted to make Mesa Verde that evening, just like any other tourist.

We continued through Cameron and Tuba City and had lunch at Keyenta. Was sorry to find none of the Wetherills at home. Aside from a few sandy stretches near Red Lake the road is good.

Continuing we drove down through Bluff, Blanding, Montecello, and Cortez to the Mesa, arriving at 10:10 p.m. That trip through Monument Valley and along the San Juan, between Mexican Hat and Bluff will long be remembered. I have seen worse roads and more interesting scenery, but not much worse nor more interesting.

At Blanding happened to see Zeke Johnson so stopped and chatted a few minutes. Sorry we could not have stayed longer.

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NATURAL BRIDGES

By Zeke Johnson
(Last minute arrival)

I just came in from the Monument this noon. I have been sticking pretty closely to the job out there, and we are having by far the best travel for this month. Thirty-seven were out to the monument in April and 114 this month. It was May 20 before a car got in here a year ago.

Everything is lovely---lots of flowers and grass in the canyons. Water is very good, but we are badly in need of some rain, and it looks right now as if we were going to get some, for it is showering all around and looks as though it may settle down and give us a good rain.

The roads are about as usual, as is also the case with the trails. The trails are much better marked, however, than ever before, but only about one half the visitors see the Awanchomo (Edwin) Bridge. Just can't get them to hike over to Sipapu (Augusta). Only the more sturdy or good hikers will do it, but it's not bad when people will take plenty of time. I left camp this morning 20 minutes before seven with two young ladies from the East. We went to all three bridges, took plenty of time to take many pictures, and were back to camp 20 minutes before noon. There we ate our lunch and were in Blanding at 3:20 p.m. It seems to me that people are more lazy than they used to be.

I am sending, under separate cover, data for the folder you so kindly offered to print for me. I answered 156 requests for more information about the Bridges as a result of my little broadcast - representing 22 states in the United States, 5 provinces in Canada, and from old Mexico.

People are going to come, Frank, and I must be prepared to take care of them as best I can.

You ask me to make suggestions regarding the six-year budget. I wish I could have that one-half mile of road made that Mr. Hamilton surveyed several years ago. It is surely a sore eye to the monument. I have done all I can to make it better, but the sand on the two steep hills is so bad that lots of cars have trouble and there is no shale that I can get to put on them. If I had that ½-ton truck or pickup that you are going to get me I could easily fix it and many other places on that one-half mile road. I would much rather have that pickup than anything else.

Wood is getting scarce and a long way for people to carry it, and I would be willing to furnish it if I only had a pickup.

****

CLOSING

You would think twenty-two thousand visitors would keep the boys out of mischief for the month, wouldn't you, Chief? That is a little increase over the eighteen thousand we had last month so it looks like we are headed for a busy summer, though, looking back at January and February with about fourteen thousand and March with over fifteen thousand, I can't say we were loafing then. We are picking up a few of the old hands: Hendron, Peterson and Doug Harritt showing up in this month's Personnel Sheet, and more of the summer men will come on next month. Unless we get an unexpected peak in visitors this summer we will be in better condition to handle them than we have ever been before; not that we will have all our holes properly covered at all, just that there won't be so many of them open to vandalism and we will be able to reach a little larger percentage of the visitors who come and answer their questions.

We in the field have of course been more or less on edge during the month with the prospects of the proposed regionalization; how far it is going to reach, how effective it will be, how much stuff can we get decisions on out of the district or regional office, who will fill these regional offices and will they be worth a whoop in the way of giving us action when they do fill them, and so on ad infinitum. We are for these boys so far as we have heard who they were up to the time of this writing. Our Jack Diehl goes up to the regional office; our Chuck Richey goes into the Santa Fe district office; our Dick Sias, who used to argue with us down at Chiricahua, becomes our District Inspector, and so on. Of course, the handsome George Collins, who will head up the District ECW at Santa Fe, hasn't had the benefits of a course in Southwestern Monuments, but he is a likely lad and willing to learn and he has done the next best thing, he has served at the Grand Canyon.

CLOSING (CONT.)

From the field standpoint we want you to believe that we are anxious to help any way we can to make this regionalization work. We are expecting it will mean more paper work for us and we are willing to deliver it if it means more action and faster action on our stuff. We have broken in enough new machinery in our time to know that this new set-up will take a little time to work in and get going, and we are willing to withhold judgment for a couple of months until they can get into their stride. Here's to them and the new system, and may both make good with a bang! They are our personal as well as our business friends and we certainly wish them well and will do everything we can to cooperate with them.

My only field trip of the month was the one to Tumacacori with Mr. Tovrea. It was a pleasant trip, as the ones to Tumacacori usually are, and productive of some results which are incorporated in the Supplement of this report. We are putting out a separate of this paper as one of our Special Reports in order to get it into the hands of the technicians and others who ought to be kept in touch with the problems of this most interesting of missions.

We are also including in the supplement for this month, a technical paper on the White Sands by Regional Geologist Vincent M. Vandiver. We are putting out 350 copies of this paper as a separate, the greater part of which we will send over to Mr. Charles to be used in answering his more interested visitors who write to him asking how the white sands are formed. He has always had a steady demand from the more intelligent type of visitor for just such information. For the general visitor we are furnishing him with a single sheet leaflet giving general directions as to how to reach the sands and what to see there and containing an appeal for leaving the place clean for future visitors, etc.

Zeke Johnson writes us that he has had about 250 inquiries out of his last radio talk from interested listeners who want to know how to reach the Natural Bridges National Monument and we are getting out a short information sheet for him so he may be prepared to take care of future questions.

It must not be assumed from the above that we contemplate any general distribution in large numbers of these informational sheets; such is not the case. They are intended to be used in answering direct questions either by mail or in person and in such use will prove very valuable.

The month has been a busy one in the office as well as in the field and we are looking forward to an even busier month of June due to the natural peak of work which comes with the end of the fiscal year.

This report is not so bulky as some we have put out and we have been promising ourselves to try to scale our monthly reports down somewhat, but with twenty-five reservations scattered over four states it

seems a lot of things happen in the course of the month. We have tried to make the report as usable as possible by putting in an index page at the front, which allows any report for the month to be found instantly; putting in a Condensed Report, occupying six pages, which gives the highlights for the month with ready reference to the individual report concerned where further information can be gained in a moment; and at the end of June and December, giving a complete index of writers and subjects for the previous six months so that continuity of any subject can be traced through the six months period in a few minutes. The theory is that if you are in a hurry, and we presume you generally are, you can read the six pages of the Condensed Report and get the gist of what has happened during the month; they are supposed to be complete in themselves although of course condensed. If you are not in a great hurry you might care to run over the individual reports and see what this and that one is doing at greater length. As for ourselves, the condensed report does not cover our needs and we keep three copies of the Monthly Reports around the offices for ready reference and it would surprise you to see how much they are used.

We like to think, too, that these reports have a historical value and that a future historian will be able to get a good cross sectional view of life in the Southwestern Monuments during the years covered by these reports.

And so we turn this into the mail and go back to the job of making history for the June Report.

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

El Morro

By E. C. Vogt, Custodian

(Last moment News from El Morro.

Just as we are ready to begin gathering these sheets, we pick E. Z. Vogt's report out of the mail and give it space here without being able to allude to it in the Condensed Report. It is spot news and by next month will grow old, so we crowd it in, but hereafter, Evon, speed it up two days!)

In company with his son Evon and Daughter Pattie your custodian spent a half day leisurely inspecting El Morro. No visitors came tho some 150 had registered during May including one D. D. Dibo from Alaska, a large group of Boy Scouts from Eager, Springerville, and St. Johns, Arizona. New sheets were placed by us in the register as nearly every visitor coming here likes to leave his name and address.

No damage except the very slow and gradual wearing of wind erosion on the inscriptions was noticeable. Good moisture in the ground was bringing up ample protection of the filled-in area thru growth of weeds and grass. Dry Russian thistle of last summer's growth were also doing fine work to prevent soil movement. Some settling was apparent directly over where the great arroyo had been filled with dirt but no dangerous settling nor washing was taking place.

The union to be placed shortly in the syphon pipe from the water reservoir at the head of the valley will make camp water available for visitors without any need for driving up to the dam thus damaging the soil coverage.

Under the Oñate and Basconzelos inscriptions a three foot rattlesnake was asleep under the partial shade of a broad leaf yucca. He attempted to scare us off with the threats of his rattles. With sticks Evon, Jr., and Pattie contrived to get him coiled over my sombrero so that I was able to snap a picture of him directly under the three century-old inscriptions. Two other views were taken of this, the first rattler I have ever encountered near the cliff wall.

Birds were active with cliff swallows, turtle doves, blue birds and the "chinchontie" or mocking bird putting on a merry vaudeville. Near the poetic Manuel de Silva Nieto inscription of 1629 our eagle which nests high overhead had done some widely scattered spring white washing over the surface of the mesa.

The Bee-weed is in bud, the narrow leaf yucca about to burst into fragrant bloom. Piñon cones promise some crop of nuts but not so general or ample as was at first reported.

Roads are in fair condition from Gallup and Ramah though not to be recommended from Grants.

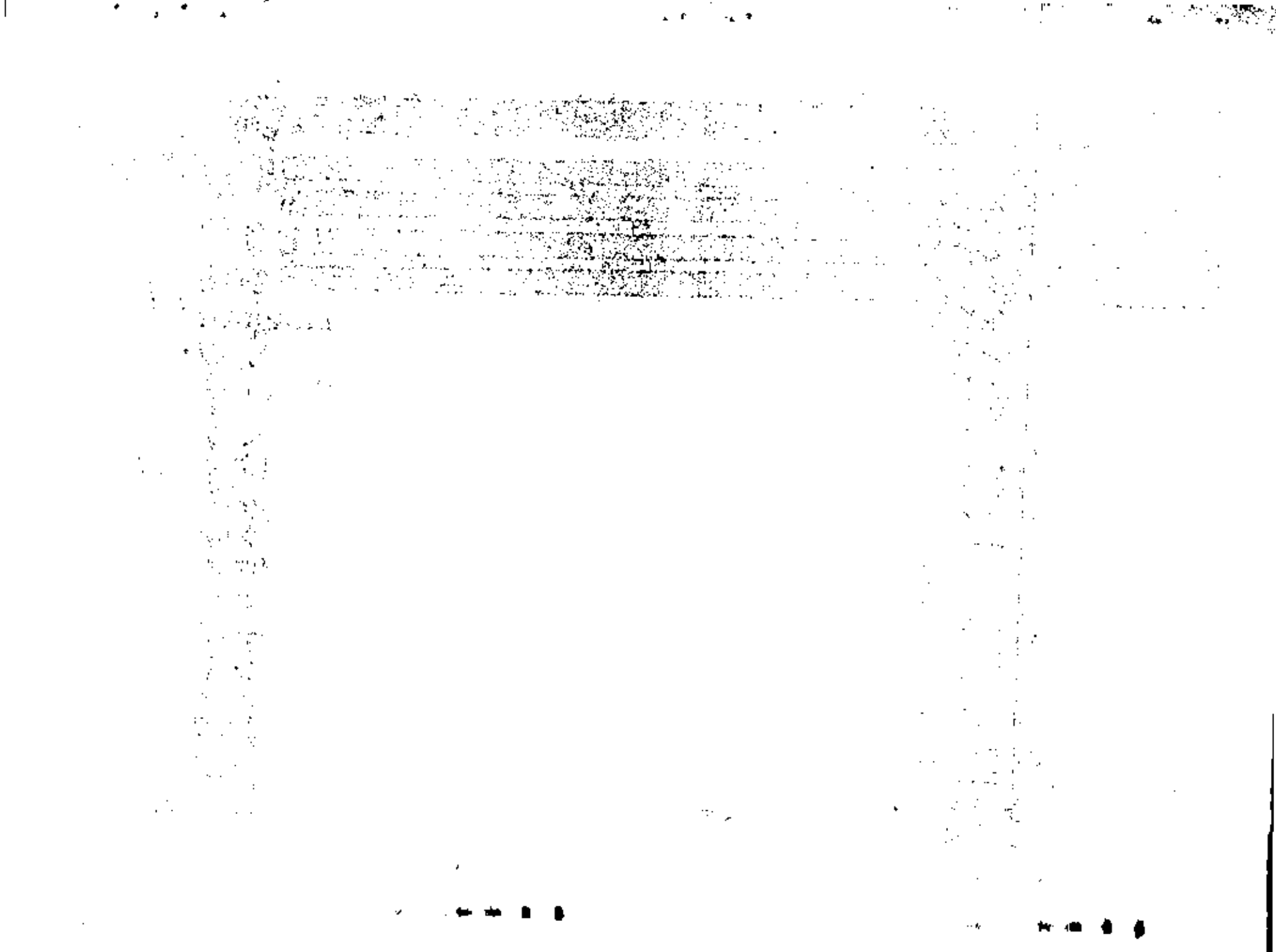
General feeling among ranchmen and farmers was good. Early crop showing, good green grass for sheep, cattle, and horses, gave hope for a good year while prices which have greatly improved for wool and lambs had a good effect on the entire community.

Indians, both Zuni and Navajo, were somewhat confused in the trend of government help but busy with their work of stock raising.

As I drove down from the Summitville, Colorado, mine thru the Mesa Verde country, I stopped to chat with the ranger at the entrance, learned of the transfer to Santa Fe of Engineer Hamilton and Mr. Richey, Near Towoac I was unable to wait for a Spear Dance in progress among the Utes. The friendliness and fusing of the Utes and Navajos was apparent here in the gathering of so many Indians.

THE Supplement

S·M MONTHLY REPORT



THE TUMACACORI CHOIR LOFT PROBLEM

By Frank Pinkley and J. H. Tovrea

A most interesting theory has recently been developed in connection with studies of the mission at Tumacacori National Monument. It is given here for what it may be worth and we freely admit that it may not check out when more evidence turns up. As the evidence now stands, this theory accounts for some facts which have been puzzling us for the past twelve or fifteen years.

That there have been changes of plan in the construction of Mission San Jose de Tumacacori can be shown, we think, beyond the least question of a doubt. The evidence also points strongly to the fact that there was reconstruction after certain parts of the building had been erected; that is, not only was the plan itself apparently changed here and there before the actual construction of some parts of it had been effected, but certain changes of plan were made which entailed tearing out and rebuilding some portions of the structure. At some future date, after the publication in these pages of Mr. Beaubien's report on his excavations of 1935, an extensive report will probably be prepared which will cover a complete study of all these changes. Working, however, under our regular policy that as soon as we get a new theory or fact we might as well pass it along for criticism and suggestions, we are offering here one of the details which later may be more completely developed and incorporated in the study of all the changes which are indicated in the mission walls.

We believe that Mission San Jose de Tumacacori was under construction for many years longer than the present written records would indicate and was, as a matter of fact, never completed. The modern method of putting large gangs of expert workmen on a construction job and pushing it through to speedy completion was not in use in the old days at Tumacacori. This was due in part to the time and country. The men who worked on this job were undoubtedly drawn from the local community and must be allowed time off to attend to their own work, such as planting, handling and harvesting their crops. The work might also have been stopped at various times and for considerable periods by financial difficulties. The Apache Indians, with their constant menace of raids and forays, no doubt caused their share of delays. We can also turn to the experience of the California Missions where we find many of the present structures took from six to ten years in the building. This factor of an extended period of construction would account for revision of plans and changes in the work during the erection of the church such as might not occur in our present times, and we must, therefore, be willing to look for such changes and make allowance for them.

The present study deals with the right hand or east wall of the church as one enters the front door, and covers and distance from the

front wall some twenty-five feet to the north, and from the floor to the roof. The present condition of this wall is shown in Plate 2. The view is from the west side of the room looking east and shows the large buttress to the east of the entrance doorway at the right side of the picture. To the left of this buttress can be seen the entrance archway to the Baptistery and further to the left is the pilaster which once carried a choir loft arch. Above the archway to the Baptistery is a doorway opening from a second story passage in the tower on what was once the choir loft floor.

The choir loft arch was standing as late as 1809 and we have a picture of it taken that year from a point about under the triumphal arch at the front of the nave. Above and a little to the left of this pilaster will be seen a peculiar curved effect in the wall construction where the plaster has broken away enough to expose it. Closer inspection will show that this curve is roughly centered on the curve of the Baptistery archway. From the high point of this curve, a little below the choir loft doorway, a horizontal line can be seen running to the left and meeting a vertical line which falls vertically parallel to a tangent to the left end of the curve. This triangle, if you will pardon the slightly inaccurate expression, has been the source of hours of study, worry and conjecture on our part. It was originally filled with a grouting of lime mortar, stones and an occasional brick bat. About half of this filling has long ago broken away and disappeared, the remainder is still embedded in the wall. It is totally different from any of the wall construction near it and lies in what appears to have been a plain piece of wall. An examination of the opposite wall of the church discloses the same condition on that side although the plaster, being in a much better condition, covers most of the triangle.

Mr. Beaubien's report on his excavations of 1935 will disclose the plan of foundations which he discovered under the present floor of the church. (See Plate 1.) One of these foundations occurs on each side of the room directly under each of these triangles.

The facts as stated above caused us to begin this study on the possibilities of the church having had two choir lofts or having been planned for a choir loft which was never built, the plan having been changed to a smaller loft whose arch was still standing in 1889, and which we shall refer to hereafter as the "late loft."

We note that the foundations under the floor are adequate to support a much heavier choir loft arch than the late one. The indicated width of the old loft pilaster along the church wall, too, is much greater than the late pilaster. The indications are, then, that the old loft arch was heavier and that the pilaster was thicker from front to back and probably extended further from the wall than the late arch.

We believe the curved line on the wall will explain this for we

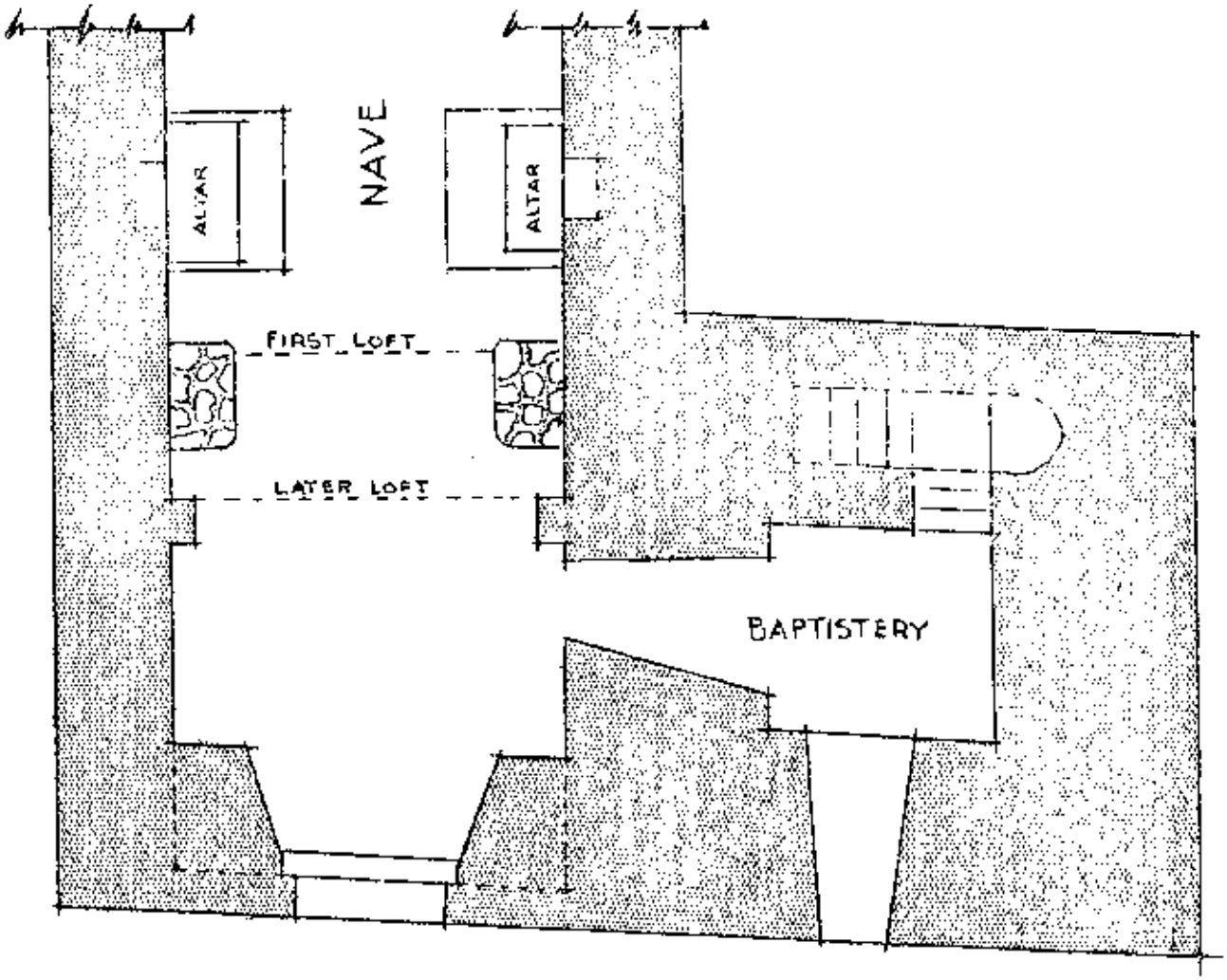


PLATE 1-PLAN

Tov.

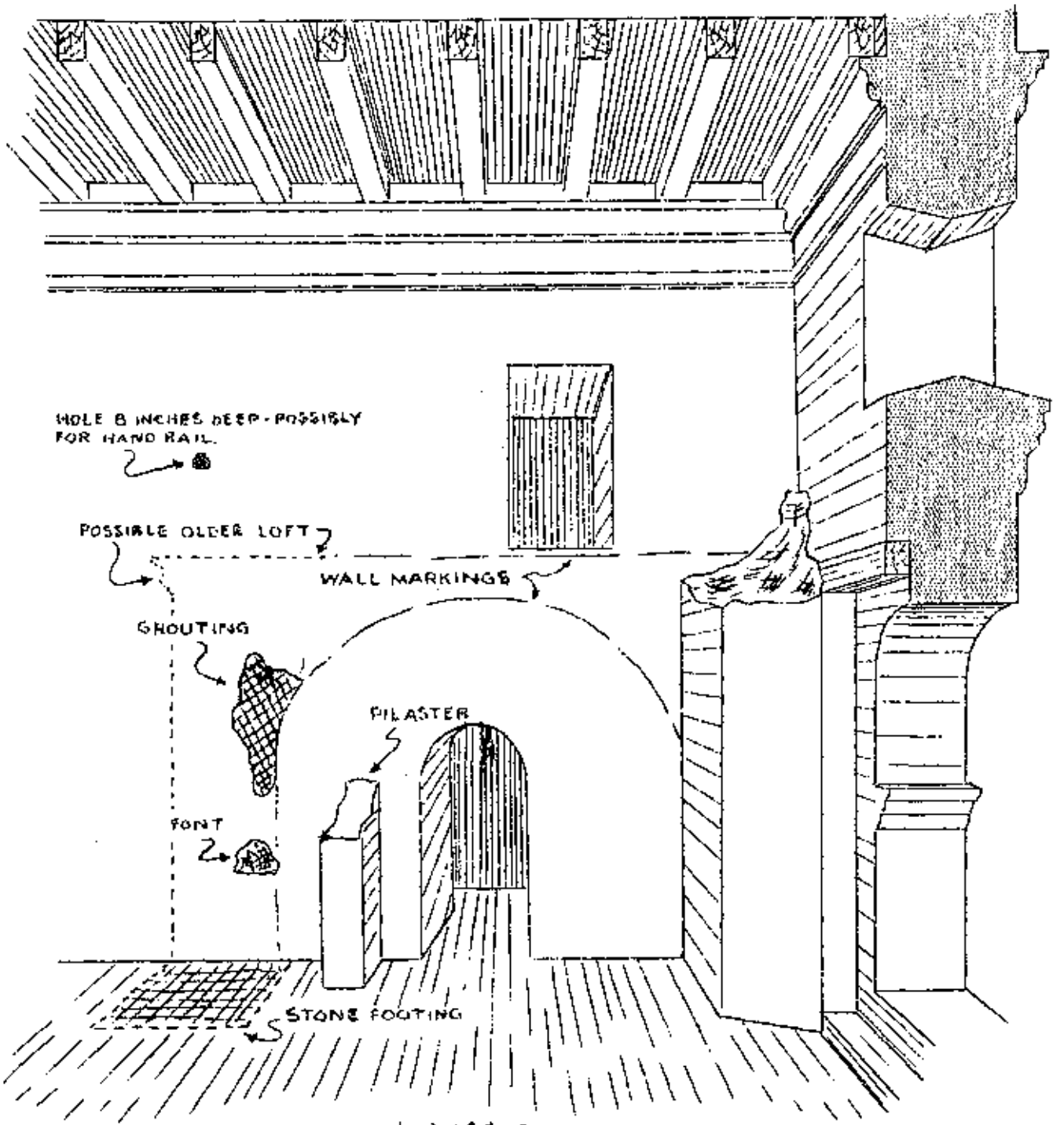


PLATE 2.

EAST WALL.

Tov.

think it indicates the line of vaulting of a groin vaulted choir loft. Groin vaulting would account for the extra thickness of the choir loft arch, because there would be a thrust against it and its thickness would help to keep it from overturning. This would also account for the two large buttresses in the south corners of the nave, for they would help to carry the thrust of the vaulting against the front wall of the church. Groin vaulting would likewise account for the grouting of lime mortar and stones remaining in the triangles in the walls of the church, for the vaults might have been formed of lumber and filled with the grouting, not unlike we would handle the job with concrete today, in which case the builders might have dug back into the church wall in order to give this grouting a chance to key into the wall, thus getting a better hold against the corner thrust. They might at the same time have keyed the grouting into the choir loft arch itself and when that arch was destroyed or taken down a section of this grouting fell out, accounting for the missing piece which is now gone from the church at the front of the loft.

It will be noted on the plan shown in Plate 1 that the axis of the passage into the Baptistery is not centered on the Baptistery. The inside end of the passage is centered on the axis of the Baptistery but the outside end is not centered between the present pilaster and the corner of the church, but is centered between the supposed older choir loft pilaster and the corner of the church as is shown in Plate 3. This, to us, is strong evidence for an older choir loft. It would be hard, with the labor then at hand, to build an arched passageway, keyed with adobe bricks, having a large arch at one end and diminishing to a small arch at the other. It would have been considerably harder to move the outer end of the passage a foot or more to the left and then bring the arched ceiling through, diminishing from a large end to a small end on that warped line. Yet they went to this extra amount of trouble and care. We think the desire to center the outer end of the passage on the center of the transverse vault of the choir loft while leaving the inside end centered on the axis of the Baptistery, is the only possible cause for this peculiarly shaped passageway.

Assuming that we have guessed the intent of the builders, the next question is, was it ever carried out? There is a possible theory that one builder planned a future reconstruction of the inside of his church when he should have better skilled workmen or more funds to make it possible and planted the two foundations and the two groutings in the wall for the future larger and heavier choir loft arch to rest against, covered them with his church floor and finish plaster and never afterward found the opportunity to use them. This would also entail his warping the passageway as described above and which would then not be symmetrical with the shorter choir loft which he would then build. We do not believe this theory but offer it here as one possibility.

Another theory would be that the longer and heavier choir loft was planned while the building was under way and the warped passage was

built to fit that plan; that the attempt at the groin vaulted arch failed and the padre, finding that he could not execute it because of lack of skill or funds, tore out the pilasters;left the foundations and groutings in the walls to puzzle us these hundred odd years later; gave up the groin vault entirely; moved his choir loft arch back to the right a few feet, thus decentering his Baptistery entrance; and, with a much lighter arch than was first planned, built a beamed floor in his choir loft. The pilasters of the later loft are not bonded to the walls which would check with this theory.

Another theory would be that the present walls are older than we think they are; that they are the walls which were unroofed in the raid of 1765 and re-roofed in 1781. This theory would suppose that the burning roof crashing in in 1765 bore down the groin vaulted choir loft; that in the reconstruction of 1781 they had not the means or skill to rebuild the vaulted loft and so, clearing away the debris of the old loft, they erected the new as their best effort.

This last theory in itself is a fine one, but we cannot square it with the entry in the burial record in 1822 where the transfer of the bodies of the two priests from the old church to the new, which would certainly indicate that the "new" church, which was still unfinished in 1822, could not have been the "old" church which was re-roofed in 1781.

We have asked Custodian Caywood to do some ring growth research on the headers of the various openings in the present church and see if we can get any time factor along that line of study.

In the meantime we are putting this problem of the choir loft of Tumacacori into the record on the evidence we have and leaving the question open to argument.



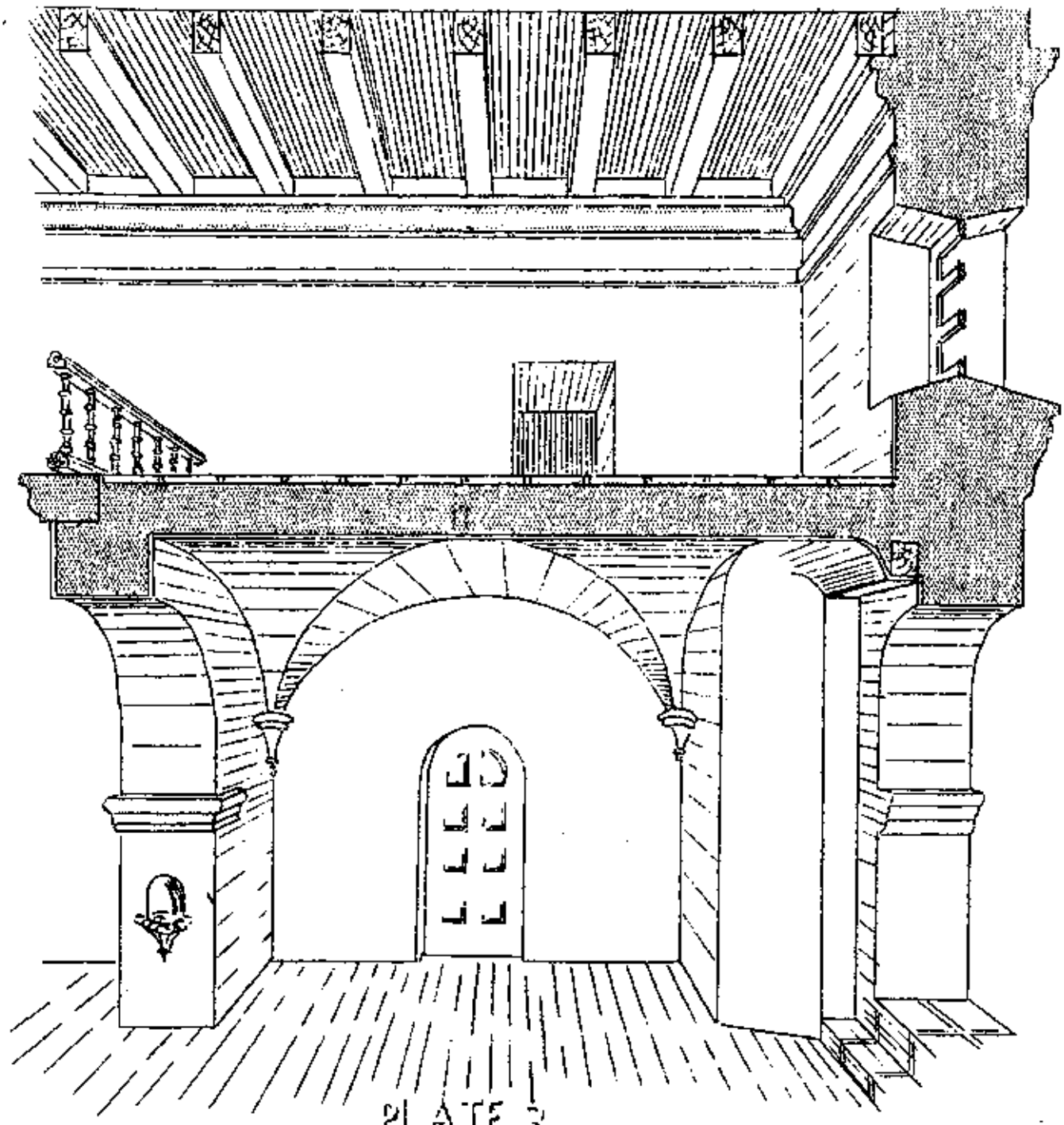


PLATE 3.
THEORETICAL GROIN VAULTED
CHOIR LOFT

Tav.

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GEOLOGICAL REPORT ON WHITE SANDS NATIONAL MONUMENT

By Vincent W. Vandiver, Regional Geologist

INTRODUCTION

The White Sands National Monument is rapidly becoming one of the prime centers of interest among the Southwestern Monuments. It is estimated that approximately 34,000 people visited the area during the past year. I was informed that Mr. Gilbert Grosvenor, editor of the National Geographic Magazine, stated during his recent visit that he had observed three of the natural wonders of the world in the course of a few days; namely, Grand Canyon, the Carlsbad Caverns, and the White Sands. The inspirational features of the sands cannot be denied and this fact together with its being the only occurrence of gypsum sand in the world of much magnitude may eventually warrent the area being given consideration as a national park.

It is due to this increased interest in the White Sands and the fact that several theories have been advanced by geologists as to the source of the gypsum that I visited the area, in an effort to relate the best geological picture possible. There is considerable geological information in the literature on the Tularosa Basin and with this data at hand combined with the field studies made there appears to be little doubt as to the source of the main portions of the gypsum comprising the sands. Since only a short time was spent at the monument the following pages are necessarily largely a compilation, however, the data assembled is in the main from the publications of the United States Geological Survey and since this type of material was available there appeared little reason for spending time duplicating field studies completed previously.

LOCATION AND EXTENT

The Tularosa Basin, of which the National Monument is a part, lies between two of the most prominent mountain ranges of New Mexico, the San Andreas mountains on the west, and the Sacramento mountains on the east. This elongated synclinal basin is approximately 150 miles in length, has a minimum width of 60 miles, and covers an area of approximately 6,000 square miles. The most spectacular feature of the area is the granular gypsum comprising the White Sands, situated some 12 miles west of Alamogordo, in south central New Mexico.

Approach to the heart of the sands is over State Highway No. 3 which extends in a northeast-southwest direction connecting the towns of Alamogordo and Las Cruces. North-south U. S. Highway No. 80-85 to Albuquerque and El Paso is available at Las Cruces. U. S. Highway No. 54-70, running in the same general direction, may be had at Alamogordo for El Paso as well as points north. The Southern Pacific at Alamogordo is the nearest

approach by rail to the White Sands.

The deposit of gypsum is about 27 miles in length from north to south and averages around 10 miles in width, the greatest width being about 15 miles. (See Plate I for aerial extent.) Over 500 square miles are covered by the gypsum sands which probably average 50 feet or more in thickness. It has been estimated (9) that the deposit contains 15,000,000,000 tons by using 60 pounds to the cubic foot of gypsum, with much of the material containing no more than 2 or 3 per cent of impurity. It is interesting to note that the gypsum sands proper occupy only about 5 per cent of the total area of the Tularosa Basin.

The White Sands National Monument was created in January, 1933, and was formally opened to the public by Mr. Tom Charles, resident custodian, in April, 1934. The area comprised in the monument is 143,145.91 acres and negotiations are now being concluded for an extension to the southeast covering 1,640 acres, including a 200-acre lake, which is to be used primarily for a migratory bird refuge. The total area will therefore be approximately 225 square miles.

Roughly 40 per cent of the total deposit of gypsum in the basin is contained within the boundaries of the reserve area. On this basis and in consideration of the above estimate for the total amount of gypsum present there are 5,200,000,000 tons of almost pure gypsum within the monument leaving an estimate of 7,800,000,000 tons outside for public exploitation as desired. The average gypsum mined yearly in the United States for the five year period 1927-1931 amounted to approximately 4,300,000 tons (14). Should all sources be closed in this country and the consumption of gypsum required for domestic purposes be taken from the White Sands outside of the National Monument it is calculated that there is a supply available to meet the needs for over 1,800 years. Botkin (5) states that if all of the gypsum mines and mills in the United States were shut down for 1,000 years, a normal supply could be obtained in the sands' area outside of the monument.

HISTORIAL

The Tularosa Basin is rich in historical interest. The coming of the Spaniards in the sixteenth century and their contacts with the Pueblos and Apaches form many exciting chapters. The main route of travel in the early days was along the Rio Grande, the valley to the west, and that the desert, because of its lack of water and Apache depredations, made a deep impression upon the early travelers is certain since it was known as the Jornada del Muerto, or "Journey of the dead." Evidence still remains of the extension of the rule and religion of the Spaniards at Manzano and Gran Quivira. Gold placers and salt found in the alkali flats were early attractions to this area. Heavy wooden wheels of ox-carts and irons with which the oxen were shod have been observed along the old trails. The first real development in the area was the establish-

ment of Fort Stanton in 1855. The range wars of the 80's and the bloody events surrounding the activities of Billy the Kid all lend much to a fascinating historical picture.

PHYSIOGRAPHY

West of the Great Plains of New Mexico and Texas is a region of isolated mountain ranges with alternating plains or broad open valleys. The Pecos and Rio Grande rivers flow through several of these valleys, but in the region between these rivers there are valleys which are entirely inclosed by higher ground, thus having no drainage outlets. The Tularosa Basin, of which the White Sands is a part, is a typical example of such an inclosed basin.

A variety of topographic features occur in this elongated basin. Probably the most prominent to the average visitor are the buttes Cerrito Tularosa, a few miles southwest of the town of Tularosa, and Tres Hermanos Peaks, near the southeast boundary of the monument. Fault scarps and innumerable shore line features are in evidence. Stream built slopes, terraces, alkali flats and an enormous exposition of dune building all contribute much to the attractions of the area to the observing person. In addition, along the northern portion of the basin are volcanoes and lava beds of intense interest and scientific importance.

Generally speaking the reserve within the boundaries of the National Monument consists of equal areas of gypsum sand dunes and alkali flats. In the southwestern portion there is an alkali lake covering six or eight square miles. The majestic peaks of the San Andreas and Sacramento Mounteins, which limit the basin on the west and east respectively, rise to elevations of over 9,000 feet above sea level. The almost sheer vertical wall extending along the flanks of these mountains drops most abruptly in elevation for a distance of almost a mile to the plain level of the valley floor. The lowest altitude is in the vicinity of Lucero Lake with an elevation of around 3,000 feet above sea level.

CLIMATE

Meinzer (1) states that the climate of the Tularosa Basin is typical of the arid southwest. Generally the sky is clear and the atmosphere is dry and rare. In the main for both summer and winter the days are warm and the nights cool. Most of the rain is produced by condensation from local ascending currents of air and accordingly falls in a few heavy storms in midsummer.

The basin has a wide range of temperature, owing partly to differences of latitude, but chiefly to differences in altitude. The United States Weather Bureau reports that Alamogordo, with an elevation of 4,338 feet, had a maximum temperature over a period of nine years of 109°, a minimum temperature of 0° and an average annual temperature of

61°. These figures are in contrast to those of Cloudcroft with an elevation of 8,650 feet. Averages over a period of seven years for this point indicate a maximum of 83°, a minimum of -10° and an annual average of 45.2°.

Of considerable interest are the maximum and minimum temperatures taken in the sands area during April and July by Emerson (11) and have been recorded as follows:

Table I. Maximum and Minimum Temperatures

Dates	Position	Maximum °F.	Minimum °F.	Temp. Range °F.
April 2	Air	78	44	34
April 3	6" in Sand	56	48	8
April 4	Air	74	36	38
July 2	Air	100	58	42

As a supplement to these records comparative temperatures of sand and air were taken in both the alkali flat and the dunes on July 1 with the following results:

Table II. Temperatures in dunes and alkali flat in mid-summer

Location	Hour	Air °F.	In sun; on sand °F.	1 In. deep °F.	7 In. deep °F.
Alkali Flat	10:00 a.m.	93	108	93	77
Dunes	4:30 p.m.	99	108	99	81

Meinzer (1) summarizes the records of precipitation as follows: In the interior plain south of the lava bed the average annual precipitation is probably less than ten inches; near the margins of the plain it is approximately ten inches; in the mountain chain on the east side it increases with altitude, and near the crests of the highest ranges it exceeds 20 inches; in the mountain chain on the west side it also increases with the altitude but is on the average less than in the mountains to the east. The principal rainy season is in mid-summer, generally beginning near the close of June or in the first half of July and continuing into September. From 55 to 60 per cent of the precipitation occurs during this period.

The prevailing southwest winds are an important factor in the present location of the sands. Much has been written about the movement of the dunes in a northeast direction and one writer at least has gone so far as to estimate the date at which the gypsum sands will encroach upon the towns of Alamogordo and Tularosa. Unless one visits the area during one of their periodic dust storms it is difficult to appreciate the tremendous abrasive effects of the powerful wind currents and the enormous amounts of material carried in this manner.

ment of Fort Stanton in 1855. The range wars of the 80's and the bloody events surrounding the activities of Billy the Kid all lend much to a fascinating historical picture.

PHYSIOGRAPHY

West of the Great Plains of New Mexico and Texas is a region of isolated mountain ranges with alternating plains or broad open valleys. The Pecos and Rio Grande rivers flow through several of these valleys, but in the region between these rivers there are valleys which are entirely inclosed by higher ground, thus having no drainage outlets. The Tularosa Basin, of which the White Sands is a part, is a typical example of such an inclosed basin.

A variety of topographic features occur in this elongated basin. Probably the most prominent to the average visitor are the buttes Cerrito Tularosa, a few miles southwest of the town of Tularosa, and Tres Hermanos Peaks, near the southeast boundary of the monument. Fault scarps and innumerable shore line features are in evidence. Stream built slopes, terraces, alkali flats and an enormous exposition of dune building all contribute much to the attractions of the area to the observing person. In addition, along the northern portion of the basin are volcanoes and lava beds of intense interest and scientific importance.

Generally speaking the reserve within the boundaries of the National Monument consists of equal areas of gypsum sand dunes and alkali flats. In the southwestern portion there is an alkali lake covering six or eight square miles. The majestic peeks of the San Andreas and Sacramento Mountains, which limit the basin on the west and east respectively, rise to elevations of over 9,000 feet above sea level. The almost sheer vertical wall extending along the flanks of these mountains drops most abruptly in elevation for a distance of almost a mile to the plain level of the valley floor. The lowest altitude is in the vicinity of Lucero Lake with an elevation of around 3,000 feet above sea level.

CLIMATE

Meinzer (1) states that the climate of the Tularosa Basin is typical of the arid southwest. Generally the sky is clear and the atmosphere is dry and rare. In the main for both summer and winter the days are warm and the nights cool. Most of the rain is produced by condensation from local ascending currents of air and accordingly falls in a few heavy storms in midsummer.

The basin has a wide range of temperature, owing partly to differences of latitude, but chiefly to differences in altitude. The United States Weather Bureau reports that Alamogordo, with an elevation of 4,338 feet, had a maximum temperature over a period of nine years of 109°, a minimum temperature of 0° and an average annual temperature of

61°. These figures are in contrast to those of Cloudcroft with an elevation of 8,650 feet. Averages over a period of seven years for this point indicate a maximum of 83°, a minimum of -10° and an annual average of 43.2°.

Of considerable interest are the maximum and minimum temperatures taken in the sands area during April and July by Emerson (11) and have been recorded as follows:

Table I. Maximum and Minimum Temperatures

Dates	Position	Maximum °F.	Minimum °F.	Temp. Range °F.
April 2	Air	78	44	34
April 3	6" in Sand	56	48	8
April 4	Air	74	36	38
July 2	Air	100	58	42

As a supplement to these records comparative temperatures of sand and air were taken in both the alkali flat and the dunes on July 1 with the following results:

Table II. Temperatures in dunes and alkali flat in mid-summer

Location	Hour	Air °F.	In sun; on sand °F.	1 In. deep °F.	7 In. deep °F.
Alkali Flat	10:00 a.m.	93	108	93	77
Dunes	4:30 p.m.	99	108	99	81

Meinzer (1) summarizes the records of precipitation as follows: In the interior plain south of the lava bed the average annual precipitation is probably less than ten inches; near the margins of the plain it is approximately ten inches; in the mountain chain on the east side it increases with altitude, and near the crests of the highest ranges it exceeds 20 inches; in the mountain chain on the west side it also increases with the altitude but is on the average less than in the mountains to the east. The principal rainy season is in mid-summer, generally beginning near the close of June or in the first half of July and continuing into September. From 55 to 60 per cent of the precipitation occurs during this period.

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VEGETATION AND ANIMAL LIFE

Studies of the vegetation of the White Sands were made in the spring and summer of 1934 by Emerson (11) and a summary of his findings are as follows:

2. Plants seem to be in the process of migrating from outisde sources into the dunes with the possible exceptions of two endemics that may have originated within the area. Some species have entered only a short distance while others have migrated several miles.

2. No seedlings establish themselves except in the flats, between the moving dunes.

3. In the flats soil water is near the surface, the water table being between 2 and 3 feet deep with moist sand reaching almost to the surface.

4. Roots must absorb water from a saturated solution of calcium sulphate.

5. Even in the most luxuriant stands of plants there is a very slight concentration of nitrates and nitrites, thus raising the question of methods of nitrogen assimilation.

6. Seven species have the power to grow upward rapidly enough to survive encroaching sand. All of these produce adventitious roots when covered. At least 55 species are limited to the flats because they cannot elongate when covered.

The white color adaptation of the limited animal life of the White Sands presents an interesting story for study by the zoologist.

GEOLOGY

General

The sedimentary rocks of the Tularosa Basin consist of deposits of Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Permian, Triassic, Cretaceous and Quaternary. Formations are present representing all ages of the Paleozoic sequence. (see Plate II). Igneous rocks are in evidence in widespread outcrops along the east flank of the San Andreas mountains and to a lesser degree along the west escarpment of the Sacramento mountains. They consist of pre-Cambrian granites and schists. Tertiary dikes and sills occur in isolated localities. Two lava flows of Quaternary age are a prominent feature in the northern part of the basin.

Cambrian

The basal formation of the Paleozoic in southern New Mexico is known as the Bliss sandstone of Upper Cambrian age. From the type locality in the Franklin mountains of Texas the formation things out and is only six feet in thickness in the northern portion of the San Andreas Mountains. In the southern portion of this range the thickness averages around 100 feet. The limited exposure in the Sacramento Mountains shows a few feet of sandstone separating the granite from the El Paso limestone above. In the main it is a gray to brown sandstone, in part quartzitic, with upper slabby members in part glauconitic. The formation is unconformable on the granite or schist and grades into the El Paso limestone above.

Ordovician

The strata of this age is composed of the El Paso limestone, of Lower Ordovician, and the Montoya limestone of Upper Ordovician age. The El Paso limestone grades downward into the Bliss sandstone but is separated from the Montoya limestone by a break in sedimentation, representing Middle Ordovician time.

The El Paso limestone forms a prominent outcrop along the east front of the San Andreas mountains, where it is 300 feet in thickness in the southern part, decreasing to around 150 feet in the northern part of the range. It is a massive gray limestone, slabby in part, and containing considerable sand in the lower portions. Fossils are scarce.

The Montoya limestone is variable in thickness due to erosion and thins out in the southern part of the Oscura Mountains. In the San Andreas it consists of two members, an upper member containing alternating thin beds of limestone and chart, from 30 to 75 feet in thickness; and a lower member of dark massive limestone around 100 feet in thickness. Locally there is present a basal deposit of sandstone. In the Sacramento Mountains, southeast of Alamogordo, the two members mentioned above have been observed. Richmond fauna (Upper Ordovician) are present throughout the upper member.

Silurian

A small part of Silurian time is represented by the Fusselman limestone containing fossils of Niagara age. It ranges upward to around 200 feet in thickness in the San Andreas range and rests with an erosional unconformity on the Montoya limestone. Generally two members are present, an upper bed of hard dark massive limestone, and a lower bed of compact fine-grained limestone.

WHITE SANDS GEOLOGICAL REPORT (CONT.)

Sedimentary formations in the Tularosa Basin and Adjoining Ridges

AGE	FORMATION	CHARACTER	THICKNESS FT
QUATERNARY	Wind blown deposit	Gypsum sands, dust and quartz sands.	0 to 50' Ave.
	Stream deposits and other valley fill.	Chiefly red clay, gypsum, sand and gravel	100-1000 ±
UPPER CRETACEOUS	Mesa Verde (?) formation	Sandstone and shale, coal bearing.	630
	Mancos (?) shale	Shale; some sandstone; limestone in lower part.	900
	Dakota (?) sandstone	Sandstone, massive, hard, gray to buff.	150
TRIASSIC		Red sandy shales with layers of brown sandstones and limy concretions.	340
PERMIAN*	Chupadera formation	Upper part limestone and gray sandstone; lower part gypsum, soft red sandstone, then limestone and gypsum	1200-1600
	Abo sandstone	Brown red sandstone and red sandy shales; thins towards the south	500-900
PENNSYLVANIAN	Magdalena group	Limestone with beds of shale and sandstone; several sandstone beds in lower part.	2200-2500
MISSISSIPPIAN	Lake Valley Ls.	Coarsely crystalline limestone and limy shale.	0-150
DEVONIAN	Percha shale	Gray shale	0-125
SILURIAN	Fusselman Ls.	Limestone, massive, dark above weathers white below.	0-200
ORDOVICIAN	Montoya Ls.	Massive limestone, cherty above, dark below, sandy at base.	0-200
	El Paso Ls.	Limestone; weathers light gray; slabby in part.	0-350
CAMBRIAN	BLISS Sandstone	Sandstone, massive, gray	0-125
PRE-CAMBRIAN		Granites and schists	

*The two formations of the Permian in this area comprise the Manzano Group.

Note: The stratigraphy as above indicated is from Winchester (9) with slight additions.

Devonian

A widespread deposit of black shale, known as the Percha shale, of late Devonian age, is present in southern New Mexico. Breaks in sedimentation separate it from the overlying and underlying formations. The formation consists of lower beds of fissile shales and upper beds of gray shale containing some lirg beds with many fossils. These shales thin out in the northern part of the San Andreas mountains. They range in thickness upward to 125 feet.

Carboniferous System

It is the rocks of this system which we are primarily concerned since they contain thick beds of gypsum. They are widespread in this region occupying all parts of New Mexico except the higher portions of some of the uplifts, and here they have been removed by erosion.

Mississippian

The thick succession of limestones of the Magdalena group forms a prominent outcrop in the Sacramento and San Andreas Mountains. It is predominantly limestones, but interbedded sandstones and shales are present in all sections. In this area the thickness ranges upward to 2,500 feet. Locally the group may be divided into several formations, some apparently separated by unconformities, although as yet no faunal distinctions have been observed. In nearly all localities fossils occur in abundance.

Permian

The Permian is represented in the Tularosa Basin by the Manzano group comprising a thick succession with the lower member known as the Abo sandstone and the upper member represented by the Chupadera formation.

The Abo sandstone is made up of red beds of sandstone and sandy shale and ranges in thickness from 500 to 900 feet. The formation thins out in the southward extension of the Sacramento range and the Chupedera and Magdelena formations join in this direction in the vicinity of the Hueco Mountains. The Abo sandstone is apparently unconformable with the underlying Magdalena. In the western part of the state there are thin limestone beds near the base which have yielded fossils establishing the age of the formation as Permian. It is considered to be the equivalent of the Supai formation of the Grand Canyon section.

The Chupadera formation, so named from the Chupadera mesa in eastern Socorro county, is the uppermost formation of the Manzano group. It is generally separable into two members, the San Andreas limestone above and the Yeso formation below. These thick limestone beds with interbedded

deposits of gypsum and anhydrite attain thicknesses of 2,500 feet on the east slope of the Sacramento Mountains and this thickness is even greater to the south. It is from 1,200 to 1,600 feet thick in the Tularosa area.

The San Andreas limestone contains not only limestone but gray sandstones as well and to the south deposits of gypsum, anhydrite and salt, which become very thick in the south-central and southeastern sections of the state.

Representative sections of the Chupadera formation as indicated by Darton (8) are shown on the following plate III. The large amounts of gypsum present in this formation may be observed and this is a significant factor in any study of the White Sands. Many fossils are present in the Chupadera, which was originally regarded as late Pennsylvanian in age, but is now classed as Permian.

Triassic

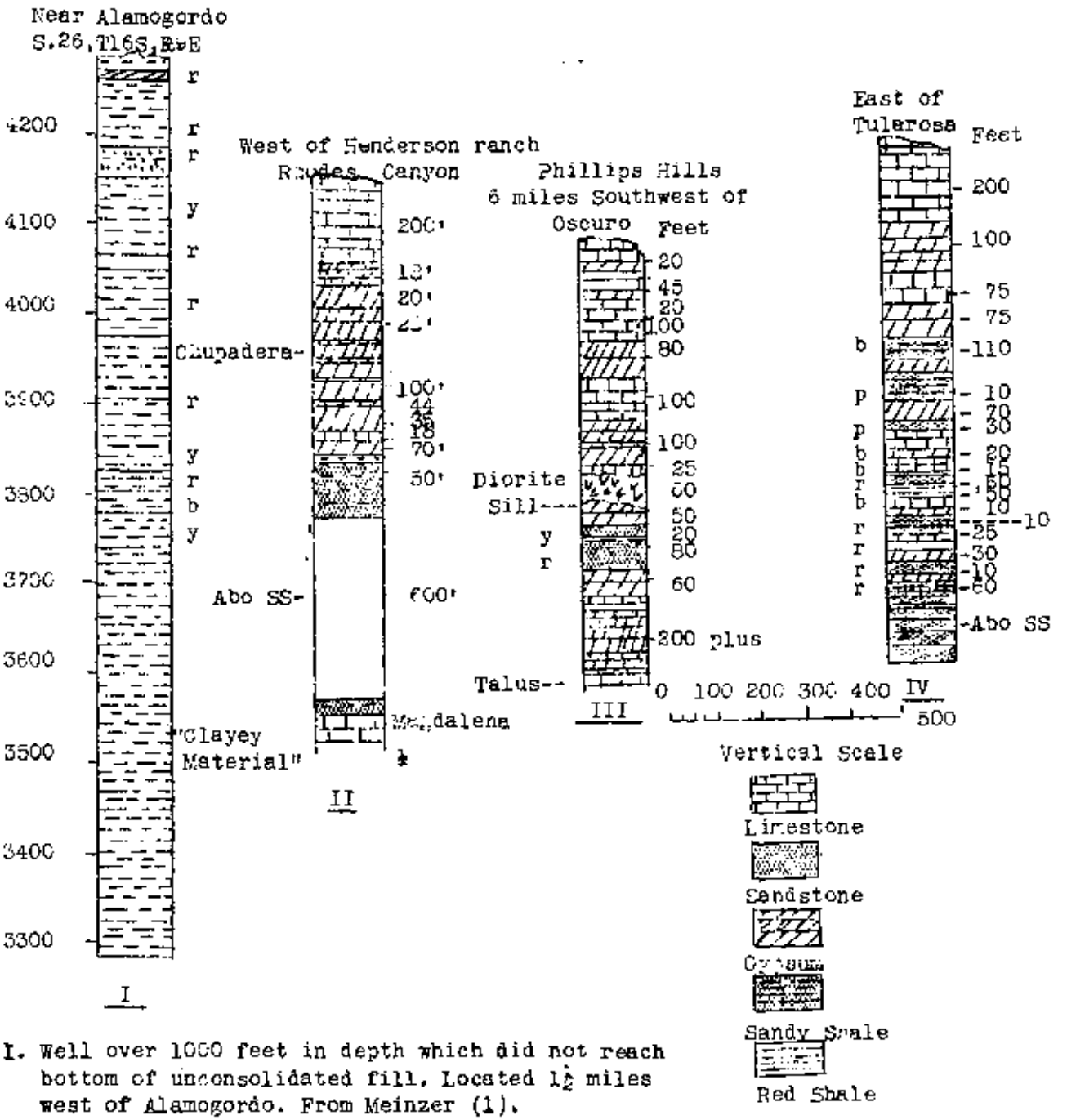
The southern limit of the Triassic rocks in south-central New Mexico is not known. They have been traced southward to the vicinity of Tularosa but are absent under the Cretaceous outcrops 10 miles north of Organ. Thicknesses have been measured ranging upward to 340 feet in the Tularosa Basin. They are composed of red sandy shales with layers of brown sandstone and limy concretions.

Cretaceous

Outcrops of Cretaceous strata are present in the northeast portion of the basin, extending northward from Three Rivers, east of the lava flows. It is not unlikely that the Cretaceous underlies at least a portion of the basin to the south. Three formations have been tentatively identified as follows: The Dakota (?) sandstone, Mancos (?) shale and the Mesa Verde (?) formation. A maximum of almost 1,700 feet of Cretaceous section is exposed, composed of gray sandstone in the lower part, shale with some sandstone and limestone, followed above with sandstone and shale containing coal beds.

Quaternary

Sediments of this age are divided by Meinzer (1) into two groups, the Pleistocene and Recent. They consist of valley fill material and range upward to over 1,000 feet in thickness. The Pleistocene was deposited chiefly by streams, lakes and underground waters. It consists chiefly of red clay, gypsum, gravel and other sediments on the slopes. Gypsum was deposited at low levels, adobe clay at intermediate levels, and gravel and clay at high levels, with wind-blown gypsum and quartz sand present locally. Recent sediments consist of dunes deposited by the wind and consisting of gypsum sands and dust together with quartz



I. Well over 1000 feet in depth which did not reach bottom of unconsolidated fill. Located 1½ miles west of Alamogordo. From Meinzer (1).

(From Darton) (8)

II. Representative section west of the Henderson ranch in the southern part of T12S.

III. Columnar sections of the Chupadera formation southwest of Oscuro.

IV. Columnar section of the Chupadera east of Tularosa.

g-Gray
r-Red
y-Yellow
b-Brown
p-Pink

PLATE III

sands.

Igneous Rocks

Pre-Cambrian granites may be observed in an almost continuous band along the foothills of the San Andreas Mountains. Minor outcrops of granite are present at the base of the western escarpment of the Sacramento Mountains.

Two beds of Quaternary basalt occupy the basin west of Carrizozo. Both beds form thin sheets, probably less than 100 feet in average thickness, but in the vicinity of the craters they are several hundred feet thick. The lava came from a crater in Township 6 South, Range 10 East, and flowed south for a distance of about 50 miles. The flows consist of basalt of similar appearance and like composition. They are mainly black but locally reddish or brownish. The bulk of the lava flowed some distance before solidifying, lost most of its gases, became relatively compact, though its vesicular texture near the surface, shows that it cooled before all of the gas bubbles escaped. It is likely that the lava and cones were erupted along fracture planes which had produced zones of weakness in the strata.

Meinzer (1) states that the younger lava flowed out upon the main body of valley fill (Pleistocene) and that it is clearly of less age than all except the most recently deposited parts of the fill. It was therefore erupted either in Recent time or very near the close of the Pleistocene. The older lava has been in existence several times as long as the younger but is much younger than the basin itself or the oldest valley fill. It was probably erupted late in the Pleistocene. The age of the younger basalt is at least several hundred years, but in all probability not more than a few thousand years; the age of the older basalt is probably at least a few thousand years and is perhaps several tens ofthousands of years.

Structure

The regional structure of the Tularosa Basin is probably synclinal although most of the surface is covered by sand, lava and wash with critical data available only along the margins or from scattered well records in the interior. Cross sections on Plate IV by Darton (8) illustrate the structural features in so far as they are known. A hypothetical section across the basin by Meinzer (1) is also shown on this plate. Minor anticlinal structures are no doubt present in this large syncline. The San Andreas Mountains form a huge anticlinal uplift broken on the east flank by extensive faulting. The Sacramento Mountains have likewise undergone considerable faulting but principally along the west flank. The dominant feature or the prominent western escarpment is due in the main to an anticline, faulted in its higher portions, rather than to major faulting which is in evidence along the San Andreas scarp. The primary consideration in the structure of the Tularosa Basin is that it

is a large down faulted block between the San Andreas and Sacramento Mountains which gave rise to an inclosed basin, without drainage outlet, thus forming an ideal reservoir for the concentration of saline residues and the resultant gypsum sands.

GEOLOGICAL HISTORY

The Paleozoic (formations of Cambrian to Permian inclusive) deposition was preceded by a long era of erosion in which great thicknesses of rocks were removed exposing the granites of pre-Cambrian age. Generally the region was worn down to a level country. Quartzites are present to the north and south indicating the presence of clastic beds which at one time covered the granites. This long period of erosion marks the widespread unconformity upon which the Paleozoic sequence was deposited.

Paleozoic formations of New Mexico include the lower part of a series of various kinds of sedimentary rocks which have been upturned along the flanks of the southern extension of the Rocky Mountains. They also form in some instances extensive plain and plateau areas. The close of the Paleozoic is likewise marked by a widespread unconformity, although the lithologic variation of succeeding formations is not great, there is a distinct break in faunal characteristics distinguishing these sediments from those of the overlying Mesozoic strata.

Our principal concern is with the Permian, which marks the close of the Paleozoic, since the Chupadera formation of this period contains the thick deposits of gypsum and is generally regarded as the original source of the gypsum contained in the present sand dunes.

Western Texas and southern New Mexico contain one of the greatest sections of marine Permian known in North America if not in the world. Interior shallow seas from the Gulf of Mexico entered across this region extending over western Oklahoma and most of Kansas as well. Great deltas later restricted the waters of this large embayment and in their retreat they remained longer in southern New Mexico and western Texas than in the central portion of the continent. Thus, the Permian in this region attains a maximum thickness of over 7,000 feet. The gradual retreat of the sea with its intervening advances resulted in the deposition of great thicknesses of limestones in which was laid down thick layers of salt and gypsum. Evidence prevails that the area gradually became so arid, with evaporation exceeding precipitation, resulting in a vast dead sea eventually covering the central portion of the basin. During the Permian and the period following, the Triassic, desert conditions were probably more widespread than at any other time other than the present. Salt beds extend from Kansas to New Mexico and it has been estimated that they contain 30,000 billion tons of salt and would require the evaporation of more than 22,000 cubic miles of sea water with a salinity like that of the modern ocean.

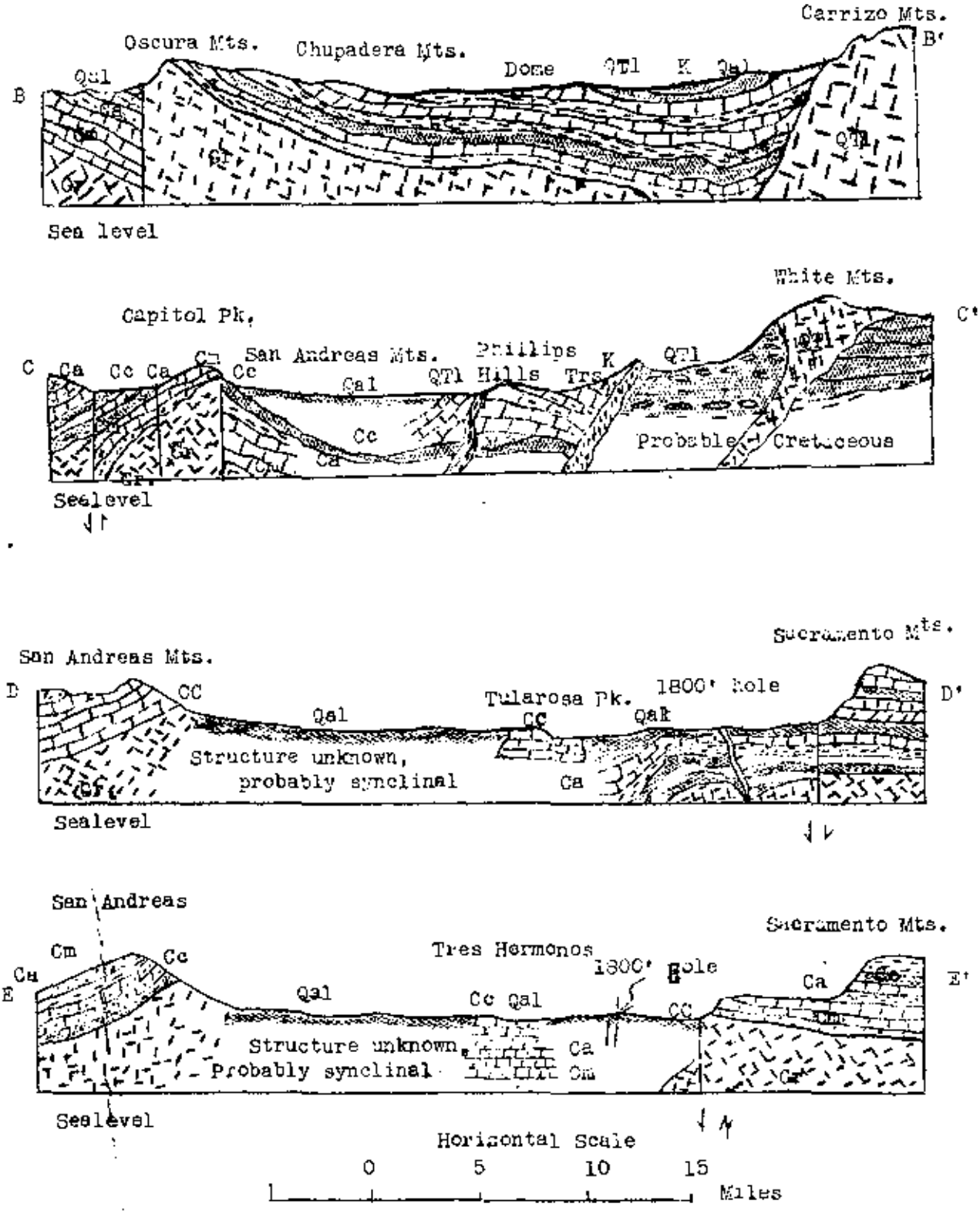
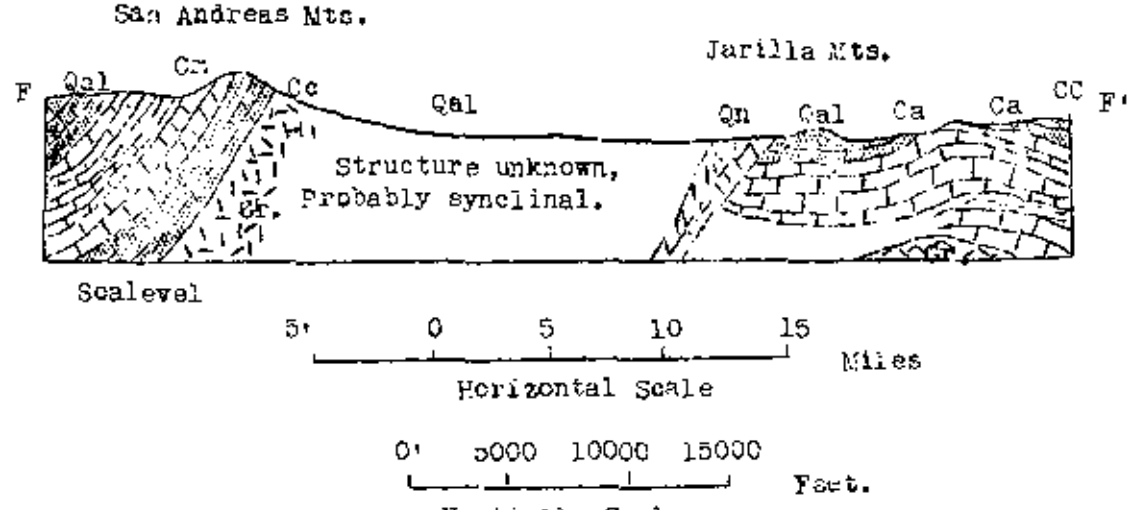

Carrizo Mts.
Oscura Mts.
Chupadera Mts.
Dome
B
B'
Qal
Ca
QTl
K
Sea level
White Mts.
Capitol Pk.
C
C'
Ca
Cc
Cm
San Andreas Mts.
Phillips Hills
Trs
Qal
QTl
Probable Cretaceous
Sealevel
Sacramento Mts.
San Andreas Mts.
D
D'
CC
Qal
Tularosa Pk.
1800' Hole
Structure unknown,
probably synclinal
Sealevel
San Andreas
Sacramento Mts.
E
E'
Cm
Cc
Ca
Tres Hermonos
1800' Hole
Qal
Cc Qal
CC
Structure unknown
Probably synclinal
Sealevel
Horizontal Scale
0
5
10
15
Miles

PLATE IV



Sections across Tularosa Basin and Chupadera Mesa. B, from north end of Oscura Mts to Carrizo Pk; C, thru Capitol Pk., San Andreas Mts. to Sierra Blanca of the White Mts; D, from San Andreas Mts east thru Tularosa Pk; E, thru Lake Lucero and Tres Hermanos Butte; F, east from the south end of the San Andreas Mts. thru the northern part of the Jarilla Mts. QTl, Porphyries; Cc, Chupadera formation; Ca, Abo Sandstone; Cm, Lake Valley and Magdalena limestones; CC, Bliss sandstone, El Paso, Montoya, and Fusselman limestones and Percha shale. From Darton (8).

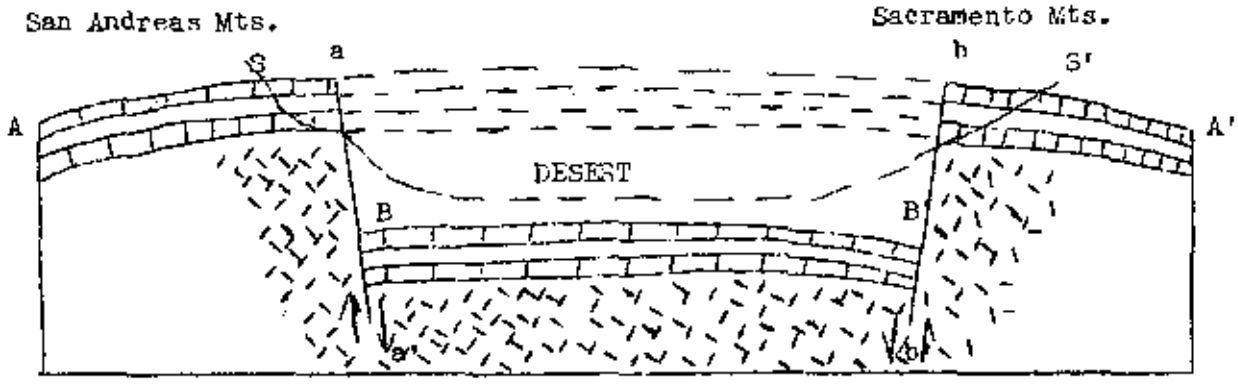


Diagram showing hypothetical structure of the San Andreas-Sacramento section. AA', including the broken lines, shows original structure of the arch; BB', present position of keystone part of the arch; aa' and bb' fault planes. Arrows show direction of movement; SS', present surface. From Meinzer (1).

PLATE IV CONTINUED

As the basin was finally filled to sea level, streams converged in the low lands, depositing hundreds of feet of red mud and sands. There are occasional zones of gypsum present in the red beds which are evidence of a temporary return of marine waters and of partial evaporation at least.

It is believed that a connection was maintained with the marine waters of the Gulf through most of the permian and that additional salt waters were supplied to the lagonnal areas as evaporation proceeded in depositing the saline residues. Such a supposition is almost imperative since Twenhofel (15) states that to precipitate a ten-foot bed of gypsum over the entire extent of a basin, water to a depth of 14,000 feet would be required. It would seem very improbable that waters of a basin so deep ever reached the degree of concentration that they deposited gypsum, and that upon consideration of the immense thicknesses of gypsum and salt beds, it becomes obvious that exceptional conditions made them possible. A thickness of 1,200 feet of anhydrite in a west Texas well may be used to illustrate the time element involved in deposits of this type. The anhydrite contained banded layers apparently marking seasonal deposition and suggests that from 150,000 to 300,000 years were required to form same.

The great Appalachian Mountain chain was formed during Late Paleozoic with the culminating movements occurring during the Permian. The important points to bear in mind in connection with the history of the Permian in southern New Mexico is the existence of a shallow sea in Early Permian, the partial inclosure and breaking up of this sea into lagonnal areas which produced larged saline deposits, and finally the deposition of the red beds by streams in shallow lakes over large sections.

Permian history is of much importance to the National Park Service in the southwest. The Carlsbad Caverns have been formed in limestone of this age. Kaibab limestone of the Permian forms the rim rock at Grand Canyon. Dune sands of the Permian make up the Coconino formation as exposed in Walnut Canyon and the erosional features of the Kaibab limestone above formed ideal homes for the cliff-dwellers. Gypsum formed during this period has now come to rest, or perhaps rather to migrate, in the beautiful White Sands.

In the Tularosa Basin area sediments of the Triassic and Cretaceous of the Mesozoic era were deposited on the Permian. They consist mainly of shales and sandstones and are widely distributed in the Rocky Mountains. At or near the close of the Cretaceous the great mountain making movements of the Rockies took place. The rocks were broken and faulted and the region generally was raised above the water. The basin began to assume a more definite character. During successive periods erosion on a large scale tended to reduce the ranges to a peneplain. Great thicknesses of Mesozoic and Carboniferous strata were removed. A regional upwarp during late Cenozoic (probably Pliocene) has given

the Rockies their present height and the differential erosion of the uplifted peneplain has brought about most of their rugged relief.

Above the Cretaceous in this area are the loosely consolidated sediments of the Quaternary. Valley fill deposits over 1,000 feet in thickness have been deposited by streams, lakes and underground waters. Much gypsum was certainly carried down from the overlying formations and concentrated in the inclosed Tularosa Basin. Saline residues were thus deposited, redissolved and redeposited over and over again, even up to the present this process is going on. The most recent deposit is the gypsum sand dunes which have been formed through the action of wind on the concentrations of this material in the alkali lake area.

Fossils

Fossil bones and teeth of a mammoth are said to have been found in Section 28, Township 14 South, Range 6 East. I visited the locality but was unable to find anything but some fragmentary bones. It would probably be well to later work over the entire alkali flat and along Salt Wash in an effort to determine if important fossil remains are present. If such is the case a connection might be made with the present monument area in order to include the fossil exhibit. The intervening land so far as is known at present is worthless.

What I have termed the external molds of plants are plentiful in the White Sands. My interpretation of this process, which I am not at all sure is correct, is that the gypsum crystallized around the plant forms and adhered to the structure and became more or less hardened, the organic material of the plant decayed leaving an internal core, thus forming the external molds now visible in the sands. Samples of this material have been forwarded the Washington office. These molds as I have termed them are to be sure very recent and in fact are being formed at the present time. They will make an interesting exhibit for the future museum of the White Sands.

GYPSUM

The evidence points, according to the writer's belief, that the original gypsum and salt deposits of the Chupadera formation are derived from precipitation in bodies of water, cut off from the sea or in embayment areas extending landward, or lakes or playas, with successive replenishment by waters flowing into same and consequent evaporation. Factors are present which indicate that in most cases such substances are precipitated under arid conditions. That evaporation takes place at a powerful rate in such areas is evidenced by the fact that 23 inches of water has been taken from the alkali lake during the month of July by this process.

Saline Residues

ANALYSES OF WATERS

	LAKE		NORTH OF FLATS	
	N. W. PART (Surface)	SOUTH SIDE (10' Hole)	NEAR SURFACE	NEAR SURFACE
	%	%	%	%
Total soluble matter	9.50			
Calcium (Ca)	.07	.06		
Magnesium (Mg)	.53	.00	1.22	2.46
Sodium (Na & K)	2.29	1.38	9.83	7.62
Carbonate (CO_3)	.01	.02		
Sulfate (SO_4)	2.54	1.76	2.87	4.25
Chloride (Cl)	5.29	.94	16.82	15.78

ANALYSES OF SURFACE MATERIAL

	LAKE EDDY PROSPECT (Surface)	FLAT AT NORTH END (Surface)	FLAT AT NORTH END (1-5 Feet)
	%	%	%
Total Soluble Matter	62.95	4.73	3.16
Calcium (Ca)	.49	.34	.12
Magnesium (Mg)	.40	.05	.03
Sodium (Na & K)	18.43	1.23	1.00
Carbonate (CO_3)	.02	.01	.01
Sulfate (SO_4)	40.27	1.27	.65
Chloride (Cl)	.60	1.72	1.35

Note: Tables are from Meinzer (1).

PLATE V

Some of the most important substances formed as saline residues are rock salt, gypsum and anhydrite. As water is evaporated the salts are precipitated and deposited. The least soluable salts are naturally precipitated first and these would include calcium carbonate and iron oxide if present. Gypsum separation follows and it is usually associated with anhydrite deposition. Sodium chloride (or common salt) is precipitated after the gypsum and following the bitter salts of sulphates and chlorides of potassium and magnesium, which are usually among the last to separate out of solution. The latter are so soluble that they are not always deposited when salt and gypsum are formed. It has also been observed that whenever these saline residues are precipitated they are likely to be redissolved unless they are protected against solution by water. When they are preserved muds and clays often form an impervious cover which serves as a means of protection.

Twenhofel (15) states that the chief processes involved in the formation of these saline residues is the evaporation of water in which constituent materials are dissolved, although some of them, as gypsum, may be precipitated by chemical reactions without evaporation, and some occurrences have resulted from the freezing of water. In some instances they are also formed through replacement of other substances, gypsum replacing limestone probably being the most common example. Also that so far as these substances are the result of the evaporation of water they develop either through the evaporation of sea water, the waters of lakes and playas, or of waters brought to the surface by springs or capillary action.

Saline residues commonly present in the lower portions of the Tularosa Basin, or the alkali flats, are sodium chloride (common salt), sodium sulphate (glauber salt, also called "ice" and erroneously called "soda"), magnesium sulphate (epsom salt), sodium bicarbonate (baking soda), sodium carbonate (washing soda), calcium sulphate (gypsum), and calcium carbonate (limestone). Plate V on a following page taken from Meinzer (1), shows the composition of water from the narrow portion of the lake and from a ten-foot hole on the south side; also, of the surface material at the Eddy soda prospect; and similar data on waters and soil at the head of the alkali flat about 35 miles further north. There is evidently a larger ratio of chlorides to sulfstes in both the waters and the surface materials at the north end of the flat than in the lower lake region. Possibly this may be accounted for by the fact that the drainage is in this direction and precipitation dies out to the south.

It is generally agreed that in humid regions soluble substances, which may be formed by the weathering of rocks, are quickly washed out of the soil passing into the drainage system and finally carried to the sea. In arid regions there is not sufficient rainfall to perform this function and in the case of an inclosed basin it would not be possible. The salts therefore remain in the soil, at times of rainfall they are dissolved into solution, and in times of dryness when water draws to

the surface, or is evaporated they are left, forming the white incrustations on the soil known as alkali, a common feature of the lower sections of the Tularosa Basin.

Varieties of Gypsum

Gypsum ($CaSO_4 \cdot 2H_2O$) occurs in several different forms. There is the amorphous or microcrystalline variety which includes anhydrite and is commonly known as rock gypsum or alabaster. This is the type that frequently occurs in thick beds. The microcrystalline variety of gypsum is known as selenite. It commonly occurs as individual crystals in clays and as veins and bands in the clay beds associated with rock gypsum. Gypsite is an earthy form of gypsum. Satinspar, a variety with fibrous structure, is commonly found in veins, but is not present in the White Sands area.

Anhydrite is an anhydrous calcium sulphate, $CaSO_4$, containing sulphur trioxide 58.8 and lime 41.2. Crystals are rare but when observed are thick tabular and of the orthorombic system. It is characterized chiefly by its cleavage which is in three directions at right angles to each other. The hardness is 3-3½ and specific gravity is 2.9.

The hydrous calcium sulphate known as selenite, $CaSO_4 \cdot 2H_2O$, is composed of sulphur trioxide 46.6, lime 32.5, and water 20.9. It occurs in tabular or diamond-shaped crystals of the Monoclinic system. There is cleavage in three directions and with a hardness of 2 it may be scratched with the finger nail. Specific gravity is 2.3%. Luster is usually vitreous, sometimes silky. Ordinarily its color is white, gray; sometimes various shades of yellow, red, brown, etc., from impurities. This variety occurs along the west side of the lower alkali lake in great profusion. Various crystals were observed more than a foot in length and this probably represents the average although Talmage (6) mentions crystals reaching a maximum length exceeding four feet.

Gypsite is a massive granular earthy form of gypsum containing impurities. There is a belt of gypsite hills to the west of the White Sands proper. They appear to be old dunes that have been compacted and cemented through the action of water. Satin spar is fine and fibrous with a silky luster.

Origin of the White Sands

Sands are occasionally but rarely composed of gypsum. Deposits occur west of Duran, New Mexico, near a series of depressions or shallow lakes filled with gypsiferous materials. To the east of these lakes mounds of sand dunes occur of the same character as the White Sands. There is no known deposit of the same magnitude as the White Sands of Alamogordo, however.

Much has been written about the origin of the gypsum deposits at this locality. It is generally conceived that the original source of the gypsum is the Chupadera formations, but the question is to whether the gypsum came from the rocks as they were eroded from the ranges surrounding the basin, or if they were carried upward by waters under hydrostatic pressure from below and precipitated at the surface. From the vast quantities of gypsum that must have been washed into this basin and from various observation as processes which are at present in progress and which will be described later I am inclined to lean toward the former view, and see no reason to complicate the picture by elevating large quantities of gypsum, when a normal simple explanation is forthcoming.

It would seem well to mention some of the various opinions expressed:

Meinzer (1): The gypsum is derived from the gypsum beds in the Pennsylvanian rocks outcropping in the mountains. Since it is comparatively soluble it was brought to the low interior of the basin chiefly in solution in the surface and underground waters, and was re-deposited when these waters evaporated, either from desiccating lakes or from springs or wet areas fed from underground sources. The deposits thus formed have been altered and further transported by repeated resolution and redeposition and by wind work.

Botkin (5): According to this explanation, which differs from that heretofore given by geologists, an enormous deposit of large crystals was formed in sediments over a long period of time, the sands being a comparatively recent and rapidly formed product resulting from wind erosion and weathering of the materials of the dry lake bed. East of the lake outliers of coarse wind-blown crystals capped by vegetation show by their bedding that high dunes of this material recently existed in the region.

Talmage (6): Origin has been ascribed largely to the action of ground water bringing up gypsum in solution from beneath the valley. Field investigation shows: 1. The importance of ground water in transporting gypsum to the area where the active dunes exist has been overestimated. 2. That importance of ground water in the formation of the large selenite crystals and the importance of these crystals as the ultimate source of part of the White Sands has been underestimated. 3. Reworked by wind and weather, rather than ground water, has been directly responsible for material in the active dunes.

Russell (7): Underlying the Tularosa Basin are beds of Permian limestone and sandstone, between the layers of which are interspersed thick beds of gypsum. Boring made in recent _

years reveals that the gypsum is hundreds of feet below the present valley floor and that water is encountered at depths of a thousand feet or less.

The nature of the sedimentary rocks above the water bearing sands is favorable to upward seepage. As the water on its upward course passes through the gypsum deposits, it dissolves that material and carries a rather full load to the surface. The limestone through which the solution passes is not readily soluble; very little in addition to the gypsum is carried by the rising water. When evaporation takes place at the surface a fairly pure crust of gypsum is deposited, which, under action of the atmosphere, crumbles to form crystalline grains.

Hills and mountains surrounding the Tularosa Basin contain gypsum, and it is evident that some of the deposit is brought from this source by surface waters that feed it to the large natural evaporation pan at the south end of the sands. Whether the source is the deeply buried beds or the visible deposits in the mountains, the processes of evaporation, crumbling and drifting with the wind are the same.

Darton (8) and Winchester (9): The gypsum has been brought to the surface by a seepage of water, probably from the underlying Chupadera beds, and deposited on the surface in crusts, which have crumbled to sand and in the course of many centuries have been piled by the wind into great dunes covering many square miles.

Richard (12): The basin thus enclosed (Tularosa Basin) has no visible outlet and as evaporation exceeded precipitation we find the waters becoming loaded with the salts above innumerated. Into this great lake was poured the waste of mountains, rocks, gravel, mud, sand, etc. Centuries later the great abyss had been filled with these sediments made up principally of the detritus of the Permian formation or Red Beds, and highly impregnated with the salts of gypsum. At the time this great lake had practically been filled there were no White Sands.... The White Sands originated from the waters of this vast lake which lies to the west... As the wind sweeps rapidly over the surface of the saturated brine waters of the lake tiny wavelets are developed at the crests of which instantaneous crystallization of the crystal gypsum takes place; that is to say, a crystal of gypsum is born and this tiny crystal is at once swept eastward by the force of the wind and ledges on the shore. Thus there is in time built upon the shore a long line of crystals which in time develop into a larger quantity and finally become a white sand

dune... In order to prove the final theory of origin a small boat was pulled out into the lake from the East shore on a fairly windy day. A canvas tarp was so arranged to catch the particles of gypsum as they were crystallized from the crests of the waves and born forth by the wind. Examination showed these to be true crystals of gypsum and of course put the origin beyond all dispute and contention. (The latter point proves nothing to the writer as gypsum dust is prevalent everywhere when there is a strong wind blowing in the basin. I would not be surprised to see granules in the mechanism of a Brunton compass even though it be enclosed in a leather case upon passing through one of these storms.)

Brady (13): Describes the White Sands and region in general; associates the White Sands and dry climate with volcanic eruption. Lava is said to have diverted the assumed ancient river to another valley. Mentions Spanish legend that valley was "inhabited by prosperous people before the eruption destroyed river and brought about present desolation."

My idea as to the origin of the White Sands may be summarized as follows:

1. The Chupadera formation contains the only known source for the large quantities of gypsum now present in the Tularosa Basin.

2. Gypsum was precipitated from the evaporation of waters and deposited in thick beds in the Chupadera formation of Permian age. This process was made possible due to the prevailing arid conditions where bodies of water were cut off from the sea, probably by deltas, or in embayments extending landward, or in shallow lakes or playas, with the water supply being replenished periodically by successive advances and retreats of the sea.

3. Mountain making movements, at or near the close of the Cretaceous, with faulting and folding on a large scale, resulted in the formation of the Tularosa Basin somewhat as we see it today.

4. The Chupadera formation and overlying rocks were elevated around the margins of this Basin, thus being more susceptible to rapid erosional processes. In the Basin proper the Chupadera and overlying rocks were in a down-faulted block with several thousand feet of displacement. The Basin was probably not inclosed at this time which permitted great quantities of weathered materials to be carried away to the sea. Later movements closed the Basin and permitted no visible drainage outlet for the rock debris or saline substances carried in solution by the waters. A large lake was formed as is evidenced by the terraces which may be observed at the present time. Evaporation processes concentrated the waters and saline residues came into prominence under these ideal

conditions. The Chupadera formation was being rapidly covered by valley fill material until now it is over 1,000 feet below the valley floor in places.

5. As the shrinkage of this large lake took place great areas of the outcropping Chupadera was eroded on the margins (see sections Plate IV). The thick beds of gypsum were broken up and the material carried in solution to lower levels and deposited. At several periods at least crystals of selenite were forming on a large scale in this lake bed. Photos show the stratified gypsum laid down in this lake bed as well as the terraces containing the selenite crystals.

6. As the lake dried up and became an alkali flat, winds had an opportunity to start their work of transportation. The gypsum terraces and the selenite areas were subjected to weathering and as the material was broken up and reached the stage to be moved by the winds, the granules were carried to the east side of the lake and deposited, due to the prevailing southwest wind. The White Sands occur along the east side of the old lake bed and must have come mainly from the area once occupied by the lake. If the source is from the underlying Chupadera beds, which may barely be possible for a small percentage of the sands, then why do the sands not cover more of the basin as the Chupadera formation underlies most sections as evidenced by drill holes?

7. Various stages of this process of the formation of the sands may be observed at present. Since it can be seen I see no reason to resort to an underground source which process cannot be seen. There is a gradual gradation of materials between the old lake bed and the White Sands proper now present on the surface. Selenite crystals, gypsum terraces, coarse yellow crystals forming dunes with finer gradation eastward, intermingled with gypsite hills and some of the older dunes showing cross-bedding and now more or less cemented, and finally, the White Sands proper, free from fine silt which has been carried onward by the winds. The gradational zones mentioned are not sharply defined but overlap and intermingle and it is doubtful if they could be mapped to satisfaction without considerable time being spent in the area and even then test hole drilling would probably be necessary with considerable generalization as a final result.

8. Crystals now being precipitated in the flats forming crusts is a normal sequence since the whole area is saturated with gypsum, but it seems hardly probable that this could be a source for the large volume of gypsum sand and at the same time there must be a starting point since this feature was evidently not in progress until the dunes were well under construction and the area to the east of the old lake bed did become saturated with gypsum.

Movement of the Sand Dunes

I know of no proper records as to the rate of migration of the sand

dunes to the eastward. Now that the Park Service have made a National Monument in the area exact measurements should be made. MacDougal (4) mentions an advance of about one mile in 20 years. From local reports this estimate is much too large. At the southeast corner 10 to 20 feet per year is said to be more nearly correct. There is the possibility of correlating the rate of migration with the age of the yuccas. Richards (12) estimates that the sands will move into Alamogordo in 4097 A.D., and would reach Tularosa about 6151 A.D. I do not believe that he considered the amount of gypsiferous material remaining in the old lake bed to be transported or that the fact that the elder dunes become more or less cemented with transportation processes not so easily involved. At any rate the residents of the above mentioned towns have little to fear for some time nor need the Park Service take out protection in lands to the east in order to have White Sands for a monument in later years.

Road Building

I believe that present visitors are missing one of the most interesting features of the monument in that no road is available to proceed into the area of the old lake bed. In certain seasons travel may be made over most any section of the alkali flat. The road could easily be constructed along the west margin of the sands which would permit travel at all times. This would afford an opportunity for the public to obtain a better picture of the source of the gypsum now present in the White Sands. Mirages, a closer view of the San Andreas Mountains, etc., would lend much to the merits of such a development. These factors notwithstanding the idea that it would be pulling away from the "picnic practice" now prevalent in the scheme of things. The geological story could be related in a much more satisfactory manner after or during a visit to this area.

Tom Charles, resident custodian, is a live wire booster for the White Sands and is doing much good work for the Park Service. All possible assistance was supplied by him during my visit. Ben Daugherty and Barry Mohun, Jr., of the park staff, accompanied me on several trips and their presence was badly needed at times especially in the digging out process. Mr. Mohun, as well as Dr. Talmage, of the New Mexico School of Mines, supplied negatives for a number of the photos attached for which acknowledgement will be made later. White Sands is an area that the Park Service can justly be proud and my visit was indeed most delightful.

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AN INTERESTING ROOM AT WUPATKI

By James Brewer

By changing the old figure 8 trail that once encircled the two ends of Wupatki Pueblo a trailside feature has been added. The lowering of the east slope trail and raising of the west slope trail has also corrected the past common error of unguided visitors going over one part of the trail twice and not seeing the other side of the pueblo.

As now constructed, the east slope trail includes Room 43, excavated by C.W.A.

To me, this is a very interesting room and indicative of a thinking builder.

As shown by the accompanying plan, this was an "inside" room. Most of the rooms of Wupatki had two or more openings, usually so placed that fresh air would enter near floor level and smoke leave through a higher exit; in an inside room some other provision for ventilation would have been necessary.

In Room 43 ventilation was ingeniously provided.

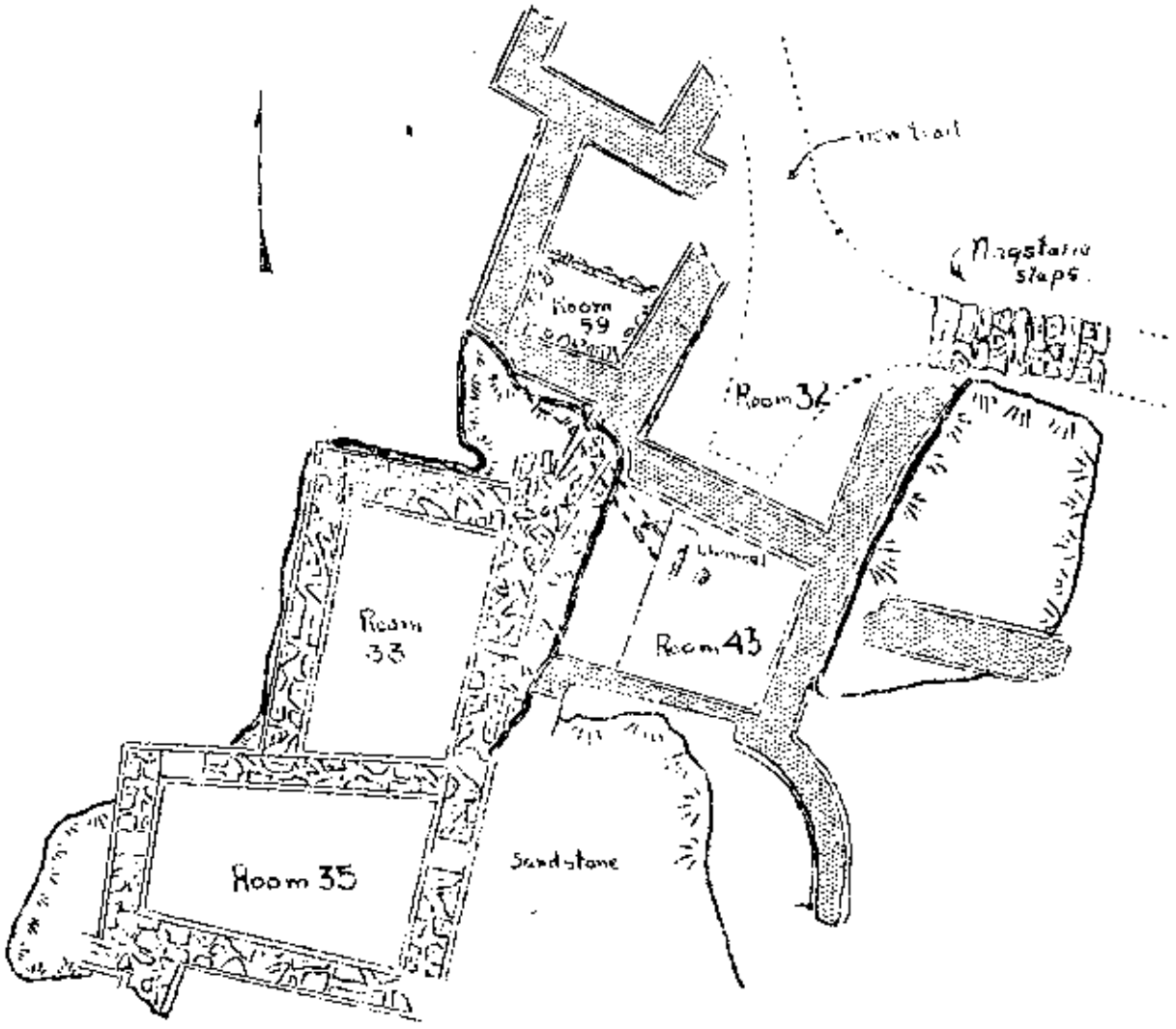
The room has the original firepit and deflector. The west end contains a raised platform; such platforms, not fully understood, are not uncommon in Wupatki Pueblo. As shown in the diagram, the entire west wall of Room 43 is a block of Moencopi Sandstone. The double line extending northwest of the deflector indicates the position of a slab-lined channel (once covered); the dotted line continuing through the groundstone indicates a natural crack in the lower part of the stone. This crack together with the covered channel was once used as a fresh air intake duct, as noted by R. Van Valkenburg in 1935; the outlet of the channel is through the eight-inch riser of the platform.

When Room 59 was constructed the north wall was built far enough from the sandstone block to preserve the down draft air intake of this channel.

Room 43 is one of the few rooms in which white plaster was sued. Possibly this was another compensation for an inside room, the white plaster naturally reflecting what light entered. The room adjoining on the east is a corner room and there red (moencopi) plaster was used.

The accompanying diagram was traced from the room plan map drawn by the Museum of Northern Arizona.

AN INTERESTING ROOM AT WUPATKI



The slab-lined channel in Room 43 connects with a natural crack in the sandstone to provide ventilation.

Note the space between the sandstone and the south wall of Room 59, left open for intake.

VISITOR RESEARCH

AT BANDELIER

March 19 to April 19, inclusive

Times asked	Questions numbered. Questions are given in descending order of frequency.
21	1. What is the altitude here?
9	2. Did the Indians live in all of those holes?
9	3. Do you charge for a guide?
9	4. How many visitors a year do you have?
9	5. How far up and down canyon de ruins extend?
7	6. Weren't they little people?
7	7. Were these built by the Indians? (Modern steps.)
7	8. Are these walls original? (In Community House.)
7	9. How far do we have to walk?
6	10. Do we have to register?
6	11. Wasn't that the kiva entrance? (Ventilator shaft.)
6	12. How many CCC boys are there in camp?
6	13. Did the Indians live in those little rooms?
6	14. How long is it since the Indians lived here?
5	15. How did smoke get out of the rooms?
5	16. Was this an old Indian trail?
5	17. What is that hole? (Shelf in kiva.)
5	18. How did the Indians stand erect in those low rooms?
5	19. Where does that trail lead to? (Back of Lodge.)
5	20. When was the road built into the canyon?
5	21. How many people lived in a room?
5	22. How long has this been a National Monument?
5	23. Did the Indians all go to cliffs in wartime?
5	24. Is there good fishing here now?
5	25. Do the Indians still live here?
4	26. How do you tell how high the walls were?
4	27. Do they find lots of arrowheads here?
4	28. Are all the ceilings blackened with smoke?
4	29. How long is the canyon?
4	30. Is this the original ladder? (A restoration.)
4	31. What makes all those holes in the cliff?
4	32. How did the Indians make a living?
4	33. Are there many rock carvings?
4	34. What was the population here?
4	35. What is the shortest road to Santa Fe?
4	36. What has the CCC camp done?
3	37. Were Indians living here when the Spaniards came?
3	38. How did they get in their houses?
3	39. What did they dig their caves with?
3	40. Why dod those poles stick out of the walls? (vigas.)
3	41. Do they all look like this? (Cave and Talus ruins.)
3	42. Do we have to walk through the ruins?

Times asked.	Questions numbered. Questions are given in descending order of frequency.
3	43. Did each clan have a kiva?
3	44. What obliteration work does Park Service propose here? (Removal of modern structures, etc.)
3	45. Who was the first white man in the canyon?
3	46. How long have you been here?
3	47. Do you stay here all year long?
3	48. Has any excavating been done here?
3	49. What makes the coloring on the rocks?
3	50. Why won't the Park Service let you dig?
3	51. How do you get to San Ildefonso?
3	52. What is that cable across the canyon for?
3	53. What is the difference between National Parks and National Monuments?
3	54. What restoration work is planned here?
3	55. What tribe of Indians lived here?
3	56. Do you have a museum?
3	57. Where did the Indians bury their dead?
2	58. Do we climb to the top of the cliff?
2	59. What kinds of grass do you have?
2	60. What kind of bird is that? (Raven.)
2	61. Weren't the Indians prehistoric?
2	62. Can I walk it in high heels?
2	63. Is Puye a National Monument?
2	64. Are all those weathered holes?
2	65. How do you get into this Service?
2	66. How did the Indians get out of the canyon before the road came in?
2	67. How do we get to Taos?
2	68. Are those talus houses restored?
2	69. How far back in the cliff do the rooms go?
2	70. Did the Indians have sheep?
2	71. Which has the most ruins - Frijoles or Puye?
2	72. Where did this volcanic material come from?
2	73. How do you know they did farming here?
2	74. Are you here all summer?
2	75. Does this rock weather away rapidly?
2	76. What are those poles for? (loom supports.)
2	77. Where does this creek come from?
2	78. What is the San Ildefonso Buffalo Dance like?
2	79. Do you have bad floods here?
1	80. How did a man qualify to enter kiva ceremonials?
1	81. Was that clay on the walls, or did the Indians put it on?
1	82. What is that bush? (Rabbit Brush.)
1	83. Is that the ocatillo? (Cane Cactus.)
1	84. Isn't that a porphyry? (A spotted river boulder.)
1	85. Will mineral dye last longer than vegetable dye?

Times asked	Questions numbered. Questions are given in descending order of frequency.
1	86. Don't they make gin out of Juniper berries?
1	87. What is this formation made of?
1	88. Will you pose for this picture, so I can have some native color?
1	89. Why don't you keep up the old trail?
1	90. Did they live in those small rooms too? (cists.)
1	91. Did CCC boys build that? (Community House.)
1	92. Do you see many robins here?
1	93. Did they keep the babies in those holes? (cists.)
1	94. Is Taos culturally independent from other pueblos?
1	95. Were those holes used for rafter supports?
1	96. What is the largest party you ever had through the ruins?
1	97. Do all kivas have tunnels?
1	98. When kivas are close together aren't they connected by tunnels?
1	99. Can you read Indian sign language?
1	100. What kind of timber are those rafters?
1	101. Why are there three kivas in Tyuonyi?
1	102. How old did a boy have to be to enter a kiva?
1	103. Did the Indians have a fort clear across the canyon?
1	104. Do men still do all the weaving?
1	105. Why is Tyuonyi thicker on one side than the other?
1	106. How did they build their fires?
1	107. Do all real cedars come from Lebanon?
1	108. Do you have lots of birds here?
1	109. What kinds of animals do you have?
1	110. Where did the Indians build their houses?
1	111. What kind of bird is that? (Jay.)
1	112. Where did they get their plaster clay?
1	113. Is this sage brush? (Salt bush.)
1	114. This is piñon pine, isn't it? (YP)
1	115. Was all weaving done in kivas?
1	116. Was the hatchway for entrance or a smoke vent?
1	117. What connection have these ruins with Taos?
1	118. Where is the old trail?
1	119. Were all men allowed to enter kivas?
1	120. Did the high-ups have better houses than the others?
1	121. Did the Mesa Verde people come here?
1	122. Were these people related to the Mayans?
1	123. Did they raise cotton here?
1	124. How many officers has the CCC camp?
1	125. Why have they got you doing this type work?
1	126. Do they let you go anywhere?
1	127. Are both CCC officers lieutenants?
1	128. Is the top of the cliff flat, or are there hills?
1	129. Is this stuff really sandstone? (rhyolite tuff.)

Times asked	Questions numbered. Questions are given in descending order of frequency.
1	130. Is this ash water deposited?
1	131. What kind of rock is that? (andesite.)
1	132. How are the weathered holes formed?
1	133. How old are the formations?
1	134. What causes hardening of cliff surfaces?
1	135. Is this finger nail coil pottery?
1	136. What is that? (new reservoir.)
1	137. Have you ever seen the ruins near Mexico City?
1	138. Are those the Officers' Quarters? (Comfort station.)
1	139. What was the Indian flute made of?
1	140. When was Tyuonyi built?
1	141. Which ruins are oldest? (cliff or community house.)
1	142. Don't you get tired answering silly questions?
1	143. Did they hang meat on that? (loom support.)
1	144. This is limestone, isn't it? (rhyolite tuff.)
1	145. What did they cover their doors with?
1	146. Did this ever have a roof? (Tyuonyi's passage.)
1	147. What kind of bird is that (Vulture)
1	148. Why did the men weave?
1	149. Did they have saber toothed tigers then?
1	150. Where is the Pajarito Plateau?
1	151. Why do they call this the Pajarito Plateau?
1	152. Did the CCC boys build the road into the canyon?
1	153. Were these people related to the Aztecs?
1	154. Were Aztec Ruins built by Aztecs?
1	155. Did kiva openings come up into rooms?
1	156. Did the Taos Indians come from here?
1	157. How far do the ruins extend?
1	158. What is the name of this creek?
1	159. Is the upper part of the cliff lava?
1	160. When did the Indians live here?
1	161. Did they have any livestock?
1	162. Was Bandelier here with Dr. Hewett?
1	163. Have you read the Delight Makers?
1	164. What kinds of trees do you have?
1	165. What makes you believe only men could enter kivas?
1	166. What do you intend to do after you leave CCC's?
1	167. What is a clan?
1	168. Can you still get up the old trail?
1	169. Have they found any well-preserved pieces of pottery here?
1	170. Are all of those caves higher up the cliff well explored?
1	171. Was the Community House excavated when Bandelier was here.
1	172. Is Puye the same as these ruins?
1	173. Is the Custodian here any relation to the Jacksons of Montezuma?
1	174. Will there ever be a museum here?

Times asked	Questions numbered. Questions are given in descending order of frequency.
1	175. Are we allowed to tip guides?
1	176. Did they weave in kivas?
1	177. Have they ever found any mummies here?
1	178. Were these Indians related to those of the Davis Mountains in Arizona?
1	179. Did the CCC's build these steps?
1	180. Did these people have toilets then?
1	181. Was this place used for a bathhouse, where the Indians took sweat baths? (pointing to kiva.)
1	182. What kind of formation is this? (pointing to cliff.)

****

At Tonto

By Woodrow Spires

In regard to Bob Rose's request for a list of questions by visitors which might prove beneficial in future museum developments, I am sorry to say I have not been able to keep any accurate list or account of times which the questions were asked. I have prepared a list of the most common occurring questions arranged in a graduated form of their occurrence.

1. Why did they build up here instead of in the valley near their fields?
2. Who were the people occupying these dwellings?
3. Did these people anti-date the Indians?
4. Where did they get their water?
5. Were they hunters?
6. Were they farmers if so where did they farm?
7. What is the difference between a park and a monument?
8. How do you know how old these ruins are?
9. How do these ruins compare with Casa Grande, Montezuma, Mesa Verde?
10. Did you say the 14th Century was prehistoric?
11. How did the Cliff Dwellers differ from the other people of the same time?
12. What material did they use for wall construction?
13. How great a population did this valley support?
14. Where did these people go?
15. Is there any connection between the Pueblo's and the Mexican culture?
16. Are there any other ruins in this vicinity?
17. Did these people use metal in any form?
18. Where did they obtain their knowledge of farming and food plants?
19. Were these people very short in stature?
20. Who first discovered this ruin?

21. Why were they better weavers than potters?
22. Has the physical features and climatic conditions of the country changed in the last 600 years?
23. Why don't you find any cremation burials?
24. Why are these timbers in such good state of preservation?
25. Why did they use trash heaps for burial grounds?
26. How can you identify an Indian skull?
27. Did they have any domesticated animals?
28. What materials did they use for paints?
29. Did they have large families?
30. Why aren't arrow points more numerous?
31. Why did they excavate this section?

The above questions are the most common ones in regard to the educational features of the Monument, but the following are the ones occurring most often.

1. Where is the Monument?
2. Do you stay here all the time?
3. Don't you get any relief?
4. How much do you get paid?
5. Haven't you a wife?
6. Doesn't the Government furnish your subsistence?
7. Isn't it lonesome?
8. What do you study for this job, forestry? (After an hour or so in the ruins and museum).
9. Do you do your own cooking?

This is only a few of the many questions I am bombarded with every day regarding a rangers private life.

Needless to say I get a world of stupid questions which are in no way beneficial to a survey of this type so I will not bother to cite any of them.

****

PARKERS WILD PALMS

(Reprint from Arizona Republic, January 12, 1936. Sidelight interesting to puzzled Jimmy Brewer who recently discovered two unusual date seeds apparently in situ in a prehistoric Hupatki midden.)

As an ardent student of Arizona flora and occasional co-worker in behalf of the herbarium of the United States station at Sacaton, I was very much surprised in reading the enclosed clipping from your great Resource Edition entitled "Wild Palms Grow in Parker Area." Surprised and chagrined, first because that, if a fact, they had never before been reported, second, because the item did not state whether these palms were of the fan type like the well-known fan palm from Palm valley, California, or the Plumosus ty pe like the date or cocoa palm.

We have been all these long years laboring under the belief that the California fan palm, species Washingtonia, was the only true palm indigenous to the North American continent, the coconut palms in Florida are not because they were accidently grown from nuts that floated ashore from a ship loaded with nuts from Cuba to New York market broken up in a storm. There are two known species of the genus of this California fan palm. Washingtonia filifera and Washingtonia robusta, both well known in his valley. Now the question arises: Are these palm of Parker the same or are they another unknown? It surely would be worth the while for a person or persons qualified and competent to do so to make an investigation of this point. I say competent and qualified advisedly because it was only after long years that it was established that the California fan palm was a family all its own and renamed Washingtonia after it had been classed with the genus Brahea, named after the celebrated Danish astronomer Braha. Later it was classed again as Pritchardia filifera, both were found to be wrong and therefore, being the only true American palm, the name Washingtonia was proposed and given.

Such errors in botany have been more frequent in the past than they are now. We have an example right here in our area. The saguaro, giant cactus. For a great number of years, this landmark of our desert was known as cereus gigantea until it was found that it was not, but a genus of its own and the only species of this at that. So a new name had to be found and it was suggested by Drs. Bitten and Rose, if I remember correctly, to name this outstanding desert plant in honor of Andrew Carnegie, who endowed the world-famous Desert Laboratory near Tucson and so it is now officially, Carnegia gigantea.

Another confusing fact is that the article mentions that the Palm is like the Royal Palm, leaning down at an angle. Now as a matter of fact, the Royal Palm, a native of Hawaii, grows as straight as our Fan Palms, always assuming that the correspondent is speaking of the Oreodoxa regia.

In closing, your correspondent mentions that there are no other palms within hundreds of miles. I do not know how far Palm Valley in California, on the edge of the Colorado desert, is from this point on the Colorado River, but it is certainly not too far as the robins fly, who on their migration south rest, water and feed on the berries of the fan palms in Palm valley, like they do on their return trip, rest and feed on the seed of the palm in Salt River valley and when the seeds have gone through the gizzards and the intestines of these birds, they will sprout and grow as readily as corn. So it is just as likely as not that a bird flying from Palm valley to the Colorado river for another drink and rest at the C Bar S Ranch left the seed behind.

SOUTHWESTERN BIRD BANDING TOTALS

Species	Bandelier		CasaGrande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
	Prior	May	Prior	May	Prior	May	Prior	May	Prior	May	Prior	May	Prior	May	Prior	May	
Bluebird,Ch-b.													215				215
Cardinal,Ariz.			1								9						10
*Chat,Long-tail										2							2
Crossbill,Bend.													17				17
Chickadee,Mtn.							6						3				9
Creeper,R.Mtn.	2																2
Dove, Inca			2	2													4
Dove, W. Mourn.			13	3							1						17
Finch, House			132	5								2					139
Flicker,Red-sh.	1																1
Flcthr, Ariz.			2														2
Flyctr,Vermln												2					2
Cldfnch,Gr-bkd													2				2
Jay,Long-crstd	2																2
Jay, Woodhouse	3						6										9
Junco,Gra-hded	56						12	25									93
Junco,Montana							9										9
Junco,Pnk-side	7																7
Junco, Red-bkd	9						2						42				53
Junco,Shufeldt	7						14	2					11				32
Mockingbird,W.			2									5					7
Nuthatch, Pyg.	21												26				47
Nuthatch, R.M.	2												6				8
Owl, W. Horned			1									2					3
Phoebe, Say			19								4						23
Quail, Gambel			58								1						59
Roadrunner			4														4
Robin, Western													7				7

Species	Bandelier		CasaGrande		Chaco		Navajo		Pipe Spr.		Tumacacori		Walnut		Wupatki		Total
Spsoker,R-nape													4				4
Spsoker,R. Mun													2				2
Shrike,White-r			3														3
Siskin, Pine													1				1
Solitaire,Townsend													7		15		22
Sparrow,Brewer			415						45	55	1						514
Sparrow,Cassin			1														1
Sparrow,W.Lark											4						4
Sparrow,Nev.Sav									1								1
Sparrow,Western			1														1
Sparrow,White-cn			1	6			6										13
Swallow,Ro-wng			5	1													6
Thrasher,Bend.			5								3						8
Thrasher,Criss			7	2													9
Thrasher,Sage															2		2
*Thrush,Rus-bkd					2												2
Titmouse,Gray													1				1
Towhee,Canyon											5						5
Towhee,Gr-tail			2							2	5				1		10
Towhee,Spurred	1						1										2
Verdin												1					1
Waxwing,Cedar															1		1
Woodpkr,Cactus				1							1						2
Woodpkr,Gila			8														8
Woodpkr,Mearns													9				9
Wdpkr,RM Hairy	1																1
Wren, Cactus			36	4							1	2					43
*Wren,Baird Be.												3					3
* New Species to this listing																	
SUB-TOTAL	112	0	718	24	0	2	56	27	44	39	35	17	353	0	19	0	
TOTAL		112		742		2		83		103		52		353		19	1466

RUMINATIONS

We have heard quite a bit about uniforms lately. We had an Office Order issued covering new uniform regulations, and we hardly got it bound into the file before Order No. 324 came along making a couple of more or less important changes in it. You can always get a rise out of any Park Service man or group of Park Service men by swinging the talk around to uniforms. They are all interested.

Office Order No. 324, dealing with uniform regulations, starts out by saying: "The fundamental purposes of the uniform are to symbolize the National Park Service and to identify the wearer to park visitors." There is a question in my mind as to whether this is a complete statement of the case.

There are still several men in the Service who were with us when we went through the conference which decided that a uniform should be worn by Park Service employees and what kind of a uniform it should be. Correct me if I am wrong in seeming to remember that there was considerable talk at that conference about the morale building value of a uniform. I also seem to remember being invited to "Look at the Mounted Police of Canada" a good many times at that conference; in fact, we thought so much of them that we adopted the hard hat brim which they wore, and which we kid ourselves into believing is a "Western hat."

In a February meeting in Washington there was a definite effort made to put ECW men in ECW uniforms and National Park Service men in National Park Service uniforms. The regulation in regard to this at that time read: "ECW officials, inspectors, technicians, and supervisory personnel shall wear the authorized ECW uniform." The first Office Order carried those words, but soon afterward, when Office Order 324 came out, the underscored words were missing. It now says: "ECW supervisory personnel shall wear the authorized unform." What about "Officials, inspectors, and technicians?"

Two paragraphs above, the original regulations said: "Emergency Conservation Work and other Emergency employees, when assigned to regular public contact service, in any of the areas open to visitors, shall wear the uniform when specifically authorized by the Director." In the revised Office Order 324 the words underscored are omitted.

Under the regulations as first issued ECW officials, inspectors and technicians would have had to wear ECW uniforms except in the few cases where they were working in any of the areas open to visitors and, for some reason, the Director should want specifically to authorize them to wear the Park Service uniform.

Under the regulations as revised in Office Order No. 324 the way is open to put all ECW officials, inspectors, and technicians into the Park Service uniform.

Somebody evidently thinks the National Park Service uniform is a pretty nice uniform to wear.

Personally, I agree with those who think that.

Do you remember what pleasure Mr. Mather used to get out of wearing the uniform in the field? Do you remember how he talked about its morale building quality? That it would help to weld the men into a compact unit of picked men who were proud of their work? That it would build up an esprit de corps which would hold us together through trying times?

These ideas are as sound now as when he stated them. The badge can symbolize the Service and identify the wearer to the park visitor, but the uniform can do more than that: it can build morale and prestige, morale in the man who wears it and prestige in the eyes of the public - when it is worn by the right men.

Have we changed? Do we believe now that we were mistaken when we thought the uniform might be a morale builder? Is that why we have decided to keep everybody out of the uniform except those who actually deal with the public? Is the Esprit de Corps so fine amongst all of us except those who deal with the public that the wearing of the uniform would not prove a morale builder? Do we hesitate to be known as National Park Service men?

It seems strange that we veterans should feel this way about the uniform, if we do. Maybe we are mistaken in feeling that there is no prestige in the uniform and in trying to keep from wearing it as much as we can, in acting as though we are slightly ashamed of it. Other people seem rather anxious to get into it.

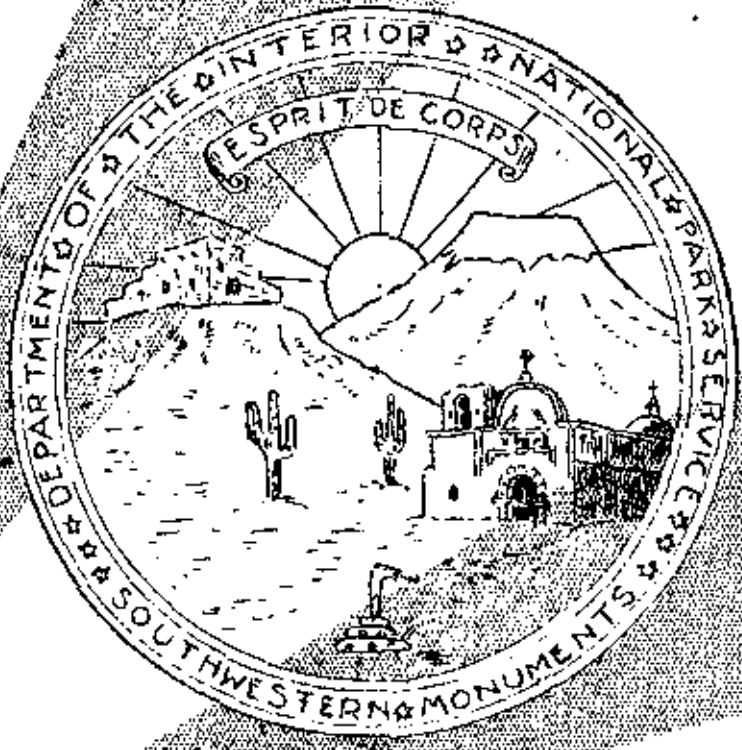
Cordially,

Tom Boss

Southwestern Monuments

Quarterly Report

June 1931



DEPT. OF THE INTERIOR
N. P. S.

SOUTHWESTERN MONUMENTS
JUNE, 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Acting Assistant Superintendent; John H. Diehl, Associate Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists; Millar Singerman, Clerk-Stenographer; Luis Gastellum, ECW Clerk; Deric Nusbaum, Traveling Ranger; Clarence Cole, Student Technician.

GENERAL FIELD MEN: Charles A. Richey, Resident Landscape Architect; J. B. Hamilton, Associate Engineer; J. H. Tovrea, Chief Engineering Aide; Andrew Clark, Topographer, Carl Schmidt, Rodman.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian; Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Box 669, Santa Fe, New Mexico. Earl Jackson, Custodian; J. W. Hendron and Alfred Peterson, Temporary Rangers.
4. Canyon de Chelly---Chin Lee, Arizona. Robert H. Budlong, Custodian. Doug Harritt, Temporary Ranger.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian; J. Donald Erskine, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian; Homer F. Hastings, Guide.
8. Chiricahua---Willcox, Arizona. Frank Fish, Custodian.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. George Boundey, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin Jackson, Custodian; Curtis Cox, Guide.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian; Milton Wetherill, Ranger-Historian.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, Ranger.
21. Tumacacori---Box 2225, Tucson, Arizona. L. R. Caywood, Custodian.
22. Walnut Canyon---Flagstaff, Arizona, Paul Beaubien, Ranger.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House---Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
July 1, 1936

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for May, 1936:

TRAVEL

	June, 1936	June, 1935	June, 1934
Aztec Ruins	1,323	903	1,435
Bandelier	1,810	2,083	2,000
Canyon de Chelly	209	179	---
Capulin Mountain	2,500	2,500	1,200
Casa Grande	1,661	1,359	1,434
Chaco Canyon	643	649	264
Chiricahua	851	700	---
El Morro	223	373	296
Gran Quivira	309	386	---
Montezuma Castle	1,216	1,587	1,698
Navajo	33	---	25
Pipe Spring	362	461	660
Rainbow Bridge	66	28	---
Sunset Crater	459	563	---
Tonto	335	447	---
Tumacacori	911	843	764
Walnut Canyon	1,441	1,306	---
White Sands	8,852	---	---
Wupatki	267	178	72
Yucca House	---	30	---
Actual Reported Registration	23,471	14,575	9,848

The 17 monuments which reported both in 1935 and 1936 showed a slight increase from 14,575 to 14,819---74 visitors, or 0.5%.

The 11 monuments which reported both in 1934 and 1936 showed an increase from 9,849 to 10,949---1,101 visitors, or 11.1%.

Monuments where accurate counts are taken show rather constant increases. Basing estimates on them, we believe that June, 1936, as a travel month was about ten percent better than 1935, and approximately the same percent better than 1934.

Reports from various parts of the area indicate that dryness and heat are factors which deter visitors from leaving main highways.

000 GENERAL

010 MATTERS OF UNUSUAL IMPORTANCE

El Morro: Interest rapidly making headway concerning important Cuatrocentennial celebration to be held in New Mexico in 1940, 400 years after the coming of Coronado. A director of the celebration visited El Morro last month inspecting conditions and making plans. This monument should play one of the most important parts. See page 447.
Hovenweep: See page 455 and following for important notes as to stabilization of ruins at this monument.
Wupatki: First Navajo Arts and Crafts Exhibition was a great success and is believed to have contributed toward the revival and development of old Navajo handicraft among the interesting Indians of the Wupatki Basin. See pages 423, 488.

020 GENERAL WEATHER CONDITIONS

North central New Mexico seems to be entering its rainy season, but the rest of the Southwest is hard hit by drouth and heat. El Morro reported one rain, but the remaining monuments seem to have had little or no precipitation. Range conditions are very poor in northern Arizona near Pipe Spring, and the dry cinders are crippling sheep in the vicinity of Wupatki. The normal July rains will remedy the situation, it is believed.

100 ADMINISTRATION

123 VISITS OF NATIONAL PARK OFFICERS TO MONUMENTS

Bandelier: Custodian T. C. Miller, District Architect Richey, District Engineer J. B. Hamilton.
Canyon de Chelly: Botanist H. E. Bailey, District Engineer J. B. Hamilton, Temporary Ranger Jimmie Brewer.
Casa Grande: Custodian Evon Z. Vogt, Mr. Harry Hommon of U. S. Public Health Service.
El Morro: District Engineer J. B. Hamilton.
Navajo: Regional Geologist Vincent W. Vandiver.
Tumacacori: Ranger Donald Erskine, Engineer Clifford London.
Walnut Canyon: Acting Chief of Wildlife Division Victor Cahalane, Regional Wildlife Technician Adrey Borell, Jr. Naturalist Charlie Steen.
White Sands: ECW Assistant Regional Director George Collins, Regional Architect Charles A. Richey.
Wupatki: Park Naturalist Edwin McKee. Junior Park Naturalist Louis Schellbach, Wildlife Technician Russell Grater, Regional Geologist Vincent Vandever, Junior Park Naturalist Charlie Steen.

180 CIRCULARS, PUBLICITY

Headquarters: Issued: 5,000 White Sands informational leaflets
1,500 Aztec Ruins informational leaflets

180 CIRCULARS, PUBLICITY (CONT.)

2,000 Chiricahua informational leaflets
500 Natural Bridges informational folders
Wupatki: Local and Phoenix papers carried news stories on Navajo Arts and Crafts Exhibit which was held near the monument. See page 422.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 MAINTENANCE, UNUSUAL

Chaco Canyon: New dump truck proved very useful in clearing blow sand from cattleguards, a somewhat involved process. See page 431.
Tonto: Considerable time spent during June strengthening badly weakened walls of Lower Ruin. These stabilization measures are temporary at the best, and Tonto, like all other archeological monuments, urgently needs a comprehensive stabilization program. See page 446.

220 IMPROVEMENTS

El Morro: Acting Ranger Vogt experimenting somewhat successfully with copperas solutions to stain rock steps a more natural color. See page 450.
Navajo: Considerable work done on trails to make them passable in wet weather. See page 453.

230 NEW CONSTRUCTION

Canyon de Chelly: See page 452.
Pumphouse walls to four feet height.
Pump working smoothly; reservoir full.
Supplementary septic tank in place and reservoir almost covered by rock.
Chiricahua E.C.W. See page 430.
Echo Trail progressed 2,500 feet, making a total of 10,000 feet.
Work re-started on Massai Point--Balanced Rock Trail and 400 feet were completed. Trail now at 2,000-foot length.
All poles in place for Massai Point-Portal telephone line and six miles of wire are in place.
Grading of service road and utility area 85% completed. Surplus material being used to dress fill slopes and obliterate borrow pits on Bonita Canyon highway.
Utility area wall 35% complete.
Usual maintenance on Bonita Highway accomplished.
Pipe Spring. See page 439.
Crew of eight men worked all month.
Parking area and road filled and graded. One hundred and fifty yards of graveling completed.
Now hauling flagstone for walks and stone for guard rails.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon: Soil Conservation Service has accomplished much planting around headquarters and along flood diversion dikes on canyon floor. Constructed: 1,000 feet of earthen diversion dikes, three rock and wire sausage dams, three cable fences. All of construction work is in connection with revetment projects highly important to major ruins. See page 433.

320 NON-GOVERNMENT AGENCIES

Chaco Canyon: University of New Mexico and School of American Research under R. G. Fisher and Gordon Vivian began work of excavating and repairing Casa Rinconada. See page 432. University of New Mexico's new headquarters building now complete enough so that kitchen, dining room, and cellar are usable. See page 432.

Navajo: Fourth Rainbow Bridge-Monument Valley Expedition assembling. See page 454.

Walnut Canyon: Curator of Biology of Museum of Northern Arizona is making a botanical collection. See page 440.

350 DONATIONS AND ACCESSIONS

Chaco Canyon: Museum of New Mexico very kindly loaned a fine collection of Chaco artifacts for display at the monument. See page 431. Aztec Ruins National Monument transferred a Tree Ring Chart. See page 433.

Headquarters. See page
2,000 Botany labels from Field Division of Education.
Rio Grande Culture Area map for Bandelier from Field Division of Education.
"Pottery of Pecos, Vol. II from Dr. A. V. Kidder.

Wupatki: Museum of Northern Arizona through kindness of Dr. and Mrs. H. S. Colton donated prizes for Navajo Arts and Crafts Exhibit which was held June 6 and 7 at Boundaries of monument.

Navajos built a sweat hogan and a ceremonial hogan which are permanent and will form an interesting addition to the monument's exhibits. These structures are located in a small basin entirely out of sight of the prehistoric ruins and thus will not cause confusion in minds of visitors.

Series of photos were obtained of use of sweat hogan and of belt and blanket weaving. These photos will be important in future museum exhibits. Temporarily they will be displayed in the sweat and ceremonial hogans.

See pages 422-426.

400 FLORA, FAUNA, NATURAL PHENOMENA

440 INSECT CONTROL

Rainbow Bridge: Serious infestation of tent caterpillars in aspen of region. See page 437.

460 BIRDS

El Morro: See page 448 for June check list.
Young eagle captured and released. See page 448.
General: See page 468 for bird banding totals in Southwestern Monuments for fiscal year 1936.
A total of 1,547 birds of 63 species were banded in the nine monument stations during 1936. This seems a creditable total for the first year of such activity.
Montezuma Castle: See page 442 for June check list.

600 PROTECTION

620 FIRE PROTECTION

Chiricahua: On June 12, 50 CCC men were used in suppressing fire off monument boundaries in Rucker Canyon. See page 430.
Chaco Canyon: Custodian reports that Wildlife Technician Borell performed a good piece of work in controlling rodents in immediate vicinity of dikes by use of carbon bisulphide gas. No injury to other animals or birds. See page 432.

650 SIGNS

Montezuma Castle: Seven signs erected to replace missing ones. State highway wishes to cooperate in future. See page 441.

660 SANITATION

Casa Grande: Harry Hommon made inspection preliminary to installing of much-needed new sewage disposal system. See page 433.

900 MISCELLANEOUS

900 MISCELLANEOUS (CONT.)

MAIL COUNT

Incoming:		
Government	2,102	
Personal	650	
Total incoming		2,752
Outgoing:		
Government only	1,773	1,773
Telegrams:		
Outingoing	38	
Incoming	33	
Total telegrams handled		71
Grand Total		4,596

Cordially,

Frank Pinkley,
Superintendent.

REPORTS FROM MEN IN THE FIELD

WUPATKI

By James Brewer, Ranger

500 Use of Monument Facilities by the Public

126 guests registered at Wupatki Pueblo; 227 at the Citadel Group; 86 names are duplicated, leaving a total of 267 registered visitors to this Monument in June, 1936; 1935, 178; 1934, 72.

179 additional visitors registered at the Navajo Arts and Crafts Exhibit and are not included in the above regular travel figures.

States were represented as follows: Arizona, 62; California, 26; Colorado, 16; Texas, 10; New York, 9; Pennsylvania, 7; New Mexico, 7; South Carolina, 6; Virginia, 5; Ohio, 5; Kansas, Illinois, Florida and Rhode Island, 3; Missouri, Oregon, Washington, Nebraska, and Michigan, 2; Utah, Nevada, Oklahoma, North Carolina, Alabama, 1. Foreign countries: England, 2; France, Germany and Australia, 1.

530 Newsworthy Visitors

Dr. and Mrs. H. S. Colton and Miss K. Bartlett brought Mr. and Mrs. Bartlett on the 25th.

Tony and Mrs. Richardson on the 5th.

Miss Mary (Arizonology) Boyer on the 7th.

Mr. and Mrs. M. J. Honning, veteran monumenters, on the 22nd.

100 Administration

123 Visits by N.P.S. Officials

Mr. and Mrs. Eddie McKee, Mr. and Mrs. Louis Schellbach, Mr. and Mrs. Russel Grater and Mr. Vincent Vandiver made unofficial visits on the 7th to see the Exhibit, and Junior Park Naturalist Steen in an official capacity on the 6th and 7th. (Sure do thank you.)

820 Weather

May 25 to June 1: High 86 degrees, on the 27th; low 45 degrees on the 30th. Precipitation, .03 on the 26th. This is the first measurable rain (?) we've had since the 25th of March, and not a drop since.

The country is very dry and the range is poor. The hot, dry cinders have crippled the sheep, and flocks are reducing in number as well as avoirdupois.

June 1 to June 23: High 103 degrees, on the 19th and 20th; low 49 degrees, on the 7th. On the 12th the mercury rose to 100, and has risen to, or above, this mark daily, except on the 16th, (97 degrees).

160 Publicity

The Coconino Sun, The Flagstaff Journal, Tourist News, and the Arizona Republic carried announcements of the Exhibit.

The Sun and Journal had follow-up articles on the Exhibit.

300 Activities of Other Agencies in Monument

350 Donations and Accessions

The Museum of Northern Arizona paid the cash prize awards for the exhibitors in the Navajo Arts and Crafts Exhibit.

430 Archeology

The P II pick-up has given me more than its usual amount of maintenance, unusual. Little things, that are too small to voucher, keep breaking, and breaking me. If it doesn't two-bit me to the poorhouse it will to the hospital.

Having had no appropriation for minor repairs I have had to let major repairs go unattended also. Besides being a torture chamber it's a death trap, and if I fold it up I hope you will advise me to simply shovel it over and let some future archeologist wonder about the "flexed burial."

General

Both Sallie and I were feeling the need of a short holiday following our four months siege of Arts and Crafts, so Sallie packed off to Carlsbad for a rest. I picked up a bedroll and Clyde and Sarah, and at noon Wednesday (10th) we started for Canyon de Chelly, via Luepp, Oraibi, Pinyon and Chinle, arriving at Custodian Budlong's at 9 p.m.

Bettey and Doug were holding forth when we arrived and Bud was burning the midnight oil en route from Gallup. He came in shortly, with a fine load of new tires.

Next morning we installed the new gums, and with Clyde and Sarah in the "rumble seat" Bud plowed up Canyon del Muerto as far as Antelope House. Retracing as far as the fork, we went up de Chelly as far as the Monument.

All this time Bud is cracking about "the best monument in the world,"

but we didn't get into an argument, simply because I made no reference to paper mache, said nothing about "being done with mirrors," and carefully avoided the use of "gaudy."

We left the canyon and took Clyde and Sarah to see the lovely Chinle vegetal dyed rugs. (Which was one of my reasons for taking the trip.)

Then we took off for home via Chambers and Highway 66. We got as far as Winslow and camped at the TWA Airport. At 12:43 a.m. a big Douglas flew in, and when the passengers got out Miss Judkins, hostess, showed Clyde and Sarah through the ship.

Friday morning when Clyde opened the Forest gate at the Pueblo he said, "Sarah, he no like that Canyon de Chelly for place to live allatime, just Luka-hockai keet Seel." (Wupatki to usDineh.)

The Navajo Arts and Crafts Exhibit

We wish you could have been here to see it, but since you didn't I am going to try to give you a little idea of what it was.

In the hogan, in as much a natural position as possible, were a mano and metate, sheepskins, cooking pots, buffalo rug, and a ceremonial outfit in an old Navajo basket.

Hanging to the vigas were an old squaw dress, a hoibitchai costume, cotton woven garters and belt, a quiver of lion skin with red Bayeta trimming, a buckskin quiver full of arrows, a coonskin hat, a shoulder blanket, two rawhide reatas, a marvelous old silver bridle, and Peshlacai's old silver concho belt.

A few of the older men sat in the hogan in their old type apparel. The pajama-like pants with split-seam legs, moccasins, plenty of silver and long hair predominated.

The four ramadas were placed in a quadrangle east of the hogan. Each ramada required 11 vigas, four forked uprights, two 2six axe" runners and five cross members to support the green juniper boughs.

In the first ramada Emmet Peshlecai worked silver. The sides of the shelter were hung with new blankets.

In the second shade were two museum display cases loaned by the Museum of Northern Arizona. One was completely filled with the work of Peter, and the other contained the assorted offerings of other children. The sides of this shade were hung with saddle blanket types, diagonal twills and herringbone weaves.

The next shelter housed a bench and the registration sign and stand. Gladys' large rug filled most of the north side, and the other sides were covered with a shoulder blanket, vegetal dyes, and last-minute entries.

The fourth ramada, I believe, was most interesting. It contained the weavers at work on four looms, also the carders and spinners. Of special interest was the old type belt loom on which the brilliant red cotton belts are woven.

From the vigas we hung borrowed rugs. Museum pieces from M.N.A., a Chinle vegetal from a curio dealer, and some from the Brewer collection.

On Saturday morning, after the rugs had been judged by Mrs. Colton and Peshlacai Etsedi, Mrs. Colton opened the eyes of the Navajos with a scrapbook on Navajo Arts from her "Treasure Chest."

This was followed by a pow-wow in the hogan to explain why the blue ribbon rugs were judged as such. Forty-one people were counted in the hogan at this time, and Miss Bartlett said there was room for more.

It was encouraging to see the Indians come from the hogan and go about the ramadas feeling and discussing the quality of each rug.

On Saturday morning, while Charlie Steen and I took snapshots, Dr. Colton took color movies of Lester Little-Singer demonstrating the method of using the sweat house.

Sallie held a pow-wow in the hogan Sunday morning to promote better weaving, spinning, and more vegetal dyes for next year. Peshlacai spoke about 30 minutes, and Clyde the same, all toward the same end. (Much finger shaking at the ladies and a demand for more silver work from the men.)

Miss Bartlett came back Sunday and helped answer the thousand questions the 127 visitors asked.

There were 110 exhibits by 31 exhibitors, 21 of whom received prize money or sold exhibits. Thirty-nine of the 110 exhibits were sold. $250 was collected by the Navajos for the sale of their exhibits.

The prizes were awarded as follows:

Plain weaving:

First - Ada Cody - $5
Second - Gladys - $3
Honorable Mention - Sarah

Vegetal Dye:

First - Peter's Mother - $5
Second - Amy - $2.50
Honorable Mention - Bill Williams' Wife

Twilled Weave:

First - Sarah - $5
Second - Peter's Mother - $3
Honorable Mention - Gladys

Traditional Types:

First - Harry's Mother - $4
Honorable Mention - Martha's Mother

Tapestry Weave (belt):

First - Irene - $1.50

Old Silver:

First - Peshlacai - $1

Children:

First - Peter (Spanish Saddle) - $1
Second - Virgil (Chaps) - .50
Honorable Mention - Ruby (Doll)

The people who have no names in English are identified by their named relatives.

Thank You

Our first thanks are due to the Navahos of Wupatki Basin, without whom there would have been no exhibit.

A written list of white folks to whom thanks are due would look like Who's Who in the Southwest, so rather than write our thanks we hope to be able to help them in some way any time we can.

About Navajos

When Dr. Bryant and Dr. Colton were here in August, 1934, Dr. Bryant asked Dr. Colton, "What does Wupatki have that no other Monument has?"

Dr. Colton said, "The red-rock pueblo and this view of the Painted Desert," but none of us thought of the Navajos. Several Soil Conservation men have told us Indians in Wupatki Basin are as primitive as any on the reservation.

This is probably due to three things: (1) They are off the reservation and very, very little has been done for them by the Indian Service; (2) the great distance from the nearest trading store (40 miles); (3) their desire to live lives like their ancestors did.

So, with a fine start like that, it has been our aim to keep them (Park Service policy) as they are, un-"Americanized."

Considering the enthusiasm the Indians have shown to repeat the Exhibit yearly, we think we should add Navajo Arts and Crafts Exhibit to Dr. Colton's answer to "what no other Monument has."

Relying on my memory, because no statistics have been kept, I think 100% of the visitors to Wupatki who have been escorted to a Navajo camp have written back expressing thanks. And in many cases they have declared this unexpected side trip one of the high lights of their entire trip.

It is my intention to "furnish" the Exhibit hogan as best I can with our personal collection of authentic Navajo "furniture." This addition to the Monument will enable more visitors to see a Navajo camp without traveling miles over poor roads.

The sweat house can also be made most interesting by framing and attaching the step-by-step photographs of its use.

These photos were made on June 7th, during the Exhibit. Charlie Steen and I took pictures of Lester Little-Singer as he went about his sweat bath. The series starts with the fire-making sticks and ends with the blanket-covered sweat house.

In spite of 30 Navajos in our back yard it gets mighty lonesome around here, and if Sallie doesn't come home pretty soon I might be wishing I'd bought those etchings she wanted.

Sand Painting

A sing was started Sunday night for Grandma Peshlacai, a five day affair with three sand paintings. The ceremony is being held in the fine new hogan on the Monument.

On Friday I was approached by several of the men who asked me to come and help make the sand paintings. (At a dinner party Saturday night Oliver La Farge said I could consider that a great honor.).

Monday morning Mr. and Mrs. M. Henning came to the Pueblo with Mr. and Mrs. Christman.

After the ruins trip we went down to the hogan to see and help with the sand painting. It was a four figure design with many rattlesnakes. After the design was completed I photographed (exposed negatives at it) through the smoke-hole.

As soon as I get this into the mail I'm going to rush back and photograph today's painting and try to get the whole thing on celluloid.

P. S.

Boss, I guess you better put a black mark opposite my name. I had an inquiry, I think it came from a Miss Brown in Tucson. The point in question was could a series of hogan construction photos be obtained.

I do not know the policy with N.P.S. official photos, and I filed the request under "correspondence to which I do not know the answer," and somehow the, well, it isn't ---what mean to say ---is---I don't --(quit stalling, Brewer, you lost it - you know you did).

The writer of the letter had read last month's report, so I am hoping she will read this and apply to you directly about the requested prints. The negatives should arrive at your office simultaneously with Charlie Steen. I am sorry.

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SUNSET CRATER

By James Brewer, in Charge

459 visitors registered at Sunset Crater in June, 1936; 1935, 563; 1934, no record.

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WHITE SANDS

By Tom Charles, Custodian

We have had many interesting visitors the past month. If I may be permitted to review the subject from a fiewpoint of public relations, there were two outstanding ones; jone Bursey, manager of the New Mexico Tourist Bureau and Ward Hicks of the Hicks Advertising Agency of Albuquerque.

Incidentally, these are the two men who were responsible for the expenditure of Governor Tingley's $50,000 fund for state publicity last year and it is said that they will have $100,000 for the year to come. Whether there is any connection between the $50,000 and the increase of tourist travel in the state, each must judge for himself but the Conoco Travel Bureau in Denver reports that New Mexico had 110% increase in tourist travel last year while the average increase for the nation was only 26%,

Colorado 29% and California was taking a slight loss.

It strikes me that these men, in their clever search for tourists, had much to do with the outstanding increase.

Their visit to the Sands was well timed and fortunate. Great clouds of dust banked against the horizon, the rugged Sacramento range was a dim outline a mile or two behind us, clouds of swirling dust darkened the Federal highway in front and when we drove into the sleek, smooth, dustless road of the Monument it stood out in marked contrast. It was really beautiful in the Heart of the Sands that evening, remarkably free from dust or blowing sand.

Joe Bursey's inspiration should have stood at the peak as he viewed the gorgeous sunset, or he should have bubbled over when he beheld the long shadows and the velvet hills but his commercial mind seemed to "hop up" every time another foreign car rolled past, loaded with men, women and children. In 20 minutes a dozen foreign cars had whizzed past, at the Heart of the Sands. Remembering Joe's business and his interest inthe foreign cars, it looked like a frame up.

"Sales Talk" was unnecessary. The atmosphere radiated enthusiasm. The open page of the register ran about like this:

Name	Town	Occupation	Impression
W. H. Buckhart	Dallas, Tex.	Merchant	"Dumbfounded."
Howard F. McGuire	Chicago, Ill.	Adv. Writer	"Mountains of Lux."
Ronald Wilkins,	Detroit, Mich.	Insurance	"The world's Wonder."
Herbert Powell,	San Marino, Cal.	Architect	"Mohammed-bring on the damels."
Peggy Metcalf,	Pontiac, Mich.,	Stenographer	"Never could I image anything so Wonderful."
Red C. Vogal,	Cedar Rapids, Ioa		"Like Iowa's snowdrifts."
W. A. Caswell,	Bowling Green, Ky.		"Incomparable."

On and on these "foreign" visitors had raved about the Sands. Seven hundred and sixty had registered in 20 days. As modestly as possible I suggested to Joe that only about 20% of the visitors register here at this "open air" booth.

Messrs. Bursey and Hicks have been very kind to the White Sands in former state publications but with the added favorable impressions of this trip it looks like they may add a few "effusions" in the 1936 manuscript for state publicity.

From the work-a-day viewpoint of the Park Service our outstanding visitor this month was Mr. George Collins, the new regional director on his first trip to the Monument. He flew from Albuquerque to El Paso,

took a birds-eye view of the Sands from the emergency route of the TWA, which takes a short cut through Mockingbird Gap of the San Andres, passes over the "Old Lake Bed" and the "Barbed-wire" landing field which are a part of the unexplored area of the White Sands National Monument. Not long ago we had a visitor who related his experience of running into a storm on this airplane trip between Albuquerque and El Paso and their landing at the "Barbed-wire" airport. It was a wierd and lonely place for the night but the next morning the storm had cleared away. The sunrise and the mirages of the Old Lake were beautiful, the pilot arose from an ideal runway and my friend said it was one of the pleasant recollections in his memory. So much for our present airport.

Mr. Collins and Chuck Richey inspected the new work which is being done at the Artesian well, under the Resettlement Division, pounded a few black golf balls over the alabaster hills, tried out the mineral water, just enough to be sure of what the other fellow is complaining about when he registers a kick on our drinking water, and got a fair idea of the temperature at the Sands on an average day.

There were 1,179 registered at the Turn-Around this month; forty-one states and three foreign countries were represented. The Sunday visitors were as follows

May 24	711
May 31	755
June 7	430
June 14	450
June 21	861.
Total Sunday visitors	3,207.

Our count shows that every time we have a Sunday visitor we have 2½ week day visitors, but as there were five Sundays in this month I have reduced the Sunday count one-fifth in figuring the week day visitors. This gives us 3,207 Sunday and 5,645 week day visitors, a total of 8,852 for the month.

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CHIRICAHUA

By Wm. Stevenson, Project Superintendent

Following is the monument travel report of the month of June.

During the month 851 visitors arrived in 265 cars, fifteen states and China were represented.

A large percentage of our visitors this month have made an overnight stop in the camp ground.

A great deal of concern has been expressed by some of our visiting technicians, over the monument water supply. June is the hottest, dryest

month of the year in the Chiricahuas and the spring has supplied enough for both tourist and administrative uses. At present we are not able to furnish enough water to supply the entire CCC Camp in addition to our other uses but I feel that I can assure everyone that there is enough water for the monument supply.

Noteworthy Visitors:

Curry Long, regional engineer, US Forest Service, Albuquerque, N. M.
Levant Brown, US Bureau of Public Roads, San Francisco, Calif.
J. H. Brannan, US Bureau of Public Roads, Phoenix, Arizona.
Rex Rice, Douglas, Arizona.

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CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Superintendent

I herewith submit the following report for the month of June.

Echo Trail has progressed 2500 feet during the month, making a total of 10,000 feet. Work was started on the Massai Point - Balanced Rock trail June 5. 400 feet have been completed this month, making a total of 2000 feet to date.

All poles are set on the Massai Point-Portal Telephone line and six miles of wire have been strung.

Grading of service road and utility area is 85% complete. The surplus materials from this project are being used to dress fill slopes on the Bonita Highway and to obliterate borrow pits.

The Utility Area Wall is 35% complete.

June 11, fifty of our men were called out on a forest fire in Rucker Canyon. Two days were spent putting it out. There have been no fires on the monument to date this season.

Maintenance of Bonita Highway has continued throughout the month.

Visitors for the month:

June 5, Chuck Richey, district landscape architect, Dick Sias, ECW inspector, and landscape architect Clint Rose.

June 14,-15, Landscape Architect Clint Rose.

June 20, George H. Keller, regional master mechanic.

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CHACO CANYON

By Thomas C. Miller, Custodian

General

June has been a good month in the way of visitors. Our approach road to the north has been impassable part of the month because of the blow sand. It was necessary to make several trips by truck to the Escavada wash and pull the visitors out of the sand. On two occasions the visitors' cars were put out of commission by over-pulling them in the sand. The approach road to the south has been in fair shape all the month, so consequently most of our visitors were sent out that way. At this time the sand is passable, but tomorrow it may not be.

One official trip was made to Santa Fe by the custodian during the month. I left Chaco on the 10th and returned on the 12th. The purpose of the trip was that the University of New Mexico and the School of American Research offered us a nice collection of artifacts, Chaco material, for our museum. A conference was held with members of the museum staff on the evening of the 11th. It was decided at the meeting what was the best material for our small museum here at the monument. Orders were issued by Dr. Hewett to have the material catalogued and packed. Due to a sudden death in Dr. Hewett's immediate family we postponed the packing of the artifacts and they were delivered by Dr. Fisher and Mr. Stanley J. Milford on the 19th. The artifacts are now placed in our museum.

The morning of the 11th I spent at Bandelier National Monument looking the place over with Mr. Hendron and Mr. Chase. I did not know the place because of all the new developments. I surely enjoyed that trip and the all too short visit with Hendron, Chase, and Peterson. I visited Earl Jackson on my way home on the 12th. Boss, it is my opinion that that custodian just went to bed to take a rest. He looks better than I have ever seen him look. I told him so and he admitted that he had gained 20 pounds. Here's hoping that Earl is up and back on the job real soon.

Travel:

Registered by cars 643 people arrived in 219 cars coming from 18 states, the District of Columbia, and Hawaii. Museum and Guide service was rendered to 239 people in 55 parties during the month. A total of 7,330 minutes was devoted to field and museum trips.

Weather:

Maximum for the month was 99 on the 18th. Minimum 39 on the 28th of May. Precipitation .75 inch was recorded for the month; the greatest in 24 hours was .28, May 29.

Maintenance:

The two cattle guards on the main road through the monument were

cleaned of blow sand during the month. The method used in cleaning the cattle guards was: The new hydraulic dump truck was used for a tripod, then a borrowed chain hoist was used to raise the 1500# steel rails. After the rails were raised and blocked, two-inch water pipe was used to roll the steel out of the way so that we could get in there and shovel the sand out. The sand was used to fill up mud holes near headquarters. This new dump truck is very useful in many ways.

Activities of other agencies in the Monument:

The University of New Mexico and the School of American Research headed by Dr. R. C. Fisher, Mr. Stanley J. Milford, and Mr. Gordon Vivian began work on Casa Rinconada June 20. Mr. Vivian is supervising the repair and the roofing of one of the greatest kivas in the Southwest at that ruin. The Kiva measures 72 feet in diameter. It is the largest and finest thing ever undertaken in the Chaco by this school. When completed, Boss, this structure will make the great Kiva at the famous Aztec Ruins National Monument look like a child's play house. This Kiva of Johnwill's has been the envy of all eyes in northwestern New Mexico for two years and you can't imagine how much pleasure it gives me to see this work pushed to completion this summer.

The University's headquarters building was near enough complete that the kitchen, dining room and cellar could be used by their staff. Their sleeping quarters are a bunch of tents stretched up near the canyon wall a short distance from their kitchen. These tents will be discarded when their buildings are finished.

Rodent Control:

A. E. Borell, wildlife technician, completed his work and departed on the 13th. The carbon bisulphide gas pump and five gallons of gas were left here at headquarters for use if needed around the dikes on the canyon floor built by the Soil Conservation Service. Mr. Borell completed a good piece of work here in this monument by exterminating the rodents around our dikes. No serious damage to birds or rabbits was noted in connection with this work.

Personnel:

Homer F. Hastings, Bayfield, Colorado, was put on the rolls as guide May 27, pending action being taken on the appointment for the new position of ranger-historian for this Monument. Mr. Hastings is doing a good job guiding our visitors through the ruins.

Special Visitors:

Mr. Joseph A. Bursey, director New Mexico State Tourist Bureau, was an interested and interesting visitor, June 2. Mr. Robert M. Patterson, Merion, Pa., Mr. V. W. Balderson, Albuquerque, both of the U. S. Bureau

of Indian Affairs, visited the monument on the 4th. Mr. A. S. Coggshall, director State Museum, Springfield, Illinois, was here on the 5th. Mr. and Mrs. C. F. Bowser and son, Warren, Ohio arrived on the 13th, and departed on the evening of the 15th. Mr. Bowser is a lecturer, photographer, and world-wide traveler. The University of Utah Expedition headed by Dr. A. M. Woodbury, formerly naturalist at Zion National Park, arrived on the 15th and departed on the 16th. Mrs. Chet Markley and Mrs. Jess Faha, Mesa Verde National Park, arrived on the 18th and departed on the 22nd.

Museum Contributions and Loans:

The Aztec Ruins presented us with a very nice tree ring chart June 6. The University of New Mexico made this monument a loan mentioned elsewhere in this report.

Soil Conservation Service:

This Service did considerable planting around headquarters area and along the earth dikes on the canyon floor during this month. Approximately the following amounts were used:

105# Oryzapsis heymanoidas
2000# Western Wheat Grass or Blue Stem
108# Sacaton.

All of the flood water diversion dikes were planted with a mexture of Sacaton, Wild Rice, and Blue Stem.

Approximately one thousand feet of earth diversion dikes were built, three rock and wire sausage dams constructed, and three cable fences were built in the Chaco wash for revetment purposes. One cable fence was below Pueblo del Arroyo, the second below the University of New Mexico windmill and the third between the ruins of Hungo Pavi and Chetro Ketl.

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CASA GRANDE

By J. Donald Erskine, Park Ranger

With summer really upon us, travel dropped off this month to a low for the year of 1,661. This figure includes two groups of CCC boys totalling 80, and one of 36 Hopi school children from Hotevilla. On June 7th we had the pleasure of meeting Evon Z. Vogt from El Morro who signed our register while here on a visit to headquarters. Most welcome was a visit from H. B. Hommon of the U. S. Bureau of Public Health on June 20 and 21. Mr. Hommon was looking over the situation preliminary to the installation of our new sewer system.

After a very pleasant first week in June the thermometer went up and stayed up. Our day temperatures have run from 88 on June 1 to 116 on June

18 with 14 days over 110 degrees. Night temperatures varied from 49 degrees on the 1st and 5th of June to 83 degrees on June 23. Two stormy days brought .01 of an inch of rain on May 26, and a trace on June 22, not enough to give any relief from the heat.

Early in the month Virginia Winter went East for a vacation and rest. A few days later Custodian Winter began to suffer from stomach trouble and on June 14 left for Chicago to join Virginia on his annual leave. It seems apparent that Jack doesn't make a very good bachelor. Assisting in guide duty during the absence of Custodian Winter are Clarence Cole, who is a student technician for the summer months, and Cliff London who is waiting for word which will shift him to Oklahoma City for engineering work. While we are certainly glad to have Cliff here, we hope for his sake that his prospective appointment will soon materialize.

As mentioned previously, we finally see the end to our troubles with the sewer system. Money has now been made available for the construction of a new and adequate sewer system which should be in operation before the summer is over. In the meantime, we must continue the make-shift methods which have given us so much trouble. However, the make-shift system is now working much better than before, thanks to the efforts of Addison Pinkley and Cliff London who gave it a thorough going-over two weeks ago.

The prize remark for the month came from an elderly gentleman as follows: "Well, sir, what these old people didn't have, ain't it?" Speaking of visitors, it occurred to the Boss and myself the other day that visitors to Casa Grande got an additional service here that probably is not duplicated in many other monuments or parks. Each car that drives up to the parking area is given a thorough cleaning by three or four Cactus Wrens who painstakingly remove every bug they can find, not only from the radiator, but from other parts of the car as well, including the inside.

The young Say Phoebes which hatched on May 23 are now becoming quite expert in their flights through the rooms of the Casa Grande. The Owl family is still around enduring the heat as best they can, though, they apparently don't like it very much. No more snakes or Gila Monsters have been seen, altogether a rather uneventful month from the wildlife standpoint.

We were all much amused by an advertising folder which we received a few weeks ago from an Eastern company trying to sell us a combination lawn mower and snowplow. A little snow would feel mighty good just about now.

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TUMACACORI

By Louis R. Caywood, Custodian

We learn with sadness of the recent death of Frank Hands, a true pioneer of the Southwest. Mr. Hands was a great nature lover and at his

ranch in Pinery Canyon in the Chiricahua Mountains many valuable observations were made. At some time or other almost all well known ornithologists have visited Mr. Hands who was always glad to drop his work and accompany them to parts of the Chiricahuas where rare birds could be seen. It was Mr. Frank Hands who, in 1917, observed the Thick-billed Parrots migrate into Pinery Canyon from Mexico. Mr. Hands was also the proud possessor of a Thick-billed Ani, a bird rarely seen in the United States. Dr. Bryant and I had the privilege last summer of visiting the ranch and seeing Mr. Hands' collection of mounted birds. I am sure that all who knew Mr. Hands will mourn the passing of one of the finest and kindest pioneers the Southwest has ever known.

The weather has been warm, but there is usually a breeze that is cooling. The Mission is always cool inside. With the rainy season only a few days off, we have something to look forward to, as on St. John's Day the rains are supposed to begin, according to local people.

Visitors for the month of June numbered 911. Of these 831 were personally conducted through the Mission while 80 only used the facilities offered. This number is an increase over 843 for June, 1935, and 764 for June, 1934.

Noteworthy visitors included Don and Marie Erskine from Casa Grande National Monument on June 2, and Cliff and Detta London from Headquarters on June 3. We enjoyed their visits very much and hope they will come again soon. Father Victor Stoner, now president of the Arizona Archeological and Historical Society, Tucson, was an interested and interesting visitor to the Mission on June 4.

From spare funds I was fortunate enough to obtain a small steel filing cabinet with all accessories and I want the fellows in the field who do not yet have a filing cabinet to know that they can fill in the evenings setting up a filing system similar to that used at Headquarters. Martin and I have spent hours fitting all the letters, memorandums, orders, etc., into the proper folders and there are still stacks of material to be filed. After we feel we have finished we would like to issue an invitation to someone from Headquarters to come down and check all our mistakes.

The following article appeared in a recent issue of "Pathfinder" edited in Washington, D. C., under the title GERMS "SLEEP" 250 YEARS:

"When it was suggested a few months ago by Dr. Carrel that it might some day be possible for man to sleep for centuries in suspended animation, it raised quite a stir in the scientific world. However, similar sleeps are even now old stuff to the simpler forms of life. Dr. Ira B. Bartle, of California, recently reported taking a colony of soil bacteria from the wall of the Tumacacori Mission in Nogales, Arizona, where they had been sealed for two and a half centuries. Although these bacteria had been in a state of latent life since sealed in the wall, they were revived and began

to live and multiply normally. Dr. Bartle explained that the ability of bacteria to survive centuries in this state is due to the fact that when they are removed from the presence of oxygen the walls of the tiny cells thicken until the life within is protected against nearly all conditions except fire.

"Bacilli, those tiny organisms too small even to be seen with a microscope, can also endure some pretty harsh conditions. Experimenters have kept some for weeks in temperatures close to absolute zero without killing them, and tuberculosis bacilli are said to have been found alive in Egyptian mummies."

I thought the above might be of interest to those following the study recently made by Dr. Bartle.

A census of the 40 mesquite trees planted early this spring by Mr. Boundey shows that there has been a loss of 8 or a 20% mortality of the young trees. These were given to Southwestern Monuments by the Boyce-Thompson Southwestern Arboretum at Superior, Arizona. I have watered and fertilized them and am certain that if the remaining 32 survive this summer they will be healthy trees. Some of those which died had been planted in ground infested with pocket gophers. Probably the roots were eaten by these rodents.

There are a great number of pocket gophers on the grounds and they may prove serious as time goes on. There are also a few gray squirrels which have destroyed a number of bird nests including one Gambel Quail nest here on the Monument. A colony of round-tailed ground squirrels have made their home in the ruin mounds south of the church.

A very low water table now exists in the San Cruz Valley. The monument well pumps dry in about five minutes of steady pumping. It soon fills, however, if the windmill is turned off for a short time and then turned on again.

Birds banded during the month are as follows:

Arizona Crested Flycatcher	1
Arkansas Kingbird	1
Bendire Thrasher	3
Cactus Wren	2
Canyon Towhee	3
Phainopepla	3
Roadrunner	1
Say Phoebe	3
Western Mockingbird	7
Western Mourning Dove	2
White-rumped Shrike	4
Total	30

Now that nesting season is just about over bird banding will probably pick up. A great many immature birds are now to be seen on the monument and I hope to be lucky enough to band them soon.

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RAINBOW BRIDGE

(Extracts from letter from Wm. & Katherine Wilson of Rainbow Lodge)

To say that we enjoy the monthly reports of Southwestern Monuments is putting it mildly. Bill and I read every word. We did not receive the February number, and don't want to complain but we hate to miss anything. We are surely glad to add them to our small collection of books and pamphlets on the Southwest.

Long ago we should have told you how very much we enjoyed yours and Nancy Margaret's hospitality. But better late than never. And then, too, we came away with a much better idea of Casa Grande than ever before, thanks to Dale's expert guidance.

We can safely say that it has been a slightly better spring up here than last year. In fact up to date we have personally guide 27 people to Rainbow Natural Bridge. 39 others have seen it via Shawk's Mares, 33 of the latter being members of the Hiking Club from Northern Arizona Teachers College with Robert Powers their faculty sponsor on their tri-annual trek to the Bridge. This compared with 20 guided last year and eight going on their own is some improvement.

Two Biological Survey men are on Navajo Mountain now catching butterflies. They caught 600 in a few days, which is easily explained, we think, for the reason that the "tent caterpillars" are about to take the Quaking aspen. They were first seen up there last year and now the extent of their depredations is appalling. Bill says not one live aspen is left at Soldier Seep Springs. There were a few at the Lodge in the poplars and cottonwoods but we soon made an end of them. We wish that something might be done.

We've made a few improvements this spring, the chief one being our new Electrolux refrigerator, the largest we could buy. I wonder how we got along without it, and the hottest weather still to come.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for the month total 309. As all the local people are busy with planting, this number represents principally tourists.

We have had many interesting people during the month; several made

camp and spent several days with us. Among our campers were Mr. and Mrs. Henning whose visit we enjoyed very much and hope they will come back again.

When we first started to pump from our new well, the water would be exhausted after an hour of pumping. About the time Mr. and Mrs. Gipe left we could pump an hour and a half. For the past several weeks the water has been very cloudy and full of a fine sediment, but I notice the flow has increased and that the water is losing its bitter taste. Owing to a coating of creosote on the inside of the tank, this taste has been noticable but is gradually disappearing. I believe in time the water will be quite palatable.

The morning of the 15th a party of surveyors started a survey for a road between Gran Quivira and Carrizozo with the intention of making it a direct route between El Paso and Santa Fe. The 1940 Coronado Centennial is doing much to improve the roads in New Mexico.

One of the Harvey Busses with a Courier who used to visit us at the Aztec National Monument made us a visit last week. The improved roads will do much to bring visitors into our part of the country.

Mr. Outry, who helped Mr. Gipe on the pumping plant, was struck by lightning the other evening and instantly killed. He got out of thecar to open a gate and lightning must have struck the wire fence at some distant point just as he touched the gate.

Our bird baths are increasing the number of birds in this vicinity until nearly every tree has at least one nest.

This country is so overgrazed by cattle and sheep our monument is like an oasis in a desert where it comes to wild flowers. At night the air is so fragrant from the many varities of blossoms one almost hates to waste his time in sleep.

The summer climate is so delightful here, if we had a river or lake neary by it would be one of the greatest summer resorts in the country.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

The weather has been the most talked of subject up here this past month, and it has been a hot one, at that---temporature reaching 108 out in the Pipe Valley, Fredonia, Arizona. June 21 was 106 and as a result we have some very stormy looking clouds this morning which we hope will do their stuff and give us rain.

We are very dry up here; most of the green has been browned by the

hot sun. Most of the water holes on the open range are nothing more than mud holes, and the living springs do not supply all the water the stock need or perhaps it is that some are overstocked and others could stand to have a few more.

Our travel has amounted to about the same as last month and as comparison I submit the following:

May	Guided trips	16	Present	81	Local	275	Estimated
June	" "	28	"	84	"	362	"
Increase		11	"	3	"	87	"

I believe people have shown greater interest in the place and since I have been keeping track of some of the questions asked by the visitors I have begun to find that I have been leaving out some the information I should include in the talk on the Monument. Consequently, I am in favor of the suggestion given out by Bob Rose last spring, and I had hoped to get some of these questions typed and sent in this month, but the last few days I have been working with visitors, and irrigation so much that I have not gotten them out.

I have used and am using three scouts in some light work here on the monument, doing clean-up and other odd jobs that I haven't gotten around to get done myself, and these boys are trying to earn some money to pay their own way to the summer camp for boys in July.

The ECW work has progressed very well this month. Have had the eight men all the time and the use of a truck. The boys have made the necessary filling of the parking area and road. Grading is complete and about 1500 yards of gravel on the east entrance road would have no doubt finished the graveling but they broke the truck and were given a stake in which they are hauling flagstone for walks, and stone for the guard rails.

I am happy to report that the CCC boys have stopped their raiding on the birds and animals on the monument; also they are realizing the benefits the Park Service is trying to give them by protecting nature as it is and was.

The boys have finally gotten the swimming hole to hold water and about three quarters full and to see them after work hours you would be reminded of the old water hole near town on a hot summer day. There has been as high as 50 or more boys in the pool at once.

And how the girls wish that the camp would move out for a while so that they could take a swim. I told them the pool will be there when the camp goes but it would receive a remodeling to remove some CCC handiwork and make it more natural.

Mrs. and the children have been visiting with their folks at Alton,

Utah, the past two weeks and returned yesterday. All the children have been coming down with the chickenpox; otherwise we are okay.

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WALNUT CANYON

By Paul Beaubien, Ranger

1441 visitors registered this month. 1082 are listed as "educational contacts," while the other 359 could only make use of the self-guiding facilities.

There were 29 overnight camping parties. After a week's stay, the M. J. Hennings are leaving as this goes to press. Mr. and Mrs. Lowell Christman and daughter arrived with the Hennings, and left yesterday. They are wonderful people who you will be glad to meet at Casa Grande this winter. Captain V. E. Lake, U.S.A., retired, who has been repeating frequently in the Southwestern Monuments since 1923, has been camping here for several days. He has a book shelf of information on photography, so I'm profiting greatly by his stay.

Park Service visitors include Victor H. Cahalane, A. E. Boroll, and Charlie Steen. Mr. E. J. Boundey, a cousin of my old friend George Boundey, was here for a few hours on the 7th.

Three birds were banded during the month; a Western Mourning Dove, a Red-shafted Flicker, and a Western Robin. I forgot to report last month that Don Erskine had banded a Black-headed Grosbeak and a Western Tanager.

Mr. Alfred Whiting, curator of Biology at the Museum of Northern Arizona, has spent several days making a collection of the flora of the monument. Due to the very dry spring, he is having difficulty in gathering representative specimens. But with a shower on each of the last three days, we may have some flowers yet. We are planning to send two sets of plants to the Boyce-Thompson Arboretum with the hopes of having one set returned mounted.

The phone line has been repaired by the Forest Service, so I can now be called by the "lookout."

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Visitors

Visitors for the month have numbered 1,212. 558 of this number made the climb into the Castle. This rather small number of visitors to the monument during the month can be laid to a conspiracy of conditions and

events found under "Weather" and "Roads."

ROADS

The road surface throughout the valley while in a good state of repair, is extremely dusty. State route 79 from Flagstaff thru Oak Creek Canyon to Prescott, which has been under repair for the greater part of the spring is in fine shape now.

Signs

During the past week I have erected seven signs at the most strategic points of entry in the valley. According to an official of the State Highway Department, more thorough directional signs will be erected by them in the very near future. They seem very willing to cooperate with us in this matter.

Weather

The weather during the past two weeks has been the hottest I have ever seen in the Verde Valley in June. Visitors are very reluctant to leave the main highways in such weather and I can hardly blame them. For the last six consecutive days the temperature outside the museum building under the shade of the trees has been above 109. In the past the hottest weather has been in July and August. I hesitate to think what the thermometer will register this year. Reports from along State Highway 79 and U. S. 66 indicate that many people are traveling at night to escape the heat.

Personnel

On June 22 Mr. Curtis Cox, of Flagstaff, Arizona, assumed duties as temporary ranger here to replace Charlie Steen who left for headquarters on the evening of the 21st to "escape the heat." Mr. Cox has promise of becoming an excellent ranger. He is qualified with an A.B. degree from the Flagstaff Teachers College and a year of southwestern archeology from the same institution. Mr. Fish is expected back within the next few days and while we don't like to see him leaving the monument, we are glad that he is being transferred to a forested region where he will be more at home.

Special Visitors

On the 15th of the month Irvin S. Cobb spent an enjoyable two hours with us. We found him to be equally as entertaining in the flesh as he is in the better magazines and on the screen. We would like the opportunity of seeing more of him. On the same day we had two boys directly from Paris, France. One of them said: "We have come all the way from France to see this. Tell us about it." They left well satisfied.

Nature Notes

Following is a seasonal check list supplied by Norman R. Jackson. He states the report is not at all complete but gives additional dates concerning nesting of birds and migrations.

Piranga hepatica (Western Tanager)

Pair of birds observed near museum---------- May 26
(This bird is an annual summer resident)

Butorides virescens anthonyi (Anthony Green Heron)

Single bird observed at lower edge of monument---May 29

Mergus (Americanus) (?) American Merganser

Two birds continually on monument flying up and down the creek. Evidently nesting as in previous years high up in the castle cliff----------May 1, June 2

Pyrocephalus rubinus mexicanus (Vermillion Flycatcher)

Two males and one female observed near creek in front of museum building. I am convinced these birds nest in the valley, although the proof is lacking ----------May 3 & 9

Cardinalis cardinalis superbus (Arizona Cardinal)

Three separate pairs seen on monument in thick brush. Cardinals have nested in the valley in past years and probably continue to do so---------May 19

Baeolophus wollweberi (Bridled Titmouse)

Strangely enough these birds were with us for about a week in the middle of the month. This is entirely contrary to previous records of these birds in the valley. They can usually be seen in the early spring and fall but never in June. Possibly this is just a chance migration----------June 11-17

Mimus polyglottos leucopterus (Western Mocking Bird)

These birds are very numberous now and later in the summer will be the most abundant bird on the monument. One nest observed in mesquite bush in southern tip of monument, containing two young---May 31.

Dendroica aestiva sonorana (Sonora Warbler)

Very numerous in mesquite and sycamores in vicinity of museum building ----------May 10-23

Catherpes mexicanus conspersus (Canyon Wren)

Estimated eight or ten birds in cliff near Castle. Young bird in immature plumage captured in museum building ----------May 15-19

Phainopepla nitens (Phainopepla)

Several pair seen on the monument. They nest here but I have not been so fortunate as to find a nest. Last year they were here from May 14 to August 1 ----------May 3

Icterus cucullatus nelsoni (Arizona Hooded Oriole)

As abundant as in previous years. Several nests in sycamores on monument ----------May 7-30

Lophortyx Gambeli Gambeli (Gambel quail)

Nest observed in mesquite thicket in southern part of monument. Five young recently hatched ----------May 21

Sayornis Sayus (Say Phoebe)

Three young hatched in nest in eave of Ranger's residence. Phoebes have nested in the same nest in previous years--May 16

Sayornis nigricans (Black Phoebe)

Nest with four young recently hatched seen under eave of old bridge at southern extremity of monument --------May 20

Bubo virginianus palliscens (Western Horned Owl)

One adult bird seen flying up creek near Castle cliff---May 29

Zenaidura macroura marginella (Western Mourning Dove)

On 24th of May nest observed on east side of monument. Two young (immatures) recently out of nests seen at museum building ----------June 22

Auriporus flaviceps flaviceps (Verdin)

Male seen in vicinity of old nest in Mesquite bush April 5. Several old nests seen in thorn bushes across creek from Castle proper on May 20.

Further information along this line will be forthcoming later in the season perhaps.

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AZTEC RUINS

By Johnwill Faris, Custodian

We find that during June we were a little above the average. Visitors for the month total 1,323, which is quite a number over the same period for last year. It is most interesting to note that a decided visitor drop has been noted the latter part of the month which is almost perfectly timed with some road work being done on the Shiprock-Farmington road. This work is expected to continue the greater portion of the summer and it is very probable that we can expect a drop of a number of visitors throughout that time. We expect this completed road, however, to bring us many more visitors when it is complete, since this particular section has always been a stretch to be detoured if possible.

The Durango Archeological Society held its last meeting for the summer at our monument on June 2. They made a particular study of "Textiles and Cordage," and it was the pleasure of Ranger Hart and myself to arrange a special display of these materials for the group. We were well repaid for our efforts; a very interested group spent a most enjoyable evening and were high in their praise of our textile specimens and also very appreciative of the National Park Service making such study possible for them. We hope that they will come back and see us, and in fact we have their promise to return several times and carry out any particular line of study they might care to pursue. Another special party met at our monument June 4, and yesterday we had the pleasure of entertaining a number of boys and girls from the State orphanage. We enjoy these special groups and are proud that so many see fit to stop off with us. A rather strange coincidence made possible my showing through two ex-rangers and my present one all in the same party. We had a regular Park Service reunion for an hour or so. It was quite interesting to go over some of the old methods and manner of handling the monument and comparing it with our present method.

Two very loyal Park Service families stopped in with us this month. One the McCords from Pasadena, and the other the Bowsers from Ohio. We had hoped to add the Hennings to this list but as yet they have not been by this way.

Nothing out of the ordinary has taken place this month; plans were formulated whereby we should have our parking area well paved when our

next report comes out. We have also made plans where the N.Y.A. is to supply at least one and possibly two boys to the monument and these boys will be a lot of service to us. We in turn are to help them develop themselves when and wherever possible.

The month as a whole has been dry and hot. Not hot to you desert dwellers but hot for us up here.

The Monument wishes to express its appreciation to the Educational Division for supplying us with the leaflet on the ruins. These will fill a need of long standing and we do appreciate them. I wish that at odd times, or whenever possible, we might be supplied more of our seven page booklets. It seems so much more in keeping, but we do not want to appear dissatisfied in the leaflets. They are fine but we would like something better at the first chance we have to get it.

So,Boss, in closing June we also close another fiscal year. The Washington Office, the various divisions, our Southwestern Monuments headquarters, and yourself as Superintendent have been most generous and cooperative. For this generosity and cooperation we are most grateful and express our sincere thanks.

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TONTO

By Woodrow Spires, Ranger

I noticed last month our friend Tom Charles led off with, "The Lord still smiles on the Great White Sands." I can go him one better, "The Lord smiles warmly on Tonto."

The weather has been rather warm with the temperature reaching 103° once, yet the nights are surprisingly cool. Rain for the month almost wasn't, only .12 inch being recorded.

Travel for the month started off with a bang but soon took a reversal of form and from the 9th till the 18th there was absolutely no travel, probably due to the Texas Centennial. Total visitors for the month were 30 fewer than last month, but 43 more made the trip to the ruins.

The following figures are derived from SWM Stencil No. 16.

Total visitors at the Monument	335
Total time guiding	3845 Minutes
Total visitors taking field or ruins trip	222
Total number of field or ruins trips	46
Total time field or ruins trips	2895 Minutes
Average time field or ruins trip	63 "
Average group field or ruins trip	4.82 persons
Total visitors museum trip	195

Total museum trips	57
Total time museum trips	950 Minutes
Average group museum trips	3.42 Persons
Average time museum trips	16 Minutes

There were no trips to the Upper Ruin this month.

All officials and other newsworthy visitors eluded the monument this period.

I received a very nice letter from Ruth and Millard Henning. This I am very proud of as from a visitor's standpoint I know no one who is any better qualified to judge a monument than they are. Following is a cut from their letter: "Our visit to Tonto is one of the happy memories of this trip and for that we thank you. Best regards from us both and don t let the dudes get you down."

Ruth & Millard Henning.

I believe I can say this has been the dullest month I have witnessed here; nevertheless, I have accomplished quite a lot especially in the strengthening of the walls in the Lower ruin. This is also the banner month in trail work.

This is going to come to a rather abrupt end as the mail is due any minute.

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EL MORRO

By E. Z. Vogt, Jr., Acting Ranger

Hope this manuscript reaches you in time to get in the Monthly Report without making the printers work after hours to cut the stencils for it as they did last month. June has been a very enjoyable month and travel has been good, particularly during the past week.

Weather and Roads

The weather has been fair, hot, and dry all month with the exception of the 22nd when we had a nice shower. It rained hard enough to run water into the Cove for which I was thankful because the pool was getting frightfully low.

The approach road from Gallup is in good condition. The road from Grants is passable except for a five-mile stretch which is in terrible condition---full of high centers and mean rocks, and according to some tourists it is impassable. They could never make it thru again. Once was enough.

The signs are down in a few places. It seems as though we are forever

putting up signs and travelers are forever tearing them down, post and all. They use the posts to pry themselves out of the mud and then take the rest of them home and chop them up for firewood.

I have painted several new signs and intend to motor over to Grants Friday and put them up. I should certainly hate to have travelers run out of pry poles and firewood!

Travel

Visitors for the month number 223. An appreciable increase over last month's travel. Surprisingly we have had only three parties of overnight campers all month.

Newsworthy visitors include J. B. Hamilton & wife, George P. Hammond, formerly of the University of Southern California and now of the University of New Mexico, Agapito Rey, of the University of Indiana, Gilberto Espinosa, and party of three from Albuquerque and Las Vegas, New Mexico, and George Andrew Byrns from Fairbanks, Alaska. This is the second visitor from Alaska this year.

Jim Hamilton & wife were in on the 9th. Mr. Hamilton and I went over all trails, took pictures of disintegrating steps, and discussed ways of improving the trail in washed placed.

Mr. Hammond and Prof. Rey are scholars of Spanish history and it was they who translated Luxan's diary and account of the Espejo Expedition into the Southwest and edited the first volume of the Quivira Society which contains the translation of the old conquistador's diary. These two gentlemen spent nearly a half a day at the monument and I learned much from them.

Gilberto Espinosa was also an intensely interesting visitor. He is to be one of the directors of the Coronado Celebration in 1940, and as this monument is to be one of the features of the Celebration, he wanted to go over the monument and carefully examine it with an eye to 1940. He spent the better part of the 21st at El Morro. Mr. Espinosa translated Villagra's History of New Mexico. This translation appears in the fourth Quivira Society volume.

Flora and Fauna

The month has been so dry that there have recently been three forest fires within ten miles of the monument. Two were on the south slope of the Zuni Mountains across the valley from El Morro. I could see the smoke and at night the flames could easily be seen. The third fire was ten miles south of the Rock on the high ridge between here and Atarque. The fires were all put out by the McGaffey forest ranger and a squad of fire fighters from Ramah.

There are no flowers in bloom yet except the spiderwort and sweet clover which is beginning to send delightful aromas into the cabin here making the ranger think of many things more romantic than writing a monthly report!

Just to inform readers that El Morro is also a good place to study ornithology, the following list is submitted as birds observed here during June:

Western Mourning Dove	Pinyon Jay
Cliff Swallow.	Western Meadowlark
Western Mocking Bird	Red-shafted Flicker
Arkansas Kingbird	Western Nighthawk
Cassin Kingbird	Western Robin
Golden Eagle	Northern Violet-green Swallow
Turkey Vulture	Lewis Woodpecker
Mountain Bluebird	Canyon Wren
House Finch	Rock Wren
Desert Sparrow Hawk	Rocky Mt. Hairy Woodpecker
Woodhouse Jay	

About noon last Saturday I heard a loud commotion on the bill above the cabin. It sounded like a riot, but on running up to investigate, I found that one of our eaglets had made his first catch, a prairie dog, and was certainly telling the world about it. The two grown eagles were flying around overhead squawking their approval and praising the young one. I didn't have a camera, so I decided to catch the eaglet and put him in the cabin until someone came along with a camera. He was too young to fly very well, and I was able to capture him after a short chase. I carried him by the wings so his mean beak wouldn't grab one of my fingers. When I put him in the cabin the first thing the little fellow (I say little, but he had a wing spread of 5½ feet) did was to jump upon the desk and on top my typewriter, cock an eagle eye at me, and await further developments. It was then that I named him Oscar.

That night a party of campers came in and the next morning we took some shots of him tearing apart the remains of the prairie dog. As soon as Oscar was turned loose he went up to the water cove, jumped over the concrete dam to get a drink, and then couldn't get back over. He squawked all afternoon about it and tourists got quite a thrill out of seeing a live eagle when I showed them the water cove. But he kept making such a fuss that I finally went up and helped him out.

At the time of writing Oscar is on the north side of the Rock below the nest screeching loudly for good. One of the adult eagles will undoubtedly bring him a rabbit or snake after while and shut him up. However he is going to be a curiosity for visiting tourists for a week yet, because he still cannot fly up to the nest. I certainly wish I had a bird band to put on the eaglet. It isn't every day that one has a chance to

band an eagle.

After thinking for over ten years that there was only one kind of swallow darting around El Morro's pinnacles, I find after daily observation that we have two species here. We have cliff swallows which build the curious mud nests under ledges and overhangs along the cliff, and the northern violet-green swallows which build their nest of sticks and feathers in crevices in the cliff.

It is difficult to distinguish between the two swallows. Their flight is alike except that the violet-green swallows fly at a much greater speed and their underparts are pure white contrasted to the brownish underparts of the cliff swallows. From above the gorgeous green and violet colors can be seen on the violet-green swallows, and the authors of "Birds of New Mexico" do not exaggerate a bit when they call this swallow one of the most beautiful of western birds.

The mocking birds are numerous this year. They mock the Woodhouse Jays and Kingbirds and occasionally my whistling. I expect one of them to break out and whistle the "Red River Valley" one of these days.

I have found that the water cove is an ideal place to observe bird life. I believe that certain birds come for many miles to drink water there. Early in the morning and late in the evening is the best time to see the birds. Swallows dart down and scoop up a mouthful of water on the fly. The red-shafted Flickers and Kingbirds seem to be the boldest. They fly in and drink when visitors are in the rincon. The Mourning Doves are quite timid though, and the Mockingbirds won't even come near. They just sit in a tall pine tree and scold you for being there.

Monumental Improvements

If the administration building is to be built on the south side of the rock, I believe that it would be a good thing to move our entrance gate down to the eastern gate of the monument. The entrance road could then be built so as to have all visitors drive to ranger's cabin. The register should also be moved around to the cabin. This would make it more nearly possible for one man to contact all parties. The ranger is certainly expected to work on off days and not sit in the shade on the north side and wait for visitors. As it is now people will not come around to the cabin even though there are several signs telling them that the ranger is on duty and to please drive to ranger's cabin where a sign on the door would inform them that the ranger is at work on trail and to please sound horn loudly. Instead they stop at the register and go around by themselves, reading the translation cards which give nothing but the bare facts---no history between the lines and no connected story.

I cannot see cars drive in from the south trail and I never discover until evening when I go around to the register that two or three parties

have been in, turned around at the register, and then gone on to the ice cave. Undoubtedly they came in, registered, and decided not to hunt up the ranger hut to go around unattended. After seeing the first inscriptions they tire and begin to wonder why they came anyway, over those terrible roads from Grants. The roads couldn't have been any worse in the time of the Spaniards, and at least those old ox-drawn carretas had a better chance to get over high centers.

The consequences are that they go away feeling like the farm boy who got gypped in a carnival side show. There was no one to really show them the interesting features of the monument, reveal the old Rock's secrets, and convince them that El Morro is the most interesting National Monument in the Southwest.

These last few paragraphs might be summed up in a simple sentence: We need a revision in our system of handling visitors, and probably the first step in the right direction would be to move the entrance gate to a handier place.

On off days I have worked and repaired the south trail from the water cove to the south ruin. I have also been experimenting with copperas in an attempt to get a fitting color on the concrete steps. The first flight finally turned a desirable color after the last application, but I have not had much luck with the upper flights yet. After the next application which I intend to make stronger, I believe that their appearance will be much better.

Inscriptions

Mr. Hammond and Prof. Rey thought that A. W. Barth's translation of the Silva Nieto inscription was correct, but they disagreed with the present translation of the Martinez inscription. They are going to borrow a set of El Morro pictures from the Washington office and work out a better translation of this inscription.

Mr. Espinosa also disagreed with the translation of the Martinez inscription and did not believe that any previous translation of the Silva Nieto inscription was correct. After a lengthy discussion on this matter, I finally loaned him a Park Service picture of this inscription so that he could work out his translation of the last two lines and send it to me.

General

I do not believe that the Gallup High School murals have been mentioned yet in the monthly report. These seven murals which hang in the assembly hall in the Gallup High School were painted by J. R. Willis, noted southwestern artist, and our representative of Spanish exploration and conquest in the early Southwest.

EL MORRO (CONT.)

The first one is a map showing the routes of the conquistadores across the Atlantic, through old Mexico, and across the Southwest. The second shows Cabeza de Vaca and the negro, Esteban, struggling across a Texas desert. The third mural depicts Fray Marcos de Niza as he looks at the Zuni pueblo of Hawiku from a distant mesa. As he uses his imagination and looks at the adobe walls in the setting sun, the pueblo certainly looks like one of the Golden Cities of Cibola. The fourth one shows Francisco Vazquez de Coronado and soldiers taking the pueblo of Hawikuh with a terrific battle.

The fifth mural depicts Governor don Juan de Onate riding up to El Morro on a beautiful white horse. Following him are his soldiers and a number of old carretas. One of his servants is unpacking a burro and putting on the chile and beans for supper. Naturally I think this fifth mural is the finest of the lot.

The sixth shows the American pioneers driving a wagon train into Gallup, and the seventh depicts Kit Carson's capture of the Navajos in Canyon de Chelly. Robert Budlong would probably think that the seventh mural is most beautiful, but if he does, he has no eye for real beauty which can be seen in the mural showing El Morro.

Is the visitor report for a month supposed to be taken from the 23rd of the preceding month? It certainly must be because if it was not there would be a week each month when there would be no record of visitors.

An old friend of yours was here the other day, Boss. Herbert V. Clotts sends his best regards.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

June has been a most eventful month at this National Monument. Doug Harritt has arrived for summer ranger duty, the pumping machinery has been installed, the water reservoir is filled, the big tires have arrived for the car, and today we are moving into the new residence. This is entirely too much to have happen in any one month, and we are a little too dazed to fully appreciate all of it just now.

There were 209 visitors to this National Monument during the month. This is the greatest visitor travel in any month since I have been stationed here. Last June we had 179 visitors---our peak in visitor travel for 1935. Our 209 visitors this month took trips as follows: White House Trail, 5 trips (23 persons); south rim of de Chelly 21 trips (113 persons); car trips within the canyons, 19 (64 perons); horseback trips, 2 (4 persons). Total trips, 48; total time, 7140 minutes; average trip, 149 minutes. One party of people arrived on one of the hottest days, and did not attempt to drive to the rim, but spent two hours in the office, getting their views of the canyon from photographs.

Weather has turned hot. Maximum was 102 degrees on the 20th, minimum 42 degrees, on the 1st. We had but a trace of precipitation during the month. High southwest winds were frequent, and deep dry blow sand in the canyons has made car travel totally impossible for any cars but those equipped with the widest of tires.

The wide tires for the government pickup arrived during the month, and for the first time in nearly two years the custodian was able to drive into the canyons without bothering about dry sand. At last I am able to get into the canyons and find out just what this National Monument looks like. For nearly two long years I have descended the White House Trail and looked down into the canyons from the rim, hoping that some day I'd be able to drive in the canyons, and now that time has come.

Ranger Doug Harritt returned to duty June 1. It surely is fine to have him back with us again. We have mapped out a big program of projects for the year, and hope to accomplish much work this season.

"Doc" and Mrs. Gipe arrived at this National Monument in "Hohokam," their antiquated Park Service strugglebuggy, vintage of 1902, and work on the construction of the pump house and erection of pumping machinery was begun. At this writing the pump is working smoothly, the water reservoir is filled to the overflow pipe, the walls of the pump house are up about four feet, and we feel that construction worries here are a thing of the past, with "Doc" on the job. You know, Boss, he's another man who only works five days out of the week. The other two days in every week that he doesn't work (officially) he works just as hard, and if you could have been here Sunday night about 10:30 p.m. to see him enjoying his Sunday evening off duty, you'd have found him in the custodian's residence fixing leaky faucets and putting in gaskets so the custodian could move into the new residence. And you should taste the lemonade that Mrs. Gipe makes. On these hot days whenever we wander down to their tent, a glass of cool lemonade always materializes. Official trips to the tent by the custodian, the HCWP and the Ranger are in order very often.

Mr. and Mrs. H. E. Bailey arrived to spend a number of days at this Monument just as the last monthly report went in the mail. They made a large collection of the plants of this region, and we were mighty sorry to have them leave. They were the first of the Park Service specialists to visit this Monument.

Mr. J. B. Hamilton paid us several visits during the month. Mrs. Hamilton accompanied him on his last trip.

I returned from Gallup late the night of June 16 with the big tires for the government car, and was greatly pleased to find Jimmie Brewer, and Clyde and Sarah Peshlakai waiting for me. The following day we initiated the big tires, and showed Jimmie a portion of the finest Monument in the Park Service. Those folks must return and visit us again soon.

Work on the trail will commence at the completion of the pump house. Meanwhile the supplementary septic tank has been put in place, and the water reservoir mostly covered with rock. It does begin to seem as though most of our worries over the house, water and plumbing, are over.

As we go to press, Mr. Vincent W. Vandiver, Regional Geologist, arrives at the office. Tomorrow we are going to take him into the canyons in the car. We have been mighty anxious for him to visit us, for a long while, and are very pleased that he has managed to do so at this time.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

This Monument has been visited by approximately 2,500 this month. Travel has been from almost every state in the Union, and it appears that ninety per cent of these have come in new automobiles. No matter how hard the drouth or depression, though they may be out of food and clothing, people will buy new cars.

The roads in general in the four directions have been fair but a little rough and plenty traveled; the roads in the monument has been slightly dressed and the rocks picked up. While being in only fair condition, I have heard no serious complaints.

The weather has been extremely hot and dry, with only a couple of small showers, and these have been strictly local; no general rains in this part of the state for June. The thermometer has been registering around 95 during the middle of the day for several days here. This is almost a record for this seven thousand foot altitude.

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NAVAJO

By Milton Wetherill, In Charge

Under Roads and Trails 4x391 for June. Spent most of the time clearing up and rebuilding the wet weather trail to Keet Zeel, in one place which goes along a sloping cliff face I put in logs and filled over the top with rock and dirt. Several washes had to have new crossings.

On the upper part of the trail which is used all year, two washes had to have new crossing. In one place 50 feet of oaks had to be cut out in order to get through to where you could cross, in another 20 feet of oaks had to be cut.

Old Whiskers has a herd of cattle in Keet Zeel Canyon; four bulls in the bunch; one is an old white face. This old boy has the habit of scratching his back on the oaks along the trail, with each scratching one or two oaks are pushed over, generally across the trail. These have to be cut out

and removed to keep the trail open.

Mrs. Cropp and daughter with three ladies, also John Claw, Navajo interpreter for Rev. Cropp, were in June 5, 1936. The oldest of the ladies was the most interested and kept saying is this real or is it a movie stunt; they all remarked that it was worth the trip down.

Went down to Kayenta with S.C.S. party June 10, 1936; returned with Uncle John and Mr. and Mrs. N. Roosevelt. Lunch was served at the camp ground. While eating lunch a party of two came in which I conducted through the ruins while Uncle John took Mr. and Mrs. Roosevelt.

Sunday June 14, 1936, Mr. V. W. Vandiver, regional geologist, National Park Service and Mr. L. T. Brady of the Museum of Northern Arizona came in. I took them to Keet Zeel and returned to Be-ta-ta-kin, where I found a party of four. They had been through the ruins but had a short talk with them.

The western division of the R.B-M.V. Expedition is in camp at Marsh Pass. They are all putting up a camp in the main Tsegie.

At 12:30 a.m. June 15, 1936, a freak wind hit the canyon. A large number of box elders and aspens were snaped off like breaking a match. At camp the post that I had set to hold the stove pipe snapped off and partly wrecked things;outside of that, no damage done at camp.

I have three coyotes and a fox that come into camp at night to find if any food has been left where they can get at it;so far they have been out of luck.

Old Nick Wing (a Raven which has a nick in the right wing; there are three or four feathers missing) has been hanging around the head of Be-ta-ta-kin Canyon with a bunch of young ravens.

By Ensteen John Wetherill, Custodian

The forerunners of the Rainbow Bridge and Monument Valley Expedition arrived on the19th. They are now scattered broadcast over the desert. Ansel Hall has not turned up yet.

Mr. George Harriman came in last evening with Jack Roache and Jack's two young daughters. They expect to visit the ruins before they leave Kayenta. I gave Milton instructions to keep track of all the questions visitors ask and what I consider more important his answers to them. I think sometimes the answers are interesting. In one case a lady from Boston or vicinity asked me what the rubbed places on the rocks in the

ruins were. When I told her they made by the ancient people sharpening their stone axes, she told me I was wrong. A certain ranger had told her that it was where they would stand and rub their sandals on the rock. I showed her some of the places where they would have trouble standing. With best wishes to you all and hoping you can carry out your wishes in the shade, I am.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

Report time is hereonce more and I am glad to say that all is well with me. The Monument is just as interesting to me now as it was 20 years ago, and more so because we are becoming more acquainted with each other. That makes it the more interesting.

I told you in last month's report that we needed rain. We still do for we have only had a few sprinkles and not enough to do much good. However, it rained enough at the monument to run down some fresh water into the tanks so I have plenty, such as it is.

Travel is just about as it was in May. It has been plenty hot and there is a good supply of those little black things they call gnats. You know those little fellows; they love to get in your ears and squeal about it. I have contacted or talked to 68 visitors, and have missed about that number as often when I am hiking with a party people come and go and I don't get to see them. Some register and some don't. However, I never have any complaints, except occasionally about the poor trails and accommodations, but most people are so interested they don't find time to mention those things. A number of professors from the University of Utah with students have been with me this month.

Deric Nusbaum hiked to the other bridges. He also visited the ruin above the Sipapu and he said he did not blame me for being enthusiastic about the monument for he could see plenty to be enthusiastic about. I am still in love with my little job and am trying to do all in my power to make it a success.

Thanks for the folders. I am sending them through the mails to many people who want to come and see the bridges. I am taking a party out today who were here three years ago. Will be with them several days.

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HOVENWEEP

By Deric Nusbaum, Ranger

Mr. Al Lancaster, farmer at Ackman, Colorado and past assistant to Dr. Paul Martin, Mr. Joe Brew and Mr. Earl Morris on archeological field trips, accompanied the traveling ranger on a trip into Ruin Canyon. His guidance facilitated finding the major sites of the region, and his advice,

based upon past ruin restoration experience at Aztec and Mesa Verde, strongly influenced the following estimate on restoration work needed at Hovenweep and Cutthroat Castle.

Starting late the afternoon of June 18, we followed a newly improved country road due west from Ackman to the Lowrie Ruin turn-off, and then headed southwest. We camped on a trock out-crop 4.15 miles north of the Colorado-Utah line (at the point where it is traversed by the Hovenweep-Ackman road) or 4.9 miles north of Cajon Reservoir.

On the morning of June 19 we walked for about 1.25 miles southwest, --directly toward the center of the Ute Mountain range. On the south shoulder of the second ridge (about 1 mile from the road) stands a 14-foot high circular tower just to the north of a recently and thoroughly potted unit pueblo. We continued southeast across a deep draw (Cutthroat Canyon) and in a small east tributary found the excellently preserved site that Dr. Paul Martin named.

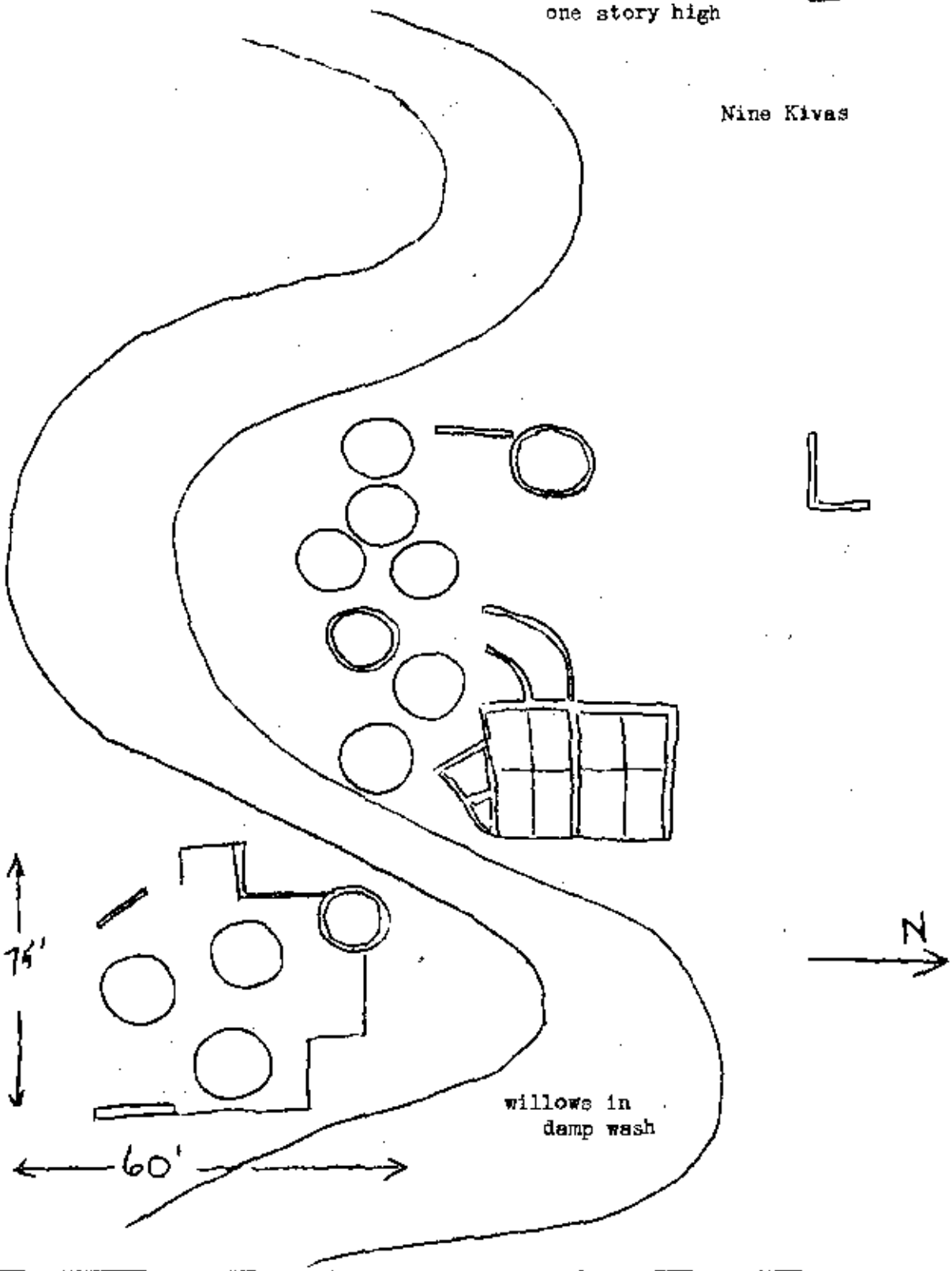
Photographs of this ruin will be sent to headquarters in the near future. I hope that they will add weight to my thought that this site should be included in Hovenweep Monument boundaries. The "Castle" is 8.95 (plus a mile and a quarter of walking) northeast of the D-shaped unit at the head of Ruin Canyon in Hovenweep. As the monument in question is split into three separate sections (to the best of my knowledge), the inclusion of a fourth, adjacent 5-10-acre tract would not be impractical.

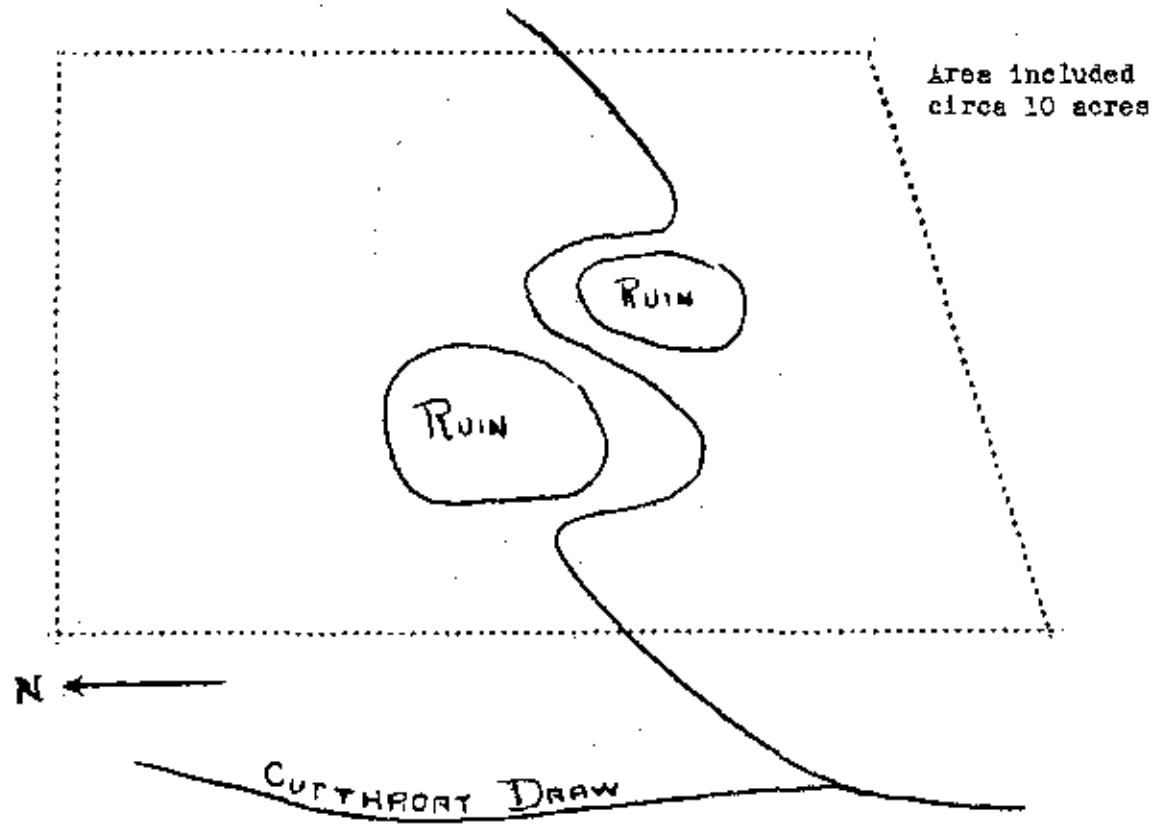
Cutthroat Castle is larger than any single unit of Hovenweep and the preservation is better than that of any building visited in Ruin Canyon (with the exception of some of the single towers).

I've mentioned the visit to this ruin here in detail because it is certainly worthy of consideration as part of Hovenweep National Monument. It is on Federal land too.

The following is a sketch map that gives some idea of the ground plan of the site. Mr. Lancaster believes that three men could strengthen the shaky walls in two weeks time if they worked in the winter when water was available in the draw below. (see following page)

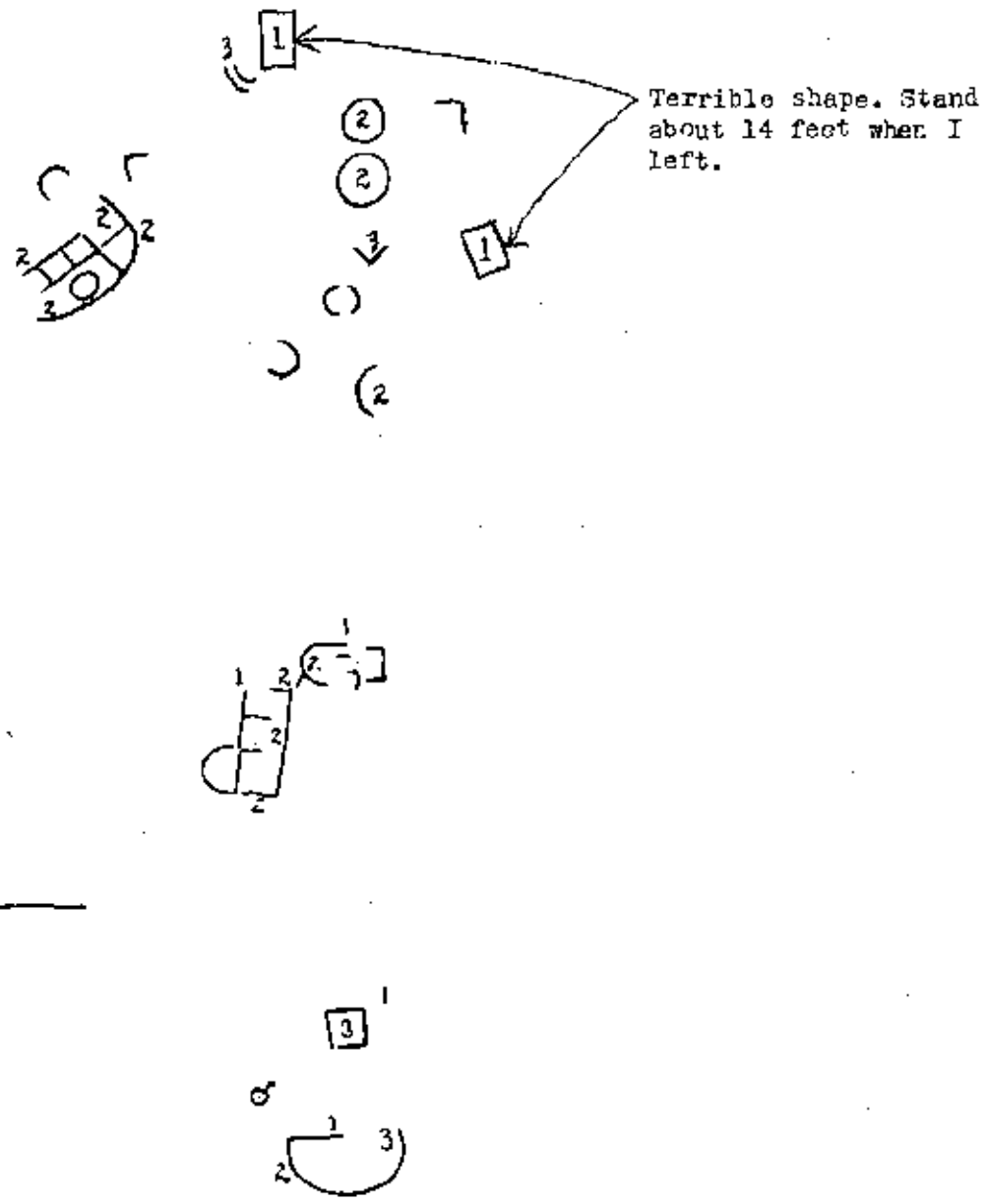
This second sketch shows an area that would include the main site of Cutthroat Castle and the ground to the tops of the draw slopes as well as enough of the draw to protect the possibilities of water development that the presence of willows suggest. Unfortunately we could not find any corner markers to locate definitely the proposed area. (see page 458).


Double lines represent walls over one story high
Nine Kivas
N
75'
60'
willows in damp wash



Hovenweep National Monument is pretty well protected from the casual tourist by a baffling maze of country roads. Signs would permit more people to visit the site, but I think it a good idea to forego posting them until a time when the ruins are restored to an extent. Just now half a dozen 'preventative' signs might do some good if placed at appropriate places.

The following sketch map includes most of the units around the head of Ruin Canyon. The numbers 1, 2, and 3 apply to restoration as to whether it is imperative, necessary or for adequate preservation. Mr. Lancaster stated that a crew of three men (mason and two helpers) could check the worst weathering in approximately six weeks. This work certainly is needed: two big walls have gone since last fall (the time of Mr. Lancaster's last visit) and a lot more are about to tumble, - and it would take so little to save them. (See following page.)



The spring at the head of the canyon has been cleaned by stockmen and now holds about three barrels of fair (slightly alkali) water.

There are comparatively few signs of recent vandalism within the monument area. Ranger Don Watson of Mesa Verde visited the monument last spring just after two rooms had been cleaned out. People familiar with the region attribute the vandalism of recent years to the stockmen that winter their animals in the region and have lots of time to explore around.

BANDELIER

By J. W. Hendron, Ranger

Visitors:

Visitors numbered 1,810, arriving in 489 cars from 38 states, and District of Columbia, England, India, Scotland, Canada, Germany, New Zealand, Australia, Honduras, Republic of Columbia, Costa Rico, and Mexico.

The six highest states in order by visitor count were: New Mexico, 814; Texas, 127; Colorado, 89; California, 57; Ohio, 56; and Missouri, 46.

Our attendance for this month increased 977 over last month, or 117%, but did not quite equal attendance for June, 1935.

Return visitors show a total of 151, and I do not think that we have made note of them all.

Weather and Roads:

Days partly cloudy:	19	
Days cloudy-------:	1	
Maximum temp.-----:	93	June 18
Minimum temp.-----:	41	June 12
Mean Maximum------:	84	
Mean Minimum------:	54	
Precipitation-----:	.89	against .06 for June, 1935.
Rain and sleet----:		May 24, 25, 26, 27, 30, 31.
		June 10, 15, and 23.
Dust storms-------:		June 4, and 16.

The weather has been good with the exception of several disagreeable winds. Our heaviest precipitation record was on May 30, with a total of .60 inch, which began about 6:30 p.m. and lasted well into the night. The heaviest record for June was on the 15th and showed a total of .13 inch.

The roads were good in general until a few days ago when a heavy rain on the Ramon Vigil Grant and on the Detached Section washed several places, making it rather rough. I think our rainy season has just begun and it is most welcome. The roads have been dusty and the creek is going dry.

Visitor Trip Chart:

One hundred and sixty-eight parties were conducted through the ruins, and given short lectures, numbering 864 people. The average time per trip or party was 63.36 minutes. One hundred and forty-nine parties took complete ruins trips; nineteen were given short talks or special lectures.

Recently we have been excorting late visitors through the ruins

after supper time; as a matter of fact, it is much cooler at that time and more satisfactory for lectures. Several special lectures have been given at the camp ground in the evening or at the hotel or office. We have had our share of professional lecturers this summer, gathering their material for Travel Talk Series, and they have been very desirous of gaining information without having to go to the technical reports for it.

Special Visitors:

May 30 - Mr. and Mrs. Donovan Senter were in for a few hours with a group of young archeology students from the University of New Mexico. Mrs. Senter was Dr. Florence M. Hawley before her marriage the latter part of May. June 2--Mr. and Mrs. Millard Henning arrived at Frijoles for a several days' stay. The Hennings are visiting Southwestern Monuments, spending a few days at each place. June 3 - Mr. and Mrs. Branson De Cou were in, gathering material for their travel talks. The De Cous are famous as international lecturers, giving musical travelogs illustrated with masterpieces of art and photography. This is their seventeenth season. June 10 - T. C. Miller, Custodian of Chaco Canyon National Monument, was in the canyon for a short while, accompanied by Stanley Milford of the School of American Research in Santa Fe. Mr. Miller seemed to be very pleased with our little valley and his short trip through. I'm sorry he was not able to stay long enough to see it all. June 11 - Mr. and Mrs. G. F. Bowser of Warren, Ohio, arrived to spend several days in the canyon gathering material for a series of illustrated travel talks. They are making a tour of Southwestern Monuments. Mrs. Bowser seemed to be particularly interested in the pottery of the Rio Grande valley and wanted to include material of the same nature in her lectures. We helped her all we could by way of explanation since our collection of pottery for demonstration purposes is rather slim at the present time. Dr. James F. Zimmerman, President of the University of New Mexico, spent an hour or so in the canyon with a small party. June 12 - Chuck Richey and J. B. Hamilton were in for the day on business. June 15 - A. J. S. Eccleston, special agent, Division of Investigations, Department of the Interior, arrived for a day or so on business.

General:

Alfred Peterson, commonly known as Pete, arrived at Bandelier on June 4 to take over the duties of ranger for the summer. He received his B. A. degree from the University of Arizona a short time ago in Archeology and is now out to put it into practice for a while until he returns to school in the fall to take his Masters degree. Pete has been stationed for the last five summers at El Morro National Monument and knows the Park Service routine, and so he just stepped right in and went to work. I'm sure glad that he is out here; now we can concentrate on our visitors a little more and not have to rush them through so fast.

In view of the fact that Earl Jackson made a most comprehensive study

of questions asked by visitors, I think I have run on to a couple that he omitted. A few days ago I was walking across the little footbridge near the hotel with a party and suddenly a young lady asked me if that was one of the Indians over in the flower garden; it happened to be Mrs. Frey. At another time a lady walking along the cliffs asked if the Indians were having a pow-wow or a dance or something across the canyon on the other side of the trees. I looked up very surprised and she asked what all the whoops and cries were. It happened to be Mrs. Frey's little boy, home for the summer vacation.

I haven't heard anything from Earl lately, but from the last report he seems to be getting along very well.

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BANDELIER FORESTRY

By James Fulton, Forester

On May 28 a total of 41 landscape-planted trees, 39 of which were Pinus ponderosa and two of which were Pinus edulis, were cut and burned because they were attacked by Ips confusus var. Five man-days and one supervisory man-day were expended on the project, making a total cost of $15 and a cost per tree of 37¢. All these trees were located near headquarters area in Frijoles Canyon.

During the first two weeks of June I have been cutting lintels for the Equipment Shed and aspen for ceilings in Quarters No. 2. In all, I cut, peeled and split enough aspen to make 9,670 lineal feet of ceiling material.

Since May 15, I have been excavating and pouring footing for the Equipment Shed.

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HEADQUARTERS STUFF

BRANCH OF EDUCATION

By Robert H. Rose, Park Naturalist

During the month of June the Educational Staff has consisted of Junior Naturalists Dale S. King and Charlie R. Steen, Student Technician Clarence Cole and Park Naturalist R. H. Rose. King and Rose have been on headquarters work the entire month, while Steen returned to headquarters late in the month from his relief assignment at Montezuma Castle. Cole began duty at headquarters on June 4.

Headquarters and Field Personnel Changes and Additions:

Following is the status of seasonal positions in Southwestern Monuments as of June 30, 1936.

1. Jerome W. Hendron, temporary ranger, Bandelier.

2. Alfred Peterson, temporary ranger, Bandelier (not previously reported). Peterson entered on duty on June 4.

3. Doug Harritt, temporary ranger, Canyon de Chelly.

4. Ranger-Historian, Casa Grande, to remain vacant until heavy travel season during winter months.

5. Clarence Cole, student technician, headquarters (not previously reported), entered on duty June 4.

6. Jerome Hastings, ranger-historian, Chaco Canyon, to enter on duty July 1.

7. Evon Z. Vogt, Jr., acting ranger, El Morro.

8. Deric Nusbaum, traveling ranger, entered on duty early in June.

9. Zeke Johnson, Custodian, Natural Bridges, on duty May 1.

10. Milton Wetherill, ranger-historian, Navajo, to enter on duty July 1.

11. Woodrow Spires, temporary ranger, Tonto, effective July 1.

12. Paul Beaubien, temporary ranger, Walnut Canyon.

13. James W. Brewer, temporary ranger, Wupatki, effective July 1.

In order to complete the record on personnel, it is proper here to mention that Permanent Ranger Martin O. Evenstad of Tumacacori National Monument is transferring, effective late in June, to Muir Woods National Monument in the same capacity. For the time being the Tumacacori position made vacant will remain unfilled. Also, Frank L. Fish, permanent ranger, Montezuma Castle, is transferring to the position of Custodian, Chiricahua National Monument, effective July 1. Relief help is being secured at Montezuma pending filling the position made vacant by Fish's transfer. Our best wishes to these men in their new assignments.

Administration, Clerical:

During the month Park Naturalist Rose prepared copy on mimeographed leaflets for (1) Aztec Ruins; (2) Chiricahua; (3) Tonto, revised; and (4) White Sands, revised. In addition, general correspondence was handled while a total of two days was spent finishing up the geographic place names reports for Bandelier, Natural Bridges and Arches.

About 300 photographs were filed; educational contacts tabulations were brought up to date and a nine months' summary prepared; and time was given to study of plans and to correspondence relating to the proposed museum at Tumacacori.

Gifts and accessions received during the month, or not previously reported, include (1) "The Pottery of Pecos," Vol. II, by Kidder and Shepherd; (2) Rio Grande Culture Area map prepared by Field Division of Education from data by Dr. Mera of the Laboratory of Anthropology; (3) 2000 botany labels; and (4) a loan of a considerable amount of archeological material for the Chaco Canyon Museum from the Museum of New Mexico, Santa Fe. A consignment of bookcases for the Headquarters Library have been ordered and should be received within about a week. This will enable us to keep our books in much better condition than in the past.

Outside Contacts:

On Thursday afternoon, June 11, R. H. Rose gave an illustrated talk on the Kino Missions of Southern Arizona and Sonora, before the Community Church Auxiliary; attendance, 35.

Activities along other lines will be covered in the reports of Naturalists King and Steen and of Student Technician Cole, which follow:

Report of Jr. Naturalist Dale S. King

On duty at headquarters the entire month.
Ten days on May report.
Half day on Broadcast.
Compiled Southwestern Monuments Bird Banding Report for 1936.
Compiled Casa Grande Bird Banding Report for 1936.
Assembled and mailed bird banding reports from other monuments to Biological Survey.
Three hours on Natural Bridges informational folder.
Completed plans for Tree Ring exhibit, Case 4, Bandelier Museum and mailed details to Berkeley for preparation.
Wrote 23 letters.
Remainder of time on routine office work---library, incoming and outgoing educational supplies, etc.

Report of Jr. Naturalist Charlie R. Steen:

June 1 - 21 Relief at Montezuma Castle. Left Montezuma Castle on the evening of the 21st and arrived at headquarters that night.

22 - 30 At headquarters.

Report of Student Technician Clarence R. Cole, ECW:

Time spent mostly running mimeograph with various other odd jobs thrown in for good measure, guiding especially. I am thinking of changing my title from Student Technician to Mimeograph Technician or Head Hay-bailer. Some days my guiding and office work were mixed indiscriminately.

Guide Duty:

From SWM Stencil No. 16.

June 4-24, incl.

Total persons guided: 157

Total Trips Made (Ruins and Museum): 36

Office Duty:

Copied Aztec Library Index for Headquarters Master File.
Mimeographed, cut and packed 5000 White Sands informational leaflets.
Mimeographed, bound and packed 1500 copies Aztec informational leaflets.
Cut cover and map stencils for Chiricahua informational leaflets.
Mimeographed 600 copies Annual Bird-banding Totals.
Mimeographed, bound and packed 2000 copies Chiricahua informational leaflets.

CONTACTS DISCUSSION

By Robert H. Rose, Park Naturalist

Contacts tabulations for June, 1936, and for the elapsed nine months of the current travel year appear as a part of this report. The following observations (see June, 1936, Statistical Summary and the nine months tabulations) are significant:

1. Walnut Canyon with one temporary ranger reports 1,441 visitors and 1,200 educational contacts. Checking the Form 16 reports, we find 115 of these are "double contacted" - that is, were given informal talks at the ranger station as well as field trips. Deducting 115 from 1200 gives 1085 different people contacted.

2. The difference between 1441 and 1085 is 355 - the number of visitors not contacted at all at Walnut Canyon. This 355 who could not be contacted at all at Walnut exceeds the total travel of 267 at Wupatki; 335 at Tonto; 309 at Gran Quivira, 209 at Canyon de Chelly; and compares with the 362 at Pipe Spring.

3. The 1200 educational contacts at Walnut Canyon exceed the 864 at Bandelier; 209 at Canyon de Chelly; 456 at Chaco Canyon; and 826

at Tumacacori; and compare with 1,698 at Montezuma Castle.

4. The time per field trip at Walnut Canyon is 31 minutes - necessarily short since the ranger must keep fairly well within the vicinity of the Lookout in order to contact anywhere near all of the visitors to that monument.

5. The 4475 guide minutes for field trips at Walnut totaled with the 5610 minutes for the "Misc" contacts (not entered on Summary), make 10,085 guide minutes for June at Walnut - a solid 21 eight-hour days. This doesn't include the time required to gather the people into groups; time between groups, etc.

6. One must conclude that in the summer months Walnut Canyon is a very critical spot and that it is impossible for one man to deliver anything like adequate visitor service. The following three months bid fair to reveal the same condition, probably more critical. A study of the month by month tabulations through the winter months will prove beyond a doubt that Walnut Canyon badly needs a year-round custodian.

The variation of total travel for nine months in Southwestern Monuments is shown on the graph found herewith. Superimposed upon the travel graph the educational contacts have been indicated on the same scale. Note how for the summer months the contacts are approximately 50% of total travel. Consider that thousands of these contacts are "double contacts" and we have the fact standing out that there are thousands of visitors to Southwestern Monuments to whom we are yet unable to give any personal service. White Sands and Capulin Mountain travel, together more than 11,500, account for much of this difference.

Travel for these nine months is actual reported travel. There are many monuments having no personnel either the whole year, or part of the time, but which have had travel. Reported travel is 141,225 for the past nine months. Travel for May and June ran well over 20,000 for each month. If July, August and September average better than 20,000 each, the year's reported travel is going well over the 200,000 mark. The actual travel is considerably more than the reported travel. Hence we can foresee a record breaking year in travel when the final figures are tabulated at the close of June 30.

If Educational contacts exceed 10,000 per month for the next three months, which they are almost sure to do, the total educational contacts will amount to about 140,000 as a minimum for the travel year. Around 40,000 of these will be "double contacts" leaving about 100,000 individuals contacted. Thus we are beginning to see what the outcome will be for the travel year. It will be interesting to see how actual figures compare with these predictions.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR JUNE 1936

MONUMENTS	-SOUTHWESTERN NATIONAL MONUMENTS- EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATT'D		LECTURES OUTSIDE		MISC.		TOTAL EDUCTN CONTACTS	TOTAL TRAVEL
	PERM	TEM	NO	ATT	TIME	AV ATT	AV TME	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	NO	ATT	NO	ATT		
ARCHES	1/165	0																	(NO REPORT)	
AZTEC	2	0	255	1180	8497	4.6	33	227	1170	4113	5.2	18.2	8	27			1	27	2,404	1,323
BANDELIER	1	2	170	864	10504	5.1	61												864	1,810
C.DECHELLY	1	1	47	204	7140	4.4	152										1	5	209	209
CAPULIN	1/165	0																	(NO REPT	2,600
CASA GNDE	2	0	231	1650	8324	5.7	28	266	1405	5421	5.3	20	46	245					3,300	1,661
CHACO CANY	1	1	44	232	6400	5.3	146	42	224	1015	5.3	25							456	643
CHIRICAHUA	0	0																	NO REPT	851
EL MORRO	1/5	1	45	193	2847	4.3	63												193	*409
GILA CLIFF	0	0																	0	(NO REP)
GRAN QUIV.	1	0	65	309	3410	4.4	53												309	309
HOVENWEEP	0	*0																	0	(NO REP)
MONTEZUMA	2	0	180	655	5655	3.7	32	192	1043	3906	5.4	203							1,698	1,216
NATL. BR.	0	1																	(NO REPORT)	
NAVAJO	1/165	1-lab	31	95	3600	3.1	116										5	11	106	*214
PIPE SPG.	1-lab	0	28	83	680	3.0	25												83	362
RAINBOW	0	0																	0	65
SAGUARO	0	0																	0	(NO REP)
SUNSET CR.	0	0																	0	459
TONTO	0	1	46	222	2895	4.8	63	57	195	950									417	335
TUMACACORI	2	0	181	826	5982	4.6	33												826	911
WALNUT CAN.	0	1	146	520	4475	3.6	31										198	680	1,200	1,441
WHITE SNDS	1/5	0																	(NO REP)	8,852
WUPATKI	0	1	26	91	1990	3.5	77										*1	179	270	267
YUCCA HSE	0	*1																	0	(NO REP)
EDGERTERS.															1	35			35	
TOTALS	11.2	10	1555	7124	22399			784	4037	1540 15405			54	272	1	35	206	902	12,370	23,938

*12 fulltime custodians & rangers;1-actg. custodian;8-temp. rangers and ran-historians; no ran.-natists; others on misc. assignments. *Yucca temporary ranger is "Travelling Ranger"; *El Morro and Navajo travel include some previously unreported; *Wupatki, "misc" for Arts-Crafts" Exhibition.

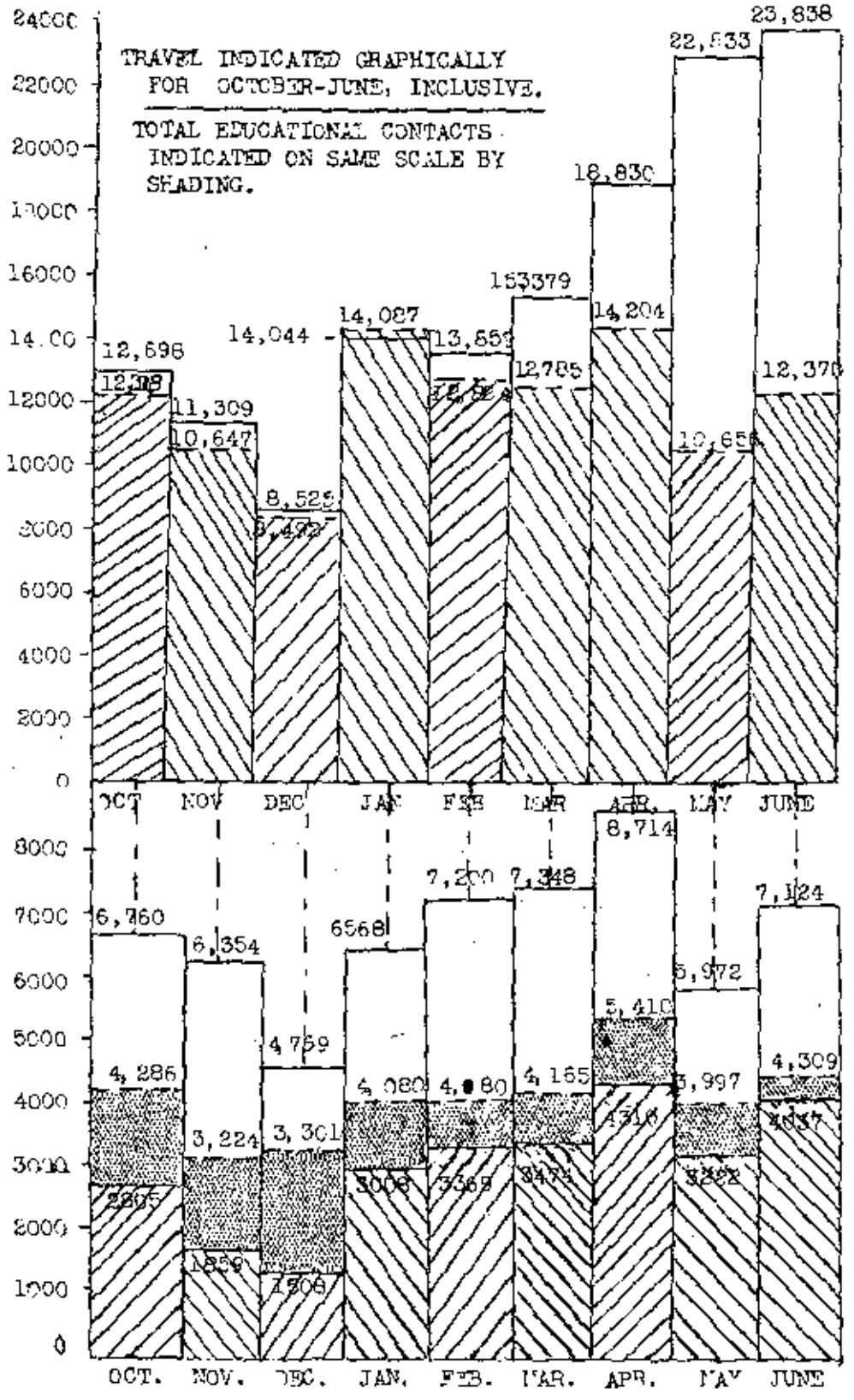
NINE MONTHS TABULATIONS SUMMARY BY MONTHS
OCTOBER 1935 - JUNE 1936 INCLUSIVE

MONTHS	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D.		LECTURES OUTSIDE		MISC.		TOTAL EDUC. CONTACTS	TOTAL TRAVEL
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
OCTOBER	1045	6760	389	2805	175	1481	1	115	313	1157	12,318	12,698
NOVEMBER	1072	6354	295	1859	171	1365	7	485	156	584	10,647	11,309
DECEMBER	926	4769	284	1508	30	1793	1	20	70	402	8,492	8,525
JANUARY	964	6568	461	3008	128	1072	20	2283	289	1156	14,087	14,044
FEBRUARY	1141	7200	474	3369	81	711	11	1084	96	460	12,824	13,859
MARCH	1274	7348	535	3474	85	691	7	341	174	931	12,785	15,379
APRIL	1486	8714	642	4310	185	1100			25	79	14,204	18,830
MAY	1095	5972	614	3222	139	775	5	531	27	156	10,656	22,833
JUNE	1555	7124	784	4037	54	272	1	35	206	902	12,370	23,838
TOTALS	10558	60809	4478	27592	1048	9260	53	4894	1054	5927	108,383	141,225

NINE MONTHS TABULATIONS SUMMARY BY MONUMENTS
OCTOBER 1935 - JUNE 1936 INCLUSIVE

MONUMENT	FIELD TRIPS		MUSEUM LECTURES		MUSEUM UNATT'D		LECTURES OUTSIDE		MISC		TOTAL EDUC. CONTACTS	TOTAL TRAVEL
	NO	ATT	NO	ATT	NO	ATT	NO	ATT	NO	ATT		
ARCHES											(NO REPORTS)	
AZTEC	965	5436	908	5415	19	51	3	600	1	27	11,529	6,265
BANDEL.	531	2688							156	533	3,221	5,637
C. CHELI	123	483					1	350	2	9	842	541
CAPULIN	13	85									85	8,450
CASA GR	2879	21290	1683	12826	1029	9209	1	100			43,425	23,070
CHACO	284	1197	123	644					55	225	2,066	4,495
CHIRIC.	43	207									207	3,158
EL MORRO	91	457							3	9	466	676
GILA CL.											0	(NO REPORT
GRAN QUI	200	2059	13	78							2,137	2,460
HOVENWEEP											0	(NO REPORT
MONTEZU.	892	4562	1080	5407					4	31	10,000	6,444
NATL. BR	6	25					22	1750	31	233	2,008	276
NAVAJO	38	131							21	51	182*	214*
PIPE SP.	179	893					5	99			992	2,457
RAINBOW											0	66
SAGUARO	415	1478							1	200	1,678	6,000
SUNSET									20	61	61	1,240
TONTO	617	3203	610	3014							6,217	4,957
TUMACAC	2002	10360									10,360	11,171
WALNUT	521	1957	61	208					302	1064	3,229	4,872
WHTE SDS	396	3672					2*	400	738	3121	7,193	47,599
WUPATKI	133	577					2	150	28	263	990	1,115
YUCCA	2	10									10	52
Hgters							17	1445			1,445	
	10558	60809	4478	27592	1048	9260	53	4894	1362	5927	108,343	141,215

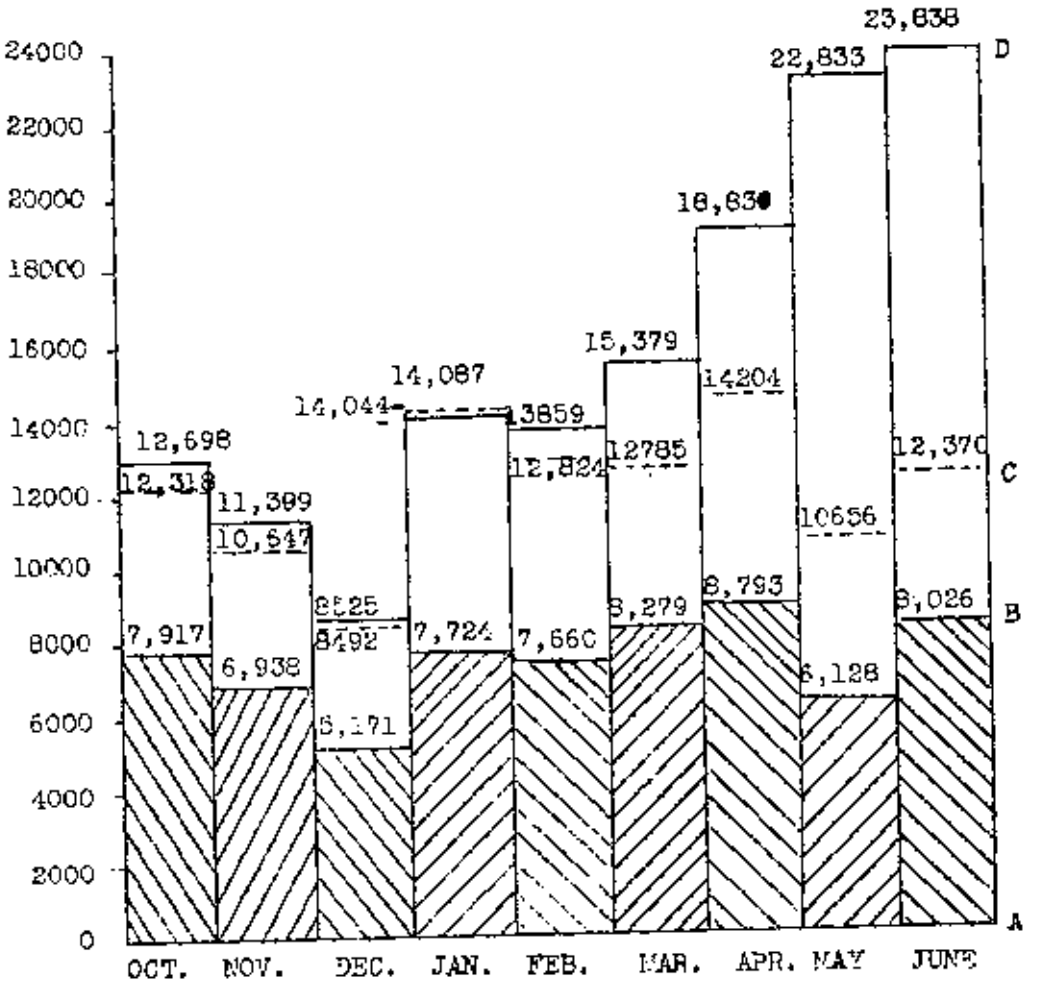
*Three radio broadcasts and 2-showings White Sands films during period.



Dot shaded portions only, show unguided museum attendance.

Line shading shows attendance in guided mus. trips

Line shaded portion indicates MUSEUM LECTURE contacts; line shaded portion plus dot shaded portion indicate TOTAL MUSEUM ATTENDANCE (lectures and Unatt'd); while total of line shaded area, dot shaded and clear portions show field trip attendence.



VISITOR SERVICE GRAPH

KEY:

1. Total height of graph from base line to upper solid line represents total month-by-month travel, October 1935 - June 1936, inclusive. (Shown as height AD for June).

2. Height from base line to dotted line represents total educational contacts; that is, field, museum, misc., outside lectures and films showings. (Shown as height AC for June).
   a. Note that this total includes many "double contacts" - visitors who received both field trips and museum service. Thus, 100 people receiving both types of service are chalked up as 200 educational contacts.

3. Portions from tops of line-shading to dotted lines represent the number of people contacted a second time, that is, "double contacts". (Shown as BC for June).

4. UNSHADED PORTIONS FROM TOP OF LINE-SHADING TO UPPERMOST SOLID LINES REPRESENT VISITORS MONTH BY MONTH WHOM WERE NOT CONTACTED. (SEE LINE BD FOR JUNE). NOTE THAT ON AN AVERAGE WE ARE CONTACTING ABOUT HALF OF TOTAL NUMBER OF PEOPLE; INADEQUATE PERSONNEL, THE ANS.

THE Supplement



1936 BIRD BANDING IN SOUTHWESTERN MONUMENTS

The Director
Bureau of Biological Survey
U. S. Department of Agriculture
Washington, D. C.

Dear Mr. Director:

During the fiscal year 1936 bird banding projects in cooperation with your bureau were carried on in nine of the 25 National Monuments which are administered by this office.

Stations at Navajo National Monument, Kayenta, Arizona, and Casa Grande National Monument, Coolidge, Arizona, had existed previous to July, 1935. During the summer of 1935 personnel of other monuments were informed of the program, and seven responded by obtaining federal banding permits.

Values gained from the banding of birds in National Park Service units under our charge are threefold: (1) custodians, rangers, and naturalists become increasingly familiar with the avifauna of their region, can more efficiently answer visitor questions and prepare museum exhibits; (2) the accumulating bird records at a monument will in time assume importance to visiting scientists, and the monuments thus will become valuable "scientific sub-stations;" (3) the normal work of a cooperating government bureau, the Biological Survey, is advanced, and knowledge is accumulated concerning the somewhat incompletely studied ornithology of the Southwest.

Southwestern Monuments are somewhat understaffed and Park Service work is heavy. Bird banding is carried on as a personal hobby of the individual concerned, and most work is done while the men are off duty. Consequently, only applications from keenly interested personnel were recommended by the headquarters office for approval.

It is a very conservative statement to say that far more than three-fourths of the bird banding work in the Southwestern Monuments was done while operators were off duty. Thus, the National Park Service has gained much valuable information and improved the knowledge of several of its personnel at very little actual cost.

Headquarters aided the work as much as possible by furnishing traps, literature, mimeographed forms, etc. The Field Division of Education of the National Park Service at Berkeley, California, very kindly constructed traps with the help of Emergency Conservation Work funds.

A total of 1,547 birds of 63 species were banded at the nine stations. Seventeen of the species banded by Monument stations were not represented in the Biological Survey totals of 1935, indicating that our work is being

done in an area that needs accurate study possible only by the banding method. As these more than 1,500 birds return to monument stations from year to year, it is certain that our data will become increasingly valuable.

Brief resumes of the work at each station follow:

Bandelier National Monument

Frijoles Canyon, approximately 39 miles northwest of Santa Fe, New Mexico. Transition Zone. Altitude 5,600 feet.

Operator Mrs. Earl Jackson, wife of the custodian, banded 111 birds of 12 species. Operations were not started until September, 1935, and were handicapped at various times by lack of bands, delayed arrival of traps, etc. Natural food along the constantly-flowing Rito de los Frijoles is plentiful, and birds are attracted to traps with difficulty. Mrs. Jackson's time was limited and it was not feasible to set traps during the winter in positions across the creek on the attractive sunny side of the Canyon.

Notwithstanding these hindrances, Mrs. Jackson produced a very creditable total, and her work was characterized by extreme accuracy. It may be possible in f.y. 1937 to set up a small ECW project which will place a CCC boy at the disposal of the station operator and result in a large number of banded birds.

Casa Grande National Monument

Two miles north of Coolidge, Arizona. Lower Sonoran Zone. Altitude 1420 feet.

Operator Louis Caywood and collaborators banded 854 birds of 33 species, many of which are poorly represented in Biological Survey records. Of the 854 bands, 15 were used at Walnut Canyon and 103 at Tumacacori National Monuments. The remaining 736 were banded at Casa Grande.

Thirty-three station returns were received, including 15 interesting returns of Gambel Sparrows which had been banded in March, 1935. Work was started on an intensive study of this species, and approximately 70 colored bands were placed on resident species in an initiation of long-term studies of range and distribution, life history, sex ratio, longevity, pathology, weight, etc.

Chaco Canyon National Monument

Work at this Monument was not begun during 1936, only two Russet-backed Thrushes being banded.

Montezuma Castle National Monument

Permission was granted to Norman Jackson, son of the custodian, to band within monument boundaries. However, due to the sparadic intervals in which Mr. Jackson was able to band, the station was dismantled and the permit rescinded.

Navajo National Monument

In Betatakin Canyon near ruin of the same name, southwest of Kayenta, Arizona. Transition Zone. Altitude approximately 6,500 feet.

Milton Wetherill, alternately Trail Foreman and Temporary Ranger at this monument, during his spare time handed 61 new birds of ten species during the 1936 season. He was not at the monument during the best banding period, the winter, and has experienced difficulty keeping traps baited due to depredations of chipmunks and squirrels.

Mr. Wetherill's tent ranger station is located in Betatakin Canyon, which with Dogozski Biko Canyon seems to afford poorer nest sites than the nearby Tsegie and Kit Sil Canyons.

Slightly increased funds have been allotted this monument for f.y. 1937, which will allow greater latitude in bird banding and other scientific work.

Pipe Spring National Monument

Four miles from small town of Moccasin, Arizona. Upper Sonoran Zone. Altitude 4,960 feet.

Operator Leonard Heaton was able to start banding in April after arrival of traps and file forms. In the two month period he made a fine showing and added 105 birds to the Southwestn Monuments total.

Heaton is proceeding very carefully with identification, and has released several individuals until positive identification was possible by means of loaned skins from various study collections.

During 1937, Pipe Spring will constitute the most northerly monument where banding is being done, and will provide an important link with Zion and Grand Canyon National Parks, Navajo, Wupatki, Walnut Canyon and other national monuments.

Tumacacori National Monument

Nineteen miles north of Nogales, Arizona, in Santa Cruz Valley. Lower Sonoran Zone. Altitude 3,250 feet.

BIRD BANDING TOTALS-FISCAL YEAR 1936-S.W. MONUMENTS

SPECIES	San-delier	Casa Grande	Chaco Canyon	Mont. Castle	Navajo	Pipe Spring	Tuma-cacori	Walnut Canyon	Wup-atki	Total	Banded in S. in 1935
1.Bluebird,Chestnut-bkd								215		215	*119
2.Cardinal, Arizona		1					8			9	*1150
3.Chat, Long-tailed						2				2	*94
4.Crossbill, Bendire								17		17	0
5.Chickadee, Mountain					1			3		4	93
6.Creeper, Rocky Mountain	2									2	0
7.Dove, Inca		4								4	1
8.Dove, Western Mourning		16		2			1			17	*1897
9.Finch, House		137					2			139	3008
10.Flicker, Red-shafted	1									1	32
11.Flycatcher, Ariz.Crested		2					1			3	*24
12.Flycatcher, Vermillion							2			2	0
13.Goldfinch, Green-backed								2		2	*111
14.Grosbeak, Black-headed								1		1	276
15.Jay, Long-crested	2									2	*49
16.Jay, Woodhouse	3				6					9	9
17.Junco, Gray-headed	56				21					77	
18.Junco, Montana					5					5	
19.Junco, Oreganus					13					13	
20.Junco, Pink-sided	8									8	
21.Junco, Red-backed	10				1			43		54	
22.Junco, Shufeldt	6				8			11		25	
23.Kingbird, Arkansas							8			8	155
24.Mockingbird, Western		2					16			18	*480
25.Nuthatch, Pygmy	19							27		46	91
26.Nuthatch, Rocky Mountain	2							6		8	*447
27.Owl, Mexican Screech							1			1	0
28.Owl, Western Horned		1					2			3	*22
29.Phainopepla							4			4	5
30.Phoebe, Say		19		3			12			34	35
31.Quail, Gambel		57		10			1			68	0
32.Roadrunner		4					1			5	0

SPECIES	Ban-delier	Casa Grande	Chaco Canyon	Mont. Castle	Navajo	Pipe Spring	Tuma-cacori	Walnut Canyon	Wup-atki	Total	Banded inU.S. in1935
33. Robin, Western								7		7	*7009
34.Sapsucker, Red-naped								4			*46
35.Sapsucker, Rocky Mountain								2		2	0
36.Shrike, White-rumped		3			1		5			9	*161
37.Siskin, Pine								1		1	148
38.Solitaire, Townsend								7	53	60	1
39.Sparrow, Gambel		414				99	1			514	*4141
40.Sparrow, Lincoln		1								1	2115
41.Sparrow, Western Lark							5			5	0
42.Sparrow, Nevada Savannah						1				1	*985
43.Sparrow, Western Vesper		1								1	*300
44.Sparrow, White-crowned		7			3					10	*4141
45.Swallow, Rough-winged		6								6	37
46.Tanager, Western								1		1	56
47.Thrasher, Bendire		5					6			11	0
48.Thrasher, Crissal		9								9	0
49.Thrasher, Palmer							2			2	0
50.Thrasher, Sage									2	2	0
51.Thrush, Russet-backed			2							2	*1335
52.Titmouse, Gray								1		1	*34
53.Towhee, Canyon							10			10	121
54.Towhee, Green-tailed		2				3	5		1	11	16
55.Towhee, Spurred	1				2					3	*658
56.Verdin							1			1	0
57.Waxwing, Cedar									1	1	*5423
58.Woodpecker, Cactus		1					1			2	0
59.Woodpecker, Gila		8								8	0
60.Woodpecker, Mearns								9		9	0
61.Woodpecker, Rky MtnHairy	1									1	*108
62.Wren, Baird Bewick							3			3	*72
63.Wren, Cactus		38					5			43	0
*---Group total which may include several races.											
TOTAL, FISCAL YEAR 1936	111	738	2	13	61	105	103	35[illegible]	57	1,54[illegible]	

Operator Louis Caywood's total of 103 birds of 24 species were reported in the totals for Casa Grande, but deserve special mention because this potentially very important station will report in the future as an independent unit.

Several species have been banded that are not usually caught in the United States, and some interesting records are bound to result. Colored bands are being used for sight observations, and considerable careful work in the banding of fledglings has been accomplished with no known casualties.

Tumacacori seems to lie on a major north-south migration route, and its location in a well-watered valley with sufficient cover attracts many species.

Walnut Canyon National Monument

Ten miles east-southeast of Flagstaff, Arizona. Transition Zone. Altitude 6,700 feet.

Operator Paul Beaubien was at this monument only intermittently during 1936, and all work perforce was done on personal time. 1937 funds will keep Mr. Beaubien at the monument during the whole year, and on rangor status he can do a reasonable amount of banding during slack periods on official time.

Bands arrived too late in the fall of 1935 to catch the big migrations, but utilizing drop trap at a bird bath which has been maintained at this somewhat arid monument for some years, Beaubien and collaborators were able to band 342 birds of 17 species---some quite rare in Biological Survey records.

An additional 15 birds were banded with Casa Grande bands and are reported in the totals from that station.

Stations at Wupatki, Grand Canyon, the Museum of Northern Arizona, and Walnut Canyon cooperating on specific problems will bring some interesting data in the future, it is believed.

Wupatki National Monument

Thirty-nine miles northwest of Flagstaff, Arizona. Upper Sonoran Zone. Altitude 4,910 feet.

Pressure of other work prevented much bird banding activity by Operator James Brewer until late in the spring of f.y. 1936. A total of 57 birds of four species were banded. Indicative of possible valuable results in the future were the 53 Townsend Solitaires banded---only one of this species was banded in the United States last year.

Brewer and his wife, Mrs. Sally Brewer, are capable observers and with

their experience of working as collaborators with the Museum of Northern Arizona, will produce excellent results next year.

Respectfully submitted,

Dale S. King, Operator #5310
Junior Park Naturalist

REPORT OF BIRD BANDING ACTIVITIES FOR FISCAL YEAR 1936
CASA GRANDE NATIONAL MONUMENT
LOUIS R. CAYWOOD, OPERATOR #5128

PERSONNEL OF STATION

Receipt of bird banding permit #5128 allowed banding activities to commence March 14, 1935. Operator Louis R. Caywood, then park ranger at Casa Grande National Monument, and Dale S. King, headquarters junior park naturalist, carried on the work until the middle of July when Caywood was transferred to naturalist rating and left Casa Grande for work at other monuments.

King and Ranger Charlie Steen then cooperated in maintaining the station, Caywood resuming the work intermittently as he returned to Casa Grande between field trips.

The station fortunately enlisted the services of John E. Fast, a very valuable collaborator, who established a sub-station at Vah-Ki Inn, his winter home a half mile south of the Museum, and banded from February 3 to March 24, 1936. Mr. Fast proved a very accurate observer, and succeeded in banding more than 40 percent of the total birds banded at the station.

As various men visited headquarters, they were given instruction and practical experience which will aid them in establishing and maintaining their own stations. These included Charlie R. Steen, now traveling junior naturalist, Southwestern Monuments; John E. Fast, already mentioned; J. Donald Erskine, ranger, Casa Grande National Monument; Leonard Heaton, custodian, Pipe Spring National Monument.

March 17, 1936, Caywood went to Tumacacori National Monument, Arizona, as custodian and established a station there. Banding at Tumacacori is necessarily reported here as if it were a sub-station, although it will issue individual reports in the future.

Casa Grande work during the reminder of the year was done under the permit to King, #5310.

EQUIPMENT OF STATION

Traps: Government Sparrow, Potter (two compartment), Baldwin woodpecker,

and Michener water traps, all manufactured by the National Park Service Museum Laboratores at Berkeley, California, under E.C.W. funds.

Fast made a fine quail trap, drop traps, gathering cages, etc. A house trap was constructed by King.

Feeding and Trap Stands: To eliminate rodent damage, two pedestal feeding stations were made by King. These each accommodate a Government Sparrow Trap and a Potter Trap.

Files: As birds are banded, entries are made in pencil on a mimeographed form, prepared especially for the purpose. When a sheet of about 50 entries is filled, its contents are then transferred to the triplicate file system in India ink.

The filing system used at the Grand Canyon National Park station of Edwin McKee was adopted and found very satisfactory. Each new band issued is noted in three 5"x8" card files: (a) by Band Number; (b) by Date; and (c) by Species. Returns also are entered in all three files. Repeats, however, appear only on the individual Band Number Cards.

Two additional files are kept: (1) Key to Colored Bands; and (2) Matings and Genealogical Notes.

An observation file is also kept on which entries are made on species cards by dates. Unusual observations not necessarily connected with banding are noted down. This file supplements the others.

King kept files current, with the assistance of Fast during the months of February and March, and of Caywood on several occasions.

Other Equipment: Included usual series of Biological Survey numbered bands, celluloid bands in five colors, especially prepared banding pliers, butterfly nets for capturing roosting finches at night, flashlights, gathering cages, etc.

The Southwestern Monuments Library, rapidly accumulating a full set of reference books on western ornithology, proved of indispensable help.

TIME SPENT ON PROJECT

Due to pressure of other Park Service work, little official time can be allotted to bird banding. Operators at the monuments band rather as a personal hobby than as an official duty and try to perform as much of the work as possible during their own time. Their records, methods, etc., however, are considered government business and are subject to inspection at any time.

King spent a little more government time on the project than he desired,

chiefly to insure establishment of the several new stations at the monuments on a correct and officient basis. As they run smoothly in the future, this expenditure of government time will lessen. He managed, however, to accomplish the bulk of recording in evenings on his own time.

File forms were mimeographed by King at almost no expense to the government. Operators of the station feel that the National Park Service has amassed a great amount of potentially valuable information concerning a worth while project in an extremely economical way.

STATION ACTIVITIES

(Note: The first 34 birds banded were reported too late to be included in published f.y. 1935 summaries, and will be included in this discussion. Activity started March 14, 1935, was hindered considerably by lack of bands during the summer and late fall of 1935. Banding was slowed or stopped several times by departure of operators to field.)

Number of Captures

854	bands placed on new birds of 53 species, some of which occur rarely in Biological Survey reports
33	returns
835	repeats
1,722	total captures

That the station is operating in a not-too-well-known area is shown by the following table, taken from information in "Bird Banding Notes":

Species	Banded in U.S. in 1935	Banded by Casa Grande in 1936
Arizona Cardinal	0	9
Inca Dove	1	4
Gambel Quail	0	58
Say Phoebe	35	31
Roadrunner	0	5
Rough-winged Swallow	37	5
Bendire Thrasher	0	5
Crissal Thrasher	0	8
Cactus Woodpecker	0	2
Gila Woodpecker	0	8
Cactus Wren	0	43

Approximately 70 colored bands, received relatively recently, have been used for sight observations and will bring valuable data.

Returns

A total of 33 returns were received during the period.

(A) Of these, nine were of birds probably resident, but uncaptured (one each of House Finch, Say Phoebe, and Crissal Thrasher; six Cactus Wrens).

(B) Three roosting House Finches were killed when netted at night before operators had acquired necessary skill and knowledge of technique.

(C) Six accidental deaths.

(a) Two Gambel Quail: one apparently overheated by 55 (possible maximum) minute stay in trap in early spring. Stopped trapping quail immediately and have had no further trouble. The other entered trap at dusk and was killed by cat before operator made usual rounds at dark.

(b) One Cactus Wren broke neck after entering screen porch. No fault of operator.

(c) Two Gambel Sparrows died in trap due to unknown cause. Perhaps chick feed had soured, so trap was cleaned thoroughly. Of more than 1,600 captured birds, this was the only such instance.

(d) One Gambel Sparrow killed by Shrike. Shrike was captured and released at distance.

(D) Fifteen bona fide returns of Gambel Sparrows

Of 31 Gambel Sparrows (Zonotrichia leucophrys gambelii) banded near the Museum between March 14 and April 1, 1935, the remarkably high percentage of 15 were re-captured, or "returned" during the following winter of 1935-36.

Seven of the 15 were banded as immature. All returned to the same location as adults. Of these, four never repeated after their return. Another repeated twice during the month of November. Another repeated twice during the month of December. The seventh one arrived November 16 and stayed until March 21, repeating five times.

Eight of the 15 were banded as adults. One returned February 4 not to the Museum but to Vah-Ki Inn, half mile south. Upon being released at the Museum, the bird made its way to Vah-Ki in 39 hours, repeated three times until February 23. Three were captured during less than two-week periods after their returns. One was captured during a three-week period after returning. Two stayed almost four months. One stayed three months.

No tenable conclusions can be drawn on data including only 15 returns, yet the following tendencies seem to appear.

(1) A remarkably high proportion (almost 50 percent) of the Gambels banded returned to the very same restricted locality where they had been banded. Very little tendency to wander, and when once established in another territory (cf. the Vah-Ki case) return to that locality with the

least possible delay.

(2) Gambels in their first year of maturity return to the place where they spent the winter when immature, but tend to move on to another location or other locations.

(3) Gambels in the second year (or older) of their maturity tend to return to the same territory occupied before, and remain there all winter.

Some very interesting results should emanate next winter from the trapping of the more than 400 gambels now banded.

Mr. Fast started a special study of Gambels, and hopes to continue it the next migration season. Quoting from his report in the Supplement to the Southwestern Monuments Monthly Report for February, 1935, page 126:

> ".....I thought it would be interesting to test still further their homing instinct. I began to collect birds in lots of five in small transfer cages, taking as many full lots of five as I could gather each day before noon. I then released them, five at a time, along the road to Phoenix: five the first mile, five the second mile, five the third mile, etc., up to ten miles. Newly banded birds, repeats, adults, immatures, were all the same to me except that a bird sent on this mission and again caught was excused from further service. I released them all before noon to give them the best chance possible.
>
> "The Phoenix road is toward the northwest. Authorities state that Gambel Sparrows migrate northwest and spend the summer in the territory from Montana to Oregon, and north through western Canada and as far as Alaska, so that the sparrows might be expected to say to themselves, 'Well, we thumbed a ride this far anyway.' But--no--back they came...The record of birds which flew back to Vah-Ki Inn is as follows:
>
> | | |
> |---|---|
> | one mile--------five | six miles------one |
> | two miles-------one | seven miles----one |
> | three miles-----two | eight miles----none |
> | four miles------one | nine miles-----one |
> | five miles------none | ten miles------one |
>
> "It may be expected that more are back, but are too smart to enter traps again. Migration takes place in about six or eight weeks.....All of these returning birds practically have to fly over the traps at Casa Grande Museum, yet none have been taken there....."

OBJECTIVES NOW CONTEMPLATED

Gambel Sparrows

Mr. Fast plans to return to Vah-Ki Inn next winter for the entire Gambel migration period and carry on intensive work in that species. If this is not possible, operators of the Casa Grande station will do as much as they can on the project. Further and more complete study will be made of territory, longevity, mortality, and as many other problems as seem feasible and productive.

Gambel Quail

Forty-five quail have now been banded with colored bands so that individuals can be recognized at some distance. Others will be banded similarly as captured. Utilizing advice of David M. Gorsuch, authority on this species, the station is embarking on an extended investigation including problems of territory, dispersal, family groups, mating activities, longevity, population, etc.

Nine probable mating pairs have been recorded this spring and attempts will be made in the fall to capture the hundred or so quail on the monument by family groups.

Cactus Wrens

Thirteen are now banded with colored bands, and others will be so marked in the near future. Fledglings are being banded in careful fashion, and the same course of study is planned for this species as for the quail.

Colored Bands

These are also being used on other species resident for the greater part of the year, and will allow us to make more observations: Cardinals, Inco Doves, Flycatchers, Phoebes, Western Mockingbirds, Roadrunners, Shrikes, Thrashers, Woodpeckers, etc.

(Dale S. King)

TUMACACORI NATIONAL MONUMENT

Mr. Dan Clarke, a University of Arizona Agricultural student, knows the birds of this region and has been helping me band with a sub-station at Arivaca.

Banding has been more interesting here than at any other place I have banded yet because of the great variety of birds to be captured. Many species, however, do not come to traps and therefore cannot be banded unless the young are caught while still in the nest. Care has been taken to band only those too young to fly from the nest when banded. In this way they grow up and the parents teach them to fly when they are ready.

If birds are banded when they are just about to leave the nest, they may fly off and become the prey of some predator. No casualties are known to occur from banding nestlings. One casualty did occur when a Canyon Towhee, unbanded, suffered from sunstroke by being in a trap in the sun for less than an hour. All traps have since been provided with shade and no similar occurrence has happened.

Banding so far south there are many new species caught which are not usually banded in the United States. By next year a sufficient number of birds will have been banded to be able to obtain some interesting records. Four cactus wrens have been banded with colored bands. As soon as more colored bands are available I will begin the banding of Cardinals with them in order to make observations.

(LOUIS R. CAYWOOD)

BANDELIER NATIONAL MONUMENT

The birds banded during this period are as follows:

Rocky Mountain Creeper	2
Pygmy Nuthatch	19
Rocky Mountain Nuthatch	2
Rocky Mountain Hairy Woodpecker	1
Red-Backed Junco	10
Pink-Sided Junco	8
Shufeldt Junco	6
Grey-Headed Junco	56
Spurred Towhee	1
Long Crested Jay	2
Woodhouse Jay	3
Red Shafted Flicker	1
Total	111

The traps used were: (1) Higgins Trap, modified to have one door, and to close with a pull string and trigger; (2) Two Government Sparrow Traps, the one on the ground proving better than the one set on a table; (3) A 2-celled Potter Trap, baited with suet, which especially attracted Nuthatches and Creepers; and (4) a Baldwin Woodpecker trap, baited with suet. This last attracted only one Woodpecker. The Nuthatches fed there regularly, but seldom spring it, and when they did, could worm out.

In the three first traps Chick Chow was used for bait, with occasional bread crumbs. Suet was used in the Potter and Baldwin traps.

(MRS. EARL JACKSON)

NAVAJO NATIONAL MONUMENT

I have listed the birds banded under two headings; one, that which has been reported to the Biological Survey; second, birds banded this

year and which have not been reported to the Biological Survey.

I miss the best banding up here which is winter as the ground feeding birds come in late in the fall and leave early in the spring. The canyon furnishes both feed and shelter. Be-ta-ta-kin Canyon is not ideal place (or so it seems) for nesting. It is good feeding ground and furnishes good shelter. The resident birds nest here, also a few of the summer birds. I have noticed more nests, also young which have left the nest, in the Tsegie and Keet Zeel Canyons, than in Be-ta-ta-kin and Dogozshi Biko Canyons.

Last year found nests of, Woodhouse Jay, Canyon Wren, Bush-tit, White-throated Swift, Mountain Chickadee and Ravin. This year Canyon Wren, Long-crested Jay and two nests started by Bewick Wren. (Note on Long-crested Jay in May, 1936, report.)

My big problem here is with chipmunks and squirrels. (try and keep feed in the traps.).

(MILTON WETHERILL)

PIPE SPRING NATIONAL MONUMENT

Attached you will find records of the birds banded at Pipe Spring National Monument during the months of April, May, and June.

I surely have had lots of fun watching the birds come for the feed and learning of their habits, as well as the new birds that come around.

The past two weeks I have not been doing anything about trapping. One reason is that the CCC boys have been bothering the traps and birds, and the other is that I have been busy at other things and could not get around as often as I should, so have brought all my traps in.

I have discovered five nests of House Finches in a clump of trees not far from the Fort.

(LEONARD HEATON)

WALNUT CANYON NATIONAL MONUMENT

During the period covered, the station was operated intermittently by four different rangers-in-charge. With a new fiscal year at hand, it appears that one man will be stationed here permanently, and that more frequent and regular observations shall be made. The past season's work has contributed little beyond the banding of birds, but more serious research is contemplated.

(PAUL BEAUBIEN)

TEXAS MISSIONS

By Ruth E. Butler, Historical Division
National Park Service

(Ed. Note: The following brief notes concerning Texas missions were gathered by the Historical Division, Washington, D. C. Incomplete as they are, we are publishing them as comparative material for the work now being done by the Park Service in the Arizona, Sonora, and New Mexico chains. As additional information is accumulated, we hope to make it available in this Supplement.)

San Francisco de los Texas (1)

This, the first permanent mission in eastern Texas, was founded by Father Massanet on June 1, 1690. It was situated somewhere in the northeastern part of Houston County, about seven miles west of the Neches River. By order of the viceroyal government, it was abandoned in October, 1693, after the mission bells had been buried.

Santisimo Nombre de Maria

Santisimo Nombre de Maria founded in October, 1690, and San Francisco de los Texas constituted the early outposts of Spanish influence in Texas, and were intended as a threat to French intervention in that region. The Santisimo Nombre de Maria was abandoned by decree of the government in 1693, because immediate danger of French encroachment ceased and because the Spanish officials were of the opinion that the Gulf region offered little inducement for colonization to the foreign nation.

San Francisco de los Neches (2)

This mission was founded in 1716 among the Neches about five miles southwest of Alto in Cherokee County. It was transferred to San Antonio in 1730.

Purisima Concepcion

The exact site of the Purisima Concepcion is unknown, but it was probably between the Trinity and Sabine rivers. Founded on July 7, 1717, it had only a short independent existence, for it was transferred to San Antonio in 1730.

San Jose de los Nazones

Founded in 1716, this mission was transferred to San Antonio in 1730, and its name was changed to San Juan Capistrano.

Nuestra Senora de Guadalupe (3)

Nuestra senora de Guadalupe formerly stood in the center of the present

town of Nacogdoches. It was established in 1716. Owing to the invasion of the French in 1719, the mission was closed for a short period, but in 1721 it was re-established in the same spot. Because of the hostility of neighboring Indian tribes, it was abandoned in 1733.

Nuestra Senora de los Dolores (4)

This mission was erected in 1717 by Fray Margil on the site of the present town of St. Augustine, in San Augustine County. It was temporarily closed in 1719 at the time of the French incusion but was later restored.

San Antonio de Valero (5)

San Antonio de Valero was founded in 1718 by Father Olivares and named in honor of the Marques de Valero, Viceroy of Mexico. It is famous today as the Alamo, site of the massacre of 1836 at the hands of Santa Anna. In 1719 the mission became a refuge for missionaries in eastern Texas when they were threatened by the French in Louisiana, and Father Margil and others remained there as refugees until 1721, when they were relieved by an expeditionary force sent by the government. Father Santa Ana, President of the Queretaran missions in Texas, used San Antonio as his headquarters from 1731 to 1734. Between 1731 and 1745 this mission served more than forty neighboring tribes and exercised great influence among the natives. About 1762 a church of quarried stone was built and a two-story convent fifty by fifty varas with two patios and arched cloisters served as an abode for the Queretarans. The pueblo which San Antonio served consisted of seven rows of stone houses with doors, windows and arched porticoes. A stream of water, bordered by willows and fruit trees, flowed through the patio. Weaving, agriculture and animal husbandry were taught in the mission school, and its personnel numbered many able and distinguished priests. About 1750 Father Francisco Mariano de los Dolores y Viana, who succeeded Father Santa Ana as President of the Queretaran missions, made San Antonio his headquarters. Several of the padres distinguished themselves in a literary way. In its spiritual influence among the natives, San Antonio had no rival.

San Jose de Aguaya (6)

The Franciscan mission known as San Jose de Aguaya was located in San Antonio, about four miles below the San Antonio de Valero Mission. Begun in 1720, and built of stone, it commonly acclaimed as one of the leading missions of its time. The architecture and sculptoring are unusually fine and are among the best examples of mission art in America.

Hallenbeck's succinct and revealing description is as follows: "This, the finest of the Texas missions and, until it began falling to ruin, one of the three finest in America, was begun in 1720 and finished in 1731. Its beautifully carved facade and baptistery windows, by the Spanish artist Huisar, are studied by artists from all parts of the civilized world. In

1868 a part of the north wall of the church fell in, and during midnight Mass on Christmas Eve, 1874, the beautifully colored dome, which the Indians called 'Day Star of their Manitou', collapsed. The structure has otherwise been greatly damaged by vandals and treasure hunters, and several of the statues on the facade have been maliciously broken."

The mission originally had a patio containing eight acres, surrounded by a high stone wall, with fortified towers at the corners. The original bells are undisturbed, as well as some paintings which were sent from Spain, but the murals have almost disappeared, and Huisar's sculptoring has been badly damaged by the elements and by vandals. The building is otherwise in a bad condition, in fact on the verge of collapse.

Architecturally, San Jose is important as the embodiment of Moorish features in mission design. Huisar is said to have been a descendant of the architect of the Alhambra, and many curious legends have been circulated concerning him.

San Xavier de Naxera (7)

San Xavier was founded in 1722 by the Marques de Aguayo on the outskirts of San Antonio, where the mission of Concepcion now stands. It was not very successful and in 1726 it was merged with San Antonio de Valero.

Espiritu Santo (8)

This mission, established in 1722, was first placed on the site of Fort St. Louis founded by La Salle. Owing to the barbarous nature of the Indians it served, it was transferred from time to time to other localities. Its ruins can be seen today near the present city of Victoria in Texas.

Purisima Concepcion at San Antonio (9)

This was one of the churches transferred to San Antonio in 1731. By 1745 a stone church was about half completed; an adobe building was being used temporarily for religious services. The stone church was completed and in use by 1762. It had vaulted ceiling, dome, and bells and contained a sacristy and a chapel. The neophytes lived in pueblo of two rows of houses, partly of stone and partly of thatch. The convento was a two-story stone building. A stone granary and stone house for the soldiers completed the unit. The workshop at the mission contained three looms and wool and cotton cloth were woven.

San Francisco de la Espada (1731) (10)

This mission was transferred to San Antonio in 1731. The neophytes, numbering 137, absconded in a body in 1737, but by 1745 work at the

mission had become stabilized, a stone church was in progress of erection, and a stone convento having two cells above and two offices below, had been built. This was later enlarged. There was a stone granary and a pueblo consisting of three rows of stone houses for the neophytes.

San Juan Capistrano (11)

This mission was established at San Antonio in 1730. The stone building erected later has been extensively repaired, but retains its original form. Its storerooms, living rooms, dormitories, offices, shops, schoolrooms, kitchens and refectories have been identified. By 1762 two hundred and three Indians lived at the mission and its workshop and farms were the scene of great activity. Only San Francisco excelled San Juan in the raising of stock.

San Francisco Xavier (1746)

San Ildefonso

San Ildefonso, located in central Texas, was erected between 1748 and 1749, under the supervision of Father Santa Ana.

Candelaria

This mission was founded by Santa Ana on the San Gabriel River in 1749. It was abandoned in 1755 owing to friction between the soldiery and the Franciscans and after the murder of Father Ganzabal.

Nuestra Senora del Rosario

The foundation of this church was begun in November, 1754. The original wooden church was later replaced by a stone structure. The mission had little success, however, only twenty-one souls having been converted after four years.

San Marcos (1755)

This mission was founded on the San Marcos River in August, 1755, but was apparently of little importance.

Nuestra Senora de la Luz (12)

Established in 1756 on the Trinity River, near the north line of Chambers County, this mission was intended as a barrier to further encroachments by the French. Storm, flood, mutiny and disease combined to weaken its usefulness, and in 1771 it was abandoned.

Amarillo
OKLAHOMA
ARK.
Lubbock
NEW MEXICO
Dallas
Ft. Worth
El Paso
TEXAS
LA.
1
2
3
4
13
Austin
12
5,6,7
San Antonio
Houston
9,10,11
8
14
CHIHUAHUA
COAHUILA
NUEVO LEON
Monterey
Brownsville

Nuestra Senora de Guadalupe

This mission was established in 1757 on the Guadalupe River, but was abandoned the following year due to the fact that it lacked a garrison sufficient to protect it against marauding Indians.

Mission Santa Cruz de San Saba (13)

Santa Cruz was located on the San Saba River, near Menardville, Texas. It was founded in 1757 and dedicated particularly to the salvation of the fierce Apache Indians. Its career was short, however, for on March 16, 1758, it was attacked by the Comanches, two of its priests were killed, and the mission practically destroyed.

Mission San Lorenzo

Situated on the east side of the Rio de Las Nueces, this mission was founded in 1762 at the request of the Lipan Indians who were then apprehensive of the Comanches. The mission had a fruitless existence for it exerted but little influence upon the savages. It was abandoned about 1769.

Nuestra Senora del Refugio

This was the last mission founded by the Franciscan Fathers in Texas. It was erected in 1793 near the junction of the San Antonio and Guadalupe Rivers. The site was ill adapted to the purposes of the Fathers and was abandoned on January 10, 1795. The mission was reestablished some thirty miles south of the garrison of Espiritu Santo and its name survives in the modern town of Refugio. Its ruins can be seen today at the Copano Bay.

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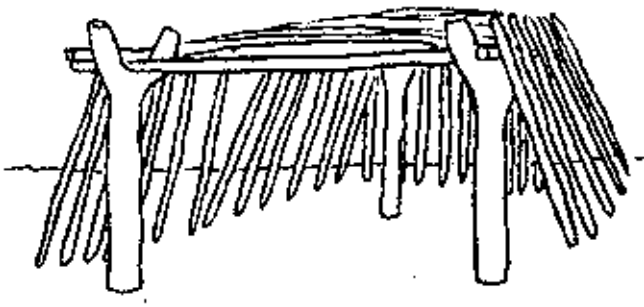
NOTES ON HOW TO BUILD A HOGAN

By James Brewer, Jr.

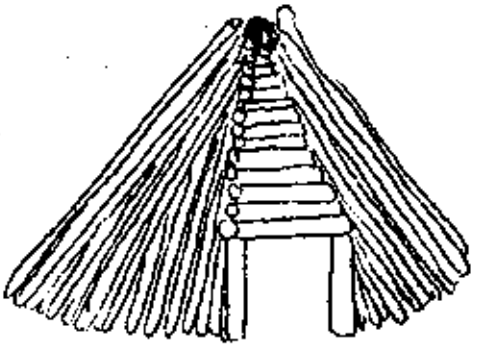
I advance the following information, not because you may want to build a hogan, but because when you get into a good one and are thankful for the warmth or for the shade you might sit down and wonder just how it is put together.

The first thing you must do is select a large forest with many different sized trees. Three forked ones are necessary for the main supports (assuming you are going to build a hogan of the old type ((Coolidge, "The Navaho Indian," page 79))); two long ones for the door structure; and many others of all sizes for filling in.

Next cut and trim what looks like enough trees to build four big hogans or one Union Depot; then cut about the same amount again; you now



"Square-cornered"



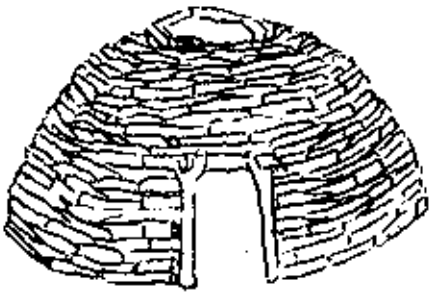
"Sweat"



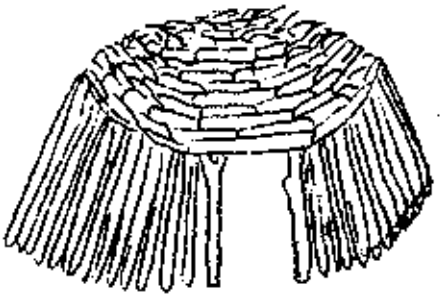
"Forked-together"



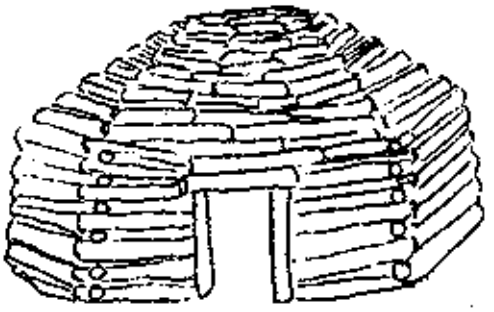
"Two-legged"



"Logs-stacked-up"



"Yeibitchai or medicine"



Modern

have enough to start.

Haul the logs to the site, after they are skinned (peeled) and carefully trimmed. The trimming is important because how can you get them close together if there are stubs of branches protruding. And what will hold the mud covering if they are not close together.

Next assemble all the Indians who want to work. After a careful count you will find you are alone. Then assemble all the Indians who in spite of not wanting to work will help you. You now have four or five Indians, depending on the local population.

Assuming that all the necessary logs are now on the site and that the bark has been left to mess up the forest rather than the camp site, you begin by letting the Navajos have the reins so that your hogan will be an authentic model.

They will select the two longest of the three forked logs and lay them on the ground with the forks interlocking and the point of the V thus formed toward the east. Then three ropes will be put around the locked forks; one is held from the east, steadying the poles as the other two are pulled westward rising the poles to an inverted V. When the poles are vertical, all the remaining men must be on hand to raise the third forked log from the west; as the forked end reaches the height of the first two logs the man on the east rope eases the tension and the first logs fall into the crotch of the third log.

This is an opportune time to have an exhibitionist in the party because the ropes must be removed. Lacking one, a man standing on his horse's back can reach the nooses and, by being careful and having led a good life, can accomplish the end without mishap.

Then the remaining logs will be laid against this tripod. This can be made fun (on a large scale) by simply pretending the tripod is a Christmas tree and the logs are ornaments. This is a simple operation requiring only that you get the logs close together and that they form a circle on the ground (except at the east where the two long ones--remember,--are placed). These eventually support the west end of the vestibule roof.

You now turn back to get another log and notice that they have all gone onto the Christmas tree. By stepping into the embroyo hogan you will quickly notice that you could swing a cat through it without much trying.

So, back to the forest; and this time we must get plenty---let's say enough for a good size Boy Scout bridge. Skin them and trim them and put them into the gaps you won't have any trouble finding. Now when you stand back you will not notice any great open spaces. Then step through the door

space--no yes, funny I didn't tell you to bring some short stout ones for the door. Well, back to the forest and a door frame.

The door frame is made of three logs; two are placed vertically where the long door logs meet the ground and should be about five feet high. The third is laid horizontally across these two. This frame is very unsteady until the vertibule roof is added; this is done by placed two supporting poles almost horizontally from notches in the long door logs to the top of the door frame. At right angles to the supporting poles, and where they join the long door logs, you must place a short runner, just long enough to span the width of the smoke hole (the area above the notches on the long poles becomes a self-made smoke hole; you don't have to worry about it--just follow the directions and it will be there). This span with the horizontal door top holds the roof of the vestibule; simply lay logs east and west until covered; do the same for the sides of the vestibule.

Then stepping into the hogan you will notice that someone has rung in a few more or less decayed logs because they are easier to skin if the cambium is dried; so, not being Mohammed, you go to the mountain.

Now the foundation is laid and you must find an area of good adobe or clay; since the floor of the hogan must be lowered about 10 or 12 inches it is it is advisable to use this first.

I guess I should have told you to pick a site for the hogan near water, because the adobe must be mixed with water or it will filter through the cracks. Even after mixing it with water you will find cracks on top of which the mud will not stay; these places require further chinking. After all the mud is applied the hogan is very damp and quite uncomfortable. This condition prevails for several days. And it is just as well, because you should wet the floor so thoroughly that you can't use the hogan yet anyhow. Next haul several loads of good clean white river sand and partly fill the floor depressions. If the wetting has caked the top soil the sand will not get mixed into it and will stay clean.

There, now you know how to build a hogan and I'm glad it's written so that we will have a permanent record of how to do it. This is important ethnologically because the art is rapidly disappearing. The last Navajo camp I was in sported enough canvas to sail a grain boat through the doldrums.

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FIRST SHOW BY NAVAJOS A SUCCESS

(Reprint from "Coconino Sun," Flagstaff, Arizona.)

Many from here and other Arizona towns visited the Wupatki National

Monument. Saturday and Sunday, taking in the Navajo Indian arts and crafts exhibit and came away enthusiastic about it. Two hundred Indians and 190 whites saw the show.

Custodian and Mrs. Jimmie Brewer made a success of the affair, which probably will become an annual event.

There were 38 exhibitors of 110 articles, 21 of whom received prizes or sold their exhibits. Three had exhibits not for sale. Only seven exhibitors failed to receive money.

Exhibits sold numbered 39, the total of purchases and prizes amounting to around $240 in cash. The prize money was paid by the Museum of Northern Arizona at Flagstaff. Mrs. Harold S. Colton, curator arts and crafts at the museum, and Peshlakai Etsedi, Navajo, were the judges.

The cash prizes ranged from $1 to $5 for firsts; in each class, half as much for seconds. Ribbons also were awarded for firsts, seconds and honorable mentions.

Winners of first and second prices and hororable mention, in the order named:

Plain weaving--Ada Cody, Gladys, Sarah.
Vegetal dye--Peter's mother, Amy, Bill Williams' wife.
Twilled weave--Sarah, Peter's mother, Gladys.
Traditional types--Harry's mother, Martha's mother.
Tapestry weave (belt)--Irene.
Old silver--Hesblakai.
Children's work--Peter (Spanish saddle), Virgil (chaps), Ruby (doll).
Bags--Ruby, Martha's mother

The Navajos had built one of their typical "sweat houses"--their nearest approximation to our steam baths. The building, a regular hogan, framed with forked sticks, covered with mud, floored with cedar bark and the door blanketed. Hot stones furnished heat. The fire by which they were heated was made in one and a half minutes with fire-making sticks.

The Indians stayed up all of Saturday night, visiting and singing.

The exhibits were in four sheds especially built by the Navajos.

Featuring the exhibit were native craftsmen at work.

The Indians attending were much pleased with the success of the exhibit and want to hold another next year. At a meeting of the tribesmen Sunday morning, several of the older bucks adjured the others to do better work, as in the old days--to card their wool better and be painstaking in selection of materials and weaving.

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WALNUT CANYON GEOLOGICAL REPORT

By Vincent W. Vandiver, Regional Geologist

INTRODUCTION

Walnut Canyon National Monument was reserved by the Government with the idea of the preservation of the numerous cliff dwellings which occur in this area. The geological features of the area are most interesting, however, and for those who will take the time to consider the various processes which contributed to the formation of this canyon, they will find that in miniature much the same factors are involved as those which resulted in the formation of the Grand Canyon of the Colorado River. I shall endeavor to relate in this report how these geological processes have played such an important part in the carving of the landscape in Walnut Canyon which resulted in an ideal location for the establishment of the homes of the Pueblo cliff-dwellers.

LOCATION

Walnut Canyon National Monument is located about 10 miles southeast of Flagstaff, Arizona, on a loop road connecting with U. S. Highway 66. The presence of walnut trees along the floor of the canyon has supplied its name. The reserve was created as a National Monument in 1915 although it is understood that the area was under the supervision of the Forest Service from 1906. It contains an area of 960 acres. There are of course many ruins in the Southwest of ancient pueblo peoples however there are relatively few cliff dwellings of this type. They are most accessible to large numbers of tourists due to the proximity to one of the main routes of transcontinental travel through this region.

ARCHEOLOGY

Dr. Harold S. Colton (1), of the Museum of Northern Arizona, states that the cliff dwellings in Walnut Canyon have been dated by the tree ring method indicating that they were occupied by pueblo Indians from around 900 to 1300 A.D. There may be some significance to the fact that these dwellings were being occupied shortly after the last eruption of Sunset Crater, situated some twelve miles to north, and whose last activity has also been estimated by the tree ring method as having taken place around 875 A. D. There are present ruins of some 300 rooms scattered along both sides of Walnut Canyon and it is easy to conceive of upwards to 1000 people living in this settlement. The area was visited by James Stevenson of the Smithsonian Institution in 1883 and he made the following statement: "The doors are large and extend from the ground up to a sufficient height to admit a man without stooping. The rooms are large and the walls are two to four feet thick. The fireplaces are in one corner of the room on an

elevated rock, and the smoke can only escape through the door. The masonry compares favorably with the construction of the best villages in Canyon de Chelly. Many objects of interest were found in the debris around and in these houses. Matting, sandals, spindle whorls, and stone implements of various kinds abound." During the interval from the time of Mr. Stevenson's visit and the taking over the area by the Forest Service there was much vandalism. Practically all of the objects left by the pueblos were removed and in searching for these materials many of the cliff dwellings were broken down and more or less destroyed. As the result of this vandalism it is doubtful if the detailed story of the peoples of Walnut Canyon will ever be known.

Dr. Colton considers that the people who built these cliff dwellings were probably the ancestors of those who constructed Elden Pueblo and many other sites near Flagstaff. This supposition is arrived at from the similarity of the potsherds and flattened skulls which have been recovered from the various ruins.

The dwellings in Walnut Canyon were constructed under overhanging ledges of limestone two hundred feet or more above the stream bed. Not only were their homes built along the recesses in the side of the canyon wall but retreats were also made on at least five "islands" of promontories in the canyon which served as fortresses as a means of protection against invaders. A trail is in evidence to the right of the present entrance trail to the monument which is believed to have been the route taken to obtain water from the stream or pools in the canyon. Little water now reaches the stream channel to fill the pools due to the recent construction of the Lake Mary dam. During dry periods it is also conceived that water may have been obtained by digging pits in the sand along the floor of the canyon. The remains of broken stone hoes, etc., have been discovered along the flats of the rim areas, northeast of the village, and it is here that the pueblos probably cultivated their meager crops. Another factor which no doubt influenced these peoples to select Walnut Canyon as a desirable place to live is the presence of ledges and recesses especially in the walls along the north side of the canyon which formed a means of protection against the climatic conditions of the severe winters. The presence of water supply nearby and satisfactory soil for cultivation along the rim as well as the "islands" in the canyon which were used as forts were likewise desirable features.

GEOLOGY

The oldest rocks of the general vicinity of Walnut Canyon belong to the Redwall limestone formation of the Mississippian, along the northeast flanks of Elden Mountain, where uplifted portions of the sedimentary section are exposed by this great laccolith. Above the Redwall is the river flood plain deposit, consisting of sandstones and shales, and containing tracks of land animals and impressions of fern-like plants, which has been termed the Supai formation of Permian age. Next above the Supai is the

cross-bedded Coconino sandstone and followed in order by the Kaibab limestone, both of Permian age. It is the two latter formations with which we are most concerned since they make up the sedimentary section of rocks exposed in Walnut Canyon.

Briefly the geologic history of the area may be described by stating that following the deposition of the Kaibab limestone the sea retreated as the region uplifted slightly with the sedimentary rock remaining practically horizontal apparently subjecting the formation to erosion long enough to produce a youthful topography. Upon this surface was deposited the shales and sandstones of the Moenkopi. A great thickness of varicolored shales and sandstones were then deposited in a large basin by rivers and shallow water lakes. These continental deposits make up the Chinle formation. They contain a land fauna and the remarkable deposits of silicified wood at the Petrified Forest. They supply most of the beautiful coloring to the Painted Desert area and are classed as the uppermost Triassic formation in this region. While these beds form the last record of sedimentation in this territory it is known from a study of the stratigraphy of the surrounding country that great thicknesses of Jurassic, Cretaceous and perhaps Eocene rocks were once present but have all now been removed by erosion.

COCONINO SANDSTONE

Below the Kaibab limestone which forms the rim rock at Walnut Canyon, there is the light colored, highly cross bedded sandstone, which has been designated as the Coconino sandstone from its type locality at the Grand Canyon. The contact between the two formations is readily observed along the canyon walls. Located between formations of Permian age, as determined by fossil remains, the Coconino is likewise referred to the Permian Epoch. A closer determination of the age of the Coconino is made as Middle Permian, in view of the grading contact with the underlying Hermit shale in the Grand Canyon, whose age has been found to be upper Lower Permian from the fossil flora secured.

The Coconino sandstone occupies a large area in northern Arizona, north of the southern limits of the Colorado Plateau. While much of this region is capped by the Kaibab limestone, the presence of the Coconino is certain from the many exposures in the canyon walls throughout the province. From a thickness of 1000 feet at Pine the formation thins out to zero along the Utah boundary. It also thins in a northwest direction towards the Nevada boundary where it is only a few feet thick whereas there is over 600 feet of section in the vicinity of Holbrook. From samples taken by Mr. Edwin McKee (2) the sand grains are predominantly medium coarse grained along the southern limits of the formation and grade into much finer materials to the north. The source of the material is therefore concluded to be from the south, in a barrier believed to have existed during most of earlier Paleozoic time, which extended through central Arizona and is known as Mazatzal land. Geologists generally consider that there is

sufficient evidence to conclude that the sand grains comprising the Coconino formation were in the main transported by the winds and deposited in the form of sand dunes. The lack of pebbles seems to point towards the wind as the major agent of transportation. The wedge-shaped cross bedded units of this formation are inclined in many directions, a feature not widely produced by the action of water. The only definite fossils thus far discovered in these sandstones are the footprints of amphibians or reptiles and trails made by annelid worms. The fossil evidence available also tends to support the theory of eolian origin of the formation.

The Coconino has supplied its portion of the natural features necessary in the making of Walnut Canyon an ideal site for the cliff dweller. In the valley south of Elden Mountain there are some large sink holes, known as the Bottomless Pits. They form the entrance to caves in the Kaibab limestone, which have been dissolved out by the action of ground waters on the limestone, as they flowed underground along joints and fissures to outlets in the lower levels of Walnut Canyon. The more or less porous Coconino sandstone was favorable to the seepage of this additional water into the canyon. The normal weathering of the Coconino caused much sand to be deposited in the canyon. This condition may in some instances have caused the formation of pools of water just beneath the surface and permitted the pueblo Indians to dig for water during periods of dryness. Then, too, as the canyon was being carved the Coconino was susceptible to certain straightening of the channel and during this process the old meanders of the stream were abandoned and "cut-offs" were formed. These "islands" permitted the Indians to build homes in fortress fashion in the central portions of the canyon and gave them an excellent means of protection.

KAIBAB LIMESTONE

Overlying the Coconino Sandstone throughout large sections of northern Arizona, except in the east near Holbrook, is the Kaibab limestone. It forms the upper portions of the walls of Walnut Canyon and Grand Canyon as well and caps most of the high plateau of the north-central part of the state. It is composed of grey, sandy limestone, with many horizons filled with chert, also massive layers of limestone interspersed with less resistant beds of shaly sandstone. The lithology of the Kaibab limestone with the constant variation of hard and soft members, the soft weathering away leaving the more competent beds to form overhanging ledges, has resulted in a natural habitat for the cliff dweller in this canyon.

The Kaibab limestone is quite variable in thickness, ranging from upwards to 1000 feet in the Virgin River valley to 600 feet on the Rim of Grand Canyon, and from 300 feet in the vicinity of Flagstaff to zero just east of Holbrook. Mr. Edwin McKee, Park Naturalist at Grand Canyon National Park, has developed some new and interesting details concerning this formation and the resultsof his study will be published in the near future. At Walnut Canyon the Kaibab is quite fossiliferous. Many marine fossils of brachiopods such as Productus and Spirifers may be observed. In some in-

stances the silica nodules and concretions enclose fossils sponges. The various types of fossils collected of which there are some 80 species indicate that the limestone is of shallow water marine origin. Since the limestone was deposited below sea level and now has an elevation of approximately 7,000 feet above sea level there is every reason to believe that the region has been uplifted on a large scale. It will be noted along the walls of the canyon that the contact of the limestone with the underlying Coconino is practically horizontal and it is therefore assumed that the Kaibab sea advanced rapidly at the close of Coconino time since there is no evidence of erosion of importance along this line of contact.

An important point to consider with respect to the Kaibab formation and the cliff dwellers in this canyon is the presence of softer members of sandy limestone interspersed in the section with the more resistant or massive limestone beds. This condition during the process of the carving of the canyon and the normal weathering processes gave rise to ragged, vertical cliffs, with recessed grooves in the walls which finally formed the homes of the pueblo Indians. The ledges may have been formed in part by the action of the stream on the softer beds when it was cutting away at much higher levels, but the process may be explained in most instances I believe, by the normal agencies of differential weathering.

STRUCTURE

Since the structural details would involve a rather lengthy report it may suffice to say briefly that they include upward movements at the close of the Permian and profound uplifting during the Tertiary. Generally speaking the uplifts have caused greater displacements of the rock strata than the faults, especially in the southern portion of the Colorado Plateau area. The exact time of the uplift which resulted in the canyon cycle of erosion to form the Grand Canyon, Walnut Canyon, and many other canyons in this region is still the subject of considerable difference of opinion.

As regards to Walnut Canyon in particular, during one of the later periods of uplift, the rock strata were broken forming what has been termed the Anderson Mesa fault. This fracture in the earth's surface represents a displacement of around 300 feet, strikes N 65° W, with the uplifted block on the northeast side. The fault no doubt partially dammed the stream but since the uplift was so slow the stream was able to maintain its channel and thereby with the additional gradient and power supplied the cutting tool gained sufficient force to carve Walnut Canyon. Dr. Colton has referred to these clefts as being actually sawed, with the body of the saw composed of the water, the teeth made up by the boulders, pebbles and sand grains, and the energy being supplied by gravity. Much the same factors were necessary in the cutting of the Grand Canyon of the Colorado River. Minor North-south faulting along Walnut creek has probably been responsible for some of the zig-zag courses which the stream followed. The stream followed these breaks or cross-faults as a line of least resistance in the softer broken rocks before returning to its normal course. As cut-offs

were formed and the old meanders abandoned the central "islands" were carved out.

SUMMARY

It is thought that the following points may prove of interest to the visitors without boring them with too much geological detail:

I. Walnut Canyon may be termed a Grand Canyon in miniature in which a broad regional uplift supplied the stream with the necessary power to carve the gorge.

II. The stream working through zones of weakness along minor north-south faults which cross the canyon, developed many meanders or goose necks, and when later these were carved through, cut-offs forming "islands" remained which the pueblos have utilized as fortresses.

III. Ledges in the Kaibab limestone were formed by the differential weathering of the hard and soft members. The massive resistant limestone beds for the ledge which served as the roof and floor and the weaker sandy limestones eroded more rapidly to form the recesses in which the cliff dwellings were constructed.

IV. The contact between the Kaibab and the Coconino seems a worth while feature to point out as well as the nature of the Coconino sandstone with typical characteristics of a wind blown dune deposit.

V. The marine fossils in the Kaibab limestone should prove of interest as they clearly demonstrate the uplift that has taken place in the general area. These beds are now some 7,000 feet above sea level.

INFORMATIONAL SIGNS

The following informational signs are recommended:

I: WALNUT CANYON
The Canyon was formed as the result of a gradual uplift of the region with the stream being able to maintain its course. The additional power supplied the stream enabled it to saw out the gorge that we now see.

II: KAIBAB LIMESTONE
A shallow water limestone deposited in the sea and containing many remains of marine fossils.

III: COCONINO SANDSTONE
A wind blown dune deposit containing footprints and trails of land animals.

IV: LEDGES AND GROOVES
The ledges make up the more massive and resistant members of the Kaibab limestone. The grooves or recesses consist of the weaker beds which contain more sand in the limestone and are more easily eroded. This is the result of normal differential weathering.

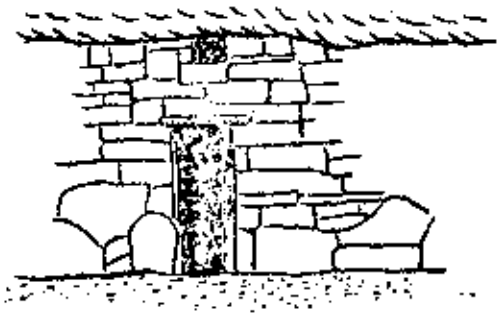
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VISITOR RESEARCH

AT PUEBLO GRANDE

(Ed. Note: Following are questions asked by various groups at Pueblo Grande, Phoenix, Arizona. Mr. Odd Halseth, director, kindly gave permission to use them in the Supplement. We hope, as time gones on, to make thorough studies of visitor reaction which will aid in museum planning and improvement of guiding technique).

QUESTIONNAIRE BY HIGH SCHOOL STUDENTS

1. How long have Indians been here?
2. Where did they come from?
3. Who were the first Indians?
4. What weapons did they use?
5. How did they live or in what kind of houses?
6. What was the largest tribe?
7. Who was the cief of the tribe?
8. What was the god they worshipped?
9. Did any Indians ever live at foot of or in mountains to east of Phoenix? Superstition?
10. Did any Indians who worshipped the snake ever live around Phoenix?
11. Were different groups of Indians formed who worshipped same things by law of Issolation?
12. How can you tell the age of ruins? By the tree ring theory in the logs of the Pueblos?
13. Did the Indians practice irrigation any place else than the Sale and Gila River Valleys to a great extent?
14. What conception do most tribes have of the Deity, if any?
15. Which of the various theories concerning the origin of the Indians do you think most probable?
16. Are the Navajo Indians any kin to the Apaches?
17. Which group of Indians north of Mexico was the most highly civilized?
18. How long have the Indians been in North and South America?
19. Where did the Indians originate?
20. How many Indian cities have been discovered recently? What has been found in them?
21. Do Indians have a writing system?
22. Where did the Indians get their gold and jewels?
23. Did the Indians mine it or just find it?
24. How did they make their gods or images?
25. Who made them?
26. Did they all contribute gold for a temple?
27. Why did they have certain places for sacrifices?
28. How did they first learn about the gods?
29. Were there more than one race of Indians that lived in the Casa Grande Ruins at different times?
30. About what year, if there were two different races, were the first and last?

30. About what year, if there were two different races, were the first and last?
31. Are there any Indian legends relating to Fray Marcos de Niza? His trek thru Arizona?
32. Any legends relating to the inscription on the rock in the South Mountains?
33. Were the Aztec Indians up in this part of the country?
34. Is there any connection in race of the Ruins of Tuzigoot and those of the Pueblo Grande and Walpi?
35. Where were most of the burials found at Pueblo Grande?
36. Were the three Pueblos mentioned in #34 built at the same time?
37. Do Indians still believe in their ceremonial dances?
38. Did the Spanish consider themselves amply rewarded for exploring Latin America?
39. Who were the first Indians to come to Arizona and where did they come from?
40. What is the oldest ruin in Arizona?
41. How many different tribes of Indians are there in Arizona?
42. What is the oldest tribe of Indians in Arizona?
43. Which ruin is the most famous?
44. Why did some Indians have only one door in a pueblo and no objects upon which to sit?
45. Why do we never hear of Indian wigwams any more?
46. Why do Indians as a rule outlive white people?
47. Did they ever have any system of names as we do?
48. About how long would it take an Indian to make a good stone knife?
49. Why is it that Indians are not allowed to possess or drink intoxicating liquors?
50. In about how many years will the Indian race be extinct?
51. Can Indian writing really be read by white men of today?
52. How or where did the plan or idea of the pueblo buildings originate?
53. Did the Pueblos trade or have anything to do with the tribes in Mexico?
54. Why are the tribes of Indians so different? They are all Indians.
55. Were the Indians polygamists?
56. Were the women respected or thought of as slaves?
57. How does Indian culture as a whole compare with ours today?
58. Were the Indians in this part of the country as fond of beauty as those of Mexico and Pere?
59. How did their scientific achievements compare with those of other Indians?
60. Why are other Indians so different from those in Arizona and New Mexico?
61. Why did the Maya Indians move north?
62. Did the Pueblos use many domesticated animals?
63. What was the main or most common illness among Indians?
64. Of all the Indian tribes, which tribe is the most advanced?
65. In what part of the country do most Indians reside at this time?

66. Which tribe is considered the most brilliant and cultured at this time?
67. Are many Indians making rapid strides in modern times?
68. How did they make their weapons out of rocks without breaking?
69. Why did they live on the desert instead of in the mountains?
70. Do you think the Indians would go wild again if given the chance?
71. Where did the Pueblo Indians go and why?
72. How large were the Pueblos? Body structure; description.
73. What was their chief occupation?
74. When were they at the height of their civilization?
75. What form of government did they use?
76. How far were they advanced in mathematics, etc.?
77. What did the children do?
78. What was the size of the average family?
79. Who was the head of the house?
80. Was there such a thing as divorce?

Adults Questionnaire

1. What type Indian lived in the Amazon Valley?
2. Why is it that Indians living comparatively close together had such different religions?
3. What type of Indians lived in Patagonia?
4. What is conducive to the Indian's mastery of art?
5. What kind of dwellings typify the Indian's place of abode today?
6. Are the Indians content with what they have?
7. Is the mortality rate of the Indian increasing?

No Classification Given

1. How long did it take the Indians to build the Pueblos?
2. How many Indians now inhabit Arizona?
3. What group of Indians are independent?
4. What is the name of the material the Indians use to make baskets?
5. What group of Indians in Arizona seem to be the most intelligent?
6. Are there any records of the sign language used by the Southwestern Indians?
7. Did the Indians have any domesticated animals at all?
8. Did they drink any kind of strong drinks when they were holding their ceremonials.
9. When you tell of rich robes the Indians wore -- were they made of hides or cloth?
10. Did the Indians mummify their dead?
11. Did they make use of cactus?
12. If they did, is it known how they did it?
13. How many different tribes are in the Southwest?
14. Why were the Pueblos more talked about than the Mayas?
15. Were the Mayas great people of learning and understanding?
16. Would you please name some of the important Mayan cities?
17. Do you think Fray Marcos de Nizo's name is a fake or not?

18. In what years did the Mayas leave the cities?
19. Were the Mayas conquered by the Incas or other foreigners?
20. In what country did the first Indian originate and the date?
21. How many different tribes of Indians are there in the U.S.?
22. Did Columbus find Indians of wealth or not?
23. Explain marriage ceremonies among Arizona Indians?
24. Is there any effort being made to institute courses of study in public high schools on prehistoric people of our Southwest and their culture and their civilization?
25. Are you informed of the ruins and graves along Clear Creek northeast of Camp Verde and that these places are being destroyed by campers and fishermen without regard to their possible value and no thought of their preservation?
26. What is the relationship between the extent Indian and the present day?
27. Does archeology reveal any relationship in design or building to resemble Egyptians?
28. Did the ancient culture move from a course northern or southern in direction?
29. What was the cause of their disappearance?
30. Are these prehistoric Indians of the same race as those found in old Mexico?
31. Why do the Indians partake of the unsanitary living conditions that prevail in their homes after having attended good schools where they learned differently.
32. What type of social organization did these Indians have?
33. What are the general characteristics of the Indians?
34. Do you know whether the Pueblo Indians were peaceful or warlike?
35. Do all the Indians dance for several nights before Easter?
36. What are some of the chants of Easter? Sacred?
37. Has any one collected the music of Arizona Indians? Where may some be found?
38. Why do the Indians stop living in one place after a member of the tribe dies?
39. Why have the Indians stopped making baskets as they used to?
40. Why do the Indians believe they will get rain by dancing three or four nights?
41. Why do the squaws do the work?
42. Was there any shade in Salt River Valley when the Indians inhabited this dwelling?
43. Did the Indians live in cities? If not, why not?
44. What is the religious belief of the Indians regarding a hereafter?
45. Do all tribes of Indians bury the personal belongings with the deceased?
46. How did the Indians happen to choose this spot to build on?
47. How advanced was the stage in which the Indians lived as can be bound from their ruins?
48. Who is paying for the maintenance of these ruins?

49. How do these Indian homes differ from the homes of the Apaches?
50. Are these tribes related in any way to the Mongolian race?
51. Did these Indians write any hierogliphics? If not, who wrote those in the South Mountains?
52. How the Indians irrigated? Were these Indians nomadic?
53. Who was the first to locate these ruins of Pueblo Grande?
54. Why have not people noticed or taken care of these ruins before?
55. I would like to know something of the people who lived on the present Chihuahua-Sonora line. There are huge vase-like structures which investigation (personal) showed it was first built of wattles, then overlaid with clay. The firing was done from within. The marks of the wattling showed clearly inside. A few ears of corn were in these vases. The vases were large enough that a human being could go into them comfortably. Who were these people? Where have they gone? Also mile after mile of hills are terraced. The terraces follow the natural contour of the country. There are also caves in which are buried dead. The bottom of the caves are covered with bat guano. The bodies are in a sitting position, knees under chin, arms crossed over knees. The flesh was dry and they sounded like a drum when tapped upon.

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RUMINATIONS

My ruminations are going to be rather short this month, Chief, because I have been a sort of fifth wheel on the wagon this trip. I missed my timing a little in going through a clinic, taking a day or two longer than we had planned and then they took a young door knob out of the small of my back which kept me down a couple of more days and here, when I do arrive on the scene, Luis meets me with: "Hurry up those Ruminations and don't make them too long because we are just holding open the rest of this page and are going to press right now with the index!" A city newspaper has nothing on these boys when it comes to the hectic rush of getting the stuff out on time!

Otherwise it would be a good time to ruminate, because here we are, at the close of another volume of Monthly Reports, where we can point with pride to and you can probably view with alarm, the five hundred pages of explanation and description of what we have been doing in our district this last six months.

Also it is the close of the old financial year and the opening of the new, and we are looking forward with some satisfaction to the additional protection and service we will be able to render under those new appropriations.

But we forego all these ruminations and step over from the old volume to the new and from fiscal year '36 to fiscal year '37 with the ever recurring hope that the major breaks will continue to fall our way.

Cordially, Thos Boles

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Southwestern Monuments

Monthly Report



JULY 1936

DEPT. OF THE INTERIOR

N.P.S.

Albuquerque, New Mexico

SOUTHWESTERN MONUMENTS
JULY 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists; Millard Singerman, Clerk-Stenographer; Luis Gastellum, ECW Clerk; Deric Nusbaum, Traveling Ranger; Clarence Cole, Student Technician.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian; Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Santa Fe, New Mexico. Earl Jackson, Custodian; J. W. Hendron and Alfred Peterson, temporary Rangers.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian; Doug. Harritt, temporary Ranger.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande---Coolidge, Arizona. J. W. Winter, Custodian; J. Donald Erskine, Park Ranger; Frank Horne, acting ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian; Homer F. Hastings, temporary ranger.
8. Chiricahua---Willcox, Arizona. Frank L. Fish, Custodian; Orvel Ollinger and Bronson Harris, CCC guides.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings--- Cliff, New Mexico. No custodian.
11. Gran Quivira---Gran Quivira, New Mexico. George L. Boundey, Custodian.
12. Hovenweep---Cortez, Colorado. No custodian.
13. Montezuma Castle---Camp Verde, Arizona. M. L. Jackson, Custodian; Curtis Cox, acting ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian; Milton Wetherill, Ranger-Historian.
16. Pipe Spring----Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No custodian.
18. Saguaro---Tucson, Arizona. No custodian.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, Ranger.
21. Tumacacori---Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, Ranger.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House----Cortez, Colorado. No custodian

CONDENSED REPORT

Coolidge, Arizona
August 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for July:

TRAVEL

	July, 1936	July, 1935	July, 1934
Aztec Ruins	2,089	1,675	1,691
Bandelier	2,162	2,092	1,793
Canyon de Chelly	159	163	---
Capulin Mountain	2,500	5,000	6,000
Casa Grande	1,142	1,198	1,163
Chaco Canyon	929	672	384
Chiricahua	1,017	1,760	1,368
El Morro	415	381	472
Gran Quivira	281	950	404
Montezuma Castle	1,482	1,247	1,896
Navajo	133	86	69
Pipe Spring	406	930	258
Sunset Crater	1,177	909	---
Tonto	289	324	---
Tumacacori	818	712	526
Walnut Canyon	2,384	1,982	1,822
White Sands	12,406	4,755	---
Wupatki	321	268	90
Actual Reported Registration	30,110	25,710	17,483

The eighteen monuments reporting for 1935 and 1936 show a substantial increase in number of visitors, 4400 or 17%.

The fourteen monuments reporting for both 1934 and 1936, however, show a decrease from 17,936 to 16,039, or.108%

Custodians all claim that the weather seems to be keeping tourists on the paved highways but two reasons are given, in some districts the extremely high temperatures are the cause, in other sections heavy rainfalls which make the secondary roads almost impassable.

000 GENERAL

021 WEATHER

Over the greater part of the Southwest high temperatures and little or no rains prevailed. This picture is broken in a few districts where showers and cloudbursts have occurred. Chaco Canyon, Canyon de Chelly, Gran Quivira, Bandelier, El Morro, and Tumacacori have had an appreciable amount of rainfall, with two cloudbursts at El Morro. Tonto and Casa Grande have had several showers but the rains have not been general enough to ameliorate the heat. The fire hazard at Walnut Canyon and Chiricahua is very great and the custodian at Wupatki claims that range conditions are exceedingly bad.

100 ADMINISTRATION

123 VISITS OF PARK SERVICE OFFICIALS

Aztec: Chief of the Field Division of Education Ansel Hall, Junior Naturalist Dale King; Regional Geologist Chas. M. Gould; District Geologist Vincent Vandiver.
Bandelier: District Architect Richey; Chief Landscape Architect Tom C. Vint; Merle Sager, associate landscape architect; Wildlife Technician A. E. Borrell; Wildlife Technician W. B. McDougall; Ansel Hall; Dale S. King; Regional Geologist Chas. M. Gould; District Geologist Vincent Vandiver.
Canyon de Chelly: Traveling Ranger Doric Nusbaum; Chas. M. Gould; Vincent Vandiver; Ranger Wood of Mesa Verde; Associate Engineer J. B. Hamilton; Ansel Hall; Dale King.
Chaco Canyon: Dr. McDougall; A. E. Borrell; Chas. M. Gould; Vincent Vandiver;
Chiricahua: J. H. Tovrea, chief engineering aide; Landscape Architect Clinton Rose; J. B. Hamilton; Chas. A. Richey, Assistant Park Naturalist Robert Rose.
El Morro: Chas. M. Gould; Vincent Vandiver.
Gran Quivira: J. B. Hamilton.
Montezuma Castle: Ansel Hall; Dale King; Vincent Vandiver; Acting Chief of Museum Division Ned J. Burns; Junior Naturalist Louis Schellbach.
Navajo: Chas. M. Gould; Vincent Vandiver.
Pipe Spring: Chas. M. Gould; Vincent Vandiver; Al Kuehl, landscape architect.
Tonto: Ansel Hall; Dale King; Custodian Frank Fish of Chiricahua.
Tumacacori: Ansel Hall; J. H. Tovrea; Robert M. Rose; Dale King; Ned Burns; Louis Schellbach; Charlie Steen.
Walnut Canyon: W. B. McDougall; Ansel Hall; Dale King; Chas. M. Gould; Vincent Vandiver; Ned Burns.
Wupatki: Junior Naturalist Harry Getty and Ranger Ray King of the Grand Canyon National Park; Chas. M. Gould; Vincent Vandiver; Ned J. Burns; Dale S. King.

CONDENSED REPORT (CONT.)

125 OTHER GOVERNMENT OFFICERS

Aztec: Assistant Secretary of Agriculture Wilson
Pipe Spring: Gragerer, Mansfield and Minds of the U. S. Geological Survey; L. W. Childs, Washington ECW office.
Tumacacori: Fred Winn, Supervisor Coronado National Forest; Reverend Victor Stoner, Chaplain CCC and editor of the Kiva.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 UNUSUAL

CHACO Canyon: Both north and south approach roads into the monument are being maintained and at present are in a fairly satisfactory condition. Bridge over Chaco Wash collapsed again and was temporarily repaired. Funds are badly needed for a substantial bridge.
Gran Quivira: Approach roads in bad condition particularly north towards Mountainair.
El Morro: Approach roads becoming very muddy due to heavy rains. Driwall preservative applied to inscriptions before summer rains began; cement steps again painted with copperas. Two men with a team are enlarging drainage ditches and repairing trails.

Canyon de Chelly: Roof of custodian's residence had to be re-flashed; this is under way and about 75% complete. Custodian's residence was built in a hollow and a system of trenches has had to be dug to prevent the walls from washing during and after rains.

230 NEW CONSTRUCTION

Aztec: Parking area being surfaced.
Canyon de Chelly: New stone pump house 80% complete; sewer system practically finished; small rest room for public use constructed in corner of garage.
Casa Grande: Construction of badly needed sewage disposal plant will probably be delayed several months. The present temporary and inadequate method of distributing sewage over the ground by pumping continues to be a health menace.
Chiricahua, ECW:
2275 feet of trail completed between Echo Canyon and Massai Point
700 feet on Massai Point-Balanced Rock trail
Headquarters-Portal telephone line will be completed before Aug. 1.
Utility area wall 100% complete
Grading for headquarters ranger station completed and foundations will be poured before August 1.
Maintenance of Bonita Canyon highway continued.
Bandelier, ECW:
Flagstone floor of museum building completed
Construction of Quarters No. 2 turned over to painters and carpenters.

230 CONSTRUCTION, Bandelier (Cont.)

Refuse burner 100% complete
Spraying and insect control under Forester Fulton
Informational signs for Sunset Crater completed
All telegraph cable on hand installed.

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon: Soil Conservation Service is building a revetment wall east of Pueblo del Arroyo and a diversion dike east of Wijiji.
Wupatki: The United States Weather Bureau has loaned an anemometer to this monument.

400 FLORA FAUNA NATURAL PHENOMENA

430 ARCHEOLOGY

Sunset Crater: "Dating the Eruption of Sunset Crater, Arizona" by J. C. MacGregor of the Museum of Northern Arizona published in American Antiquity dates the eruption by means of dendrochronology as between 860 A.D. and 910 A.D. with the most likely date as 885 A.D.
Wupatki: Room 7, as reported in April, is badly in need of troweling order to recover important sherds which are washing away.

460 BIRDS

Pipe Spring: Six birds banded.
Walnut Canyon: Seventeen birds banded.

470 ANIMALS

Chiricahua: Rattlesnake caught and shipped to University of Michigan for identification.
Walnut Canyon: Exceedingly dry weather together with the lack of springs on the monument have caused the deer to leave the Walnut Canyon area. A small herd of antelope are watering with cattle at a cistern northeast of the monument.

600 PROTECTION

630 ACCIDENTS

Chiricahua: Jesus B. Charles, CCC enrollee, wandered from camp and climbed a cliff where he was stranded for several hours. He was finally helped down without injury except to the tempers and vocabularies of the rescuers.

CONDENSED REPORT (CONT.)

900 MISCELLANEOUS

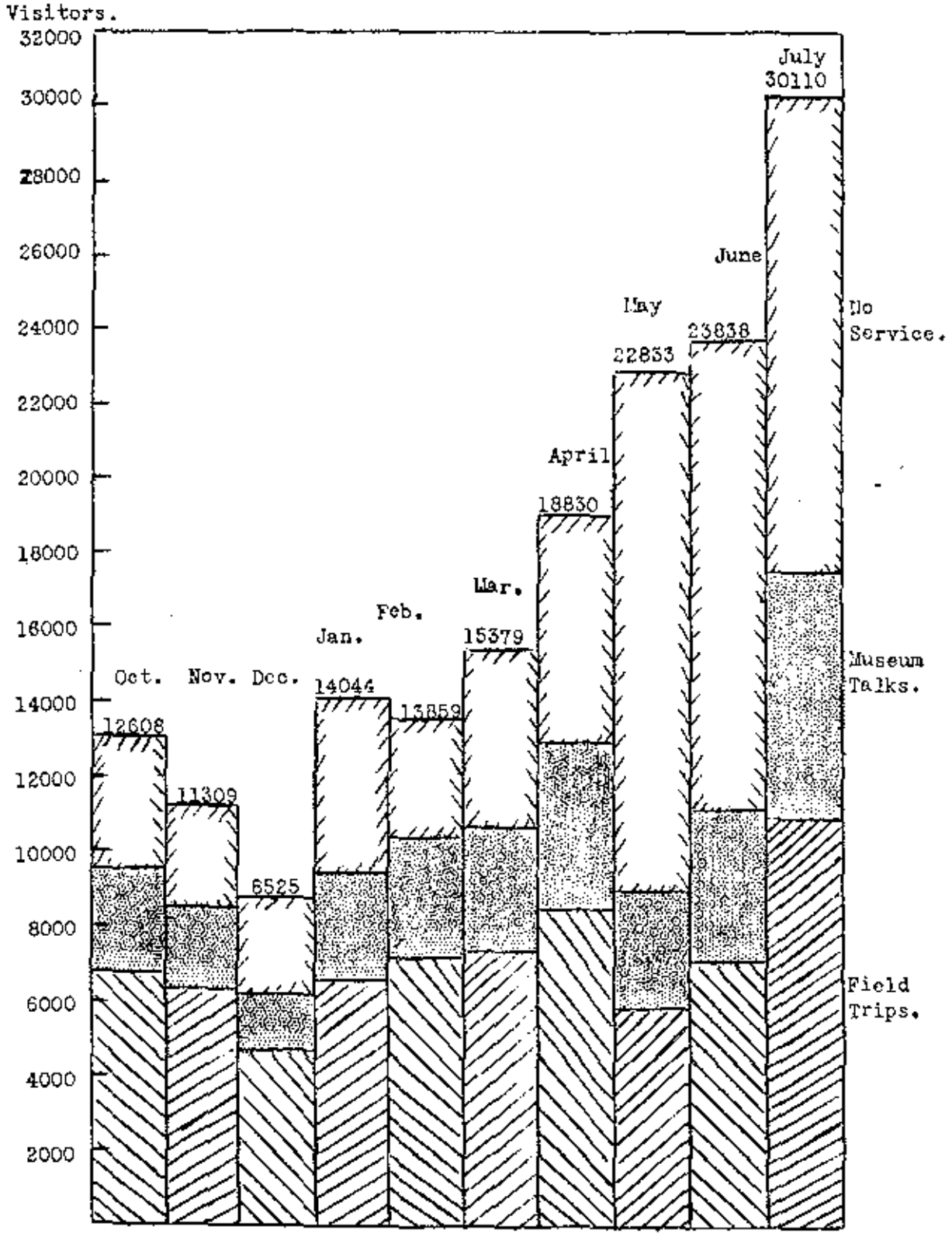
MAIL COUNT:

Incoming:		
Government	1,294	
Personal	670	
Total incoming		1,964
Outgoing:		
Government only	1,801	1,801
Telegrams:		
Incoming	43	
Outgoing	48	
Total telegrams		91
Grand Total		3,756

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.



SERVICE CHART

Showing service rendered at the Southwestern Monuments from October, 1935, to July, 1936.

REPORTS FROM MEN IN THE FIELD

WALNUT CANYON

By Paul Beaubien, Ranger

2384 visitors arrived this month, and 1884 were "contacted" by ranger. Park Service visitors were W. B. McDougall, Dale King, Ansel Hall, Charles Gould, Vincent Vandiver, and Ned Burns.

There were 20 overnight camping parties, but three was the largest number for any one night.

This has been another dry month with very few flowers on the entire monument. There have been a few light showers but no rain. Have been fortunate in having no forest fires to date.

Usually, deer tracks can be found by walking a short distance in any direction, but with no water supply, there seems to be no deer in the vicinity now. A small herd of antelope, ranging near an old "burn" just west of the monument are watering with a rancher's cows just a few miles northeast. The water is supplied from a cistern.

Have banded 17 birds during the month - seven Crossbills, six Western Chipping Sparrows, two Western or Louisiana Tanagers, one Green-backed Goldfinch, and a Red-Shafted Flicker.

****

CASA GRANDE

By J. Donald Erskine, Ranger

While the past week has seen very heavy travel to the Monument, the total visitors for the month gives us a low for the year of 1142 people. Of these 1133 were contacted on either the ruins or museum trips. Even though this is our off season here in the desert, our registration book shows us that 39 states, the District of Columbia, Canal Zone, Belgium, Newfoundland, Scotland, and Czechoslovakia were represented among our visitors. Arizona led naturally with about 54% of the total. California was second with 12%, Texas third with 5%, and Oklahoma fourth with 4%. (I could have sworn that Oklahoma would show the largest group.) We had no very large groups during the month. We had no Park Service visitors which we may claim, although many came to Headquarters, and we had the pleasure of meeting Custodian Budlong, of Canyon de Chelly National Monument, on July 23, and of renewing acquaintances with Frank Fish early in the month.

The weather for the month has been typical summer weather with the maximum temperature varying from 101 on July 10 to 115 on July 17. And the minimum temperatures ranging from 60 on July12 to 82 on July 7, 15,

and 16. Rain fell on July 3, 8, 9, 17 and 19, bringing the total rainfall for the month to one inch even. Generally the month has been rather blustery with much rain all around us and wind blowing off and on rather strenuously resulting in the tabulations showing only 13 clear days for the month.

On June 28 Ranger Erskine and Marie Erskine left for California where they spent two weeks annual leave with Ranger Erskine returning to duty on July 12 and Mrs. Erskine remaining in California for the rest of the summer. During his absence guiding was carried on by Cliff London and Clarence Cole. On July 11 London left for San Francisco to take a job in his own line. His place was then filled by a newcomer, Frank Horne, who is to be a teacher in the Coolidge Public Schools this coming year. Frank has stepped into the breach like a veteran and things have gone along smoothly with his assistance.

Our hopes were very high when the last report has written that maybe we would have a new sewer system by the end of August, but as it looks now it may be several months before much is done about it. Government red tape is surely inconvenient at times. At the present time the motor which runs the sewer pump is out of commission and we have been letting the system take care of itself in the hope that with the absence of several families from the Monument it will require no further pumping. It will surely be a big relief when this problem is solved permanently.

The boss and I have decided that it would be interesting to keep a record from month to month of the average time of each guide for both the ruins and museum trips. This month's guiding gives the following results:

Guide	Average time in Ruins	Average time in Museum
Erskine	31 minutes	22.8 minutes
Horne	30.6 minutes	27.2 minutes
London	28.6 minutes	22.2 minutes
Cole	27.3 minutes	24.1 minutes
Average of all four	29.4 minutes	24.1 minutes

Little of interest has occurred in the Nature line during the month. The owl family is still putting on a show for our ruins visitors, and apparently have the stage to themselves as the Pheebes have all left. Other than the normal quota of scorpions, centipedes, gnats, mosquitoes, flies, and other pests, we have seen only one blacksnake and no poisonous snakes during the month.

****

WHITE SANDS

By Tom Charles, Custodian

We have had a hot but pleasant month at the Great White Sands. You remember the old saying, "Shadows fall behind you when you face toward the light"? Well, Ben and I have been so busily engaged in pleasant employment that we have failed to see any shadows.

Ben has had lots of contacts with the hoard of tourists and, what is really more important to him, he has had extremely favorable results in removing the sand from the road in places where it drifts across. The highway into the sands is in much better shape than it has ever been before.

The more visitors the fewer shadows, for me, and the better I like each visitor. Along about the 3rd, 4th and 5th of July, I was about as happy as could be. There were visitors from Alaska, England, Germany, South America and Panama, and from almost every state in the union. There was a small army of Boy Scouts, holding a 4th of July celebration; there was the State President of the Rebekah Assembly, trying to hold a Grand Lodge meeting in one of the Crystal Bowls. There were 22 professors and graduate students from the University of Illinois with doctors and masters degrees galore; the Summer Picnic of the Student Body from State College; the Firemen's Annual chicken-fry with over 60 guests; there were church parties girl scouts, lodge picnics and beer drinks; there were artists, editors, biologists, botanists and scores of others.

I left the Sands on the night of the 4th, long after the moon came up and there were 35 cars, about 175 people, at the picnic ground, most of them preparing to camp for the night, practically all of them had foreign licenses.

The next morning I started back to the Monument at 7 a.m. and met 18 cars coming out between the main road and the Turn-Around. This is but a sample of the continual, three day show. On the evening of the 5th, 24 cars drove up to the registration box at one time and lined up for the little circular and a word or two about the Sands.

You know we have two good, Federal highways between El Paso and Alamogordo. The one runs directly and the other goes by way of Las Cruces and the Great White Sands. The direct route is now completed, paved all the way, and carries most of the El Paso traffic, but previous counts show that for every 5 cars on the direct route there are two cars on the White Sands road.

The Port of Entry on the direct route counted 3568 cars on the three days, July 3, 4 and 5. On the basis of that count and according to previous averages the White Sands had 2570 visitors on the three days. But from an actual, part time count on the three days our

percentages show that we had 3475 people. Take your choice, I have no way of knowing which is the most accurate. I suggest that we split the difference and make it 3022.

There were so many people there that every hill from the garage to the Turn-Around was cut to pieces with active feet, every valley had a fuzzy coat of red-brown paper, the shredded wrapper of the fire cracker. It all makes a fellow wonder just how to turn in the count. The official state highway figures show that there were 1¼ cars per minute, night and day for three days, between El Paso and Alamogordo. The Lincoln National Forest reports that they had 25,000 visitors on the 4th of July. I sat beside the road in the Monument several hours each of the three days and there was an average of 46 cars an hour passing through. During that count 50% of them drove into the Sands .

All other activities are overshadowed by the attendance. Here is a sample of the week day registrations: on the 6th there were 45, on the 7th, 75; on the 8th, 80; and on the 9th, 81. On the basis of some early day counts we estimated that 20% of the total visitors registered but as I begin to work up Barry's count I find that approximately 14% register.

Here is another fact which supports the notion that we have lots of visitors at the Sands. The State Tourist Bureau counted the cars at the entrance to the Sands on Thursday, June 25; they reported 185 cars through the monument in 8 hours; that gives us something like 1200 to 1500 people a day through the monument. Thirty six percent of these stop some place in the Sands. There is nothing like being on a main highway, if you are interested in visitors.

Any way you figure it, Boss, there are big crowds at the Great White Sands. Seventy-five percent of the cars have foreign licenses and the one big kick from practically all of them is that there <u>is no shade</u>. Of course, there is no way of knowing which came first - the hen or the egg - and we are always facing that bugaboo of doing something to draw a crowd but it seems to me that we already have the crowd at the White Sands and they are only demanding the "physical enjoyment of their park scenery." Two weeks ago the thermometer registered 153 degrees in the sun on the White Sand and there were something over 30 cars out there that afternoon. All of them were foreign cars - it goes without saying - no local man goes to the Sands on a day like that. We need shade.

Our Sunday count this month was as follows:

June 28 ----------	756
July 5 ----------	1,511
July 12 ----------	840
July 19 ----------	770

This figures give us a total Sunday count of 3,877. According to our six months' count we have 2-1/5 week day visitors for every Sunday one, giving us 7,754 week day visitors and a total of 12,406 for the month. Our registration for the month was 1,778; if 14% register it gives us 12,700 visitors, so I presume the first figure is not far off. Thirty-nine states, four foreign countries, and Alaska were represented among the visitors registered this month.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for the month, 281. This is the rainy season up here and the roads have been bad much of the time. One party made three attempts to reach this monument, but turned back on account of road conditions. I spent some time myself in a mud hole with six other cars between here and Mountainair. The first twelve miles of the road to Mountainair has been gravelled but the last fourteen miles is adobe soil and has not been finished yet.

We can not complain of the heat up here. Before showers it is sultry but soon cools as the rain falls. The wild flowers are beautiful. There are many more kinds on the Monument than in other portions of the surrounding country, due to the fact that cattle are not pastured on the reservation. We keep up our bird baths and though they do not come in immense flocks as they did before the rains, there is never a time when the baths are deserted.

Mr. Hamilton, engineer, and an assistant to Mr. Richy visited us on July 1. I did not know the young man with Mr. Hamilton was one of the Park Service family until they started to leave and I failed to catch the name. Two different parties, photographers, visited us during the month in the interests of the Quatro Centennial - 1940.

We also had two parties of inspectors from the FWA. The District Superintendent of the WPA visited the Monument. The old school house we purchased for a community building will be used by the WPA as an adult school with two teachers, one music and the other domestic arts.

We have been cleaning up trails and roads during our spare time. The last rains have washed the approach road considerably.

The closing of the east gate may have inconvenienced one or two of the local people but it has lightened the work on the monument a whole lot and does not work any hardship on visitors as they enter thru the main entrance where guide service is always available.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

The month of July brought the rainy season upon us, and with it, the usual drop in visitor travel.

Total visitors for the month of July, 159. They made trips as follows: Rim only, 87 trips; rim and White House Trail, 5 trips; by car within the canyons, 11 trips; horseback within the canyons, 3 trips.

Average time of trips: Rim, 133 minutes each; trail, 215 minutes each; trips within canyons by car, 221 minutes each; horseback trips within canyons, 370 minutes each. Two groups spent considerable time in the office, viewing photographs, these office visits averaging 225 minutes each. There were several overlaps -- people taking more than one kind of trip.

Maximum temperature, 99 degrees, on the 20th; minimum, 40 degrees, on the 13th; greatest daily ranger, 51 degrees, on the 13th. Total trainfall, .15 inch. Water started flowing from the canyon mouth July 10. No cars equipped with standard tires were able to enter the canyons during the month.

The new stone pumphouse is approximately 80% complete; otherwise the water system is finished. Sewer system is practically finished, two sections of redwood filter trench having been put in place at this writing. A small rest room for public use was constructed in one corner of the garage, and an entrance constructed through the adobe wall. Plumbing fixtures have not yet been installed, though the necessary tile and water pipe have been placed, and most of the ditches backfilled.

Under the direction of Mr. Gipe, foreman on the water and sewer jobs, reflashing of the roof of the custodian's residence was commenced during the month. This work is now approximately 75% complete.

The ranger and the custodian spent considerable time exercising with pick and shovel during the month. The custodian's residence is built in an excavation, and it has been necessary to construct dams and ditches completely around the residence to keep it from washing away in the run-off from the adjacent hills during rains. Ditches dug for this purpose two months ago rapidly filled with silt, and had to be deepened. Considerable surplus earth around the house also was removed during the month. A steam shovel would come in handy.

We also constructed about forty minor check dams of rock in gullies in the hillsides by the residence. Ten pounds of Western Blue-stem grass was planted where water from the overflow pipe on the water reservoir spreads out over the hilltop, and on slopes back of the house. This is necessary to attempt minimizing of run-off from the bare earth hills in time of rain. Much of this planting remains to be done. It is done

by the ranger and the custodian in what we have heard referred to as our "spare time."

We had numerous noteworthy visitors during the month. Deric Nusbaum, the travelling ranger and his uncle Mr. O'Bryon dropped in during the month. We showed them a little of the finest Monument in existence. Mr. Vincent Vandiver paid us two visits, being accompanied on his last visit by Dr. Charles Gould, Regional Geologist. Ranger Wood and family, of Mesa Verde, paid us a short visit. Mr. and Mrs. Jim Hamilton stopped in for a few hours. Mr. Ansel Hall passed through on his way to Fort Defiance, paying us a brief visit. Mr. Phillip Johnston and party paid us a two-day visit, and we managed to get them within the canyons in the government pickup as far as Spider Rock. Numerous Navajo Service officials and members of a congressional committee spent part of a day and one night here.

During the month an electrolux (gas) refrigerator was received. This was installed by the custodian, in spite of which it works perfectly. A flame gas stove also was installed, with the same results. Minor repairs to plumbing in the new residence were made, the results also being encouraging.

In time of rain - even heavy dew - the ranger and this custodian indulge in a well-known political sport - throwing mud. The house is plastered with mud on the outside, and whenever there is a slight amount of humidity in the air this begins to soften and run down the building. We mix buckets of mud, stand at a safe distance, and throw the mud back on the walls, to replaster them. Light dews don't bother us very much, but one one-hundredth of an inch of rain drives us frantic. This, we admit, is bad enough. But we have an even greater worry - English Sparrows are destroying the walls. Straw was mixed with the adobes to hold them together, and chaff was mixed with the mud plaster for the same purpose. Imagine our embarrassment upon beholding huge flocks of sparrows clinging to the walls and digging out the chaff and straw! Damage by now is extensive, and the walls are rapidly being pecked away. There oughta be a law.

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CHIRICAHUA

By Frank L. Fish, Custodian

The weather has been dry for the month, a few showers but not enough at any one time to do much good.

Roads and trails have been kept in wonderful condition for traveling and hiking considering the dry period. The only actual handicap is the dust, but with the usual rainy season past due this condition should be eliminated before long.

Visitors for the period June 22 to July 22 numbered 1,017 registered

or checked. Of these 230 or 22,5% were from 24 states other than Arizona. There were other visitors, number unknown, that either stopped below the checking station and walked up the Rhyolite Trail or came in by the telephone line road, better known as White Tail Canyon.

We had some scientific guests capable and willing to aid in disbursing reliable information in Mr. and Mrs. S. F. Wood, U.C.L.A., Los Angeles, California, looking for the Cone Nose Bug, Triatama Protracta or Triatama Uhleri, carrier of the disease American Human Trypanosomiasis. They state this bug lives around pack rat nests and they suspect the germ is in Mexico although the nearest case has been reported from Panama. While they were not allowed to tear up any rat nests in the monument due to Park Service regulations, they used the camp ground as a base and hunted with success for the bug in Pinery Canyon to the south and east. Mr. and Mrs. Wood promise us a copy of the report when completed.

Darwin Tiemann accompanied Mr. and Mrs. Wood adding to a collection of beetles.

Cooperative visitors were:

Mr. and Mrs. H. Dakensten. Mr. Dakensten is the resident engineer for the maintenance of the new State Highway 181 from Pearce to the Monument.

D. B. Treat, member of the State Safety Council.

C. E. Waterhouse, photographer, El Paso, Texas; he believes more people from El Paso should see the Wonderland of Rocks and intends doing something about it.

Official Vistiors:

J. H. Tovrea, Coolidge, Arizona, Clinton Rose, J. B. Hamilton, and Bob Rose with Marie and Helen.

One of the outstanding visitors happened to be a local lady from Douglas that insisted (without too great an effort) we should have some cake. I might add Mrs. Thos. Stafford of Pearce fries mighty good chicken. Thus I agree with Bob Rose that at Chiricahua you really have a chance to get acquainted with your visitors.

Jesus B. Charles, CCC enrollee from the local camp, climbing off the trails, found himself in one of those common events of not being able to descend alone. His repeated cries for help finally brought aid. Fortunately he was not injured outside of being a bit scared and dry; it is hoped "Old Man Experience" taught a good lesson. I know from a few caustic remarks made by the boys helping in the rescue that the "Old Man" had a few verbal assistants.

A diamond rattlesnake was captured on the 23rd and will be sent to Dr. Frank M. Blanchard, Department of Zoology, University of Michigan, for classification. The above capture leads me to believe Charlie Steen is Psychic Unasked he sends a snake box with Tovrea one day and the snake comes by the next.

The death of Frank Hand, Pinery Canyon, reported last month by Louis Caywood, forces one to the obvious conclusion that Chiricahua needs a museum building badly; also Ed Riggs of the Faraway Ranch informs me there is a great quantity of material dealing with this region available from local residents if they had the assurance it would be in a safe place.

I have found a fine fellowship and a spirit of cooperation shown by the permanent people working at the monument; also,the neighboring people I have met.

Orvel Ollinger and Bronson Harris, CCC enrollees helping with the visitors, deserve high praise for working long hours without any complaint.

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CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent

During the month, 2,275 feet of trail have been completed between Echo Point and Massai Canyon. Massai Point-Balanced Rock trail has advanced 700 feet, which leaves only one half mile to construct to complete the Echo Canyon-Massai Point loop.

The Headquarters-Portal telephone line will be complete by August 1.

The Utility Area Wall is 100% complete.

The grading for the Headquarters Ranger Station is completed and foundations will be poured by August 1.

Maintenance of Bonita highway has continued throughout the month.

Finishing of Service Road and Utility Area grading was postponed this month to expedite the grading for the Headquarters Ranger Station.

Visitors for the month of July:

July 9-10 Assistant Engineer Tovrea
July 16-17 Assistant Engineer Tovrea, and Landscape Architect Clinton Rose.
July 21-22 Jim Hamilton, District Engineer
July 23-24 Chuck Richey, District Landscape Architect

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WUPATKI

By James W. Brewer, Ranger

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

169 guests registered at Wupatki Pueblo; 209 at the Citadel Group; 57 names are duplicated, leaving a total of 321 registered visitors to this Monument in July, 1936; 1935, 268; 1934, 90.

31 states were represented as follows: California 68; Arizona, 62; Texas, 17; Iowa, 12; Ohio, 11; Michigan and Missouri, 10; Illinois, 9; New York and Pennsylvania, 7; Nebraska and Oklahoma, 6; Massachusetts, Nevada, Virginia, and Utah, 5; Washington, Oregon, Maryland, and Louisiana, 4; New Jersey, Kansas, Indiana, Alabama, and New Mexico, 3; Minnesota, North Dakota, and Colorado, 2; South Carolina, Maine, Vermont, 1. From Washington, D. C., 1; from Panama, 2.

One party of overnight campers found the Exhibition ramadas an excellent campsite.

530 NEWSWORTHY VISITORS

Mr. and Mrs. Phillip Johnston and Mr. and Mrs. Ross Montgomery on the third.

Junior Park Naturalist and Mrs. Harry Getty with ranger and Mrs. Ray King, all of Grand Canyon, on the 9th.

Mr. and Mrs. H. T. Anderson, U.S.N.P.S., visited the Citadel only.

100 ADMINISTRATION

123 Visits by NPS Officials

Mr. V. W. Vandiver and Dr. Chas. A. Gould on the 17th.

Junior Park Naturalist D. S. King and Mr. Ned Burns on the 20th.

020 WEATHER

June 23 to July 1: high, 89 degrees on the 29th; low 45 degrees on the 27th and 28th; precipitation, trace on the 26th.

July 1 to July 23: high, 98 on the 18th and 19th; low, 54 on the 14th; precipitation, very light rain on the 8th and 10th.

Total precipitation, .02 inches.

3732.3 miles of wind registered on the anemometer from July 4 to 23. 364.3 was the largest wind mileage in 24 hours, carrying a dust

storm, on the 15th.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 Cooperating Government Agencies

Through the effort of Dr. H. S. Colton an anemometer has been loaned to Wupatki by the U. S. Weather Bureau. The instrument is without the m.p.h. electrical recording device, but the number of miles of wind passing the Monument are registered on the dial and are recorded daily.

Non-government agencies

A tourist from Kansas bogged down in the cinders 5 miles above the Pueblo on the Sunset Crater road. I was unable to move the car with the pickup and recruited help from the County Highway Commissioner who sent out two men and a FWD dump truck; after towing the tourist car out, we surfaced that short section of the road with 6 hards of red sand.

430 ARCHEOLOGY

Room 7 is badly in need of a trowelist. Please send us a ranger qualified to remove the many restorable sherds. (Reprinted from Monthly Report of April)

GENERAL

The expected July rains have not yet arrived and the range is in miserable shape. The brush, normally green at this time, is burned brown. The only vegetation I have seen bloom and seed is the Apache Plume.

The cowhide binders on the ladders are being eaten by rodents. This is the first attack on them since their installation in April, 1934, and I believe it is because of the scarcity of the natural food supply.

900 MISCELLANEOUS

At the head of the Citadel register sheet a visitor commented "Very interesting ruins"; following registrants took up the idea and there appear some interesting hints as to what most impresses the unguided Citadel visitors. Quotes give the general range: "I wrecked a tire"; "Swell, with a better road"; "Worth the effort"; "We need a ranger"; "Wish I knew more of their history"; Where was the water"; "Thanks to the U. S. Government for their preservation of things of such historic value". One asked, "Did you think it was safer to wire the pencil?" Another answered him "Yes!"

SUNSET CRATER

By James W. Brewer, In Charge

500 USE OF MONUMENT FACILITIES BY PUBLIC

1,177 visitors registered at this Monument in the month of July, 1936; 1933, 909; 1934, no record.

Campers: By the number of Tomato and orange juice cans strewn about the Monument, I estimate that approximately 35 parties must have stayed overnight and had breakfast on the Monument. The empty sardine cans indicate that at least 60 parties picnicked in the neighborhood of the Ice Caves.

States were represented as follows (43 different states): Arizona, 492; California, 200; Texas, 91; Ohio, 47; Oklahoma, 46; New York, 38; Illinois, 33; Missouri, 18; Michigan, 17; Kansas, 15; New Mexico, 15; Pennsylvania, 15; Georgia, 11; Massachusetts and Wyoming, 10 each; Wisconsin, 8; Indiana, Colorado, South Dakota, 7; New Jersey, Iowa, Florida, 6 each; North Caroline, Washington, Nevada, 5 each; Nebraska, Oregon, Mayland, Arkansas, Minnesota, West Virginia, Kentucky, Tennessee, South Carolina, 4 each; Idaho, Mississippi, Utah, 2 each; Maine, Montana, Virgina, Louisiana, Connecticutt, 1 each. Washington, D. C., sent 5 visitors; France, 2; Austria, Canada, and Mexico, 1.

430 ARCHAEOLOGY PREHISTORY HISTORY

An excellent paper entitled "Dating the Eruption of Sunset Crater, Arizona" appears in American Antiquity, July, 1936. In conclusion the author, Mr. J. C. McGregor, Curator of Dendrochronology, Museum of Northern Arizona, writes "---This would imply that the eruption took place some time very near 885 A.D., but might conceivably have been as early as 860 A.D. or as late as 910 A.D."

CORRECTION OF JUNE REPORT TRAVEL FIGURES

In collecting the June sheets and installing new sheets at the Sunset registration stand last month I must have pulled a boner and replaced some of the June sheets, because this month I find sheets which show that 137 visitors in June were not included in the report. So that the correct total for June, 1936, is 596 visitors.

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CHACO CANYON

By Thomas C. Miller, Custodian

GENERAL

July has been a busy month here in the Chaco. Our approach roads have

been getting some much needed maintenance. The road to the North was bladed by the State Highway Department, and the road to the South has been maintained by the Indian Service. We have had enough rain to keep the blow sand from getting too dry on the North approach road, so consequently we have had very few calls to help visitors through the sand during the month.

TRAVEL

929 people entered the Monument in 255 automobiles, coming from 28 states, the District of Columbia, Territory of Hawaii and Germany. Museum and guide service was rendered to 572 people in 136 parties.

WEATHER

Maximum temperature for the month was 98 on the 18th and 19th. Minimum was 46 on the 13th. 1.16 inches of precipitation were recorded for the month. The greatest in 24 hours was .47 inch on the 19th.

MAINTENANCE

The North approach to the Chaco Canyon Bridge made its annual Collapse on the 17th. However, at no time was it impassable. It collapsed early in the morning and old timbers were used to cross the cars on until it could be timbered underneath. Two dump trucks were used in hauling rock to rebuild the approach. At this time the bridge looks safe enough to the average layman, but it is a very temporary fill and we are looking for it to fall the next rain we get. Boss, we are anxiously waiting for some engineering so that we can build a bridge across that wash.

DAYS OFF

At 7:30 a.m. July 2 one of my Navajo neighbors, by the name of Willie George, called on me and informed me that his 12-year old son had died just at daybreak that morning. The Navajo was badly broken up over the death of his son, and he asked me to go to his Hogan and take the body to Crownpoint for burial. I telephoned to the Eastern Navajo Agency and was told, by the officer in charge, that he could not help me in any way because he had no appropriation for that purpose. Realizing that if one Government department could not bury the dead of a good Navajo family, it was a sure thing that the National Park Service could not. I decided immediately that I must take a day off, so I took my personal car, drove to the University building in this Monument and asked Mr. Stanley J. Milford to come along and help me bury the child. Mr. Milford very gladly consented to go. We headed northeast over a very rough road, in all we drove 128 miles, paid a man $6.00 to make the box and dig the grave. The boy was burried at the Crownpoint cemetary and we got back that night in time for supper.

Boss, when we drove up to that Hogan we found the little boy wrapped in

a wollen blanket, head east and his face turned to the north. Outside and to the west a beautiful black horse was tied to the hogan. Of course, I knew why the horse was tied there, and I thought that I could talk them out of killing that fine animal, but all that I got was a shake of the head. Before we were out of sight a gun was fired, the beautiful horse toppled over; in less than ten minutes the hogan was in flames.

The next day after the funeral Mr. Milford brought me $2.00 that the students made up to help reimburse me for the money I paid to bury the boy. Mr. Lewis T. McKinney, Project Manager, SCS, also gave me a dollar. I want to publicly thank each and every one that helped me bury this little Navajo.

NATIONAL PARK SERVICE OFFICERS

A. E. Borell and Dr. McDougall, of the Wildlife Division, arrived and departed June 28. Dr. Chas. M. Gould, Regional Geologist, Oklahoma City, and Vincent W. Vandiver, Associate Geologist, Santa Fe, arrived and departed July 8.

SPECIAL VISITORS

Dr. Theodore Schreiber, Alma College, Alma, Michigan, was here June 30. Mr. and Mrs. Harold C. Newton and party of 15 students, from the Navajo Mission School, Farmington, New Mexico, were here on the 4th. Mr. and Mrs. W. L. Marr, Western representatives American Automobile Association, Salt Lake City, Utah, were interested visitors July 5. Mr. A. H. Marquess, Gun City, Kansas, and Dean Babcock of the Denver Museum arrived on the 11th and departed on the 13th. Dr. and Mrs. Feemster, Harvard University, visited the ruins and took motion pictures on the 16th. Dr. Getrud Hermes, Hamburg, Germany, Dr. Hans Rupp, and Dr. Anton Chown, of Harvard University, were Monument visitors on the 18th. Dr. George F. Sternberg, of the Kansas State College, Dr. C. L. Gazin, Washington, D. C., and Harold Sheperd, Hays, Kansas, were here on the 18th. Mrs. Mace deLaguna, Ph D of Bryn Maur College, arrived on the 18th to spend several days studying the ruins of the Chaco.

SOIL CONSERVATION SERVICE

This Service has proceeded in a satisfactory manner. The most part of the month was spent on the much needed revetment work east of Del Arroyo. A diversion dyke was constructed east of the ruins of Wijiji. This dam should serve to keep the wa ter out of the Plaza in that Pueblo.

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TUMACACORI

By Louis R. Caywood, Custodian

During the month 755 guests were conducted through the Mission and grounds while an additional 63 used only the facilities offered making a

grand total of 818.

The Reverend Victor Stoner, Tucson, again paid us a visit on July 7 and left us with considerable information concerning both Tumacacori and San Xavier Missions. Fred Winn, Supervisor for the Coronado National Forest, spent a short time looking over our improvements the following day.

On July 11 we were very pleased to welcome Ansel Hall, Chief of the Field Division of Education, Berkley, accompanied by J. H. Tovrea, Bob Rose and Dale King of headquarters, to our Monument. This visit concerned the possible construction of a museum and administration unit here. Must say that I am very much pleased with the plans they brought along with them. We enjoyed their visit and hope they will honor us again in the near future.

On July 17 I received a surprise party in the shape of Ned J. Burns, Acting Chief of the Museum Division, National Park Service, Washington, D. C., Louis Schellbach, Jr. Park Naturalist at the Grand Canyon, and Bob Rose and Charlie Steen of the headquarters staff.

This was the first visit paid Tumacacori by Hall, Burns, and Schellbach and they all expressed the opinion that we had an ideal set-up here and wished us luck in obtaining the proposed museum and administration unit.

On July 22 Mr. and Mrs. Charles Bordt and party of Balboa, Canal Zone, were interested visitors at the Mission. Mr. Bordt is connected with the Government service in the Canal Zone.

The tide has turned and the water table is beginning to rise from the number of good rains that have fallen in the last two weeks. The well seems to be in normal condition at this writing. I took advantage of the time that the water was very low and cleaned it out so besides having lots of water we also have a clean well.

Mr. and Mrs. M. O. Evenstad and daughter have gone to greener pastures. Martin transferred to Muir Woods National Monument, California, where the big trees grow. We were very sorry to see him go, but wish he and his family the best of luck in their new home.

In the meantime Mr. Greg Brett has been filling in with the work and visitors at the Monument. Weeds grow faster here than at any other monument in the Southwest including Aztec Ruins and it takes considerable of Greg's and my time to keep them down. Now I suppose Cal Miller will write in to say that he has a bigger weed crop at Chaco than I have. Can't he be satisfied with always saying he has the biggest ruins.

The growing need of a well organized museum at Tumacacori is becoming more evident as each day passes. With a patio arranged building and a picture window showing the mission in its delightful setting, the popularity

and educational value of the Mission itself will certainly be enhanced. Here's to the time, in the near future we hope, when these plans will become a reality.

Mail time is upon me so adios until next time.

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EL MORRO

By E. Z. Vogt, Jr., Acting Ranger

July has been an eventful and very interesting month for this ranger in many ways.

WEATHER AND ROADS

The drought was broken on the 10th of the month by two cloudbursts and again on the 21st by a nice shower. From now on this is likely to be a wet muddy country.

The roads are still passable, but visitors complain terribly about the Grants road. The natural tendency seems to be to jump on the ranger about the condition of such an awful road. But I just smile pleasantly, refer them to the state highway commission, begin the talk fast and furiously, and finally manage to get them in a good humor so they can enjoy the monument.

TRAVEL

I am proud to report that 415 persons visited El Morro during July. This is not so bad for an almost inaccessible national monument. They came from New Mexico, Arizona, Colorado, California, Illinois, Kansas, Texas, Missouri, Pennsylvania, Iowa, Nebraska, New York, Massachusetts, Minnesota, Michigan, Ohio, Connecticut, Oklahoma, Utah, Indiana, New Jersey, West Virginia, South Dakota, Kentucky, Scotland, and South Wales.

Newsworthy visitors include Blanche Pfefferkorn, Radio City, New York City; John Murray, Annar, Scotland, and N. G. Nichston, Tvelavvi, South Wales, exchange students from Yale; Clyde Kluckhohn, author of the two books, "To the Foot of the Rainbow" and "Beyond the Rainbow," on the Rainbow Bridge county, and now with the Department of Anthropology at Harvard; the Prairie Trek Expedition made up of 19 boys and leaders from Indianapolis; and Vincent W. Dandiver and Dr. Chas. H. Gould, Park Service geologists, who were here on the 20th. Mr. Vandiver and Dr. Gould were the only Park Service men in all month, and I certainly enjoyed their visit and learned much from them about the geology of El Morro and surrounding country.

FLORA AND FAUNA

The pinon crop is coming along fine but the squirrels and jays are

surely after it.

The countryside is taking on a beautiful green tint after the first rains, and the gramma grass is in some places over two inches high.

The eagle story did not by any means end last month. It continued with the following experience: Not two days after Oscar learned to fly and reached a safe position on a high ledge, a wild-looking old Zuni Indian rode in and demanded both the little eagles. He spoke rapidly in bad Spanish and was certainly excited over the prospects of capturing two eagles and taking them back to Zuni to keep in a wicker cage and pull out their feathers each year for ceremonial dance costumes! It took me more than an hour to convince him that the eagles belonged to Uncle Sam, that I was here to see that nobody bothered them, and that he could not have either one of them. I finally made the following agreement with him: I would give him his dinner if he would go back to Zuni and forget the eagles. He grumbled a while, but accepted my offer. An hour later he left in a good humor without the eagles and has not been back since. And now every day I see the eagles soaring overhead free and unmolested.

The bird list for July is as follows:

Cliff Swallow	Pigmy Nut hatch
Northern Violet-green Swallow	Western Meadowlark
Red-shafted Flicker	Western Mockingbird
House Finch	Desert Sparrow Hawk
Western Mourning Dove	Mountain Bluebird
Western Robin	Chestnut-backed Bluebird
Western Nighthawk	Lewis Woodpecker
Golden Eagle	Canyon Wren
Arkansas Kingbird	Turkey Vulture
Cassin Kingbird	Black-chinned Hummingbird
Woodhouse Jay	Western House Wren

MONUMENT IMPROVEMENTS

Please, Boss, may I make another plea for moving our entrance gate. As travel increases, our system for handling visitors becomes worse and worse. It is my opinion that the entrance should be about 100 yards west of the northeastern corner of the monument fence. The road could then be made to come straight up to the ranger's cabin. Every visitor could be contacted and the rickety old bridge eliminated. If the money to be used in rebuilding the bridge, which is about to fall in, could be applied to the expense of moving the gate, I think we would save money, time, and energy and improve our system of handling visitors a hundred per cent.

I put a heavy coat of Driwall, the colorless preservative, over all important inscriptions before the first rain.

Another coat of copperas improved the appearance of the concrete steps, but they still do not look as well as they ought to. I intend to try another coat next week.

Say, Boss, can you give me the dope on this new preservative which can be sprayed on the rock to prevent pictographs from washing away? There are a few colored pictographs on the cliff south of the cabin that should be preserved. Mr. Vandiver told me about this preservative the other day.

I am working with two men and a team on the north trail which washed so badly in the last rain. We are increasing the capacity of the drainage ditches, putting crushed rock in holes, and regraveling parts of the trail. The trail will now be better able to carry the run-off from heavy rains, but I doubt if the present trail can ever be made to stand up for any length of time.

With a few shelves, pieces of pottery, axe heads, curious rocks, manos and metates, a piece of old hammered iron which might be part of a Spanish bit, the corner of the office in the ranger's cabin is being converted into a small museum. It isn't much, but almost everything has an humble beginning, and now is the time to start.

You will be interested to know that the fellow from St. Johns, Arizona, who carved his name in a cave on the south side of the monument, returned on the 13th and did a first-rate job of removing his name from the Rock. There were no hard feelings, he learned a lesson, and best of all he had the pleasure of seeing the monument twice.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

On consulting our register for the month of July this is what I find that we have had: Visitors for the month numbered 1,482 and came from 32states and the District of Columbia, three foreign countries: Belgium, Canada, and South Africa, and Territory of Hawaii. From the above figures you will find that we are averaging about fifty people per day. This is by no means a big run of visitors for this place, but with a nasty detour on State Highway 79 which is the main artery into the valley and the monument, and with the hottest weather I have ever experienced in the valley since coming into this state in 1912, I feel that we a re not doing so badly.

Among the Park Service visitors for the month, Ansel Hall and Dale King were in for a short visit. This is Mr. Hall's first visit to this monument and we are very glad to have had him. I feel sure he will have a better understanding of our local problems. Dale, having been in a number of times, no doubt has heard plenty concerning the local needs of

this monument. Geologist Vandiver was in for a couple of hours, seemed to enjoy our monument, and promised to come back in the not too distant future to give us the low-down on the geology of the Verde Valley. We expect him to hold his promise. Louie Shellbach and Mr. Burns of the educational department paid us too short a visit last Sunday. Several of the boys from the Grand Canyon were in during the month.

Ranger Frank Fish was transferred to the Chiricahua National Monument the first of the month. Needless to say that we will miss Frank and Corabeth and the two little fish(es). However we do think he will like it better there and we will gamble anything at our command that he makes good in his new position. More power to you, Frank.

I would like to give you an insight on some of the joys of living on a National Monument way out in the hills of Arizona. On this monument we have to pump water out of a drilled well with a gasoline motor. We have a thousand gallon supply tank and at this season a full tank of water will usually take care of the demands of the monument for twenty-four hours. Ordinarily we start the motor in the early morning and will have enough water to do for the day. During the past month I got ambitious for once in my life and decided that I would start the pump in the evening and would not have to bother with it the next morning. And this is how it worked out:

Friend wife got out of bed at the usual hour, walked into the bathroom and cheerfully informed me that the water was out. I proceeded to don a bathrobe and a pair of house shoes and a ttempt to find what had happened to the full tank of water that we had the night before. The valves in the lavatories in the rest room have a habit of not closing and sometimes drain the water all out of the tank supply. I went hurrying into the rest room to find out if any of the valves had stuck. On entering the room I heard that old familiar hissing sound which was good and sufficient reason for my backing out of the room entirely. Mr. Cox, the temporary ranger, was out in the yard in front of the ranger's quarters. I called on him and he armed himself with a good stiff stick and boldly entered the place coming back with a nice specimen of a rattlesnake. He said that he had dispatched the gentleman(supposing it was a gentleman snake being in the gentlemen's rest room). I then decided to go back to the house a nd have a cup of coffee, to settle the nerves. The wife says that there is not enough water in the house to make coffee. So it was up to me to start the motor before any coffee could be had. I immediately went down to start the motor, on turning it over I found that the motor had blown a cylinderhead gasket. That would have to be replaced before the motor would run, which was a three-hour job. I replaced the gasket and some where around 9:30 we had coffee. (Just another one of those things) But whoever heard of a rattlesnake requiring a rest room!

About this man Cox that is rangering here temporarily. I hear so many good things about him that I believe I am getting downright jealous. It is claimed that he not only makes an interesting talk' but an intelligent talk',

which is very likely the only one's that have been made on this monument. It s eems that he has the visitors confifence. On the 4th he asked a lady why she was climbing the ladders so slowly, as the ladders were very hot at that time of the day. Her reply was, "You do not know my secret, if I fall I kill two."

Will bring this report to a close as I have just had quite a round with a lady from Los Angeles, who evidently drove over here to tell me how hot it is in Arizona. And how cool it is in Los Angeles; I told her about spending a part of one night in the angel city, but left before morning because of the heat.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

There has not been a great deal doing up here during the past month to report on except the travel, which has been slow at times. There have been some changes made in the figures as follows:

June guided trips	28	Present	84	Local	362	estimated
July " "	18	"	96	"	310	"
Decrease trips of	10	Increase	12	"	52	"

Total travel including visitors and local travel, 406. The local number was brought up on the 4th when the people of Pipe Valley, 71 in number, came in to spend the day. My increase in the guided trips attendance is that I had one party of 22 and one of 13, 12, and 14 each. I also have had the following Park Service officials:

July 15 Mr. Chas. N. Gould of Oklahoma City and Mr. V. W. Vandiver, of Santa Fe. These two gentlemen came in early in the morning, stayed for 30 minutes or so and then went on into Zion over the old desert road, as they wanted to study the red mountains between Pipe Spring and Zion.

Mr. Al Kuehl came in about noon and we spent about two hours going over the work that had been done by the eight CCC boys, and found that there were some of the work jobs that needed changing. This we are doing this week.

On the 16th Messrs. Gragerer, Mansfield and Hinds of the Geological Survey were here for two or three hours looking over the rocks and the fault that supplies us with water.

July 21 Mr. and Mrs. L. W. Childs of the Washington office called in for a few minutes. Mr. Childs is connected with the ECW part of the Park Service and he is out seeing the ECW superintendents on some of the parks and monuments.

I surely enjoy having the officials come in and see me once in a

while as it gives me new life and ma kes me take stock of myself. Upon their departure I usually find something that can be improved, even though they do not say anything about how the monument looks or how it should be run; but just the presence of the officials and knowming that you are under inspection to some degree makes one look for his weak spots and he is determined to strengthen them before another visit is had by that official.

My week in camp with the scouts was a wet one as we were rained out two days before the camp was to close; nevertheless, we enjoyed it very much. Mr. Brown who took care of the monument while I was away did a good job and everything was in good shape when I returned.

The Nature notes for July are: I have banded 5 Arizona Crested Flycatchers, 4 young and the mother of the 4. They were from the nest in the register room of the Fort. I also banded one House Finch. I am finding bird nests almost every day. Some have eggs and some young birds in them; some are empty. The following birds I know have nested on the monument: Arizona Crested Flycatcher, House Finch, Robin, Mourning Dove, Bullock Oriole, Meadow Lark, Cassin Kingbird; there were also some sparrows that I have not identified.

Liza rds a re plentiful but I have not been able to devise a trap that will catch any yet. I am still working on the scheme however.

A few rattlers are being found on the monument by the CCC boys, which they kill on sight.

Most of the plant life has flowered and gone to seed because of the long dry spell. The only life that shows green is the trees and brush and a few of the deep rooted plants. Even the thistles that are not near the irrigation ditches are burnt up.

July 19 gave us the first rain that amounted to any good. It rained for about 30 minutes, causing the water to flow in most of the clay washes. We were again greeted by a rain on the 20th. I guess the Rain Gods are taking pity on the desert again. I have heard reports to the effect that in the country north and west of here roads and bridges have been washed out and a lot of damage has been done to the fields. If these rains continue we ought to have some fine fall flowers and pleasant weather.

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NAVAJO

By Milton Wetherill, Ranger-Historian

Visitors for July, 1933, total 133; 1935, 86; 1934, 69.

The weather has been hot for this part of the canyon, with very little rain. Thick Singer has moved his sheep out on the mesa, as there is better feed up there, with some chance for water since the rains have started.

Mr. George Harriman, Mr. J. Roach, and daughters, were in; they had lunch and spent a very pleasant time in the ruins. The oldest girl said that the ruins did not seem real as the buildings looked so small.

June 27, 14 of the boys from the Rainbow Bridge-Monumont Valley Expedition, Tsegie camp, spent part of the day looking around the ruins, and at one or two others ruins. Charles Amsden was head of the party.

July 1, Mr. Charles Bernheimer paid a short visit to Be-ta-ta-kin.

July 3, took Messrs. Charles Bernheimer, Charles Amsden, Dr. Bubbington, Phil Johnson and party to Keet Zeel.

July 4, Mr. and Mrs. Ricketson of Guatemala, C.A., made a trip up from Kayenta.

July 10, the Torbert Expedition, 16 boys and their leader. They are from preparatory schools in New York.

July 11, ten of the Flagstaff State Teachers summer school archeological class paid us a visit.

July 13, Dr. Chas. N. Gould, geologist, National Park Service, Oklahoma City, and Vincent W. Vandiver, associate geologist, National Park service, Santa Fe, New Mexico.

July 15, went down to Tsegie camp where I met Dr. Frederic P. Loomis of Amherst, Mass., Dr. E. B. Howard, Dr. Ernest Antvs. I took Dr. F. P. Loomis and geological party, as well as Dr. E. B. Howard, down to Wildcat Canyon to a bone bed which comes in the top of the Chin Lee formation. One very nice skull was located and another which was not so good. As Dr. F. P. Loomis was going on out to Marsh Pass, I returned with Dr. E. B. Howard to Tsegie Camp where we joined Dr. E. Antevs. From there we made the trip to Be-ta-ta-kin.

Birds for July:

Mountain Bluebird	Lead-colored Bush-tit
Mountain Chickadee	Western Mourning Dove
Red-shafted Flicker	Ash-throated Flycatcher
Western Gnatcatcher	Sharp-shinned Hawk
Western Red-tail Hawk	Desert Sparrow Hawk
Coopers Hawk	Broad-tailed Hummingbird
Long-crested Jay	Woodhouse Jay
Pinyon Jay	Nighthawk
Rocky Mountain Nuthatch	American Long-eared Owl
Flammulated Screech Owl (one has taken up his evening hunting in the ruins)	Western Hored Owl
	Say Phoebe
	White-crowned Sparrow

NAVAJO (CONT.)

Bird for July (Contined)

Poor-will	American Ravin
Western Robin	Northern Violet-Green Swallow
White-throated Swift	Western Chipping Sparrow
Spurred Towhee	Gray Titmouse
Western House Wren	Canyon Wren
Rock Wren	White-breasted Woodpecker
Turkey Vulture	Western Mockingbird

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BANDELIER

By. J. W. Hendron, Acting Custodian

Visitors:

Visitors numbered 2,162,, arriving in 431 cars from 34 states, and the District of Columbia.

The six highest states in order by visitor count were: New Mexico, 548; Texas, 200; Oklahoma, 164; New York, 91; Kansas, 88; and Colorado, 84.

Attendance increased 352 over last month, or 19%, and increased 70 over the July, 1935, total, or 7.7%.

Although not represented by cars, a total of 9 people from foreign countries visited the canyon this month; they were from England, Holland, and France.

Return visitors fall short of last month, numbering 123, and I am inclined to believe that we missed some of them.

Weather and Roads:

Days partly cloudy:	25	
Days cloudy:	0	
Maximum temperature:	90	July 6.
Minimum temperature:	51	July 12.
Mean Maximum--------	78	
Mean Minimum--------	58	
Precipitation-------	3.44	against .81 for July, 1935.
Rain and sleet------		June 27, 29 and 30, July 1, 2, 6, 7 , 8, 9, 10, 11, 15, 16, 21.
Dust storms---------		None.

The weather has been good and the rains have been most welcome, the heaviest precipitation being on July 10, with a total of 1.50 inches, beginning about 4:45 p.m. and ending some time during the night.

The roads have been slightly rough since the rains started, but I think the canyon folks would like the roads a little rougher and a little more rain. The dust has settled considerably since these showers and we are looking forward to more of them.

Visitor Trip Chart:

Two-hundred and twenty-one parties took guided trips through the ruins, or were given short individual lectures, numbering 1,258 people. The average time per party was 69 minutes. One hundred and eighty-nine parties took complete ruins trips; twenty-six were given short talks or special lectures.

A short time ago one of the Couriers with a Harvey party suggested a bench for visitors to sit on in one of the shady spots under the cliffs. I found that this increases the interest of visitors since a log was dragged up to the spot for them to sit on and rest after quite a pull from the canyon floor up to the caves. Of course when people sit down and collect their thoughts they ask many more questions and this gives us a chance to really unfold, thereby increasing the time of each party but in the long run I can't see why this arrangement isn't more satisfactory since the personnel at Bandelier is large enough to handle most of the people we come in contact with.

I wish to praise the fine work that is being done by the CCC enrollees acting as guides. In the short time I have been here I have never heard a one of them complain about anything they were asked to do. They always seem willing and are especially polite and well mannered when in the presence of visitors. I have had some very favorable reports on them from visitors who are appreciative and have been well pleased with their trips. I am inclined to think that these boys are three of the finest we have in the camp. They are all taking correspondence work through the Educational Advisor trying to finish their high school work, and since they are so interested in archeology we are going to have a class, meeting two nights out of each week. This will enable them to get further with their high school credits and will also broaden their knowledge of archeology and anthropology; thus, giving a much better lecture on the story of Bandelier National Monument to the visitors they come in contact with.

Special Visitors:

June 27 - Chuck Richey was in for a few hours on business with Thomas C. Vint, Chief Architect, Branch of Plans and Design in Washington, and also, Merle Sager, Associate Landscape Architect from the Regional Office in Oklahoma City. A. E. Borell and Dr. W. B. McDougal were in for a short visit, going over some of our wildlife. Dr. McDougal is with the Wildlife Division in Oklahoma City.

BANDELIER (CONT.)

JUly 4 - Dale King and Ansel were in going over the plans for the museum and giving things the once over. They left in a hurry but returned on July 6 with Chuck Richey so it looks like the museum will be under way in a short time.

July 7 - Dr. Chas. N. Gould, Geologist out of the Regional Office in Oklahoma City, was in with Vincent Vandiver, Associate Regional Geologist from the Santa Fe, office. We took a trip through the ruins going over a little archeology and geology and finally ended up down at the upper falls amidst all of Nature's wonderful workings in volcanic material.

July 8 - Dr. Frederica de Laguna, from the University of Pennsylvania Museum, was in with her mother for a visit. Dr. Laguna has been with the Soil Conservation Service for the past six months in southern Arizona, and at the present time is making a tour of Southwestern Monuments.

July 14 - Hugh M. Miller arrived for a few hours on business.

July 17 - Dr. C. P. Russell, Chief of the Museum Division out of Washington, was in for a short inspection with Floyd Yeager from the Santa Fe office.

July 19 - W. S. Stallings, Laboratory of Anthropology in Santa Fe, was in for a short visit to look over the Community House and other things of an archeological nature.

July 21 - Lyle Bennett and J. E. Bell from the Santa Fe office spent a few hours on an inspection tour.

General:

It looks like things are really being rounded out at Bandelier. The Museum Building is nearing completion and the new living quarters are going up fast, and I can truthfully say that they are not to be sneezed at. I'm anxious to move into one of the new houses for I have a lot of studying I would like to do this winter, that is if I am here long enough.

George Sholly came on duty July 1 as maintenance man for Bandelier and has recently been trying to put these roads in shape since the hard rains. George has been in this part of the world for the last three years and worked for Mr. Chase, Project Superintendent, until last spring. He knows the country around here and I think that he will be a great help to this office in many ways in addition to his maintenance work.

I heard from Earl Jackson the other day and he seems to be getting better all the time and gaining energy, so from all indications he should be ready to go back in the Service in a short time.

I could think of many things I would like to put in this report but I shall save the most of them until next month.

CHACO CENTER
NATIONAL PARK SERVICE
P.O. Box 26176
Albuquerque, New Mexico 87125

BANDELIER ECW

By H. B. Chase, Project Superintendent

The completion of the flagstone floor in the Museum Building completed this building ready for construction of museum cases under the furniture project. The rough interior walls in this building were left unplastered, awaiting detailed plans for the museum cases, as it is contemplated considerable firing and plastering will be necessary to complete the case installation.

Construction crews have finished Quarters No. 2, and the building is now turned over to the painting and carpenter crews. All doors have been constructed and are ready for hanging, and a portion of the windows are now in place. The painting crew has started clean-up, and will start wall and trim painting immediately. After painting and inside cabinet work is finished, this building will be ready for occupancy, probably August 15.

Construction of the residence area equipment shed and dormitory quarters was started under the direction of Foreman Eden about June 25. To date, all window and door openings are in place, and wall construction to lintel height. This building consists of a four stall garage for the four quarters shown on the Master Plan which do not have adjacent garages, and an additional two rooms with connecting bath.

The refuse burner, constructed on the North Mesa, near the rim of the Canyon, was completed this month and is ready for operation. The structure was built in accordance with approved plan BAN-9003, and will undoubtedly be of considerable aid in disposition of camp ground refuse and other wastes at the time the camp is removed from this area. At the present time all refuse goes to a much larger plant initiated by the Army.

Considerable spraying and insect control work has been carried on in the Canyon under the direction of Forestry Foreman Fulton, in an effort to control the Tent Caterpillar which has come in evidence along the Rito de los Frijoles.

The usual summer rains initiated considerable work under our project, Excavation Channels and Ditches, as justified in our application for this project. The location of a number of our newly constructed buildings created a distinct flood hazard, and recent rains proved this by flooding our new museum and quarters No. 2 buildings. Diversion channels and ditches have been constructed around these two buildings, together with other grading which will eliminate the flood hazard.

The rock quarry crew has been in progress these past two months, busily quarrying and shaping rocks for our various building projects under construction.

The informational signs for Sunset Crater National Monument are now complete for shipment; however, we are holding these signs awaiting an

inspection by Architect Richey before shipment is made. The completion of this large order of signs will enable us to start carving a number of small orders for various monuments in the Southwest. We hope to have these additional signs ready for shipment within the next month.

Receipt of approval of our power and telephone cable purchased for our underground systems here has enabled us to continue installation and to date all cable on hand is in place. Entire completion of this project will be made upon delivery here of additional cable necessary, to be ordered for compliance of engineering specifications.

A small amount of landscape work and planting small shrubs and plants, together with considerable water haul to promote the survival of last fall's program has been in progress the last two months by the landscape crew.

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TONTO

By Woodrow Spires, Ranger

This closes a dull summer month, with the visitor count being somewhat lower than that of the same period last year. This I believe is due to the Texas Centennial and some unusually warm weather.

The thermometer has been hovering around 100° for the greater part of the month. Precipitation totaled little more than 1.5 inches which fell in the form of two rains and four light showers.

The following travel figures are derived from SWM Stencil No. 16:

Total visitors at the Monument	289
Total time guiding	4,500 minutes
Total visitors taking field or ruins trip	157
Total number of field or ruins trips	42
Total time field or ruins trips	3,190 minutes
Average time field or ruins trips	75 minutes
Average group field or ruins trip	3.7
Total visitors museum trips	232
Total museum trips	62
Total time museum trips	1,310 minutes
Average group museum trips	3.7
Average time museum trips	21 minutes

By comparing this with last month's report, I find that there are fewer visitors but the average stay in the field is increased from 63 minutes to 75 minutes this month. This bears out my theory that the summer visitors are more interested than the winter visitors.

A few newsworthy visitors this month:

July 2, Custodian Frank Fish of Chiricahua National Monument,

accompanied by Mrs. Fish and the two minnows, stopped in for a few minutes.

July 11, Ansel F. Hall, of the Berkeley office, accompanied by Dale S. King, of the Coolidge office, stopped to inspect the proposed museum site and visit the lower ruin.

July 19, Robert L. Cole, former ECW clerk for Southwestern Monuments, and brother Clarence R. Cole, student technician at Headquarters, spent the day visiting the ruins and talking over old times.

July 21, Miss Wilma C. Honeyer, ECW clerk in the Personnel Division of the National Park Service, Washington, D. C., was an interested visitor.

The following are notes from the Nature files of the Monument:

Shortly after the first summer rain in early July the ocatillos which have been bare of leaves for two months put forth a new set.

A great portion of the larger mesquites in this section are putting forth a second crop of beans.

Young quail undoubtedly second hatchings are appearing now (July 20).

With this I bring to a close the first year of my employment at Tonto of which I have enjoyed every day.

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AZTEC

By Johnwill Faris, Custodian

True, Boss, this is getting to be an old story, but nevertheless July joins with several other months this year in being better than any similar month since 1930. Visitors for the month total 2,089. Aside from the visitor angle this month has been most interesting. The parking area is receiving its topping and it is going to be mighty nice, but you are not going to catch me saying it is the best in the Southwest, after your prophecy of a short time ago. On second thought, however, I do believe that such is the case. Any one that knows A. E. Underhill knows that we are getting a fine job. His personal interest, as well as his professional knowledge, is most appreciated.

July, 1936, will long stand out as a very important month for the Monument; a dministrators from both Colorado and New Mexico stopped off, several Park Service and ECW men, and individuals from many units in our field. Ansel Hall and Dale King started the ball rolling with some mighty valuable discussions of our museum treatment; they had hardly left us when Dr. Gould and Vandiver dropped in with us. This was the first visit for either of these men and it is very much regretted that neither Mr. Hart nor myself

were here to go through with them. I had the pleasure of spending several minutes with them in Aztec and again a few minutes at Mesa Verde, and those few minutes were just enough to cause me to sincerely hope that it will be possible for them to make us a return visit. At this point in the game Bert and Mrs. Hart presented the Monument with a big baby boy, Paul, but, Boss, to go on and list all would be taking all the report for names and will just hurriedly mention the names. Mr. Wilson, Assistant Secretary of Agriculture and his party, were in with us for a time, and I want to say that we have never had a more interested party than that from our sisiter Department; Baker from Denver; Osborn from Flagstaff; Mr. a nd Mrs. Ricketson; Mr. G. G. Simpson and daughter; Homer Bodford from Colorado capitol; and, Boss, of very much importance to the Monument is the visit of Assistant State Highway Engineer from Santa Fe. It is barely possible that the Governor will consider paving the road from the highway to the Ruins. He has been most gracious in his consideration and I feel that he will be the one that will see to it we have a road leading to our attraction. Governor Tingley never visits this section of the cou try that he does not drive out and he has consistently evidenced a very sincere interest in the Monument, and the entire county is hoping that his vision will allow him to give us a road out here. It is a matter of only a couple of weeks now until the entire road from the Colorado state line to Shiprock will be oiled, and it is not very attractive to the average visitor to leave an oiled road for our cow trail up to the Monument. Anyway, Boss, we have faith in the Governor and believe he will get us the road.

Well, Boss, I know that this is not much of a report and I have a lot to report, but I am going to send this on with apologies and get out on the job and see how things are shaping up on the outside. I read with a great deal of interest the letter on reports in the Broadcast, and I think there is a lot of food for thought. I might even break loose and write my views for an issue of the Broadcast or at least for my own peace of mind. Am also wanting to look over the list of available books again and get some up here for Bert and myself.

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HEADQUARTERS STUFF
BRANCH OF EDUCATION

By Charlie R. Steen, Jr. Park Naturalist

The Educational staff of the Southwestern Monuments for July, 1936, consisted of Robert H. Rose, assistant Park Naturalist, Junior Park Naturalists Dale S. King and Charlie R. Steen, and Student Technician Clarence Cole.

Activities of the staff

During the month Rose made the following field trips: (1) to

Chiricahua; (2) Tumacacori; (3) Tumacacori and San Ignacio, Sonora; (4) left on the 19th for Berkeley where he will be stationed for several months.

King made field trips through the northern monuments with Ansel Hall and Ned Burns and at present is at Bandelier National Monument preparing and installing exhibits for the new museum.

Steen was at headquarters for the entire month with the exception of one trip to Tumacacori and San Ignacio.

Report of Student Technician Clarence R. Cole, ECW:

As with last month, about half of my time was spent guiding, while the balance was spent doing mimeograph work in the Naturalists' office. I was guiding daily until Don Erskine returned from his vacation and let me get back to my job of mimeographing.

Two Sundays ago, Bob and I drove up to Coolidge Dam, stopping by Tonto on the way back to visit with Woodrow Spires, who feasted us royally while telling us what a nice ruin he has. I agree with him, Tonto is really beautiful, the flora of the region also being very outstanding.

My working time was spent as follows:

Guide Duty:

Total number Ruins trips ----- 59
Total number Museum trips ---- 52
Total days guiding ---------- 14

Office Duty:

Mimeographed 360 copies Annual Report.
Mimeographed 2000 copies Tonto Informational Leaflets (Incomplete)
Helped Charlie Steen install the new bookcases.
Numerous other minor duties.

Gifts and Accessions:

The Carnegie Institution of Washington has donated a group of 23 publications to the Headquarters library. These papers and reports are listed by title in the Supplement to this report; the subject matter covered by them ranges through anthropology, history, botany and zoology.

Twenty-one steel and glass bookcases arrived and were installed during the third week of July. Our library is now adequately housed and protected against casual loss of books by virtue of being under lock and key.

Bird Banding:

Banding at headquarters has been at a standstill for some time, due to a lack of bands. A fresh supply has been received, however, and traps are being baited again. Only two monuments reported banding operations for July; these were Walnut Canyon and Pipe Spring.

Walnut Canyon

7 Crossbills
6 Western Chipping Sparrows
2 Western Tanagers
1 Greenbacked Goldfinch
1 Red-shafted Flicker

Pipe Spring

5 Arizona Crested Flycatcher
1 House Finch

As an incentive to those in the field who are banding, two letters received during July are copied here:

"I am in receipt of your report for the Southwestern Monuments for the fiscal year 1936, the detailed report of the Casa Grande National Monument (Louis R. Caywood, Operator), and the report of the Tumacacori National Monument, of which Mr. Louis R. Caywood is custodian.

"These reports have been examined with a great deal of interest, particularly since there are so few banding stations in the southwestern part of the country. Because of this the Biological Survey naturally looks to the stations established at Southwestern Monuments to produce some information of more than ordinary interest. An example of this is already apparent in the work that has been done with the Gambel Sparrow and we must compliment you upon the very high percentage of return records you have obtained for this species. In connection with this bird it is worth while to comment that a closely related eastern species, the White-throated Sparrow, which has been banded literally by the thousands, yields very few return records, particularly at stations located along the migration route. At a few stations on its wintering grounds some return records have been obtained but one of our stations located a short distance north of Chicago has banded possibly 14,000 White-throated Sparrows and has never yet recaptured one of its own banded birds.

"Please extend to the various assistants who have aided in this work the appreciation of the Biological Survey for their efforts and our hopes that they will continue to enjoy the work and that the stations may be continued in operation and their activities extended."(F.C.Lincoln, USBBS)

"We have received copy of your mimeographed list of bird banding totals for the fiscal year 1936.

"We desire to thank you and express the belief that this record is most impressive. Aside from the direct results to be obtained from this study, the data will be valuable for a list of the birds of the national monuments which is on the agenda of the Wildlife Division for future compilation. If a copy has not been sent to the Wildlife Division, San Francisco, and an extra is available, it would be appreciated if the records of that office could be made more complete.

"During a recent talk with Ansel Hall it was remarked that he has on hand a number of banding traps that he would like to place in use. This is referred to you in the event that you could use more than are already on hand.

Sincerely yours,
VICTOR H. CAHALANE, Acting Chief,
Wildlife Division,"

Visitor Figures:

As nearly as we can check up, we had 30,110 visitors in July at the eighteen monuments reporting. If we could get a check on the others it would not change that total very much.

Eleven thousand and eleven of them went on guided field trips, taking two thousand one hundred field trips, making an average of 5.2 persons per trip. The average field trip lasted 41 minutes, as nearly as we can get the figures.

Six thousand and eight of the visitors attended eleven hundred and twenty-nine museum talks. These museum parties averaged 5.3 persons each and the talks averaged 21.3 minutes each.

Turn these figures over in your mind a moment and you will see that we gave a highly personal service and a lot of it. With less than six persons in your party you can reach the individual and if the party stays forty-one minutes in the field or twenty-one minutes in the museum, you will have time to give that individual some knowledge of your place.

The trouble is that we did not reach a higher number of our visitors. The total travel was 30,110 and we made 17,019 contacts, or 56.5%. The greater part of the answer is, of course, lack of personnel. The remainder of those visitors did not refuse the service, for one reason or another they just never had the chance to get it. And the condition is really worse than the above percentage would indicate, because in those 17,019 contacts there are a lot of double-contacts on the same visitor. He takes a field trip and he goes into a museum and you have a double-contact on the same visitor.

STATISTICAL SUMMARY OF EDUCATIONAL CONTACTS FOR JULY, 1936

MONUMENTS	EMPLOYEES		GUIDED TRIPS					MUSEUM LECTURES					MUSEUM UNATTENDED		OUTSIDE LECTURES		MISC.	TOTAL CONTACTS	TOTAL TRAVEL
	PERM	TEM	NO	ATT.	Time	AV ATT	AV TIME	NO	ATT	TIME	AV ATT	AV TIME	NO	ATT	NO	ATT			
Arches																			
Aztec	2		331	3023	12015	6.1	36.4	280	1956	4730	6.9	16.8	6	66				3979	2089
Bandelier		2550s	220	1258	15252	5.7	69.3											1258	2162
De Chelly	1	1	16	50	5840	3.1	240											50	159
Capulin	P																		2500
Casa Grande	1	1	252	1139	6911	4.6	29.7	203	1058	5103	5.2	25.1	4	20				2191	1142
Chaco	1	1	76	329	5872	4.3	77	64	255	1370	3.9	21						584	929
Chiricahua	1	2000	18	127	2520	7.0	140											127	1017
El Morro		1	77	373	4328	4.8	56											373	415
Gila Cliff																			
Gran Quiv'a	1		68	281	2950	4.1	43											281	231
Hovenweep																			
Montezuma	2		226	1178	9934	5.2	44	189	1155	4204	6.1	22						2333	1482
Nat.Bridges	II																		
Navajo	II	1	29	122	5100	4.2	178											122	133
Pipe Spring	1		18	96	365	5.3	48											96	406
Rainbow																			
Saguaro																			
Sunset																			1177
Tonto	1		42	157	3190	3.7	21	62	252	1510	3.7	21						389	289
Tumacacori	2		138	755	5098	5.4	36											755	910
Walnut		1	232	975	5212	4.1	23	234	1056	6663	4.5	28.4						2029	2384
White Sands	P		340	2028	1035	5.9	3	97	296	753	3.0	77						2324	12406
Wupatki		1	37	128	1990	3.4	53											128	321
Yucca House																			
Headquarters																			
TOTALS			2100	11011	86252	5.2	41	1129	6003	28135	5.3	213	10	86				17,019	30,110

Out of the 30,110 visitors we took 11,011 on guided trips, or 36.5% of the total, and we took 6,008 of them, or a little less than one in five, through museums. A little more than a third of them can have field trips and a little less than a fifth can have museum talks.

We would be foolish, in the face of these figures, to put on an advertising campaign and try to increase the total number of visitors at the monuments in our district. What we need is less visitors or more personnel in order to handle the problems that we now have, and not more visitors with the personnel we now have; that can only mean another flock of problems and a lot of poor service to the visitors.

Comments:

The table says that Paul Beaubien was the busiest man in the southwest last month when it comes to handling visitors. Single handed he met 2,029 of the 2,384 visitors who went to his monument.

Lest you get the idea that he handled these visitors in large groups, thus making it easy for him, I might point out that his average party on guided trips was 4.1 and his average party in the room in his quarters which we call the "museum" was 4.5. If you have been on a lone post yourself you can read between the lines of these figures and see the number of meals Paul missed and the other number where the food was cold because it was too late and would take too much time to cook something. Also you would know something of the number of times he rolled out early to catch the idiot who always starts in the gray dawn in the morning and is quite surprised that your lone man is not on duty at six, a.m. And you would know of the times he talked until eight or nine or ten o'clock with his last parties, many of whom thought they were doing him a favor by staying with him and preventing him from getting so dreadfully lonesome out there in the woods all by himself! His average time was good too; twenty-two minutes on the trail and twenty-eight minutes in the museum. Try to talk straight along about any subject for twenty-eight minutes and make it interesting enough that four or five people will stand and listen to you during that time!

You will understand that the trail and the museum at Walnut Canyon are more than a half mile apart. This means that only rarely can Paul show the ruins and the museum to the same party. When he is out at the point taking care of the trail, the people he shows around the trail cannot get into the museum and vice versa. This means that we could just about double our service at Walnut with a second man for then they could divide the job and the visitor could get full service.

The Montezuma Castle figures look funny. It is hard to believe that more parties and more people climbed those ladders and went into the Castle than walked into the museum.

As might be expected, the fellows in the back country can show the

longest visitor stay. People go there on a special trip to see the monument and are willing to stay long enough to learn something about it. Also, the back country monuments have their exhibits pretty well scattered and it takes time to cover the ground to see them. On the other hand, the visitor drops in at Aztec or Tumacacori or Casa Grande on his way somewhere else. The monument isn't the end and aim of his day's trip and he doesn't want to spend too much time there; he wants to be on his way. Also the compactness of these monuments lends itself to a much quicker trip.

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CLOSING

It has been another good month among the Southwestern Monuments and we feel like it is a pretty good world after all.

The weather has been favorable for travel over the district in general, as you have seen from the Condensed Report and the Reports from the Men in the Field and the visitors have responded by coming out in larger numbers as you have also observed in the tables.

Business, which has been on the up-swing for many months here in the Southwest, has improved during the month and seems better now than for the past five years. As I write this our rainy season seems pretty well started over the district and it looks like any danger of a bad drought is past. In fact the rainy season in Southern Arizona opened with such a rush that railroads and roads are going to absorb thousands of dollars in repairs due to floods.

The office work came past the end of June, out of the old fiscal year and into the new, with an over-worked office crew but without breaking down. We hope by another month to report office changes which will reduce the overload and give us something like normal working conditions.

Customs:

I think, Chief, that among us here in the Southwest we have some of the most interesting jobs in the United States.

Where else could you drop back half a dozen centuries in this year of our Lord, 1936, and match that episode Carroll Miller reports? The Navajo must destroy the house; must kill the horse; must not touch his dead if it is possible to get a white man to handle the burial, and so on. And you notice how the boys up there took it all in the day's work; you never know in the morning what will break before night. Reminds me of one time several years ago when an old Indian came over to our camp in the Chaco and asked us to take a youngster in to Crownpoint to the hospital. It was a snake bite and they held a sing over the kid two or three days, and then, their faith weakening, turned as a last resort to

the white man's ways of doctoring and we spent a little better than half the night ta king the youngster over the worst forty-five miles of road in New Mexico to the Agency. Incidentally, the doctor pulled the youngster through, too. I am also reminded of the time one of the expeditions working up there made the mistake of hauling a corpse out in the light truck they hauled the workmen to work and then had a whale of a time getting the evil spirits out of the truck so the workmen felt safe about using it afterward.

It was just a few years ago that some of our Pima Indian friends put a forty-dollar saddle and bridle and a pair of silver mounted spurs in the grave with a boy who had been to school through the eighth grade and could read and write and speak your English language. The past and the present live pretty close together down in this country.

Visitors:

I would like to call your attention to the visitor tabulations this month; especially that item of 12,406 visitors at White Sands National Monument. And we gave a few minutes of service to twenty-three hundred of them'. Possibly you may reply, "So what?" In other words, you may think they can't carry the White Sands off, the wind will level out their vandalism, and so what do we need any personnel at that Monument for? From the protection standpoint I am free to admit that we do not need men at White Sands very badly, and I am not asking you to let me put the next two or three protection men we can get on our rolls at that place; we need them worse elsewhere. But when it comes to meeting visitors and giving them much wanted and much needed information, we can meet more visitors with less men at White Sands than at any other place in our district, and just as soon as we get those open holes in our protection fight plugged, I want to put some information forces at White Sands. Twelve thousand people in a month would make quite a bulge in some of these park attendance records and might cause a flurry of road and trail construction a long with some lookout houses and museums and trailside structures, and would certainly cause a few more 'educational contact' men to be put on the staff, so we think it is worth while to call your attention to these twelve thousand visitors at a monument and point out that two or three Park Service men could be used to good advantage there. The proportion of one ranger per twenty thousand visitors per year would not be considered over-staffing a park, would it?

Specialists:

I came up with a short turn the other day when one of our field men sat down with me and seriously discussed the subject of how he was going to get time to handle his regular job with all these specialists coming in on him and expecting him to knock off and show them around. That sounds funny, ut it isn't. Each of these specialists is a corking fine fellow almost without exception; each of them is right up on his toes and thinks his specialty is the most important work of the National Park Service. None of them ever stops to wonder how we ever handled visitors before their

particular department was born, because few of them ever look beyond their specialty and we have no specialists in visitors; the foundation upon which the Park Service is built.

Anyway, we think we found a solution, or at least a partial solution to the problem and that fellow is going to have more time for his real job and the specialists are going to be happy and all's well with the world. If it works out we are going to copyright it and sell district rights to the other superintendents and get rich. In other words, we are on the way to becoming a specialist in how to handle specialists.

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

(Just as we go to press comes some interesting news from Zeke)

I am very glad to report all is well with me and the monument I represent. We may have fallen down a little this month in quantity of visitors, but not in quality. First, came Deric Nusbaum and his mother; then the Forbes and the Hennings; Dr. and Mrs. Montgomery and their two daughters; Captain and Mrs. Graham of U. S. Army of San Francisco; two members of the State Road Commission; and many other very fine and interested people. I certainly enjoy talking to and hiking with people that can see beauty at every turn. It was my pleasure to hike with the Forbes and Hennings, a very interesting day for me. I never tire of hiking when people are interested and it has been my great pleasure to be able to interest most all the people.

The first part of July was very hot and dry, but during the last eight or ten days we have had several showers and several floods down both canyons, so it is cool and nice at the monument now. Grass and flowers are plentiful. I am trying to keep horses out of the canyons this season. There has been none in yet. I sowed a lot more sweet clover than last fall and it is growing nicely. I want to improve the amount of vegetation and by keeping horses out of the canyons I can do it. A few deer and mountain sheep are still grazing in the canyons, but they don't stay long.

Roads were never better. I have had Mr. Wilson working on trails for three weeks. He is surely a good trail builder and knows the needs of every turn. He will be there for a few days yet. We are taking out many crooks and turns and steep places.

I am hoping now that the cool weather will bring more visitors for I am always in my glory when I have some one to assist me in seeing and learning of the beauties of the Southwest.

I want to thank you for the "Broadcast" and the fine mention of me. I read every word of it.

****

CAPULIN MOUNTAIN By Homer J. Farr, Custodian

(A second belated report is received just as we go to press)

We had an average of a little over one hundred visitors per day during this month. I would estimate three thousand five hundred at the Monument for July. They have come from almost every state and some foreign countries. No notables or of Royal blood that I have trace of have visited this Monument this month, altho many are in and out that I am unable to contact.

Some work has been done on the road this month, and we are working now on the road and trails and camp clean-up and repairs.

Weather has been rather warm for July, with a light shower each week during the month and grass and trees are looking fairly well. We do not have the profusion of wild flowers this spring and summer that we have some seasons.

The porcupines are doing considerable damage to the trees and if this is not soon abated I will apply for a permit to thin them out. Undoubtedly the trees are worth more to the Monument than the porkies and we can leave a few of these just in case some tourist desires to see one or make a coat out of one.

THE Supplement



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GEOLOGY OF NAVAJO NATIONAL MONUMENT

By Vincent W. Vandiver, Reg. Geologist

INTRODUCTION

The purpose of my trip to the Navajo National Monument was to ascertain the geological features in the vicinity of the ruins in order to prepare a formal report on the area. The Monument was reserved on the basis of the archeological interest. It is considered important however that the Park Service staff be informed on the geological aspects since numerous visitors ask to be advised on these questions and since such features have had a direct bearing on the presence of the Pueblo cliff dwellers in the area.

LOCATION

Navajo National Monument is situated in the northwestern part of the Navajo Indian Reservation, in northeastern Arizona. It is composed of three units, - Betatakin Ruin, Keet Seel Ruin and Inscription House Ruin. These areas comprise a total of 360 acres and were reserved by the Government in 1909 and 1912 as a means of preservation of some of the most important remains of Pueblo cliff-dwellings thus far discovered. The maximum distance between the three units of the Monument is about 20 miles although this distance by trail or road due to the necessity of circuitous routes is much farther.

Betatakin Ruins and Keet Seel Ruins may be approached from the southwest from Shonto and from the east via Kayenta. The road leads to the top of the mesa above Betatakin and a trail for horse trips has been constructed into the canyon, distance of about a mile, to this point. A rough horse trail is available to Keet Seel from Betatakin which is approximately eight miles in length. The route to Inscription House Ruin turns north along the Rainbow Natural Bridge road about midway between Tuba City and Kayenta. Travel may then be made by car westward for a distance of about two miles from the Inscription House trading Post at which point the rim of Navajo Canyon is reached. A horse trail has been constructed into the canyon and the ruins are located about four miles distant from the rim.

Mr. John Wetherill of Kayenta, Arizona, is custodian for the Monument. Mr. Milton Wetherill is the acting ranger in charge and is stationed at the Betatakin Ruin.

CLIMATE

The climate of this section of the Navajo country is arid. The rainfall average for eleven years to 1927 at Kayenta, with an elevation of 5,800 feet, amounted to 8.80 inches per year. The minimum temperature

during this period was -16° F. with a maximum of 104° F. The average annual range at this point is between -8° F. and 101° F.

HISTORY

There are over three hundred cliff-dwelling ruins in the Tsegie Canyon drainage system north of Marsh Pass and while I have visited only a few of them, besides those included in the Monument, it is understood that they are all constructed in alcoves of the Navajo sandstone. There are times when a geologist may map outcrop of a formation from the surface vegetation and here from the association of the number of ruins with the Navajo formation it would seem almost possible to use this criterion.

Betatakin

This ruin is located in a magnificent arch of Navajo sandstone, on the west side of Tsegie Canyon, about one and one-half miles below the junction with Dogoszhe Beco Canyon. Betatakin was so named from the Navajos which means "Side Hill House." The enormous archway in which the cliff-dwellings were constructed is 425 feet in height to the crown, has a span of 370 feet, and reaches a maximum depth of 135 feet. It is difficult to realize the proportions of the arch or window until one has stood in its recesses and looked outward across the canyon. The great Rainbow Natural Bridge could be placed inside of the archway with room to spare. The dwellings consist of some 135 rooms and they rank fourth in size of those discovered thus far. From tree ring data it has been discovered that the ruins were inhabited from 1242 to 1277 A. D. One of the best springs in the country flows out of the sandstone cliff at the base of the arch with a flow of one and one-half gallons per minute. Betatakin was first known in 1907. In 1909 Mr. John Wetherill conducted Professor Byron Cummings to the site just prior to the First Rainbow Bridge expedition. In 1917 Mr. Neil Judd cleaned and repaired certain portions of the Betatakin ruins.

Keet Seel

This ruin derived its name from the Navajo term Keet Seel or "Broken Pottery" and it is located in the canyon of the same name, some eight miles by trail above the Betatakin ruins. It contains 152 rooms and is the second largest Pueblo cliff-dwelling known and ranks second to the largest ruins located at Mesa Verde National Park. Discovery was made by Richard Wetherill in 1894 who was accompanied by Mr. Charles Mason. They revisited the site in 1897. Some restoration and cleaning was carried on with CWA funds in 1934. The dwellings are indeed spectacular and one would not need to be an archeologist to enjoy spending considerable time at the site. They are also located in a huge archway in the Navajo sandstone. Slabs of Kayenta sandstone were carried from some distance below in Keet Seel Canyon for certain parts of their

construction. The site was inhabited by Pueblos from 1116 to 1284 A.D. and it is considered that these peoples together with those of Betatakin migrated to Canyon del Muerto (Canyon de Chelly) because of drought conditions.

Inscription House

These ruins, located in Navajo Canyon, were named from a dim carving on the wall which has been interpreted to read "Carlos Arnais 1661". A party headed by Professor Byron Cummings discovered the ruins and the inscription several years ago. The dwellings are located more than 150 feet up on the side of a cliff of Navajo sandstone and the inhabitants were well protected. A rather large cave is present on one side. Some protection must have been desirable as other sites might have been selected which would have been more accessible. Occupation was during the Pueblo III interval. Some water is in evidence in the stream bed of the canyon which is probably fed by springs. No doubt some water could be developed in the canyon from seeps.

Besides the above mentioned ruins which have been included in the Navajo National Monument there are many others of importance in this area some of which are Swallows Nest, Rope House, Platform House, Bubbling Spring, Turkey Cave, Turkey House, Ladder House, Bat Woman, Twin Caves, Horn Basket and Spruce Tree House. They contain from 20 to 30 rooms.

GEOLOGY

The three units of the Navajo National Monument are all located in the lower part of the Navajo sandstone formation. This massive wind blown deposit outcrops over wide areas to the northwest of Black Mesa and forms the uppermost member of the Glen Canyon group, generally recognized to be Jurassic in age. As yet no fossils have been found in the Navajo sandstone to definitely establish its age so that it should be kept in mind that this classification is tentative. The sedimentary rocks involved in the three units of the Monument and vicinity are composed of Pleistocene or Recent Lake Beds; Navajo sandstone, Kayenta formation, and Wingate sandstone of the Glen Canyon group, Jurassic (?) in age; and the Chinle formation of the Upper Triassic. A stratigraphic section indicating additional details of the above mentioned formations is included on page following.

PLEISTOCENE TO RECENT

In recent years, possibly not more than 25 years ago, Marsh Pass as well as Tsegie ("Lakes in the Canyon") Canyon contained swamps and lakes which have since been drained by a deep arroyo. Overgrazing is generally conceived as being responsible for this new erosion cycle. There is much evidence of an extensive series of lakes in both Tsegie

STRATIGRAPHIC SECTION, NAVAJO NATIONAL MONUMENT

AGE		FORMATION	THICKNESS (FEET) REGIONAL	THICKNESS (FEET) LOCAL	CHARACTER OF ROCKS
RECENT TO PLEISTOCENE		LAKE BEDS		0 TO 60	Sands and gravels deposited in an old lake bed or series of lake beds which once occupied Tsegie Canyon. Several different periods may be recognized. Plant remains and several varieties of fresh water shells are present.
JURASSIC (?)	CLEN CANYON GROUP	NAVAJO SANDSTONES	400 to 1100	900	Massive buff to grey sandstone, with spectacular cross-bedding and well developed jointing. contains local limestone lenses. Weathers various shades to brown and red. Prominent cliff maker. No determinable fossils have been discovered. Of a total of over 300 ruins in Tsegie Canyon drainage system all are in this formation. The Navajo Monument ruins occur near the base. Widespread tangential cross-bedding has made possible the huge development of arches, alcoves and caves.
		KAYENTA FORMATION	0 to 225	0 to 225	Uniformly bedded, red to buff sandstone, with interbedded shale. Weathers a grey vermillion. More slope forming than Navajo sandstone. No fossils have been found although dinosaur tracks have been located to the north of this area.
		WINGATE SANDSTONE	30 to 450	150 to 250	Buff cross-bedded sandstone which forms vertical cliffs. Cross-bedding not so highly developed perhaps as in the Navajo sandstone. Weathers deep red to black. Unfossiliferous although dinosaur tracks reported.
UPPER TRIASSIC		CHINLE FORMATION	0 to 1182	0 to 70	Variegated shale which contains silicified wood. Exposed in the lower parts of Tsegie Canyon. Supplies much of the paint in the Painted Desert area.

and Keet Seel Canyons. Sands, gravels and clays have been deposited in regular beds up to 60 feet or more in thickness. The trail leading from Betatakin to Keet Seel shows a remarkable development of this formation. The remains of plants and pollen together with the presence of fresh water shells buried in these beds has led geologists to believe that lakes were depositing their sediments from the Pleistocene to Recent times. Several different stages of development or cycles may be observed in sections of the Lake Beds where the present drainage system has unfolded excellent exposures. These beds usually cover the Wingate sandstone in the lower portions of the canyon although in some instances it is the Chinle formation that is obscured.

JURASSIC (?) - GLEN CANYON GROUP

Navajo Sandstone

The uppermost member of the Glen Canyon Group in this area is the Navajo sandstone formation. This formation contains the three units of Navajo National Monument and it is stated that there are some 300 other cliff-dwellings in the Tsegie Canyon drainage system which are also found in the Navajo. A superb display of cross-bedding with tangential planes a conspicuous feature and the almost total lack of horizontal bedding characterizes the formation. It is composed of sub-angular to rounted grains of quartz of medium size, which are rather loosely cemented by calcium carbonate. On fresh surfaces the color is buff to grey and upon weathering various shades of red and brown stand out. The coloring has not been so spectacularly applied to the Navajo in this area as in the Virgin River Canyon at Zion National Park. Box canyons and huge dome have been carved in this sandstone until passage on foot is treacherous and in many instances impossible. Rainbow Bridge and several other natural bridges in the area have been carved from the Navajo formation.

The Navajo sandstone is generally recognized to be of eolian origin. The rareness of horizontal bedding and the presence of cross-bedding on an enormous scale, together with the absence of silt and almost total absence of fossils tend to support this theory. There are thin lenses of limestone in the Navajo Monument area, especially in Navajo Canyon, indicating that at least some of the sediments were deposited by water. Efforts were made to locate fossils in these limestone lenses but no success was had. Brady (5) describes a small theropod which was discovered about two and one-half miles east of the Inscription House Lodge in the Navajo saddstone. The possible remains of a small dinosaur in this formation were found above Turkey Cave. The bones were located about 750 feet above the base of the sandstone in a sandy shale lense and it is stated by C. Camp of the University of California that they "show evidence of belonging to a different group from any dinosaur yet discovered." A few bone fragments are in evidence just below Keet Seel ruin but these are considered to be too fragmentary to serve for identification purposes. No fossils have been discovered thus far to actually determine the age of the sandstone.

Baker (3) states that the Navajo sandstone thickens towards the west and is believed to include all of the massive Jurassic sandstone that crops out in northern Arizona and southern Utah west of a line through Less Ferry, Arizona. He also states that the source of the sediments is not definitely known but concludes from the westward thickening of the formation that the source presumably lay in this direction.

Gregory (1) describes the factors involved in the formation of the arches and alcoves in which the cliff-dweller constructed his home in excellent fashion and the following is quoted from his paper, - "The sandstone cliffs in this region are beautifully sculptured; buttresses and recesses are common, overhanging walls are characteristic, and the wide open mouths of niches and caves perched high on the canyon walls are conspicuous. These cavities, protected from the rain, from the glaring heat of the sun, and from suffocating sandstorms, were widely utilized by the ancient inhabitants as building sites - rock shelters or cavate dwellings, as the terms are used by the archeologists. The structure of these beds is favorable for the production of rock shelters. The rock composing them is porous, elaborately cross-bedded, and traversed by joint planes set far apart. The curved laminae of the cross-bedded strata, 1 inch to several feet thick, are held together by weak cement that is easily removed by percolating water. Slight undermining along zones of the more impervious rock permits the overlying laminae to fall in response to gravity. They drop to the floor as a unit or in separate slabs; the crushed fragments, with cement already removed from the spherical grains, rapidly disintegrate and make their way to the mouth of the cave. As the process continues shell after shell is removed and the arched roof cave is sunk farther and farther into the face of the cliff, until building sites 200 to 3,000 square feet in area are prepared for the cliff-dweller. All stages of the work are represented. In some caves shells of partly detached rock bridge the entrance; in others blocks on the point of falling extend downward from the roof, and the floor is piled high with fragments that crumble under the blow of the hammer; still others are free of debris, and the rock of the roof and sides is firm. The work of ground water is forming these rock shelters is evident. Some of the caves are dry or streaked with moist alkali 'bloom'; in others water oozes continuously from the wall over a wide area marked by moss and ferns; many caves contain perennial springs whose outlet is definitely localized. The conditions that permit the formation of rock shelters in massive beds of sandstone--namely, tangential cross-bedding and porosity in rock of uniform composition--also favor the production of windows and natural bridges."

Kayenta Formation

The Kayenta formation in the vicinity of Navajo National Monument varies from 0 to 125 feet thick whereas regionally it is almost twice this thickness. It is uniform to irregularly bedded and consists mainly of sandstone with some interbedded shale and in some instances limestone and conglomerate. The character of the bedding is the main criterion

for distinguishing it from the massive cross-bedded sandstones above and below. There are cross-bedded standstones in the Kayenta however and for this reason it is difficult at times to draw the contact with certainty. Since no fossils of significance have been collected from the Kayenta it has been the general practice to include all of those sediments which show distinct bedding within the limits of this formation. At several localities dinosaur tracks have been found but the nearest identification that has been made is that they are not older than the Triassic. Colors range from purplish red to buff and upon weathering the beds are greyish purple to reddish brown. Generally the Kayenta is darker than the overlying Navajo sandstones. The name Kayenta has recently been adopted by the U. S. Geological Survey to replace the name Todilto formation. The type locality for the former is about one mile north of Kayenta, Arizona, and it is tentatively classified as Jurassic (?). Outcrops of the Kayenta may be seen just below the Betatakin ruins and along the trail to Keet Seel ruins. The formation lenses out in the vicinity of Keet Seel and apparently the slabs of sandstone used in the construction of part of the dwellings at this site were carried a mile or more from the canyon below. These beds were laid down in fresh water by shifting streams.

Wingate Sandstone

The Wingate is a buff colored highly cross-bedded sandstone with rare limestone lenses and local conglomerates near the base. It has many of the characteristics of the Navajo sandstone. On weathering the Wingate acquires darker shades of red to tones almost black. It is massive forming vertical cliffs and narrow gorges with vertical joints a prominent feature. It comprises the lower formation of the Glen Canyon group and again no fossils have been found which could be used to definitely establish the age and it is tentatively classified with the Jurassic (?) along with the Kayenta and Navajo. The uniform character of the sandstone and the highly developed cross-bedding together with almost total lack of fossils (a few dinosaur tracks have been reported) is most suggestive of eolian origin. The Wingate sandstone may be observed below Betatakin ruins and in the Tsegia and Navajo Canyons en route to Keet Seel ruin. At many points along the latter trail it is obscured by the Lake Bed deposit. Nothing below the Navajo sandstone is present in Navajo Canyon along the trail to Inscription House ruin.

Chinle Formation

The Chine is less than 100 feet thick in Tsegie Canyon along the trail to Keet Seel. In the general region it is asmuch as 1182 feet in thickness. It is in the main a variegated shale and can easily be distinguished from the above mentioned Wingate sandstone. Fragments of silificied which are almost always in evidence in the Chinle have been collected in Tsegic Canyon and reptilian bones have been reported from these beds in Tsegic Canyon in the direction of Marsh Pass. Vertebrate fossils have been found at many places which place the age of the

formation as Upper Triassic. Both the invertebrate and vertebrate fossils are fresh water forms and the Chinle is therefore considered to be of continental origin.

ROADS

The road to Betatakin which leads from the main Tuba City-Kayenta road is in very bad shape. To the one who is familiar with driving in the Navajo country there is perhaps little chance of getting stuck but to the tourist most every opportunity is apparent. A few days with the scraper (grader) on this stretch of road would make the two eastern units of the Monument much more accessible to the large amount of tourist travel from Utah and northern points coming through Kayenta. The approach from the south via Shonto is in much better condition.

INFORMATIONAL SIGNS

At each of the three units which make up the Navajo National Monument there should be posted the Park Service "Vandalism" sign. It would be desirable to have markers one mile apart on the trail to Keel Seel and also to Inscription House. This would give visitors who are not accompanied by a ranger the assurance that they are on the right trail and also the satisfaction of knowning how much climbing remained. The trail from the rim of the mesa to Betatakin is marked.

I would like to suggest the following informational signs to be erected along the trails naming the geological formations:

I. NAVAJO SANDSTONE
JURASSIC (?) AGE

The sloping surfaces of this sand indicate that it was deposited in dunes by the wind. The rock shelters of the Cliff Dweller were formed by the action of percolating waters on the porous cross-bedded sandstones where slab after slab is undermined and falls. See if you can observe stages of this process now under way.

Note: Three such signs are needed for each of the units of the Monument.

II. KAYENTA FORMATION
JURASSIC (?) AGE

The uniform to irregularly bedded sandstones and shales indicate that they were laid down in fresh waters by shifting streams. See if you can point out the contact between these beds and the

highly cross-bedded sandstones above and below.

Note: Two such signs needed for Betatakin area and Keet Seel trail.

III: WINGATE SANDSTONE
JURASSIC (?) AGE

The uniform texture, large scale cross-bedding and lack of fossils strongly suggest that these sandstones were deposited by the wind in the form of dunes.

IV: CHINLE FORMATION
UPPER TRIASSIC IN AGE

These variegated shales contain shells, reptilian remains, and silicified wood which have established their age. They are fresh water forms and the formation is considered to be of continental origin. Ask the Ranger to show you Petrified Wood from these beds.

Note: One sign needed to be placed along the Keel Seel trail.

V: LAKE BEDS
PLEISTOCENE TO RECENT IN AGE

Sands, gravels and clays deposited in old lake beds which once occupied this valley. Plant remains and fresh water shells are found in abundance and the Ranger will point these out to you if you wish.

Note: One sign required to be posted along the Keet Seel trail.

CONCLUSIONS

Navajo National Monument is a most interesting area. While I am not familiar with the fundamental archeological factors the ruins were just as spectacular to me as some of those contained at Mesa Verde National Park. It is surprising that so few people living in northern Arizona know of the importance and inspirational character of this Monument. The Park Service is indeed fortunate in having Milton Wetherill on duty as Acting Ranger at Betatakin. He was most helpful to me during my recent trip and is greatly interested in a ll of the different angles of the Monument. He has made a study of the plants and is now working on the birds and animals.

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CHACO CANYON RODENT CONTROL

By A. E. Borell, District Wildlife Technician

At the request of the Soil Conservation Service and under authorization from the Director of the National Park Service, I undertook the work of controlling rodents in certain portions of Chaco Canyon National Monument.

PURPOSES

Erosion is very serious at Chaco Canyon and several ruins are in danger of being undermined and washed away by floods. During the past year the Soil Conservation Service has constructed a number of dikes in an effort to spread flood waters and check erosion. Representatives of the Soil Conservation Service felt that rodents living in the vicinity would burrow into the dikes and carry away the seed which is to be planted in order to vegetate the levees. On March 12 and 13 I went over the area with Agronomist H. E. Coddington, Biologist L. V. Compton and Project Superintendent L. F. McKinney of the Soil Conservation Service and Custodian T. C. Miller. Conferences were also held with Associate District Manager W. G. McGinnies, Engineer Clifford and Regional Biologist E. D. Eaton of the Soil Conservation Service, and extent and methods of control were agreed upon. The Soil Conservation Service loaned men to assist with the work and cooperated in every way possible.

METHODS

The work was carried on with a "Karbo-Killer" pump. (Using carbon bisulphide) and traps. Although much of the soil was sandy and comparatively dry, the Karbo-Killer worked satisfactorily but it was evident that the gas would have been more efficient if the soild had been moist. We found that in dry sandy soil it took from 12 to 20 strokes of the pump for single burrows and from 20 to 60 strokes in mounds with several openings. Even 60 to 80 strokes were not always effective in the large mounds of banner-tailed kangaroo rats. For these No. 0 steel traps or rat traps proved to be the most effective. Experimentation showed that it took very little gas if the rodents were confined to a box or canvas bag. Under these conditions, kangaroo rats, pocket mice and white-footed mice died in less than one minute after a small amount of gas was pumped into the container.

Kangaroo rats did not take readily to rolled oats, peanut butter, bacon, or raisins which we used for bait. At this season they were feeding largely on green vegetation, the seeds of Russian thistle and other weed seeds. This being the case, we found that traps set directly across the entrances to burrows were the most effective. That is, we counted on the rodents running over the traps rather than going to them for bait. Fewer traps carefully set brought better results than large numbers of

traps set promiscuously.

AREA COVERED:

A total of 4,380 feet of dike was covered. Control extended 300 feet on either side of each levee and 300 feet beyond the ends of each. The 4380 feet of dike consisted of 11 separate dikes located in different parts of the monument. Three levees were located in one group and two in another. This reduced the area worked since they were less than 300 feet apart. This makes approximately 5,000,000 square feet worked. Stating it another way, the total area worked was equal to a strip 600 feet wide and almost two miles long.

LABOR AND TIME REQUIRED

Custodian Miller, Project Superintendent McKinney, Junior Biologist Dennard and myself spent a total of 29 man-days on this project. Navajo labor was used to the extent of 9 days. I worked on the project May 17 to 25, 1936, inclusive, and from June 5 to 11, 1936, inclusive, total 16 days.

EQUIPMENT AND COST

"Karbo-Killer" Pump	$27.50
Carbon Bisulphide, 20 galls @ $1.15 a gal.	23.00
Freight & Express on above, approximately	4.00
Bait for traps	1.00
Gasoline, approximately	7.50
Total	$63.00

Approximately 350 traps were used but these were already on hand and were not purchased for this project.

SPECIES INVOLVED

1. Kangaroo Rat, Dipodonys longipes. This species was found in every area worked and usually was more numerous than any other species. Carbon bisulphide worked satisfactorily on them but many were also taken in traps.

2. Banner-tailed Kangaroo Rat, Dipodomys spectabilis bailyi. Although not so numerous as the smaller species, it was common and its larger burrows and mounds were very conspicuous. Most of these mounds were barren of vegetation and distinct trails led into various directions. Some of their mounds were 12 or more feet in diameter and had from 6 to 15 openings. In these mounds also were large chambers. We found that it took an enormous amount of gas to effectively treat these mounds. Small steel traps or rat traps were most practical.

3. Baird's Pocket Mouse, Perognathus f. flavus. These very small mice were common in sandy areas. Only eleven were caught in snap traps but thirty-three were taken in the Sherman Catch-em-Alive traps although we used three times as many snap traps. Most of these caught in "live-traps" were taken away from the levees and released.

4. Antelope Ground Squirrel, Ammospermophilus l. cinnamomeus. Common in the vicinity of rocks and along the banks of washes. Only a few occurred on the flats. Since most of their burrows were beneath rocks or in broken banks it was difficult to reach them with carbon bisulphide. They came to any kind of bait and were readily taken in rat traps.

5. Grasshopper mouse, Onychomys l. melanophrys. Fairly common in sandy a reas. Since this species feeds largely on insects we made no effort to dispose of them. All that were taken in live traps were released some distance from the levees.

6. Harvest Mouse, Reithrodontomys m. aztecus. Rare, only a few taken and these were usually among the heaviest brush.

7. Canyon Mouse, Peromyscus c. auripectus. Few along the rocky ledges and about the ruins.

8. True White-footed Mouse, Peromyscus t. truei. Rare, only two were taken, these at the base of a cliff.

9. White-footed Mouse, Peromyscus m. rufinus. Common in all associations but no where abundant.

NOTE: The above identifications are based entirely on range and field identifications. Specimens of each were preserved.

DESTRUCTION OF OTHER SPECIES:

Two canyon towhees, one black-throated sparrow and one hermit thrash were caught in traps. No other vertebrates were affected except a few lizards and snakes which may have been in the burrows which we gassed.

EFFECTIVENESS OF TRAPS AND CARBON BISULPHIDE:

After we worked out a method of procedure we had good results. We found that the most efficient method was to first go over the area with the Karbo-Killer pump, then work the area a day or two later with traps. It was necessary to use traps in order to get the rodents living under rocks, along steep banks, and in heavy brush where we could not use gas. Tracks and fresh workings would tell us where rodents were still active if we waited a day or two after gassing before using traps. To make a thorough job we found it desirable to go over each area a third time with either traps or carbon bisulphide. I estimate that from 80 to 85 per cent

of all rodents were removed in areas which we worked twice and from 90 to 95 per cent in areas which we covered three times.

We found that the large banner-tailed kangaroo rats came to bait more readily and were more easily trapped than the smaller species. We also found that it took so much gas to be effective in the large dens of this species that traps were more practical.

GENERAL COMMENTS AND CONCLUSIONS

Project Superintendent McKinney and Custodian Miller agreed that our control was sufficiently thorough and that there weren't enough rodents left to affect revegetation or to damage the new levees. A little follow-up work may be necessary until the levees are settled and revegetated.

I am convinced that traps and carbon bisulphide provide a practical method of control on limited areas.

Although the expense is greater and more time is required, I believe that this method is more effective than poison grain, at least at certain times of the year. As stated above we found that kangaroo rats, at this season, were feeding on green vegetation, seeds of Russian thistle and other weed seeds and paid little attention to rolled oats. This being the case I believe that poisoned oats would not have brought the desired reduction among kangaroo rats which are the rodents which we were most concerned about.

I am also convinced that the abundance of rodents in Chaco Canyon is largely the result of overgrazing. Now the area is fenced and vegetation is coming back rapidly. I believe that there will be a noticeable decrease in rodents during the next few years as scattered weeds and brush are replaced by grass.

Thirty-six of the mammals and three of the birds taken in traps during the control work were prepared as study skins. All birds, reptiles, and other mammals observed were recorded.

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AMERICAN INSCRIPTIONS

By Evon Z. Vogt, Jr.

On the north face of El Morro, one reads the following inscription: "Lt. J. H. Simpson USA and R. H. Kern, Artist, visited and copied these inscriptions September 17th, 18th, 1849." A translation card nearby states that Lt. Simpson and Kern were the first Americans to visit El Morro and bring it to the attention of the public. It is true that they were the first men to bring the inscriptions to light, but they were not

the first Americans to see El Morro.

The Navajo trader, Mr. Lewis, who guided Simpson and Kern to El Morro must have been there before September, 1849, and over 13 years before that time some unknown and forgotten American traveled the old trail by El Morro, for Simpson and Kern found the following characters carved on the south face of the Rock near the Onate inscription:

O. R.
Mch 19th, 1836.

Who was this man O. R.? Was he a Navajo trader, a soldier, or an explorer? Was he traveling alone through the wilderness? What hardships and narrow escapes did he experience? Quien sabe? One can imagine a great number of things. Too bad he did not leave his whole name and record of his journey.

Until just recently we have thought that those initials and date had been obliterated by a century of wind and rain. Then on July 19, 1936, just 100 years and 4 months after they were put on, the initials were rediscovered. They have been defaced by some modern vandal to such an extent that one can only make out traces of the O. R., traces of Mch 19th, but the 1836 is still quite plain.

Simpson and Kern also left an inscription on the south face of the cliff which reads as follows:

Lt. J. H. Simpson USA
&
R. H. Kern, Artist
September 17th & 18th, 1849.

Not far away is the name: W. Bird
1849.
Bird was Simpson's orderly.

There seems to be no 1850 date on the Rock but in 1851 the Sitgreaves Expedition visited El Morro. Kern was along and left his name on the cliff in two places as he did before. On the north side near his 1849 inscription he cared:

R.H. Kern
Aug. 29
1851

His name is also on the cliff south of the Ranger's cabin along with Lt. Sitgreaves and Dr. Woodhouse. They are all together and are in the following order:

L. Sitgreaves USA	Dr. S. W. Woodhouse	R. H. Kern
Aug. 30, 1851	Aug. 30th, 1851	1851

After 1851 there were many Americans traveling the first highway across New Mexico. In 1853 the first emigrant train passed on route to California. There is a name on the cliff for almost every year until about 1922 when the engraving of names on the Monument had to be stopped.

THE DEATH OF R. H. KERN

R. H. Kern who visited El Morro first in 1849 and again in 1851 with military expeditions met a tragic death in the Gunnison Massacre in Utah in 1854. The following story of his death was given me by Charles Kelly of Salt Lake City.

In 1854 the Gunnison Expedition under command of Lt. Gunnison entered Utah and went down into the central part of the state. There they encamped one night in a small willow patch along the Gunnison River. Every member of the party slept in a group under the willows except two men who rolled out their beds in another patch of willows a hundred yards away. During the night their camp was surrounded by a party of hostile Pavant Indians. The first one to get up in the morning was the cook who was a bald-headed man. As soon as his bald head shone above the tops of the willows, he was filled full of arrows. He looked like a porcupine when the Indians finished with him! The terrified shouts of the cook awoke the other members of the party who jumped up and were all filled with arrows except the two who slept in the other willow patch. These men ran in opposite directions. Each thought that he was sole survivor of the massacre until they later met at a fort miles away.

R. H. Kern, artist for the party, was one of the men who jumped up to see what was going on when the cook shouted!

Lt. J.H. Simpson U.S.A. & R.H. Kern Artist, visited and copied these inscriptions, September 17th/18th 1849.

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515. 18th Annual Report BAE 1899.
-Indian Land Cessions in the United States Compiled by C. C. Boyce.

516. 22nd Annual Report BAE 1904.
-Two Summers Work in Pueblo Ruins, by Jesse W. Fewkes.
-Mayan Calendar Systems, by Cyrus Thomas.
-The Hako, A Powmee Ceremony, by Alice C. Fletcher.

517. 23rd Annual Report BAE 1904
-The Zuni Indians, Their Mythology, Esoteric Societies and Ceremonies, by Matilda C. Stevenson.

518. 24th Annual Report BAE 1907.
-Games of the North American Indians, by Stuart Culin.

519. 25th Annual Report BAE 1907.
-The Aborigines of Puerto Rico and Neighboring Islands, by J. W. Fewkes.
-Certain Antiquities of Eastern Mexico, by J. W. Fewkes.

520. 28th Annual Report BAE 1912.
-Casa Grande, Arizona, by J. W. Fewkes.
-Antiquities of the Upper Verde River and Walnut Creek Valleys, Arizona, by J. W. Fewkes.
-Preliminary Report on the Linguistic Classification of Algonquian Tribes, by Truman Michelson.

521. 30th Annual Report BAE 1915.
-Ethnobotany of the Zuni, by M. C. Stevenson.
-An Inquiry into the Animism & Folklore of Guiana Indians, by W.E. Roth

522. 32nd Annual Report BAE 1918.
-Seneca Fiction, Legends and Myths, by Jeremiah Curtin and J. N. B. Hewitt.

523. 35th Annual Report BAE 1921
-Ethnology of the Kwakiuth, by Franz Boas.

524. 36th Annual Report BAE 1921
-The Osage Tribe, by Francis La Flesche

525. 38th Annual Report BAE 1924.
-An Introductory Study of the Arts Crafts and Customs of the Guiana Indians, by Walter E. Roth.

526. 42nd Annual Report BAE 1928
-Social Organization and Usages of the Indians of the Creek Confederacy, by John R. Swanton.
-Religious Beliefs and Medical Practices of the Creek Indians, by J. R. Swanton.
-Aboriginal Culture of the Southeast by John R. Swanton.
-Indian Trails of the Southeast, by W. E. Myer.

527. 43rd Annual Report BAE 1928.
-The Osage Tribe, by Francis La Flesche
-Wawenock Myth Texts from Maine, by F. G. Speck.
-Native Tribes and Dialects of Connecticut, by F. G. Speck.
-Picuris Childrens Stores, by J. P. Harrington & Hellen H. Roberts.
-Picuris Childrens Stores, by J. P. Harrington & Helen H. Roberts.
-Iroquain Cosmology, 2nd Part, by J. N. B. Hewitt

528. 44th Annual Report BAE 1928.
-Exploration of the Burton Mound at Santa Barbara, California, by J. P. Harrington.
-Social and Religious Beliefs of the Chickasaw Indians, by J. R. Swanton
-Use of Plants by the Chipewa Indians, by Frances Densmore
-Archeological Investigations, II, by Gerard Fowke

529. 45th Annual Report BAE 1930.
-The Salishan Tribes of the Western Plateaus by James A. Teit.
-Tatooing, and Face and Body Painting of the Thompson Indians of British Colombia, by James A. Teit
-The Ethnobotany of the Thompson Indians, by Elsie V. Steedman
-The Osage Tribe, by Francis La Flesche

530. 46th Annual Report BAE 1930
-Anthropological Survey in Alaska, by Ales Hrdlicka
-Indian Tribes of the Upper Missouri, by E. T. Denig

RUMINATIONS

The Southwestern Monuments have been evolving for some sixteen or eighteen years now and two or three matters have arisen in the last month to make me run back over that evolution.

The idea did not spring up overnight. No group sat down around a table and said: "Go to! We will now have a Southwestern Monuments District and it shall be thus and so big and it shall have a Superintendent and an Assistant Superintendent and three office clerks and two stenographers and four technicians, all in a special set of offices, far removed from a national monument, and they shall constitute the Southwestern Monuments Headquarters."

That would have been lovely, no doubt, and our evolution would have led us through a different set of mistakes than the ones we have committed. The trouble was that we had a group of monuments down here and we didn't have any men to speak of or any money to speak of or anything else to do anything with so we just started from zero, and, being at the bottom, the only way we could go was up. I had been running the Casa Grande for a good many years and when a case of vandalism a little more serious than usual occurred down at Tumacacori and a local cry for us to do something about it went in to Washington, having no men and no money, the Office wrote me to take over Tumacacori and do the best I could toward administering it. Next some vandalism at the Montezuma Castle caused another local cry to reach Washington and I had another monument on my string. Then came the Petrified Forest, and so, one by one, the string lengthened. I continued to live at Casa Grande National Monument and run it, handling these other monuments more or less as a side line with twelve-dollar a year men and practically no funds. The evolution was slow through those years but, looking back at it, I can see that we were making progress and were hatching out a new idea once in a while, and, our progress being slow, our percentage of mistakes was pretty reasonable, and the whole thing grew gradually and in response to the various needs.

Finally, when I got spread out pretty thin over a pretty large area, it was decided that we would put a helper here at Casa Grande and give me a little more time to get around to the other places. Having two men at Casa Grande National Monument naturally made that the headquarters of the Southwestern Monuments and after another two or three years it was so designated and I was called Superintendent. I am trying to show you how natural the evolution was; the work just grew and after you had been doing it a couple of years, the designation caught up with you, or the salary was raised another notch, or some notice was taken of the fact that the job had expanded.

This growth of the headquarters staff at one of the monuments instead of some place else was a most natural thing, because when two of us made up the headquarters staff we were also operating the Casa Grande National Monument; it would have been nonsense to move off to some town leaving

the Casa Grande unprotected.

So we continued to grow and finally came to the place where we could divorce the Casa Grande National Monument and Southwestern Monuments forces. In the process of evolution there was a period when monument men were used on staff work and staff men were used on monument work, depending upon peak loads, time of month, etc. That time is now past; both loads are heavy enough now to demand all the time of both crews, each on its own job. It was during that little period, however, that we got a good deal of yowling, from field and staff that we were sacrificing staff time, which ought to go to the field, to bolster up our favorite monument, Casa Grande. That phase is now past, but, looking back at it, I still think at that stage of our evolution we were doing the right thing.

Not many of you understand that Casa Grande has been for several years, and is right now, and will be for some time to come, one of the most important visitor contact station of the Southwestern Monuments. Knowing how to meet visitors is the second biggest job we have, or can have, in our work, - and we will never be perfect in the technique of it. We can handle our actual office work, the technique of records, etc., in a town in our district or at Casa Grande equally well, but I don't want any technicians or specialists we have or may have on our staff to get too far away from visitors. If anyone thinks all the reactions of visitors at our monuments are well known and can be predicted, I wish he would write his knowledge down in a book so we could promptly shoot it full of holes. We have been too busy thus far in the history of the Service building roads and structures and working out administrative problems to give enough time to the study of visitors, but that is not going to be a valid excuse for many years longer. Our mistakes, caused by our lack of information, are going to become so plain that we will have to do something about it, and I would like to have our men in the lead when it comes to making a serious study of visitors. The only way I know to handle the problem is to go where there are a lot of visitors and mix with them, study them and ask plenty of questions.

In the last nine months or so, of 10,558 field trips given to visitors by our custodians and rangers, 2,879, or 27.2%, were given at Casa Grande. Of the 60,806 visitors who took those field trips, Casa Grande had 21,290, or 35.01%.

Of the 4,478 museum lectures given by our men in that time, Casa Grande gave 1,683, or 37.5%.

Of the 27,592 visitors to whom those museum lectures were given, Casa Grande had 12,826, or 46.4%.

Of all the educational contacts made by our men during that time, amounting to 108,343, Casa Grande had 43,425, or 40%.

Did you know that the men on duty at Casa Grande handle more visitors per man per month than any of our other men?

Now, since our natural evolution has developed our headquarters at one of the finest laboratories in our district for the study of visitors, why in the name of common sense should we take our headquarters away from this laboratory to a town in order to send our staff men back to this or some other monument so they can study visitors? Our work is entirely different from that of the Forest Service and while an analysis of their work puts their headquarters in towns, an analysis of our work would put our headquarters out where the visitors are. The visitor is our customer, not the man who wants to sell us cement. This latter man will find us wherever we are, and even he has no trouble when we are sitting on the end of a telegraph and telephone wire, have a daily mail delivered at the door and a transcontinental railroad three-quarters of a mile away.

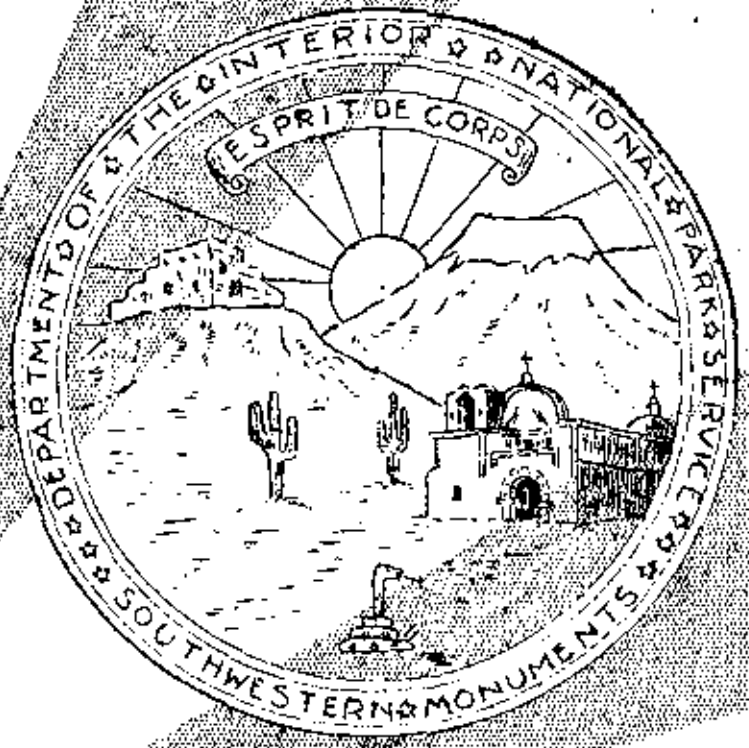
These ruminations are caused in part by a recent offer or suggestion or what will you on the part of an Arizona city that we move our headquarters into its midst, and it doesn't seem to us it fits in with our line of evolution, which, while slow and halting and spotted with mistakes, seems to have fitted into our needs pretty well.

Cordially,

Frank Pinkley

Southwestern Monuments

MONTHLY REPORT · AUGUST · 36



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SOUTHWESTERN MONUMENTS
AUGUST 1936, REPORT
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SOUTHWESTERN MONUMENTS PERSONEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists; Millard Singerman, Clerk-Stenographer; Luis Castellum, ECW Clerk; Deric Nusbaum, Traveling Ranger; Clarence Cole, Student Technician.

FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian; Robert W. Hart, Ranger-Archeologist.
3. Bandelier---Sante Fe, New Mexico. Earl Jackson, Custodian; J. W. Hendron and Alfred Peterson, temporary Rangers.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian; Doug. Harritt, temporary Ranger.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande---Coolidge, Arizona. J.W. Winter, Custodian; J. Donald Erskine, Park Ranger; Frank Horne, acting Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian; Homer F. Hastings, temporary Ranger.
8. Chiricahua---Willcox, Arizona. Frank L. Fish, Custodian; Orvel Ollinger and Bronson Harris, CCC guides.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian
11. Gran Quivira---Gran Quivira, New Mexico. George L. Boundey, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. M. L. Jackson, Custodian; Curtis Cox, acting Ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian; Milton Wetherill, Ranger-Historian.
16. Pipe Spring---Moccesin, Arizona. Leonard Heaton, Acting Custodian
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro----Tucson, Arizona. No custodian.
19. Sunset Crater---Flagstaff, Arizona. J.W. Brewer In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, Ranger.
21. Tumacacori---Box 2285, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, Ranger.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House----Cortez, Colorado. No custodian.

CONDENSED REPORT

Coolidge, Arizona
September 1, 1936.

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for July:

TRAVEL

	August, 1936	August, 1935	August, 1934
Aztec Ruins	2,658	2,250	2,184
Bandelier	3,180	2,475	2,125
Capulin Mountain	4,500	---	7,000
Casa Grande	1,487	1,376	1,376
Chaco Canyon	1,272	1,031	1,014
Canyon de Chelly	169	135	---
Chiricahua	906	958	1,102
El Morro	470	333	605
Gran Quivira	730	385	365
Montezuma Castle	1,578	1,910	1,654
Natural Bridges	72	120	50
Navajo	---	140	83
Pipe Spring	105	256	250
Sunset Crater	1,231	1,216	---
Tonto	324	360	---
Tumacacori	1,037	906	641
Walnut Canyon	2,034	2,047	1,910
White Sands	18,753	7,013	---
Wupatki	436	290	190
Actual Reported Registration	40,942	23,215	20,549

Travel in the Southwestern Monuments showed a tremendours gain in August, 1936, over the same month last year. The increase for the most part is due to large travel figures at Capulin Mountain and at White Sands; the former, reporting 4,500 visitors, failed to send in a report last year, and White Sands, which has become a favorite spot for large picnics and celebrations of every sort nearly tripled the 1935 count. Travel at the other monuments in the Southwest has remained about at the same level as last year, some stations showing a decided gain in visitors while others have lost a little in the totals.

000 GENERAL

021 WEATHER

Rains have been general over the entire Southwest during the past month; although many approach roads to the various monuments are badly washed and rutted, apparently none are impassable. Fire hazards at the timbered reservations have been reduced to a minimum, with a consequent abandonment of fire lookouts. Only one fire occurred in the monuments during the fire season just over, and that was a very small blaze at Bandelier late in May. Range conditions for the most part are excellent, especially at the monuments which are fenced. Altogether, the weather reports of custodians have a much brighter aspect than they had for July.

100 ADMINISTRATION

123 INSPECTIONS BY NATIONAL PARK SERVICE OFFICERS

Gran Quivira - Adrey Borell; W. H. Wirt; H. B. McDougal; W. Ward Yeager.
Canyon de Chelly - Ned Burns; Dale King; J. B. Hamilton.
Chiricahua - George Kellor; W. H. Wirt; H. B. McDougal; W. Ward Yeager.
Pipe Spring - Al Keuhl
Walnut Canyon - Dale King
Chaco Canyon - Ned Burns; Dale King; Johnwill Faris, A. E. Underhill; J. B. Hamilton.
Bandelier - Ned Burns; Dale King; Chuck Richey; Harry Thompson; Herbert Talley; Lyle Bennett; A. E. Underhill; A. B. Stevens; Conrad Wirth; H. H. Cornel; Dick Sias; Al Jeuhl; J. E. Kell.
Aztec - Herb Maier; George Collins; Chuck Richey; Jim Hamilton; Russel Grater.
El Morro - Dick Sias; Jim Lloyd; Milo Christiansen.

125 OTHER GOVERNMENT OFFICERS

White Sands - U. S. Senator Hatch; U. S. Senator Chaves; Congressman Thomason; Governor Clyde Tingley; Judge Joseph McGill; Collector of Customs Adrian Pool.
Aztec - U. S. Senator Frazier of North Dakota.
Chaco Canyon - W. M. Beatty and C. M. Blair of USIS.
Chiricahua - Charles Cochran and Martin Buzan of Shrub Invasion Survey.

200 MAINTENANCE

Capulin - Road to summit of mountain in excellent condition due to recent maintenance work.

Canyon de Chelly - Rains during the month washed out portions of the White House Trail. The trail is now being re-sloped and drained.

210 MAINTENANCE, UNUSUAL (Cont.)

Canyon de Chelly (Cont.)
Because inadequate drainage which permitted water to gather around the custodian's residence, a bar pit was dug around the house, and dirt recovered from the excavation was thrown on the house side in order to raise the elevation of the ground surface.

Casa Grande - Heavy rains on July 28 caused the temporary sewage sump to cave in. This necessitated four man-days of work to repair.

Wupatki - A heavy rain on August 11 caused damage to trails and dirt roofs. The damage has been repaired.

230 NEW CONSTRUCTION

Canyon de Chelly - New pump house practically complete, concrete roof slab ready to be poured.
Aztec - Parking area and trails 100% complete.
Chiricahua ECW -
1554 feet of new trail constructed
Foundations poured and stone walls constructed to height of three feet and water and sewage connections made on headquarters ranger station.
Excavations for equipment shed begun.
Bandelier ECW -
Construction of Museum Cases started
Quarters #2 completed and ready for occupancy
Wall and roof construction completed on residence area equipment shed
Ditching of residence area to prevent wash by flood waters completed.
Construction of root cellars started
Crew at work filling orders for carved wood signs
Some landscaping around the headquarters area.

300 ACTIVITIES OF OTHER AGENCIES IN THE MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Casa Grande - The Indian Service tied the monument in to the 60-cycle AC line which runs along the south boundary. This connection has enabled the custodian to disconnect the two small power plants which have been used to generate electricity heretofore.
Chaco Canyon - The Soil Conservation Service suspended all operations on the Monument on July 23 with their work 90% complete. Before the camp broke up flood and rain waters had destroyed their construction to such an extent that repair work, if attempted, will take several months. At present the problem has not been settled.

320 COOPERATING GOVERNMENT AGENCIES (Cont.)

Chaco Canyon (Cont.)
The University of New Mexico Summer Camp nearly completed the excavation of two small ruins on state lands near the monument boundary. This work started in 1934 but was not continued until this year.

350 DONATIONS AND ACCESSIONS

Chiricahua - Douglas Chamber of Commerce and Mines donated a large loose-leaf binder for the registration sheets.

Headquarters - Several books (all government publications) were received for the library.
Two small archeological collections
One small collection of photographs taken between 1896 and 1901

400 FLORA, FAUNA, NATURAL HISTORY.

430 ARCHEOLOGY

Wupatki - Custodian found a hitherto unreported "ball court" a short distance from the Citadel group of ruins
Chaco Canyon - Heavy rains have done much damage to walls of Pueblo Bonito and Chetro Kettl this month - Mural Room #1 in Chetro Kettl has been completely roofed in an attempt to conserve this outstanding bit of prehistoric wall painting.

440 INSECT CONTROL

Bandelier - Web worm control this year has been very effective.
Casa Grande and Chiricahua - Studies are being made to determine the nature of insect pests which are infecting the trees at these two monuments.

460 BIRDS

Tumacacori - Banded twenty birds during the past month.--Other bird banding stations did not attempt to trap because of the large quantities of natural feeds which the birds prefer.

470 ANIMALS

The Department of Zoology of the University of Michigan has identified the following rattlesnakes from specimens.
Chiricahua - Crotalus molosus molosus - Black tailed rattlesnake
Crotalus lepidus klauberi - Green rock rattlesnake
Casa Grande - Crotalus scutularus - Mohave rattlesnake.

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

530 IMPORTANT VISITORS

A large number of prominent scientists, principally archeologists, and student study groups have visited the Southwestern Monuments this summer.

600 PROTECTION

620 FIRE PROTECTION

Chiricahua - CCC camp spent 25 man-days fighting a fire on the Coronado National Forest.

650 SIGNS

Boundaries of the monument are inadequately marked, which will affect the protection of deer and turkey during the approaching hunting season.

900 MISCELLANEOUS

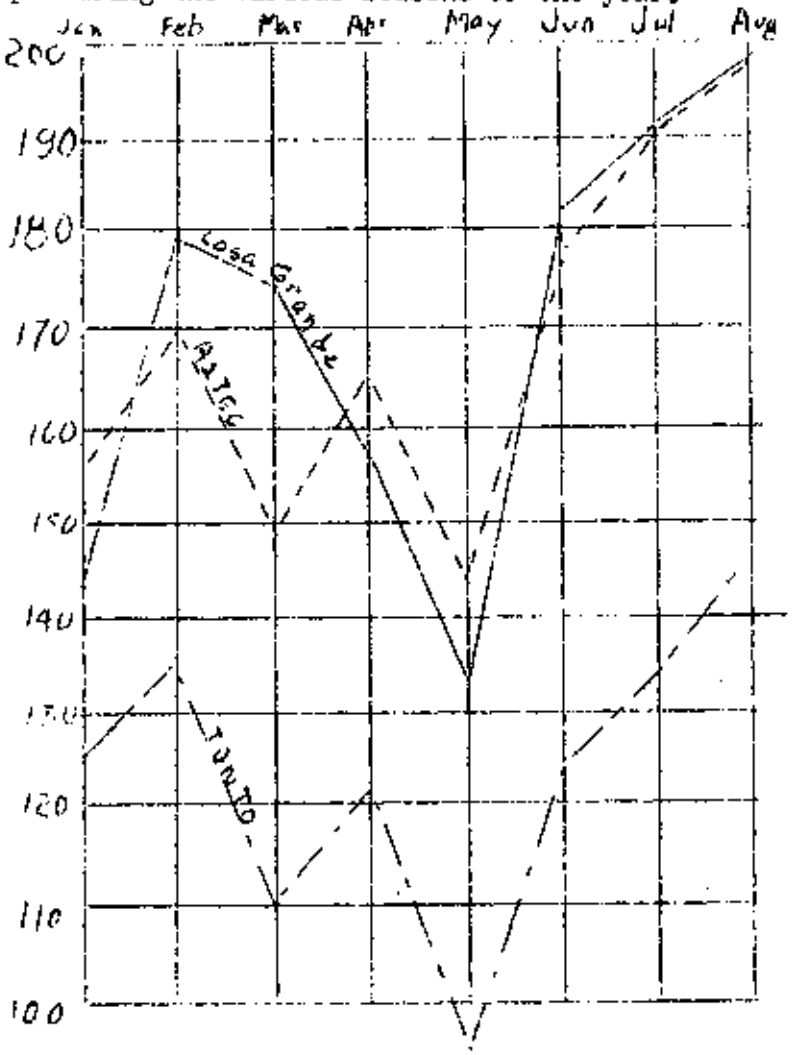
MAIL COUNT

Incoming:		
Government	1,605	
Personal	617	
Total incoming		2,222
Outgoing:		
Government only	1,737	1,737
Telegrams:		
Incoming	38	
Outgoing	35	
Total telegrams		73
Grand Total		4,032

Cordially,

Frank Pinkley,
Superintendent.

Something which might prove to be very interesting turned up this month in a study of visitor contact figures for three widely separated monuments. At Casa Grande, Tonto, and Aztec, where both ruins trips and museum lectures are given, a perfect visitor contact for any given month should be 200%; i.e., one ruins trip plus one museum lecture for every visitor. A percentage of that sort, of course, is impossible, nor do we expect it, but in running out the visitor figures for the three monuments in question, a striking similarity in curves was noted. All three stations show a low point in visitor contact for May and a high in August. A check will be kept for the remainder of the year in order to ascertain whether the curves will retain their similarity. We are at a loss for the explanation so far; two reasons have been suggested, either a general let-down on the part of the rangers or a decided change in type of visitor during the late spring. The graph lines are too similar to suggest a coincidence and here at headquarters we feel that we might be on the trail of an interesting study in visitor reaction to guided trips during the various seasons of the year.



BANDELIER

By Jerome W. Hendron, Acting Custodian

Visitors:

Visitors numbered 3,180, arriving in 832 cars from 35 states, district of Columbia, and Territory of Hawaii.

The six highest states in order by visitor count were: New Mexico, 739; Oklahoma, 404; Texas, 378; Kansas, 199; Missouri, 112; and Illinois, 109.

Attendance increased 1,018 over last month, or 47%, and increased 705 over August, 1935, or 28%. This is a new travel record for Bandelier being heavier than any previous month.

A total of 21 people from foreign countries visited the Monument this month; they were from England, France, Germany, China, and Guatamala.

One hundred twenty-four return visitors were also counted.

Weather and Roads:

Days partly cloudy:	24	
Days cloudy------:	2	
Maximum Temp.----:	88	August 12.
Minimum temp.----:	56	August 21.
Mean Maximum-----:	81	
Mean Minimum-----:	59	
Precipitation----:	.73	against 4.63 for August, 1935.
Rain and sleet---:		July 28, 30, August 2, 3, 4, 5, 6, 7, 10, 14, 15, 18, 19, 20, and 21.
Dust storms------:		None

We can't complain about the weather this month since the average temperature was slightly lower and more pleasant than the rest of the summer months. The heaviest precipitation came on August 18, with a total of .21 inch, beginning at 6:15 p.m. and ending sometime during the night.

The roads have been corrugated in spots due to the heavy rains on the Ramon Vigil Grant and in the Detached Section. Santa Fe and vicinity have experienced some heavy downpours this month washing out several spots in the highway leading to Bandelier around the neighborhood of Pojoaque where the Pojoaque and Tesuque arroyos cross the road. Several cars have gotten stuck in these washes and lives have been in danger within the last week due to the fact that inexperienced persons living outside of New Mexico never know when an additional wall of water will descend upon them.

Visitor Trip Chart:

Two-hundred thirty-six parties took guided trips through the ruins, or were given short individual lectures, numbering 1,928 people. The average time per party was 71 minutes including the short individual lectures. Two-hundred twenty-two parties took complete ruins trips, making a total of 1,887 people; forty-one were given short talks or 14 parties in all averaging 21 minutes per party. Our largest single party for this month numbered 59 on August 9.

Special Visitors:

Ned Burns, Chief of the Museum Division was in for a few hours with Dale King on July 25. August 1 - Dr. E. B. Renaud of Denver University brought a group of his students in for a visit. August 5 - Karl Ruppert from the Carnegie Institution spent a few hours in the canyon. Mr. Ruppert has recently returned from Central America where he has been working with the Maya cultures and is now at the Laboratory of Anthropology in Santa Fe writing up reports. August 7 - Dale King returned to spend some time in the preparation of the Museum for Bandelier. August 8 - Chuck Richey dropped in with Harry Thompson, Assistant Chief Architect out of the Washington office. Herbert Maloy and Lyle Bennett from the Regional office in Santa Fe accompanied them.

August 9 - Dr. Frederick Webb Hodge, Director of the Southwest Museum in Los Angeles took one of our guided trips. Engineer Underhill of the San Francisco office was in for a few hours on business. August 12 - Chuck Richey, Lyle Bennett and Herb Malloy from the Regional office in Santa Fe were out on inspection. August 14 - A. B. Stevens, Museum Technician from Washington dropped in for a few minutes en route to San Francisco. August 15 - Assistant Director Conrad L. Wirth visited Bandelier en route to Mesa Verde. Accompanying him were H. H. Cornell, Regional Landscape Architect from Oklahoma City, R. W. Sias, Administrative Inspector of Arizona, A. L. Kuehl, Resident Landscape Architect at Grand Canyon, and Chuck Richey and J. E. Kell of the Regional Office in Santa Fe.

General:

Dale King has been in this month on Museum preparation and it looks as if we are actually getting under way. It is going to be a long tedious process but Rome wasn't build in a day, nevertheless, it is going to be most interesting and very fascinating work.

The canyon folks were taken by surprise the latter part of July when Ranger Peterson brought himself home a wife. We wish them the best of luck.

We miss Bill Sharpe around here and wonder if he wishes he were back

here where it is nice and cool. There is just a slight touch of fall in the air and the leaves on the trees are showing a slight tinge of yellow so it won't be long until winter is here.

Our class in Anthropology is coming along famously, 13 students having shown up the first night. The boys seem to be very interested in the subject and I think they are all willing to learn. Now and then we see some familiar faces there, such characters as Jim Fulton and Mr. Read; the more the merrier.

****

BANDELIER FORESTRY

By James Fulton, Forestry Foreman

Web Worm Control:

In my report for July, 1936, I gave an account of spray control of the web worm infestation in Frijoles Canyon. At this time I am able to conclude that the spraying was effective to a surprising degree. The infested trees suffered little from defoliation after they were sprayed. However, I am inclined to believe that wet cold weather played a part in holding the worms in check. The sprayer itself worked better this year, mainly because the pulling shafts were reinforced so that no time was lost as a result of the shafts breaking. However, we still experienced difficulty in spraying seventy-five foot cottonwoods with a forty foot spray stream.

Forest Fires:

So far this year we have had only one fire which was previously reported. Fire hazard is at a minimum because of 3.82" precipitation in July and .73" in August.

****

BANDELIER ECW

H. B. Chase, Project Superintendent

Construction of Museum Cases under the Furniture Project was started this month. One case has been completed to the point of satisfaction for observation as to the installation of exhibits during the recent stay of Junior Park Naturalist Dale King. This case construction will continue to proceed in accordance with case plans now approved.

Final interior decorating is being completed at this time on Quarters No. 2 which now brings this building to a point for occupancy. It is expected that the Acting Custodian of this Monument will occupy this building.

All wall and roof construction has been completed on the Equipment

Shed Project, located in the residential area. Crews are now laying the flagstone floors completing study partitions plumbing, and electrical outlets in preparation to plastering and interior decorating within the next week. This building will afford housing for personal cars owned by occupants of the residential area, and also includes two living rooms with connecting bath for a temporary and visiting employees of the Service.

Additional work under the project of excavation, channels, and ditches has been carried on through the month. Principally in the headquarters and residential areas, which have been subject to flood waters during the summer rains. Completion of this work around these areas will be of material help in eliminating the water damage at our newly constructed projects.

Excavation and a portion of under-pinning work at Quarters No. 1 has started our Root Cellar Project for the Quarters in the residential area. Recent approval of plans for root cellars has allowed the project to be started within the next week and will proceed as quickly as possible for the two finished quarters.

Receipt of approved sign design and alphabet from the Branch of Plans and Design has allowed us to proceed at full speed with a number of accumulated sign orders. A much larger crew than heretofore used in the carving and constructing of signs is now at work in an attempt to clean up the orders we now have for signs for the Southwestern Monuments.

The usual work crew at the rock quarry has been in progress all month preparing the building stones for construction of buildings projects, that they may go forward as fast as approved plans are received.

Some small planting and landscape work has been carried on in conjunction with excavation, channels and ditches project in and around the parking plaza. .

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CHACO CANYON

By Thomas C. Miller, Custodian

General

The approach roads to the monument have been in fine shape most of the month. The roads have been maintained both north and south. However, we have had some heavy rains, and in some places the roads would be badly damaged. Several cars have been in the ditches overnight in both directions, but I believe that was caused by high water or by trying to travel the road during the rain. The worst damage during the month was in the monument and was caused by heavy rains

washing our roads away on the rock hill and by the diversion dikes on the canyon floor that were built by the Soil Conservation Service centralizing the water, then breaking and causing new arroyos to be made across our roads.

Travel

1,272 people entered the monument in 348 automobiles coming from 30 states, the District of Columbia and Hawaii. Foregin countries: Mexico and Peru.

Weather:

Maximum for the month was 96 on the 17th. Minimum was 52 on the 21st. Precipitation for the month was 2.58. The greatest in 24 hours, .90 inch, was on the 4th.

Special Visitors:

Dale S. King, Junior Park Naturalist, Southwestern Monuments, and Mr. Ned Burns from the Washington office arrived July 23 and departed on the 24th. Dale broke the axle or something on 1800 which had to be towed to Gallup for repairs while I took Ned and Dale to Santa Fe and Bandelier National Monument. Custodian Faris and A. E. Underhill from Aztec Ruins visited a good monument on the 26th. Mr. W. M. Beatty, Director of Education USIS, Washington, D. C., and his assistant, Mr. C. M. Blair, Windowrock, Arizona, were monument visitors on July 27. Mr. William H. Jackson, who visited the Chaco in 1877, was an interested and interesting visitor on the 29th. Associate Engineer and Mrs. Jim Hamilton Arrived August 6, and departed on the 7th. Mr. Hamilton measured our Chaco bridge, the rock hill, and went over many other things in the way of new construction that we hope to get started soon. Dean Cummings and his archeological field school, University of Arizona, arrived on the 8th and departed on the 10th. The Carlsbad Caverns was well represented this month by Mrs. J. E. Woodrow and party on the 13th.

Range Conditions

The grass and shrubs are showing greater growth this summer than ever before. Chaco has begun to look like a place where thousands of people might have made their living by agriculture a thousand years ago.

Soil Conservation Service:

This Service suspended all operations in this monument July 23. The project was considered to be 90% complete. The other 10% was to have been the driving of some piling in the Chaco Wash near the ruins of Pel Arroyo for revetment purposes. However, before the camp departed August 4, all the work in Hungo Pavi canyon washed away. This was followed by

a 7½-foot rise in Chaco Wash which badly damaged all of the revetment work around the ruins of Del Arroyo and Kin Kletsoi. It also wrecked several diversion dikes on the canyon floor. At this time it is not know by this office what their plans are, but it is believed that it will take several months with a large crew of men to replace the damage done by the flood waters during the first four days in August.

Ruins Repair:

Much damage has been done to the ruins of Pueblo Bonito and Chetro Ketl during the month because of the heavy rains mentioned elsewhere in this report. The Mural Room No. 1, Chetro Ketl, that was recently excavated by the research group has been completely roofed. The first and second story (round wall) near the two corner doorways in the southeast section of Bonito collapsed and is now being repaired. A complete report with pictures will be mailed to your office when the job of restoring the wall has been completed. However, we will not have the money to provide proper drainage for this wall at this time. This is believed to be one of our best walls and it is hoped that we can do something about drainage in that portion of the ruin.

Activities of other Agencies in the Monument

The University of New Mexico is excavating a small ruin on Section 13, just a short distance east of Casa Rinconada. This ruin is about 90% complete. Also a small ruin up the canyon southeast of Chetro Ketl is being excavated. The latter is known as the Bertha Dutton Dig. The work on this ruin is about 80% complete. This work was started during the summer of 1933. It was continued in 1934 but not in 1935. Because of these complicated surveys, I am not in a position to say what section of land it is on. I am including in this report for future reference a list of the names of the faculty and students of this school.

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AZTEC

By Johnwill Faris, Custodian

I have been waiting a long time, Boss, to report a banner month of all times, and this is the month. August, 1936, beats any month in the seven years that I have served here, with 2,658 visitors for the month. Not only was it a big month from the visitor standpoint but it will long be remembered as the month that we finished the parking area and constructed our trails, thus making it possible for us to present the most pleasing approach in the history of the Monument. Under the able supervision of A. E. Underhill, a most excellent job of paving and walk construction was accomplished. It has been my pleasure to have worked with many experts from the various departments and as usual Mr. Underhill was most cooperative and it would be considered an honor to work with him in any future construction along his particular line.

We take this opportunity to thank him officially for a job well done and also for hours of pleasant association in transacting the necessary official business.

We started this month off with a bang by presenting our Ruins to the Regional Director and his assistant. On July 31, about eleven thirty at night Herb Maier, George Collins and Chuck Richey dropped in on us and we spent a most pleasant hour with them. It was nice to have them and when we remember that Mr. Maier was instrumental in getting all the work from the ECW, especially our sewer system, it was an added pleasure to show him about. Underhill had the walks all laid out for Chuck Richey and it was a grand visit even though it was in the middle of the night. They are invited to stop off with us again. Jim and Mrs. Hamilton were right on the heels of this party and then a few days later they stopped off again on the way back to Santa Fe. Not to be outdone by other divisions, Mr. and Mrs. Russell Grater from the Wildlife Division were in for a few minutes, and then to top off our official list none other than the one and only Gay Lovell, Mr. and Mrs. Lovell stopped off on their way back from their vacation. We spent a few minutes of mighty pleasant memories, etc., especially since this is where Dick met the Mrs. I almost put Gay to work again since I lost my ranger this month. Of all the months to loose a ranger it would be August.

Mr. Hart left our employ August 3 and is trying his luck again at selling life insurance. He finds that selling ruins to the tourist is not as paying as selling life insurance and he returned to South Carolina. We lost an excellent contact man in Bert and we hated to loose his services; any way we wish him the best of luck. In view of his leaving we have been fortunate in securing temporarily the services of Oscar Tatman. Mr. Tatman has been with us before and then too having worked a number of years with Earl Morris he is a most valuable man, and has certainly been a life saver this month.

In addition to Park Service officials we have had some especially interesting parties. On August 10, Dean Cummings and a group of Arizona students were in with us and spent the night in the Great Kiva, a few days later Mr. Brown and a group of German students from the old country were in and they too spent the night in the Great Kiva. Both of these groups were very mannerly and we enjoyed them very much. We like the detail that these groups require, it keeps us on our toes. On August 18, Senator Frazier of North Dakota was in with some Interior Department officials. Senator Frazier was very interested even though he had heard Indians all day in attending and conducting an investigation of the Navajo problems. We notice on the register several who did not make themselves know. Bureau of Standards, Washington, D. C., Department of Agriculture, Washington, D. C., etc. We wish it were possible for us to contact more closely the visitors we have, but with two guides, or at best, three, it is impossible to show twenty-five hundred through

in thirty days and know very many of them. It would be grand if we could limit each party to six or eight but that is impossible so we do the best we can.

We are closing this month, Boss, getting ready for even greater numbers for the first week of September. The Gallup Ceremonial and celebrations in Durango and Santa Fe, with all the Indian dances, will keep visitors and tourists going through in large numbers. With one of our best months as history, I pass on to another and bid the gang, adios.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Another hot month has passed and we are all still alive and able to pull up to the table and take on a bit of nourishment. Have been complaining with the visitors about the hot weather this month and am convinced that it works better than to mention the fact that some other places in the world have hot weather.

Our registration book shows that we have had 1,578 visitors for the month, with 858 climbing the ladders. 37 states and 4 foreign countries being represented. The first part of the month fell behind July, but the last half picked up a bit and we had a few more than for the month of July. We can not expect to have a big run of visitors as long as the highway is torn up as it has been during the past summer, meaning State Highway 79 between Clarkdale and Jerome. One is on a detour all the way between the two above mentioned towns. And we have had many complaints during the past month.

C. B. Cosgrove the well known archeologist of Cambridge, Mass., was a visitor during the month; Mrs. Cosgrove accompanied him.

On the 29th we had 54 of the boys from the summer camp of the Iowa State College. They are at present encamped at Mormon Lake. We found the boys very gentlemanly and we enjoyed their visit.

Some 30 boys from the Pacific Cost Military School were also in to see us during the month. They are encamped on Oak Creek near here. They were rather young and inexperienced but were not at all bad. We invited them to come back and see us another year. I am still strong for selling the parks and monuments to the youngsters; once they are sold on an idea they stay sold. While the older ones are quite liable to forget unless they are very strongly impressed.

Earl and Betty Jackson came in to see us on the 2nd. Needless to say, we were glad to see them and to have them with us for at least awhile. Belive Earl is improving and believe he will make the grade if he doesn't get so mean and cranky that Betty kills him off.

We have had a couple of light showers during the month, but has been so dry that half of the leaves have fallen off the trees here on the monument. Quite a few of the trees have died, and we just about the same as have no shade in front of the museum.

We find on checking our registration for the past month that 61 percent of our visitors were from out of state, which is more than usual for a hot summer month.

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TUMACACORI

By Louis R. Caywood, Custodian

During the month 912 visitors were contacted and conducted through the Mission. An additional 125 used the facilities, making a total of 1,037 visitors to the monument. These visitors represented 33 states and 5 foreign countries - Mexico; Canada; Transvaal, South Africa; India and Italy.

Luis Castellum was our only visitor from Headquarters this month. Luis Stopped in to see how we were getting along before leaving for the Coast on his vacation and again on his return. He mentioned that he had visited some of the California missions while vacationing. We expected a visit from the Boss and Tov and heard several times that they were practically here, but so far we are still waiting.

On August 2, 128 CCC boys from Camp F-30-A near Tucson were Mission visitors. That day, by the way, was a pretty big day with 253 people paying us a visit.

Although this is the rainy season there has been little rainfall on the monument. We have only had about two hard rains which came early in August. The rains are spotted and have fallen mostly at other places in the vicinity. Nogales and Tucson have both had a number of heavy rains during the month. However, we are thankful for what we did get as it helped lots. Our little mosquitos are really beginning to look like trees now.

The recent information that an appropriation has been approved by the Secretary of the Interior for a combined Museum and Administration Building has been well received by local people and, needless to say, by us also. We have already been beseiged with questions as to when, where and how the building were to be built.

Following the announcement in the Tucson Daily Star, the Editor, Mr. W. R. Mathews, published the following editorial:

(Arizona Daily Star, August 10, 1936)

"Announcement of government funds for preservation of the Tumacacori mission holds promise of one more reminder that the men who settled the Southwest did a great work. Here is a Spanish mission, monument to the men whom Spain, in her hour of greatness, sent into the new world. But if truth were told it should be called a Mexican mission, for its work and the work of others like it was the welding of two mighty peoples which created modern Mexico.

"Many of the residents of Southern Arizona are newcomers. Men and women who have all their roots in the east, whose ancestors came into the United States by a route different from that of the original settlers of the Southwest and from different countries, too often to not appreciate the breadth and scope of the forces which built this part of the country.

"Until these people secure some appreciation of the Mexican background they must remain aliens in the Southwest which was, after all founded and built by Mexicans. These alien minds come from ancestors who settled in wild and untamed country inhabited by savage peoples who formed only one more handicap to the settlers.

"When the Spanish entered Mexico and the Southwest they found quite different conditions. The country was inhabited by highly civilized and cultured peoples who were, in many respects, farther advanced than the settlers. Instead of pushing aside native populations, they were forced to live among them where native influences had their way despite efforts of the conquerors to eliminate them.

"Pushing their way to the outer boundaries of the high Mexican cultures, the conquistadors found still other peoples. The Pima and the Papago of Southern Arizona were not least among these. Hence the missions. Here in far-flung outposts of European influence, the process of amalgamation and union of peoples and of cultures was carried forward. It is still going on despite the vast influx of alien hordes involved in the change of political control for this portion of the country.

"Actually, the recent alien influx is a third influence entering the country. Here is another people to add its quota to the total heritage of the desert country. The desert has absorbed the influence of the great Indian civilizations. The wave of new influence from Spain spread over it and was in its turn absorbed. Now comes a new alien race, often expressing in its ignorance the same type of scorn and impatience with the ancient populations which the Spaniards expressed in their day.

"Such an attitude is absurd. Whether we will or no, those of us

who intend to remain in the Southwest are one people who must and will go forward as a unit, not as separate groups. Tumacacori, with its memories of that process in former days holds a potent lesson. Let it not be ignored.

"In those old, crumbling walls, in the hot desert plains which surround them, in the rich tradition and legend which has come down to the present, is a story which should be learned by all who aspire to become a part of the Southwest. The process which went on in Tumacacori is going on today on the bustling streets of Tucson.

"In the liquid cadences of the Spanish tongue, in the lilting measures of native music, in the sturdy workers and business leaders who trace their heritage back to those who made Tumacacori possible, Tucson has its tradition and its background. The alien can come as a friend, adding his own store of tradition and beauty and adapting himself to the place as he finds it. Or he can come as a foe, scorning and attempting to destroy what is here, only to find in the end that he himself has become a part of what he scorns.

"How much better if the friendship can be maintained. By all means let Tumacacori stand as something which will tell us in walls more lasting and potent than words what such friendship can mean."

I recently received four carved rest room signs from Mr. H. B. Chase which were made at the CCC Camp at Bandelier. I must say the boys certainly make attractive signs. They harmonize very well with the wood of the entrance gates.

Birds banded during the month include the following:

Pyrrhuloxia	5
Arizona Cardinal	4
Cowbird	1
Inca Dove	1
Palmer Thrasher	1
Canyon Towhee	4
House Finch	1
Mockingbird	2
Lazuli Bunting	1
Total	20

Bird banding will be suspended until winter because the native food supply of grasshoppers, worms, seeds, etc., is too plentiful. The birds refuse the most tempting of baits set out for them at present.

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TONTO

By Woodrow Spires, Ranger-in-Charge

This report brings to a close a typical summer month, with nothing out of the ordinary happening (not even a towel inspection).

Old man weather has been behaving very nicely. No really hot days this month which was probably due to the numerous showers and two hard rains which made the entrance road all but impassable.

The visitor count for the month shows an increase of 12% over last month but a decrease of 12% over the same period last year. The following figures were derived from SWM Stencil No. 16:

Total visitors to the monument	324
Total time guiding	5,055 Minutes
Total visitors taking field or ruins trip	203
Total number of field or ruins trips	72.90 "
Average group field or ruins trip	4.06
Total visitors museum trips	273
Total museum trips	65
Total time museum trips	1,410 Minutes
Average group museum trip	4.20
Average time museum trips	21.53 "

This month 62% of the total visitors climbed to the ruins against 59% for the corresponding period last year.

I saw Earl Jackson in the early part of the month and thought how well he is displaying that courage it has taken and takes to build up the Southwestern Monuments. Earl was smiling and said he would be back at the best monument in the Southwest in six months even though the doctors say at least a year. He is a good example of how the boys can take that unexpected blow on the chin, then come back and win their fight.

Three times on the days I have been away from the monument some one has entered the ruins and things have disappeared including three manos and three signs.

Since bringing home the boxes to ship snakes in there has been a noticeable shortage of snakes only three having been seen, two escaping and one being killed before I could come to his rescue.

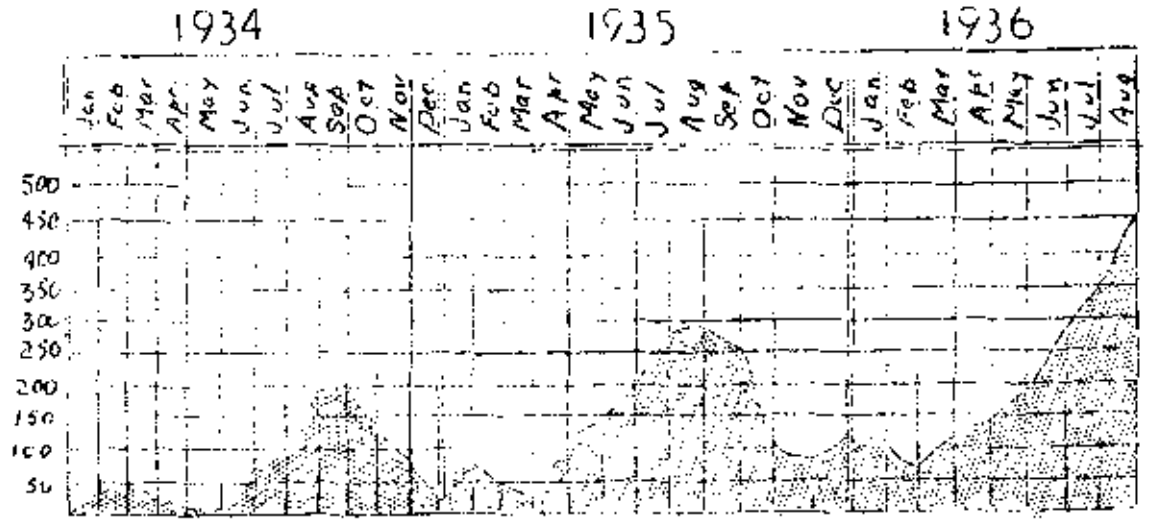
Most of my spare time has been devoted to some mesquite stumps which I have been converting into stove wood.

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WUPATKI

By James W. Brewer, Ranger-in-Charge

500 USE OF MONUMENT FACILITIES BY THE PUBLIC



205 guests registered at Wupatki Pueblo; 279 at the Citadel Group; 48 names are duplicated, leaving an all-time high of 436 registered visitors to this Monument in August, 1936; 1935, 290; 1934, 190.

A single overnight camping party (from the Rainbow Bridge-Monument Valley Expedition). I believe the reduced number of campers to Wupatki can be explained by the increased popularity of house trailers, drivers of which do not attempt to reach the Pueblo. In the past three years I have seen only one house trailer come to the Pueblo and that a collapsible one.

Of the 41 parties to the Pueblo 38 were "contacted".

530 NEWSWORTHY VISITORS

On the first, 51 members of the Southwest Indian Bible Conference held a meeting in the amphitheatre, where, to the accompaniment of a portable organ and a trombone songs were sung and blessing asked. (Maybe it's a kiva) The group then adjourned to the exhibition grounds and enjoyed a picnic supper under the ramadas.

On the second six students from the Iowa State School of Forestry.

On the 9th a unit of the Rainbow Bridge-Monument Valley Expeditioners camped overnight; Dr. Charles del Norte Winning and Ben Wetherill were in charge.

On the 21st Dr. H. S. Colton brought Miss Bartlett, Mrs. Theodore de Laguna, and her daughter, Dr. Frederica de Laguna to the Pueblo.

020 WEATHER

Days partly cloudy	3
Days cloudy	24
Days clear	4
Maximum temperature	100 (July 24)
Minimum temperature	57 (Aug. 22)
Precipitation	2.061 inches
Anemometer reading	4429.3 total miles
Maximum 24-hour reading	418.1 miles (July 24)
Minimum 24-hour reading	85.1 miles (Aug. 15)

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

201 UNUSUAL

A heavy rain at the Citadel Group on the 11th washed a hole through the roof of Room 1 in Nalakihu. I hauled a load of red dirt on the 12th and replaced that which had washed out. For several days the floor of this room was puddled.

I think a two or three inch fill should be made on this floor to raise it enough to mee the ventilator in the south wall and graded so that it will drain.

In Room 7 at the Pueblo I opened a channel to the ventilator to drain off standing water in this partially excavated and unroofed room.

The area below Room 49 has been badly cut by water. I constructed a ramp trail that eliminates the CWA stairway down which the damaging water gained force. The material used to construct the ramp was part of the unsightly back dirt southeast of the Pueblo. This pile has been considerably reduced. The balance should be spread and landscaped.

A new application of roofing was also put on Room 63.

400 FLORA FAUNA NATURAL PHENOMENA

430 ARCHEOLOGY

Observing fresh automobile tracks turning off the entrance road Sallie and I followed them to see where they led.

The tracks ended in a post-cut clearing which probably explained their presence; but to our surprise the "road" passed within 25 feet of a previously unrecorded "ball-court" less than three miles from the Citadel.

GENERAL

When the last report was mailed the Monument was burned brown and looked very dead. Today it's a "meadow"--as if by magic everything has come to life. The brush and grass are green and feed looks really good. Arrowhead Tank lacks only 18 inches of being full, and is holding more water now than at any time in its five year existence. Clyde's tanks near Wukoki are both full.

On the 27th we had just under an inch of rain at the Pueblo. Roads and trails, and roofs gave way to running water. We were kept so darn busy we wished we had a sea sea sea camp.

The Navajos have all left the basin and gone to Cameron for a dip (their sheep). This breather will give the range a good comeback.

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SUNSET CRATER

By James W. Brewer, In Charge

1,231 folks registered at Sunset Crater this month, 1935, 1,216; 1934, no record.

The register was also signed by "Three jack-asses for trying to climb the mountain."

Paul says three elderly women told him they wrote the above line.

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CAPULIN MT.

By Homer J. Farr, Custodian

In reporting activities of Capulin Mountain National Monument for August, 1936, the following is noted:

We have had 7,500 visitors during the last 30 days. This is based on the following: On last Wednesday, August 19, I was working where I could count every visitor and I counted 221 for the eight hours that I was there. I am confident that we are having as many as 250 average daily. I found people well pleased with their visits to the monument.

Weather has been very nice with three showers this month and only four days of real hot weather. All visitors speak in no uncertain tone praising the nice cool breezes we have here at the monument.

Road and trail repair has been active for about six weeks and the road and trails are in excellent condition. Many tourists tell me that they did not think it possible to get a mountain road so smooth as we have it now.

As an experiment to get the real thoughts from some of our visitors to Capulin Mountain National Monument, one day this week I tore some slips of paper from a notebook I happened to have in the car and handed eight of them out to drivers of cars as they would pass where we were working on the road.

To each one I said exactly this: "If you care to, please take this slip of paper and write a few lines giving your impressions of the Monument and hand it back to me as you pass by."

All eight came back, and here they are:

Third trip up Capulin; better every time; roads best yet; glad trail has been put to bottom; made trip in high.

H. P. Vaughan,
Amarillo, Texas.

We found the roads excellent and workmanship of fine quality. The view from the Mountain gives a good view of the surrounding country and we think it is very educational.

Evelyn Patrick,
Woodward, Okla.

The scenic drive to top of Mt. Capulin is beautiful. The road is smooth and in good condition. Tho it seemed a little narrow to one not experienced in mountain travel, the view from the top is wonderful and the air extremely invigorating. The turn at the top is fine.

Alice Moyer,
Ponca City, Okla.

My impressions of the drive up Mt Capulin was first the well kept road and the neat and orderly arrangements of camp grounds which combined with the wonderful view gives you the feeling of being on top of the world.

Mr. & Mrs. R. D. Stewart
Ponca City, Okla.

We enjoyed the drive to the top of Mt Capulin very much and the road is in excellent condition.

Mr. and Mrs. L. E. Hollingsworth,
Tulsa, Okla.

Second trip here; very beautiful view; great road improvement over 1933.

H. E. Rodel,
Enid, Okla.

We enjoyed the trip very much. The view is great and the road is wonderfully fine.

Mr. and Mrs. M. H. Miller & Sons,
Enid, Okla.

Mt Capulin, a worth while trip and every school child should visit this place.

Mrs. Geo. P. Williams,
Electra, Texas.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

I believe that this is the best report I have ever made. 197 visitors registered during August; in addition several parties arrived while I was out hiking or in Blanding after mail. Twenty-five states and Cuba are represented on the registration sheets.

The weather has been ideal except for two or three days of rain. Last Thursday night, the 20th, the most severe thunderstorm I have ever experienced blew up at two a.m. and lasted until four. We thought our tent would certainly be torn to pieces. Mrs. Johnson was very frightened and I'll admit that I was nervous too. The lightening struck several times within a few rods of our tent, and the thunder was so loud and severe that it made our heads ache. The floods in the canyon soon began to roar and next morning we saw that the water had run 22 feet deep down Armstrong Canyon by Edwin Bridge and in coming up the same canyon yesterday evening I saw that the head had increased as it went down for the heaviest rain was about one mile east of camp, then west for three miles. Talk about a torn up canyon!

There is hardly any trail between Edwin and Caroline Bridges. Several large trees have fallen across the trail and it will take several days before I can get it fixed so that people can travel it again. Water backed up under Caroline Bridge and left from two to ten feet of quicksand, it was hard for us to get through yesterday but a few days of sun will fix things up again. Due to the rains the flowers, grass and other vegetation have never been as beautiful at this time of year as they are at present.

There has been only one bunch of campers in the canyon this season; they camped under Caroline two nights with twenty-five head of horses. I had them take their horses down White Canyon so that the stock did not graze on the monument.

I must mention the damage done to the road, or trail, or the 'tumbling in' road to the monument. I had to shovel a lot of dirt on the two steep grades as they were badly washed. I cut a lot of limbs and stripped some cedar bark for a foundation to the road so that folks can get in and out again. I'll have to make up a list of the questions asked me about that road and the answers I give. Several parties have returned for a second or third trip this year, and of course, when they were here first I told them that the road would soon be fixed and in good shape, now they call

it the 'Tumble In'. I still believe that some day I will have a good road coming into the monument.

I am still happy and trying to put over the job.

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WALNUT CANYON

By Paul Beaubien, Ranger-in-Charge

There were 2,034 visitors to Walnut Canyon National Monument this month, or 13 fewer visitors than for August last year. 1,662 visitors were contacted while 372 had to shift for themselves.

The two Park Service visitors of the month were "Doug" Harritt and Dale King. Doug came to Flagstaff to take a Civil Service examination, but if he didn't know more about Mound Builders than I, he was wasting his time.

Have had lots of rain since reporting last time, and there were several bad holes in the entrance roads. On approaching these holes, some visitors decided to drive around them instead of staying on the packed road. Several parties had to be extricated before I placed enough logs along the roads to keep the traffic where it should be.

Due to the rains, there were only nine overnight camping parties this month. Also, the rain destroyed the attractiveness of the water-baited bird trap, so no birds were banded.

Representatives of the Soil Conservation Service came to Walnut Canyon with a truck to get walnuts for seed. However, they only found six nuts in the canyon.

When looking at last year's report for travel figures, I noted a paragraph that could be repeated:

> "While speaking of signs, I wish the monument boundary was properly marked. Deer season will soon be here and there are a few bucks left. Have had reports of turkeys on the south side of canyon. About the only protection that could be given them would be boundary signs."

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CHIRICAHUA

By Frank L. Fish, Custodian

Weather

Dry conditions prevailed until the 18th and 19th when heavy rains occurred over the entire monument, amounting to 3 inches of precipitation

(measurement by Fareway Ranch), this made it possible to close Sugarloaf Lookout. The nearby Forest Service district had the benefit of more rain earlier and had removed their lookout men sometime ago. The exceptional dry season has retarded forage plants in nearby areas and has probably kept many of our monument flowers from maturing.

Roads:

Monument roads have been kept in their usual excellent condition. There has been some improvement in approach roads and the outlook is good for future improvements. The maintenance crew of State 181 has done more than just maintain that road. Then miles is being surfaced near El Frida. It is planned to start surfacing the stretch from El Frida to the Douglas-Bisbee Highway soon. The county had difficulties with the arroyos washing out sections of road near Dos Cabezas a few times during the month.

Visitor Statistics

States	Cars	Visitors	Hikers	Guide Minutes	Foreign
Arizona	155	664 (69%)			Boliva
Others	50	242 (31%)			Canada
					Mexico
Totals 25	205	906	223	4,185	Panama

Park Service Officials

W. H. Wirt, H. B. McDougall and W. Ward Yaeger arrived on the 20th. Made a trip including Sugarloaf Lookout, Echo Canyon Trail and Massai Canyon Trail. These technical men became quite interested in what appears to be a tree infestation starting in the monument. Due to their limited itinerary it was suggested that I send Lawrence Cook and Dr. Deleon specimens for classification so Mr. Yaeger will have knowledge of the correct procedure to follow in the disposal of the infected trees and shrubs upon his return September 15. Custodian and Mrs. Caywood were here July 28. It was a pleasure to renew acquaintances with our nearest colleagues.

Newsworthy Visitors

Charles Cochran and Martin Buzan, agents of the Shrub Invasion Survey used the monument as a base for work nearby.

E. L. Springer, Bisbee, Arizona, collects moths and gladly gave me some interesting pointers on the moths of this region.

Chas. B. Conrad, Sierra Linda Ranch. Mr. Conrad will be remembered as a director of one Casa Grande Pageant.

John Ball, photographer, Wonderland of Rocks enthusiast, Bisbe, Arizona. Mr. Ball stayed at the Faraway Ranch. I was fortunate in paying a visit there and hearing some of his most interesting experiences while taking pictures of former Mexican troubles. Incidently, during the evening, Mrs. Riggs brought up what I think a novel idea, c consisting of transporting visitors to Massai Point in a horse drawn open vehicle. I consider this practical as it is slow enough speed to view the many formations, will revive earlier modes of travel and give young Americans a chance to experience the thrill of riding behind a set of fours. It even might recall a few cherished memories of the older people.

Cooperation with Other Agencies

The evening of the 21st a fire reported south of the monument in the Coronado National Forest was controlled with the assistance of 25 enrollees from the monument camp. Bill Stevenson, Ollie Nelson and I acted as leaders. It might be claimed we were the best dressed men attending. Bill wore nice clothes with oxfords and I tried to hold up the standard for our side by wearing a pair of the new elastique breeches.

Five rattlesnakes were sent to Dr. Frank N. Blanchard, University of Michigan. A report received in return on the first few sent showed two varieties: Crotalus molossus molossus - Black-tailed Rattlesnake; Crotalus lepidus klauberi - Green Rock Rattlesnake. Three snakes are awaiting the return of boxes to be shipped. Most of these snakes were brought in by the enrollees working with me on the trails.

Near the utility area in a brushy place a name painted in white lead on a large rock (RUThEi Jones) was discovered. Ruthiri Jones, age 22, schooling 4 grades, Bisbee, Arizona, was a former enrollee in the Bonita Camp (NM-2AO.) He worked on the pipe line in that vicinity. The Sheriff has gladly offered to locate the above Jones and try to impress the necessity to return and remove the defacement. This incident recalls a popular saying of Betty Jackson's father, "Education is like money, it can be used or abused."

Topographic Map:

Andy Clark and Carl Schmidt have completed the map of the monument. They can be proud of doing a nice piece of work in a very difficult country.

It is desired for education purposes to have a map made as soon as possible showing roads, trails and main points of interest from their masterpiece. Andy suggests someone draw small sketches of the outstanding formations in place. This probably could be done from photographs he sent in.

Donations

A loose-leaf binder for our register sheets was received from the Douglas Chamber of Commerce and Mines.

General

Homer Bennett has replaced Orvel Olinger as CCC guide during the month. Orvel has left the camp to accept work near Mesa. Bennett and Harris are doing nice work in taking care of the visitors and can be congratulated. Both are on the job around seven and one stays until five and longer if needed. This service is gladly given as they only have to put in around forty hours a week. In closing I might add that I find the surroundings delightful and the people a pleasure to work with.

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CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent

During the month 1,764 feet of trail have been completed between Massai Point and Echo Point, leaving 600 feet unfinished on the Massai Point-Echo Canyon loop.

July 27 work was begun on a connection between Echo Point and Rhyolite Trail which will be approximately 4,000 feet in length. 800 feet have been completed to date.

Foundations were poured for the headquarters ranger station this month, sewer and water connections made, and walls constructed to a height of 3 feet. Doors and cabinets are being made up in the shop and are 90% complete.

Excavation for Equipment shed foundations was begun August 20.

Maintenance of the Bonita highway has continued through the month.

A new rock quarry was located this month one half mile from headquarters area. It is estimated that this quarry will furnish enough rock for all of the proposed Monument buildings.

George Keller, Master Mechanic from Oklahoma City, inspected our equipment August 10-12 and recommended condemning two 1933 Chevrolet dump trucks to be replaced by new Fords held here in storage.

Twenty-five man-days were spent this month fighting fire on the Coronado National Forest.

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CASA GRANDE

By J. Donald Erskine, Park Ranger

With travel beginning to increase toward the Fall months, the count for August shows an increase of 345 over that of July, the total visitors for August numbering 1,487, which is an increase over that of August, 1935, by 58 visitors. The general type of visitors remains the same with cotton-choppers very prominent. 32 states, District of Columbia, Scotland, Canada, and Mexico were represented among our visitors which is about the same distribution that occurred last month. We had no official Park Service visitors during the month.

The weather for the month has been generally a little cooler than usual with a maximum temperature of 110 on August 13 and 14, and a minimum of 65 on July 26. As to precipitation, the month started off with a bang on the night of July 26 when two inches of rain fell in a few hours accompanied by a wind approaching 50 miles per hour from the East. This storm resulted in several large chunks of mud falling from some of the smaller ruins, but no actual serious damage to the Casa Grande itself, although with the high wind the roof was of no value whatsoever as a protection, and the "Big House" got thoroughly soaked. Rain also fell on August 2, 8, 10, 17, and 20, bringing the total precipitation for the month to 2.54 inches.

Our sewer situation still remains a problem as we hopefully wait some real action from the powers that be. The storm mentioned for July 26 caved in the sewer and required the work of two men a day and a half to dig it back to normal. No one seems to know anything about when we may expect actual work on the new system to begin. We are hoping it won't be many more weeks.

One bit of very excellent news I am privileged to include is the fact that we finally received our new electric fans for AC current, and we are now joined with the Indian Service power line which provides us with reliable and steady electricity at all times. In this same connection a few days after the electricity was turned on, our new refrigerators arrived, so now we have all the modern conveniences one could desire.

Custodian Jack Winter and Virginia are still in Chicago on leave without pay, but we are expecting them back about September 16 and will be very glad to see them both. Jack's place is still being filled very capably by Frank Horne, who was mentioned in last month's report.

Nothing exciting has happened in the Nature line during the month, except that Charlie Steen captured a rattlesnake alive and shipped it to the University of Michigan for identification. It was identified as a Mohave Rattlesnake, Crotalus scutulatus. The blacksnake mentioned in last month's report is still startling visitors in the Casa Grande. The young owls have finally left for parts unknown, and we miss them, as they were of great interest to the visitors. The parent birds are still with us, but they are of a more retiring nature, so not so

conspicuous.

The individual guide trip times that we started recording last month are as follows:

Averages:

Guide	Average Time Museum Trips	Average Time Ruins Trips
Erskine	23.7 minutes	30.9 minutes
Horne	25.6 minutes	31.6 minutes
Cole	29.5 minutes	30.5 minutes
Boss	26.0 minutes	37.8 minutes
Steen	14.0 minutes	27.3 minutes

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PIPE SPRING

By Leonard Heaton, Acting Custodian

I have stepped up the report one day this month on account of the mail service schedule. If this report doesn't get in the mail today it will lay over til August 24, which will make it late in getting in to your office. Our travel and visitors show a decrease in the number of people visiting the monument, but an increase in the local travel. The The decrease in visitors, I think, is due to the fact that we have no sign at the junction of highway 89 and the road leading to Pipe Spring, one that people can read from their cars as they approach the junction. I would like to get this sign, and this statement will serve as a request for it.

The weather has been pleasant this month, for the most part, as almost every day there have been some storms around us, either in the mountains or desert. But with all this stormy weather, we here at the monument have not received any great amount. We have had several light rains, just enough to say that it sprinkled.

August 6 Al Kuehl again made me a visit and found things in a better condition and suggested that we get busy on the filling on the wash which we are doing now with the use of a stake truck. We have most of the other projects completed as much as can be till we get some good rains that will soak up the ground to pack it down some. To do anything other than haul dirt, we will need some material for the pipe line, fireplaces, and tables.

I haven't done any bird banding this month as I haven't any feed that they want. I set some of the traps two weeks ago and I have only seen four birds at the traps, rats and squirrels having eaten the rest of the feed.

Made several purchases this month of materials and equipment which I have needed for some time.

Your last few pages of the Supplement were of great interest to me and I have been wondering who thought up that bright idea of moving you and the headquarters into some town away from the place that has produced this great Southwestern organization, known as the Southwestern National Monuments? I wonder if they think men can do better work away from the environment which produces the work. I don't think so. Keep it at Casa Grande Ruins, and we shall grow better than try to transfer it to a different location.

I almost forgot that I cleaned out the two ponds the other week and of the 7000 and 5000 trout that I placed in them eight or nine years ago I only got three out. I still have two old Carp in the ponds and they are so lazy and fat that they won't move unless forced to.

The Broadcast came yesterday and I have enjoyed it as far as I have read it, but I have to get out this report and some other letters and you know how I use time in getting out mail, so it will be this afternoon before I get to finish reading and re-reading the Broadcast.

Will say as the old Paiyte Indians say when they are agreed to anything: "Noonie Tu-Caubin Iwoee Iwoee".

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EL MORRO

By Evon Z. Vogt, Jr.

August has been the busiest, rainiest, and most interesting month at El Morro so far.

Weather and Roads

This summer's rains have come in a peculiar manner. We will have a dry spell for a week or more and then a little cloud will suddenly appear. It will thunder twice and begin to pour. Rain will continue to fall off and on for a couple of days and then another dry spell will come. The usual August rains come nearly every afternoon, but this summer the dry spells between rains have been so long that the vegetation in most parts of the country is badly stunted.

The approach roads are getting in worse shape after each rain. Heavy prop trucks en route to Gallup cut deep ruts and often get stuck. The truck drivers then dig deep holes in the middle of the road which are ususally graveyards for the next traveler who struggles along.

However, this being election year I believe that all the roads will soon receive special attention.

Travel

Travel along the El Morro Scenic Highway was good until the first heavy rains came, and for several days afterwards nobody passed El Morro except transcontinental airplanes, sheepherders on burros, and the mail carrier.

This has, however, been the best month so far. Visitors totaled 470 and represented 20 states, Washington, D. C., Peru, Germany, and Russia.

Newsworthy visitors include Jo Lloyd, Assistant Superintendent of Grand Canyon National Park; Richard D. Sias, Park Service ECW Inspector; and Milo Christiansen of the Oklahoma office; Dendrochronologist Florence M. Hawley, assistant professor of anthropology at the University of New Mexico, who has just recently become Mrs. Donovan Senter, and Donovan Senter, both at the Chaco Research Station this summer; Dr. Julio C. Tello of Lima, Peru, one of South America's foremost anthropologists; Dr. Donald D. Brand, professor of anthropology at the University of New Mexico; Dr. Malcolm H. Bissell of the University of Southern California; and Stanley Milford of the School of American Research in Santa Fe; Eleanore Gardner from Alexandrofsk, Russia; and one of the tours sponsored by the Experiment in International Living made up of five German youths and their leader, Dr. F. Ventz, Friedrickshafen, Germany, eminent German geologist and principal of a high school in south Germany, and five American youths and their leader, F. M. Brown of the Colorado Biological Survey.

The Experiment in International Living is a new movement and its purpose is to promote world peace. The idea being that if the youth of different nations travel around together, live together, and get well acquainted, they will not feel like shooting each other.

A rare thing at El Morro in the way of travel was the first house trailer to enter the monument. It came from Fort Worth, Texas, and camped here a week before moving on.

Flora and Fauna

El Morro and the immediate vicinity has by far the best grass in this region. Here at the monument the gramma grass has grown to six inches and over and is all heading out. One can travel two miles away in any direction and find that the grass has not yet grown two inches. We seem to have been blessed with more rain.

The piñon crop is general and looks to be the most promising in years. But the piñon jays are squawking across the mesas in larger flocks than ever before and are consuming piñons in enormous quantities. It is believed by some that the Biological Survey will have to kill these

like they do coyotes and porcupines, if we expect to have any piñons in future years.

Last week while I was conducting the German party over the Rock, I was frightened by a loud disturbance on one of the ruins. Everybody began to shout in German and run about like a herd of goats. I hurried back to investigate and found no mountain lion but a horned lizard which Dr. Ventz had cornered in a pile of rocks! "A very rare animal in Germany," explained Dr. Ventz. I told him that he might take it back to Germany with him as a scientific specimen. The lizard was carefully carried back to camp and caged in a small box. I understand that horned lizards will live for some time without nourishment. Next month I hope that German students of zoology will be examining a horned lizard from New Mexico.

The following birds were observed at El Morro during August, 1936:

Golden Eagle	Louisiana Tanager
Chestnut-backed Bluebird	Rufous Hummingbird
Canyon Wren	House Finch
Cliff Swallow	Lewis Woodpecker
Northern Violet-green Swallow	Cooper Hawk
Western Mourning Dove	Arkansas Kingbird
Woodhouse Jay	Cassin Kingbird
Western Nighthawk	Pinyon Jay
Western Mockingbird	Western Meadowlark
Pigmy Nuthatch	Desert Sparrow Hawk
White-throated swifts	Red-shafted Flickers

Monument Improvements

I am glad to report that although the recent heavy rains washed the south trail in some places and washed out the road leading from the cabin down to the point of the Rock, the north trail held and carried all the run-off in fine shape. By digging out the drainage ditches after each rain I believe the trail will stay in good shape for some time.

The erosion control dams washed badly and at least five will need attention before winter.

The pool in the water cove has been full for three weeks, and I found it necessary to siphon water day and night for several days to keep the water from pouring over the top of the concrete dam.

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CANYON DE CHELLY

By Robert R. Budlong, Custodian

At this writing the time of the Hopi Snake Dances is just about upon us, and roads in this vicinity are small seas of mud. In spite of the rains this month, however, visitor travel has been most satisfactory.

Total visitors for the month of August, 169. During the month of August, 1935, we had 135 visitors. Our visitors this month took trips as follows:

Rim trips, 31; persons, 127. Trail trip, 1; persons, 4. Horseback trips within the canyons, 6; persons, 23. Car trips within the canyons (wide-tired cars only) 6; persons, 16. Office visits, 7; persons, 56.

Time spent on these trips was as follows: Rim trips averaged 145 minutes each; trail trip, 270 minutes; horseback trips 365 minutes; car trips 135 minutes; office visits 133 minutes. There were seven "overlaps" -- that is, seven groups took more than one kind of trip. These were not counted twice, and our visitor count is based upon the actual number of visitors only, regardless of how many different trips they took while here.

Weather has been wet. Total rainfall during the month, 1.02 inches. Maximum temperature, 94, on the 14th, 15th, and 16th. Minimum temperature, 52, on the 10th. The canyons were totally impassable for cars equipped with ordinary tires during the entire month.

The custodian took a trip to Headquarters on official business the end of last month, leaving his official station here the afternoon of July 22, and returning here on the 27th.

Funds for the completion of water and sewer systems have been exhausted. The sewer system has had no work done on it since last month. The pumphouse, however, is now roofed over, the windows and doors put in place, and stonework carried to the roof level. The concrete roof slab has not been poured, but the forms are in place and covered with building paper, making the structure watertight. Minor repairs have been made to plumbing and water pipes on the outside of the custodian's residence.

Work on the White House Trail has commenced. Mr. Underhill, Park Service Road Oiling Expert, arrived here the night of August 12, in the middle of the first good rain we have had on the trail since its construction two years ago. While we have had minor rains on the trail, and hard rains near it, this was our first heavy rain on the trail itself. Water, draining a large area above the upper tunnel, poured down the tunnel onto the trail, and, the drainage on the trail being down its center, the dirt fills completely washed out in several places to depths of over three feet.

Now, however, under the able direction of Mr. Underhill and Mr. Gipe and his crew, much of this damage has been repaired. Drainage has been changed to be carried to the side of the trail, rather than down its center, some turn-outs have been put in, and some bitumuls surfacing has been done to stabilize the soft earth fills. This new work promises to withstand rains properly. The large area that formerly drained into the upper tunnel has been taken care of by the construction of dams and ditches, so that drainage from this area will now be diverted, and will not promptly dive through the tunnel onto the trail, as it formerly did.

And the rains are really with us. This, of course, is said to be due to the Hopi Snake Dances, now commencing. The canyons have received so much water that now even horses flounder in the quicksands, and all travel in the canyons has now ceased until the sands become more firm.

The ditches dug around the custodian's residence earlier in the year were judged to be inadequate to take care of cloudbursts, and since this possibility must be taken into consideration, a Navajo Indian with a 2-horse team, plow, and scraper, scraped a wide trench from eight to ten feet in width around the north, west, and south sides of the residence. The earth from the trench was piled up on the side next the residence to a height of over three feet. This should furnish adequate protection.

Minor repairs to the roof were made during the month, to stop a few leaks developing around the caprock. Some flagstones were laid in the patio, but much work yet remains to be done there. Drainage from the roof discharges through one of the canales into the patio, and since there is no adequate provision for conducting this water out of the patio, it is turned into a shallow swimming pool during heavy rains. Flagstones laid over part of this area will enable us to get to and from the garage during rains, but the work is slow, and other things constantly come up to hinder the work.

Ned Burns and Dale King visited us at the end of last month, departing the morning of the day the custodian left on his trip to Headquarters. Mrs. Denman, of San Francisco, was one of our noteworthy visitors during the month. Mr. Ted Sales and Mr. Ballin of Gila Pueblo paid us an all-too-brief visit. Mr. F. M. Brown, of the Colorado Biological Survey, led a party of eleven persons in here on the 18th, but finding the canyons impassable, and with the promise of rain any minute, they left shortly after their arrival. Six of these people were from Germany. Mr. Hamilton paid us a short visit early in the month.

But the Hopis must be meaning business, for now the sky has become heavily overcast once more, and it looks as though rain may start falling at any moment. I shall bring this to a close and drive to Chin Lee to mail it while the roads are still passable.

WHITE SANDS

By Tom Charles, Custodian

If taking care of visitors is the second biggest job in the Park Service, I'm wondering what the big job is. It seems to me that visitors overshadow everything else at the Great White Sands.

I've got that visitor business figured out to my own satisfaction. Not that I have acquired 100% efficiency but I've got the stride and am ready to train.

Some years ago when I was working my way through school, I built up paper routes and sold them, for a living. If I could get 40 to 50 satisfied subscribers on a route I could sell it for $200 to $300. I soon found that my mental attitude toward the subscriber had to be 100% in his favor. I believe that I held many a subscriber, not because the paper was what he wanted, but because I was kind to him and he responded and we built up a mutual feeling of friendliness.

I still have a little hangover of that feeling in my contacts with visitors at White Sands. I feel that every visitor to the Sands pays this particular unit for the Park Service a compliment, by the mere act of coming, and therefore pays a compliment to me. I start on the basis that he is a friend of mine, and with that start I have the right mental attitude. You may remember that in the good old days when called guards back, played 7 men behind the line and almost stripped them instead of armouring them with 18 pounds of sole leather, they taught us that "mental attitude" is 25% of the game.

I'm old-fashioned enough to believe that it still is. If I start on my visitor with a feeling that he is a friend, that he has already paid me a high compliment, I am likely to smooth out many of the little wrinkles which we have to smooth out the first minute of the contact. If I haven't the visitor pretty well "in tow" the first minute, then it may be a long struggle. But it is my job, whether he is driving a Model T or a Packard, whether he is a college professor or full of fool questions. I have something to sell him. If I cannot sell it, when it doesn't cost him a cent, then I feel sure that there is something wrong with me. I am not satisfied with myself when a contacted visitor leaves the Sands dissatisfied.

It is not my job to convince him that the White Sands excells the Carlsbad Caverns or any other park or monument, but it is my job to present enough things of interest to convince him that it was worth his while to have come this way. There is something, somewhere between the buried mastodon, the giant tracks, the poppy field where the Apache Indians slaughtered a company of colored soldiers, the white mice and the white lizards, the formation of the Sands, themselves, the struggle of the living plants against the encroaching death from the drifting sand, that will interest every visitor.

I am not a visitor specialist but I believe that this is sound and if it is not, then I want to know it.

Our outstanding event this month was the meeting at the Sands for the dedication of the completed highway between El Paso and Alamogordo, which is a part of the loop road from El Paso to the Sands and home by way of Las Cruces.

The meeting was sponsered by the Chambers of Commerce of the two towns and the civic organizations from Las Cruces, Tularosa, Mescalero, Ruidoso and Cloudcroft joining in. There were 210 cars at the picnic ground at 9 p.m; it is said that fully 300 cars had been there during the evening.

Among the distinguished visitors were Governor Tingley and wife, United States Senator Hatch and family, United States Senator Chaves and family, all of New Mexico; Congressman Thomason of Texas; Judge Joseph McGill; Adrian Pool, Collector of Customs; Captain Simons, manager of the Chamber of Commerce; H. S. Hunter, editor of the El Paso Times and 395 other El Pasoans.

As Senator Hatch stood in front of 1,000 people seated in the Crystal Bowl and under the soft light of the full moon, he said, "No place else in the world is there a scene like this"; United States Senator Chaves spoke in the highest praise of officers of the National Park Service from our Director down to the ranks and proclaimed them, "One of the finest groups in the employ of the Government." Governor Tingley said, "We have finished the road to El Paso, now the road past the White Sands comes next."

Besides the speaking in the Crystal Bowl there was music by a 36-piece, El Paso band; community singing, "Oh, Fair New Mexico", "The Eyes of Texas", "At Home on the Range"; Spanish dancing by an El Paso maiden; war dances by a group of the Old Geronimo Indians and $100 worth of fireworks presented from the distant hills by the Alamogordo Chamber of Commerce.

There was nothing left to be desired from the custodian's viewpoint.

Our Sunday crowds have been as follows:

July 26 ----------	840
August ----------	2,621
" ----------	1,155
" ----------	742
Total	5,358

The registration has been nearly double any other month, so far. The total for the month has been 2,785 registered; from 39 states,

Washington, D. C., and 5 foreign countries. Texas leads with 1,095, with less than 20% of the Texas cars being from El Paso, New Mexico had 424, Oklahoma 165, Kansas 55, California 53, Illinois 42, Louisiana 30, New York 22, Florida 12. On the basis of 14% registration we had 19,893 visitors from July 21 to August 20, inclusive.

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NAVAJO

By John Wetherill, Custodian

People are coming in flocks. Only a small number are trail broken and the rest have not enough nerve to try the goat trail to the ruins. We would have had more than a thousand visitors this season if they could have gotten over what some people call a road. I do not care to take our car over it again.

I am sending with this some questions which have been asked by visitors to the ruins.

There have been quite a few Clogists of various kinds in lately, among them Dr. Loomis and Dr. Antevs. James Swinnerton and his wife are here now and expect to visit the ruins as soon as some of their friends arrive.

This is written in a hurry as we are all busy and cannot settle down to write. With best wishes to all.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for August total 729.

Our roads have been in excellent shape which I think accounts for our increased number of visitors.

We have had many visitors who were in Government employ during the month, several were with the Land Bank Division, several from the Department of Investigation, Department of the Interior. Two were WPA investigators checking up on care of public records. Mr. Borell of the Wildlife Division called in company with a gentleman from the Forestry Department. I took up the matter of tree diseases in some of the trees on the monument. Quite a number of both large and small trees seem to be dying. They start with a single limb turning yellow and this later seems to spread over the whole tree.

The principal crop of this locality is beans. Up to about a month ago we had every indication of a bumper crop, but lack of rain during the past two weeks has already cut the crop in half and everybody is

(GRAN QUIVIRA (CONT.)

praying for rain.

We cannot get a daily paper here and to keep in touch with the rest of the world, we purchased a Radio. It uses a battery which is kept charged by a wind charger and at our altitude wind is a plenty. The first night we got good contact with France, Italy, Germany, Mexico and several South American countries. Now when the Park Service has something on the air we intend to liston in.

Our trouble at the present time is rattlesnakes. Am going to ask the Boss to allow me to put a cement floor in the room we call the museum; it is the one covered room among the ruins and owing to its coolness the snakes have completely appropriated it.

A pine sliver gave our youngest boy a bad case of blood poisoning. I took him to the hospital in Albuquerque and it was during my absence that Mr. W. H. Wirt and H. B. McDougall of the Oklahoma City office, and Mr. W. Ward Yaeger of the Santa Fe office called at the Monument. We were very sorry to have missed them. The present condition of roads makes Albuquerque only three hours away and we have had many visitors from there during the month.

I neglected to say that Dr. Chas. W. Gould of Oklahoma City and Mr. Vincent W. Vandiver of the Santa Fe office, geologists, paid us a visit on July 21. They were much interested in a Porphyry Dike running across this country. One of the kivas in the plaza was dug out of the center of this dike. They wished me to trace it for them. So far have traced it about ten miles and it is heading for El Capitan in the Sacramento Mountains.

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HEADQUARTERS STUFF

By Charlie R. Steen, Jr. Park Nat'list

The Educational Staff of the Southwestern Monuments for July, 1936, was composed of Assistant Park Naturalist Robert H. Rose; Junior Naturalists Dale S. King and Charlie R. Steen; and ECW Student Technician Clarence R. Cole.

Rose was stationed at Berkeley, California, during the entire month. He is trying to dig some information regarding the early Spanish missions in New Mexico and Arizona from the publications in the Bancroft Library.

Junior Naturalist King was at Bandelier National Monument, with the exception of ten days sick leave, preparing museum exhibits until the 21st. On that date he started annual leave. King will enter Yale University in September for a year's study with the Park Service Fellowship.

Report of Student Technician Clarence R. Cole, ECW

Office Duty:

Completed re-covering Chiricahua informational leaflets.
Completed re-covering Tonto informational leaflets.
Mimeographed 2,000 Bandelier informational leaflets.
Washed glass on library bookcases.
Painted gathering rack.
Mimeographed 170 Monthly Reports.
Mimeographed 4,000 White Sands informational leaflets.
Unpacked and waxed two swivel office chairs.
Mimeographed covers for August Monthly Report.
Prepared "El Palacio" library list.
Prepared "Masterkey" library list.

Guide Duty:

Ruins trips: 21
Museum " : 20
Total Minutes: 641 (Ruins)
Total Minutes: 589 (Museum)
Average time Ruins Trips: 30.5 minutes.
Average time Museum Trips: 29.5 minutes.

Bird Banding

Due to the large amount of natural food available to birds, banding operations were carried on at only one monument, Tumacacori. New birds banded by Caywood were:

Pyrrhuloxia	5	Canyon Towhee	4
Arizona Cardinal	4	House Finch	1
Cowbird	1	Mockingbird	2
Inca Dove	1	Lazuli Bunting	1
Palmer Thrasher	1	Total	20

Accessions and Gifts

Mr. Cecil Rodgers of Mesa has loaned a group of photographic plates exposed by his uncle between 1896 and 1901. These pictures are: of several missions, San Xavier, Tumacacori, San Ignacio and one other which hasn't been identified yet; the Casa Grande; photos of a Pima village north of Mesa.

Through the Pueblo Grande Museum two small archeological collections were donated to the monuments.

1. From Gingrey's Ranch in Black Canyon and donated by Mr. Witaker of Phoenix:
   -fragment of a large basket

-Several small fragments of a coiled basket
-Sandal
-Wooden slab
-Piece of yucca fibre cord wrapped with sinew.

2. From a rock shelter in Arivaipa Canyon, donated by Mr. Hicks of Mesa:
-Two fragments of coiled baskets
-One carved stick.

These artifacts will be stored at headquarters until facilities for storage or display are available at monuments to which they are pertinent.

The following books have been received and are now in the headquarters library,

531 - 47th Annual Report BAE 1932
-The Acoma Indians, by Leslie White
-Isleta New Mexico, by Elsie Clews Parsons
-Zuni Ceremonialism, by Ruth Bunzel
-Zuni Origin Myths, by Ruth Bunzel
-Zuni Ritual Poetry, by Ruth Bunzel
-Zuni Katchinas, by Ruth Bunzel

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534 - Ninth Annual Report of the Smithsonian Institution, 1855.
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-The camel, by George P. Marsh.
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Visitor Statistics

We had 40,942 visitors last month as nearly as we could count them and when you get to thinking about it, that is quite a crowd. It was an orderly crowd and we had practically no police difficulties.

It was also an eagerly interested crowd, taken as a whole, and there we fell down - we didn't have enough men to answer questions and give information. We made 51.2% contacts on the 40,942. Since, to make our figures compare with those of the Educational Division in the parks, we count a visitor who goes through the ruins and then goes through the museum as two contacts, these figures mean that we have actually met considerably less than the 51.2% of the 40,942 visitors we had. We regret this greatly for our ideal is to greet every visitor.

This month, with its 40,942 visitors shows a considerable increase over last month with its 30,110 visitors, and with it we have reached the high peak of the year; we will now drop back until we are handling between ten and fifteen thousand per month during the winter.

Fortunately for us, the peak of this monthly load fell heaviest on two monuments where it could do us the least harm; White Sands and Capulin. The visitor at these two places can do but little permanent damage, whereas such a visitor load simply walking through some of our areas would do some unavoidable damage. While these two monuments present rather minor police problems, it is greatly to be regretted that we cannot keep men in charge of them so the visitors might gain some much wanted information. About sixteen thousand visitors wondered how the white sands were formed and why and went away without being told any of the very interesting story. About four and a half thousand visitors did the same thing at Capulin in connection with that interesting volcanic cone. Don't you think these twenty thousand visitors last month, (nearly as many as will go to Mesa Verde this season) were entitled to the services of about three temporary rangers? I don't think that is asking for too much.

We ran 2,410 guided field trips last month as against 2,100 the previous month and we handled 13,737 visitors as against 11,011 the previous month. There were 1,178 museum trips with 7,049 visitors

compared with 1, 129 trips with 6,008 visitors the previous month. We had no extra men on duty so this means that the force carried just that much more load. The adjustment was made by a slight increase in the average party, from 5.2 to 5.7 on field trips and from 5.3 to 5.9 in the museum, and a slight decrease in the average time per party, from 41 to 39.1 minutes in the field trip and from 21.3 to 20.8 in the museum trips. In other words, the figures tell us that if you load more visitors on us without giving us more personnel, we will have to speed up the machine and put the visitors through in faster time and larger batches. This is all right up to a certain point and then your machine will begin to break down and you will be giving poor service.

Our ideal is to meet every visitor. If we could do this we would show 100% contact on the total travel at the monument if we handled the visitor once. If we take him on a field trip and a museum trip, we would show a 200% contact if we met every visitor.

Aztec, for instance, should show two contacts per visitor if our ideal could be obtained, or 200% contacts on the total travel for the month. It really shows 197.2% contact which is coming pretty close to the ideal.

Casa Grande shows 198.4% which is probably about as high as we can expect to attain at that monument.

Aztec and Casa Grande make a nice comparison in this regard because both are on level ground, have about the same distance of walking through ruins and museums of about the same size.

If we want to study visitors under more difficult conditions of contacts, let us take Montezuma Castle and Tonto, where visitors must put forth considerable effort to see the ruins but can easily enter the museum..

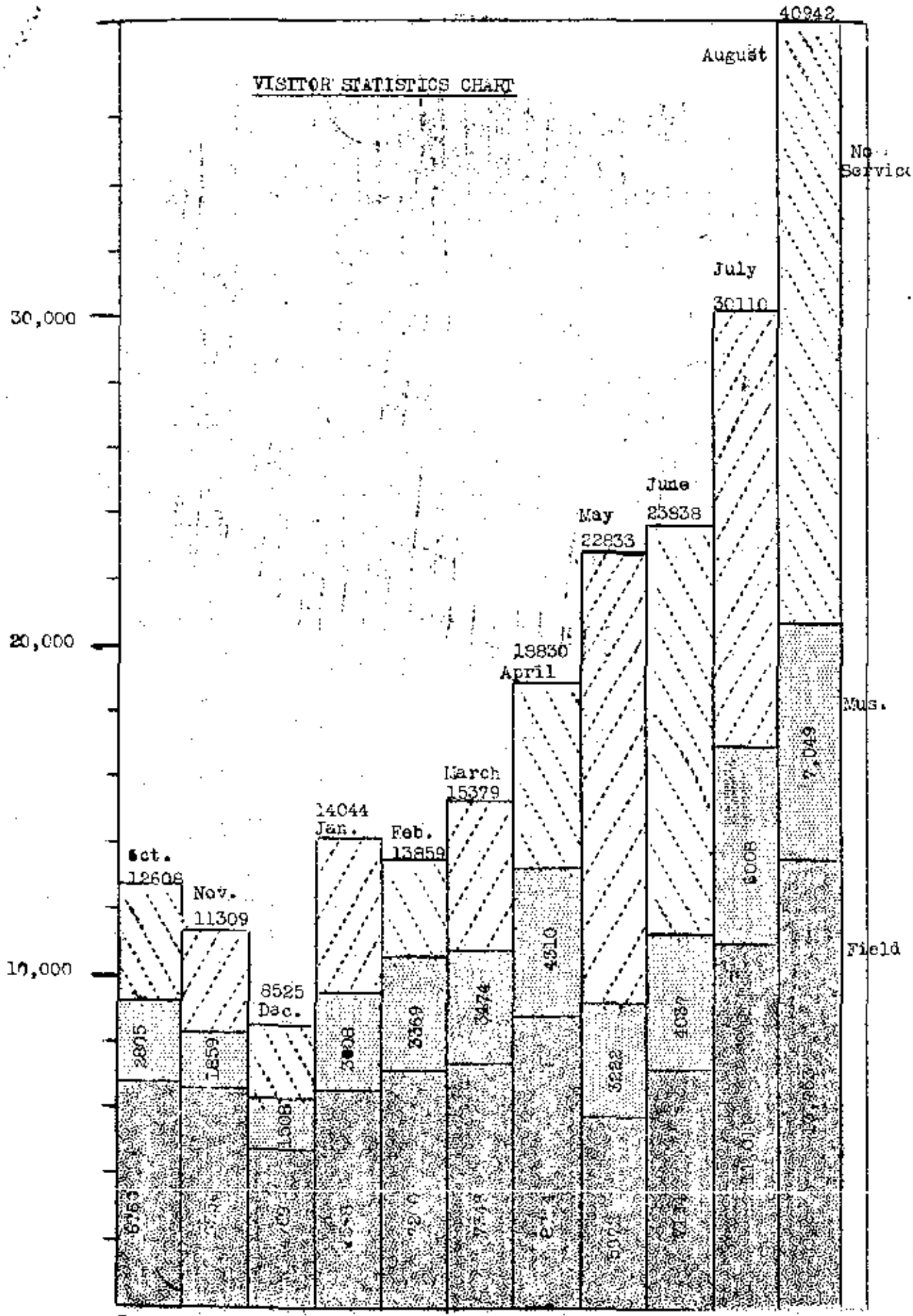
We find Montezuma has 159.2% contact and Tonto has 146.9%. Neither of these monuments could be expected to run as high as the two above mentioned, because many of the visitors will be physically unable to make the ruins trip. Comparing the museum contacts, on which the ideal would be 100%, we find Aztec stands 97.2%, Casa Grande stands 99.7%, Montezuma Castle, 91.8% and Tonto, 84.2%.

Incidentally, we might say that Casa Grande has not consistently run such a high percentage of visitor contacts nor can we hardly expect it to do so well in the winter months when it is at its peak and the place is undermanned. For instance, beginning last October, which is the beginning of the visitor year, and on the basis of 200% being the ideal, we have the following percentages, month by month; October, 135%; November, 136%; December, 81%; January, 142%; February, 179%; March, 174%; April, 157%; May, 133%; June, 183%; July 191%, and Aug.,198%.

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR AUGUST 1936
Southwestern National Monuments

Monuments	No Employ		Guided Trips					Museum Lectures					Museum Unattend		Outside Lecture		Total Contact	Total Travel	Percent of Contacts
	Per	Tem	No.	Att.	Time	Av. Att	Av. Tm.	No.	Att.	Tm.	Av Att	Av. Tm.	No.	Att.	No	Att			
Arches------	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aztec-------	1	1/4	323	2658	12690	8.2	39.2	294	2585	4785	8.7	16.2	4	36			5243	3658	197.2
Bandelier---			25%	1928	16832	8.1	71.3	-	-	-	-	-	-	-	-	-	1928	3180	60.6
De Chelly---	1		18	69	4560	3.8	253	-	-	-	-	-	-	-	-	-	69	169	40.8
Capulin-----	P		2	36	120	18	60										36	4500	1.5
Casa Grande"	1	1	270	1468	8558	5.4	31.7	239	1483	5959	6.2	24.9					2951	1487	198.4
Chaco--------	1	1	105	619	6930	5.9	66	80	487	1685	6.8	21.					1106	1272	86.9
Chiricahua -	1	2	34	223	4185	6.5	105										223	906	24.6
El Moro-----		1	78	408	5094	5.2	65										408	470	86.8
Gila Cliff--	-	-	-																
Gran Quivir-	1		141	730	8305	5.1	58.9										730	730	100
Hovenweep---	0	-	-																
Montezuma---	1	1	175	1064	8405	6	48	239	1449	5355	6	22.4	-				2513	1578	159.2
Nat. Bridges		1	12	72	1280	6	106								2	212	284	72	
Navajo------	-	-	-																
Pipe Spring-	1		22	85	585	3.9	26										85	105	80.9
Rainbow-----	-	-	-																
Saguaro-----	-	-	-																
Sunset------	-	-	-															1231	
Tonto-------		1	50	203	3645	4.0	72.9	55	273	1410	4.2	21.5					476	324	1469
Tumacacori--	1	1	177	912	5005	5.1	28.2										912	1037	87.9
Walnut------		1	185	890	4005	4.7	21.5	261	772	5310	2.9	20.3					1662	2034	81.7
White Sands-	P		543	2181	2183	3.9	3.9										2181	18,753	11.6
Wupatki-----		1	38	189	1904	5	50min.												
Yucca House-	-	-	-																
Headquarter-	-	-	-																
Total-this mo			2410	13735	94285	5.7	39.2	1178	7049	24504	59	20.8			2	212	20996	40942	51.2
Total-last mo			2100	11011	86236	5.2	41.	1129	6008	24136	53	21.3	10				17019	30,110	56.5

Note: Bandelier and Chiricahua each has 2 CCC men, included in no. of temporaries.


VISITOR STATISTICS CHART
40942
August
July
30110
June
23838
May
22833
19830
April
March
15379
14044
Jan.
Feb.
13859
Oct.
12608
Nov.
11309
8525
Dec.
30,000
20,000
10,000
No. Service
Mus.
Field
2805
1859
1508
3808
3369
3474
4310
3222
4087
6008
7,049
6563

Casa Grande, being the laboratory monument where we try out funny ideas, is the first one at which we have made this visitor contact percentaga study, but we expect to look over the others one at a time, since this one has proved so interesting. There may be some argument about whether we should strive to hold visitors a little longer in our field and museum trips - at least there has been quite a lot of argument on that point among members of the staff - but I have yet to hear anyone argue that we ought not to meet every visitor if that were possible, or, if that is impossible, the more we meet, the better we are fulfilling our duties toward the visitor.

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CLOSING

It has been a pretty good month, Chief, as you will have seen from the reports from the men in the field. The weather has been seasonable, the roads have been fair, except those up in the Indian Country which have been bad part of the time and not very good the remainder of the month.

From the visitor standpoint it was the peak month of the year with forty thousand of them coming in on us. It is too bad we could give them almost no service where they struck us hardest, White Sands and Capulin, and at some of the other places the service was pretty badly stretched. Aztec is a case in point, where two men handled 2,658 visitors through the ruins and museum and made 197.2% contact out of a possible 200%. In some places handling that many visitors would not be much of a chore because they would be handled by the hundred, or, as Tom Bles has them, a thousand at a time. But at Aztec the average party was made up of 8.2 people for the ruins and 8.7 people for the museum. That means almost individual service because every visitor can get his every question answered and the guide can adapt his talk to the particular interests of the persons in his party and not have to give a short of "shot gun" talk and hope that every one got a little of it. These visitors at Aztec last month spent 39.2 minutes in the ruins and 16.2 minutes in the museum, so they were with us long enough to really get some good out of the trip. Next year the figures are telling us we will need a peak load temporary at Aztec if the good times keep growing and more visitors take to the road.

The heaviest job of the month seems to have again fallen at Walnut Canyon. One has to go a little behind the figures to see this. Paul made 1,662 contacts while Tom, over at White Sands made 2,181. The difference is that Tom had a lot of parties but talked less than four minutes per party while Paul averaged 21.5 minutes per party on his field trips and 20.3 minutes per party in what we call his museum. You might think that since Aztec had 5,243 contacts with two men whereas Walnut with one man had 1,662 contacts with one man, the Aztec

boys would win the prize. The difference comes in the size of the parties. The two men at Aztec really put in 17,475 minutes at guiding, or an average of 8,737 minutes each. The Walnut Canyon man put in 9,315 minutes; he therefore wins by a nice margin.

The figures at Walnut Canyon are simply crying out the need of one permanent man and a temporary man through the heavy season. The argument is sometimes raised that the Walnut Canyon ruins are not very important, at least from the archeological standpoint, why, therefore, do we need two men? My theory is that if the people go there, as they do, and want to know who? and when? and why?,as they do, it is our duty to have enough men there to tell them. One of the gentlemen of the Budget once agreed to that conclusion by saying about one of our reservations: "I grant your argument as being sound. Personally I wouldn't cross the road to see the place but if a hundred thousand blamed fools want to go there to see it, we will have to furnish them some accommodations."

These visitor statistics we are getting together, faulty as they are, and no one claims perfection for them, are proving mighty interesting and are not so easily laughed off when they prove the need of more personnel as in the case just pointed out.

It is very strange to me that, with all these specialists we have going hither and thither and yon, no one has thought of putting on a specialist who can come around and study these problems and show the Washington Office by the tabulated results of such investigations where, under the laws of mathematics, the personnel and the funds are being stretched to the breaking point and where they are being wasted. We note in our ECW camps, for instance that if we have a couple of caterpillars standing idle for thirty or sixty days a specialist spots them and takes them away from us and puts them to work in another camp where they are needed. Of course it would not be quite as easy to shift personnel and funds as it is to shift equipment, but the principle is sound and a technique could be worked out to attain somewhat the same results. We are really doing that within our own unit, but there seems to be no specialist who can do it between the different units of the Service.

Out of the forty thousand visitors last month we have thus far had one complaint. That isn't a very high percentage but we are going into it thoroughly and will render a special report on it. The complaint runs to the effect that a visitor reached one of our one-man monuments after five o'clock and was refused service on the basis, apparently, that the eight-hour shift was over and the man was off duty for the day. I thought all our men on the one-man jobs understood that they were there to deliver service and that there would be plenty of times when they would be overworked but that was a part of the job they were taking and they were to take it on the chin with a smile. Custodians, rangers and

CLOSING (CONT.)

guides on one-man posts have no eight-hour shifts. On the two-man posts we try to arrange an eight-hour shift, but, as the late Mr. Hamlet once observed; "It is more honored in the breach than in the observance."

The office force has done about the usual amount of overtime work this month. We have been trying our best, in our feeble way, to fill the vacant Chief Clerk position since July 1; thus far the papers have not come through. When we have a vacant job we need the man so badly that such delays get us in quite a dither. All office work is, by the grace of God, current.

Cordially,

Frank Pinkley,
Superintendent.

THE Supplement



TUMACACORI ALCOVES OR TRANSEPTS

By J. H. Tovrea
and Frank Pinkley.

For many years we puzzled over certain non-bonded wall joints in the nave of the Tumacacori church. It might be well to put the problem down here and let others see if they can add to our information or develop any new theories.

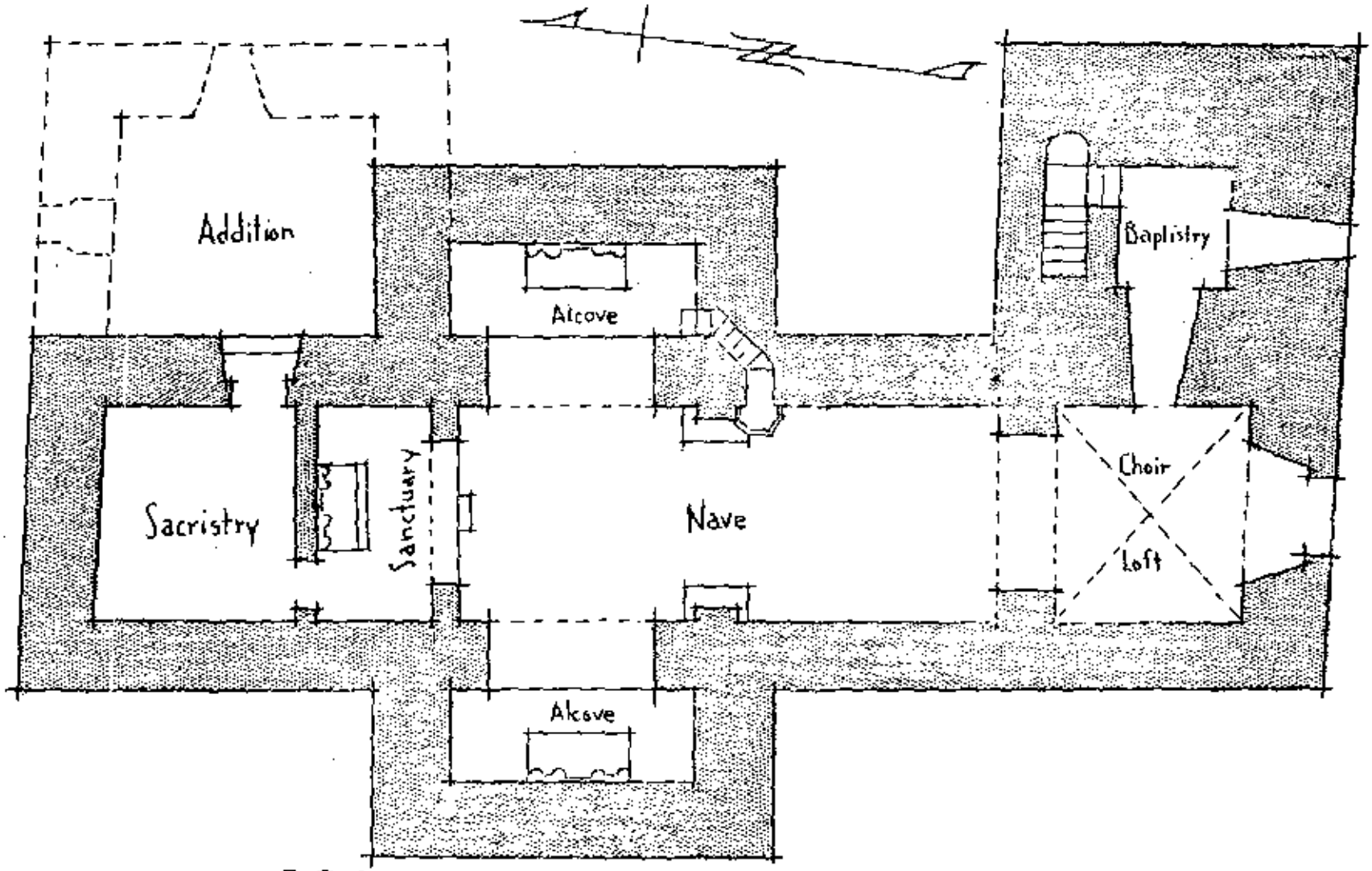
Tumacacori was abandoned about a century ago. The beamed roof of the nave fell into ruin, partly due to vandalism and partly due to weathering. The interior walls of the nave were thus left open to the elements for several generations and the interior plaster broke away in large patches revealing the construction of the wall.

Not quite half way down the length of the nave from the entrance doorway are two pilasters, one against each wall, running the full height of the nave. Just in front of these pilasters some three feet the plaster being broken away exposes an unbonded joint in the wall which runs up about seven feet from the floor before the adobe bricks begin to bond across. About twelve feet farther along the walls we find another of these unbonded joints in each wall running to the same height before the adobes begin to bond across.

As we walk up the nave from the entrance doorway, just before we come to the pilaster on the right, the broken plaster shows, at a point several feet above the floor of the church, what appears to have been an entrance, window, or opening of some kind into the wall, which has afterward been filled with adobe bricks. Only the bottom of this supposed entrance or opening is visible, the plaster just above still clinging to the wall and preventing one from seeing whether or not the top of the opening might have had a wooden header or adobe arch.

The above were all the facts we had for some years and upon them we built many theories. One of the best of these theories was that the Padres had designed this church to have a cruciform plan; that the unbonded lines in the adobe walls marked the width of the openings into the transepts and that the opening or entrance in front of and near the east pilaster was the opening into the pulpit. We presumed that something had happened to make a change in the plan; that after the walls had been built some six or eight feet high the idea of constructing transepts was abandoned; that the workmen were ordered to fill up the transept openings and brick up the entry way which they had partly constructed leading from the east transept up through the wall into the pulpit which would have stood in the nave of the church.

This theory, given above, would account for the non-bonded joints in the walls of the nave and for the making of the so-called "pulpit entrance" which was then filled up and plastered over. It would also account for



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· POSSIBLE · PLAN ~ EARLY · TUMACACORI ·

the bonding over of the adobes above the joints in the walls. The whole thing was just a change of plan while the church walls were under construction.

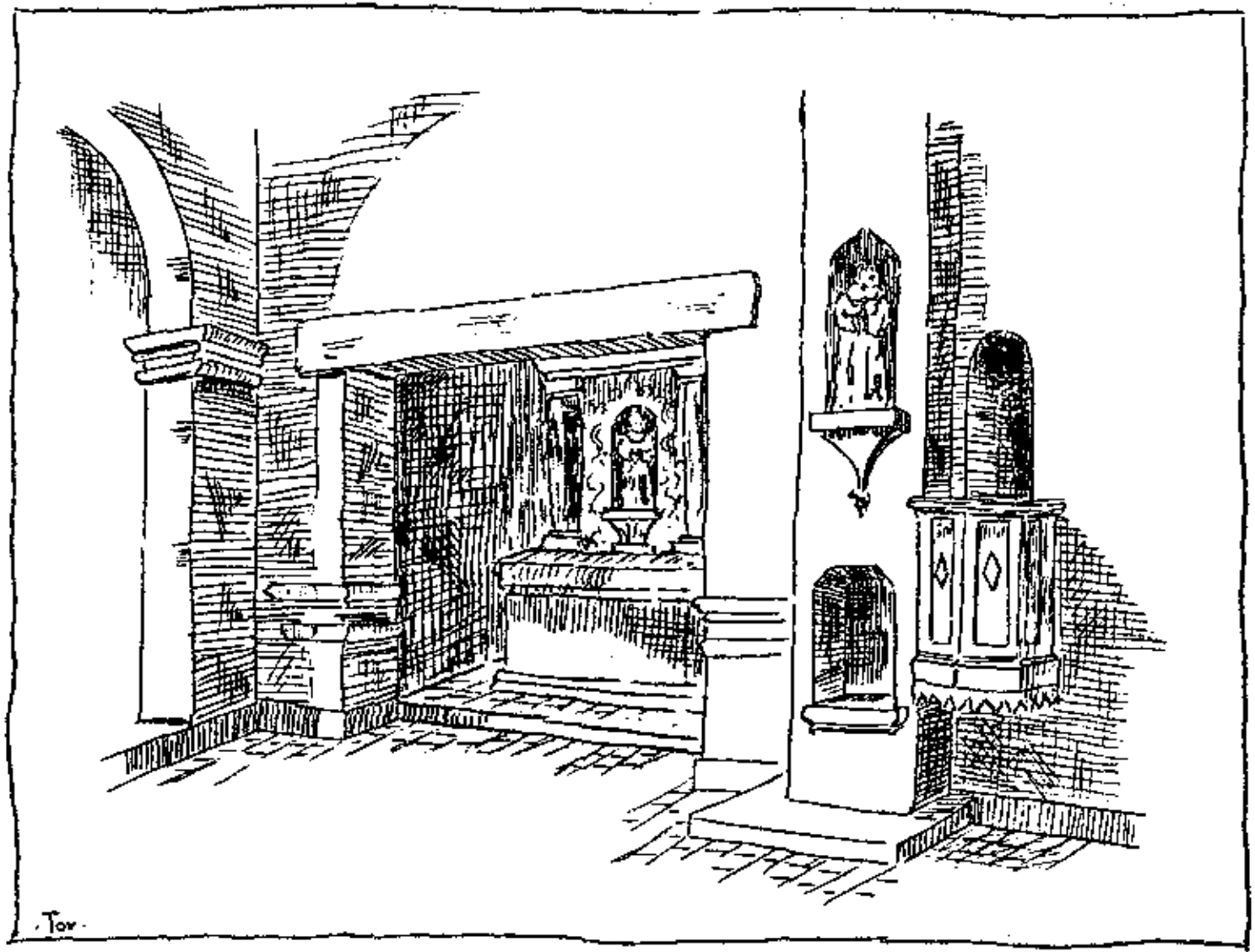
One time when Mr. George L. Boundey was Custodian of the Tumacacori National Monument, in doing some clean-up work and re-grading along the west side of the mission, he exposed the foundation of the supposed west transept. He opened it up and we looked it over and he then closed it up again.

One startling thing about this foundation, which developed in this examination, was that there were a few inches of the original wall still standing above the rock foundation and these few inches of the adobe wall CARRIED THE ORIGINAL STUCCO PLASTER WITH THE CHARACTERISTIC RED AND BLACK DECORATION SUCH AS THE WHOLE LOWER SECTION OF THE CHURCH ONCE CARRIED.

It does not appear reasonable to us that they would put the plaster on the inside or the stucco on the outside of a partly built wall. As we view it, then, the importance of this bit of stucco on the outside of this wall was to prove beyond reasonable doubt that this transept or alcove had once been completed; in other words our theory of a change of plan during construction and an abandonment of this part of the structure before it was completed would not fit this fact of the stuccoed exterior face of the wall.

The study of a sister mission across the border, San Ignacio de Caborica, shows a plan somewhat similar to Tumacacori with two alcoves opening off the nave. The walls of these alcoves do not extend as high as the church walls and the alcoves have flat roofs. The east alcove has a pulpit entrance starting upward from the floor of the alcove, turning to the right and coming up through the wall of the nave, opening into the pulpit several feet above the floor of the church. Here we have in actual use precisely the same arrangement which we thought had been in effect at Tumacacori. The alcoves at San Ignacio each have an altar at the back and we think the same arrangement would have been effected at Tumacacori.

We are now of the opinion that these two alcoves or transepts at Tumacacori were at one time completed and in use; that in a later reconstruction period the walls of the nave at these points were torn down to a point some eight feet above the ground, the alcove or transept walls were removed down to ground level, the former entrance opening into the alcoves or transepts were bricked up and the walls of the nave were then carried back up to roof height. This would also entail closing up the pulpit entrance and the present pulpit entrance was then cut through farther along toward the rear of the church. It is also possible that the present sacristy was constructed at the time of this reconstruction and the present arch erected between the nave and the sanctuary, but these are problems which are outside the scope of this paper and will be treated later.



·TUMACACORI · ALCOVE·

As the facts now stand it seems probable to us that the nave walls of the present church might have been built before 1760. At that time these alcoves or transepts were complete and were in use. We have some reports of the church being attacked and at least partially destroyed by the Apaches in the 1760's and at this time the roofs of the nave and these transepts or alcoves were probably destroyed by fire and the walls left open to the elements. Nothing seems to have been done until 1781 when we have a notation that the church had been rebuilt or restored and was again in use. We think it is entirely probable that it was in this reconstruction of 1781 the decision was made to abandon these side structures, because of their ruinous condition, possibly because the fire had destroyed the lintel beams which may have carried the walls across the openings, or because they had been too badly desecrated to be used again, and so the present arrangement of the interior of the church dates from about 1781.

Attention should be called, at this point, to the fact that the four large altars in the nave of the present church are not bonded into the nave walls. The plaster of the nave walls runs unbroken behind the altars. Now, since the extensive reconstruction as set out above would probably entail a replastering of the interior walls of the nave, we might suppose the present altars in the nave to date from 1784 or later.

This would fit well into our theory for with the high alter in the sanctuary and the two side altars in the alcoves or transepts, no others would be needed, whereas, upon the abandonment of the alcoves or transepts the Padre might decide to relieve the plainness of the nave by introducing the present altars.

We present this study of the problem of the alcoves at Tumacacori for better heads than ours to puzzle over and to point out to the research men who are now working over the ancient records the need of looking carefully through all the reports around 1781 to see if any documentary evidence can be found which will corroborate these guesses of ours as to a reconstruction and if there was one just how extensive it was.

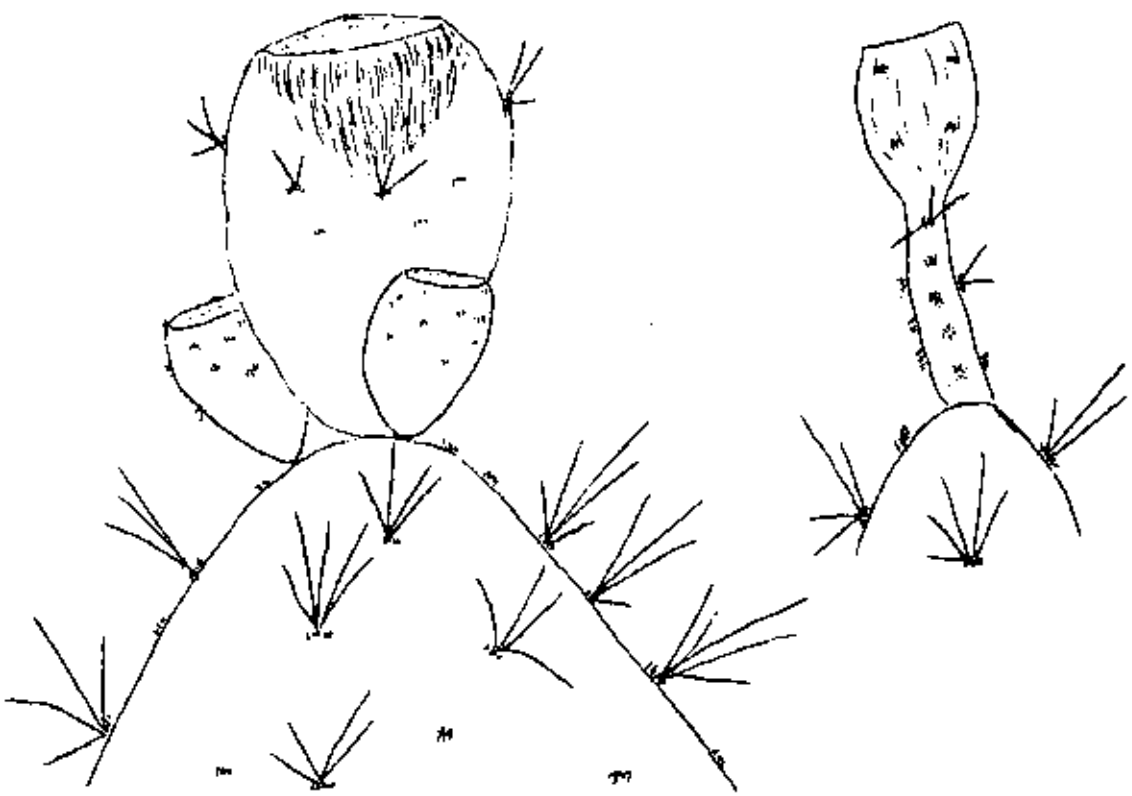
PECULIAR GROWTH OF CACTUS

by Charlie R. Steen

A large prickly pear, Opuntia englemani, which grows just in front of the Casa Grande Museum has offered two peculiar growths during the current growing season.

In May, while the plant was putting forth new pads, a flowere budded and blossomed from one of the new appendages. At the time the flower appeared the joint was no more than two inches and a half in length. The blossom apparently had no ovary and after it had wilted and fallen only a scar was left on top of the joint to indicate what had happened, and the incident was almost forgotten.

The joint continued to grow until it's length had increased to four inches and a quarter. In July, at the time the normal ovaries were showing aighs of ripening, a swelling at the top of the new pad was noticed; this swelling began to take on a purplish tint, just as the fruits of the plant. At present this peculiar looking 'fruit' has a color almost as deep as that of it's more concervative brethren, and



FULL FACE AND PROFILE DRAWINGS OF JOINT

has split to expose a very dry interior. The seeds are white, in contrast to the brown seeds of a normal fruit. The production of such an anomaly has proved too much of a strain for the young pad. It's strength has been sapped and since about August15th it has started to wither and fade.

The other peculiar growth noted on this cactus was an exact opposite of the one just described. A small joint started growing from the flat upper surface of an immature ovary. The pad never reached the stage where it's leaves were formed into spines. During June both ovary and new joint gave up the ghost and fell from the plant.

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CARLETON'S DIARY - 1853

DIARY

Of an excursion to the ruins of Abo, Quarra, and Gran Quivira, in New Mexico, under the command of

MAJOR JAMES HENRY CARLETON, U. S. A.

Wednesday, December 14, 1853.

A squadron of cavalry, formed of company "H", first dragoons, commanded by First Lieutenant Samuel D. Sturgis, and company "K", first dragoons, commanded by Brevet Major James Henry Carleton, in all one hundred strong, with one 12-pounder mountain howitzer, left Albuquerque, at eleven o'clock this morning, as an expedition to explore the country around the ruins of Gran Quivira, New Mexico, and for other objects connected with the bands of Apache Indians who often infest that portion of the territory.

Our route, for the forty miles, lies down the left bank of the Rio Grande. This part of the country has often been described. Its principal features are easily named. The Rio Grande, at this point, averages about one hundred yards in width, and not more than eighteen inches in depth. Its waters are turbid, like those of the Kansas. Its bottom and banks are composed of sand. The valley along the river is very level, and usually not over two feet higher than the surface of the water. In some places it is more than two solid miles broad. It has a great deal of sand mixed with the soil; but it is remarkably fertile. From this valley a second bottom, or table-land extends, by a gradual ascent, back to the mountains on either hand. This table-land is destitute of water and uncommonly sterile. The lower level, which skirts the river, and which is irrigated from it, is the source of nearly all the agricultural wealth of New Mexico.

A storm of rain which came on yesterday continued, almost without intermission, for the whole of last night and until late this foremoon; the roads are, therefore, very muddy. In consequence of the heaviness of the travelling, the squadron was encamped near the residence of an American gentleman, named Baird, seven miles 694 yards below Albuquerque. Here we are able to obtain wood and hay; but we are obliged to send across the Rio Grande to purchase corn.

Thursday, December 15, 1853.

About four o'clock this morning it commenced snowing, with a piercing wind from the north. Our poor horses, exposed to the inclemency of the storm, were soon chilled and trembling with the cold. By eight o'clock the weather began to moderate; but we had snow-squalls, from different points of the compass, for the whole forenoon. Before we reached a little hamlet, called Valencia, fourteen miles 265 yards from our camp of yesterday, we encountered a shower of rain and sleet. As in this place we could get two corrals, wherein our horses could be partially sheltered, it was decided that we should encamp here for the night. The weather seems singularly unpropitious for an expedition. It is said to be quite unusual to have these storms in New Mexico at this season of the year. Tonight, however, at nine o'clock, the clouds have all left the heavens, and we have promise of a fair day tomorrow.

Three Mexican citizens of respectability, a Mr. Chavis and two of his sons-in-law, came to our camp this evening, and informed Major Carleton that it was their intention to establish a colony of settlers at a point east of a range of mountains known as the Sierra Blanca, and along some streams affluent to the Pecos, called the Seven Rivers; that they proposed going with this command as far as Gran Quivira; and that from that point to the Seven Rivers they desired to be furnished with an escort of dragoons. They were informed that Brevet Lieutenant Colonel Chandler, of the army, was about to proceed from near Doña Ana, with three companies, directly to the country in the neighborhood of the Seven Rivers, and, if they wished to do so, they could have the advantage of his protection. Mr. Chavis concluded to go by the way of Gran Quivira, at all hazards; and to proceed across the country, from that point, even without an escort. The truth doubtless is, the old gentleman fancies that the purpose for which this squadron is going into that country is to search for a great amount of treasures which are said to be buried beneath the ruins there, and he hopes he may be able to obtain a share of them.

Friday, December 16, 1853.

The weather became very cold last night; all the ponds of water extending up and down the valley are frozen over, and the ground is hard and resounds loudly at the tread of the column. The sand-bars along the river seem to be covered with geese, ducks, and brant, which

have been driven by the ice from the lagoons and sloughs. They are so tame they hardly fly at our approach.

We arrived at a little town, called Casa Colorada, about four o'clock this afternoon. This place is thirty-nine 537 yards from Albuquerque. Here our road leaves the river for the mountains toward the point east. As it will take two days to march to Manzana, the next and last point where we can procure any corn, we are encamped for the night; and shall here buy, and haul in our wagons tomorrow, the forage our animals will require to that town.

The citizens of Casa Colorada gave a ball this evening in honor of our coming. The sudden arrival amongst them of so many armed men is a matter of great astonishment.

The result of our observations, as regards the general appearance of the inhabitants of the country, made during these first forty miles of our march, may be stated in a few words. The dirty little villages through which we have passed, as well as those we have seen in the distance, have generally turned out their inhabitants en masse to get a sight at us. This gave us a sight at them. Had we been painters it would doubtless have been an interesting one; for men, women, children-motley assemblages-exhibited themselves to us in groups picturesque, as well as in crowds grotesq ue. Some blanketed, with sombreros and cigarritos; some with whitewashed and some with scarlet-dyed faces, some with rebosos, some nearly naked, some on house-tops shading their eyes with their hands, and some peering through chinks and crannies in the mud walls of their dwellings; but all curious as to whence we came and whither we were going. The national expression of Quien sabe appeared deeply written on every face. In no rancho or village have we seen a solitary indication of industry, cleanliness, or thrift since we left Albuquerque; and it may be remarked, parenthetically, that we have yet to see, in that town, the first evidence of these cardinal virtues. Indolence, squalid poverty, filth, and utter ignorance of everything beyond their corn-fields and acequias, seem to particularly characterize the inhabitants who are settled along the east bank of the river. We have seen nothing denoting energy on the part of any one, save that shown by the old man Chavis and his two sons-in-law. On the contrary, we could but observe amongst them what seemed to be a universal proclivity for rags, dirt, and filthiness, in all things; with sheer laziness and listlessness marking their every movement and all that they do. It may be said that the people whom we saw were of the lower order; but we were justified in coming to that conclusion from not seeing any of the better class.

Saturday, December 17, 1853.

We started this morning at eight o'clock. For about two miles our road lay up a gradually inclined plane, where we found ourselves on an almost level mesa that stretched uninterruptedly, eastward to the base

of those mountains which commence at the Sandia Peak and extend towards the south below El Paso del Norte.

This plain is sandy and entirely destitute of water. We saw several herds of cattle grazing upon it; but, so far as we could observe, there was very scanty pasture. Our guide, a Mexican, informed us that these herds are driven to the Rio Grande for water only once in two days. We saw but a solitary flock of antelopes, numbering some ten or twelve. This was midway between the river and the mountains.

The scenery, viewed from elevated points on this plain, was very beautiful. The Socorro and the Ciboletta ranges of mountains, and the distant peaks of others toward the north, were covered with snow, and gleamed in the sun with dazzling splendor. The long Sierras towards which we were now moving were also clothed in a winter-robe of white. They bounded the whole eastern horizon. Their tall summits and jagged outline, like a fringed edge, standing sharp and clearly defined against the morning sky, glowed in the light as if burnished with silver. While towards us, along their whole western slope - which descended toward the plain as a coast towards the ocean - the valleys and precipices reposed in cold blue shadows, chilly enough to make the beholder shudder in looking upon them.

Just before arriving at the foot of these mountains, we found a pond of water four hundred yards to the right of the road. Our guide informed us that in the dry season no water can be obtained at this place.

There are here two passes through the mountains; the one on the left hand going eastward, leading through a difficult canyon, is practicable only as a bridle path; the one on the right hand affords every natural facility for making a most excellent road for wagons.

These passes are known, in the language of the country, as Los Puertos de Abo. The summit of the right hand pass is nineteen miles and sixty-three yards from Casa Colorada, and lies east 20° south from that town. The road for this whole distance is by far the finest we had seen in New Mexico; and is not surpassed, in any point of excellence, by the celebrated shellroad at New Orleans.

The first outcropping of stone which we observed as we approached the mountains was of quartz, trap, and greenstone. These are surmounted by numerous strata of fossiliferous limestone, of good quality. These strata in some places are hundreds of feet in thickness. This latter formation prevails exclusively at the summit of the pass.

There is no timber of any kind to be met with until you come near the top of the mountains; the growth there is entirely of dwarfish piñon and stunted cedar.

We encountered snow half way up the pass. The scene presented by the column winding its circuitous route to the summit, with parts of it lost to view behind some jutting crag, or just emerging into sight from some deep gorge - the foreground filled with the dragoons moving upon different turns of the road, the sun glanzing brightly on their appointments, - the towering snow-clad peaks on either hand the background the valley of the Rio Grande, with the distant mountains in the northwest marking with a serrated line the far off horizon - was a picture whose beauty will not easily be forgotten.

The general direction of the chain of mountains stretching northward of the pass toward Sandia Peak is north 10° west. The first elevated peaks southward of Sandia are called La Tetilla; the next La Sierra de la Manzana; then come Los Puertos de Abo; and then the high range still farther south which is known as La Sierra del Palo Duro.

From the summit of the pass for the first two or three miles the road is very circuitous. It then has an easy gradual descent for about three miles further, when you come to a deep canyon which lies entirely to the left, but in sight of the road, and at a distance from it of six or eight hundred yards. There, in the canyon, good sweet water is always found. This place is called Agua de Juan Lujan. Near this, but a few hundred yards further east, we passed a large spring of salt water. It is known by the Mexicans who travel the road as La Salada. Passing this, we next encountered, for some three or four miles, mesas of dark chocolate-colored sandstone, through which we wound our way to a point where the roads forked. We took that which leads to the left hand. In less than half a mile, our road lying up the dry bed of a wet-weather creek, we came to a fine streamlet of fresh water. This was fringed by a beautiful grove of cottonwood. At the distance of four hundred yards, after we struck the water, we came to the Ruins of Abo. Here we are encamped for the night.

At this time, when so many surveys are making from different points along the Mississippi toward the Pacific, with a view of ascertaining the best route for a railroad track, perhaps the suggestion may be of value that the Pass of Abo offers advantages in this respect which may not be found in any of the other passes through these mountains. They are certainly of sufficient consideration to make it an object to have this pass thoroughly explored before others shall be adopted. By directing the route from Anton Chico, on the Pecos river, immediately past the Ruins of Abo, and thence through the canyon by which the bridle-path lies that has already been spoken of, the open plain in the great valley of the Rio Grande can be reached without tunnelling a rod, and with no more difficulty as to the blasting of rocks and grading down to acclivities, than has been encountered on any of the ordinary railroads in the United States. Let the road be directed across the plain so as to pass the Rio Grande at the mouth of the Puerco River, thence up the valley of that river to its west branch, and up the valley of that branch to Laguna;

thence to Zuni, and from that point by the route which the indefatigable Whipple will without a doubt find, to the shores of the Pacific. These suggestions may possibly be of practical utility to those who are engaged in by far the greatest enterprise of modern times.

The Ruins of Abo consist of a large church, and the vestiges of many other buildings, which are now but little else than long heaps of stones, with here and there portions of walls projecting above the surrounding rubbish. There is yet standing enough of the church to give one a knowledge of the form and magnitude of the building when in its prime. The ground plan of this structure is in the form of a cross, its longitudinal direction being within ten degrees of the magnetic meridian. It was, perhaps, situated exactly upon that meridian when the building was erected--the variation of the compass accounting for the present difference. The great entrance was in the southern end. From thence to the head of the cross, where the altar was doubtless situated, it is one hundred and thirty-two feet, inside. This, the nave of the church, is thirty-two feet in width. The short arm of the cross, or what in cathedrals is called the transept is forty-one feet in length and twenty-three in breadth. The transept is sixty-six feet from the doorway. These measurements were made with a tape-line in a very high wind. The round numbers in feet are, therefore, only given, without noting the fractional parts of a foot.

The walls are of a great thickness, and their height is, at this day, in over half the structure, all of fifty feet. The upper edge of these walls is cut into battlements. The church, as well as the neighboring buildings now in ruins about it, was built of a stratified, dark red sandstone, such as crops out along the creek and makes its appearance on the sides of the surrounding hills. The pieces of stone do not average over two and a half inches in thickness, and are not generally over one foot in length. Each piece is of the form it had when it was broken from its native bed. We saw not a single dressed stone about the ruins. These stones are laid in mortar made of the ordinary soil from the ground immediately at hand. The roof of the church was evidently supported by beams and covered with earth, as in the churches still occupied at places of worship throughout New Mexico. We saw no signs of an arch, nor an indication that those who planned and built the church at Abo were at all acquainted with architecture as a science. The walls over the doors and windows, so far as we could observe, had been supported by beams of wood. When these had become destroyed, those stones which were liberated above had dropped down; so that now, over each window there is a rude sort of Gothic arch, owing its form, not to design, but to accident. The wood-work of the church was evidently destroyed by being burnt. Wherever in the walls portions of beams still remain they are found charred and blackened by fire.

The form of the church alone, proves it to have been designed by Christians. Perhaps the workmen employed in its construction were Indians.

We saw a distinct mark on an axe in one of the pieces of timber, which is imbedded in the east wall of the church some six feet from the ground. Saws also were doubtless used, but we discovered no marks of them. The stick of timber marked with the axe, and some beams that supported a landing at the head of the stairway which is made in the west wall, were the only pieces of wood about the ruins which were not burned so much over their surface as to obliterate all marks of tools.

The extent of the exterior wall, which, from the appearance of the present heaps of stones, once surrounded the church and the town, was about nine hundred and forty-two feet north and south, with an average width east and west, of say four hundred and fifty feet. A large population must have occupied this town and its neighborhood, if one were to judge of the number of people by the size of the church built to accommodate them at their devotions.

We saw few, if any, unmistakeable signs that the ground had been cultivated in the vicinity of these ruins. Nor is there any good arable land, so far as we could observe, at any point nearer the Rio Grande; for uplands to be arable, in the climate of New Mexico, must be so situated as to be capable of irrigation. The stream of water at Abo is in a deep ravine. It is very inconsiderable in point of size, and loses itself in the sand in less than five hundred yards below the springs which feed it. The adjacent country is rolling and broken, and covered with pinon and cedar. The underlying rocks are secondary red sandstone. The summits of the mesas and neighboring eminences are composed of grey limestone filled with marine fossils.

It was nearly night when we reached Abo. There was a keen freezing gale from the northwest, and the whole appearance of the country was cheerless, wintry, and desolate. The tall ruins, standing there in solitude, had an aspect of sadness and gloom. They did not seem to be the remains of an edifice dedicated to peaceful, religious purposes, a place for prayer, but rather as a monument of crime, and ruthlessness, and violence. The cold wind when at its height appeared to roar and howl through the roofless pile like an angry demon. But when at times it died away, a low sigh seemed to breathe along the crumbling battlements; and then it was that the noise of the distant brook rose upon the earlike a wail.

In the mystery that envelopes everything connected with these ruins - as to when, and why, and by whom, they were erected; and how, and when, and why, abandoned - there is much food for very interesting speculation. Until that mystery is penetrated so that all these questions can be answered without leaving a doubt, Abo belongs to the region of romance and fancy; and it will be for the poet and the painter to restore to its original beauty this venerable temple, to rebuild its altars, and to exhibit again unto us its robed priests, its burning censers, its kneeling worshippers.

Sunday, December 18, 1853.

It took us until half past nine o'clock this morning to complete our examination of the ruins. We then marched over a rolling and, in places, broken country twelve miles 760 yards, and in a general direction of N. 12° E. For the whole of this distance the country is covered with groves of cedar and piñon trees. We then came to the Ruins of Quarra. These appear to be similar to those of Abo, whether regarded with a view to their evident antiquity, the skill exhibited in their construction, their preservation at the present time, or the material of which they are built. They too are situated upon a small stream of water that soon disappears in the earth.

The church at Quarra is not so long by thirty feet as that at Abo. We found one room here, probably one of the cloisters attached to the church, which was in a good state of preservation. The beams that supported the roof were blackened by age. They were square and smooth, and supported under each end by shorter pieces of wood carved into regularly curved lines and scrolls, like similar supports which we had seen at the ends of beams in houses of the better class in Old Mexico. The earth upon the roof was sustained by small straight poles, well finished and laid in herring bone fashion upon these beams. In this room there is also a fire-place precisely like those we found in the Mexican houses at the present day.

We had heard that in a stone panel inserted in the front end of the church at Quarra we should find emblazoned the fleur-de-lis, the ancient armorial bearings of France; and many therefore supposed that possibly this church had been erected by French Catholics who had come as missionaries across the country from the direction of New Orleans. But we saw no panel, no fleur-de-lis, and no stone of any kind, that bore marks of a chisel or of a hammer. Every piece in the church, in the cloisters, and in the debris of a neighboring village, was in the same rough form which it had when it was broken from the quarry.

The course from Quarra to the town of Manzana is, W. 35° N.; the distance is four miles 1,145 yards. We now find ourselves at a very great elevation. The whole country is clad in a winter garb. The high Sierra de las Manzanas, and the towering pyramidel peaks called Las Tetillas, gleam with a depth, it is said, of more than two feet of snow.

The town of Manzana is situated at the base of the Sierra of that name, and a small rivulet which, in running eastward to the open plains, soon sinks into the ground. Several dams are constructed along this rivulet, to collect and retain the water for purposes of irrigation. The town is built partly of logs set on end jacal fashion, with the interstices filled with mortar, and with roofs covered with earth, and partly of adobes. It sports a very dilapidated church, erected, it would seem, as a practical antithesis to the morals of the inhabitants; for Manzana

enjoys pre-eminently the wide-spread notoriety of being the resort of more murderers, robbers, common thieves, scoundrels, and vile abandoned women than can be found in any other town of the same size in New Mexico, which is saying a good deal about Manzana. Fortunately it contains but few inhabitants, not more than five or six hundred at most. It is not an old town. When the first settlers came here they found two groves of apple trees, one just above the site now occupied by the town, and one just below. Tradition says these trees were planted at the time Abo and Quarra were inhabited; and yet, tradition has lost all trace of when that time was. It is said the Catholic church has lost all trace of when that time was. It is said the Catholic church of New Mexico claims that they were planted by some priests, but admits that it has no records or authentic traditions about the ruins we have visited. Her claim, however, that some priests did this at some period or other, is good enough to authorize her to farm out these two orchards yearly, as we were informed, to the highest bidder. Two of the largest trees in the lower grove were found to be respectively eight feet and six feet in circumference. The largest was hollow - a mere shell of an inch or two in thickness. These trees have a venerable appearance. They have never been pruned, and have, therefore, grown gnarled and scraggy. Many of them are much smaller than those which were measured. They have grown, doubtless, from seeds which have fallen from the older ones. How long this process of self-planting has been kept up, of course, no one can know. Apple trees are not indigenous to New Mexico. Assuming it to be true, however, that the largest of these trees were planted at the period referred to, then the ruins of Abo and Quarra are more than two centuries old.

These two groves, or rather these two clumps of trees, are not standing regularly in rows and orchard-like; on the contrary, they are crowded together in the most irregular and natural manner.

The name of this town, and of the towering Sierra to the west of it, was adopted from finding these orchards here; Manzana being the Spanish for apple, and Manzano the botanical name in that language for apple tree. The name of the town is spelt indiscriminately in both ways throughout New Mexico.

Immediately about Manzana, and up the slope towards the high mountains west of the town, there is a pine forest many miles in extent, of most excellent timber for boards and for building purposes. Some twenty-five of thirty miles in an easterly direction there is a large salt lake, which has no outlet. This lake supplies nearly the whole of the upper portion of the territory with salt. There are fine roads leading towards it from different directions. We were informed that the bottom of the lake is covered with a sheet of solid salt, which, in the dry season, is some three or four inches in thickness. When the rainy season sets in, filling the lake with fresh water drained from the surrounding prairies, this sheet of salt is said to dissolve down to half this thickness. We were

not prepared to examine and visit this lake. It lies directly off our route, and has neither wood nor fresh water within many miles of it. The proper time to go to it would be during the rainy season and when there is grass.

We had procured orders from the vicar general of New Mexico for what corn we should require at Manzana--corn which had been paid in by the peasantry as tithes (diezmos) to the Catholic Church. When we arrived there, we found that the corn belonging to the church was some six or eight miles off, at another village, called Torreon. So we were forced to buy on credit what forage we required.

Here we learned that a small party of Texans had recently been at the ruins of Gran Quivira in search of treasures. Whilst there they sent an Apache Indian in to Manzana for some articles they wanted. An American named Fry, a hunter, who lives at Manzana, went out to the ruins in company with two Mexicans to see these Texans; when he reached there he found them gone. He ascertained while he was gone that there was no water to be found at a pond where our Mexican guide expected we should find it, as it had dried up; and that unless we found another small pond some six or eight miles from that, and which our guide knew nothing about, we should be obliged to go without any, for he said there was probably no snow about the ruins, as about Manzana, which we could melt. So Fry was employed to pilot us to this pond, as failing to find it, we could obtain no water nearer to Gran Quivira than at the little stream at Quarra, which is a distance of thirty-five miles.

Monday, December 19, 1853.

This morning we loaded thw wagons with all the corn they would hold; but it did not amount to over two days' feed, as our other supplies had to be taken along besides. In addition to this the dragoons put into their haversacks enough for their horses for one night. We started about ten o'clock in the morning and retraced our steps toward Abo, to a point on the road known as Arroyo de la Cienega - a dry bed of a wet-weather stream. This is nearly two miles below Quarra. Here we left the beaten track and took a course across the country in the direction of E. 40° S. After travelling some six miles we struck an Indian trail which leads from Manzana to the country of the Mescalero Apaches. This we followed in the same general direction to some holes in the rocky bed of another wet-weather stream called Las Aguachas. These often contain water enough for a small party with animals, but we found them quite dry. One, only, had a small cake of ice, but no water. They are 13 miles 1,022 yards from where we left the road. The country for this distance is quite barren. It has but little grass, but is covered with the tall branching cactus, and with scattered clumps of pinon and cedar trees. On our right hand, for the last third of this distance, we have had a mesa covered with timber to its summit, which is called La Mesa de los Tunanes. It is improperly laid down upon the maps as a Sierra, or mountain range. It runs

from west to east, commencing a few miles south of Abo and ending in a point on the plans about fifteen miles east of Las Aguachas, where we cross over it by ascending gradually through an open prairie, which can easily be seen from the place where we left the road below Quarra.

The stone that crops out at Las Aguachas is a remarkably fine sandstone, suitable for grindstones and wetstones. The best is at the upper end of the ravine where the last pool of water would be found in the wet season.

When we reached this point it was nearly night. A cold piercing wind was blowing, and it was yet some miles to the place where we hoped to find water. The wagons were some two or three miles behind; Major Carleton pushed on with the squadron, having Fry for a guide, to find the pond before dark; leaving Lieutenant Sturgis with twelve men at Las Aguachas, to wait for the wagons, and then follow with them on the trail. The Mexican guide stayed with the Lieutenant, that he might track the squadron after night should set in. After travelling a little over five miles, the squadron arrived at the water. It was found in a deep hollow in the open prairie. The pond is not over eighty or one hundred yards in diameter, and might easily be missed after dark even by one acquainted with its locality. The water is fresh and sweet. This pond is nearly a mile from timber. It lies immediately off against the mouth of a pass through the Mesa de los Tumanes, and is known to the shepherds as La Laguna de la Puerta, the Lake of the Pass. Here we made holes in the ice, and, having watered all the horses, moved up into the pass, where we found wood in abundance, and very good protection from the cold wind. We soon had large fires burning, which served as a beacon to the lieutenant, who was behind bringing up the wagons. Shortly after dark he arrived. One of the wagons was immediately unloaded and sent with the water-kegs to the lake; the men taking lanterns to see to get the water through the ice. By ten o'clock that night our horses were groomed and fed, the men had their suppers, and large piles of pinon wood were blazing the whole length of the camp, giving it a cheerful and picturesque appearance.

This camp is twenty-five miles and 90 yards from Manzana.

Tuesday, December 20, 1853.

As we knew it would be quite impossible to march to Gran Quivira and make the necessary observations there and back to the laguna in one day, it was decided to rest this forenoon, and to fill the kegs and India rubber water-tanks with water, and then to march to the ruins in the afternoon; to encamp near them to-night; to employ the forenoon of to-morrow in their examination; and then to return to-morrow evening to this place. In this way our animals would not be without water more than a day and a half. We accordingly broke up our camp about half-past twelve o'clock. After we had filled our kegs and tanks at the laguna, we ascended a high ridge for a mile or more, when our guide

pointed out to us what he said was the great church or cathedral, at Gran Quivira. It was in an air line all of thirteen miles distant, and yet we could see it distinctly with the naked eye. We could have seen it easily when five or six miles further off, had there been no obstruction to the view; a proof of the remarkable clearness of the atmosphere in this elevated region. It lies S. 5° E. by the compass from Laguna de la Puerta, and served for a land-mark towards which to direct our march. Our course was a very straight one; for the country which is an open rolling prairie, offered no impediment to our moving in a right line. The weather changed to be very cold during the afternoon; when near sunset a fierce wind arose from the direction of the snow-clad mountains in the west, and a cold vaper like a cloud came over the country, enveloping everything in a dense fog, and covering men and horses with a hoar frost. It was feared that the gale would change into one of those dreadful winter northers which are sometimes experienced in this country, and which are so fatal to men and animals when exposed to their fury on the open prairie. So the direction of the march was changed, that we might get the shelter of the timber on the slope of the Mesa de los Tumanes, which stretched along our right at a distance of not more than three or four miles. This we struck very opportunely, just as night was setting in. We soon had large fires blazing, and all our horses well blanketed and picketed on the leeward side of them, to get the benefit of the heated air and of the eddy in the wind from the long line of tents. In this way they were kept from suffering, although the night was uncommonly cold and inclement.

So still another day has passed away, and the ruins are not yet reached. Quivira would seem al ays to have been a difficult place to arrive at. We find in Castaneda's history of the expedition into this country made by Francisco Vasques de Coronado, in 1540, '41, and '42, that that general was forty-eight days in hunting for it, starting from some point between the Rio Grande and the Gila River. All the way from Albuquerque we have asked the people of the country where the ruins were situated, How they looked; Who built them; etc. etc., etc. To all these questions we could seldom get a more definite reply than "Quien sabe?" It seemed as if the genii who, in the Eastern tale at least, are said to guard the depositories of great treasures, were determined to make the existence of such a place as Gran Quivira as much of a problem to us as to the Mexicans themselves. We had seen, before the fog set in, an edifice in the distance, which had seemed to move away as we approached it, like the weird lakes of water in a mirage. But to-morrow, at all events, will decide for us whether that edifice be a Fata Morgana or not.

Wednesday, December 21, 1853.

At daybreak this morning every tree and spire of grass, and even the blankets upon our horses, were covered with ice. The trees seemed as if every twig was made of frosted silver. The wind had gone down, and overhead the sky was clear; but a heavy bank of fog extended all along the east,

obstructing our view of the Sierra de las Gallinas, which bounds the horizon in the direction. It was long ere the approaching sun waded up through so dense a veil.

Soon after we left camp we again saw the cathedral of Gran Quivira; but in surmounting one eminence after another as we moved along over a rolling country, the ruins, phantom like, seemed to recede before us the same as yesterday. When we first saw them this morning they appeared to be about a mile and a half distant, when in reality they were more than five miles off. The last three of these five miles' travel was over nothing but a succession of sand hills covered with a tall coarse grass, with two or three heads on each stalk, which seemed to be peculiar to this place. The horses sank more than fetlock-deep into the soft yielding sand; while it was with great difficulty that the mules, at a senile's pace, drew the wagon along.

At eleven o'clock in the forenoon we came to the last high ridge on the point of which the ruins are situated. This ridge is composed of dark blue compact limestone, which crops out in several places along its slopes. The ascent is quite abrupt on every hand, except towards the east; the ridge is prolonged in that direction for several miles. We all felt rejoiced that finally we had reached a place about which so much had been written, and yet so little had really been known.

Whatever may have been the grandeur and magnificence of that place in ages long past, its present appearance and condition are easily described.

We found the ruins of Gran Quivira to consist of the remains of a large church, or cathedral, with a monastery attached to it; a smaller church or chapel; and the ruins of a town extending nine hundred feet in a direction east and west, and three hundred feet north and south. All these buildings had been constructed of the dark blue limestone which was found in the vicinity.

The cathedral, which we had seen from Laguna de la Puerta, is one hundred and forty feet long outside, with the walls nearly six feet in thickness. It stands longitudinally W. 15° S., with the great entrance in the eastern end. The altar was in the western end. Like the churches at Abo and Quarra, it is constructed in the form of a cross. From the doorway at the foot of the cross to the transept, it is eighty-four feet seven inches; across the transept it is twenty-one feet six inches; and from thence to the head of the cross it is twenty-two feet seven inches; making the total length, inside, one hundred and twenty-eight feet eight inches. The width of the nave is twenty-seven feet; the length, inside of the short arm of the cross, is thirty-six feet. A gallery extended along the body of the cathedral for the first twenty-four feet. Some of the beams which sustained it, and the remains of two of the pillars that stood along under the end of it which was nearest to the altar, are

still here; the beams in a tolerably good state of preservation--the pillars very much decayed; they are of pine wood, and are very elaborately carved. There is also what, perhaps, might be termed an entablature supporting each side of the gallery, and deeply embedded in the main wall of the church; this is twenty-four feet long by, say, eighteen inches or two feet in width; it is carved very beautifully, indeed, and exhibits not only great skill in the use of various kinds of tools, but exquisit taste on the part of the workmen in the construction of the figures. These beams and entablatures would be an ornament to any edifice even at the present day. We have cut one of the beams into three parts, to take back with us. The entablatures are so deeply set in the walls that we are unable to procure a piece of them. The beams are square, and are carved on three sides; the floor of the gallery rested on the fourth side.

The stone of which the cathedral was built was not hewn, nor even roughly dressed; but the smoothest side of each piece was laid to the surface with great care. We saw no one piece in all the ruins which was over a foot in length. The mortar was made from the ordinary soil found upon the spot; it affords but a poor cement to resist the action of the elements and the ordinary ravages of time.

The walls of the cathedral are now about thirty feet in height. It was estimated, from the great quantity of stones which have fallen down, forming a sort of talus both within the walls and outside of them, that, originally, this building was all of fifty feet in height. There is a small room to the right as you enter the cathedral, and another room, which is very large, and which communicates with the main body of the building by a door at the left of the transept. There was also communication between this large room and the monastery, or system of cloisters, which are attached to the cathedral. The chapel is one hundred and thirty feet from the cathedral. This building is one hundred and eighteen feet long, outside, and thirty-two in width; its walls are three feet eight inches in thickness; it is apparently in a better state of preservation than the cathedral, but yet none of the former wood-work remains in it.

A short distance from the chapel there is an enclosure, which we supposed was the ancient cemetery.

The remains of the town are but heaps of stones, with here and there some evidences of narrow streets running nearly east and west, and north and south. Through these stones pieces of beams and sticks of wood are seen to project; these indicate, by moss and otherwise, that they are of very great antiquity; they are bleached white by the weather, and are deeply gnawed by the tooth of time.

We saw some deep pits, which were circular, and walled around like wells; we believed them to be the remains of cisterns--they were not deep

enough for wells; some have concluded that they were estufas. Two hundred and ninety feet north of the cathedral there are evident traces of an estanque; this, as well as the cisterns, was probably made to collect the rain-water which ran from the different buildings.

Toward the east we saw a well defined road, which kept the ridge for a few hundred yards, and then turned off toward the southeast, where all further vestiges of it are lost in the sand. Where it is the most plainly marked along the summit of the ridge some large cedar trees are growing directly in the middle of it; these trees look to be very old indeed.

In every direction about the ruins we found great quantities of broken pottery, many specimens of which we have collected to take to Albuquerque. Some of it is handsomely marked and well glazed. We also found several stones which were evidently once used as matates. These matates are in use to this day, to rub boiled corn upon until it becomes a kind of dough, suitable to be kneaded into cakes called tortillas. We have selected two, which we shall take home with us. These prove to us that the ancient inhabitants of Gran Quivira knew the use of corn as an article of food.

There is no sign that the ground in the vicinity has ever been cultivated, and no mark whatever of irrigating ditches. Indeed, an acequia, or open aqueduct, could not, it is believed, have brought water to the Gran Quivira, for the point occupied by the town appears to be considerably higher than the surrounding country.

We were informed by men at Manzana who had been pastores in their youth, and had herded sheep in this region of country, that there is a fine bold spring of water at the base of the Sierra de las Gillinas, about fifteen miles from the ruins, and that they had heard that water once ran in an aqueduct from that sprint to the Gran Quivira. This would hardly have been possible, unless the aqueduct was a closed pipe; because, from appearances, the country intervening between these two points is considerably lower than either of them.

We saw no indications that there had ever been such an aqueduct, nor did we see any sign that wells had been digged in the neighborhood. From every feature of the country, both within and without the surrounding sand-hills, we could but be lost in conjecture as to the method adopted by the inhabitants to obtain even water to drink, let alone for purposes of irrigation, unless they were supplied by some spring or stream that has long since disappeared. The nearest point where water can always be obtained now, is the spring which the pastores spoke of as being at the base of the Sierra de las Gallinas, fifteen miles away. The Laguna de la Puerta is 14 miles 773 yards from Gran Quivira, in nearly a direct line; but this is said to become entirely dry in seasons of great drought.

As at Abo and Quarra, we were surprised at not finding, in the cathedral and chapel, some of the doorways and windows surmounted by an arch. Had they been so, originally, these buildings would be in a better state of preservation. The beams across windows and doors, in giving way to the weight above as they became decayed, made a fair beginning towards letting down the whole superstructure.

Mr. Gregg, in speaking of the ancient ruins of New Mexico, says: "The most remarkable of these are La Gran Quivira. This appears to have been a considerable city, larger and richer by far than the capital of New Mexico has ever been. Many walls, particularly those of churches, still stand erect amid the desolation that surrounds them, as if their sacredness had been a shield against which time dealt his blows in vain. The style of architecture is altogether superior to anything at present to be found in New Mexico. What is more extraordinary still is, that there is no water within less than some ten miles of the ruins; yet we find several stone cisterns, and remains of aqueducts, eight or ten miles in length, leading from the neighboring mountains, from whence water was no doubt conveyed. And as there seem to be no indications whatever of the inhabitants having ever been engaged in agricultural pursuits, what could have induced the rearing of a city in such an arid woodless plain as this, except the proximity of some valuable mines, it is difficult to imagine. From the peculiar character of the place, and the remains of cisterns still existing, the object of pursuit, in this case, would seem to have been a placer--a name applied to mines of gold-dust intermingled with the earth. Other mines have, no doubt, been worked in the adjacent mountains, as many spacious pits are found, such as are usually dug in pursuit of ores of silver; and it is stated that in several places heaps of scoriae are found.

"By some persons these ruins have been supposed to be the remains of an ancient pueblo, or aboriginal city. This is not probable; for, though the relics of aboriginal temples might possibly be mistaken for those of Catholic churches, yet it is not presumed that the Spanish coat of arms would be found sculptured and painted upon their facades, as is the case in more than one instance. The most rational accounts represent this to have been a wealthy Spanish city, before the general massacre of 1680, in which calamity the inhabitants perished--all except one, as the story goes,--and that their immense treasures were buried in the ruins. Some credulous adventurers have lately visited the spot in search of these long-lost coffers, but as yet (1845) none have been found."

There is no indication that the escutcheon of Spain was ever sculptured or painted on any facade about the ruins; and the facts, as regards the style of architecture and the remains of an aqueduct, do not, as is shown by this journal, agree with his statement. Mr. Gregg must have described the appearance of this place from what he heard about it; for on all those subjects of which he wrote from personal observation he is most excellent authority.

Pedro de Castaneda accompanied Francisco Vasquez de Coronado in his great expedition to the north in search of gold. He wrote a history of the campaign. General Vasquez de Coronado arrived in a country which was called Quivira, in the month of June, 1542. If the present ruins of Gran Quivira are in a region identical with the Quivira then visited, it may be of interest to state that Castaneda says of it and of its inhabitants:

"Up to that point the whole country is only one plain; at Quivira, mountains begin to be perceived. From what was seen, it appears to be a well peopled country. The plants and fruits greatly resemble those of Spain; plums, grapes, nuts, mulberries, rye, grass, oats, pennyroyal, origanum, and flax, which the natives do not cultivate, because they do not understand the use of it. Their manners and customs are the same as those of the Teyas; and the villages resemble those of New Spain. The houses are round, and have no walls; the stories are like lofts; the roofs are of straw. The inhabitants sleep under the roofs; and there they keep what they possess."

The manners and customs of the Teyas, to which he likens those of the people of Quivira, are described as follows:

"These natives are called Querechos and Teyas. They live under tents of buffalo skins tanned, and subsist by the chase of these animals. These nomadic Indians are braver than those of the villages; they are taller, and more inured to war. They have great troops of dogs, which carry their baggage; they secure it on the backs of these animals by means of a girth and a little pack-saddle. When the load becomes deranged, the dogs begin to bark to warn their master to adjust it. These Indians live on raw meat, and drink blood; but they do not eat human flesh. Far from being evil, they are very gentle, and very faithful in their friendships. They can make themselves very well understood by signs. They cut meat in very thin slices, and dry it in the sun; they reduce it afterwards to a powder, to preserve it. A single handful thrown into a pot answers for a meal, for it swells greatly. They prepare it with the fat which they preserve when they kill a buffalo. They carry around the neck a great intestine filled with blood, which they drink when thirsty. If they open a buffalo, they squeeze the masticated grass which is found in the stomach, and drink the juice which runs out; they say that this is the whole substance of the belly. They open a buffalo at the back, and divide it at the joints, by means of a piece of pebble attached to the end of a stick, with as much facility as if they used a knife of the best steel."

The present ruins are not the remains of the round houses with roofs of straw, which Castaneda describes as the dwellings of the inhabitants of Quivira, three hundred and twelve years ago; and if they had had in those days instruments to shape and carve these beautiful beams and pillars, and entablatures, they would hardly have used pebbles at the ends of sticks in

cutting up the buffaloes which they had killed. Besides, the matates we have found are almost positive proof that the people who once resided here ate as food tortillas made of corn; while, from Castaneda's account one is obliged to believe that the inhabitants of the country which he calls Quivira lived entirely upon the flesh of the buffalo, as the Comanches do at the present day.

Castanoda says likewise that: "The Indians of the country had neither gold or silver, and were not acquainted with the precious metals. The Cacique wore on his breast a plate of copper, which he held in the greatest esteem."

Many have supposed that the ancient Aztecs built the edifices at Gran Quivira, Abo and Quarra, during their migration from Aztlan toward Anahuac; and that the ruins now found in the Navajo country, and the Casa Grandes which are still to be seen along the Gila River, were built by the same people and at about the same period of time. Captain Johnson, of the first dragoons, visited the ruins of the Gila river, in November, 1846; from his description of one of the Casa Grande, the largest and best of any he saw, we can discover no point of resemblance between it and those now before us. Captain Johnson says: "After marching six miles, still passing plains which had once been occupied, we saw to our left the Casa de Montezuma. I rode to it, and found the remains of the walls of four buildings, and the piles of earth showing where many others had been. One of the buildings is still quite complete, as a ruin. The others had all crumbled but a few pieces of low, broken wall. The large Casa was fifty feet by forty, and had been four stories high; but the floors and roof had long since been burnt out. The charred ends of the cedar joists were still in the wall. I examined them, and found that they had not been cut with a steel instrument. The joists were round sticks. There were four entrances, north, south, east, and west; the doors are about four feet by two. The rooms had the same arrangement on each story. There was no sign of a fireplace in the building. The lower story was filled with rubbish; and above, it was open to the sky. The walls were four feet thick at the bottom, and had a curved inclination inwards to the top. The house was built of a sort of white earth with pebbles, probably containing lime, which abounded on the ground adjacent; and the surface still remained firm, although it was evident they (the walls) had been exposed to great heat from the fire. Some of the rooms did not open to all the rest, but had a hole a foot in diameter to look through. In other places were smaller holes." Clavigero, the historian, believes that this great movement of the Aztecs from the north towards the south commenced about the year of our Lord 1160, and that Casa Grandes were built by them at various halts which they made in their circuitous journey towards the valley of Mexico. It has been shown that in 1542 there were no buildings of the size and character of the Casa Grandes, or such as are found here now, in all the country called Quivira, which Castaneda visited and described. So one must conclude that, so far as the Aztecs are concerned, whatever they may have had to do with the building of the

edifices either in the Navajo country, or on the Gila, or those found 250 miles northwest of Chihuahua, they never planned or constructed those at Gran Quivira.

History represents that Vasquez de Coronada, finding no gold during his great expedition, returned to Mexico, where he fell into disgrace and died in obscurity.

The Spaniards did not return to colonize the province of New Mexico until the year 1581; and the country could not be considered as conquered until 1595. For eighty-five years after this the colony seems to have prospered and to have grown in power. Towns and villages were built, and valuable mines of gold and silver were found and worked with success. The Catholic clergy were aided in their efforts to convert the Indians to christianity by the government, at whose expense large churches were erected in different parts of the province of New Mexico, corresponding with the missions, which were built for the same purpose and at about the same period in the other provinces of Texas and California. It was during this time, doubtless, that the large edifices at Abo, Quarra, and Gran Quivira were erected. It is more than probable that valuable mines of the previous metals were found in their vicinity, and worked under the direction of the Spaniards by the Indians who had been subjugated; for there is every reason to believe that the mountains east of the Rio Grande are at this day rich in gold and silver.

It appears that during these eighty-five years the Spaniards treated the Indians with the most cruel oppression, until finally the latter revolted against them. The night of the 13th of August, 1680, was the time set throughout all New Mexico, when the Indians should rise and make an indiscriminate massacre of all the Spaniards in the country. This plot was made known to Don Antonio de Otermin, then the governor and military commandant of the province, by two Indians chiefs. Every effort was made for defence and to avert the coming storm, but without success. The Indians rose as agreed upon: after various conflicts, they destroyed great numbers of the inhabitants; and, finally, by the latter end of September of that year, succeeded in driving all the rest, with Governor Otermin included, to El Paso del Norte, entirely beyond the confines of the territory.

We have been informed that there is now a tradition amongst the Indians, that as soon as their forefathers had become successful in expelling the Spaniards, they filled up and concealed all traces of the mines where they had toiled and suffered for so many years; declaring the penalty to be torture and death to any one who should again make known their locality.

Old Mr. Chavis, who overtook us soon after our arrival at Gran Quivira, informed Major Carleton that he had been told, when in his youth, by very old people, that a tribe of Indians once lived here called the Pueblos of

Quivira; that the Spanish priests came and lived amongst them, in peace and security, for twenty years; that during this period these large churches were erected; and that at the time of the great massacre there were seventy priests and monks residing here---all of whom were butchered excepting two, who contrived to make their escape; that, previous to their massacre, the priests had had intimation of the approaching danger, and had not only buried the immense treasures which had been collected, but had concealed likewise the bells of the churches; that many years afterwards the people of Quivira died off until but few remained; that one of these, a descendant of the chief, knew where the treasures were buried; that the remnant of the tribe afterwards emigrated and joined other Pueblos below El Paso; and that many years ago an old man, one of the last of the tribe, had told in what direction from the church these great treasures had been concealed. So far as the building of the churches and the massacre of the monks and priests are concerned in this account, as well as the final decrease and removal of the people who once lived here, there is no doubt but the story told by Mr. Chavis, is, in the main, correct. The account of the depositories of the bells and the treasure is said to have been written down as given from the lips of the last cacique of Quivira, who, at the time he made the disclosure, was living away below Mesilla, on the Mexican side of the river. A copy of this paper has been secured, and is here inserted in the original language, for the benefit of those who may take an interest in such matters.

"En el Semetario de la Parroquia grande en el centro del costado derecho segun la figura numero uno esta una entrana escarbando estan dos campanas tomando la linea de la abertura que dejan las dos companas se bera al oriente para el callejon que deja la eglesia vieja y el pueblo una lomita a distancia de tres cientas varas mas o menos que no hay otra que forme linea con las campanas debajo de dicha loma hai un setano de diez o mas varas retacado de piedras el cual tiene el gran tesoro.

"Nombrado por Carlos quinto de la Gran Quivira."

**(Footnote: "In the cemetery of the great parish church, in the centre of the right side, according to figure number one, there is a pit, and by digging will be found two bells. By taking the line of the opening left by the two bells, the line of the opening left by the two bells, there will be seen to the east, along the lane left by the old church and the town, a hill, at the distance of three hundred yards, more or less, which forms precisely a line with the bells. At the foot of said hill is a cellar of ten yards or more, covered with stones, which contains the great treasure. "Mentioned by Charles Fifth of Gran Quivira.")

The grammar of this document is preserved, as in the original. There can be no doubt but the belief that a large amount of gold and silver has

been buried here, has for a great number of years been seriously entertained. We find in the cathedral and in the chapel, in every room in the monastery, in every mound of stones in the neighborhood, and in every direction about the ruins, large holes dug, in many places to the depth of ten feet, by those who have come from time to time to seek for these hidden treasures. Some of these holes look as if they were made more than a century ago, while others appear to be quite recent. Even the ashes of the dead have not been left undisturbed during these explorations. Near the east end of the chapel we saw where the people who had been digging had thrown up a great many human bones, which now lie scattered about. From these we have selected six skulls to send to some one who is skilled in the science of craniology, that he may determine, if possible, to what race of people they once belonged. These skulls are thought to be unusually large.

The ruins of Gran Quivira have hitherto occupied the same position with respect to the boundless prairies which the fabulous island of Atlantis did to the ocean in days of antiquity. No one seemed to know exactly where this city was situated. But the uncertainty of its locality seemed to make no difference in regard to the interest that was felt concerning it; for people would believe in its existence, and receive great pleasure in listening to traditions about its marvellous beauty and magnificence, even when to a reasonable mind those traditions and accounts ran counter to probability.

Men of genius and distinction have taken great pains in following up mazes in the labyrinth of reports concerning it, whether oral or written, and in their glowing descriptions it has appeared almost like a city of enchantment. To them it had paved streets, and fluted columns, and ornate friezes, and sculptured facades; it had the remains of aqueducts and fountains; it had long colonnades, and even barbaric statuary; it had the groined arch, the shouldering buttress, the quaint gargoyle, and everything in outline and in detail that could betoken skill, and taste, and opulence. It was a city, they said, whose inhabitants departed from it so long back in the gloom and mists of the past as to leave in utter obscurity all other records concerning them.

The sphynx, they said, about whose bosom the sands from the Lybian desert had drifted for unknown centuries, was no more of an enigma than this was. Here were palaces and temples, and deserted courts, and long-echoing corridors, and grass-grown streets, and reigning over all a silence so profound as almost to be heard.

Historical societies had taken up these descriptions, and filed them away among their transactions as documents of deep interest. Venerable and learned ethnologists searched in dusty manuscripts and black-lettered volumes of antiquity for some authentic account of that race of men who reared and then abandoned such a city. But to this moment their researches have proved fruitless, and the story they seek is still recorded in an

unsealed book.

Our business is not that which will permit us to clothe with imaginary grandeur these vestiges of a people whose name has been erased from the book of nations, nor that which will allow us time to indulge in abstruse speculations as to their race or their language. These things belong to the poet and philosoper. With all those pleasant reveries and romantic fancies which these ruins away here on a desert are so wonderfully calculated to awaken we can have nothing to do. We came here to note realities; and now the facts we have seen, the theories we have read which were of value, the traditions we have heard deserving of attention, and the conclusions to which we have come concerning this interesting place, are all written down. All else save the things we saw admits of doubt, and is obscured by so dark a cloud of uncertainty as to leave much ground for new theories, and for, perhaps, infinitely more valuable conclusions.

We found that the Mescalero Apaches, with whom we had some business of interest, had all gone far towards the south. Our guide, who was a captive amongst them for eight months, gave us some information as to their strength in warriors, which is worthy of record. He says they live in small bands, or families, in order to distribute themselves over a greater extent of country for purposes of hunting. When they are engaged in war, or upon any other enterprise of importance, these bands become united. When separated, they are each controlled by a sub-chief; when acting in concert, they choose a head-man to direct affairs for the time being. The following list shows the name of each of these sub-chiefs and the strength of his band of fighting men:

Santos has forty men;
Josecito has nine men;
Barranca has nineteen men;
Negrito has twenty men;
Jose Largo has fifteen men;
La Pluma has thirteen men;
Santana has nineteen men.

Two chiefs who live in the Sacramento mountains, whose names are unknown, have fifty men.

Add to these the ten sub-chiefs, and we have in this tribe two hundred and eight men capable of bearing arms.

They are represented as having many good rifles, and as being most excellent shots. Living in the neighborhood of the great thoroughfare that leads from Texas to California, and having mountain fastnesses in which to take refuge when pursued, they are able, and very willing, to do a great deal of mischief.

From Gran Quivira, the northern point of the Sierra Blanca bears by the compass S. 30° E., and is distant about fifty miles.

The highest point of the Sierra de las Gillinas bears E. 5° N., and is distant about fifteen miles.

The peaks known as Las Tetillas bear N. 36° W., and are distant about fifty-five miles.

We left the ruins about three o'clock in the afternoon, and retraced our steps to the Laguna de la Puerta, where we arrived an hour after dark.

Thursday, December 22, 1853.

To-day we returned to Manzana, over the same track we had made to the Laguna. Here we encountered a snow-storm. This town is so elevated that hardly a cloud passes the mountains that does not shower upon it either rain, snow, or hail. From what we have observed during our second visit to this place, this Botany Bay of New Mexico, we have concluded that our former estimate of the character of the inhabitants was premature and ill-judged; we now believe that there is not one single redeeming trait of disposition or habits to be found within its borders.

Friday, December 23, 1853.

Our course to-day was about N. 10° W., and lay along the eastern slopes of the Sierra de la Manzana. We faced a snow-storm for nearly the whole forenoon, and were therefore unable to observe much about the features of the country. Six miles 729 yards from Manzana we passed a small mountain stream running towards the east--a mere brook, that is soon lost in the ground. On this there is a little village called Torreon. Two miles, 1,181 yards further north we passed another similar brook, and another small town called Tagique. From this last place, over a rolling, broken, and well timbered country, we marched to a small hamlet called Chilili. This town, like Torreon and Tagique, is situated upon a mere rivulet, running from the mountains to the open plains towards the east. Here we encamped in the snow, and suffered much during the whole night from a cold wind from the north.

Saturday, December 24, 1853.

This morning, before we left camp, an old Mexican brought us some ore, which he said is to be found in great abundance near the Tetilla Peaks, but that it is now covered so deeply in the snow as to be difficult to be procured. We believe the specimen he gave us contains silver. When the snow has melted, it will be worth the trouble, perhaps, to explore these mountains thoroughly, with a view to the discovery of precious metals.

After travelling north for about two miles this morning, we turned off toward the west, by a road that leads to Albuquerque by the Cañon del Infierno. As we ascended the eastern slope of the mountain, we passed through extensive groves of large pine-trees, suitable for boards and other building purposes. The snow was a foot in depth, and the air dry and cold, as in midwinter in the extreme north. The Canyon del Infierno is 10 miles 562 yards in length. It is very circuitous. The mountains rise abruptly thousands of feet above it on either hand. This makes it a pass of great ruggedness, as well as of a wild and picturesque beauty. Half-way down through it we came to a fine spring of water. The rocks are the same stratified, fossiliferous limestone, which we saw at Los Puertos de Abo. From the mouth of the Cañon del Infierno to Albuquerque, the road descends through an open prairie, entirely destitute of water for the whole distance, which is 20 miles 492 yards.

We arrived at Albuquerque at 8 o'clock in the evening, having marched today 36 miles 317 yards.

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PREHISTORIC VILLAGE AT SAGUARO NAT. MON.

By Charlie R. Steen, Jr. Park Nat.

On August 19th I visited Saguaro National Monument to inspect some prehistoric village sites which had been reported from that reservation. With Mr. Charles MacGuire, project landscape architect, as a guide I visited two sites.

The first site visited was a shallow rock shelter in the NW ¼ of Section 33 T 14 S, R 16 E. The shelter is located under an overhanging rock some 30 feet in length and has a SE exposure. A few sherds and flakes of stone are to be seen on the ground surface, together with a great deal of charcoal which has impregnated the ground. This site is located within 100 yards of the loop road now being constructed but as it lacks importance it would be worthless to attempt to develope it as an added attraction along the road.

After leaving the rock shelter we rode along tortuous and rough trails into Section 4 of T 15 S, R 16 E, to a long spur which extends southwest from the Tanque Verde Mountains.

There is a village of approximately fifty houses located along the top of this ridge, six of which and one trash mound have been dug by unauthorized persons. The floor plans of the dwellings are rectangular and average about 12' x 18' feet. Rains have destroyed the floors of the houses which have been dug but if the digging stopped at floor level the house floors were from two to three feet below the present surface of the ground which has apparently changed very little during the time

since the village was abandoned.

Entrances were made by cutting a ramp from the ground surface to floor level about midway along one of the long sides of the house. The superstructure of the house rested on a foundation of stone slabs set on edge in parallel rows around the excavation with the interstices filled with adobe. Some of the foundations are still standing more than 1.5 feet above the present surface of the ground.

A small stream comes down from the Tanque Verdes and flows along the arroyo north and west of the site. The water sinks into the ground at about the upper limits of the village but at that point the arroyo widens, to form a flood plain with an area of approximately 60 acres. Water is no doubt just under the surface over the entire extent of the flat. The land could be farmed today without the aid of irrigation and it is quite likely that the inhabitants of the village on the ridge above cultivated this patch of land. The arroyo on the opposite side of the spur is dry; a typical desert growth of mesquite and cactus prevails in contrast to the ash and arrow weed of the aforementioned valley.

Located in sections 3, 2, and 1 of the same township, and on similar spurs, are at least four other sites according to Mr. MacGuire. Lack of time prevented a visit to any of these others.

Recommendations:

The village visited, and apparently the others in the string, are just outside the range of the saguaro cactus and there is no particular scenic value to the immediate vicinity. Judging all by the one example, they possess no outstanding characteristics which would call for development so that visitors might see them. All the villages, however, are of a fairly good size and so far only one has been pothunted and it seems very desirable to me to protect the sites from vandals of the Tucson area. The sites are rather difficult of access at the present time, but the Pima County highway department is seriously contemplating the construction of a road which would pass about a mile from the westernmost of the villages. One of the houses in this site was undoubtedly opened last winter and a graded road a short distance away would certainly mean more vandalism. It will be impossible to patrol effectively the area due to the fact that the ranger for this monument is appointed for only eight months and has his headquarters some eight very bad miles away. The persons who have been doing the digging are known and the only feasible method of putting an end to their activities on the monument, I believe, is to take the matter up with them personally.

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LETTER FROM THE HENNINGS

(The following good letter was received from our good friends, the Hennings)

Dear Boss:

A letter seems a weak and ineffective way of showing our appreciation for the fine two months and half we spent mostly among the Southwestern Monuments this year, but a letter it must be, so here it is.

Here at our cabin, so many miles from the desert, where it is always cool and green, and we have a clear mountain river running past our door, our memory of the problems and discomforts you encounter there in the Southwest grows a little vague. But time and distance do not dim our remembrance of the heart-warming friendliness with which we were received, nor of the splendid scenery we have seen, and the way the Indians, both of the past and of the present, have been "brought alive" before our eyes.

Our first experience among the Southwestern Monuments, as you know, was last summer, when we visited Canyon de Chelly, almost reached Be-ta-ta-kin, and stopped at Natural Bridges, Aztec Ruins and Chaco Canyon. We have told you how very impressed and thrilled we were with these first visits, except for our failure to quite reach Be-ta-ta-kin. The latter experience seemed very unfortunate at the time, but as is often the case, it proved a blessing in disguise, as it was indirectly the cause of our coming to know you and the others we have met this year.

Our tour of the Monuments this summer began around the first of May at Chiricahua. There was no Custodian there at that time, but Mr. Ollinger and Mr. Harris took care that we saw the sights, and bore patiently with our innumerable questions. We feel that the fine new trails are a real asset at this Monument, as one must really get out among the rock formations to realize their size and variety. The excellent camp ground is a lso a decided advantage in the eyes of those of us who like to live with the Monuments a day or two.

We see that Mr. Fish, whom we met at Montezuma Castle, has been made Custodian at Chiricahua, and wish him all success in the Monument he has undoubtedly, by now, dubbed "the finest in the Southwest."

Our next stop was Tumacacori, very different from any other Monument we had visited, and very interesting to compare with the California missions we had seen. We were delighted to find that we could camp there, and enjoyed our view of the Mission especially in the late evening and early morning light. Although the next day was Louis Caywood's day off, he and Winnie spent the entire morning in showing us the Mission, which we thought pretty nice of them.

A day later we were back, having left our axe at our camp spot, and finding that a good excuse for returning for another chat with the Caywoods. They took us in as if we were long-lost friends, and we talked Southwest, pictures, Indian baskets and postage stamps till midnight.

In the meantime we had visited Saguaro, and how we wish that everyone could see it at the time of year we did. Flowers everywhere; on the saguaro, though only a few of them were open, of course; in many colors on the cholla; and the palo verde trees in all truth a "shower of gold." Nothing is more miraculous to us than the tremendous vitality of life and beauty in the so-called "desert".

Our visit there at Headquarters came next, and again we wish to express our appreciation for the friendly kindness shown us there. We feel that one reason the list of Southwestern Monuments fans is a growing one, in addition to the inherent interest of the places themselves, is because the members of the personnel are never too busy or too tired to seem to really enjoy talking Southwestern Monuments to anyone who is really interested.

Our visit to Casa Grande and what we learned there of the culture in the Gila and Salt River Valleys opened up to us a whole new chapter in Indian life of ancient times. We had not realized, from our visit in the Four Corners region last year, how extensive and important an Indian population there had been farther south. One of the most valuable aspects of our trip this year is that it correlated a great many things which had been hanging at loose ends in our minds before.

From Casa Grande we went via Phoenix and the Apache Trail to Tonto. There we camped two nights beside a flowering palo verde tree about half way up the entrance road, and two nights, at different times, at the parking area, and we thoroughly enjoyed that lovely view at different times of day.

We visited the lower ruin at Tonto with a party taken up by Woody Spires, and enjoyed that a lot, but the trip to the upper ruin, where he took us alone, was even more interesting. It was our first aventure in a ruin that had never been excavated or pot-hunted, and naturally our imaginations worked overtime with ideas of what might lie beneath our very feet.

At Montezuma Castle we were cordially received by Mr. and Mrs. Jackson, and, as usual, we camped and spent several days. We were surprised and pleased to find Charlie Steen there, and it was he who gave us our very interesting trip through the ruin.

While we were camped at Montezuma Castle we made a trip to Tuzigoot, and there we found Charlie, on his day off, taking pictures.

Instead of going out along the Mogollon Rim as we had planned, we surprised Woody down at Tonto by dropping in there again on our way back to Las Cruces for the second part of our trip.

Our next Monument, of course, was White Sands. We found, as everyone does, we suppose, that no amount of description can prepare one for that unbelievable expanse of whiteness or for the lovely contour of the dunes. After driving in to the turn-around, and hiking on the sands awhile, we sp ent an hour or more talking to Mr. Dougherty, who showed us the interesting collection of White Sands formations he is making in preparation for the proposed museum.

We would have enjoyed camping at the Sands, as we know it must be especially beautiful in the late evening and early morning light, but we found the glare and heat a little too much without any shelter, so we regretfully traveled on. Stopped at Alamogordo for an hour's chat with Mr. and Mrs. Charles, and while we were there we saw the birds and mammals Mr. Borell had collected and mounted.

The next part of our journey brought us to Gran Quivira. We came upon it unexpectedly, as we thought we were still some distance away. We had seen few pictures of Gran Quivira, and had heard little about it, so we were amazed at its size and dignity as it stood there above us in the late sunlight.

We enjoyed our visits with Mr. and Mrs. Boundey and their boys, and camped within view of the ruin. Mr. Boundey took us on an extended tour, and we walked around the pueblo site quite a bit by ourselves. That is another place where one's imagination can picture all sorts of buried archaeological treasure, even though there has been so much digging for treasure of other sorts.

From Gran Quivira we went to Bandelier. When we arrived there we suddenly discovered that we were tired after two months of nearly steady travel, which had included our rather strenuous trip in the Big Bend. So we set up housekeeping in the fine campground there, and stand ready to recommend the showers and the laundry trays!

It was several days before we visited the ruins, as we wished first to digest some of the information we had received earlier, so we just loafed and enjoyed the beauty of the Canyon. Mr. Hendron loaned us a copy of Bandelier's "Delight Makers", and reading that right on the spot added greatly to our enjoyment. We felt, as Mrs. Richey said, that we could actually pick out the rooms in which the different characters had lived.

We were pleased at being in the first party Mr. Hendron guided all the way to the Ceremonial Cave this year, and we walked around the ruins and up and down the Canyon several times by ourselves. Mr. Peterson

arrived while we were there, and we were glad to meet him, as well as all the others there at Bandelier. When it came time to leave, after almost two weeks, it seemed almost as if we were leaving home.

On our way back through Albuquerque we stopped off for a few minutes to see Earl Jackson and to tell him how much we had enjoyed his Monument. We were very glad to learn that he was improving, and we think that his sinse of humor will be one of the things that will help him through the time when he will so want to be back at work. We are counting on hearing reports that he is constantly improving. Betty was not at home, and we were sorry, for we were looking forward to meeting her, also.

A night at Petrified Forest, where we met the Christmans, budding Southwestern Monuments fans just down from Chaco, and we reached Walnut Canyon. The Christmans came in there too, and we spent about a week there together. Paul Beaubien took us for a fine trip around the Canyon, little Heidi Christman and all. We enjoyed the talks with Paul, and the pines, and didn't mind bringing our water out from Flagstaff.

One of the high points of our summer's trip was the Navajo Sing to which Jimmie Brewer took the Christmans and us. We drove over from Walnut Canyon in the morning, and our first couple of hours were devoted to the ruins. Jimmie had told us that the building material was red rock, so we were not as surprised at that as we would otherwise have been, but we were completely unprepared for the fine view of the Painted Desert.

When we all entered the hogan where the sand painting was being made, the Indians looked rather sober for a few minutes, and Jimmie told us they said, "Not good." Jimmie's influence with them seems to be very strong, however, for they let us stay. It was an intensely interesting experience, and surprisingly impressive to those of us who have been educated to think so differently. Doubtless the secret of its impressiveness was the fact that the men themselves seemed so in earnest - not that they didn't laugh and joke among themselves, but that they seemed to really believe in what they were doing. Even little Heidi was overawed, and quiet as a mouse.

Our visit to Wupatki also marked our first "social contact", so to speak, with Indians. Jimmie induced us - we were much more shy than the Indians - to sit down and talk with them. Soon all was going smoothly, with Sarah and Clyde Peshlacai playing very nicely the part of host and hostess. It was the first time we had ever visited any Indians "at home", and we were much interested in the cooking, spinning and weaving. We were also surprised to find that the women were just as interested in Mrs. Christman's knitting of a pink sweater for Heidi as we were in their weaving, and they hung over her quite breathlessly to see how it was done.

Sallie was away when we visited Wupatki, so we didn't meet her, but we hope for better luck on our next trip in that direction.

Sunset Crater we visited on our return trip to Walnut Canyon, and we spent only a short time there, as it was growing late. We hope next time to hike to the top.

From Walnut Canyon we went to the South Rim and thence to the North Rim of the Grand Canyon, there to await the arrival of the Forbes. They and Mrs. Forbes' sister, Miss Renfroe, arrived on June 30, and a day later we were on our way to Be-ta-ta-kin. We went in by way of Shonto, and spent some time sitting on that surprisingly and refreshingly green grass at Mr. Rorick's, under the shade of his mulberry trees.

As you know, we reached Be-ta-ta-kin this time without difficulty, and what an experience it was to spend several hours there. It was Miss Renfroe's first look at a cliff dwelling. Can you imagine seeing Be-ta-ta-kin for your very first cliff ruin?

We were sorry not to meet Milton Wetherill while we were there, but we noted that Mr. Bernheimer's name was just ahead of ours on the register, and concluded that Mr. Wetherill was out with him somewhere. Upon reading the July Report we found that our conjecture was correct.

After camping that night on the slick rock up by the hogans, we headed for Marsh Pass and Kayenta. Much to our surprise, upon following what seemed to be the main traveled road, we got off the road we had traveled both in and out last year. We had gone some distance before we realized it, and as we were going in the right direction we decided to go on and see if it wouldn't come into the Marsh Pass road. We were delighted when it did come out on the highway, right by an abandoned hogan, as we had been dreading that last bad hill and the sand pile at its foot - by far the worst part of the road over which we were directed last year. Is the road we took out a new one, Boss? A little farther on toward Kayenta we found a still different road, with the official Park Service sign for Be-ta-ta-kin, and doubtless would have found a sign directing us onto that road had we not taken the road out we did.

That night we camped in Monument Pass. The Forbes had met the Gouldings two years ago, so they stopped in there to say hello. Mr. and Mrs. Goulding said they'd be up for a chat later, and shortly after dark they arrived. We sat around a small camp fire, and we talked Southwest, and the full moon came up behind those remnants to the east of the Pass, and - well, Boss, you know how 'tis.

The next night we were camped above Arches Canyon on the road in to Natural Bridges. Mrs. Johnson and Zeke came by in the evening on their way to the Bridges, and after talking to Zeke we now have ideas buzzing around in our heads about seeing more of Arches Canyon itself. The next

morning we drove in to the Bridges, and Zeke accompanied us on the hike around the triangle, and could have walked our feet off had he wished. He carried a large water bag, which was a great boon when our small canteen was empty, and whenever we seemed a little tired he talked Navajo to us. We had intended to go only to the Augusta Bridge and back, but Zeke made it so completely plausible that it was much easier to go around by the Caroline that we'd have felt foolish to go any other way.

Thus ended our tour of the Monuments for 1936. We had intended to return to Canyon de Chelly, and to Mesa Verde and thence to Aztec and Chaco, but it was drawing on toward the rainy season, and we had traveled 5,000 miles since the first of May, so we decided we'd have to leave those Monuments, together with the ones we've never seen, for next time.

We wonder, as we think back over this, whether we have stressed too much the joys of camping in the Monuments. That really is part of the fun, though, and we feel that one must see the Monuments in different aspects to really appreciate them. Personally, we'd like to see them at all seasons of the year - yes, even the rainy season, if we didn't have to worry about the roads out.

In conclusion, we wish to assure you, Boss, that we fully realize, and that the fact has been impressed upon us, that we have visited seventeen of "the finest Monuments in the Southwest - or in the country - or in the world". That is, all except one. Paul Beaubien told us to be sure to tell you that Walnut Canyon was the worst Monument - so that no one would try to take it away from him! We feel that you are to be congratulated on being the Superintendent of twenty-five such Monuments, and that it is not alone our privilege but our duty to make our record complete by seeing all the rest.

Best regards to you and all our other Southwestern Monuments friends, and we shall look forward to renewing acquaintance on our next trip in that direction.

Sincerely Yours,

RUTH & MILLARD HENNING

****

After writing the article on the death of R. H. Kern I read some Utah history and found that I had made a few mistakes. The date of the Gunnison Massacre was 1853 instead of 1854, Gunnison was a captain instead of a lieutenant, and it took place on the Sevier River instead of on the Gunnison. These facts are confirmed by Charles Kelly, so I believe they are surely correct this time.....

****

RUMINATIONS

I had really thought, since I am to meet you in the north part of my district in a couple of days, that I could rush off at the last minute in a great hurry and leave Charlie to write the Ruminations this month, Chief, but Charlie is pretty sharp about getting out of trouble and I think he suspected my intentions, for he has been pressing me two or three times this morning to "get those Ruminations off your chest because Luis is riding that new Royal high, wide, and handsome on those stencils and he will be calling for your stuff this afternoon."

There isn't much to say about headquarters affairs except that we have cut over to the new electricity this month and are now on a 60 cycle alternating U. S. Indian Service power line. This allowed us to hook up the new electric refrigerators and bid the local ice man a fond farewell. It looks like there is going to be a material saving to the funds by this change and the electric refrigerator has other advantages which the house wives crow over, so everyone but the ice man seems happy over the change. This completes the installation of refrigeration in the quarters of all our permanent employees and by next year we hope to extend it into the most trying of the temporary quarters.

It seems such a short time ago, and as a matter of fact it isn't so many years, since we were so proud of our home made ice boxes and the fact that we could really have ice out here on the desert. Now they are obsolete. Times change! I heard a coyote wail out here in the brush the other night and I felt like going out and kissing him for I imagined he was thinking of the 'good old days' and I waswilling to throw in with him and wail a little too, though I expect we would be pretty soft if we were suddenly set back into these good old days. Most of the wailing we here these nights is the static breaking in on KTAR.

It looks like we are really going to get a museum and administration building at Tumacacori out of PWA funds and Tov. and I are going over to Santa Fe from our meeting with you to sit into a discussion with Ansel Hall and Chuck Richey and Art Woodward on any changes to be made in the preliminary plans before the working drawings go on the board. Wish you could come along and enjoy the fireworks. We can't get these boys interested in deep cases with movable backs, and they seem to always want to circulate their visitors to the left and have a lot of other funny ideas. I don't want to play the carping critic too much, but in these times it seems we can't start a museum with less than $20,000 worth of specialists and cases. Isn't it lucky we didn't know that back in the days when we were running twenty thousand visitors a year through a museum whose cases cost less than fifty dollars and whose labels and maps cost nothing at all? And isn't it good that the visitors didn't know they ought not to enjoy that kind of a museum? Times change! If we weren't getting soft we would have two or three more museums of that old fashioned type working.

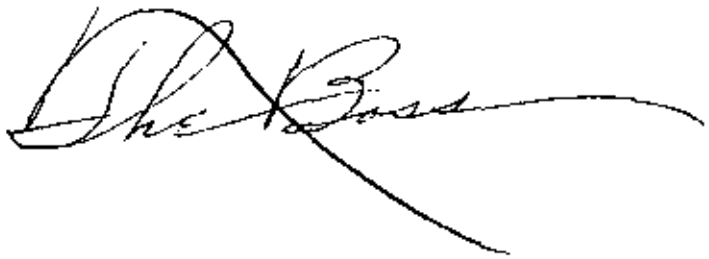
Let it be distinctly understood that I am for the specialists and the

glass cases but don't let us fool ourselves into believing that visitors come to the new type of museum to see either one. If our plans work out we are going to have a lovely building at Tumacacori and the many displays are going to be striking, we think we will be able to build a real impression on the visitor's mind, but I am willing to go on record now with the statement that we can't hold him ten minutes longer in that building than we can at the Casa Grande museum. We will deepen his impression that it is a very wonderful and interesting visit, but I doubt if he can write down any more statements of fact which he has learned than he can after going through the Casa Grande museum. I will be very happy if the visitor statistics prove me wrong in all these statements.

If Tom Charles had a prehistoric ruin under his charge instead of a lovely sand pile, he would have caught what I mean when I said taking care of the visitor was the second most important thing we had to do in the Park Service. Protection was the first duty I had in mind, and then, after we get protection, so future generations can enjoy the Monument with as little disintegration, destruction and vandalism as possible, our second duty lies toward the visitor. If you don't believe this let me ask what would happen if one visitor started to cut down a tree in your camp ground or write his name on a prehistoric wall or build a camp fire on top of Tom's beautiful sand dunes, when you were starting to show some other visitors around? Protection would come first and you would show your visitors around later, of course.

and now August passes over into September and we will be able to take the second story off the office thermometer and expect it to stay within the first hundred degrees and we can begin to look forward to the fall and winter work.

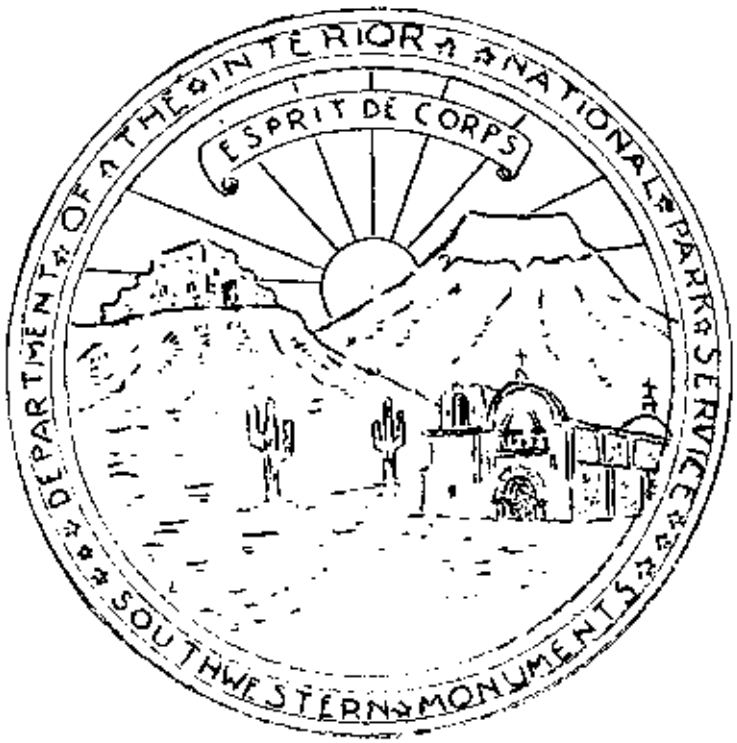
Cordially,



SOUTHWESTERN MONUMENTS

MONTHLY REPORT

SEPT., 1936.



DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS
SEPTEMBER 1936, REPORT.

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SERVICE CHART 1936

SOUTHWESTERN MONUMENTS
PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; James Luther, Chief Clerk; J. E. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King, and Charlie R. Steen, Junior Park Naturalists; Millard Singerman, Clerk-Stenographer; Luis Castellum and W. H. Sharpe, ECW Clerks.

FIELD STATIONS

1. Arches - Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins - Aztec, New Mexico. Johnwill Faris, Custodian; Oscar Tatman, Acting Ranger.
3. Bandelier - Santa Fe, New Mexico. Jerome Hendron, Acting Custodian.
4. Canyon de Chelly - Chin Lee, Arizona. Robert Budlong, Custodian.
5. Capulin Mountain - Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande - Coolidge, Arizona. W. J. Winter, Custodian; J. D. Erskine, Ranger.
7. Chaco Canyon - Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua - Willcox, Arizona. Frank L. Fish, Custodian; Homer Bennett and Bronson Harris, CCC Guides.
9. El Morro - E. Z. Vogt, Custodian. Ramah, New Mexico.
10. Gila Cliff Dwellings - Cliff, New Mexico. No Custodian.
11. Gran Quivira * Gran Quivira, New Mexico. George L. Boundey, Custodian
12. Hovenweep - Cortez, Colorado. No Custodian.
13. Montezuma Castle - Camp Verde, Arizona. Martin L. Jackson, Custodian. Russell Farmer, Ranger.
14. Natural Bridges - Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo - Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring - Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge - Rainbow Lodge, Arizona. No Custodian.
18. Saguaro - Tucson, Arizona. No Custodian.
19. Sunset Crater - Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto - Roosevelt, Arizona. Frank Horne, Acting Ranger; Frances Stevenson.
21. Tumacacori - Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon - Flagstaff, Arizona. Paul Beaubien, Ranger.
23. White Sands - Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki - Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House - Cortez, Colorado. No Custodian.

VISITOR YEAR 1936

	FIELD TRIPS					MUSEUM TRIPS					TOTAL EDUCATION CONTACTS	TOTAL TRAVEL
	Number	Attend	Time	Ave. Att.	Ave Time	Number	Attend	Time	Av. Att.	Av. Time		
October	1,045	6,760	52,074		49.8	389	2,805	7,780		20.0	9,565	12,608
November	1,072	6,354	52,382		48.8	295	1,859	6,000		20.3	8,213	11,309
December	926	4,769	46,277		49.9	284	1,508	5,680		20.0	6,277	8,525
January	964	6,528	39,975		41.4	461	3,008	9,220		20.0	9,536	14,044
February	1,141	7,200	46,955		41.1	474	3,369	9,680		20.4	10,569	13,859
March	1,274	7,348	55,323		43.4	535	3,474	9,914		18.5	10,822	15,379
April	1,486	8,714	64,809		43.6	642	4,310	12,411		19.3	13,024	18,830
May	1,095	5,972	52,341		47.8	614	3,222	11,841		19.2	9,194	22,833
June	1,555	7,124	72,399		46.5	784	4,037	15,405		19.6	11,161	23,838
July	2,100	11,011	86,232		41.0	1,129	6,008	24,135		21.3	17,019	30,110
August	2,410	13,735	94,286		39.1	1,178	7,049	24,504		20.8	20,784	40,948
September	2,089	10,427	77,557		37.1	1,121	5,903	21,483		19.1	16,330	33,507
TOTAL	17,157	95,942	740,610	5.6	43.1	7,906	46,552	158,053	5.8	19.8	142,494	245,784

CONDENSED REPORT

Coolidge, Arizona
October 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for August:

TRAVEL

	September, 1936	September, 1935	September, 1934
Aztec Ruins	1,972	1,891	1,673
Bandelier	1,965	1,594	1,492
Capulin Mountain	4,500	5,000	2,500
Casa Grande	2,045	1,691	1,429
Chaco Canyon	1,041	876	670
Canyon de Chelly	217	153	102
Chiricahua	709	576	6,530
El Morro	423	240	300
Gran Quivira	503	545	328
Montezuma Castle	1,234	1,782	1,839
Natural Bridges	89	87	200
Navajo	46	---	131
Pipe Spring	518	472	284
Sunset Crater	808	665	---
Tonto	338	338	305
Tumacacori	1,093	937	788
Walnut Canyon	1,672	1,214	1,124
White Sands	14,006	3,644	---
Wupatki	329	250	194
Actual Reported Registration	33,507	21,954	19,889

The completion of major highways and the improvement of many secondary roads, plus an increasing general interest by the public seem to be the contributing factors in a steady increase in traffic to the Southwestern Monuments. Practically every monument shows a substantial gain in number of visitors over the figures submitted for Septembers of 1934 and 1935. A glance at the annual travel reports for the year 1934-1936, given on the next page, shows a corresponding gain. The Casa Grande and Tonto figures are exceptions. It may be significant that travel at Casa Grande has remained at practically the same level for three years. Does this mean that there is a saturation point of visitors? Casa Grande is the only monument in our system which has had direct contact with a through, improved highway for several years and is that with a given travel over a road, only a certain percentage will stop and drive a mile of spur road, no matter how good it is, to see or learn something of a prehistoric ruin. A similar situation exists at Tonto. The Apache Trail has been for several years

an excellent gravelled road with many mountain grades and curves. Again, a constant percentage of tourists seem to leave the paved highways to take a road which is principally scenic in character, and of these another portion which seems to remain the same each year will leave the Trail to view the cliff-dwellings at close hand.

The suggestion left by the visitor figures from these two monuments is that as road programs in the Southwest are completed that in a few years we may be able to forecast the travel at some of our monuments and hit the visitor count within a hundred individuals.

This is gratifying news at Headquarters. We believe that travel in the monuments is too heavy when compared with the personnel at the various stations. If the travel is really leveling off and will remain constant for at least a few years, we will have a chance to build up the custodial force at monuments which are undermanned and fill some of the glaring holes at points which have little or no protection at present.

As has been stated in the Report on several occasions, the first duty of a custodian or ranger is towards the conservation of areas under our protection; ruins must be protected against vandalism and erosion, forests must be saved from destruction caused by careless campers and natural pests and even Tom Charles' Great White Sands, upon which the sun shines so beneficiently, should be closely watched so that a patina of empty cars, bottles and papers will not grow over the gleaming surfaces of the dunes. A man who is being kept busy talking to visitors from six to ten hours a day has no time to carry on an effective program of protection for his monument.

This is the reason we are happy that there seems to be a leveling of the curve of visitor traffic in the offing. Practically every one of the Southwestern Monuments shows an almost pitiful need for conservation. We could put a large archeological and engineering crew in the field and keep them constantly busy for the next ten years stabilizing ruins. Any archeological or historical site which is badly in need of repairs must necessarily be damaged if several thousand people a year go tramping through the rooms, leaning against walls, and tearing floors with leather-soled shoes. We are glad to know that the public is interested in the education and recreation which we offer, but we do not intend to go out into the highways and attempt to persuade a large portion of the traveling public that it should see our ruins, at least until we are better equipped.

(CONDENSED REPORT, CONT.)

Annual Travel Report:

	1936	1935	1934
Arches	400*	300*	275*
Aztec Ruins	12,984	10,738	9,457
Bandelier	12,944	12,361	9,457
Canyon de Chelly	1,091	988	650*
Capulin Mountain	19,950	24,000*	22,000*
Casa Grande	27,744	27,345	26,776
Chaco Canyon	7,717	6,565	6,068
Chiricahua	6,015	6,420	15,331
El Morro	1,898	2,475	2,800*
Gila Cliff Dwellings	100*	100*	75*
Gran Quivira	5,974	4,049	4,342
Hovenweep	200*	200*	125*
Montezuma Castle	10,654	14,919	18,619
Natural Bridges	628	700	750
Navajo	363	446	675*
Pipe Spring	4,218	4,896	8,544
Rainbow Bridge	550*	430*	390*
Saguaro	15,000*	9,900*	2,500*
Sunset Crater	4,853	5,688	2,500*
Tonto	5,908	5,350	7,005*
Tumacacori	14,119	13,081	11,238
Walnut Canyon	10,962	11,328	10,000*
White Sands	89,833	33,912	33,900*
Wupatki	2,201	1,369	1,080*
Yucca House	400*	300*	150*
Total	254,706	198,480	195,392

* Estimated

020 GENERAL WEATHER CONDITIONS

Rains have been general throughout the Southwest during September and general range and water conditions are better than they have been for several years. Heavy rains on the 12th caused the largest flow of water in twelve years to flow down Rhyolite Canyon in Chiricahua National Monument. Water has been flowing from the mouth of Canyon de Chelly, rendering the canyon impassable to travel. Several bad floods have occurred at the Natural Bridges, one of which stranded the Custodian and a couple of visitors at different points in Armstrong Canyon for several hours.

121 INSPECTIONS BY THE SUPERINTENDENT

The Superintendent visited the following monuments during September: Walnut Canyon, Pipe Spring, Arches, Capulin, Bandelier, Gran Quivira,

121 INSPECTIONS BY THE SUPERINTENDENT (CONT.)

White Sands. He also inspected Canyon de Chelly in company with Director Cammerer, Superintendent Smith, and Assistant Engineer Tovrea.

123 INSPECTIONS BY NATIONAL PARK SERVICE

Canyon de Chelly * Superintendent Pinkley, Director Cammerer, Sup't. Smith, J. H. Tovrea, J. W. Hamilton, Johnwill Faris, Richard Sias, Clinton Rose, Deric Nusbaum.

White Sands - Frank Pinkley, Adrey Borell, Jack Diehl, Luis Gastellum.
Chiricahua - Jack Diehl, J. H. Tovrea, W. W. Yeager, Hugh Miller, Mr. Strieby, Auditor.
Wupatki - N. A. Butterfield.
El Morro - W. W. Yeager, W. E. Wirt, Assistant Director Bryant and family.
Capulin - Superintendent Pinkley, Charles N. Gould, W. H. Vandiver, Charlie R. Steen.
Walnut Canyon - Superintendent Pinkley, Carl Schmidt, C. A. Rollins, W. W. Yeager, W. E. Wirt, H. C. Bryant, Adrey Borell, Charlie R. Steen, John H. Diehl, J. H. Tovrea, N. A. Butterfield, Dale King.
Aztec - W. E. Wirt, W. W. Yeager, Ansel Hall, J. W. Hamilton, Underhill.
Bandelier - Superintendent Pinkley, W. G. Carnes, Charles Richey, J. H. Tovrea, Art Woodward, George Collins, Cecil Doty, Milton Swatec, Lyle Bennet
Tonto - Charlie Steen
Casa Grande - W. W. Yeager, F. M. Strieby
Chaco Canyon - W. E. Wirt and W. W. Yeager; J. W. Hamilton
Pipe Spring - Superintendent Pinkley, Al Kuehl, Dr. Gregory, Vincent Vandiver, Isabel F. Story, George Parker, Charlie Steen, George Collins

125 OTHER GOVERNMENT OFFICERS

Canyon de Chelly - Senator Carl Hayden
Wupatki - Senator Carl Hayden

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

Canyon de Chelly - White House trail work was completed during the month and rim road repair work started. The latter is about 50% complete.
Concrete slab roof for the pump house poured and a frost proof box built over the valves.
Restroom in garage completed.
Wupatki - Road sign standards painted and entrance roads dragged during the month.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION (CONT.)

El Morro - A third coat of copperas on the cement steps has given them a color closely approximating that of the sandstone. An application of the weather proofing solution developed by Martius has been asked for in order that the old inscription on El Morro might be treated. Custodian Vogt claims that the inscriptions have faded noticeably during the past 25 years.

230 NEW CONSTRUCTION

Chiricahua ECW - 1800 yards of rock are being removed in order to repair the Bonita Canyon road after a rock slide which occurred during heavy rains on the 12th.

Echo Point - Rhyolite Canyon trail connection advanced 700 feet.
Connection between Massai Point and Echo Point completed, start made on the connection to Sara Deming Trail.
Walls completed to full height on Headquarters Ranger Station, lintels, plates, beams, rafters and floor joists are in place.
Foundations for equipment shed poured.
Work at the rock quarry continued during the month.

Wupatki - Parking area moved to prevent the constant repair work made necessary by washing after rains.

Bandelier -
One exhibit case for the Museum has been completed and installed.
Quarters No. 2 completed.
Equipment Shed project complete.
One root cellar complete.
Geology and directional signs for Wupatki and Sunset Crater National Monuments completed and shipped; work now being carried on the Walnut Canyon and Aztec signs.
Rock quarry crew at work all month.
Large quantity of rock chiselled and shaped.
Wet weather has forced continuous road maintenance during the month

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon - Soil Conservation Service resumed operations on flood control with thirteen men, one dump truck and three teams.

320 NON-GOVERNMENT AGENCIES

Chaco Canyon - School of American Research is roofing Great Kiva at Casa Rinconada. The School is working with PWA funds and plans to continue operations all winter.

Chiricahua - Three rattlesnakes sent to the University of Michigan for identification. The custodian is conducting a class in Forestry at CCC camp NM-2-A.

Casa Grande - 5 snakes have been shipped to U. of Mich. for identification.

CONDENSED REPORT (CONT.)

320 COOPERATING GOVERNMENT AGENCIES

Pipe Spring - The detail of CCC boys from the Grazing Division Camp at Pipe Spring worked on minor projects around the Monument until the 18th, the last day of the seventh period.

350 DONATIONS AND ACCESSIONS

Tumacacori - Mr. George Cann of Amado, Arizona, donated an old cannon ball, a prehistoric mortar and a Mexican or Papago bread board.

440 INSECT CONTROL

Casa Grande - The borer which is infesting the mesquite trees on the Monument has attacked practically every t ree in the reservation according to W. W. Yeager. Yeager and Dr. DeLeon are to make a thorough survey of the situation during the first few days of October in order to plan a campaign against the infestation.

480 MISCELLANEOUS

Tumacacori - Custodian Caywood gave an illustrated talk to the Nogales Rotary Club; the subject was "Sonoran and Arizona Missions".
El Morro - The largest pinyon crop in the Southwest in several years is keeping a large part of the animal population (including the humans) out in the pinyon forests gathering a good winter supply of nuts.

MAIL COUNT

Incoming:		
Government	1,455	
Personal	693	
Total Incoming		2,148
Outgoing:		
Government only	1,716	1,716
Telegrams:		
Incoming	48	
Outgoing	38	
Total telegrams		86
Grand Total		3,950

Cordially,

Frank Pinkley,
Superintendent.

REPORTS FROM MEN IN THE FIELD

CANYON DE CHELLY

By Robert R. Sudlong, Custodian

Visitors for the month of September numbered 217. This quite upset the dope sheet, since the month of June was believed to be the peak month, as it was last year. This month, however, we not only exceeded June travel this year, but had more visitors to this Monument this month than in any other month since I have been stationed here.

Our 217 visitors took trips as follows:

TRIP:	NO. TRIPS:	NO. PERSONS:	TOTAL TIME	AVERAGE TIME PER TRIP:
Rim:	38	129	4,440 m.	117 m.
Trail:	1	13	180 m.	180 m.
Car in Canyon	25	65	5,325 m.	213 m.
Horseback:	2	5	1,080 m.	540 m.
Office:	5	15	585 m.	117 m.

Of the car trips within the canyons, 13 were made by the concessioner, carrying 30 persons; 12 were made by other cars, carrying 35 persons. Two of these last trips were made by the Government car stationed at this Monument.

Weather has been about normal for this time of year, though the canyons have been passable for cars equipped with standard tires for only a few days. At present water is flowing from the canyon mouth, and has been doing so for some days.

Temperatures are slowly dropping lower, and we have a fire in the fireplace every evening. Maximum for the month, 90 degrees, on the 8th; minimum, 39 degrees, on the 10th. Total rainfall, .41 inch. While we have had no heavy rains right at Chin Lee, there have been numerous heavy downpours in the nearby vicinity.

The Navajos have had a good crop of canyon peaches this year, and many wagons drove into the canyons, returning heavily loaded with peaches. The pinon nut crop promises to be exceptionally good.

The Indian School at Chin Lee opened for the season on the 8th, with attendance about the same as last year.

During the month some additional work was done on the White House trail, and work was started on the south rim road. At present the trail work is complete; the rim road approximately 50% complete. The concrete roof slab for the pump house was poured, and additional rock work done on

the walls, which have now been carried to roof level. A frost-proof (we hope) box was installed over the valves governing the filling, drain, and house supply pipes on the water system, and water meters will be completely installed within a few days.

The restroom built in the southeast corner of the garage, begun some time ago, was completed this month, with the exception of the pouring of the concrete floor. This will be done the coming week. All water connections and sewer connections have been made, and all ditches backfilled. This work has all been done under the supervision of Doc Gipe, and as you know, this means that the work has been mighty well done.

Noteworthy visitors were numerous this month. On the afternoon of the 2nd, the Boss and Tovrea arrived. We had a good visit and then celebrated in the evening by driving to the canyon rim and seeing the canyon by moonlight. The following afternoon Director Cammerer and White Mountain Smith arrived, and we all got together for an evening's session that lasted from 7:30 until midnight. The following morning they all left for Gallup and points east and west. We were mighty sorry to see them leave, but aside from the pleasure the visit brought us, we had the added pleasure of showing them once again a little of the finest Monument in the National Park Service.

Senator Carl Hayden, accompanied by his Secretary, Mr. Roca, visited here the afternoon of the 16th. We drove them into the canyons, and had an extremely pleasant visit with them for several hours. Richard Sias and Clinton Rose arrived the following day, and accompanied the custodian up Canyon del Muerto on a short trip.

Jim Hamilton paid us two visits during the month, being accompanied by Mrs. Hamilton on his second visit. Mr. Hodgeson of the U. S. Coast and Geodetic Survey was here on the 14th, and we spent some time poring over maps of the region. Deric Nusbaum and Stillman Williams were here on the 26th. We regretted to hear that it was Deric's last trip of the season. Johnwill Faris dropped in on the 18th, accompanied by Mr. and Mrs. Kohl of Aztec, New Mexico. Johnwill looked quite crushed when he left. Though he saw but a very small portion of this Monument, I know how he felt as he contemplated returning to Aztec. It seemed to me that there was a covetous glint in his eye, but he wouldn't admit it.

Mr. Norman G. Wallace, of the Arizona State Highway Commission, and Mrs. Wallace paid us a visit on August 22. Mr. G. W. Harris, of Harris and Ewing, photographers in Washington, D. C., was here on the 13th, and promised to return and spend more time here at the very first opportunity.

And so we draw to the close of another, and most successful month, and to the end of this travel year. To date our total travel for the year has been 1,091 persons. Since this is only the 21st of the month, we must estimate another 45 persons before the end of September. This will bring

this year's travel to 1136 persons. Last year's travel was 958 persons. This is an increase of 178 persons, or 18½ per cent this year over last year's travel.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for the month numbered 503.

Weather conditions for the month have been exceptionally good, some rain, and at present the corn and bean harvest is well under way. On August 28, we had our first snow flurries and light frost is reported in some low places.

Work has begun on two highways, one from the east and one from the south; this is giving much needed employment and should increase the number of visitors to this Monument considerably.

Have given quite a bit of time to the approach road to the Monument and have it in excellent shape. With some much needed work on our scraper and a systematic scraping of the road at least once a month we can keep the road in excellent shape and prevent further washing.

The National Geographic photographers were here on the 21st and took quite a number of pictures. The state travel bureau officials also gave us a call and are doing some really good advertising to this Monument in way of large signs and road markers.

The past month would have been a wonderful time for artists to paint in this country as the hills and forests are just filled with wild flowers. Patches of several acres in extent are covered with blue flowers; other patches are yellow and still others are red.

Our bird baths are proving almost too popular. At times the jays, hawks, roadrunners and more quarrelsome birds seem to monopolize the baths for hours at a time. The Mourning Doves come in flocks of 50 and 75 at a time. During the night the owls come, several species, but the Great Horned seems to be most plentiful. I know of few more beautiful sights than to see two or three Great Horned Owls perched on a cedar tree between you and a full moon. One bath is near the bedroom window and it was a little hard to sleep but now the absence of their hooting is more annoying.

Forty students from the Tularosa High School visited us on the 4th of the month. Am going to start a campaign among the different schools in the surrounding country the same as I did at Tumacacori. By arranging places for them to eat lunches, etc., and giving them a couple of hours of sight-seeing and attention, they are usually all anxious to come about twice during the school year and if satisfied they are always good advertisers.

We received the signs for parking place and rear entrance, from the CCC camp at Bandelier, and we are much pleased with them.

The copies of old records pertaining to this Monument which Robert Rose is sending us from Berkeley are very much appreciated. The binder prepared for them is very convenient to show to the especially interested visitors.

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WHITE SANDS

By Tom Charles, Custodian

This matter of "Publicity Vs. Advertising" is bothering me. Just where does one end and the other begin?

A few weeks ago the assistant custodian, "W.O.P." visited a daughter in Omaha and on account of close affiliation with the State Federation of Woman's Clubs she got quite lengthy mention in the Omaha papers, which incidentally referred to her connection-by marriage-with the Great White Sands. The daily paper had barely reached the drought stricken section of Nebraska until a letter was headed my way, with the salutation: "I saw your ad in the Omaha paper." The writer seemed to be more or less of a promotor and wanted to bring a colony down to be in close proximity to this unusual attraction. What we thought was a purely social article was evidently an "ad".

Some weeks ago a woman in Maine wrote our Chamber of Commerce for samples of the White Sand. This week she reports that the White Sands helped to make her Natural History table a most interesting part of the County Flower Show at Turner, Maine; that those seeing it, "were surprised at its whiteness and sparkling beauty", and when she turned her back she found that they would run their fingers through the little dunes, to be convinced of its reality. We learn now that the lady got her interest from the White Sands article in the National Geographic Magazine last August for she says, "The pictures appealed to me as something new, out of the ordinary in interest and beauty." So here was a prospective commercial interest proven to be as pure as the Sands themselves.

The intended inspirational proved to be commerical and the sure shot commercial was purely inspirational. Just what is what and who is who in this publicity matter?

Traffic is off at the White Sands. Total registration for the month was 2,459 as against 2,765 last month; Texas lead with 841; New Mexico, 364; Oklahoma, 65; California, 46; Kansas, 32; New York and Pennsylvania, 17 each. All former records on foreign countries was broken, 9 of them were represented this month, also 40 states and Washington, D. C. On the basis of 14% registration, this gives us 14,006 for the month and 93,903 for the year.

WHITE SANDS (CONT.)

Among our Park Service visitors this month were Adrey Borell, Jack Diehl, A. E. Underhill, and Luis Castellum. Another distinguished visitor was Richard Stewart, staff photographer for the National Geographic Magazine who was taking colored pictures of the Sands. We got close enough to Hollywood that Warner Brothers wrote for pictures and information about the Sands, wanting to know about the possibility of making movies there. And the entomology department of Cornell wants me to send them a "male spider" of the Sands variety. Do you have any one in the force who can tell me just how to pick that kind of spider?

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CHIRICAHUA

By Frank L. Fish, Custodian

Weather

A heavy rain occurred on the 12th drenching the entire southern part of the state. Rhyolite Canyon ran a good stream, the heaviest in 12 years according to Ed. Riggs.

This storm benefited the ranges to a great extent, making it possible for some stockmen to hold their herds through the winter instead of selling.

Roads

A heavy slide blocked the Monument road about a mile below Massai Point during the storm of the 12th. It is fortunate the CCC Camp is stationed here because if the slide had occurred at a time after their removal our road system should have been blocked for a long period.

It is hoped enough money can be set up this coming period for Mr. Stevenson to complete the back sloping of the Bonita Canyon road.

Surfacing has been completed on the ten-mile stretch of State Highway 81 this side of El Frieda. Relocation of some sections of State Highway 181 is planned for the near future.

Visitors

Travel showed the usual September slackening due to schools reopening. There were 709 visitors, arriving in 178 cars. 146 or 20% were from out of the state. 28 states and Mexico show on the register.

At this Monument there is a decided representation from the southern states more so than any other Monument where I have been stationed.

Park Service Officials

Clinton and Mrs. Rose were here on the 4th. Mr. Rose inspected our

future sign program and drinking fountain development at the camp ground and parking area sites. I was pleased to take Mr. and Mrs. Rose on a horseback tour of areas they had not seen before.

J. H. Tovrea and Jack Diehl were inspecting the 11th. Heavy showers welcomed Jack on his arrival. It leads me to believe one of the above if not both must be acquainted with the Rain Gods up Budlong's way.

W. Ward Yaeger arrived the 23rd. He is busy at the present time investigating the bark beetles. Mr. Yaeger intends to aid me in classifying some of the many plants of the Monument. His efforts will certainly be appreciated as there are things growing down here I never "seen" before. Mrs. Yaeger is along but so far I have been unable to meet her due to this monthly nightmare I have to turn out by the deadline.

Hugh Miller and Mr. Strieby are due here today. Hugh doesn't know what he is getting into. I have about a thousand questions to ask.

Newsworthy Visitors

John Curry, Editor of the Douglas Dispatch was an interested visitor during the month. Mr. Curry promises to issue a special on the Monument soon.

Equipment

A new Ford V-8 pickup was received this month.

A power saw has been ordered and is in Willcox at the present time.

Cooperation with Other Agencies

Three rock rattlers were shipped to Dr. Blanchard of the University of Michigan. Pictures and literature on the rattlers of this region have been received in return.

The custodian is conducting a class in Forestry Tuesday and Thursday evenings at the CCC Camp.

Sunday, September 26, a combined Army and Douglas Climate Club program is to be held at the Monument. The Army is having the enrollees and guests to a barbecue and the Climate Club is presenting a hammered copper register book to the Monument.

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CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent

Heavy rains during the month caused a rock slide of approximately 1000 yards on the Bonita Highway near the Sugar Loaf turn off. It is

estimated that an additional 800 yards will have to be removed to provide a stable cut bank as the slip left some overhanging ledges. At present two shifts are being used in an effort to expedite clearing the road as it is necessary to block automobile travel at this point during the week.

The Echo Point-Rhyolite trail connection advanced 700 feet making a total of 1,500 feet to date. In the early part of next month it will be possible for horse back parties to make use of this connection by combining it with a portion of the old trail.

The connection between Massai Point and Echo Point is finished, and a start was made on the 3-mile connection to Sara Deming via Inspiration Point and Balanced Rock.

Due to the heavy rains, it will be necessary to maintain several sections of the trail system during the month of October.

Walls are completed to full height on the Headquarters Ranger Station. Lintels, plates, beams, rafters, and floor joists are in place.

Foundations were poured for the equipment shed and forms for the walls are 80% complete. Masons will start work on this project by October 1.

Operation of the stone quarry has continued throughout the month.

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WUPATKI

By James W. Brewer, Ranger-in-Charge

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

137 guests registered at Wupatki; 256 at the Citadel group; 54 names are duplicated, leaving a total of 329 visitors to this Monument in September, 1936. 1935, 250; 1934, 194.

One party camped overnight and enjoyed a campfire talk about Navajos by Mrs. Brewer.

Another party picnicked on the exhibition grounds.

530 NEWSWORTHY VISITORS

Dr. H. S. Colton and Miss Bartlett collecting rain-gauges on the 31st.

Dale S. King overnight, taking a breather from Citadel report compiling.

Dr. Frederica de Laguna and Mrs. De Laguna, her mother, on the 7th to see "all" of Wupatki.

Mr. and Mrs. A. C. Keuhl of Grand Canyon, unofficially.

Hauling Sunset Crater geology sign on the 14th, I missed Senator Carl Hayden.

100 ADMINISTRATION

123 Inspections by NPS Officers

Mr. Neal A. Butterfield from the Washington Office on the 18th to look over the territory included in the proposed extension.

Last October while in headquarters we talked about the difficulty that might arise trying to put a road into Crack-in-Rock on an unsurveyed 500-foot right-of-way.

Mr. Butterfield had a newly proposed outline showing a mile wide strip to include Crack-in-Rock. After driving across the Basin he was of the opinion that a road survey should be made before the connecting sections could be determined.

021 WEATHER

Has been generally unsettled, with showers and sunny days about evenly mixed. The range is in excellent shape and the cinder roads are all passable. Tanks are full to capacity.

Days partly cloudy	7
Days cloudy	8
Days sunny	13
Maximum temperature	88 on Sept. 15
Minimum temperature	48 on Sept. 7 and 16
Precipitation	1.03 inches
Anemometer reading	5293.5 miles total for month
Maximum 24-hour reading	239.9 on Sept. 12
Minimum 24-hour reading	83.2 on Sept. 18

200 MAINTENANCE

The 20th and 21st were spent painting all Wupatki road sign standard Park Service green and digging the rocks out of the entrance road. The roads close to the Pueblo have all been dragged. Several washouts have been repaired.

WUPATKI (CONT.)

230 NEW CONSTRUCTION

Because the trail from the parking area uphill to the Pueblo repeatedly washed out longitudinally, I have moved the parking area and eliminated the trail.

The parking area is now located at the site laid out for it in the new plan.

The "Foot Trail" signs made at Bandelier are installed on the Pueblo trails.

OR SOMETHING

Clyde says "Moon coming round I guess numbered birds come back to Wupatki." (Banded birds)

Clyde also knows his ethnology and evidently subscribes to the Bering Strait--Proto-Mongoloid origin of the Indian. We asked him to name the Indians he knew. He did: "Hopi, Havasupai, Yavapai, Chinamen --------"

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SUNSET CRATER

By James W. Brewer, In Charge

803 visitors registered at Sunset Crater in September, 1936; 1935, 665.

They came from 30 states, the District of Columbia, Ireland, China, South Africa, and two parties from London, England.

On the 14th a shipment of handsome carved wood signs arrived from Bandelier ECW camp, complete with posts, each numbered for a certain sign. There are seven signs describing the interesting geological features and two "laying down the law".

I placed one of the "do not pick flowers or carry away anything" at the boundary line and the other close to the registration stand.

Six of the geological signs are placed at each corresponding feature as follows: Sunset Crater and trail indicator; Fumarole or Spatter Cone; Ice Cave; Yaponcha Crater, Sink Hole, Bonita Lava Flow, Anosma.

This leaves the larges of all still to be installed. It is "The Rim of Sunset Crater", seven feet long, and, I guess, between 90 and 100 pounds in weight. The loose nature of the trail surface combined with the steepness prohibits the use of a four footed pack animal. I am going to devise a pack-board and straps and with Clyde's help carry it up.

With the exception of Yaponcha Crater and the Anosma all the signs are set in concrete. These two are safely up but not set in concrete because I believe they might be more observably placed; I will try to locate them accordingly.

A very few minor changes in sentence construction might clarify the message on some of the signs, in event they ever need replacing.

A key to the location of each of these features would aid the visitor.

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TUMACACORI

By Louis R. Caywood, Custodian

This month brings on the first cool days of autumn, the beginning of school and the beginning of an increase in visitor attendance. With the opening of the University of Arizona at Tucson there is a decided change in the number of visitors over week-ends. The past week-end brought a number of fond fathers and mothers from far and wide and with them part of the new crop of Freshman who hope to comprise the class of 1941. Many of them have paid their first visit to Tumacacori this year. In all this month there were a total of 1,020 contacted visitors and 73 who drove into the parking area and looked without stopping from their cars or who looked while using the facilities, making a grand total of 1,093.

This brings up a point or two which is very old but has not been mentioned for a long time. If the ranger or custodian is observing enought to see these "drive-in-only" visitors and puts them in the visitor count, he then is liable for showing a poor number of contacts, say 80%, and in the eyes of the powers above he has made a poor record that month. If he misses them or does not count them, although they did stop and look, then he has made a perfect contact record and is rated accordingly. Tumacacori is probably subject to more of the "drive-in-only" visitors than any other Southwestern Monument because it is so adjacent to the main highway. Occasionally, too, some of our alien population in this valley desire to see the Mission but the sight of a uniform (which to them means an Immigration Officer) puts them to flight. However, if properly approached they enjoy their trip through the Mission and spend considerable time here.

The weather the last week has been grand, cool enough to make life interesting. We have been most fortunate in having some very good rains which have done the surrounding country lots of good. Guess it won't be long now until we will have to start chopping wood to feed the fires.

The following noteworthy visitors were Mission visitors this month: Don and Marie Erskine from Casa Grande brought Mr. and Mrs. Oscar Kelly from Michigan down on August 26 and spent several hours with us. We

enjoyed their visit very much also the grand rainstorm they brought. Father Victor Stoner made his monthly visit early in the month.

Rexford G. Tugwell, national head of the Rural Rehabilitation Projects, with Jonathan Garst, regional director of the work, with headquarters in San Francisco, California, and party were visitors to the Monument on September 15.

Father Stoner, on his visit, expressed a desire to locate the early site of Tumacacori known as San Cayetano de Tumacacori. I took Father Stoner to a site across the river that I had previously discovered and which may be the earlier site. Nothing remains but a low mound which may have been the visita. The entire site is located on the river terrace east of the Santa Cruz River and shows evidence of a small Indian village having been in use at one time.

On September 4 the Custodian gave an illustrated lantern slide lecture before the Nogales Rotary International on the "Sonora and Arizona Missions". The slides were those belonging to the Park Service and made up under the direction of Naturalist Robert Rose after the last Sonora Expedition by Miller, DeLong, Grant, Woodward, Tovrea, and Rose. A few additional slides were made especially for this talk by Mr. Lohn, photographer, of Nogales from negatives made by the Custodian. About 35 attended the lecture.

A drainage ditch has finally been placed west of the Mission to keep water from seeping into the foundation of the Mission. Two men were employed two days on this work. During the digging of the ditch a copper scraper and a white arrow point were uncovered.

The cemetery has been thoroughly weeded and cleaned. The entrance gates to the parking area and the restroom doors were given a coat of linseed oil which freshened them up considerably. Two picnic tables similar to those in use at Chiricahua National Monument have been made at the N.Y.A. woodworking shops in Nogales, but have not yet been stained.

The mountings for the gasoline engine used for pumping water were replaced and the engine properly aligned with the well jack and pump. Electric floor plugs were installed in the living room of the Custodian's residence.

Mr. George Gann of Amado, Arizona, was so kind as to donate a cannon ball, a prehistoric mortar and a Papago or Mexican bread board which was washed down the Santa Cruz River during a bad flood in 1935. These accessions were gratefully received and will be given their place when the new museum has been constructed.

In the last monthly report I failed to mention that the Custodian and H.C.W.P. had paid a flying visit to Chiricahua National Monument and

were most hospitably received by Custodian and Corabeth Fish and the Engineering Crew. We enjoyed a trip down the trails and Winnie especially was very enthusiastic as it was her first visit. How about the Fishes and "Minnows" paying us a visit?

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EL MORRO

By E. Z. Vogt., Jr., In Charge

When this ranger dusts off his portable typewriter and gets out a stack of paper, an awful racket can be heard within the ranger's cabin. But the ultimate result is the September monthly report which follows:

Weather and Roads

With the exception of a rainy day now and then the weather has been generally fair all month. The usual autumn weather has not yet come, but colder nights seem to herald the approach of the first frost. This morning a heavy fog lay in the valley floor below El Morro. The fog soon lifted and moved away leaving a bright clear September day.

There has been more activity along the roads this month than I have seen in many a moon. The Forest Service is working the road up Zuni Canyon, which is on the approach from Grants, and the Bernalillo Mercantile Company lumber camp is grading up the road on this side of the mountain. A McKinley County grader chugged through Ramah last week and smoothed up the road out to the county line two miles south of town. But nobody seems to be the least bit interested in the road from the McKinley County line on to El Morro. It is in a rough condition at the present time, and there are no prospects that it will be scraped this year at all.

Travel

At the beginning of the month visitors came in droves. Then travel slowed down gradually, and now El Morro is lucky to have ten visitors a day.

Visitors totaled 423, so the month proved to be the best September for travel for many a year.

El Morro's newsworthy visitors for the month included:

H. S. Griffen, from the Arizona Republican, and family. Mr. Griffen drifted in about nine o'clock one night, and I had the pleasure of showing them El Morro by moonlight and flashlight. This was my first nocturnal field trip, and I really enjoyed it more than any other field trip I've ever guided.

Mrs. Philip Bancroft from Walnut Creek, California, and Mrs. Griffing Bancroft from San Diego. Mesdames Bancroft are daughters-in-law of the late Hubert Howe Bancroft the famous historian.

Mr. and Mrs. J. W. Brewer, Jr., otherwise known as Jimmie and Sallie Brewer and as Ranger and Honorary Ranger Without Pay of Wupatki National Monument. Jimmie and Sallie were the first of the Southwestern Monuments family to visit El Morro this season, and I enjoyed their visit very much. They saw all the inscriptions and had time to climb on top the rock to the ruins.

Mr. and Mrs. C. B. Cosgrove of the Peabody Museum of Harvard.

W. W. Yeager from the NPS office in Santa Fe and W. H. Wirt of the Oklahoma City office were in on the 3rd. I did not get to see them, because I had gone to Gallup for supplies and did not return until after they had left.

Assistant Director and Mrs. H. C. Bryant and four children were in on the 6th. The Bryants ate lunch in the Nine Pines Cove, later climbed over the rock past the Indian ruins and down by the inscriptions. I was not previously acquainted with Dr. Bryant and was certainly pleased to meet our Assistant Director and his fine family.

Mr. and Mrs. J. C. Harrington and Dr. Fred Eggan from the Department of Anthropology of the University of Chicago were here on the 14th.

Frederick Simpick, assistant editor of the National Geographic Magazine, visited El Morro on the 19th. The National Geographic is going to run an article on New Mexico about next May, and Mr. Simpick was here to take photographs and get information on El Morro which will be included in the article.

Flora and Fauna

The largest piñon crop since 1931 is beginning to be harvested. Rug weaving and pottery making are being neglected as Navajo and Zuni Indians move into the hills with covered wagons full of blankets, screens, and little Indians. Numbers of Spanish-American people pass El Morro daily in old cars and trucks bound for the pinon areas. Indian traders are beginning to scamper about in an effort to trade for more pinons than the next trader and are already sweating about the prices. Navajo kids are picking in the woods and hiding out from Indian Service employees who are trying to round them up for school. House wives sigh wearily as they find pinon shells strewn from basement to attic.

The present price of pinons in this region is 8¢ a pound cash and a few cents more in trade. It will probably go up later on after the nuts dry out and weigh less.

Also being harvested in this region is a fair-sized pinto bean and corn crop. The beans have already been cut and are drying in small piles in the fields.

As far as I can determine the immediate vicinity of El Morro has the only grass in western Valencia County which can be considered good winter feed. To the south many cowmen will sell their entire herds rather than try to winter them on short grass.

The following birds were observed at El Morro during September:

White-throated Swift
Woodhouse Jay
Golden Eagle
Pinyon Jay
[illegible] Nuthatch
[illegible] Woodpecker
[illegible]-shafted Flicker
[illegible] Wren
Western Meadowlark
Chestnut-backed Bluebird
Desert Sparrow Hawk
Cooper Hawk
Western Mourning Dove

The bird list has suffered a considerable decrease, because most of the summer birds have migrated. By far the most numerous birds on the monument are the pinyon jays which are fattening themselves on the pinons. A close second in number are the white-throated swifts which dart swiftly about the rock.

Carlsbad Cavern doesn't have much on El Morro in the way of bats. After sundown thousands of them can be seen pouring out of every crevice and flying away into the deepening twilight in search of nocturnal insects.

MONUMENT IMPROVEMENTS

I am glad to report that a third coat of copperas on the concrete steps finally gave them all quite a desirable color. They now seem to be about as near the natural color as it is possible to make them with the copperas.

A number of large selected piñon nuts were planted in the reclaimed area with hopes for small trees in several years. You will remember that under CWA a number of small pinon trees were planted in this area, but only one survived.

Enough has really been said about the change of the entrance gate,

but I should like to make one more comment. If you refer to my report of January, 1936, you will see where I mention snowdrifts blocking the entrance road on the north side of the cliff. When the future permanent custodian tries to drive his car through that entrance gate and buck his way through the drifts around to the cabin about the 15th of next January, he will have my heart-felt sympathies!

When Custodian Vogt was out for a visit last week, he remarked that the inscriptions had noticeably dimmed since he first saw them about 25 years ago. He thinks that all the important inscriptions should have this new colorless preservative on them. I believe the preservative was invented by Prof. Martius of Stanford and is sprayed on with a spray gun. If we could purchase a few gallons of this preservative, I could borrow a spray gun in Gallup and put it on right away. Please let me know what you think about this.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

September has been a very lovely month with several light rains and extremely pleasant weather all around. The thermometer has stood from 45 low to 70 high all this month with very little variation.

Travel has held up well for the month and we have had approximately 4,500 visitors. On the 28th of last month, but not included in the last report, we were visited by Dr. Chas. N. Gould, Regional Geologist, from Oklahoma City Office. He is a fine old gentleman and a scholar; he certainly knows his rocks.. Today again we were honored by a visit from another fine old gentleman and daughter Margaret; also Charlie Steen's and my Boss's visits are all too like a whirlwind. He has come and gone before I have time to even think of some of the things, let alone say them, that I have been hording up in the back of my head since his last visit.

Road conditions in the vicinity have been pretty fair all near this Monument this month and the road leading to and on the Monument is in splendid condition, although today I notice some sloughing of rock from the slope into the road.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Have had 1,234 visitors for the month, 568 climbing up to the Castle. This is quite a drop from last year. Highway 79, being torn up throughout the season, no doubt has had to do with the drop in number.

We have had a goodly run of out-of-state visitors, as well as 3 parties from Germany, 2 from Canada, 2 from Mexico, and 1 from New Zealand.

Ranger Curtis Cox, who has been with us since the latter part of

June, left us on the 21st of the month. Mr. Cox is a teacher, and got a position with the Clarkdale school. He is a good ranger and we regretted very much to see him go, and wish him every success in his new position.

Earl and Betty Jackson "Who still talk about Bandelier being home" have been stopping with us for the past six weeks. They left about the middle of the month for Phoenix. And from all reports they are quite comfortably settled.

It seems that nothing very exciting has happened this month. The weather has cooled off considerably and we are not having so many complaints. Had one near argument with a lady who postively refused to register when I rather insisted that she should. She immediately requested me to go to a place made famous by Dante'. I had no argument on that, so I simply told her to wait a little while.

Have had several stormy days during the month. The old-timers are predicting an early and severe winter. Personally, I have been here too long to make any predictions concerning the weather.

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WALNUT CANYON

By Paul Beaubien, Ranger-in- Charge

During September there were 1,672 visitors to Walnut Canyon, of which 1,424 were contacted by the ranger. Estimating the travel for the remaining days of this month as being equal to the number arriving the same days last year, there were 10,962 visitors this travel year.

It is interesting to compare the number of visitors reaching Walnut Canyon with the number of cars that pass along Highway 66. During the summer, the Arizona State Highway Department, under the supervision of the Bureau of Public Roads, maintained a checking station just east of our west entrance road. I have been informed that there has been an average of 1,130 vehicles per day since May, and that approximately 50% bear out of state license plates. It would seem that 10,962 visitors are too few. However, with no respectable roads or trails, no water supply, no buildings on monument, and with only one part-time ranger, I can't guess what would happen if many more visitors chose to come.

Park Service visitors for the month included Mr. and Mrs. Carl E. Schmidt, Mr. and Mrs. Chas. A. Rollins, W. W. Yeager, W. H. Wirt, H. C. Bryant and family, Mr. and Mrs. Adrey Borell, Frank Pinkley and Nancy Margaret, Charlie Steen, John H. Diehl, Mr. and Mrs. J. H. Tovrea, Neal A. Butterfield, and Dale King.

Dale spent his vacation here working on his report of the excavation of Nalakihu ruin at Wupatki National Monumen.

The summer rainy season did not end September 1 as it did the past two years, so few birds came to the water trap. Only 5 Chestnut-backed Bluebirds, 4 Cross-bills, and 1 Rocky Mountain Nuthatch were banded. There were two "returns:" a Cross-bill and a Chestnut-backed Bluebird.

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AZTEC RUINS

By Johnwill Faris, Custodian

Well here goes for the last report in this visitor year and it just lacks a wee bit of being a banner year for the Monument during the time of my term as Custodian. Visitors for the month of September total 1,972 which is the largest like month in the history of the Monument since 1929 and I have not looked up any records prior to that date. Total visitors for the year 1935-36 number 12,907 which is exceeded in my time by the travel year 1929-30 and that totaled 13,110, so you see, Boss, we are nigh up to par.

It has been a decided pleasure to have served these visitors and I feel that I should express my appreciation for all the help I have had in this service. Many compliments have been received and I pass these off to the boys that did most of the guide work.

Aside from the visitor angle this month has not been especially exciting. The Custodian made one official trip off the Monument and that to the Central Navajo Agency and while my mission at the Agency was not especially fruitful I did so enjoy a detour via Chin Lee and that Monument Budlong administers, I forget the name of it; I knew once but one hears so little about it that the name has slipped my mind entirely. Anyway the folks there did show me a wonderful time and we appreciate it very much. I was sorry not to be able to get up in the canyons but Bud knew his canyon and my disappointment was soon forgotten in the view from the rim and of the trail. We looked over the house and congratulate Bud on having such a nice place. Betty and Doug were swell and the entire Park Service at Bud's dump is invited to make us a visit. This even includes Gipe and Clark Spencer. I had a nice talk with your construction crew and even got a picture of two of the pump house. I did not get a picture of Gipe cranking the motor but I certainly would like to see it sometime. All in all Bud has a wonderful thing there and we other custodians are going to battle hard to keep our Monument on a plane with the possibilities that exist with Bud. But, Boss, one can only appreciate Aztec Ruins by seeing some of these other places.

Heavy rains have caused considerable damage to ruins walls the roofed Kiva and the court in general. A report is still to be given on the exact damage. Both Underhill and Hamilton were in and looked over this damage but we have several things remain to be tested before we are ready to make a definite report on the cause. Especially is this true of the water in the roofed Kiva.

Official visitors for the month have not numbered so many, Mr. Wirt and Yeager were in for a few minutes on the 9th; Ansel Hall for a few minutes on the 6th; and Jim Hamilton and his wife yesterday. Underhill doesn't count. We had hoped to be honored with a visit from yourself and the Director but as yet neither of you has shown up and I guess we will be given the go by this year.

So, Boss, another travel year and my seventh year at Aztec ends. In the seven years it has been my pleasure to have witnessed many changes, and I trust and hope that in the next seven , whether I be here or whether you see fit to move me before they end, that I will see as many changes for the better as I have here.

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BANDELIER

By Jerome W. Hendron, Acting Custodian

Visitors

Visitors numbered 1,965, arriving in 440 cars from 31 states and District of Columbia.

The six highest states in order by visitor count were: New Mexico, 488; Texas, 218; Oklahoma, 131; Illinois, 89; Kansas, 83; and Missouri, 57.

Our attendance dropped slightly this month but not as badly as was expected, the number decreasing 1,215 or 47%, but the total for this month showed an increase of 371 over September, 1935.

Six people from foreign countries visited us this month, being from England, Canal Zone, Central America, Italy, Germany, and Colombia, S.A.

Our return visitors for this month numbered 127 showing an increase of 3 over last month.

Weather and Roads

Days partly cloudy-----:	21	
Days cloudy ----------:	4	
Maximum temperature----:	88	August 25
Minimum temperature----:	48	September 23
Mean Maximum----------:	78.5	
Mean Minimum----------:	55.6	
Precipitation----------:	2.30 against .40 for September, 1935	
Rain and sleet --------:	Aug. 26, 27, 29, 30, Sept. 2, 8, 11, 13, 14, 16, 18, 19, 20, 21, 22.	
Dust storms----------:	None	

It appears that fall is with us and that the winter is almost upon us, the leaves on the trees are turning and almost all of the flowers are gone. We havehad a considerable amount of rain during the month and on several occasions a slight mist of snow.

From a general standpoint the roads have been a little rough in spots and we have had several complaints about this. The washes at Pojoaque have been running again but not as much as they did last month.

Visitor Trip Chart:

One hundred forty-five parties took guided trips through the ruins, or were given short lectures, numbering 912 people. The average time per party was 69 minutes including the short lectures. One hundred thirty-four parties took complete ruins trips, making a total of 831 people; six parties or 11 people were given short talks averaging 29 minutes per party. Our largest single party numbered 51 on September 21.

Special Visitors:

Reginald G. Fisher, Assistant Director of the School of American Research in Santa Fe, was in with a party on September 4.

September 4 - W. G. Carnes, Deputy Chief Architect from the Washington Office, spent a few hours in the canyon on an inspection tour with Chuck Richey.

September 5 - The Boss dropped in late in the afternoon with J. H. Tovrea and Art Woodward and remained until the next day. We had been waiting for him a long time and I think everyone straightened out all of their difficulties.

September 6 - George Collins, Assistant Regional Officer from the Santa Fe office, was in for a short stay.

September 12 - Cecil J. Doty, Associate Architect, and Milton Swatek, Jr. Architect, were out for a trip around the ruins. They are from the Oklahoma City office and are now working in Santa Fe.

September 18 - Dr. Edgar Lee Hewett, Director of the School of American Research in Santa Fe paid us a short visit. Dr. Hewett did the excavation work here a number of years ago. Chuck Richey, J. H. Tovrea, and Lyle Bennett dropped in late in the evening for a short stay.

General

We are actually seeing light in our museum work now, having two new additions to the staff. One of these gentlemen is a sculptor and we feel

rather proud of him and are looking forward to some good work. He studied in Europe and is here to model physical types. At the present time we are working on a miniature reconstruction of the Community House which we hope will be the last word when it is completed and I think it will be. The other gentlemen is a painter, or a specialist in pastels. He is doing all of the modern Pueblos that we can get into without creating too much disturbance. He should produce some nice paintings for us since he is well known in his field. We also have a relief model of the Monument and surrounding country to paint and put in shape and I can truly say that I am glad these fellows are here because they can help out in many ways. Our CCC enrollees who work in the office are helping out considerably. Since the visitor traffic has slowed down they are putting in time on the museum so we have quite a force now and should be getting things done.

Hub Chase has put out a wonderful job on these new quarters for employees. We have two completed and another in the process of painting and in a short time a fourth house will be taking shape, so I think everyone down here in Bean Gulch is pretty well satisfied.

As I close for this month I am expecting the Boss in most any time now and we'll surely be glad to see him again and shower him with questions as usual.

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BANDELIER ECW

By H. B. Chase, Project Superintendent

One exhibit case, including the wiring, has been completed and ready for the installation of the exhibits in the museum. This case construction is being done under the furniture project for this camp.

All interior decoration and final finishing work was completed early this month on quarters No. 2 and it is now being occupied by the acting custodian.

The equipment shed project, which includes two rangers' quarters, is now complete with reference to any building construction. It has this date been turned to the painting and decorating crew for the final finishing work. It should be ready for occupancy by October 10.

One root cellar of our project of three root cellars has been completed this month together with the small retaining wall constructed with this building. Work has started on the other two cellars and will be carried through to completion during this following month.

Geology and directional signs for Wupatki and Sunset Crater National Monuments were completed and shipped this month. Signs for Walnut Canyon and Aztec Ruins National Monuments are now in the making and should go

forward within the next three weeks.

The rock quarry crew has been in progress all month quarrying and delivering building rocks for the proposed construction quarters No. 3.

The building crew has chiseled and shaped a large quantity of building stone on the proposed site of quarters No. 3 in preparation to construction immediately upon receipt of approved plans.

Considerable wet weather has forced continuous road maintenance of the entrance road during the past month.

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TONTO

By. F. B. Horne, In Charge

There were 203 visitors at Tonto this month. This was a decrease of 121 compared with 324 for last month and 135 less than the 338 people who came in September, 1935. The drop may be due to the threatening weather which has prevailed, thunder showers being almost daily occurrences in the vicinity. On two days, September 12 and 24, no visitors came.

The register showed visitors from 25 states and one foreign country. Arizona led with 30%; California came close second with 25%.

A compilation of data from visitor guide charts follows:

Total visitors field trip	148
Total time . . field trip	2,945 min.
Visitors museum	183
Time museum	1,002 min.

Averages:

	Time Field	Museum
Spires	66 min.	17.5 min.
Horne	52 min.	19 min.

As reported, scattered thunder showers have been frequent. 1.75 inches of rain fell this month compared with 1.49 inches for September, 1935. High for the month was 103 degrees and the low as 63 degrees. (This through the courtesy of Ben Reynolds of S.R.V.W.U. Ass'n)

Charlie came up Saturday, September 12, to help me with some much needed information. Mr. and Mrs. W. Ward Yeager and youngster, en route to Casa Grande, stopped briefly on the 20th. Mr. J. H. Woodside, formerly a "G-Man", now transferred to the Treasury Department where he is a "revenooer", as he jokingly said, came from Denver on the 15th.

I had been down under the hill "digging" in the storeroom and was quite dusty. When he flashed his badge it nearly scared me to death. I don't know why I should have such a damned guilty conscience.

A very elderly gentleman from England, who saw the ruin four years ago during a visit to this country, brought his grandaughter this trip. He had hired a car after making a special trip to Phoenix in order that he might show the young lady the "cliff house" which seemingly had been the subject of much discussion. He asked if I were "the person whowas here four years previous." I told him I believed the S.P.Indian guide was here at that time. (Or was it Charlie with his green handkerchief around his brow and stripped to the waist a-la volleyball night? Ugh, ugh!)

Woody must have killed all the rattlers as only one has been seen to date. He got away. The fourteen Woody bagged a year ago must have discouraged them and caused another "southern migration". A small herd of deer crossed the canyon above the spring the other evening. Nancy is not the only one who feeds squirrels. The "rats" have been stealing bread by the loaf from my table by the kitchen window.

The road condition remains the same, darn good if you still have an old model T puddle jumper, but I felt sorry for the dude who "gunned" his big Studebaker, with disastrous results, while the rear wheel was on a sharp rock.

Word has been received that Mr. Stevenson, the new ranger for Tonto, is en route to take over the duties of "the old man of the mountain". Good luck to him.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

This has been a glorious month so far as rain and bad roads are concerned. Very few people will tackle the road for the Bridges during wet weather and as we have had good rains every few days for eight or nine weeks the number of visitors is pretty slim.

I have never seen so much water in the canyons here as during the last few weeks. There have been floods every few days. Just last Monday I chored around camp all forenoon and about 1 p.m decided to go down Armstrong Canyon and work on the trails. Just as I was ready to leave two men drove in and desired to see all the Bridges and ruins above Augusta. I told them how to go and also that they had very little time to spare and then we separated. Just as I approached the caroline Bridge rain began to fall; it was not one of these drizzle-drozzle affairs but a gully washer and a frog strangler, I ran for a ledge about three hundred yards away but before I reached it I was soaked. I found a dry spot

of about ten feet square on the ledge and within a few moments water was running in streams over the ledge and in twenty minutes the flood came down the canyon, a flood six to eight feet deep. I concluded that I would be there all night. I had only two matches, not much wood, not much room, flood still coming up, first match failed (movie thriller) and I began to think of a cold night's lodging. I took a few more precautions and got a fire with the second match, gathered all the wood I could find, just a big armfull, and began to wish I were home. After two long hours the rain let up but the flood below didn't. The sun came out and the water quit pouring over the ledge in front of me so that I could see what was happening. I soon discovered that I could hook my shovel over a small tree on a ledge about eight feet above my head and pull myself up. Up I went and then found that by crawling on hands and knees for one hundred yards I could climb out on top of the canyon on the south side. By traveling about six miles around the heads of several small canyons I reached home a little after dark. Then what worried me was 'What had happened to the two men I had sent out on the hike?' The storm was only local and covered just about six square miles so a few hours after it stopped raining the flood went down and those two fellows had to wade the stream 20 times or more as the storm had caught them two miles above the Caroline Bridge, They arrived back in camp about eight p.m, just thrilled over their experience. I had a hot fire in the stove and a good warm supper ready for them, they changed clothes and were happy once more.

Two weeks ago a heavy truck slid off the road on Grand Flats, about 8 miles from Edwin Bridge and stayed there for 36 hours. It looks as though the driver had to tunnel out. The weather seems to be clearing and a state road crew is repairing the damage to the road.

I am OK and still going strong.

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NAVAJO

By Milton Wetherill

September has been a very good month so far in spite of the rain and bad roads. There have been several heavy rains this month. We also have had several light frost so far, and the Box Elders, Water Birch and Aspen are turning from green to yellow, in a short time this part of the canyon will be a mass of color. A large number of late flowers are in bloom which adds to the color of things.

Two parties of note this month, Mrs. Grace A. de Laguna and Frederica de Laguna; also Dr. Harold Colton Museum of Northern Arizona and Major L. T. Brady, Flagstaff, Arizona.

Two overnight parties were in the early part of the month, one party staying overnight, the other party two nights.

By John Wetherill, Custodian

We have had 363 visitors up to now for the year. It does not seem to you like a large number. We will improve as time goes on. The road between here and Tuba has been greatly improved in the last year. The rains have held up a good many people the past six weeks.

Betatakin is beautiful now. The yellow of the Aspen, the deep green of the Douglas Fir, the red of the Box Elder, Oak, Willow and Water Berch, added to the high cliffs, makes a glorious sight that is hard to describe. You should have come here while you were so close. You do not know what you have missed.

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CASA GRANDE

By W. J. Winter, Custodian

This custodian and the H.C.W.P. reported back on the job September 16 after three months absence, about three weeks of which might be called vacation. We were right glad to get back, for both Virginia and I had missed our friends and our home here. That we have good friends here has been demonstrated many times and this was no exception, for when we arrived we were delighted to find that our house had been cleaned by Christine Miller and Marie Erskine, Hugh had connected up the refrigerator and Teddy Baehr had cleaned off the car, which had been accumulating dust in the garage all summer. So, instead of having to dive into several days of hard work we just dropped back into our normal manner of living, grateful beyond words.

Ranger Don Erskine and his temporary assistants seem to have attended to the monument business quite capably. Reports and records are up to date.

For the past month the visitor count was 2,045, coming from 34 states, the District of Columbia, England, Ireland and Mexico. Only one special group is recorded, 30 school teachers from Casa Grande, September 24. These had supper in the picnic grounds and so arrived here rather late. I took them through the ruins between 6 and 7 p.m. which is the hour in which the numerous bats are flying in and out of the Casa Grande. These seemed to worry the hatless ladies somewhat but caused more amusement than we usually see on ruins trips.

Fred Gibson, Director of the Thompson Arboretum at Superior came in to see us on the 18th. He of course had been here before, but brought guests this time.

The Monument can claim but two NPS visitors this month: Fred M. Strieby, ECW Auditor from Oklahoma City office, and W. W. Yeager, Assistant Forester from Santa Fe.

Mr. Yeager inspected the mesquite infestation and told us that it needed considerable attention. It will need additional funds to cope with the situation, the urgency of which I cannot overemphasize. The infestation is spreading rapidly and will result in the loss of all of our mesquite trees if remedial measures are not taken very soon. Mr. Yeager will return with another expert on the 29th and we can then determine just how much money will be needed. I hope that you can make the Great White Father see the necessity for immediate action.

The weather cooled a bit this month. Day temperatures ran from 87 on the 19th to 107 on the 7th. Night temperatures were from 54 on the 16th to 75 on the 1st. Precipitation was .71.

Sunday, September 20, Ranger Russell Farmer came on temporary duty for the week. He is en route to Montezuma Castle where he will be permanent ranger. We were glad to meet Russ and to have his help for the past six days. Being a long tall boy he was especially helpful when we repaired the ramada roof over the picnic ground. He could get under the thing and hoist where the rest of us couldn't reach it.

The ramada in question was breaking down in two places but we put in new logs and it is now in good condition.

Nature notes are scanty this month. Gambel Quail seem to have increased considerably on the Monument. They come daily to the Custodian's residence to be fed, in flocks, like chickens. The Casa Grande has more bats living in it right now than any of us have ever seen before. At sunset they pour from the ruin by the thousand, reminding us somewhat of the evening bat flight at Carlsbad Caverns, though Colonel Boles might not like it if we made too close a comparison.

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CHACO CANYON

By Thomas C. Miller, Custodian

General

September has been a good month in the way of visitors to this Monument. The approach roads remained in good shape most of the month. However, the last few days we have had several calls from visitors to and from the Monument to come pull them out of the ditches. The last one was a Harvey bus that slipped into the ditch twelve miles north of the Monument after spending part of two days visiting this Monument. The bus made the ditch at 2 P.M. on the 20th and we succeeded in getting them out at 11:30 A.M. on the 21st. We received the S.O.S. call shortly after dark on the 20th. We reached the scene in about two hours in the dump truck, but knowing how foolish it was to work all night trying to get this big bus out of the ditch while it was still raining, we brought the ladies back to Chaco to spend the balance of the night. The driver and another

man remained in the bus and were still there on the job when we returned the next morning and got them out after several hours of hard labor.

Travel

1,041 people arrived in 344 automobiles coming from 28 states, the District of Columbia, England, Poland, and Scotland.

Weather

General weather conditions were normal during the month with moderate temperatures. A table of weather statistics follows: Maximum temperature, 91 on the 8th; minimum temperature,40 on the 15th and 16th; precipitation 1.15 inches was recorded for the month. The greatest amount in 24 hours, was .30 inch on the 21st.

Special Visitors

Mr. and Mrs. Edwin F. Walker and Gertrude Halladay Leonard, of the Southwest Museum, were Monument visitors August 25. Mr. Carlett Cane, and Mr. Allen F. Brown, U.S.G.S. visited the Monument August 27.

Dr. Albert G. Jenner, Milwaukee, Wisconsin, arrived September 2. He was preparing to leave on the afternoon of the 4th when we received a phone call that a plane had crashed near Lake Valley, 17 miles west of headquarters. Dr. Jenner succeeded in following the Government pick-up to the scene of the crash by being towed and dug off of several high centers. He reached the scene of the accident and found that it was Mr. and Mrs. Ben O. Howard, Bendix air racers. Due to the difficult roads that we had to travel the doctors at Crownpoint arrived at the scene ahead of us. Dr. Jenner continued on to Crownpoint and aided in rendering assistance to the injured fliers. At this time Mrs. Howard is out of danger and Mr. Howard still has a fighting chance for his life.

Regional Forester and Mrs. Frank Pooler, U.S.D.A., Albuquerque, New Mexico, arrived on the 5th and departed on the 6th. Mr. and Mrs. L. M. Oaks, California Institute of Technology, were interested visitors on the 9th. Engineer and Mrs. Fred C. Hill, Bureau of Public Roads, Mesa Verde National Park, arrived on the 9th and departed on the 10th. Superintendent M. R. Fryer, Central Agency, Window Rock, Arizona, W. G. McGinnis, Regional Director, Soil Conservation Service, and party were Monument visitors on the 19th.

National Park Service Officers

Regional Forester W. H. Wirt, Oklahoma City, and his Assistant W. W. Yeager, Santa Fe, New Mexico, arrived and departed September 9. Associate Engineer and Mrs. Jim Hamilton were here on business on the 21st.

Activities of Other Agencies

The Soil Conservation Service resumed operations September 1 with 13 men, one dump truck and 3 teams. To date much of the damage has been repaired on the diversion dikes that were built on the canyon floor. These dikes were badly damaged by flood waters during the month of August.

Mr. Gordon Vivian, School of American Research, arrived with a crew of 18 Mexicans from Albuquerque on the evening of the 21st. Mr. Vivian will finish the roofing and the repair work on the Great Kiva at Casa Rinconada. Mr. Paul Reiter will be in charge of excavations at Chetro Ketl with another crew of men that will arrive in the next few days. Dr. Edgar L. Hewett, Director, School of American Research, arrived on the 22nd, to spend some time getting the project started. This Institution is working on a PWA project that will probably run all winter.

Nature Notes

The flowers, grasses, shrubs, and even the weeds have shown an unusual amount of growth during the month. Wild four o'clocks and asters are helping to brighten the landscape. Along the north entrance road there is a clump of Jimson weed whose large white flowers have attracted considerable attention. Thirty-two specimens of plants have been collected and pressed and we know of several others that are yet to be had. We had just about gained control of the Russian thistles when the purslane began making a very rank growth around Pueblo Bonito. It has been necessary to do considerable work to keep the trails clean. A white dodder is attacking nearly all the plants and making the hoeing of weeds more difficult.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

I am sorry that this monthly report did not get off before now. The only excuse that I can offer is that I have been away from the Monument on leave and did not get at it.

The travel for the month of September, 1936, is 109 for visitors, 327 for local travel, and 72 estimated for the last six days, making a total of 518.

Mr. L. J. Brown, who is taking care of the Monument during my leave, has guided 40 visitors through the Fort, indicating that he is doing some good work at the place.

The fall weather is here, nights are getting cold, leaves are changing colors, and birds are on their way south. It feels as though we will have an early fall; forst has been reported in the higher mountains, and it is not long after that when we get frost.

PIPE SPRING (CONT.)

Our ECW work has progressed fairly well this month on filling up of the wash and a few minor jobs. September 18 was the last day the CCCs worked on the monument for the seventh period. The boys went home on the 22nd, and the camp will not be refilled until some time after the first of October. Will report the ECW activities after the close of the month.

The following Park Officials have been in to visit the Monument this month:

Al Kuehl, on the 2nd for two hours or more. Dr. Gregory and Vandiver were here September 15 and stayed for three days studying the rock formations.

The Boss (Superintendent Pinkley), Miss Story, Charlie Steen, Mr. Barker of Zion were here on the 15th for about an hour. They were accompanied by Miss Pinkley, daughter of the Boss.

Al Kuehl and George Collins were in on the 25th for about half a day going over the projects for the seventh and eighth periods, if the CCC Camp stays here. Several new projects were set up, which in time will get into your office.

I left the Monument on the 15th to take 30 days leave, and today I decided that I had several reports to get out to the Boss so I came down to the Monument to get this work out. Incidentally Al and George came in on their way to Toreweep. Was glad that I was here to talk over the Monument projects with them.

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HEADQUARTERS STUFF

By Charle R. Steen, Jr. Park Naturalist

The naturalist staff was scattered far and wide during the month of September. Park Naturalist Rose was stationed at Berkeley for the entire thirty days continuing his researches into the records of the early Spanish missions of Sonora and Arizona. Junior Naturalist King was on annual leave until the fifteenth and at that time started a period of nine months' administrative leave during which time he will attend Yale University with the National Park Service Fellowship. Two weeks at Headquarters and a two weeks' field trip to some of the Utah and New Mexico monuments in company with Superintendent Pinkley and Miss Story of the Washington Office constituted the principal activities of Junior Naturalist Steen. Monuments visited were Walnut Canyon, Pipe Spring, Arches, Capulin, Bandelier, Gran Quivira, and White Sands. Several Park Service units outside of ours were also included in the itinerary; these were Grand Canyon National Park, Zion

National Park, Colorado National Monument, Black Canyon of the Gunnison National Monument, and Great Sand Dunes National Monument. On the seventh of the month ECW Student Technician Clarence Cole's appointment expired. Cole resumed his studies at the University of Arizona.

Gifts and Accessions

Several books and pamphlets have been received by the Headquarters library during the past few days, but due to a two weeks accumulation of routine work it has been impossible to catalogue these. They will be listed in the October Report.

A Pima Boy from Blackwater brought in a bow which was made and used by his grandfather a number of years ago. The bow was placed in the Casa Grande museum.

A shipment of bird traps was received from Berkeley. Types of traps included in the batch were Government sparrow; warbler and woodpecker traps.

Two consignments of lantern slides which have been tinted by the Berkeley laboratories arrived during September.

Bird Banding

Bird banding operations were still very slow, but with cooler weather and less natural feed during October our stations should get under way in earnest during the next few weeks. Banded birds reported during the past month are as follows:

Walnut Canyon

5 Chestnut Backed Bluebirds
4 Crossbills
1 Rocky Mountain Nuthatch

Casa Grande:

1 Say Phoebe
1 Cactus Wren
2 Inca Doves

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR AUGUST, 1936
Southwestern National Monuments

MONUMENTS	No Employ		Guided Trips					Museum Lectures					Museum Unattend	Outside Lecture		Total Contact	Total Travel	Percent of Contacts
	Per.	Tem	No.	Att.	Time	Av. Att.	Av. Time	No.	Att	Time	Av Att	Av Tme	No.	No.	Att.			
Arches																		
Aztec	2	-	314	1893	9780	6.0	31.1	280	1887	4325	6.7	15.4	18	83	-	-	3780	1972
Bandelier	1	2	149	916	9925	6.1	66.6	-	-	-	-	-	0	-			916	1965
De Chelly	1	1	71		4530	3.0	63.8	-	-	-	-	-	-	-	-	-		217
Capulin	1	-	3	20	160	6.6	53.3	-	-	-	-	-	-	-	-	-	20	4500
Casa Grande	2	-	326	2045	9117	6.2	27.8	305	1815	6164	5.9	20.0	-	-	-	-	3860	2045
Chaco Canyon	1	1	81	350	5553	4.3	68.5	51	218	957	4.2	18.7	-	-	-	-	568	1041
Chiricahua	1	2	19	104	2795	5.4	147.1	-	-	-	-	-	-	-	-	-	104	709
El Morro	1	-	84	398	6143	4.7	73.1	-	-	-	-	-	-	-	-	-	398	423
Gran Quivira	1	-	92	503	5135	5.4	55.8	-	-	-	-	-	-	-	-	-	503	503
Gila Cliff-D.	-	-																
Hovenweep	-	-																
Montezuma	2	-	173	763	6757	4.4	39.0	222	1014	4315	4.5	19.4	-	-	-	-	1777	1234
Natural Bridge	1	-	20	89	565	4.4	28.2	-	-	-	-	-	-	-	-	-	89	89
Navajo	-	-	15	46	1935	3.0	129.	-	-	-	-	-	-	-	-	-	46	46
Pipe Spring	1	-	30	108	960	3.6	32.0	-	-	-	-	-	-	-	-	-	108	518
Rainbow	-	-																
Saguaro	-	-																
Sunset Crater	-	-																808
Tonto	-	1	50	148	2945	2.9	58.9	55	183	1002	3.3	18.2	-	-	-	-	331	338
Tumacacori	2	-	217	1020	6576	4.7	30.3	-	-	-	-	-	-	-	1	35	1055	1093
Walnut Canyon	-	1	157	613	3080	3.9	19.6	208	786	4720	3.7	22.6	-	-	-	-	1399	1672
White Sands	P	-	263	1120	196	4.2	.7	-	-	-	-	-	-	-	-	-	1120	14005
Wupatki	-	1	25	74	1405	2.9	56.2	-	-	-	-	-	-	-	-	-	74	329
Yucca House	-	-																
Headquarters	-	-																
Total-this mo.			2089	10427	77557	4.9	37.1	1121	5903	21483	5.2	19.1	18	83	1	35	16365	33507
Total-last mo.			2410	13735	94286	5.7	39.1	1178	7049	34504	5.9	20.8					20996	40942

Note: Bandelier and Chiricahua have 2 CCC men each, included in No. of temporaries.

TRAVEL STATISTICS

In September we passed the crest of the travel year and began to go downward in our attendance figures. We had 33,507 visitors in September as against 40,942 in August. We are glad to see the curve go over the crest and will be pleased to see it go lower next month because we are undermanned for giving good service to anything like thirty thousand visitors per month.

We gave 2,089 guided field trips last month, serving 10,427 visitors. In other words we were able to serve a little less than a third of our visitors with field trips. If you reply that probably the rest of them did not want field trips, I can say that I know better; at least another ten thousand of them would have welcomed the explanations given by a guide. Our monument problem as a whole is quite different from the park problem as a whole and a very much larger percentage of monument visitors must have guided service in order to get the largest returns from their visit.

Again I want to call your attention to the quality of the service given. The parties averaged a trifle under five persons and they were with the guide in the field for 39 minutes. This means a high degree of personal service; the talk is not a lecture in the struct sense of that term, it is a real personal talk adapted to the individual visitors and all their questions can be answered.

We gave 1,121 museum talks to 5,903 visitors, the average time spent in the museum being twenty minutes. Here again the average party was a trifle over five, so real personal service could be given. Having only six museums in the 18 monuments reporting in this table accounts for the fact that we handled only half as many visitors through museums as through field trips. Note that the batting average for the museum at the individual monument is high. Aztec has 1,972 visitors during the month; 1,893 going through the ruins and 1,887 going through the museum, all under guidance. Montezuma Castle and Tonto put more people through the museum than through the ruins, due to the fact that elderly persons and cripples cannot make the ruins trip, being handicapped by ladders, etc., but can get into the museums. The museum figures in this table show us conclusively that we need seven more museums right now among the Southwestern Monuments.

The table as a whole tells us that we are not giving proper service at several monuments and again, as last month, Capulin and White Sands stand out as the strongest arguments.

MONTH OF THE BOSS

It has been a rather hectic month from the standpoint of the Superintendent, very pleasant on the whole but with heavy strains thrown on our organization, which, we are glad to report, it is standing in a satisfactory manner.

On September 1, with Mr. J. H. Tovrea, ECW Engineer, I left Headquarters on a field trip and we drove that day to Gallup, New Mexico, some four hundred and seventy miles, arriving there about midnight. We expected the Director to arrive there the next morning but he was delayed one day and, after finding that out by telephoning the Grand Canyon, we went on out to Canyon de Chelly National Monument to await his arrival on the following day. We arrived there about four o'clock and found Bud and Betty very pleasantly situated in the new Custodian's residence. Mr. and Mrs. Albert Hopkins, of New York City, had just arrived an hour before us to see the Canyon. There being a young moon in the sky that night, we all made the journey up to the cliffs opposite the White House and enjoyed the wonderful view of the Canyon in the moonlight for two or three hours.

September 3 we spent at Canyon de Chelly, the Director coming in that afternoon, being piloted by White Mountain Smith and we spent the remainder of the day and part of the morning of the next reviewing the various angles of the present and future development of that Monument.

On the morning of the fourth we left the Canyon and drove to Ganado where Dr. Salsbury persuaded us to stop as his guests for lunch and showed us over the wonderful plant he is operating there for the benefit of the Navajo Indians. After lunch we parted from Mr. Smith who went south to his Petrified Forest while we went east into Gallup, stopping on the way at Window Rock, Arizona, to pay our respects to Mr. Fryer and Mr. Tom Dodge. Pausing in Gallup long enough to pass the time of day with Mr. Woodward, of the Chamber of Commerce, and get in touch with mail and wires, the Director, Mr. Tovrea and myself proceeded to Albuquerque, arriving there for a late dinner. Here we parted from the Director, as he had to take a train for the south and east and we had to go on up to Santa Fe. We arrived in Santa Fe about 11:30 that night.

We spent the fifth in Santa Fe in consultation with Mr. Carnes and Mr. Woodward from Washington, Mr. Hall from Berkeley, and the District men of Santa Fe over the Tumacacori Museum and Administration Building plans. The final compromise on this plan is not so very satisfactory to us although we signed the preliminary sketch rather than stand out any longer.

On the afternoon of the sixth we drove out to Bandelier and spent the night there. We found the work of the ECW camp coming along fine under the supervision of Camp Superintendent Hub Chase, and the work of

the Monument was being efficiently performed by Acting Custodian Jerome Hendron with the aid of his CCC helpers.

Leaving Bandelier National Monument at noon on the seventh and spent that night in Gallup. On the eighth we reached Headquarters about ten o'clock at night.

The weather was good and the trip was a pleasant one.

I remained at Headquarters until the thirteenth when I started a field trip which was to include the outer loop of our district. Charlie Steen, of the Naturalist Division, accompanied me on this trip as he had not yet visited some of these more remote monuments. We went to Cameron, Arizona, on the thirteenth, stopping a little while with Paul Beaubien Walnut Canyon National Monument.

On the fourteenth we went across the Colorado River over the bridge below Lee's Ferry and up through House Rock Valley to the north rim of the Grand Canyon where we spent the night. It had been several years since I had been on the north rim and I was certainly glad to get this chance to see the many improvements that have been made there. We also enjoyed a guided trip and an evening lecture with our good friend, Louis Schellbach. We made the east trip in the afternoon and the west trip the next morning, again with Louis as our guide, and left the Park about eleven o'clock, driving to Pipe Spring National Monument where we were welcomed by Leonard Heaton and shown over the place. At the Grand Canyon we had met Miss Story, of the Washington Office, who was being escorted on the triangle trip of the parks by Tom Parker, the efficient Assistant Superintendent. After looking over Pipe Spring we proceeded to Zion National Park for the night. Leaving Zion afternoon the next day we drove through to Price, Utah, arriving there about midnight.

On the seventeenth we visited Arches National Monument and went on to Grand Junction for the night. A fairly rough type of desert road has been broken through to a point near the Jug Handle and Double Arches and with a walk of a mile or so a visitor can now see some six or eight arches in that part of the Monument. The local people are very alive to the development of the Monument and are anxious to help us in every way they can.

On the eighteenth we visited the Colorado and Black Canyon of the Gunnison National Monuments and spent the night at Montrose, Colorado. This was an intensely interesting day and we all fell quite in love with the Black Canyon of the Gunnison. It is not of monument status of course; it is either a park or nothing. We arrived there late in the afternoon, so the light was at its best, and at that elevation the early frosts had fallen and the aspens had turned; it was altogether lovely.

On the nineteenth we drove to Monte Vista, Colorado, and on the

twentieth visited the Great Sand Dunes and drove on to Pueblo. The twentieth being Sunday, we found six or eight parties picnicing at the Great Sand Dunes and passed many more cars headed that way as we came away in the afternoon.

On the twenty-first we arrived in Denver about four in the afternoon and visited a while in the Denver District Office before putting Miss Story on the train bound for Chicago.

On the twenty-second we transacted some business and left Denver, driving down to Raton, New Mexico.

The next day we went out to see Capulin Mountain National Monument and then drove into Santa Fe for the night.

The next day we were in Bandelier National Monument and returned to Santa Fe for the night.

On the 24th we left Santa Fe and drove to Alamogordo, passing the Gran Quivira National Monument and having a short visit with Mr. and Mrs. Boundey.

On the 25th we visited White Sands National Monument and then drove the four hundred miles to Headquarters, arriving about nine o'clock that night.

The travel on the first trip amounted to 2,805 miles and on the second trip was 3,312 miles. The weather was in our favor all the way and the roads were dry but in some places very rough.

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CLOSING

As you may have deduced, providing you have read this far in this report, Chief, we have had a good month. We are over the crest of the traffic for the calendar year and the flood of visitors will recede somewhat as fall and winter approaches. You are not, however, to assume that we are going to hibernate, for we will probably have fourteen or fifteen thousand visitors in October and will reach our low point of about ten thousand visitors in December when we will begin to climb again. We cannot find much difference between winter and summer in this office but seem to be carrying a peak load all the time. If you don't think so, notice that the mail count ran three thousand nine hundred and fifty pieces during the month. The actual number of pieces which were worked ran well over a hundred per day, Sundays, holidays and all and that is the proper way to figure them because the boys put in a lot of overtime.

CLOSING (CONT.)

The visitors statistics will show that the men in the field have had a busy month too. Several of them, as a matter of fact, have been crowded to the point where they could not deliver good service.

The Southwestern Monuments is one unit of the Service which is definitely not advertising and not wanting to increase its total number of visitors until it can get its house more in order and be better prepared to take care of them. We are not having much luck along this line, it is true, because we find the visitors themselves are advertising our places and sending people in to us and our annual attendance curve seems bound to rise. As is pointed out in another part of this report, the curve at a couple of our monuments seem to have flattened out and no one can be happier than we are about it because it means we have that point pretty well under control and can concentrate our energy on getting more men and more capital investment at some of the weakest spots along the line.

We have a couple of proclamations on new monuments up there somewhere which have not come through yet and we wish you would do what you can to expedite them. The proposed monuments happen to lie in the low country and we want to do some field work on them this winter when the weather is in our favor and when we have a shade more time than we do in the summer.

We have recently had a regional officer here at our headquarters with whom we had a talk about some other prospective national monuments within our district. Some place in the western country we ought to have as a national monument a town which is saturated with the history of the old West. We have two such towns in our district. We ought to perpetuate one or more of the old overland mail routes by making a national monument of one of the old stage stations. We have a couple or three such colorful sites in our district. We ought to reserve some point around which would swing the Indian and Army history of the southwest. We have half a dozen important forts of that period in our district and are ready to offer you a selection for study. Let us go forward with this work this winter and bring some of these things to a decision. Your office will probably be in a better position to send out field men to make decisions in the winter than in the summer and the sooner we get these things done the better.

Another matter we expect to bring up again in the near future and keep hammering on is an educational campaign on the need of ruins stabilization. I don't think there are a dozen people, outside the workers in the Southwest, who know the vast need for actual wall repair, drainage, and general protection which we lump under the term stabilization among the ruins under our charge. We ought to have a regular, continuing appropriation, precisely comparable to our Roads and Trails appropriation, for the repair and upkeep of these ruins. I am speaking not only of the ruins which have been excavated by field expeditions, of

which there are a large number greatly in need of work, but of that other large number which have many high standing walls which are gradually falling apart and being forever lost to future generations. There is considerable irony in the fact that we can make a large reservation to protect certain groups of ruins; we can spend forty thousand dollars fencing that reservation in order to keep the cattle and sheep off so the grass will get a new start and keep down soil erosion; we can spend sixty or seventy thousand dollars putting in dams, taps, and revetments to keep the soil from washing away and dropping our ruins into the arroyos; various institutions can spend a hundred and fifty thousand dollars opening one or two of these ruins and studying them; but we can only spend about two hundred and fifty dollars per year in keeping up and repairing the walls on that one reservation which, if gathered together, would cover more than four city blocks in Washington, D. C., and would probably cost three million dollars to reproduce under present day labor costs!

We have not yet determined what course this educational campaign should take, but we intend to settle down to a long distance effort and put a lot of energy into it. It is much more important and will take much more money to handle it properly than our roads and trails allotments during these next ten years. Your engineering reports will show the expenditure of more than four thousand dollars in the stabilization of one ruin in one of our parks, without completing the job and we have thirteen ruins larger than that in one of the monuments in our district and have several other monuments which run that one a close second for ruins repairs. Not many people understand that we deal in prehistoric ruins among the Southwestern Monuments not simply in single and odd lots but in wholesale quantities. Group them all in one site and they would cover the area of a fair-sized city, and twelve hundred dollars would not go far toward protection, drainage, repair and upkeep on the walls of a city which had been standing abandoned for from five hundred to a thousand years.

During the past month we have had, for lack of funds, to lay off the Roving Ranger, as we have called him, who had charge of Yucca House, Hovenweep and Arches National Monuments during the summer months. This is the second summer we have filled this position and there is no question about the value of this job. He is a power for good in that small portion of the archaeological area of the Southwest and the very fact that he is going through the country from monument to monument talking with local people and asking about pot-hunting and general vandalism has brought lines of worry to the faces of several of the local diggers. Give us three general Roving Rangers in this district and we can go a long way toward stopping the terrible vandalism which is going on in the hundreds of Government-owned ruins of the Southwest.

And so September passes and we enter October with plenty of work ahead.

Cordially, Frank Pinkley, Supt

THE Supplement





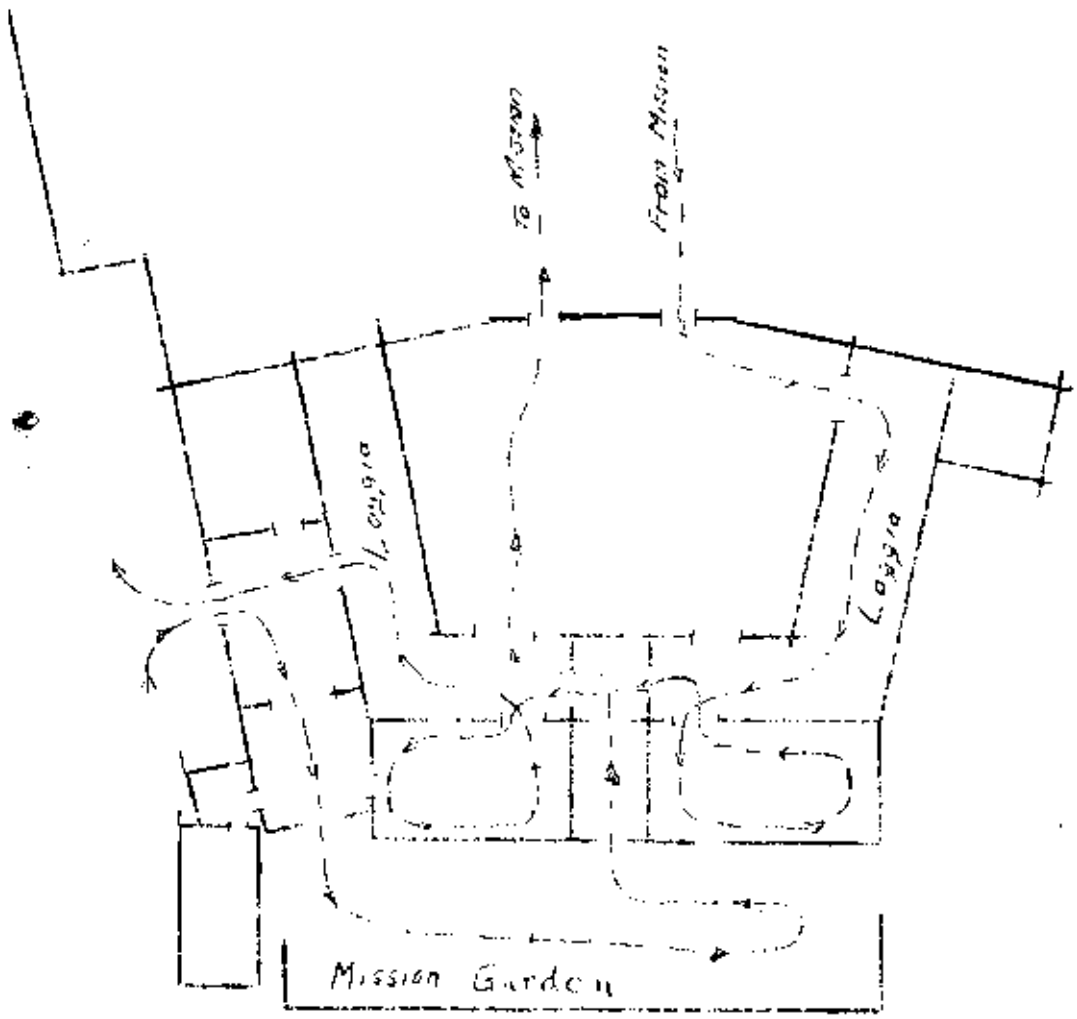
MUSEUM DISCUSSION By Frank Pinkley

Recently we had a tilt with some of our Educational Division men over the layout of the Tumacacori museum plan.

I was rather startled to learn that these men have never made any studies of visitors passing through our museums and did not seem to be acquainted with the reports of other museum men who had made studies of visitors in the big museums. It is almost axiomatic that foot traffic tends to move to the right upon entering a room. Business men know this and plan the lay-out of their stocks of merchandise on the fact. Museum studies have proven the matter in our large museums, yet when I protested against a clockwise lay-out these men said it didn't matter, that there was no difference and that we could make the traffic flow to the left. This lead to quite a discussion about handling visitors in our small museums and I found that my ideas didn't get even to first base. I am here setting down some of my thoughts on handling visitors in our small museums in order to test them before a larger and perhaps more expert group of museum students, for this report goes to some of the best museum men in the United States.

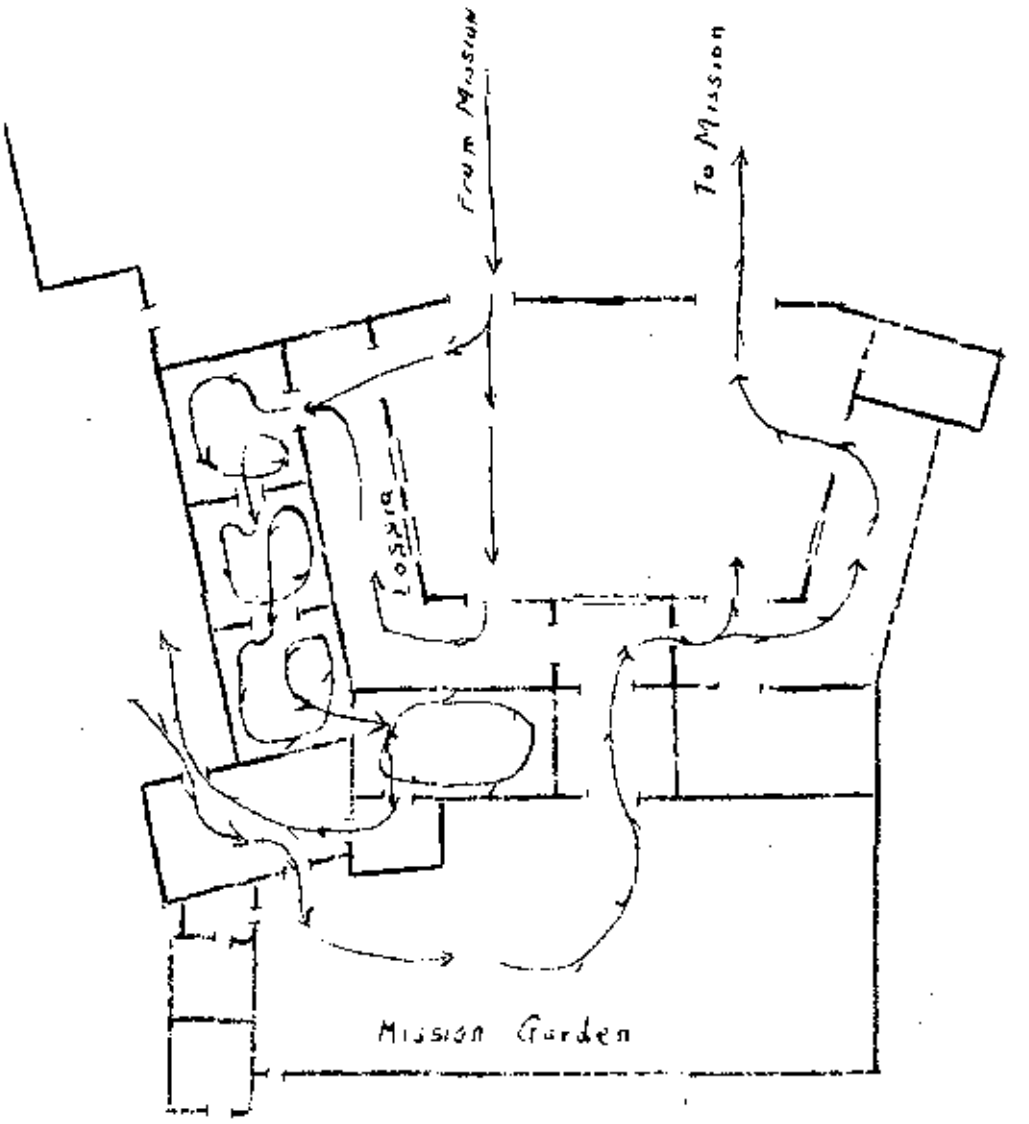
In the first place, our Divisional men held that guiding in a museum was not necessary; that they could label the material and get as good results with the visitor. Our ideal for all Southwestern Monument museums is to give a guided service to all visitors and we believe, from many years of experience, that there can be no real comparison between the results of the two methods. We urged them to test the matter out with time studies and offered them the use of what time studies we have been able to make at Casa Grande on some fifty thousand visitors. They didn't seem interested. We were told that it would be impossible to guide our visitors through museums because of lack of personnel. We pointed out that we had actually guided ninety seven percent or more of our visitors at Aztec and Casa Grande the previous month. Casa Grande has about twenty-seven thousand visitors per year and two and a fraction men are supposed to take care of them. This does not make the cost of handling visitors through the museum, which is a small part of the total work of these men, excessive, so the objection that it would cost too much even if we could do it fell by the wayside. Big museums may not be able to afford good guides, but small museums can afford to do so and I imagine the big museum man considers it a "thing devoutly to be wished". I wish I could hear from some of them on that point.

It strikes us that a simple museum would be one room with a floor a ceiling and four walls. The material could be arranged around the walls in cases or not as might seem best. The visitor could enter the room, turn to the right and go around the room leaving through the same door by which he had entered. If accompanied by a guide the visitor would of course see the materials in the proper sequence; if for any reason the visitors could not be accompanied, about 85% of them would naturally turn to the right and see the materials in the proper sequence. This



CIRCULATION

PLAN "1



CIRCULATION

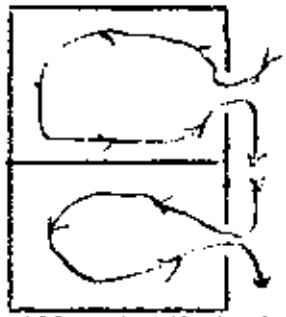
PLAN #2

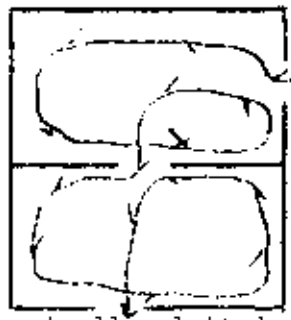
simple museum would be effective to a high degree; more effective with a guide than without.

When we have more material than will go in one room and have to add a second room, we come to any interesting problem. Our Educational Division men say to cut a door through into the second room, letting the visitor go through the first room into the second, through the second into a third, and so on. We had another circulation plan for the Tumacacori museum and were told we were wrong. We hold that the method of stringing rooms together in the big museum is caused by other factors than the best manner of displaying materials and, while it may be necessary in handling crowds in big museums, we can get better service by keeping the rooms separate and entering each one from the loggia in the Tumacacori plan. We want to enter room 1, circle it to the right and come out; enter room 2, circle it to the right and come out, and so on. Thus the whole collection of materials will be seen in their proper sequence from beginning to end. If a guide accompanies the party this method will hold the party together and eliminate scattering into the next room; it will give the guide a smaller room in which to talk, preventing distractions caused by other parties, etc; and will provide a sharp break in moving from room to room which could be used in several ways to emphasize the various points to be made in the trip through the museum. Unguided parties will come to the rooms in their proper order, and, entering each room, will circle to the right and see the materials in the proper sequence, and will see all the exhibits in each room.

By stringing the rooms together we raise several objections. With the guided parties, there will be a tendency when the guide goes down the right side of the room and tries to cross his party over to come back on the left for some of them to break away and go through the open door into the next room. With the unguided parties, there will be a tendency for the party to go down the right side of the room, take a glance at the left side and duck through the door into the next room where the same thing will be repeated. Since the materials are displayed in sequence around the sides of room 1 to the right and the visitor will miss most of the material on the left side of the room when he goes through the door, the result will be that he will, in effect, read the right hand sides or pages of your story and skip the left. No one can get much satisfaction out of reading a story that way. Individual exhibits may stand out in his mind when he finishes the right sides of your string of rooms, but the general story will, in the nature of the case, be garbled. If you don't agree with me, go watch ten thousand visitors go through such a museum.

The Educational Division men have complained that my method of circling each room, coming out into the loggia and going on to the next room makes an entirely too complicated path of circulation.





You will note that when the path is actually plotted out as it will be followed by the party, the room to room method appears about as complicated as the room to loggia method.

The Educational Division men complain that in going from one room to the other by way of the loggia the visitor will lose interest in the story. My own idea is that these breaks between rooms can be so used as to increase the interest in the trip than to diminish it. A steady repetition of material over an extended time is likely to tire the interest. Broken by a walk out into the loggia and into the next room, which will allow a reference to the mission and a moment's talk about its construction while the guide points out various details which can be studied from the loggia, will change the line of thought and your visitor will arrive in the next room much more able to absorb information than if he had simply stepped through a door.

I am, therefore, in favor of entering the exhibit rooms in the Tumacacori museum from the loggia only and not going from room to room. I am quite sure this is the best method, but, if the Educational Division should insist on connecting doorways between rooms, I have no objection to putting them in, trying out their method with five thousand visitors, then trying my method with five thousand visitors and locking the set of doors which are condemned by the test. I would like to hear from some museum students with their predictions on which doors will be locked.

There is one other point of difference between ourselves and the Educational Division men. We want to put a background in our visitor's mind with the museum; then take him over to the ruins; then complete the picture back in the museum. The E-D men say we are wrong; that we must give the visitor all the ruins first and then all the museum or visa versa. We are quite sure we know what we want at Tumacacori and they are quite sure they think they know what we want. The difference of opinion causes a difference in handling the visitor through the museum.

Museum Plans

We come now to the actual plans which have been considered for the Tumacacori museum. The drawings show Plan 1 and Plan 2 with the proposed circulation through each plan.

Plan 1

This was the plan we had worked up at Headquarters as best fitting all the factors for handling visitors at Tumacacori. The general theory was to hold the building low so it would not interfere with the Mission, which is, of course, the focal point of the Monument. It must be on the parking area, where the visitor can reach it immediately after leaving his car. Its exterior must be pleasing but not too ornate. It must be large enough to provide for reasonable expansion in the future, and we wanted it, in general, to fit into the mission ideas of architecture.

Plan 1 has a fairly large lobby whose entrance door would naturally draw the visitor since it is about the center of the façade and its decoration would mark it as the important entrance to the structure.

The visitor would be received and registered here and given any instructions which might be deemed necessary. The party would start from here with the guide and go through the room to the south and through the alcove to the south doorway.

In this short distance we hoped to get the visitor to understand who founded the Tumacacori Mission and why the Government had charge of its ruins. The lobby itself was to be of the mission type with beamed ceiling, reproductions of doors, windows, floors, etc., from other missions of the Kino chain; there would be an arch between the lobby and the alcove, a reproductions of the lost choir loft arch of the Tumacacori mission; the beams of the alcove would be a little lower than those of the lobby which would lead to an explanation of similar conditions, not now visible in the Mission itself. The alcove, we had expected to devote to the Park Service connection with this Mission and the cause of its being a National Monument. We had planned this so it would not be an anachronism in the lobby and yet we could get it in at this point of the trip. Plan 2 allows an alcove which could be used for this purpose, but it falls at the end of the entire trip which is much too late for it to be effective. We therefore propose, if Plan 2 is accepted, to change the working drawings so we can take the visitor through the lobby into the alcove and then go out through a doorway where the window is now shown; this will allow us to put the material in this alcove in its proper sequence in the trip. The doorway opening to the south out of the lobby in Plan 2 would be changed to a window. Plan 2 does not allow for the reproduction of the choir loft arch and duplication of lost conditions in the Mission as does Plan 1 and we consider it the poorer plan because of this.

Upon emerging from the doorway to the south, we want the visitor to find himself in an orchard showing the various shrubs and fruit trees which have been introduced into this country by the early padres. This will give an excellent chance for an introduction of the life and work of Padre Kino. This feature can be incorporated in Plan 2 as well

as in Plan 1.

Next we want to re-enter the building through the south entrance and give the visitor the view of the Mission through the picture window. His only view heretofore has been from the State Highway as he approached the Monument, for we have purposely obstructed his view with our building and its walls when he debarked from his car on the parking area, thus building up for this moment when we can show it to him from the best possible point. This is a knock-out view and the axis of the building was set for this particular purpose.

As soon as he has had his first view, the various stages of mission construction will be explained to him using the diaramas, photographs, drawings, etc., which will be shown in the cases on the sides of the room. This room will have a domed roof which will give the guide a good chance to explain the constructions of domes in the various churches. This picture window room and the cases in it will be the same in both plans so either would be satisfactory to us.

We are now ready to take the visitor over to the ruins, explaining the original construction on the way, recalling pictures and plans which the visitor has just seen in the picture room and allowing him to rebuild the entire quadrangle of buildings in his mind's eye as he approaches the ruin.

After we have gone through the ruins we are ready to return to the museum for further information, and here the two plans diverge rather sharply. Plan 1 proposes to take the party through two large museum rooms, entering each room and circling it anti-clockwise, and allows a second view through the picture window as a break between the rooms. After coming out of the second room we pass through the loggia and into the lobby, which really becomes the last exhibit room for it will have numerous pictures, drawings and some artifacts of the later mission times. We still think Plan 1 is much superior to Plan 2 in this method of circulation after the return from the ruins. Plan 2 proposes to take the visitor into the west wing of the building near the north end and pass him from room to room until he meets his out-bound route in the alcove and goes back over it into the lobby. We have already voiced our protest against this poorer method of circulation and if Plan 2 is adopted we will want to change the openings in the museum rooms so that we can enter each room separately. This minor change we can make without much trouble when the working drawings are made up, and I signed Plan 2 in its preliminary stage with the expectation of having the working drawings so arranged.

Plan 2 represents our compromise with the Educational Division; we still consider it the poorer plan of the two from both the administrative and architectural angles but agreed to its general scheme in order to keep peace in the family. As an instance, I have spoken of the beamed

roof in the lobby and the domed roof over the picture window room. It was our scheme, in Plan 1, to have a barrel vault over the east museum room and a groin vault over the west museum room. As the visitor went through the building these various roofs or ceilings would be pointed out in their proper sequence from the simple to the most sophisticated and their uses in the mission architecture could be discussed. The beamed ceilings of the west wing allowed that wing to be kept low, which is what we wanted on that side, and the barrel and groin vaults raised the walls on the south wing, which was no objection.

In Plan 2 if we put the ceilings in their proper sequence we will have the barrel and groin vaults in the west wing which will raise the height of that wing, a thing the architects do not want. They then want to upset the sequence of the roofs and show them to the visitor in the wrong sequence in order to keep the proper appearance for the exterior of their building.

In Plan 1 the entrance doorway is located near the center of the façade where, with its normal decorations, it becomes a decorative motif in the west elevation. In Plan 2 the doorway is pulled down to the right too far to serve this purpose and so an artificial window, which will not be used to light anything, has to be introduced in order to balance the exterior appearance of the building.

Lest you think that Plan 1 is my own brain-child and that I am defending it on that account, I might interpolate the information that it was designed and drawn by Mr. Tovrea, who is both an architect and an engineer, and it fits our problems so well that I gave it up with the greatest reluctance, simply as a matter of playing ball with the Educational Division, and not because I believed for a moment that it was the poorer plan. To speed the plans I signed the preliminary of Plan 2 with the circulation plan as shown, but, in the working drawings, I want the openings changed in the west wing to provide what I consider the proper circulation for the problem which we face at this individual Monument.

****

By Erik K. Reed

Last time I saw you, you said that the notes on Texas missions in your June report were published partly to get some criticism. Here goes.

First of all, the final location of Espiritu Santo was not Victoria, but Goliad. Work on this mission has been one of the foremost SPECW projects in Texas for over a year, and the people in Washington really ought to know where it is. The Zacatecan mission of La Bahia del Espiritu Santo de Zuniga was moved from the Garcitas River (site of Ft. St. Louis) to near Victoria in 1726, from there to Goliad in 1749. From 1750 to

1840 or so, La Bahia (Goliad) and San Antonio were the key points of Texas.

Mission N. S. del Santisimo Rosario was also on the San Antonio River close to Goliad, about four miles from Espiritu Santo.

According to all references that I can remember, N. S. Del Refugio was established in 1791, not 1795.

The west Texas missions (At El Paso and at Presidio) were separte from those of east and south Texas, and really belong rather with the New Mexico chain, tying in especially with the Salinas missions; but I want to be sure that they are not forgotten - S. Francisco de las Sumas and others; founded between 1680 and 1690 and thus even older than the Texas missions proper.

There are some other points that I think are a little off, but my notes aren't immediately available. May I refer you to the extremely fine publications on the history of Spanish Texas by H. E. Bolton.

****

THREATENING ROCK

By Andrew E. Clark, Transitman

The following is a report on the Threatening Rock near Pueblo Bonito at Chaco Canyon.

On November 2, 1935, Mr. C. E. London and I set a steel bar and pipe in the cliff and the Threatening Rock respectively, both set in concrete in such a manner that the bar was allowed to slide freely on the inside of the pipe if any movement should occur. A mark was made on the bar at the end of the pipe with a hack-saw blade.

On September 21, Mr. Hamilton and I made an inspection of the gauge and a movement of one-half inch was indicated.

Mr. Hamilton is of the opinion that we did not fasten the rod into the solid cliff, but into a rock which might have moved some. It is my opinion that if this rock on the cliff side had moved, it would be much more probable that it would move outward and not back toward the cliff. In this case, the movement of the Threatening Rock would be even greater than the one-half inch as indicated by our gauge.

We plan on setting two additional gauges similar to the one already set, for a more accurate check on the Threatening Rock.

****

RUMINATIONS

I have recently discovered that there are still a few of the old style Southwestern roads left in this district. We got a sharp contrast recently when, after driving from Cameron to the Colorado River over that fine piece of road, and crossing the bridge, I asked Don Carlos to turn to the right and go up to the old Lee's Ferry Crossing over that six miles of old time road. It is a typical stretch of what dozens of miles of the old Lee's Ferry road used to be and gives one a great appreciation of the present road around to the north rim of the Grand Canyon. We tried to take some pictures of the 'dug-way' as the local folks call it, on the far side of the river where the shelf road ran up from the crossing to the top of the cliffs. The films are not yet developed and we don't know what success we had, but examined from where we stood, it gives you a great respect for these modern roads we are traveling. Then, when you are thanking your stars you don't have to go up that dugway with a Model T Ford, one of the natives will come along and tell you: "That sure was a great improvement when it was built. Now when the Mormons first crossed here they took their bull teams and wagons up that ridge over yonder and went out over the top back up there;" and he points up a twenty-five percent grade which is about as wide as the ridge pole of a house roof and which wanders off up to the tops of the cliffs, giving at least a hundred chances to pile your outfit up in that many canyons before you ever reached the plateau.

Last year, when we were parking at the little Lodge at Cameron, where Mr. and Mrs. Richardson make resting a fine art, and were expecting to go out to Lee's Ferry the next day, I made inquiries of a California driver who had just come through on the Lee's Ferry road as to its condition. He said it was in terrible bad condition, a lot of it was not yet surfaced and there was one stretch of ten miles that was not even graded! The next day we spun along at forty miles an hour over that terribly bad road and wondered how those old Mormons with their bull teams would have reported on it. After all, good roads are largely a matter of comparison.

Going down into Zion Canyon over those beautiful grades and through that magnificent tunnel, I was reminded of the time we slipped and skidded the old Model T down that steep slope into Rockville the second summer after it was built and, meeting Dave Dennett on a road drag near the bottom, stopped to compliment him on the quality of road he was maintaining. Dave said it was sure in good shape and he had lowered the grade since last year, too; there wasn't a bit of it over twenty-five percent now! The old Model T wouldn't feed gas to the carburetor going up that grade but we were set for emergencies like that in the way of a tire valve soldered into the gas tank allowing us to pump air into the gas tank and make the old girl get her gas up any hill she could navigate. There was another one of those steep grades, running about twenty-seven percent, going up the Carlsbad Cavern hill when we took it over. Fords didn't feed gas up that grade either.

We found another piece of road which kept Don Carlos fairly busy for a couple of hours. It was that stretch between Richfield and Price where you go over the mountains. It is about as rough as it was twelve or fourteen years ago when I first went over it and as crooked as it well can be and a railroad track goes over through that same pass and it and the road swap sides about every quarter of a mile; and Don Carlos didn't find out, it being in the night, until we were nearly through the pass, that the blamed railroad had been abandoned four or five years ago and there wasn't any particular danger of a train running us down on one of those hairpin turns when we were crossing the tracks. We broke a front spring and a rear shock absorber arm on that stretch of road, so you know it wasn't any boulevard.

I like these old pieces of the roads of other days, but I don't want too many of them!!

On the other hand, it is interesting to wind over these easy grades on a paved surface going up some of these passes and look down on the twisting, winding, stair-case grade of other days, now abandoned and overgrown, and wonder how you ever coaxed a Model T up there.

After all, good roads are just a matter of comparison; if my Grand-dad, when he crossed the plains in '51 could have had a road as good as that one in which we broke our spring how happy he would have been!

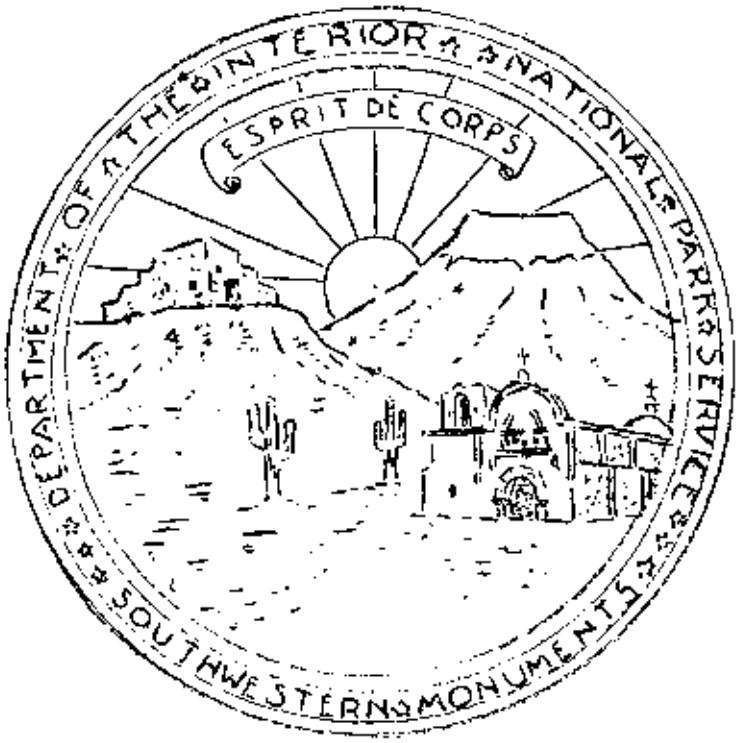
Cordially,

The Boss

SOUTHWESTERN MONUMENTS

MONTHLY REPORT

OCT., 1936.



DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS
OCTOBER 1936 REPORT
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SOUTHWESTERN MONUMENTS
PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; James Luther, Chief Clerk; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Charlie R. Steen, Junior Park Naturalist; Millard Singerman, Clerk-Stenographer, Luis Castellum and W. H. Sharpe, ECW Clerks.

FIELD STATIONS

1. Arches - Moab, Utah, J. M. Turnbow, Custodian.
2. Aztec Ruins - Aztec, New Mexico. Johnwill Faris, Custodian
3. Bandelier - Santa Fe, New Mexico. Jerome B. Hendron, Acting Custodian.
4. Canyon de Chelly - Chin Lee, Arizona. Robert Budlong, Custodian.
5. Capulin Mountain - Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande - Coolidge, Arizona. W. J. Winter, Custodian; J. D. Erskine, Ranger.
7. Chaco Canyon - Crownpoint, New Mexico Thomas C. Miller, Custodian.
8. Chiricahua - Willcox, Arizona. Frank L. Fish, Custodian; Homer Bennett and Bronson Harris, CCC Guides.
9. El Morro - E. Z. Vogt, Custodian. Ramah, New Mexico.
10. Gila Cliff Dwellings - Cliff, New Mexico. No Custodian.
11. Gran Quivira - Gran Quivira, New Mexico. George L. Boundey, Custodian.
12. Hovenweep - Cortez, Colorado. No Custodian.
13. Montezuma Castle - Camp Verde, Arizona. Martin L. Jackson, Custodian. Russell Farmer, Ranger.
14. Natural Bridges - Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo - Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring - Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge - Rainbow Lodge, Arizona. No Custodian.
18. Saguaro - Tucson, Arizona. No Custodian.
19. Sunset Crater - Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto - Roosevelt, Arizona. Francis Stevenson, In Charge.
21. Tumacacori - Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon - Flagstaff, Arizona. Paul Beaubien, Ranger.
23. White Sands - Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki - Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House - Cortez, Colorado. No Custodian.

CONDENSED REPORT

Coolidge, Arizona
November 1, 1936

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for October:

TRAVEL

	October, 1936	October, 1935	October, 1934
Aztec Ruins	815	1,155	645
Bandelier	728	659	803
Canyon de Chelly	119	64	129
Capulin Mountain	400	1,200	1,000
Casa Grande	2,190	2,281	1,825
Chaco Canyon	732	615	826
Chiricahua	690	---	---
El Morro	169	160	---
Gran Quivira	159	339	288
Montezuma Castle	499	666	1,080
Natural Bridges	65	---	---
Pipe Spring	89	220	420
Sunset Crater	287	---	107
Tonto	217	332	259
Tumacacori	808	711	1,155
Walnut Canyon	758	687	499
White Sands	5,679	3,507	---
Wupatki	155	100	141
Actual Reported Registration	14,859	12,696	9,177

Travel in the Southwestern Monuments for October shows a gain of a little more than 2,000 over the visitor count for last September. Exactly half of this gain, however, was made by three monuments for which there were no reports in 1935. The out-of-the-way stations are showing a definite decrease in traffic due to poor roads and wet weather. This is a seasonal occurrence, and to be expected. Most of the other monuments have also fallen behind last year's figures; the loss in the total count was taken up by a decided gain at White Sands.

The recent storms in the Rockies have made themselves felt in the Southwest. Snow has fallen on the plateau and cool days and nights with some rain in the desert. The Navajos at Canyon de Chelly are predicting the most severe winter in years while at the same time the U. S. Weather Bureau is telling the farmers to look forward to another warm winter with a sub-normal rainfall--we shall see. At any rate, while the custodians of the northern monuments are preparing to hole up and do a lot of odd jobs which have been hanging fire for months, the men in the south are

preparing for a very heavy tourist season. Hotels and tourist associations are looking forward to one of the heaviest travel years on record.

120 PARK INSPECTION BY

121 SUPERINTENDENT

Gran Quivira, Tumacacori, Saguaro, and Bandelier.

123 NATIONAL PARK OFFICERS

Gran Quivira - Charlie R. Steen
El Morro - Robert R. Budlong
Tumacacori - Charles A. Richey, Clinton Rose, J. H. Tovrea, Scofield deLong, Richard Sutton, A. L. Skidmore.
Walnut Canyon - H. B. Chase, A. C. Kuehl, Charlie Steen, T. C. Miller
Wupatki - Eric Reed
Chaco Canyon - Charlie Steen
Montezuma Castle - A. J. S. Eccleson
Casa Grande - Custodian T. R. Goodwin, Death Valley National Monument, T. C. Miller, Neal A. Butterfield, A. E. Underhill.
Chiricahua - Clinton Rose, Charles Richey, J. H. Tovrea, W. W. DeLeon Ward Yeager, Adrey Borrell, Lyle Bennett.
Aztec - Charles Richey, George Collins, Charlie Steen
Bandelier - Charlie Steen, Jack Diehl, J. B. Hamilton, Addison Pinkley, Carl Schmidt.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

220 IMPROVEMENTS

Wupatki - Trail to new parking area was completed and a screen of native shrubs and grasses planted.

230 NEW CONSTRUCTION

Chiricahua ECW
Massai Point road rock slide is nearly cleared. About 1500 yards of rock and dirt have been removed.
2000 feet on Echo Point-Rhyolite Canyon Trail constructed. This trail is nearly complete.
Headquarters Ranger Station 70% complete
Equipment shed walls 50% complete
Headquarters and Echo Park parking spaces staked out, construct will start soon.
Chaco Canyon - Engineer Clark's engineering crew made plans for the proposed approaches to the bridge over Chaco Wash. While at the Monument two new gauges were set in Threatening Rock.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION
230 NEW CONSTRUCTION (CONT.)

White Sands - Engineer Clark and party have been staking out stakes for three miles of road into the sands.
Bandelier - An engineering crew is doing preliminary work for surfacing the entrance road.
Bandelier ECW -
Signs for Walnut Canyon and Aztec Ruins National Monuments were finished and shipped. Chiricahua signs are being prepared at present.
Two root cellars are complete and the third nearly so.
Equipment shed project was completed.
Some planting was done during the month.
Roofing material was secured from the clearing of a right-of-way by the Forest Service near the monument.
New enrollees were kept busy on the rock quarry project.

300 ACTIVITIES OF OTHER AGENCIES IN THE MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon - The Soil Conservation Service has continued its activities in flood control.
Canyon de Chelly - Geological Survey is determining the monument boundaries.

350 donations and accessions

Chaco Canyon - The School of American Research has given a collection of forty books and scientific reports of the Monument.

400 FLORA, FAUNA, ETC.

420 MUSEUM SERVICE

Bandelier - Work is progressing on the installation of new exhibits in the new museum. The "Trash Mound" case and relief model of Tyuonyi are occuping most of the attention of workers at present; the former case is nearly complete.

430 ARCHEOLOGY

Wupatki - Eric Reed, ECW archeologist, is cleaning out room 7 of Wupatki Pueblo. This room, from which much restorable pottery and some artifacts have been recovered, has been badly washed by rains.

470 ANIMALS (CONT.)

Opening of the big game hunting seasons in the southwestern states has caused a concentration of deer in several of the monuments. This is a yearly occurrence.

600 PROTECTION

620 FIRE PROTECTION

Walnut Canyon - A small fire was started in the vicinity of the Monument by a group picking pinyon nuts. The blaze was under control by the time the custodian arrived.

630 ACCIDENTS

Capulin Mountain - Custodian Farr reports that more than two hundred fifty thousand autos have travelled the three-mile road up the mountain without an accident of any sort. This should establish a record of some sort.

MISCELLANEOUS

MAIL COUNT:

Incoming		
Personal	881	
Government	1,684	
Total Incoming		2,565
Outgoing		
Government only	1,959	1,959
Total Mail		4,524
Telegrams		
Incoming	43	
Outgoing	42	
Total Telegrams		85
Total pieces of mail handled		4,609

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

REPORTS FROM MEN IN THE FIELD

AZTEC RUINS

By Johnwill Faris, Custodian

Visitors for the month total 815 which is not quite up to par, but enough to keep us busy the way they string in. Our parties this time of the year often number only one or two to the party and in reality we are on the go about as much as we are in mid season when our parties number ten to 20. Such is life in the wild West, however, and after all it is a grand time we are having whether our count is one or 100.

Other than the visitors the month has been very normal. No work on the side has been going on and really it hardly seems that I should be writing a report and not fill it up with the progress of various projects.

Official visitors for the month include Mr. Collins, of the District Office, and Chuck Richey, also of the District Office. Charlie Steen was in for a few days and we had a great time with him. It was his first visit here and we hope that now he has broken the ice he will drop in quite often.

This hardly seems like a report, Boss, but it covers the subject and any more at the present time would be folly so I sign off one of my shortest reports in months.

****

TONTO

By Francis Stevenson, In Charge

It was a good month at Tonto - good visitors, good weather, and a good time by all.

Statistics tell the story pretty much. There were a total of 217 visitors from almost every section of the country. These composed 65 group trips to the ruins and 75 to the museum. The visits averaged 45 minutes to the ruins and 15 minutes to the museum. There were 177 guided to visit the ruins and 209 the museum. The total time for trips to the museum was 2,943 minutes and to the museum 1,137 minutes.

The callers all showed keen interest in the ruins and the life of the old Indians. Many, however, found the going a little tough and suggested an escalator to replace the winding gravel path.

The trail seems in good condition.

The mice and I seem to be fighting a draw but life is very pleasant in the little stone castle amid the cactus.

CASA GRANDE

By W. J. Winter, Custodian

Traffic did not increase much this month until the last few days, which have been fairly heavy. If this continues next month's report will show a substantial increase. The total number shown through the ruins was 2,190. These came from 38 states, Hawaii and the District of Columbia, as well as Canada, France, England and Kenya Colony, British East Africa. One lady registered from a battleship, the U.S.S. Oklahoma, thereby giving rise to considerable speculation on the part of those of us who know our navy.

No special large groups are recorded. Several visitors worthy of special mention were received, among them being Robert Marshall, Director of Forestry and Grazing, Office of Indian Affairs, Washington, accompanied by W. H. Zeh, U.S.I.S. of Albuquerque, on October 3. October 4 we met Volney A. Jones, Ethnobotanist of the University of Michigan Museum, Ann Arbor. You will recall the correspondence (published in this report) between Charlie Steen and Mr. Jones regarding our "ceremonial cigarettes". October 4 we also met Elizabeth Toohey, State Historian of Arizona. October 4 seems to have been an interesting day, for it was also on that date that a Phoenix car drove up to the curb and there emerged a lday, her husband and three girls and when I inquired if they wanted to visit the ruins the lady replied, "Oh, no, we don't want to waste that much time!" That stopped me.

Several MPS visitors were recorded for the month. September 25 T. R. Goodwin, Custodian of Death Valley National Monument, came in for a few minutes. October 16 and 17 we had the pleasure of again seeing Custodian Cal Miller of Chaco and of meeting Mrs. Miller. Cal still thinks he has the best monument in the Southwest, even after several visits to this one. What can you do with a guy like that? October 24 we met Neal A. Butterfield of the Washington Office, Branch of Planning and State Cooperation.

Day temperatures this month ran from 71 on the 24th to 102 on the 11th. Night temperatures were from 43 on the 22nd to 68 on the 16th. Precipitation was .22 inch.

We are still contending with our balky sewer pump and hope that the plans for the new system are turned loose pretty soon. We wouldn't feel normal if we couldn't gripe about something. Our newest gripe is an old one revived -- shortage of personnel. The winter rush seems to have started just in the last few days and has made very apparent the need for an additional guide. Our authorized temporary man won't go on duty until January 1 and we hate to think of the two months between now and then, if the crowds keep up as they have been for the last three days.

Another improvement that is hanging fire is the resurfacing of our entrance road and parking area. A. E. Underhill is here to supervise the

job and we have enjoyed getting acquainted with him. We don't always tell the truth, either. (Now Everett will claim that we pondered half a day to think up that bum crack. Maybe we did.)

Now that we have practically run out of things to say, we get to nature notes. "Sort of a last resort," say we dirtily, looking at Jr. Naturalist Steen. The first Gambel Sparrows of the season were observed October 13. None have been caught as yet. Bats in the ruins are not as plentiful as last month. There has been a shake-up in the owl family in the Casa Grande. For about a week we missed one of the owls. October 17 we found his body in one of the low house ruins in Compound A, north of the Casa Grande. Cause of death unknown. For several nights thereafter the other owl hooted continuously all night - at least he was still at it when any of the bachelors came in from their dates, so we may say it was all night. Within a week another mate was attracted (by the owl, not the bachelors), and now there are again two owls to be seen up in the roof, just as before. We wonder now how many times this may have happened since a pair of owls was first noticed in the roof, which we understand was many years ago.

Charlie Steen reports that our gas delivery man is a big help to the bird banding industry. It seems that he met Steen and said "You know that there little cage out behind your house? There was a bird got caught in there and I was going to take him home to my kid. I put him in my pocket, and y'know, he got away!" Which livened the day for Custodian if not for the bird banding naturalists.

****

CANYON DE CHELLY

By Robert R. Budlong, Custodian

During the month of October, 1936, we had a noticeable increase in visitor travel over that of October, 1935. Total visitors this months, 119. (In October, 1935, 64 persons visited this National Monument.) This month's visitors took trips as follows:

TRIP	NO. TRIPS	NO PERSONS	TOTAL TIME	AVERAGE TIME PER TRIP
Rim	10	30	1,380 Min.	138 min.
Trail	1	3	180 Min.	180 min.
Car in Canyon	20	89	3,960 Min.	198 min.

Car trips within the canyons should be broken down as follows:

	TRIPS	PERSONS	TOTAL TIME	AVERAGE TIME
Concessioner's car	4	9	1,320 min.	330 min.
Other cars (22)	16	80	2,640 min.	165 min.

Visitors arrived in 37 cars, each car averaging 3-plus persons. Increase in number of visitors this month, over the same month last year, was 46 per cent.

Weather seems to be a little more winter-like than during October last year. Maximum temperature this month, 87 degrees, on September 25; minimum 26 degrees, on October 8 and 9. Greatest range in 24 hours, 60 degrees, on October 9; least range in 24 hours, 12 degrees, on October 20. Total precipitation during the month .26 inch. First killing frost was on October 7. The leaves on the cottonwoods promptly turned a bright yellow, furnishing a new color note in the general landscape. Nights are cold, and we had a trace of snow early in the morning of the 19th. Hail fell hard for a few minutes the afternoon of the 21st, the hailstones measuring about a quarter of an inch in diameter. Both snow and hail melted shortly after reaching the ground. At this writing the Lukachukai Mountains have a light capping of snow.

"Doc" and Mrs. Gipe left this Monument for Headquarters the afternoon of the 5th. I was in Gallup at the time, but Doug said he never saw people pack up and move in such a short time. The skies threatened rain or snow, the work was finished, and they took no chance of being caught. We hope their old truck, "Hohokam", made the trip to Headquarters without any troubles along the road, but are inclined to doubt it.

Mr. E. E. Harris, of the Geological Survey, arrived at this National Monument with a crew of four men on October 10, taking temporary quarters in "Doc's" deserted tent. They started establishing levels for the work of accurately determining the boundaries of this National Monument the following morning, and at this writing have only about one more day's work remaining. At least, they did have, up until last night. While they were in Canyon del Muerto, rain fell in the upper reaches of Canyon de Chelly, and as they drove their car down-canyon below the forks of the two canyons the water kept slowly rising. There was nothing to do but keep on, and they almost made it - but not quite. A patch of new quicksand caught their car just within the mouth of the canyon, and it bogged down to the frame at once. They spent all evening and much of the night trying to extricate it, but the water kept rising, and the sand grew softer, affording no footing for timbers or fulcrums for the pry-poles.

A dam was built upstream from the car to divert the water, and when finally the sand grew more firm they managed to get the car out, using three teams and many Navajos. The Custodian managed to shoot a dozen photographs with his Graflex, to be used in the future in convincing skeptical visitors that cars can get badly stuck or lost in the sands within the canyons.

Mr. F. Armstrong Roberts, of photographic fame, visited this Monument the 4th and 5th of October. He took several hundred photographs during his two days' stay, and we are hoping to see some in the near future.

And so winter draws near, and shortly visitor travel will cease almost entirely. The Navajos predict the hardest winter in many years, and this year we believe their predictions may be correct.

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MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

Have had 499 visitors from the first to the 23rd, inclusive. The last five days of last month were estimated and went in on the annual travel figures. 228 made the climb up to the Castle.

Roads leading into the Monument are still in bad condition and more road work is yet to be done this winter.

The past month has been a rather hectic one with us. On the 11th of last month I managed to knock some teeth out cranking the gasoline electric motor. I went to the doctor immediately and he thought they might tighten up and grow back naturally but no such luck. They became badly infected and when the smoke cleared away the dentist had gotten eight teeth. Meaning that I have been without any front teeth for the better part of the month. It was impossible for me to pronounce some words very distinctly - made a kind of whistling noise. Was in constant fear that some visitor would possibly think I was whistling at them or maybe to date up some lady. So far have not been landed on.

Russell Farmer, the new ranger, arrived on the first, and took hold of the situation here like an old war horse. Mr. Farmer comes from Lassen Volcanic National Park.

During the month we had a nephew of Andy Mellon (The Andy Mellon) in to visit us with his family. He is the founder and head of the Gulf Oil Company and seemed to enjoy the Monument a lot - coming to the place three times from a neighboring guest ranch.

A. J. S. Eccleson, Special Agent of the Department of the Interior, was in looking over the books of the Concession for a day or so.

Dr. Byron Cummings, Dean of Archeology of the University of Arizona, was a visitor about ten days ago, coming in with Mr. and Mrs. Gable, also of the University.

Ranger Bingamon and wife were in on the 15th from Yosemite National Park.

We bring the month to a close with the weather looking very unsettled and stormy with reports of snow in the mountains to the north and around Flagstaff.

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WHITE SANDS

By Tom Charles, Custodian

The only excuse that I have to make a report this month is the precedent which the other boys have established.

Except for the fact that the Park Service crew of surveyors under A. E. Clark, is here and settling grade stakes there is no news except visitors. Mr. Clark's party is setting stakes for the first three miles of road into the Sand. Twenty-five thousand dollars was set up for this work. There are still lots of visitors. Sunday, the 18th, Mrs. Charles and I were at the Sands six hours and counted 47 cars at the turn-around. They seem to come in about as fast as when the weather was warmer, the only difference being that the hours are not so long; they visit about 10 hours a day now instead of 14 as they did in the summer.

It is a long drive from the days when I first saw these White Sands to their present state of development. Then there were over 100,000 acres of these alabaster dunes held by one group, under their mining claims. The smoke of the mesquite roots gave the desert air a tang, the creaking of heavy machinery left the impression of the busy, business life.

Across the chalky hills, to the new town of Alamogordo, the six ox team of longhorn cattle moved at a snail's pace. The heavy, wide tired, wagon creaked and groaned under the tons of snow-white Plaster of Paris. And Industry proclaimed that there would come a day when the use of gypsum would make these hills the commercial centre of the great Southwest.

These industrial prophets were at least 50% correct, the day of gypsum has arrived; the skyscrapers of the city are built of steel and gypsum, the fire-proof walls, the wall boards, even the tile of the floor and the roof is gypsum and a late issue of Fortune tells us that the modern oak finishings are made by pasting the photograph of an oak board on a slab of Plaster of Paris.

There are millions of tons of gypsum used annually in the United States alone. But every one has gypsum. They put it on board ship in Nova Scotia for $1.00 a ton and there is plenty of it to supply the Atlantic sea coast for years to come. Arizona, New Mexico, Texas, all have inexhaustable supplies of gypsum in one form or another and it is just as good as ours for commercial purposes.

But if you w ill let me classify this material into commercial gypsum and recreational gypsum, then we begin to shine for in recreational gypsum the White Sands has no competition. No place else is there alabaster sand dunes with the beauty and splendor of the Great White Sands; no place else do they have gypsum that the children cry for and the grown-ups love to play and dig and bury themselves in; no place else do they have gypsum where you can turn 3,600 school children

loose, without preparation, and without fear of injury from sticks or stones or stings or snakes or anything else, And we thank the lucky stars that White Sands has escaped commercialization.

About five years ago there was definite turn toward the inspirational. The chambers of commerce of a dozen towns demanded the reservation of the area for recreational purposes, Horace N. Albright answered the call for considering the area; Roger Toll made an official inspection and President Hoover declared the area a National Monument.

In the past year 25,000 children have enjoyed the pleasures of a romp in the national sand pile; 1,000 teachers have carried their inspiration back to the schools; 100 preachers have stood on the hills in awe of God's handiwork. Over 90,000 people have reveled on these velvet hills, this year, and with this inspirational feast they have combined the fact that 20,000 out-of-state cars have paid their commercial toll of gas and oil, of food and lodging, an estimated $400,000 as White Sands contribution to the tourist business of New Mexico.

It is a long way from Bill Fetz and his six-up teams of longhorn cattle, to 90,000 annual visitors. We have arrived at a safe distance from the commercial. The public has decreed that there is something more to the White Sands than just gypsum. There is more to the picture than just the paint that is on it. There is beauty and thrill and inspiration and recreation; if there wasn't there wouldn't have been 90,000 visitors this year.

We have had a number of good sized parties this month, which may bring the contacts up a little though the total count is down. On October 1o the custodian addressed 300 women at the annual meeting of the State Federation of Woman's Clubs; on the 18th. ten carloads, about 60 people came from the Soil Conservation Camp at Ysleta, Texas, and on the 19th 80 students from the Austin High School, El Paso, came up with a group of teachers. But the registration book shows 837, which on the basis of 14% registration, gives us 5,978 visitors for the month.

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WUPATKI

By James W. Brewer, Ranger in Charge

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

76 guests registered at Wupatki; 105 at the Citadel group; 27 names are duplicated, leaving a total of 155 visitors to this Monument in October 1936; 1935, 100; 1934, 141.

One party camped overnight in the first trailer to reach the Pueblo this year.

WUPATKI (CONT.)

530 NEWSWORTHY VISITORS

Ranger F. V. Leicht of Grand Canyon on the 30th.
Dr., Mrs. and Farrell Colton on the 4th.
Richard Van Valkenburgh of U.S.I.S. on the 14th.
Mr. a nd Mrs. Bert Lauzon, Ranger, Grand Canyon, on the 11th.

021 WEATHER

September and the first half of October were nice Indian summer days; on the 16th wintery skys began to appear and are still with us.

Days cloudy	7
Days part cloudy	2
Days sunny	21
Maximum temperature	86° on the 25th
Minimum temperature	38° on the 20th a nd 22nd
Precipitation	.034 inch
Anemometer	4769.8 miles, total for month
Maximum 24-hour reading	407.8 on October 16
Minimum 24-hour reading	42.3 on October 18.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

220 IMPROVEMENTS

The trail from the east wash to the new parking area is complete.

I borrowed Clyde, a team and scraper, and moved the pile of back-dirt over the ledge and graded it to make a ramp. Two drain pipes fitted with rock culverts are installed under the ramp. Leaving enough back-dirt on the ledge to encourage vegetation, I have leveled it off and transplanted what I hope will form a nucleus of typical flora. (Mormon tea, Rabbitt brush, Atriplex, Apache plume, thistle, Match bush, and grass.) I have been hauling water and watering those transplantations, each of which has been planted in a mixture of cinder, mold and the back-dirt. (The back-dirt alone does not seem to encourage plant life.)

The ramp itself has not yet thoroughly settled and will need occasional attention until usage a nd rain have packed it down.

On the 20th I hauled out a load of scaffolding lumber to be erected under the east wall of room 41 while the I beam is being installed. This work is being held up until some engineering advice arrives.

On the 13th Paul brought Mr. Eric Reed, Assistant Archeologist, to the Pueblo to trowel out room 7.

220 IMPROVEMENTS (CONT.)

The artifacts being recovered are so badly mixed with fallen walls that a great deal of care must be given.

Already about one dozen restorable vessels have been taken out; also bone implements, an animal figure carrying a small bowl, a large stone pendant, a stone bowl, pestles, two metates, a dozen manos, and some shell ornaments. (Half the fill to the ground floor level has been excavated.)

230 NEW CONSTRUCTION

A cement lined catchment basin was constructed around Wupatki Spring. A weather tight cover was installed, also a diversion dike to prevent damage by surface water.

WATER ANALYSIS

Mr. Robert A. Green, Director of the Arizona State Laboratory, University of Arizona, gives the following chemical analysis of Wupatki Spring water: (9/21/36)

Parts per million:

Total soluble salts	1189 ppm
Calcium	80 ppm
Magnesium	65 ppm
Sodium	196 ppm
Chlorides	96 ppm
Sulphates	428 ppm
Carbonates	60 ppm
Bicarbonates	264 ppm

"This water is fairly hard and the amount of salts slightly exceeds the limit w hich we usually recommend for domestic water. I see no reason, however, why this water might not be used for domestic purposes, provided that it has satisfactory bacteriological qualifications. This water contains a good deal of gypsum which is calcium and magnesium." (We just sit around and listen to our arteries harden.)

320 COOPERATING GOVERNMENT AGENCIES

AERIAL SURVEY

On the Monument one quarter mile east of the Pueblo the Coast and Geodatic Survey has erected on aerial target and placed 3 brass buttons.

WUPATKI (CONT.)

AERIAL SURVEY (CONT.)

The "target" is a 5' square platform erected to a height of about 5 feet above the ground, with a flagpole centered above one of the brass markers.

Three triangulation parties have come to the target at night, and with automobile headlights mounted on the platform, have measured the distances between the targets. (One has also been placed on the east rim of Sunset Crater, another on the San Francisco Peaks and many others.

The measurements will be correlated to the aerial photographs. (Adding these three new brass buttons to those of the N.P.S., land office survey and bench marks, Wupatki should look like a hotel doorman.)

GENERAL

TRAFFIC RECORDER

On Highway 66 about 4 miles east of Flagstaff the highway department has installed a photo-electric cell "Traffic Recorder". This instrument projects a double beam of light across the highway at a 25^{0} angle and when the beams are broken simultaneously by a passing car the instrument records the day, hour, and minute of the passing vehicle and also computes an hourly total.

At a 23^{0} angle the beams are broken only once by a car and trailer. The two beams being 3 feet apart are not broken simultaneously by pedestrians.
Friday (16th) noon to Saturday noon 1,416 cars and trucks passed
Saturday noon to Sunday noon 1,350 cars and trucks passed.
The Sate highway engineer asks cooperation of National Park Service Rangers to see that the instruments are not molested.

(Clyde was with me when this recorder was explained by the engineer and after inspecting its innards and listening to it tick as a car passed, his only remark was: "White man, too much a loco").

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SUNSET CRATER

By James W. Brewer, In Charge

The geological rim sign was installed on the 24th. A clean-up was made on the 25th. 287 visitors registered at Sunset Crater during the month of October, 1936; 1935, 165; 107 (18 days), 1934.

CHACO CANYON

By. T. C. Miller, Custodian

General

October has been a good month in the Chaco. Weather has been excellent for travel. It is one month in the year that is not too wet or too dry for the average visitor to make the drive from highway U. S. 66 into Chaco, then continue on north to Aztec and Mesa Verde, or State road 55 to Albuquerque.

On official trip was made to Headquarters by the Custodian during the month.

Weather Statistics

Maximum temperature, 81 on the 12th; minimum temperature, 26 on the 22nd. .71 inch of precipitation was recorded during the month. The first trace of snow fell September 27. The first killing frost was recorded September 29.

Travel

732 people entered the Monument in 202 automobiles, coming from 20 states and the District of Columbia; Foreign countries: Budapest, Hungary, and Paris, France.

National Park Service Officers

Engineer Clark and his three assistants arrived September 20 and departed October 3. While Mr. Clark's assignment was roads and bridges in Chaco, Associate Engineer Hamilton had two additional steel bars set in the Cliff and the Threatening Rock. These bars serve as gauges to determine any movement that might take place from time to time in the Threatening Rock. The first gauge of this kind was set by Mr. Clark November 2, 1935. Five months later I noticed that something had happened, but I could not believe that the rock had moved $\frac{1}{2}$ inch until Andy came back and made the check in person. Now that we have begun to wake up to the fact that this rock might fall on Bonito, I think that we had better get our Engineering Department to take that Rock down. I will watch those steel bars this winter and if the rock should move again even a fraction of an inch something should be done about it. John Keur has given that rock considerable time and thought, he could probably give us some close figures on the subject.

Charlie Steen, Junior Park Naturalist, arrived on the afternoon of the 10th and departed on the 11th.

Special Visitors

Dr. and Mrs. Edgar L. Hewett, Director School of American Research, and Dr. and Mrs. C. L. Lowman, Los Angeles, California, arrived September

30 and departed October 1. Dr. and Mrs. W. W. Peter, Medical Director U. S. I. S. Navajo and Hopi areas were interested visitors on the 4th. Mr. G. M. Duckworth and Mr. Glen Myres from the Automobile Club of Southern California arrived on the 4th and departed on the 5th. Mr. E. G. Fine, lecturer and photographer, Boulder, Colorado, and Mr. Lloyd Case, Chamber of Commerce, Durango, Colorado, spent the day on the 12th photographing the ruins of Pueblo Bonito and Chetro Ketl. Mr. and Mrs. Poil Teleman, archaeologist from Budapest, Hungary arrived on the 14th and departed on the 15th.

Personnel

Homer F. Hastings, temporary Ranger-Historian, separated from the Service September 30. I surely have missed Homer during the month of October. He has finished a busy season and he certainly made the service many friends during his tenure as Ranger-Historian in this Monument. All we can say is "thanks Homer," and we surely hope we can get you back next season!

Activities of Other Agencies in the Monument

During the month of October the Soil Conservation Service have moved approximately 1000 yards of dirt that was placed on the Diversion Dikes near headquarters. Sixty yards of masonry wall was built near the ruins of Kin Kletsoi where they plan to bring the flood water into the Chaco Wash.

The School of American Research have been building what the Navajo's call "ya-be-chi Hogans", near their headquarters building. One hogan is complete and is being occupied by Mr. and Mrs. Paul Reiter. Two more hogans are about 40% complete; it is understood that Mr. Vivian and family will move into the next one completed.

The following Technical papers were donated for permanent use for the personnel of this Monument, by the School of American Research. This is a valuable collection and we greatly appreciate the contribution.

No. 17 Educational Addresses of Dr. Frank Springer.
21 Two Addresses on The Life of Frank Springer, Edgar L. Hewett
22 Official Acts and Administrative Reports of the School of American Research
24 Twenty-five Years of Achievement, Paul A. F. Walter
25 The Sciences of Man in The Program of Research, Edgar L. Hewett
Director's Statement for 1928-1929-1930
The Third Season's Work in Guatemala, Edgar L. Hewett
Archeology of Rio Grande Valley, Edgar L. Hewett
Annual Reports for the School of American Research in Santa Fe for 1931-1934-1935.

CHACO CANYON (CONT.)

32 Architecture of The Exposition, Edgar L. Hewett and Wm. T. Johnson
34 The Proposed "National Park of the Cliff Cities", Edgar L. Hewett
42 An Address Delivered by Hon. Frank Springer at Dedication of New Museum Building, Santa Fe

PAPERS OF THE SCHOOL OF AMERICAN RESEARCH -- New Series

2 The Southwest; Yesterday and Tomorrow, Edgar L. Hewett
3 Catalog of the Borrowdale Collection
5 "Tonita of the Holy Faith", Maude McFie Bloom
6 Organic Acts and Administrative Reports of the School of American Archeology
7 Early Bridges in New Mexico, Lansing B. Bloom
8 A Proposed Indian Theater in Santa Fe, Edgar L. Hewett
9 Letters on the Pueblo Indian Situation, Edgar L. Hewett
10 Present Condition of the Pueblo Indians, Edgar L. Hewett
11 Pecos Explorations in 1924, A. V. Kidder
12 A new Process for Photographing The Interior of Indian Pottery Bowls, Wesley Bradfield
13 The Fiesta Book
14 The Excavations in Pecos in 1925, A. V. Kidder
16 Early Pecos Ruins on the Forked Lightning Ranch

PAPERS OF THE SCHOOL OF AMERICAN ARCHEOLOGY

No.	Title	Author
1	The Groundwork of American Archeology	Edgar L. Hewett
2	The Excavation of the Cannonball Ruins in Southwestern Colorado	Sylvanus G. Morley
3	The Pajaritan Culture	Edgar L. Hewett
5	The Excavations at Tyuonyi, New Mexico, in 1908	Edgar L. Hewett
7	The South House at Puye, New Mexico	Sylvanus G. Morley
10	The Excavations at El Rito de Los Frijoles in 1909	Edgar L. Hewett
11	The Correlation of Maya and Christian Chronology	Sylvyanus G.Morley
12	On Phonetic and Lexic Resemblances Between Kiowan and Tanoan	John P. Harrington
13	Documentary History of the Rio Grande Pueblos of New Mexico	Adolph F. Bandelier
14	An Introductory Paper on the Tiwa Language of Taos New Mexico	John P. Harrington
15	Explorations in Southwestern Utah in 1908	Alfred V. Kidder
16	Antiquities of Central and Southwestern Missouri	Gerard Fowke
17	A Brief Description of the Tewa Language	John P. Harrington
20	A Key to the Navajo Orthography Employed by the Franciscan Fathers	
	The Numerals "Two" and "Three" in Certain Indian Languages of the Southwest	John P. Harrington
31	The Santa Fe of the Future	Wm. T. Johnson

WALNUT CANYON By Paul Beaubien, Ranger in Charge

This month 758 visitors registered at Walnut Canyon, of which 577 are listed as educational contacts. There were several hundred others in the vicinity to harvest the first pinyon crop in 11 years.

One fire was started by the nut pickers, but it was under control by the time I arrived.

Park Service visitors were H. B. Chase, A. C. Kuehl, Charles Steen, Milton Wetherill, and T. C. Miller with Mrs. Miller and Joe. Mr. Kuehl registered the 13th while I was taking Eric Reed to Wupatki, and Mr. Miller arrived the 18th while I was taking an airplane ride over Grand Canyon for six well spent dollars. "Hub" Chase came through one evening after I had gone to town for mail, so I missed him also. Altogether, my batting average with Park Service visitors was rather low this month.

Lyndon Hargrave of the Museum of Northern Arizona spent the nights of the 17th and 18th with me. He banded 54 birds on the 18th besides accompanying me on the Grand Canyon trip. About 50 pine siskins were released that day without bands as we did not have the right size.

In total, 109 birds were banded this month; 38 Pine Siskins, 24 Chestnut-backed Bluebirds, 17 Crossbills, 6 Western Chipping Sparrows, 12 Pygmy Nuthatches, 4 Red-naped Sapsuckers, 3 Western Robins, 2 Rocky Mountain Evening Grosbeaks, 1 Gambel Sparrow, 1 Red-shafted Flicker, and 1 Red-backed Junco. "Lyn" Hargrave believes the Evening Grosbeaks to be the first ones banded in Arizona. To date, nine "returns" have been reported to the Bureau of Biological Survey.

A few stormy days rendered the water trap useless much of the time as the birds do not flock to the trap when small puddles of water are near. Also, bad weather has a decided effect on the visitor count.

Have just received word that the new road signs from Bandelier are awaiting me in town. I suspect there will be many more visitors next summer because of them.

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CHIRICAHUA By Frank L. Fish, Custodian

Dry conditions have prevailed during the month without any storms. Nights have been cool with no killing frosts up to the present date on the monument. To the south of us at an elevation of 9,000 feet the aspens have changed color, indicating frost at that elevation.

Rain is falling at the present writing (Oct. 24) which will probably result in colder weather in the near future.

Roads

Approach roads have been badly corrugated due to lack of moisture and grading.

Visitors

Our October registration shows a gain of over 100% in visitors over that of last October, 690 arriving in 158 cars as against 325 in 80 cars last October. 63 were new enrollees who were taken on a sight-seeing trip. Approximately 50 others can be considered extra as the Copper Register gift referred to in last month's report was made on September 27 and counted as part of this month's registration. 213 or 30% of the visitors were from out of the state.

Park Service Officials

Clinton Rose, Charles Richey and J. H. Tovrea looked over our trails, camp grounds and buildings.

Hugh Miller and Mr. Strieby were here on ECW work, while they were busy it was my pleasure to educate the wives along with Mrs. Yeager in horseback riding a la Chiricahua.

Dr. De Leon and Ward Yeager did some bug hunting. Ward also classified some of the trees of this region.

Adrey and Mrs. Borell intended staying with us a while, but a telegram rushed them away before we could hardly renew old acquaintances. In fact Adrey left his hat here in his rush.

Lyle and Mrs. Bennett were in looking over buildings and these people who live around the Pueblos brought a rain with them.

Newsworthy Visitors

John Ball, photographer, Bisbee, Arizona; A. H. Gardner, Secretary of the Chamber of Commerce, Douglas, Arizona; Grace Sparks, Secretary of the Yavapai Chamber of Commerce, Prescott, Arizona.

Father Victor Stoner, District Chaplain, Tucson, Arizona. Father Stoner agrees with Mr. Pinkley on the Tumacacori Mission Museum. Incidently he is considered an authority on the Kino Chain of Missions.

Cooperation with Other Agencies

Two lantern slide talks were given to the enrolles at the CCC Camp, total attendance 220.

The Custodian is continuing a course in practical Forestry with 24 enrolled. Part of this shall be a course on future fires next summer.

Fauna and Flora

Deer season opened October 16. So far there has not been any violations known within the Monument. Many shots have been heard outside the area. Two parties have been warned about shooting near the boundaries. This is a difficult situation as the Monument has not been marked as yet.

Ed and Mrs. Knagge reported a small lion track in the trail at Echo Point on the 18th.

A black tail rattler was captured the 22nd and will be shipped to Dr. Blanchard.

General

A talk was made by the Cus todian to the new enrollees warning them about defacing or destroying the natural features of the Monument. The ideals and origin of the Park Service was explained also.

The power saw was received and operated during the month resulting in a nice supply of sawed wood, mainly oak, for use this winter.

Accumulation of refuse in the borrow pit was burned; Humus was hauled and placed around the recently planted trees in the road obliteration area.

With the help of new enrollees a general clean-up was carried out along the roads and old camp sites, the usual maintenance clean-up was carried on during the month.

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CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent

The large rock slide which occurred early in September on the Massai Point Road has been mostly cleared away. There remains yet about 200 yards of overhanging rock and dirt to be removed to give a proper slope. A total of about 1,500 yards has been removed to date.

Considerable maintenance has been necessary on the Bonita highway this month. This consisted mainly in opening up ditches and culverts. Some resurfacing has been done also.

The Echo Point-Rhyolite Trail is nearly complete. 2,000 feet have been constructed this month. This trail has been open to horseback parties for several weeks.

Due to shortage of men during the past three weeks, no trail maintenance has been carried on this month. The work will be resumed as soon as the new men are available.

Headquarters Ranger Station is about 70% complete. The work on this building has been somewhat slowed up this month due to the loss of several key men. During the past week a few of the new men were available for this job so the work is now moving along very well again.

The equipment shed walls are about 50% complete. Window frames are in place; also most of the framing of large timbers has been done. There is still some rock to be selected for window sill finish and some for top finish around rafters.

The Headquarters and Echo parking spaces have been staked out and construction will start as soon as possible.

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TUMACACORI

By Louis R. Caywood, Custodian

So much has happened during the past month that the time has slipped by unnoticed. Although the visitor record is not high for the month, it may be that it is the lull before the storm or the breathing spell before the winter rush begins. Seven hundred and forty-three visitors were contacted by guided trips through the Mission while 65 others used the facilities making a total of 808.

Although other parts of Arizona have reported rain and even snow, neither has fallen here. With the exception of two days of severe wind the month has been delightful. The mornings are now a little nippy and there is a tang of autumn in the air.

The proposed museum and administration building has been the cause for quite a number of official visitors. On October 1st Charles Richey, Clinton Rose and J. H. Tovrea were here on their way from Chiricahua to Headquarters. Unfortunately, the custodian was in Tucson that day obtaining wage rates for various building crafts and missed the party.

On October 16, the Boss, Nancy Margaret, and Tovrea from Headquarters accompanied three of the Park Service architects here for a first hand discussion on mission architecture. Seofield DeLong, San Francisco, and Richard Sutton and A. L. Skidmore, both of Washington, D. C., spent considerable time studying the architecture of Tumacacori. We certainly enjoyed their visit and discussion, but really could have done without the sample of a good old Coolidge dust storm which they accompanied here. The Boss and Nancy returned to Headquarters while Tov and the architects made a flying trip into Mexico to see other missions. On their return on the

19th they stopped in long enough to report that they had visited Cocospera, San Ignacio and Oquitoa.

October also brought us Charlie Steen from Headquarters who was accompanying his sister and her family on a short tour of Southern Arizona and Luis Castellum who dropped in one Sunday morning to say hello.

Fred Winn, Supervisor, Coronado National Forest and party of Forest Service Officials were mission visitors on October 1.

The Custodian and H. C. W. P. visited Headquarters on October 12 and 13 where a discussion was held over the proposed Tumacacori Museum plans. This was our first visit to Coolidge since coming to Tumacacori and we certainly enjoyed seeing the gang again.

Work has gone ahead on the grounds this month until they begin to look presentable after the final removal of a blanket of weeds.

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EL MORRO

By Evon Z. Vogt, Jr., Acting Ranger

Weather and Roads

On September 27 a heavy snowstorm caught this ranger without firewood, having used a gasoline stove all summer, and with only enough bed covers for balmy weather. While snow fell fast and furiously all day, I chopped up old fence posts for wood, painted signs indoors, and recorded the first Sunday this season without a visitor.

Snow fell again on October 6, and heavy rains soaked the Monument on October 19 and 20. Between storms, however, we have had the usual beautiful autumn weather.

As November the 3rd draws nearer, road work in this part of the state progresses rapidly. Believe it or not, a tractor and grader have actually passed in front of historic El Morro. During the past seven centuries pre-historic Indians on foot, Spanish conquistadores on horseback, American emigrants in covered wagons, tourists in automobiles, and transcontinental passengers in airplanes have all passed El Morro, but this is the first time in history that a tractor and grader have chugged across the valley from the Zuni Mountains and noisily graded along the Monument boundary and on beyond. El Morro's time-honored tradition has been broken, for it is no longer as inaccessible as it was in Coronado's time!

The grade is thirty feet wide, follows a good straight route, and is twelve miles long, leading from El Morro east to Swatzell's Ranch.

From there to Paxton Springs the road has been graded by the lumber camp outfit. The Grants approach road is now in much better shape than the Gallup road.

Travel

From the standpoint of travel the month has been slow and uneventful. Visitors number 169. Only newsworthy visitors were Robert R. Budlong, that tall lanky cliff-dweller from Canyon de Chelly, and Mrs. Budlong.

I think the reason that Bud squawks so much about de Chelly being the finest National Monument in the Southwest is that he hasn't seen any of the other monuments. After his visit to El Morro, he will think three times before making any more rash statements!

Flora and Fauna

October is by far the most beautiful month of the year at El Morro. Jack Frost turns the oaks to a deep yellow and later to a rusty orange. The mountain sumac bushes are colored a flaming red. These gorgeous colors stand out against the buff-colored rock and dark green pines. Above all is the deep blue New Mexican sky with its white billowy clouds. All this presents a vivid scene which is not soon forgotten.

But already the winter winds have stripped the oaks of their lovely leaves, and pack rats are hurrying to fill their nest with piñons before the first big snowstorms cover El Morro.

The following birds were observed at El Morro during October

Golden Eagle	Pinyon Jay
Western Crow	Woodhouse Jay
White-throated Swift	Mountain Bluebird
Cooper Hawk	Chestnut-backed Bluebird
Red-shafted Flicker	Pigmy Nuthatch
Lewis Woodpecker	Canyon Wren
White-breasted Woodpecker	Arkansas Goldfinch
Western Meadowlark	Belted Kingfisher

The belted Kingfisher is a newcomer to the list. He was spotted flying around the water hole in the Rincon. I'll bet he had his eye on the big juicy salamanders in the pool.

General

Two signs warning visitors that "the engraving of names on the rock is strictly forbidden by law" were repainted.

The roof of the ranger's cabin was painted with tar.

Three loads of oak and cedar wood were ordered for fuel for the permanent custodian this winter.

Old Rafael (Navajo) and family were gathering the piñons on top of the mesa southwest of the south ruin where the crop is exceptionally heavy. They are being careful not to damage the monument fence or injure the trees in any way.

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GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for October, 159.

On September 27, it started to rain but during the night it turned to snow and the morning of the 28th showed about a foot on the level and many drifts.

Except for a few who had cut their corn and beans early, those crops are a total failure as there is no market for discolored beans and of course the corn was frozen.

There was unusually heavy traffic on our roads following the snow and the roads were so badly cut up that the few tourists who ventured over them found them very bad and this of course has cut down visitors for this month considerably.

As is the custom each year, several hundred transients from southern states arrived to help harvest the bean crop, just before the snow. The general verdict was that they did not know there was any place in the United States that ever got as cold as that, and every one left the following morning.

Two nights a week we are using the film projector down in the community building. The District health nurse has agreed to come down from Albuquerque every Tuesday; during the afternoon she will conduct classes in nursing and in the evening we will project the films which will be a part of the nursing course.

Another night each week will be given over to films of the National Parks, Monuments, National Forests and all those subjects the average person should be interested in.

A few of the Evening Grosbeaks stayed with us all summer but the majority went farther north, but now they are returning in great flocks, along with thousands of Robins and Bluebirds. It keeps one busy filling up the drinking water containers.

Have cut off the water and drained those sections of the pipe lines

not in use in the winter time and have made the more exposed portions safe from winter freezing.

The Boss, Nancy Margaret and Mr. Steen called on us September 25 and we were most pleased to see them again. Captain Berrywell in charge of the CCC camps, Miss E. M. Smith,head of the State Health Work, and Miss Lassoff, State Health Nurse, were also among the visitors this month.

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CAPULIN MT.

By Homer J. Farr, Custodian

We have had about four hundred visitors during the month and for some reason I have noticed an extremely large number on top of the volcano at night; almost every night I see cars coming and going during late hours at night. As one party explained it, they get a great thrill making this drive at night.

Our weatherman has dished us out an extremely cold and damp October so far, with three snows and snowing again today, with the top of the mere showing around 25.

A rather remarkable statement to make is the fact that over two hundred fifty thousand automobiles have traveled the Capulin Mountain Road without accident of any kind. If records were obtainable I sincerely doubt that any other three mile stretch of mountain road could boast of a better record. Now knocking on wood is in order, and I hope we will be able to continue as fortunate as in the past.

No guided trips were made this month.

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PIPE SPRING

By Leonard Heaton, Acting Custodian

Hello, to all you Southwestern bunch; I am back on the job after a month's leave and glad to get into the straps again. I have been kind of lost without the monument and the spirit of the Southwestern Monuments. I have had a great time while away from work; done most all the trades of a Westerner, riding, farming, carpentering, masonry, maildriver, and a lot of other jobs that I have not done for a long time.

Since I have not been at the monument to do any work, I will have to let Mr. L. J. Brown tell you how the Monument has progressed this past month. From the travel record he has been rather busy. On October 18 the Lions of Southern Utah came out and I came down for four hours to help with the beasts to see that they did not frighten all the other visitors away. But we had a great time as it was.

PIPE SPRING (CONT.)

I find that I have several days' work ahead of me and letter-writing which I do not care very much for, besides the laying out work for the CCC boys that are working on the Monument. It seems that the boys want to do those things that we are not ready to do as yet, and the projects that have not been approved. But I guess in time we will get them to working on things they like, if any.

The first Gamble Sparrow that I saw this fall was at Moccasin, four miles north of the Monument, on October 5. On the 6th I saw quite a flock and they have been passing or feeding in this part ever since.

Will start my bird banding as soon as I can get caught up on my work and have a little time to spare. Mr. Brown reported that he heard some Gamble Quail here on the 22nd of this month. These are the first that I know of being reported here for over two years, and I guess they will not stay long if the CCC boys find it out for they are always out hunting with their 22's.

Weather has turned cold. We had two days' snow in the mountains and a lot of rain on October 19 and 20, the most we have had since last winter.

By L. J. Brown

The travel through Pipe Spring National Monument has been getting less and less during the months of September and October, being confined chiefly to Western people. However, most of those have displayed a genuine interest in the buildings and surroundings. I find that the visitors from Eastern parts appreciate the old relics and furniture most, while those from the West like the buildings. Some, of course, have been bigger and better, and, incidently, more modern sights recently but they are in the minority and most feel well repaid for their efforts.

The road between Fredonia and the Monument is very rough and "washboardy" with ruts developing rapidly. Possibly, though, the Division of Grazing will attend to it as soon as we have some rain. The Indian Service is without proper equipment at the present time.

About 66% of the boys from the CCC Camp here went home at the expiration of their enlistment period late in September and a new group of 102 arrived in camp, October 11. Twelve of those new boys have been up to look over the Monument and I expect most of the rest of them will pay a visit on Saturday and Sunday.

The wild life on the Monument is increasing and is comparatively tame. The gamble sparrow is still with us and there are several little Rock Wrens around. Also some small birds that I could not identify stopped at the water hole for a drink as they went south. The rabbits, both cottontail and jack, are quite numerous but the big hawks have started to come down out of the hills and mountains, so I suspect some of the bunnies will disappear.

BANDELIER

By J. W. Hendron, Acting Custodian

Visitors

Our total travel for this month numbered 728 people, however, small compared with last month's figures we ran ahead of the total for October, 1935, which was 659. Visitors arrived in 231 cars from 25 states and District of Columbia.

The six highest states in order by visitor count were: New Mexico, 243; California, 74; Colorado, 36; Texas, 36; Illinois, 29; and New York, 24.

Twenty-two people visited us from foreign countries including England, France, Canada, Argentina, Hungary, also Hawaii and Africa.

Return visitors numbered 140

Weather and Roads

Days partly cloudy-----	12	
Days cloudy----------	6	
Maximum temperature-----	70	September 25
Minimum Temperature-----	32	October 7
Mean maximum----------	58.5	
Mean minimum----------	41	
Precipitation----------	1.69 against 1.65 for October, 1935.	
Rain and Sleet----------	Sept. 27, 28, October 19, 20, 22.	
Dust storms-------- ----	None	

I might say that on the whole the roads leading into Bandelier have been exceptionally good this month. On several occasions they have been a little muddy and rough, due to sporadic showers and a little snow. New Mexico is now producing its regular trend in fluctuating weather conditions that always precede mid-winter; first the sun shines for a week and then it turns cold and is cloudy for several days and then it turns warm again for a spell which ordinarily means that old man Winter is just teasing us before the grand slam.

Visitor Trip Chart

Eighty-seven parties took guided trips through the ruins, making a total of 349 people. The average time per party was 65 minutes. Five parties were given short talks or partial ruins trips, the average time being 38 minutes per party.

Most of our visitors this month have visited Bandelier because they were interested in the ruins. Very few have come only as picnickers and as a result we have had very little use of our camp ground, with the

exception of a few occasions. Several parties have expressed a desire to visit the lower canyon to see the falls and the geologic outcrops. We contacted four people who made that trip this month, which proves that some day we may be able to conduct an occasional trip to that part of Bandelier.

Our largest parties number 16, on October 11 and 18th.

Special Visitors

September 23 - The Boss dropped in for a short stay with Nancy Margaret and Charlie Steen.

October 8 - Mr. and Mrs. Pal Keleman of Bucharest, Austria, were in for a trip around the ruins. Mr. Keleman is well known as a writer. He has recently been to Mexico gathering material for a new book and at the present time is visiting the interesting places of the Southwest. Being so impressed with the architecture at Bandelier, Mr. Keleman plans to return and spend considerable time here studying our different sites including those in the Detached Section.

October 14 - Jack Diehl and J. B. Hamilton were out on business.

October 23 - Addison Pinkley and Carl Schmidt, engineers, came in this afternoon to work on the new entrance road. They will be here for a week or so.

General -

As the hunting season draws near hunters are making camp on many of the roads outside the Monument and particularly over near Water Canyon. Game seems to be plentiful this year around here; a few days ago I saw 10 turkeys just this side of the Ceremonial Cave and George Sholly saw 30 deer on the South Mesa, which we recently posted so woe unto those who hunt on the Monument and get caught. Turkey tracks have been seen everywhere in the Detached Section, but no turkeys.

Museum Notes

And now, Boss, I wish to make an account of the Museum work that we are doing and the work that we have completed to date.

Perhaps we took our sweet time in completing the trash mound but I think that we have done a good job on it. All of the pottery is arranged in chronological order and we have a good display of it too. We have every type of pottery, or I might say, the most general types of pottery found in this part of the country. We are showing only two periods, Pueblo 3 and 4 which takes in the occupation of Bandelier, and these periods are divided in such a manner that they will be easily distinguishable by the visitor.

The background for this case is not complete and we are waiting for the maps and necessary labels from the Berkeley office.

Due to misfortune we were forced to rework the Pottery family tree which has held us up to some extent but now that is completed with the exception of gathering a few additional pottery types and photographs.

We are undertaking something now which may slow us up a bit but I think it will prove best in the long run. We are preparing a drawing of the ground plan of the big community house which will show the levels of the different storied rooms, the 1st, 2nd, and 3rd stories to be represented by different types of shading. When we finish the ground plan we will start on a reconstruction drawing, showing how Tyuonyi looked at the time when the Indians occupied it. A better model can be made if we know how it is to look when it is completed. This will be a view looking from about 30 feet high and to the side of the structure showing how both the outside and inside rooms looked. A considerable amount of time and study has been spent in figuring this out and I don't think it will be in vain, for this will be one of the most interesting exhibits in the entire museum.

Borings and V-cuts have been made from around the surrounding country for the tree-ring case. We may need additional specimens but these will be a starter. We also have a number of cross-sections which have been polished down. This case can be put into shape after all the labels and photographs are completed.

From the looks of things, Boss, the Bandelier Museum is making progress, and I am confident that we will have something very interesting to show the visitors during the next travel season.

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BANDELIER ECW

By H. B. Chase, Project Superintendent

Signs for other Southwestern Monuments were completed for Walnut Canyon and Aztec Ruins National Monument, and shipment made about the 15th of October. Signs for the Chiricahua National Monument are now in the process of making.

Receipt of approved plans for Quarters No. 3 enabled us to proceed with construction with a double shift and now the building is to lintel height.

The three root cellars for the three Quarters in the Residential Area have been completed and the built-in shelves installed in the two for Quarters one and two. The finishing of the third root cellar interior is in progress at this time.

The equipment shed project was completed and the two living quarters are now being occupied by two of the Supervisory personnel at this camp.

Two large crews are now doing preparatory work of transplanting trees and shrubs. Some small planting has been carried out this month. It is anticipated using two crane truck pieces of equipment this planting season instead of only one as in the past two seasons.

The clearing of a new road right-of-way by the Forest Service on lands adjacent to the Monument has enabled us to secure considerable aspen material for ceilings and pine timber for vigas and lintels, This operation has been carried on at intervals throughout this month, storing the materials for future building projects planned for the 3th period, while it is available on an economic haul.

A large number of new enrollees received this month were assigned to the Rock Quarry Project, quarrying and shaping rocks and stones for our building program.

The recent contracting and delivering of a large order of finished lumber will allow the carpenter crew to proceed with the installation of museum cases under our furniture project. It is anticipated this installation will be completed during the winter months.

A small crew of enrollees have been working under the direction of Acting Custodian Hendron constructing and preparing exhibits for the museum.

BANDELIER FORESTRY

By James T. Fulton, Forestry Foreman

After having completed the painting of the equipment shed by October 9, I began using the crew to hew 210' of lintels and to cut 17 vigas for Quarters No. 3, or Project No. 31. This material was obtained from our stock of timber cut several months ago.

For the week of October 19 - 23, I had a crew of about 30 men engaged in cutting aspen poles on Sawyers Mesa. In time these poles will be worked up into ceiling material. The work required to do this is peeling and splitting. All of these aspen poles were salvaged from snow-damaged aspen stands on top of Sawyers Mesa, along the new road being constructed in that vicinity.

This month there has been no particular reason for having forest fires. however, hunting season will begin on October 25 and continue until November 15; at this time we will be on the alert for man-caused fires; such fires during hunting season have occurred in the past years, but we hope that nothing like that will happen here this year.

NATURAL BRIDGES

By Zeke Johnson, Custodian

I came in from the Monument on the 18th and expected to go back the next day, but it has rained every day since. However, it looks clear this morning and I will go back this afternoon. I expected to make another trip before I sent in my monthly report. As a result of this anticipation, I left my report slips at the camp and won't be back again until time to vote, so can't make report in full. However, there have been a lot of visitors out there this month and I have been able to contact all of them. For the most part, weather has been ideal.

There are about 100 deer hunters on Elk Mountain now. After the shooting has been going on for three or four days, hundreds of the does and fawns come down in herds of sometimes 40 or 50 and hide on the cedar points close to the monument. Sometimes some of the hunters that have failed in getting his buck will come down and try to find one and if they fail they will kill anything; accordingly, I am determined they won't do any killing this year near the monument. I will stay right on the job until season is over. I have a horse and plenty of hay out there so I can ride out and scout around all that is necessary. Four mountain sheep were in Armstrong Canyon when I left, and wouldn't one of those lazy buck hunters be thrilled to get a shot at them? I only saw them once but they were very tame. In view of this fact, I am determined that no one will get near the monument with a gun.

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HEADQUARTERS STUFF
DIV. OF EDUCATION

Park Naturalist Rose was stationed at Berkeley during the entire month of October; he continued his investigations of mission records in the Bancroft Library and assisted Ansel Hall in the preparation of museum exhibits for Aztec and Bandelier National Monuments. Junior Naturalist Steen was in the field during the first part of the month making a tentative museum plan for Aztec Ruins; he returned to headquarters on the 13th where he spent the remainder of the month. The vacancy made by the absence of Junior Naturalist King has not yet been filled.

Gifts and Accessions

A number of books and reports were received for the library during the past month. These are listed in the Supplement for this report and additional copies of the list will be made for inclusion in the loose-leaf information binders.

Bird Banding

Walnut Canyon and Casa Grande were the only two monuments to report new banded birds for October. All birds banded during the period July 1

to November 1 are included in the list.

Paul Beaubien has trapped eleven returns to date, but the Casa Grande banding station just barely got under the wire with a single return, a Bendire Thrasher, banded on October 12, 1935, was caught again on October 28. Many Gambel Sparrows are on the Monument but they have refused all profered baits. It is very annoying, to put it mildly, to see a number of freshly arrived birds hopping all around a trap but refusing to enter, particularly when several of them are sporting some nice aluminium bands.

Analysis of Casa Grande Visitor Figures

A resume of a year's visitors at Casa Grande proves to be quite interesting. We had 27,704 visitors covered by this study and with them we obtained 43,218 personnel visitor contacts, which is 155% out of a possible 200%; not bad, but it could have been better.

Notice that the attendance fluctuates. The low point falls in July, as one might expect because of the heat which drives the transcontinental traffic farther north to the higher and cooler roads. The attendance goes up in August, up again in September, and rises again in October. There is a fall so slight as not to matter in November and December and then a sharp rise in January. This is caused by the winter visitors to Arizona who have waited until after the Christmas holidays to come West. February drops a little, probably due to the shorter month. March shows a decided drop with a heavy comeback to the peak month of the year in April. May and June hold up well with a sharp drop to July.

There were 3,707 guided trips through the ruins averaging 33 minutes per trip. 25,936 visitors took these trips averaging just under seven persons to the party. The minimum load was in July with 232 parties and the maximum load fell in February with 384 parties, although April ran a close second with 378 parties.

Peak load months use the longest trip time on field trips at Casa Grande. February and April are the heaviest months and the trip time is 38 minutes; July, the lightest month shows a trip time of 29.7. In September, when trips, attendance, and total time used are all on the increase, we fall down to 27.8 minutes for the trip time. For October, 1936, the month just closed as I write this, our number of trips remains stationary, visitors and total time increase, number in party increases and the trip time goes up nearly two minutes but is only 29.4 as against 37 last year. Does this mean that the visitor is not staying so long as last year, or is our service falling off, or is there some unknown factor at work?

We gave 2,430 museum trips to a total of 17,182 visitors, the average trip being a trifle over 21 minutes. The variation in the museum trip time was from 19.7 to 25 minutes. It is to be noted that we do not get the

CASA GRANDE VISITORS FIGURES

	No. Employ		Guided Trips					Museum Lectures					Museum Unatt.	Outside Lecture	Total Contact	Total Travel	Percent Contacts
	Perm	Tem	No.	Att.	Time	Av. Att.	Av. Tm	No.	Att.	Time	Av. Att	Av. Time			Educational		
October '35	2	--	285	2281	10545	8	37	94	800	1880	8.5	20	1481		3081	2,281	135
November	2	--	309	2165	10815	7	35	100	800	2100	8.0	21	1365		2965	2,165	136
December	2	--	243	1390	7681	5.7	32	60	342	1200	5.7	20	1793		1732	2,135	81.1
January '36	2	1	337	2938	12336	8.7	36	223	1869	4394	8.4	19.7	1069		4807	3,370	142
February	2	1	384	3043	14497	7.9	38	256	2332	5330	9.0	21.	711	100	5475	3,043	179
March	2	1	351	2705	12109	7.7	35	248	2016	4783	8.2	19.2	689		4721	2,705	174
April	2	-	378	3251	13294	8.6	38	242	2163	5290	8.9	22	1088		5414	3,436	157
May	2	-	301	1867	8971	6.2	30	194	1099	3829	5.7	20	768		2966	2,234	133
June	2	-	291	1650	8324	5.7	28	266	1405	5421	5.3	20	245		3055	1,661	183
July	1	1	232	1133	6911	4.8	29.7	203	1058	5103	5.2	25	20		2191	1,142	191
August	1	1	270	1468	8558	5.4	31.7	239	1483	5959	6.2	24.9	--		2951	1,487	198
September	2	-	326	2045	9117	6.2	27.8	305	1815	6164	5.9	20.0			3860	2,045	188
TOTAL			3702	25936	123158	6.9	33.3	2245	17182	51453	7.0	21.1			43218	27,704	155
Average			308	2161	1026	7.0	33.3	202	1432	4287	7.0	21.2					
OCTOBER, 1936			323	2190	9513	6.7	29.4	288	1865	6436	6.4	22.3			4055	2,190	185

maximum trip time falling on the maximum visitor load in the museum as we do in the trip through the ruins. The talks in the museum are longest in the dull months. The possible solution is that the dull months are the hottest months and the visitor does not want to walk around the ruins in the 110 degree weather, but is willing to loaf in the comparative coolness of the museum where the fans are running.

It will be noticed that while the museum talks hold up in length to a reasonable maximum and minimum, the museum attendance fluctuated widely, from a minimum of 342 in December to a maximum of 2,332 in February. The real explanation of this lies over to the right in the "Museum Unattended" column. For several months large numbers of visitors were turned into the museum by the guide upon his return from the ruins and allowed to wander at will without guidance. We checked the time on a lot of these parties and the average stay in the museum was about 13 minutes. The average stay of 3,200 guided museum parties was 21.2 minutes. There is no question in my mind but that the visitor receives a much deeper impression from a 21 minute guided talk where things are explained to him in their proper sequence than he can possibly get from wandering at will for thirteen minutes and we have now established the definite policy of guiding all parties, so far as it is possible, through our museums.

The total trip time, which is the time taken for the ruins trip plus the museum trip varies during the year from 48 to 60 minutes with a yearly average of 54.5 minutes. The longest trips were given in April, the month of maximum number of visitors and the next longest were in February, which had the next largest number of visitors. I am not certain of the explanation for this but suspect that in the peak months we have a considerable number of heavy parties which ask so many extra questions and move so slowly from room to room during the trip as to bring the trip time up. An examination of the tickets for the thirty longest trips in the heavy months and comparison with the same number of the longest trips in the slack months might disclose whether or not this is a correct guess.

We asked Custodian Winter what he thought about this tabular matter, and he responded as follows:

> "This chart hands out some interesting and valuable information. I notice it shows that there was an average of ten trips a day made through the ruins for the past year. This means ten trips every day, and each trip averaged 33 minutes.
>
> "I wonder where, outside the Southwestern Monuments, would we find as many as ten half hour lectures being delivered daily with neither admission charge nor tips being collected? Then in addition we find that there was an average of seven museum trips conducted daily, lasting 21 minutes each. Seven out of our ten ruins lectures, therefore, were followed by a museum talk.

"These figures, of course, are averages, so there were many days on which there were more than ten lectures delivered. I am not writing this to pat ourselves on the back, but to emphasize our ever present need of more personnel. It may be noted from the chart that for three-fourths of the year there were only two men on the job to do all this lecturing, in addition to their other duties. Does it occur to the people who read this just how many things a Custodian and a Ranger can find to do beside guiding? True, we guide more than we do anything else, but it is not from choice alone. While we are spending so much time in public contact work there are many things about the Monument that are left undone or which have to be done hastily and in a half-way manner. For example, clean-up work is needed -- picking up scrap paper along our half mile entrance road, perhaps. Another, shooting is heard not far from my office. Is someone hunting our quail? I don't know, we haven't time to go find out for I am busy taking visitors through the ruins and the Ranger is down pumping out our defective sewer system. But the ten trips a day must be made, for there a re visitors here to take them.

"I suppose that something more than just a gripe should be written in connection with the attached chart. Lately, however, I have had brought to my attention most forcibly the need for another guide here, so when I see figures bringing out the amount of guide service rendered I naturally think most of how to maintain that high standard of service and at the same time adequately attend to the manifold other necessary duties.

"As it is now, I have been two days writing these few comments and the only way in which I can write more will be to lock the visitors out at the front gate. This can't be done so I guess I will sign off and go on another trip to the ruins."

Analysis of Aztec National Monument Visitor Statistics

We are filing herewith a tabular report on visitor statistics for Aztec Ruins National Monument covering one full year of operations.

Aztec has a pretty attendance curve; January is the low month with 225 visitors, the curve rising regularly through the months to a peak in August with 2,658 visitors and then falling rather sharply to the beginning. We had 12,984 visitors reported and obtained 23,853 personnel visitor contacts. Note that the personnel visitor contacts followed pretty much the same curve as the total travel curve, indicating that the boys did not fall down in the delivery of service. The percentage of personnel visitor contacts was 183% on a basis of 200% as perfection.

AZTEC RUINS VISITORS FIGURES

	GUIDED TRIPS					MUSEUM LECTURES					Total Educational Contacts	Total Travel	Percent Contacts
	No.	Att'd.	Time	Av. Att'd	Av. Time	No.	Att'd	Time	Av. Att'd	Av. Time			
October	125	1155	3750	9.2	30	125	1155	2500	9.2	20	* 2,310	1,155	---
November	74	409	2442	5.2	33	74	409	1480	5.7	20	818	409	---
December	55	391	1760	6.6	32	55	391	1100	6.6	20	782	391	---
January	45	178	1428	3.8	32	48	178	847	3.7	18	360	225	155%
February	57	243	1780	4.3	31	51	244	1055	4.8	21	487	287	169
March	89	462	2840	5.2	32	80	435	1460	5.5	18	897	602	149
April	118	571	4371	4.9	37	110	579	1723	5.3	16	1,150	701	164
May	147	853	5200	5.8	37	138	854	2682	6.2	19.5	1,707	1,172	145
June	255	1180	8497	4.6	33	227	1170	4113	5.2	18.2	2,350	1,323	177
July	331	2023	12015	6.1	36.2	260	1956	4730	6.9	16.8	3,979	2,089	190
August	323	2658	12690	8.2	39.2	294	2585	4785	8.7	16.2	5,243	2,658	197
September	314	1893	9780	6.0	31.1	280	1887	4325	6.7	15.4	3,780	1,972	191
TOTAL	1933	12010	66553	6.2	34.4	1762	11843	30800	6.7	17.4	23,853	12,984	183%
Average	161	1001	5546	6.2	34.4	147	987	2566	6.7	17.4			
October '36	166	781	5490	4.2	29.5	157	700	2435	4.4	15.5	1,491	815	182%

* First 3 months estimates.

This seems to us a pretty good average. We do not see quite why it slipped off in January, February, March and May into the 150% class, when the travel was light as compared with July, August and September when the travel was at the peak and the contacts ran above 190%.

There were 1933 guided trips through the ruins as against 1762 trips through the museum. The fewer museum trips is probably explained by joining parties in the museum; the guide coming in from the ruins finds a new party waiting and joins them to his incoming party making the one museum talk serve both parties, then he takes the second party out through the ruins and thus counts two ruins trips with one museum trip.

12,010 persons were guided through the ruins as against 11,843 through the museum. I would have expected more visitors through the museum, due to the fact that aged and crippled persons could go through the museum but might not be able to go through the ruins. The average party in the museum was 6.7 as against 6.2 in the ruins, which would also look like some people were taking the museum trip who were not taking the ruins trip.

Note that the average number in the party fluctuates from just under four persons to about nine persons in the course of the year. The average trip time in the ruins varies from 30 minutes to 39 minutes and the surprising thing is the greatest trip time is taken in the month of the peak load. I should have expected the men to speed up the trips and cut down the trip time when the heavy load struck, but I suppose that tendency is offset by the slower movement and more questions caused by the larger average party and the net result is a lengthening of the average trip time. Upon examining the average museum trip time, however, we find there is a slight tendency to talk longer in the slack season than in the busy season; this doesn't check precisely but it looks like it might be true.

By adding the ruins trip and museum trip times together we find we have a total trip time running from a minimum of 50 minutes to a maximum of 56.5 minutes, except in September when we get a sharp drop to 46.5 minutes. This last drop runs into October, 1936, when it is 45.0 minutes for the average total trip. We changed men about this time and the change is probably reflected in the amount of service given, the new man taking some time for the 'breaking in' process before he is able to deliver the standard amount of service to the visitor.

It can be seen that we had more ruins trips and more museum trips in October, 1936, than in October, 1935, and that the average number in the parties and the average trip time was lower this year than last. There were less visitors but the parties strung out more, using considerably more total time in the ruins trips than a much larger number of visitors used last year. The average trip time, however, for the ruins, reached

the all-time low of 29.5 minutes, and the average trip time for the museum was only one-tenth of a minute above the all-time low. The total trip time was 45 minutes, which is the all-time low for the thirteen months, the average total trip time for Aztec being 51.8 minutes.

Analysis of Visitor Service, Southwestern Monuments, October, 1936

With eighteen monuments reporting, we had 14,869 visitors as against 12,608 last year. This is a long drop from the 33,507 visitors we reported last month and is in large part due to the natural seasonal drop we can expect when the schools open in the fall.

Our personnel educational contacts amounted to 10,897, or 73.2% as against 9,565 for the same month last year, or 75.8%. The reason for our percentage of contacts falling this year lies in a sharp bulge in the visitor curve for White Sands this year where we have no resident contact man.

We gave more guided field trips to a less number of visitors this year than last and the visitors came in smaller parties and stayed less time. The fact that the parties are smaller this October than last turns up in the figures from several of the monuments and I have no explanation to offer.

We gave 997 museum trips this October as against 389 last year. White Sands and Walnut, which were not reported last year account for part of this increase. At White Sands we have some exhibits in Mr. Charles' office in Alamogordo and he talks to hundreds of visitors there; it is not a museum in the strict sense of the term, but it is talking with visitors over exhibits and, we think, qualifies under that heading. Again the average party shrinks from 7.2 persons last year to 4.7 persons this year, and the average museum time is cut from 20 minutes to 16.8 minutes. No reason appears for this.

Casa Grande furnishes about half the total educational contacts for the month and will probably continue to do so for the remainder of the fall and winter. We have a temporary position established at Casa Grande beginning January 1 but Mr. Winter and Mr. Erskine are going to need help before that if the curve goes up as fast as it is starting.

There is one interesting little point in this table which needs bringing out. Casa Grande, with its comparatively large museum exhibits, held the average party 22.3 minutes. Walnut Canyon, where Paul has a very meager collection of artifacts which can be spread out on top of a desk, held the visitor 21.4 minutes. What is the answer?

STATISTICAL SUMMARY ON EDUCATIONAL CONTACTS FOR OCTOBER, 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	No. Employes		GUIDED TRIPS					MUSEUM TRIPS					Unatt'd.	Outside Lectures		Total Educat'l Contact	Total Travel	Percent Contacted
	Per.	Tem.	No.	Att'd.	Time	Av. Att	Av. Time	No.	Att'd	Time	Av. Att	Av. Time	No. Att'd	No.	Att'd			
Arches																		
Aztec	1	1	186	791	5490	4.3	29.5	157	700	2435	4.4	15.5	19			1,491	815	
Pandelier	1	2	87	349	6905	4.0	80									349	728	
Canyon dechelly	1	1	8	20	1320	2.5	165									20	119	
Capulin Mt.																	400	
Casa Grande	2		323	2190	9513	6.7	29.4	288	1865	6436	6.4	22.3				4,055	2,150	
Chaco Canyon	1		53	218	4330	4.1	81.6	51	209	940	4.0	18.5				427	732	
Chiricahua	1	1	16	128	1725	8.0	107.8									128	690	
El Morro		1	30	153	1695	5.1	56.5						16			153	169	
Gran Quivira	1		50	159	2835	3.2	56.7									159	159	
Gila Cliff-Dwl.																		
Lovenweep																		
Montezuma	2		148	510	5473	3.4	36.9	115	459	2045	4.0	17.7				969	510	
Nat. Bridges		1											65				65	
Navajo																		
Pipe Spring	1		18	89	615	4.4	34.1									89	89	
Rainbow																		
Saguaro																		
Sunset																	287	
Tonto		1	65	177	2943	2.7	45.	75	209	1137	2.7	15.				386	217	
Tumacacori	1	1	196	743	6502	3.7	33.1						65			743	808	
Walnut Canyon		1	77	253	1325	3.2	17.2	149	450	3195	3.0	21.4	168			703	758	
White Sands	P	P	66	330	390	5.0	6.0	162	821	569	5.0	3.5				1,151	5,976	
Wupatki		1	25	74	1600	3.0	40.0									74	155	
Yucca House																		
Headquarters														4	524			
Total This Mo.			1348	6184	52661	4.5	39.0	997	4713	16757	4.7	16.8	333	4	524	10,897	14,869	73.2%
Total Last Mo.			2089	10427	77557	4.9	37.1	1121	5903	21483	5.2	19.1	18	83	1	35	16,365	33,507	48%
Oct. Last Year			1045	6760	52074	6.4	49.8	389	2805	7780	7.2	20.					9,565	12,608	75.8%

SUMMARY OF EDUCATIONAL ACTIVITIES OF THE NATIONAL PARK SERVICE
(July 1, 1935, to June 30, 1936)

For comparative purposes we have lifted the tabular matter off page 50 of the Park Service Bulletin for September-October, 1936, and filed it in three tables in this report where it can be used in future references.

The first table deals with guided trips and contains some information of great interest to us of the Southwestern Monuments. It comes as a pleasant surprise to us to find that we are delivering over half the guided trips of the whole number reported, 10,558 out of a total of 17,115.

The size of the average party is an interesting thing because it is one of the factors showing the total amount of work done by the personnel. Yellowstone handled its 107,000 visitors in 1900 guided trips, or approximately 87 persons to the party. Yosemite ran 57 to the party, Grand Canyon,77; Zion, 48; Sequoia, 35; Glacier, 23; Mesa Verde, 21; and the Southwestern Monuments averaged 10 to the party. When you handle 107,000 people in lots of ten to the party, you put a lot of personnel time into the job.

There is evidently an error in the Carlsbad Caverns handling 4,036 in one party. We wonder if the total is correct as the number of visitors handled on the nature trail, and if that is correct we wonder what number were in the average party.

We would like to suggest to the Educational Division the value of gathering figures showing the average time of the average party as this would give us some idea of the amount of personnel time used and allow us to compare the work in one park with that in another.

We wonder if the 100 trips in the horse column for Mesa Verde were guided trips given by park service personnel. We rather think not and we would not count them if they are operator trips given for pay under regular wranglers and with no park service educational personnel along on the trip.

The Southwestern Monuments figures could have been repeated in the "Hiking" column if the Branch of Education preferred to do so as they were really hiking trips through ruins, etc.

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SUMMARY OF EDUCATIONAL ACTIVITIES - JULY 1, 1935 to JUNE 30, 1936

	GUIDED TRIPS											
	AUTO CARAVANS			HIKING		HORSE		BOAT		TOTAL	
	No.	No. Cars	Att'd.	No.	Att'd.	No.	Att'd	No.	Att'd.	No.	Att'd.
Acadia				36	986			15	422	51	1,408
Bryce Canyon	85		4,807	97	4,545					182	18.137
Carlsbad Caverns				1	4,036					1	4,036
Crater Lake	55	377	1,074	50	370			92	1,329	197	2,773
General Grant	10	42	150							10	150
Glacier	11	99	1,303	405	8,022	2	11	220	5,826	638	15,162
Grand Canyon	296	6,315	24,214	96	5,603					387	29,817
Grand Teton	1	4	11	16	198					17	209
Great Smoky Mts.											
Hawaii	184	903	5,857	126	2,455	3	20			313	8,332
Hot Springs				4	180					4	180
Lassen Volcanic	149	964	3,088	185	4,870					333	6,902
Mammoth Cave											
Mesa Verde	905		20,851	1	3	100	373			1,006	21,227
Mount McKinley											
Mt. Rainier & Olympus	3	20	76	278	5,601					281	5,677
Nat'l Cap. Parks (1 mo.)				12	437					12	437
Platt											
Rocky Mountain				84	2,063					84	2,063
Sequoia	92	1,173	5,032	115	4,483					207	9,515
Shenandoah (4 mo.)											
Southwestern Monuments										10,558	107,911
Wind Cave											
Yellowstone	407	7,934	29,442	1,554	141,477					1,961	170,919
Yosemite	206	4,712	19,630	384	14,243					590	33,873
Zion	4		127	279	13,804					283	13,804
TOTALS	2,408	22,543	115,662	3,723	213,376	105	404	327	7,577	17,115	452,659

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

(Sheet 2) SUMMARY OF EDUCATIONAL ACTIVITIES - JULY 1, 1935 to June 30, 1936

	LECTURES									
	CAMPFIRE		LODGE		MUSEUM		BEAR AND OTHER SPECIAL LECTURES		TOTAL	
	No.	Att'd.	No.	Att'd.	No.	Att'd.	No.	Att'd.	No.	Att'd.
Acadia	21	3,790	1	150			7	448	28	4,388
Bryce Canyon	21	1,871	89	13,312	138	16,365	84	1,098	332	19,517
Carlsbad Caverns								21,660		21,660
Crater Lake	88	7,744	78	1,801	137	29,608			281	41,731
General Grant										
Glacier	188	13,339	205	16,353		858			420	31,987
Grand Canyon	179	20,360	461	40,566	796	63,389	24	4,700	1,460	129,405
Grand Teton	78	9,144							78	9,144
Great Smoky Mts.										
Hawaii	2	428	14	1,797	148	7,314			164	9,539
Hot Springs					17	2,337			17	2,337
Lassen Volcanic	83	8,432			2	190			85	8,622
Mammoth Cave										
Mesa Verde	112	7,714			418	13,431			530	21,145
Mount McKinley			8	149					8	149
Mt. Rainier & Olympus			217	24,212					217	24,212
Nat'l Cap. Parks (1 mo.)	3	661	1	19					4	680
Platt										
Rocky Mountain	14	1,418	71	4,027					85	5,445
Sequoia	250	63,081	124	11,022	100	8,438	180	33,475	934	127,516
Shenandoah (4 Mo.)										
Southwestern Monuments					4,478	27,592			4,478	27,592
Wind Cave										
Yellowstone	713	126,366	28	1,679	317	26,993	145	160,096	1,279	328,597
Yosemite	332	119,544	186	74,817	1,838	97,373	172	94,835	2,528	386,569
Zion	109	5,477	120	12,637	375	17,056	343	8,622	917	43,792
TOTAL	2,193	389,369	1,603	212,531	8,764	311,344	955	324,934	13,845	1,244,027

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

(Sheet 3) SUMMARY OF EDUCATIONAL ACTIVITIES - JULY 1, 1935 to JUNE 30, 1936

	MUSEUM VISITORS	LIBRARY AND OTHERS		LECTURES OUTSIDE PARK		TOTAL CONTACTS	TOTAL NUMBER VISITORS	PERCENT CONTACTED
	Number	No. Loans	No. Contacts	No.	Att'd.			
Acadia	7,683	2	1,118	2	79	14,676	317,910	4.6
Bryce Canyon	7,964					50,375	73,244	68.
Carlsbad Caverns						157,714	132,045	119.
Crater Lake	20,567		6,223	42	4,922	77,411	130,502	59.
General Grant						33,604*	134,416	25.
Glacier			26,261	46	7,786	136,536	151,711	89.5
Grand Canyon	135,729	296	491	1	50	295,497	241,111	123.
Grand Teton	17,719			1	100	27,165	71,168	38.
Great Smoky Mts.				4	310	51,634*	516,347	10.
Hawaii	12,435			2	1,725	32,021	188,556	17.
Hot Springs	93,910			9	2,391	96,124	277,023	35.
Lassen Volcanic	23,560			14	1,319	33,566	57,696	58.
Mammoth Cave								
Mesa Verde	26,053	85	144	12	4,265	72,834*	22,960	317.
Mount McKinley				1	55	1,206*	1,002	120.
Mt. Rainier & Olympus	127,185			25	4,692	161,766	260,125	62.
Nat'l Cap. Parks (1 mo.)				3	703	1,820	1,820	100.
Platt						49,650*	248,252	20.
Rocky Mountain	31,303			61	4,708	45,519	322,005	13.5
Sequoia	30,971	1,149	1,149	3	300	169,451*	208,117	81.
Shenandoah (4 mo.)						8,634*	172,687	5.
Southwestern Monuments	31,035	1,356	5,827	53	4,694	177,259	212,133	84.
Wind Cave						21,322	21,322	100.
Yellowstone	492,841	396		55	10,544	1,003,034	349,795	283.
Yosemite	296,115			28	7,213	723,570	395,213	183.
Zion	35,588			17	4,212	102,217	107,871	95.
TOTAL	1,390,666	3,284	41,213	379	60,268	3,544,600	4,612,694	77.

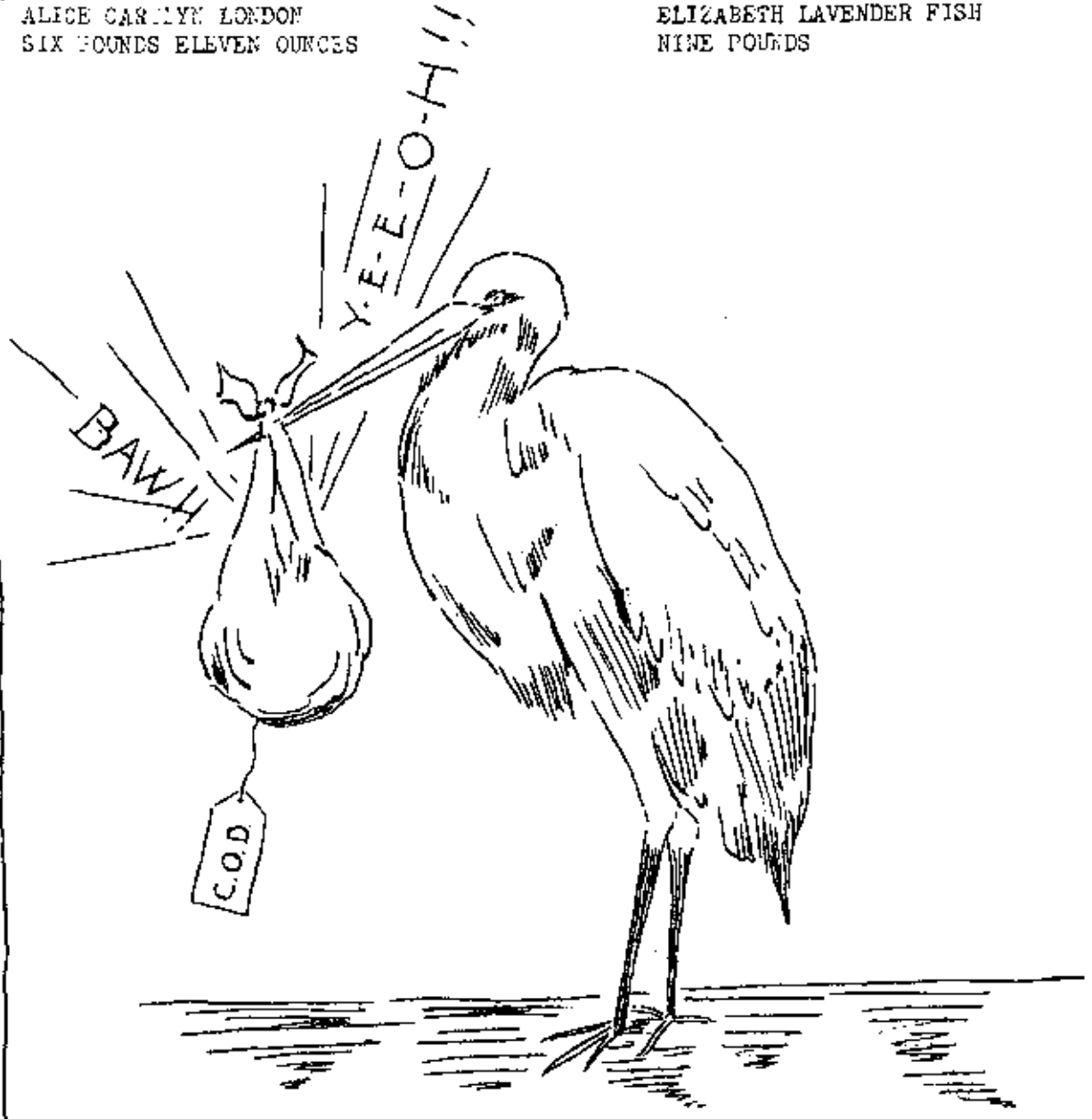
* Estimated.

BIRDS BANDED BETWEEN JULY 1 AND NOV. 1

Bird	Walnut Canyon	Pipe Spring	Tumacacori	Casa Grande
Bluebird, Chestnut-backed	29			
Bunting, lazuli			1	
Arizona Cardinal			4	
Cowbird			1	
Crossbill	28			
Dove, Inca			1	2
Finch, House		1	1	
Flicker, red-shafted	2			
Fly-catcher, Arizona crested		5		
Goldfinch, greenbacked	1			
Grosbeak, Rocky Mt. evening	2			
Junco, red-backed	1			
Mockingbird			2	
Nuthatch, pigmy	12			
Nuthatch, Rocky Mt.	1			
Pyrrhuloxia			5	
Quail, Gambel				3
Robin, Western	3			
Sapsucker, red-naped	4			
Siskin, Pine	38			
Sparrow, Gambel	1			
Sparrow, Western chipping	7			
Tanager, Western	2			
Thrasher, Palmer			1	
Towhee, Canyon			4	
Wren, Cactus				1
TOTALS	131	6	20	6

Oct. 17, 1936.
ALICE CARLYN LONDON
SIX POUNDS ELEVEN OUNCES

Oct. 26, 1936.
ELIZABETH LAVENDER FISH
NINE POUNDS



WESTERN UNION

FEELING UNABLE TO HANDLE ACTLC ALONE AT ANNOUNCING A NEW HELPER JAMES CHESTER SEVEN POUNDS FIVE OUNCES STOP PLEASE SECURE CIVIL SERVICE RATING

JOHNWILL PARIS

CLOSING

I trust you will gain the impression, Chief, that we have been pretty busy down in the Southwestern Monuments this past month, though as a matter of fact the boys have side-stepped a little on the reports and let us down some in this consolidated report. We will have to bring this to their attention and see if they can't do a little better next month. It seems like enough ought to happen even on a dull monument in the slack season to allow the man in charge to write two or three single-spaced pages about a month of it, and I have yet to get one of these boys to admit that he has a dull monument or that he ever has a slack season, so they ought to have no trouble getting together enough interesting information about the month's work to cover three or four single-spaced pages.

We hope the tabular matter filed away in this monthly report won't look too dry at first glance and thus prevent your finding out how interesting it is. It deals with the second most important thing in the National Park Service -- the visitor and it deals with quite a number of him. We are beginning to get some ideas as to what we can and cannot do with him; not that we think we know all about visitors or even that we know very much, but we are getting together a few ideas that have stood the test of several thousand parties, and, probably better yet, we have punctured some lovely theories we used to have which have not stood the test.

In the Supplement to this issue we are running a short article on what studies have shown visitors will do in certain types of museum rooms and we wish you would take time to look over it because it seems to us that the layout of a museum through which a million or so visitors will pass is a pretty serious thing.

Jeff Milton dropped in here the other day and among other things we talked some of the possibilities of making a national monument out of the old town of Tombstone. He has had a great hand in making some of the history down in that part of the country, is now living in Tombstone and is very interested in making a monument of the town if it is found to be feasible. Mr. Milton is seventy-five years young, hale, hearty and sound as a nut, and he has been living Arizona history for the last fifty-five years. It seems to me we ought to have some of our Regional Historians get down into Tombstone for a couple of weeks and make a preliminary study with such men as Mr. Milton and find out just what the possibilities are for that proposed national monument.

It looks like a good season is ahead of us this winter in the Southwest. Reservations at the resort hotels are reported heavier than for several years and winter visitors are already beginning to arrive in numbers in Phoenix, Tucson and El Paso.

Cordially,

Frank Pinkley

THE Supplement



REPAIR AND RESTORATION OF TUMACACORI—1921

By Frank Pinkley,

(Ed. Note: While going through the old files the other day on some other matter we ran into the old report of the work done on the Tumacacori Mission in 1921. The original of this report was filed with the Washington Office, but in reading it over we thought it was of sufficient general importance and has enough historical value to incorporate it here.)

Early in the year it was decided to restore the roof over the nave of the church and arrangements went forward so that the work started the latter part of April.

Our fund for the protection of national monuments being so small as to preclude the allotment of an amount sufficient to complete this work, and there being no way of putting half a roof on this year and another half later on, recourse was had to local aid.

Too much credit cannot be given to the local organizations who contributed funds for this work. The National Park Service allotted $800; the Knights of Columbus of Tucson gave $100; The Arizona Archeological and Historical Society gave $160; the Chamber of Commerce of Nogales gave $600; and the Knights of Columbus of Phoenix gave $100; making a total of $1,760 on hand when the work started. In July and August further allotments of $395 were made from Service funds, so the total amount expended came to $2,155.

The roof was partly a restoration and in part a modern weatherproof construction. Special sizes of bricks were manufactured and burned and with them the badly eroded walls were carried up to their original height. This included raising the front wall ten or twelve feet in the restoration of a semi-circular pediment which originally formed the upper part of the facade.

Logs were brought out of the mountains, hand hewn, stained to give the appearance of age, and put in the places of the old beams. Ocotillos were brought in from the desert, cut to fit, and placed on top of these beams, forming the ceiling.

Viewed from the interior of the church, the roof is a perfect restoration. A complete restoration would not, however, have been so satisfactory from the weatherproofing standpoint, so above this restored portion we built a modern roof, from which the drainage is cared for through the restored downspouts of the old construction. This modern roof does not show from below, being hidden by the parapet walls of the nave, which extend above the roof line.

Aside from work on the roof, the tower stairs, running from the ground level to the bell arches in the third story, were entirely restored, they having been dug out long ago by treasure hunting vandals.

Many other smaller places too numerous to mention were patched and filled wherever it was considered necessary to strengthen walls or remove traces of vandalism.

General Conditions

It must be remembered that the Tumacacori Mission is 18 miles from the nearest town and that, although we had a good motor road to Nogales, railroad shipments were out of the question.

The amount of work to be done precluded the use of labor-saving machinery as the expense of buying or renting it and bringing it out would have more than offset the saving gained by using it.

We were thus forced by circumstances to do the thing which our logic suggested; follow as nearly as possible the methods of the builders in making our repairs. This line of reasoning applied to the men to be used in the work as well as to the methods.

We had the choice of bringing high priced workmen out from town and boarding them in a camp, or of using the workmen of the locality who could live at home while the work was going on. We chose the latter course for several reasons, and while there were times when we were discouraged and thought maybe we had not made the wisest choice, we were at least wise enough not to change horses in the middle of the stream, but carried through the original plan to the end of the work.

The high-priced expert workman would have meant a heavy pay roll over a short period of time and our funds were not arranged so that we could secure them so freely as that would demand. That part of the money contributed by bodies outside our Service could not be obtained on short notice in every case, so it was considered wise to proceed with the work by easy stages rather than to crowd it to a quick conclusion.

Another objection to rushing work of this kind lies in the need of time to note and digest the many points which come up as the work proceeds. Haste would cause many problems to be slurred over, wrong solutions applied to others, and a general tangling of affairs, due to the fact that we were under a heavy daily expense and could not hold up the men to obtain the right solution.

Another factor with us was that the expert workman, be he brick man, cement man, plasterer or carpenter, is not inclined to brook much interference with his methods and more or less friction will be started when one tries to experiment and adapt present day methods to hundred-year-old results.

By using local workmen we reduced our amount of work done per day about

20% as compared with the same number of expert workmen; but since our cost per day was reduced about 50%, the net result was a gain, the amount of extra time used in making the repairs not being a serious factor.

I was unable to be on the ground all the time when the work was going on and this was a decided disadvantage. My other duties kept me going back and forth and it was only the last five or six weeks of the work that I was able to be with the boys practically all the time. Questions arise from day to day which need the decision of some person who knows the causes, history, and environment which led to the construction of these walls. In some of these cases, unless the leader is present, the men must choose between delaying the work for a decision or making a guess which may be the wrong one.

We experienced the usual troubles which a Government man on a small job in a semi-isolated position like this will generally find. Since it was a Government job we were expected to pay high wages and be generally generous and easy. The hardest single phase of running a small Government job is in meeting the payroll. So far as possible local funds were used for this purpose so we could draw checks on local banks and pay off Saturday night or Sunday morning for the week just closed; but toward the end, we had to put the men on the Government payroll, which meant a two or three weeks' delay in getting the pay checks. This caused a good bit of dissatisfaction as these men live from hand to mouth and had no means of bridging this gap and feeding their families unless, as in one or two cases, temporary loans were arranged.

The summer rains caused some trouble although they did no serious damage other than flood our storage room in one case and slack two or three sacks of lime for us, and wet and spoil some cement on its way out from town in another.

There is no intention here to point out only those general conditions which were not favorable to us. Many things worked together for our good, but it is human nature to note and remember those things which cause delay and trouble.

We had, as has been stated, a splendid wagon road from Nogales to the mission over which we could bring in material and supplies regardless of the weather. The matter of drayage over this road developed a peculiar twist which puzzled me for some time before I settled on its cause. It was only 18 miles to town, and a man with a two-horse team could have made the round trip in a day, bringing out a 2000-pound load, but I could never get it done that way. The freighter, a Mexican, would hook up a four-horse outfit, drive down to town the latter part of one day, stay overnight and come home the next day with the load. He thus put in two long half days rather than one long day. It took me some time to figure out that a generation or so ago, when this freighter was

a young man, the roads in that part of the country were none too good and this trip from the mission to town and back was too much to be made in a single day or with less than a four-horse outfit. This man's mind has not changed with the changed conditions and he still thinks that it is the proper way to get a load from town and far be it from him to depart from the ways of his fathers! Since I was paying for the drayage by the hundred pounds, I didn't consider it worth while to try to uproot this local belief in the old customs in this particular case, so the freighter had his way and used all the time and horses he wanted.

The Bricks

In the restoration of the walls we were to use two classes of bricks; the adobe and the burned brick.

The adobes presented no particular problem excepting that the Mission adobe is much longer and thinner than the common size in use today, being 11½ inches wide, 25½ inches long and 2½ inches thick.

The adobe is a sun-dried brick in common use all through the Southwest for building purposes and perhaps a little description of the method of its making might be interesting. Fortunately we had water near at hand in a little ditch about a hundred yards east of the Mission, which, by the way, must be running on almost the exact line as the one the padres used during the ancient days to irrigate their garden and field. The boys dug a pit a few feet to one side of this ditch, removing and discarding the surface dirt as not fit for adobes. The surface soil at this point had been built up a couple of feet in the last century and it was only after going through this accumulation of past generations that the men pronounced the material good 'dobe dirt. About a wagon load of this dirt was then loosened up in the pit and worked over with the shovels until it was fairly well pulverized. Stones and sticks of any size were picked out during this working. Water was then led from the irrigation ditch by a small trench and allowed to run into the pit while the dirt was turned with the shovels until the boys had constructed a magnificent mud pie. The water was then shut off and some refuse straw was worked into the mud. This straw was to bind the mud together when it was dry and to help absorb the rain when it falls on the face of the brick after it is placed in the wall. The men at this stage prefer to work barefooted with their trousers rolled up above the knees and it is a real athletic exercise to mix a wagon load or so of mud while standing on such insecure footing.

When the mixing is finished, one man in the pit shovels the mud up into a wheelbarrow and a second man wheels it away to the moulding ground. This is a level piece of ground which has been raked and dragged flat with a board. The moulder has his mould ready on the ground and the barrow man wheels his barrow up and empties it directly into the mould which is simply a frame without top or bottom having three

or four compartments the size of the prospective adobes. The moulder then gets down on his knees and rams the mud into the frames with his hands until all the frames are full, when he 'strikes' them by raking the surplus mud off at the level of the top of the frames. The two men then pull the frame up, leaving the newly moulded bricks, like so many cakes of black jelly, lying on the ground. While the barrow man goes back after another load of mud the moulder washes his frame off in a bucket of water and lays it out on the ground ready for the next load.

A couple of days after moulding the bricks are dry enough on top to turn up on their edge. Another two or three days and they are dry enough to stack, or, if they are wanted for immediate use, to be hauled to the job and placed in the wall.

This method of manufacture leaves finger and hand prints on the bricks which dry and become lasting impressions, so that the sign manual of our boys went into the walls in the bricks they made. In tearing some of the top material off the walls to start the reconstruction we often saw these handprints left there by the people who laid the bricks more than a century ago. In one case we found a perfectly preserved cockleburr in a brick when we broke it in two, and in another a little blue bead which had probably once been part of a necklace around some dusky throat.

The burned bricks caused us quite a bit of worry before we finally arranged for a supply of them. Seven sizes of burned bricks have so far been identified in the walls of the mission and I would hesitate to say that these were all that were used.

The most interesting size to us, because it was the hardest to manufacture and to lay, was the one we called indifferently the cornice or moulding brick. It is represented by Figure 1, Plate I, is 22 inches long over its greatest length, 13½ inches wide at its greatest width, and is 3 inches thick. In other words it is the size of seven or eight of our common bricks of present day manufacture. One end of this brick is moulded in a scroll shape and a line of the bricks, standing side by side with this scroll end projecting over the wall, forms the cornice.

When we went to a brick man in Nogales and asked him to quote us a price on 1500 of these bricks, he said they couldn't be made; that they were so big that they would not hold together through the drying and burning processes but would crack and go to pieces. When we pointed out that they had been made by the padres out at the mission, he said maybe they could make them but he would hesitate to do so with the soil he had at Nogales. We finally persuaded him to say he would try 1500 of them at 10 cents each. We were not satisfied with this deal but kept looking for some one who would come out to the mission and burn the bricks right on the ground, for the wagon haul of 18 miles out from Nogales, no matter how good the road, meant a heavy loss in breakage.

At last we were able to find a Mexican by the name of Lopez who had had experience in building kilns and burning bricks, who agreed to come out and build us a kiln if we would make up a total of 6,000 bricks. We decided we needed two other sizes besides the cornice bricks to make the proper restorations and, while we would not need as many as 6,000 bricks for this present work, it would be no loss to have some bricks left on hand for future repair and restoration work. The other two sizes decided upon were the wedge shape and the 8 by 16.

The wedge shape brick shown at Figure 2, Plate I, gave us considerable cause for study and it was the better part of two months before we finally decided upon the reason for its shape. Architects, engineers, and contractors, all declared it was built for an arch brick, but all the arches in Tumacacori are built of the plain mission adobes. The wedge shape brick was found too in places where its shape could not be accounted for. It was used on the shoulder or offset of the outside walls, in the pediment on top of the front wall, and one or two other places where the 8 by 16 brick would have given more satisfaction.

The explanation finally arrived at was that it was a dome brick put to a secondary use in all the places we had been finding it. Upon this theory we experimented and found that the bricks laid flat, side by side, with the small end of the wedge pointing inward, formed a circle about seven feet in diameter. Smaller or larger circles could be made by making the cracks between the bricks wedge shaped, at the outer side for smaller circles and at the inner side for larger circles, so that a dome of any size could be started and gradually drawn in at the top without using false work underneath to support it during construction.

This explanation of these bricks checks out with a historical note in Bancroft's Arizona and New Mexico, (Page 535, footnote) where he says: "In 1822 a new church was in process of construction or extension, but work was for a time suspended on account of trouble about the pay for 4,000 head of cattle that Padre Estelric had sold to obtain funds."

Padre Liberes, who was in charge of the Tumacacori Mission from 1822 to 1824 was delayed in his work by lack of funds. He had used up all his standard sizes of bricks in the walls and could not get the necessary funds to burn another kiln. In this extremity he realized that the first thing to consider was protection, and to get protection from the weather for his exposed walls and offsets, he decided to use up the wedge shaped bricks which had been made for the domes over the bell tower and mortuary chamber. He expected, as soon as his funds were available, to go on and burn another kiln of bricks in which he would include another supply of dome bricks, and finish his church, but the church was abandoned before the work was completed.

We arrived at this solution of the problem of the wedge shaped brack too late to keep us from burning a supply of them, so while it was not really necessary, we restored the wedge shaped brick where we found it had been used with the exception of the pediment at the top of the front wall where we considered the 8 by 16 size stronger for the purpose.

A few words of explanation may be in order about the other sizes of the burned bricks.

Figure 4, is a special moulding brick used in the bell tower, the half round projection forming the moulding which can be seen near the corners of the tower, and the frame which can be seen around the bell arches, are made of this brick. Figure 5, is a thin square brick. A line of these bricks was left projecting a t the spring of the arches, just under the bell beams, in the bell tower. They project a little over an inch and were to be covered with plaster, forming a neck mould at the spring line of the arch.

Figure 6 shows what seems to have been intended primarily for a floor brick, although it has been found in one case, at least, in a wall, and in another as a capping for a bench. Figure 7 is the dome step brick. Photographs show a series of 12 steps leading up to the cupola on top of the sanctuary dome. These were for the practical purpose of getting up to the cupola to make repairs should the occasion arise, and for the artistic purpose of breaking the monotonous line of the dome. For a long time I thought these bricks were simply cut to shape out of the 8 by 16 size, but upon close examination they prove to be special diamond shaped bricks made for this particular purpose; only twelve of them were ever used;

The methods used in mixing and moulding the burned bricks did not differ essentially from those described above used in making the adobe bricks. We had to experiment with various amounts of sand and finally mix in a little straw to keep the large cornice bricks from cracking while drying.

After the bricks were well dried they were built into a kiln and burned, nine or ten cords of wood being used in the burning. Their quality, we found when we came to using them, was not so good as the old bricks of the padres. I think this was partly due to the burning; that they would have been better if we had burned them longer, and partly due to the fact that the material we had to use was more or less mixed with the loam of a century's use of the surrounding soil, probably reducing the clay content of our brick as against those of the padres. However they served the purpose for which they were designed and cost us less than they would if we had bought them in Nogales, aside from the saving of the drayage in transporting them and the loss in breakage.

PLATE I - Brick Sizes Used at Tumacacori

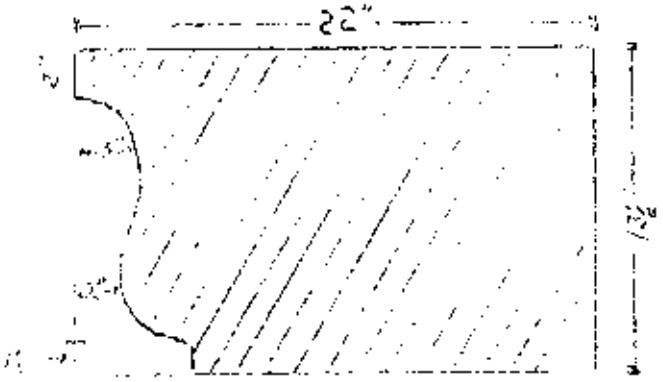


Fig. 1 - Cornice Brick
3" Thick



Fig. 2 - Wedge Shape
Scant 3" Thick

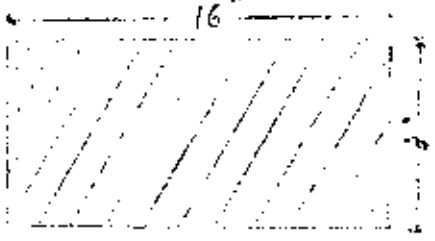


Fig 3 - The 8 x 16
3" Thick

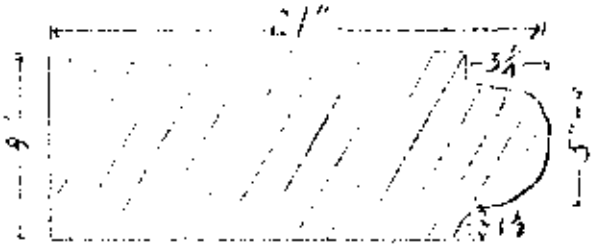
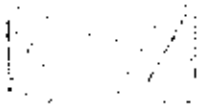


Fig 4 - Tower Moulding Brick
3" Thick



Present Commercial Brick

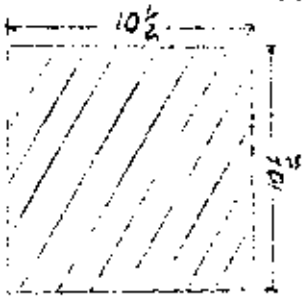


Fig 5 - Moulding Brick
1½" Thick

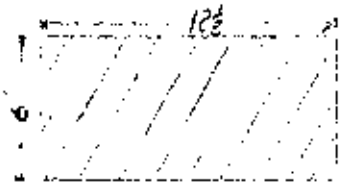


Fig 6 - Floor Brick
2½" Thick

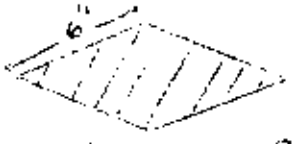


Fig 7 - Done Step Brick
2¼" Thick

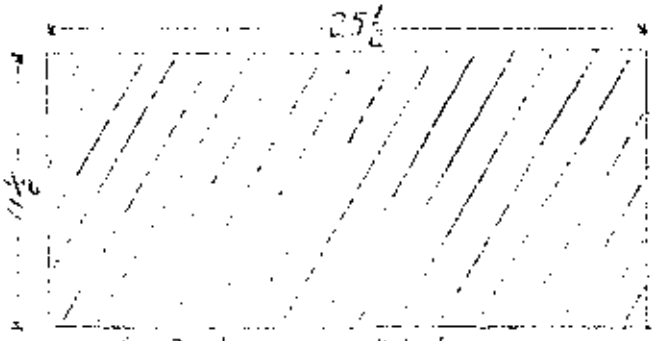
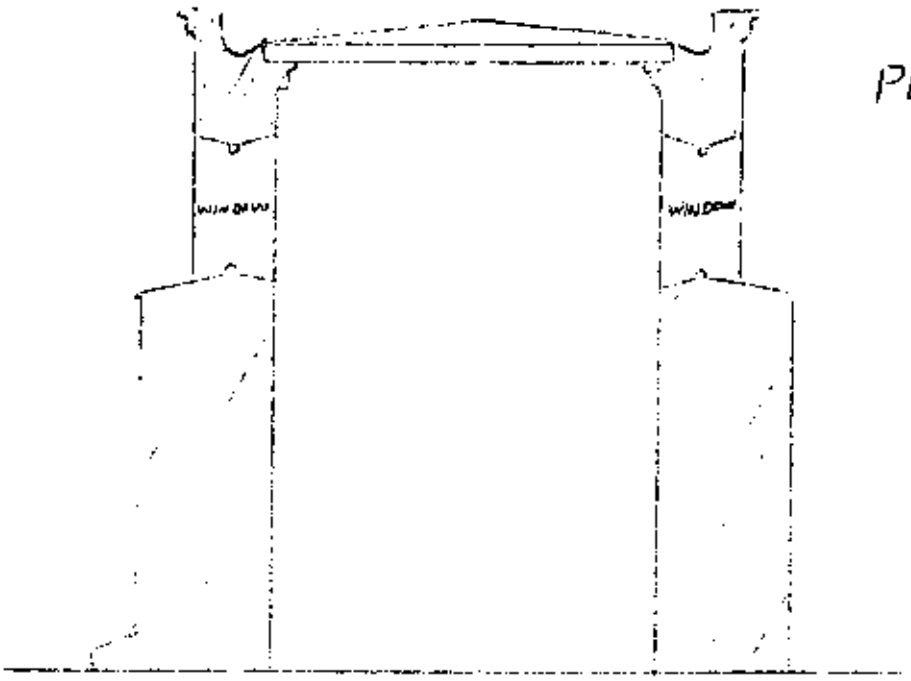
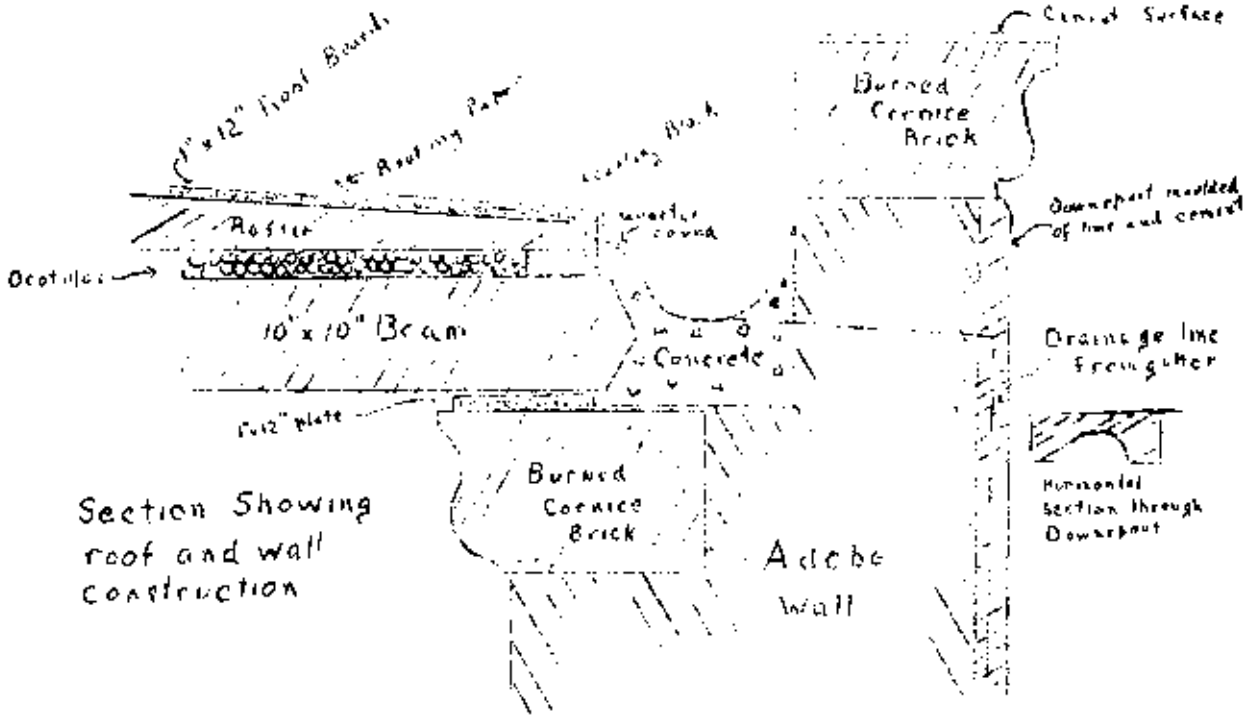


Fig 8 - Mission Adobe
2½" Thick

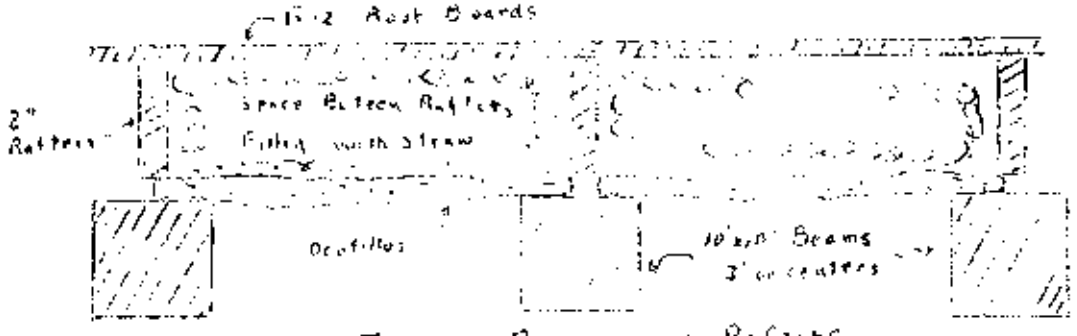
PLATE II



Cross Section, Tumacacori Mission



Section Showing roof and wall construction



Section Through Beams and Rafters

The Timbers

Feeling pretty well satisfied that we had conquered the question of bricks herewith to bring our walls up to the proper height, we next began to consider where we were going to get the timbers for the roof which was to cover the nave. The original roof was of pine timbers brought from the Santa Rita Mountains, at the nearest point about 20 miles away to the east across the Santa Cruz River.

I went over and looked out the country on the side of the mountains nearest to us, going up the White House Canyon as far as it was navigable for a Ford, and going into consultation with a Mexican up there who had lived in those parts about thirty years. He assured me that the timbers could not be brought out that way. There were some large enough for our purpose up near Old Baldy, but it would be a question of snaking them two or three miles over canyons and washes to a point where our wagons could get to them. Before this I had sent a Mexican over who had spent a day and a half looking out the country and he had come to the same conclusion. I believe we looked over the ground where the padres got their pine timber, but all the large trees have been cut out of that part of the mountains in the last two or three generations.

Balked on this line, we had recourse to some Mexicans who had mined around on the south and southeast slopes of the Santa Ritas and assured me we could get trees of the size we wanted around there. This meant a matter of snaking the trees from the point of cutting some distance to the wagons; a wagon haul of about 12 miles down to the railroad; a rail haul of about 30 miles around to Tubac station; and then bringing them across the sandy Santa Cruz River to the mission on wagons. All this was finally done and we landed 26 sticks of timber eighteen feet six inches long, with an average diameter of about fourteen inches, on the ground.

We could, of course, have purchased timbers of the size we wanted at the lumber yard in Nogales; but there is a certain amount of sentiment to be taken into consideration in work of this kind, and I wanted, as far as we reasonably could, to use the materials and methods of the original builders.

I am sure the original timbers were pine because I have talked with two different men who claim to have seen the mission when a few of the rafters were yet in place and both men agreed they were pine. Not satisfied with this, we traced down a story to the effect that some of the timbers were taken out of the roof by Mr. King in the 60's or 70's and built into a house across the river. We found that the railroad, in building from Tucson to Nogales several years ago had condemned the land this house stood on for a right-of-way, destroyed the house, but had left one timber lying along the right-of-way. This timber laid there until a couple of weeks before we got interested in it when a clean-up gang of

section men set fire to the weeds and grass on the right-of-way at that point and burned the timber. We were still able to get our evidence however for, although we lost the pleasure of being able to restore an original timber to the roof, we were able to tell by an unburned portion of one end that it was pine, to get the approximate size of the rafters, and, by measuring the ashes on the ground, to get its length, which checked with the width of the nave of the church.

After getting our timbers on the ground we had our work cut out, so to speak, to get them hewn square and get them up on top of the 24-foot walls of the nave. We were all new to this work but by this time we were getting the habit of developing our own methods as the various needs arose so we got an axe and an adze and experimented until we were able to square up timbers which are passing inspection today by hundreds of visitors as a first-class job.

One day as I was squaring one of the pine timbers with an adze and thinking how, just about a hundred years ago, on this same plot of ground, a priest with his robe tucked out of the way was swinging a similar adze on another pine log from these same mountains, I was called back into the present by the drone of an airplane and, leaning a few minutes on the handle of my adze, I watched the silver glint of the sun on the wings of the plane as the man on fire patrol over the Santa Rita Forest Reserve went off duty and flew home to Nogales, making the 18 miles from our place to town, which would have cost Padre Liberos a weary half day, in about 10 minutes.

We spoke often while we were at work of what the padres would think could they revisit today these scenes of their labors.

When the timbers were squared out we devised our own tackle methods for getting them on top of the walls and succeeded in a couple of days' hard work in lifting them up safely without damaging the walls or breaking any heads. Here they looked entirely too new and white, so we decided to darken them a little to give them the appearance of age. We experimented with some crude oil diluted with kerosene and after painting and repainting some sample beams two or three times, attained what we considered the proper shade and went over all of them. The proper shade was largely a matter of guess-work for we were using the stain in the open air and bright sunlight and it would be seen against the semi-dark ceiling of the roof from the interior of the church, so we had to make it several shades lighter than we expected it to look later on. We were very fortunate in hitting upon the correct shade, and many visitors, looking at the roof now upon entering the church, think the beams are the original ones and are a hundred or so years old.

The Ocotillos

The construction used in the original roof was to set the main

beams about three feet on centers and then crosswise over them put on a layer of ocotillo stems, ribs of the sahuaro cactus, or small brush. On top of this second layer was a layer of grass and above this, either dirt, with a lime surfacing in which bits of bricks were bedded to give strength, or the lime may have been put on the grass without the intervening dirt. By a process of elimination we decided the padres must have used the ocotillo stems. The sahuaro cactus does not grow in the vicinity of the mission and the ocotillo stems would have been much better for the purpose than the more crooked mesquite or the small reeds or brush which might be found along the river.

The ocotillo is confused by the average desert visitor with the cactus family, but it belongs to a very small family of its own, Fouquieriaceae, having only one genus and a very few species. Armstrong in "Western Wild Flowers", gives the following description:

> "A magnificent desert shrub, when in full bloom, but strangely forbidding in aspect in spite of its beauty. Its many stiff stems, from six to twenty feet tall, entirely without branches, stand up stiffly from the root, like a bunch of wands, and are armed their whole length with terrible thorns, which in the spring are masked with beautiful foliage, like little apple leaves. From the tip of each wand, springs a glorious cluster, from six to ten inches long, and crowded closely together, suggesting a flame and waving to and fro in the wind with a startling effect against the pale desert sand. When the flowers and leaves are gone, the clumps of dry, thorny sticks look quite dead and it is hard to believe that they were so splendid early in the season."

Having decided to use the ocotillos to cover our beams, we began looking for an available supply and seeing what they would cost us. They grew rather sparsely on our side of the river and were back up on a mesa where we could not get to them easily with the wagons, so we decided to bring them over from the other side. This we found to be quite a little job, and before we had brought over as many as we needed, the river got up and cut us off from that supply and we were forced to get the remainder on our side. It was fortunate that we only needed part of a wagon load to complete the work, for it took two or three days persuasion to get the Mexican to go out and gather them on the rough mesa.

Other Materials

Sand was obtainable in two or three washes a short haul from our work, and toward the end of the job an obliging young cloudburst washed down a plentiful supply about thirty yards from our mixing box.

Lime and cement were purchased in Nogales as was lumber, roofing paper, and like materials. We found we could not make a straight lime mortar which was strong enough to suit us, so we put cement enough in to make it the strength we wanted.

The Need of Protection

Having explained the sources of our materials, we are now prepared to take up the need of protection and the work itself.

The need of protection, and the primary cause of the restoration done in this work was protection, was very great. Destruction at the Tumacacori Mission has occurred from two main sources; the elements; and treasure seeking vandals.

A century of storm and sun had disintegrated surface in many places and eaten into the adobe walls. Settling cracks occurred in some places, due I think rather to the weight of the walls than to any earthquake, such as destroyed the towers of Cocospera in 1886 or 1887. The tops of the walls of the nave had worn down two to four feet and in some places we had to cut another foot or two off to get down to a solid footing so we could begin to build up the new wall.

The Treasure

Almost all the vandalism can be traced to the treasure hunters. For generations tales of buried treasure have hung around the Tumacacori Mission. If one is to believe all these tales, the padres spent all their time in mining and reducing immense amounts of gold and silver and the church was rich beyond computation.

Most of the vandalism has been done, not on any system but on 'hunches.' A scoundrel with a pick and shovel seems to have felt free to walk into the church any day and dig here, there and yonder without rhyme or reason. It never seemed to dawn on his dull brain that if the padres were hard-pressed and decided to abandon the mission in haste, they would hardly try to secrete any valuables by tearing up a perfectly good cement church floor where the soft earth and broken material would be sure to tell the tale to the first visitor, when they could go out into the garden and dig a hole in the freshly turned earth where a newly covered hole would merge into the rest of the soil and would not be noticed twelve hours after the work was completed.

One school of treasure seekers are trying to use some system in their work, but, so far at least, have not attained any success. In my work as custodian of the Tumacacori I have happened upon four copies of a document in the hands of different treasure hunters, from which they were constructing charts with which they were expecting to find the mines and treasure of the padres.

While it is not exactly germane to our subject of the repair and restoration of the Tumacacori Mission, a copy of this manuscript might be of interest, and I will insert a fairly accurate translation here, leaving the distances blank at the request of the person who allowed me to transcribe this copy.

The Manuscript

"One document which dates of the years 1558 to 1662. It expresses as follows:

"The mine which is called 'Virgin of Guadalupe' close to Tumacacori, it will be found at -- leagues, measured from the great door of the church to the south, and from the waters of San Ramon measured to the left---varas to the north. About --- varas before arriving at the mine is a black rock engraved with a chisel. On the rock you will red the inscription $\frac{CC\ D}{T\ D}$ and --- varas from the cross you will find the treasure and that is what the letters signify.

"At --- varas after you pass the black rock you will find a small monument in the direction of southwest. It is two peaks which were demolished by powder and fell over the mine in great masses. Without more testimony than the powder put in the cliff the place was abolished forever so people could pass over it and it would never be seen.

"In a certain place exists one square of --- varas in a square inside and outside the mine and the treasure is in the middle of the square. In the mouth of the mine there is silver and gold and white silver. The gold was brought from the mountain of Guachapa close to Tubac. The silver consists of 2050 bars smelted together with 905 of virgin silver. The whole amounts to the value of about 50,000,000 (pesos?).

"Ahead in the same direction to the south at -- leagues from the mine of Guadalupe there is a passway which is called 'Deep Water,' It has at the south, by the road of the passway, a canyon which opens out at the town of Santa Cruz. The mine will be found when you get in the pass. Below the said pass way are 12 arrastas and 12 patios. There is one tunnel of 30 varas which has the name 'Purissima Conception' engraved with a chisel. A tunnel runs to the north and about 20 varas ahead there is another tunnel, small about 100 vares, and it runs to the west. The ore is yellow. It runs 1/2 silver and 1/5 part gold.

"At --- varas there is a mine in the direction of north. You will find in this native silver from one pound to at least 5 arrobas, the greatest. This mine will be found covered or hidden by a copper door; it has enormous iron bars, everlasting. The copper was brought from the neighborhood of the mountain of Guachapa in the neighborhood of Tubac, smelted in Tumacacori and was taken with oxen to the mine in the years 1558 to 1658.

"From the mine 'Purissima Conception' to the mountain of Our Lady of Guadalupe there are --- leagues and half way on the road in the same direction there is another mine. It will be found by the name of 'Opata'. It has a tunnel 400 varas long and it runs to the south. The metal of this mine has a lime contact, and about 300 varas from the mouth of the mine there are some inscriptions and furthermore there is a long black mesa from the side where the sun rises and sets. Follow a deep canyon to a rock slide. You will see one inscription made by a bar. Here is a hole 1/2 vara deep and it will last forever. Opposite, to the south of the canyon, you can see the mark of the gold. At the side of the canyon to the north of the mark we have --- leagues from mine Opata to Tumacacori. The mark is to the west.

"On the other side of the mountain you will find the mine of Our Lady of Guadalupe. You will find the letters engraved "P. L. R. 12 Dec. 1508". This mine was found by chance and all her interests remain in charge of Tumacacori. In this mine will be found a copper box. It has a key hanging on one corner. There is a set screw which you open and then there is a rod which you pull out and open the box. There will be all the maps and the great treasure.

"If any one by chance will have the great fortune to find one of the mines he shall be obliged for the good of his soul to give 10% to the mother church.

"In the year 1558 belonging to Tumacacori was a mine by the name of San Pedro which you will find --- leagues from the mine Isabelle. The river is to the north --- leagues and the mine is close to some black rock at the point of the mountains. From this point a trail goes to the mine San Pedro, in a line with a line of the mountains at a point of the bar. The mine is --- leagues from the side door of the church to the west and when the sun rises it is directly in the mouth of the mine, and from this mine you can see the town of Arivaca.

"From the Virgin Guadalupe it is --- leagues to the mine San Pedro. There is a landslide of about 1/2 vara from the top to the bottom of the canyon. There is a trail that descends from the mine San Pedro. It comes down to the Virgin Guadalupe in the direction of the south to the mine of San Ramon. The eyes will be engraved in one rock. In the mine of San Pedro will be found enormous slabs of virgin silver, two deposits of virgin silver. There is a wooden door. To the west there is a landslide and in it there is a deposit, and to the east there are others, and at a certain place there are three deposits containing all pure virgin silver.

"And notice is given that any person who finds this mine will be obliged to give to the mother church 10% and repair this church, and the Lord will bless his soul."

(The following notice is appended to the copy of one document which I saw.)

"Notice: The original of this document was in the archives of the parish of Magdalena, Sonora, and from there it was taken by a priest to the museum of Paris."

It will be noticed at once that the dates of 1550 to 1658 given in this document are entirely too early. Tubac, Tumacacori, Arivaca, and several of the names given here, do not appear in history until after Kino's first visit in 1691.

Yet the internal evidence points to the fact that all the copies of this manuscript which I have seen came from some master document. On the face of it it looks like a hoax, yet I know two or three people who believe earnestly that it is an honest document and points the way to real mines and treasure.

The local population felt quite sure we were treasure hunting when we ran some experimental trenches in the odd hours after quitting time in the evenings. The main object of this trenching was to establish, if we could, the location of the older church. We failed in this, but we did pick up a few interesting points in the plan of the quadrangle so the work was not wasted. The trenches were filled up when we were through with our examination, as to leave them open to the elements was simply to invite further destruction. We have two pits still open on an unfinished trail which we hope will uncover one of the bells.

The Lost Bells

That the Tumacacori Mission had a bell in each of the four arches

of its bell tower can be seen by an examination of the tower today. It must be remembered that in these missions the bells were not mounted to swing as are our church bells of the present time, but the bell was hung in a stationary position and the rope was attached to the clapper, so the bell was really tolled instead of being rung. A great beam of oak brought out of the Tumacacori Mountains west of the Mission, is still bedded in the walls of the tower at the top of each of the bell arches. The beam in the south arch shows the marks made in it by the rawhide rope by which the bell was hung. Since this was the front arch, and the bell hanging here would be the one most often seen from below, it is reasonable to believe that the largest bell hung in this arch. The person ringing the bells would have stood almost under this south bell, making the pull of the rope here slightly different from the others, probably imparting a slight swaying motion to the bell, which has caused the rope to chafe the beam. A bell hung in the east arch as is proven by the marks left by its ringing rope. The piers of the tower are so large that the rope running from the clapper of the east bell to the place where the ringer would stand in the south arch, cut into the corners of the piers between these two arches, so that today you can see six or eight deep marks, some of them almost a hand's breadth deep, which the rawhide rope cut into the bricks in sawing back and forth whenever this bell was rung. The same marks can be seen where the rope from the bell in the west arch cut into the corners of the southwest pier of the tower. If the bell in the north arch had always been rung by pulling its rope from the south arch, we might now have no evidence of its existence; but for some reason the ringers sometimes pulled its rope over through the west arch, probably while standing on the roof near that arch, and so the rope left its story on the northwest pier of the tower. It may be taken then as a fact that at one time four bells hung in the four arches of the tower.

Legend has it that, shortly after the abandonment of the mission, the bells were buried by the Indian neophytes to prevent their destruction or removal. I am inclined to believe this legend is based on facts. The bells were so heavy that their transfer further south would have been more or less of a problem; they were not needed further south either, for, owing to political disturbances in the period of 1820-1830, the church was having a hard time holding its own without expanding and building new churches which would need new bells; and I think the padres expected, when conditions grew more favorable, to return and re-establish the mission at Tumacacori. The legend was strengthened some years ago when a Mexican or Indian man turned up in Tucson with two bell clappers which he claimed belonged to the bells of Tumacacori. The people connected with the university made up a small purse and purchased them from the man and they are at present in the university museum. They have every appearance of being hand hammered and are crudely shaped. The man claimed that he had dug these up, knowing from the story which had been handed down through his family where they were buried. For some

reason, according to this man, the bells and clappers were not buried together, but if the family story was true, then he knew where the bells were.

He was offered a further sum if he would bring in the bells, but he reported afterward that either the story was wrong or he used the wrong landmarks, or some one else had removed the bells, for they were not where he had dug for them and he was unable to locate them.

One day, while we were at work on the repair of the mission, an old Mexican who had been born and raised at Tubac, which is about 3 miles away, came over to smoke and talk awhile and incidentally asked why, since we were fixing the mission up, we didn't hang one of the bells in the arches. Upon our explaining that, like the immortal Barkis, we were "willing" but did not know where the bells were, he said he knew where one of them was. He then went on to say that he had known from boyhood by the local tales, where the bell was buried, but had not dug for it until about 35 years ago when a rumor became current that it had been removed. Upon this, he and another man came down to the mission and sunk a pit about eight feet deep where the bell was supposed to be located, and found it. Having proved that it was still there, and having no reason to remove it, they filled the pit up "And," he very logically concluded, "if no one else has taken it away I suppose it is there yet." He said it was at the foot of the bell tower about three feet out from the wall and he would show us the exact spot some time when no one was around. Upon this offer I told him that if what he said proved to be true I would raise a fund of $25 to repay him for his care in keeping the secret and delivering it to us.

On the strength of this story we sunk a pit about four feet square and eight feet deep on a spot he pointed out, but the dirt we took out had not the appearance of having been turned before and there was no bell at the bottom of the pit. We then set over about eight feet to the west and started another hole, thinking we would go down on this, run a drift between the bottom of the two pits and explore a little from the sides of both of them before we gave up. So far we have not had time to do this and I am unable at this time to either prove or disprove the old man's tale. This trenching was all done at odd hours and toward the end of the repair work I was working ten or more hours a day on the mission and had no extra time for this bell hunt. We did develop a lead which had us excited for a while. In the second pit, when I had gone down a foot or so, I uncovered a rotted stick standing vertically and axe marks on it proved it was not an old root of some bush which had grown there. The ground, too, had undoubtedly been turned once before. "Ah!" we cried, "the old man, when he found the bell, left a marker which he has forgotten to speak of." Needless to say, we worked quite earnestly after this and were soon down to a depth of about four feet when the shovel grated on a metal object!

It proved to be an old bucket.

I know now that a couple of the Alegria boys had prospected for this bell in that pit about 16 years ago, but, becoming discouraged, had laid this joke which took so long to come to light. It was a good joke on us. However, they had stopped at a depth of four or five feet and the old man was q uite sure his pit was over his head when his shovel touched the bell. So this old prospect hole didn't go deep enough to prove that the bell is not there.

The Pilar

A very heavy rain during the rainy season sent a large amount of water down past the mission and the erosion caused by this exposed a brick wall about 21 feet south of the southeast corner of the bell tower.

We examined this wall with some trenches and found it was built of the 6 x 12 burned bricks (see Fig. 6, Plate I), was about 12 feet long and turned south at both ends but, owing to its badly broken condition after it turned the corners, we gave it up. The wall which we developed was beautifully finished on the south side with a hard plaster resembling cement, and the floor, which we found about two and a half feet lower than the entrance threshold of the door of the church, was finished with the same material.

We decided this could not be the wall of a house because it was of burned brick and no other house on the grounds has brick walls; the floor of this structure was too low to have been on the ground level and not low enough to have been part of an underground room; and a house here w ould have destroyed the view of the facade of the church as one approached from the south. We pitched upon the explanation that this was a reservoir in which water could be stored. A day or two later a Mexican who had been born and had lived all his life near the mission happened along and confirmed our supposition. He said he remembered when he was a small boy he had visited the mission many times and at that time two of these reservoirs, which the Mexicans call a pilar, were in evidence. They occupied the plaza just in front of the church, were not very far apart, and between them was the evidence of a round well which had been lined with burned brick. We never got time to check this story up with trenches, but I believe it is substantially correct. It is to be hoped that we will at some time later be able to uncover and reconstruct this portion of the plaza, as it will make a pleasing foreground to the pictures of the facade of the church.

The Bench

At another time we opened a trench at a point about 14 feet north and 25 feet east of the southeast corner of the tower. It must be remembered that a row of rooms ran east from the tower, and this point

we opened was the junction of a wall running north from the back, or north side of this row of rooms. We afterward found that the wall running north was the east wall of a row of rooms, so this corner which we went down on was a corner of the quadrangle.

Along the walls forming this corner we found a bench or seat formed of adobe bricks built up some 16 inches and then capped with the 6 x 12 burned bricks and then finished off with a beautiful hard, red plaster. On the floor level we found a floor of the 6x 12 burned brick, several square feet of which was still in good condition.

Here again we were unable to continue our work and make a thorough examination, but I am sure this was part of a seat which ran along the house walls on the inner side of the quadrangle, and on this very part which we were examining Padre Liberos may have sat down to rest after a weary day spent with his neophytes in the village and field and garden, and watched the unpacking of a newly arrived pack train from far to the south bringing in material and supplies which he needed so badly to continue his work. The brick floor at the foot of the bench is a part of the corridor floor and one looked across it, through the sweeping arches into the sunshine of the quadrangle and felt that here was a mass of buildings, built at an immense expense of time and labor, but fit to endure for centuries. Little did he think as he listened to the clatter and jingle of the harness and the chatter of the Mexican and Indian attendants, that a scant hundred years later we would be opening trenches here in the debris of his walls in an attempt to discover the use of the various buildings!

Assembling the Materials

The actual work of rebuilding the walls and restoring the roof went along very slowly. The walls were so thick that it took a surprising amount of time and material to make such of a showing. At first we tried out the method of carrying all material up by hand, but this consumed so much time that we afterward put in a rope and pulley. We had to work out a special method of handling the cornice brick when we came to that point in the construction. It will be seen by a study of the cross-section sketch of the nave given in Plate II, that a row of these bricks come just under the roof beams on the inside of the church.

These cornice bricks, you will remember, were about 13 x 22 inches in size. We found that the simple method of laying the brick flat, covering it with mortar and then turning it up into place, would not work at all. The common run of mortar was too stiff to work down between the bricks if we stood them in position and then tried to fill the cracks. We next mixed the mortar to the consistency of a thin slop and tried pouring it between the bricks after they were set in position. Being so thin, the mortar promptly ran out of the crack at both ends of

the brick. We finally found that two men could work best on this job. The mason would set up the fresh brick at the proper distance. The helper then held a board over the crack at the back end and a special mould cut to fit the front curve, over the front end of the crack, while the mason upset half a bucket of morter into the crack. In less than half a minute the mortar was set enough to allow the boards to be removed and the process could be repeated on the next brick. Since each of the bricks had to be lifted, carried, set and lined up, separately, it will be readily understood that a good bit of time was consumed in laying these cornices.

After laying the inner cornice, we stopped the brick work two or three days until we could get the beams up on the walls. These beams do not rest directly upon the brick cornice but upon some one inch board plates which we put upon top of the bricks. Our idea in this was that if a beam warped or twisted after being laid, these plates would distribute any strain from falling directly on the noses of the cornice bricks and breaking them off.

The beams were unequal in size, running from about nine to about twelve inches square. The problem raised by this was whether we were to let the bottoms of the beams remain even and let the unevenness all fall along the top line of the beams, or whether to cut some sockets for the large beams and distribute the unevenness between the top and bottom lines. We decided on the first method and it proved very satisfactory. The bottoms of the beams fall evenly along the line of the noses of the brick cornice or moulding and the irregularities of the tops are not noticeable because there is no regular or even line there to force a comparison.

We did another good stroke in the distribution of these beams when we began at the entrance end of the nave with the smallest and ended at the sanctuary end with the largest, grading them larger and larger as we went forward.

The idea in doing this was that the visitor will almost invariably examine the roof construction as soon as he enters the church and will not pay attention to its details afterward. Now the nave is 73 feet long and this method of putting the larger beams at the far end makes all of them appear about the same size, while if we had put in any small beams toward the front of the nave, at that distance they would have had a sort of pipe-stem effect.

We had decided as soon as we hewed the beams out that they looked entirely too fresh and new for our purpose, so we looked around for some method of aging them in the wood, so to speak. For this purpose we used common crude oil, cutting it to the shade we desired with kerosene. We did not dare apply this stain until the beams were up on the wall because it did not dry very fast and we were afraid the handling

and the hoisting tackle might leave marks on them. After the beams were on the wall and before we had built the bricks in between them to hold them solidly in place, we applied the stain. The work of this was not hard, being simply a matter of brushing the stain on with long handled brushes, rolling the beam a quarter turn at a time until we had covered all four sides; but the mental strain of deciding out in the bright white sunlight under an Arizona sky what shade to apply to give the best result in the semi-dark interior of the church under the completed roof, nearly wrecked our force. We worked one beam over three times before we thought we had the shade and then after painting four or five beams that shade, decided to darken it a little. The boys considered this 'piddling' all foolishness, but the result when the roof was completed is fine.

We set these beams three feet apart on centers. We did not need such heavy beams nor need them so close together to support the weight we had to carry, but a t this point the roof is a restoration of the original which did carry heavy construction above it.

Having the beams stained and finally bedded down, we next set the roof rafters above them. The roof must have a pitch as low as we could give it and get drainage, for it must not show over the low parapets of the side walls of the nave. To get this result we used 2 x 12 timber laid on edge sawing them to a ten inch fall in a nine foot run. One of these rafters was set on top of each beam, and, since the tops of the beams were uneven, each in itself as well as with its next neighbor, it cost us two or three days' work to get the rafters lined up.

Having our beams and rafters in position, we were then ready to lay our ocotillos. These had been cut into fairly straight sticks 38 inches long, a nd were laid from one beam to the next on top of the beams between the 2 x 12 rafters. We did not lay these ocotillos straight with the longer axis of the nave, but laid those in the first row, that is between the first beams, slanting to the right, the next row slanting to the left, and so on. Viewed from the floor of the church, this gives a pleasing effect, and we have good precedent in that several of the old churches are so roofed.

The intention was to use the ocotillos alone for this ceiling effect, but when we came to put them in, we found that if we laid them two layers deep, as we had decided to do, one might, in places, still be able to see up between them and discover the modern board roof we were going to put on the rafters above. This caused us some worry but we solved the difficulty by going out to one of the neighbors and buying a ton of hay which we put on top of the ocotillos. Some showers came along at an opportune time and settled this hay down close before we put the roof on, so the reconstruction from the under side of the roof is perfect.

Finishing the roof was simply a matter of nailing 1 x 12 boards on on the rafters and covering them with a good grade of roofing paper.

While we were working with the beams and ocotillos, the walls of the nave had been brought up to the original height and the parapets had been finished off with a course of cornice brick. The top of this parapet was flushed over with a mixture of lime and cement to prevent erosion and this was carried down the back of the parapet to the gutter.

The cornice brick around the sanctuary walls, which are still in place, were tilted outward so that the rain drains off over the nose of the bricks and follows the face of the cornice down, causing erosion of the wall just under the cornice. We were careful to drain our parapet walls to the inside so that the rain will not run outward over the nose of the bricks but back and down the parapet into the gutter.

The gutters were made of a rubble of lime, cement and rocks. This was poured into place and shaped with trowels and a half round wooden float which we made for the purpose. We took great care to make the joint between the wooden roof construction and the cement gutters absolutely water tight. For this purpose we used a special plastic roof cement which is laid with a trowel. We used this plastic cement under the roofing paper, on top of the paper, and on top of a piece of quarter round moulding which we nailed into the angle where the paper and cement meet. I think the roof will leak any other place before it leaks at that joint.

As is stated on page 10 the roof drainage was handled by means of 18 downspouts. Nine of these took care of the water from the roof of the nave, five on the west side and four on the east side. These drains were all in bad condition and we had to repair what was left of them as well as extend them up over the new wall which we had built. They were originally made of lime but we used cement for restoring them. The water comes into these drains from the bottom of the gutter by means of openings just under the cornice of the parapet as is shown in the detailed drawing of the roof and parapet construction in Plate II.

In repairing these drains we opened the debris lying against the base of the west wall of the church to get at the foot of them and found a rock abutment wall running along the base of the church wall. The drains ran down to this and the water must have run on over this abutment wall and made its own path away from the church as we could find no signs of open drains on the original ground level. The rock abutment is not an integral part of the church wall but has been built after the church wall was completed and plastered. It is carried back along the west side of the church and the north and west sides of the cemetery. Evidently, since the west is the high side of the building, the water coming down off the mesa has given the padres some concern for fear it would wash the walls on that side and they have taken this means to

protect their construction.

Rebuilding the pediment was the most interesting single piece of work we did. The pediment was broken off at the line of the lintel which crosses the facade over the choir loft window. We had two pictures to work from which were taken before the fall of the original pediment. One of these was a direct front view and the other was taken from a point about 200 feet southwest of the building. These views are published in a recent book on Mission Architecture by Mr. Duell, as having been taken in 1880, but this is a mistake. The pictures were taken by Mr. George Roskruge, of Tucson, on July 3, 1886. I was glad to get this point cleared up very recently, for two interior pictures taken at the same time, show no beams over the nave. Now two men have assured me they saw some of the roof beams in position, one in 1882 and the other in 1886 or 1887. If the Roskruge pictures had been taken in 1880 they would have proved the men to be in error, but since they were taken in 1889, not only does the evidence of the two visitors stand, but we can date the fall or removal of the last beams of the roof of the nave between 1886 and 1889.

We were able to locate the footings of the gables which are attached to the face of the pediment quite accurately by the brick sockets which still remained in the lime plaster on top of the lintel. The diamond-shaped figure above the ends of these gables is in its proper place but we will not know until next July, when we can compare the shadows of the real diamond with the one in the picture, whether or not it projects far enough from the wall. If we find it is not far enough out, we can build it up with plaster.

To get the curve line of the pediment I sat at the point where the Roskruge picture was taken and had the boys experiment with different lengths of sticks, swinging them in the plane of the proposed pediment and using the center of the line across the shoulders of the facade as the center of the pediment, until the end of the stick covered the proper bricks on the tower in the background. We then used this stick as a radius in building the pediment.

The ball on top of the pediment, which carries a cross, is partly original. In the excavations a couple of years ago, when we cleaned the debris out of the nave of the church, we found about a quarter of this ball. It had a socket running from top to bottom, and when I saw it I remembered a plate in Rinton's Handbook to Arizona, 1878, made from an artist's drawing, which showed a cross mounted in a ball on top of the facade. So this portion of the ball is again resting in its original place.

Minor Repairs

The stairs in the tower, described on page 9, are completely a

restoration of ours. Vandals had not only torn out the old steps, but had dug several wagon loads of material out and thrown it back into the baptistery. Evidently they thought the treasure was buried under the steps.

We made no attempt to put these steps in with accurate workmanship. The effect we were striving for was the old stairs after some use and a hundred years of abandonment but without the touch of a vandal pick. That we succeeded pretty well is shown by the fact that more than half the visitors who had not seen the mission before we started our work, thought the steps were the original ones, two weeks after we had completed them.

A large hole in the back wall of the sanctuary was closed up. Many visitors thought this hole was originally a window. I knew it was not for it showed no marks of lintels to support the wall over the opening, and, although the padres were sometimes faulty in their construction, they would not put an opening in the back wall of the church directly over the high altar where it would make a glare of light to blind the eyes of the neophytes in the nave as they tried to see the ceremonies in the sanctuary. The Mexican who had visited the mission in the 80's told me there was a niche for a statue there over the high altar, and I am inclined to think his memory is correct. Vandals probably dug through the wall back of the niche looking for treasure.

The lighting of the sanctuary was wonderfully improved by closing this hole. I had many times tried to imagine what the interior would look like with a roof over the nave and this hole in the sanctuary wall stopped, but the effect was better than I had imagined.

There are five windows in the nave of the church, two on each side and one in the choir loft over the entrance. These windows light a space 17 feet wide by 73 feet long. There are two windows in the sanctuary which light a space 17 feet square. It will be seen at once, then, that the sanctuary is better lighted than the nave, and this is as it should be. Furthermore, the sanctuary windows, being higher up in the walls, give a sort of overhead lighting which must have brought out the decorations on and around the high altar. The quiet, the restfulness, the coolness, and the softened light of the nave, tended to center the attention down through the great arch, to the high altar in the sanctuary.

Tumacacori is not the most spectacular mission in this chain which Padre Kino founded, but its interior was well designed and very effective.

CONCLUSION

I wish to say in conclusion that the repair and restoration work at the Tumacacori Mission is by no means finished. The work will be

carried on as funds permit until we have this monument in condition to stand the erosion of the elements without serious deterioration. It is to be hoped that before many years we will be able to keep a custodian in charge under full pay, who can live at the monument and prevent vandalism and give the information to visitors which they desire so much.

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MUSEUM CIRCULATION By Frank Pinkley, Supt.

Because our proposed museum at Tumacacori National Monument is a comparatively small one, and because we have some individual problems in that installation, we have had some very interesting discussions regarding the plan. The building is planned around a patio and we want to open the rooms out into the loggia so that visitors will go into a room, turn to the right, go anti-clockwise around the room and come out by the door by which they entered, go along the loggia to the next room and repeat the process there. The other method is to open the rooms one into the other in series by connecting doorways. We do not like this method so well because few visitors will circle a room which has an outlet at the far end. We have argued that the visitors will enter room 1, turn to the right, go down the right hand wall to the far end, and will then go through the doorway into room 2. Since, in an archaeological or historical museum the material on display must be presented in some sequence from case to case, wall to wall, and room to room, it is pretty clear that this trick of passing down the right hand side of your rooms and leaving the left side unnoticed is going to wreck your chances of getting your material examined in the sequence in which you had planned.

I wish here to quote from pages 105-06-07 and 108 of Problems of Installation in Museums of Art, by Arthur W. Melton, Instructor in Psychology in Yale University. This is one of the Publications of The American Association of Museums, New Series No. 14, Washington, D. C., 1935.

> "As previously mentioned, we have records of the exact routes taken by the visitors in going through the Flemish-Dutch gallery. In Figure 21 we have shown the types of routes taken by those visitors who turned to the right on entering the gallery, and the frequency of occurrence of each type. In Figure 22 we have given a similar schematic presentation of the routes of the visitors who turned to the left on entering the gallery. In both instances the representation is of the records of Sunday and week day visitors observed during the first installation of the paintings, and all proportions are based on the total number of visitors observed, regardless of the direction of the first turn.

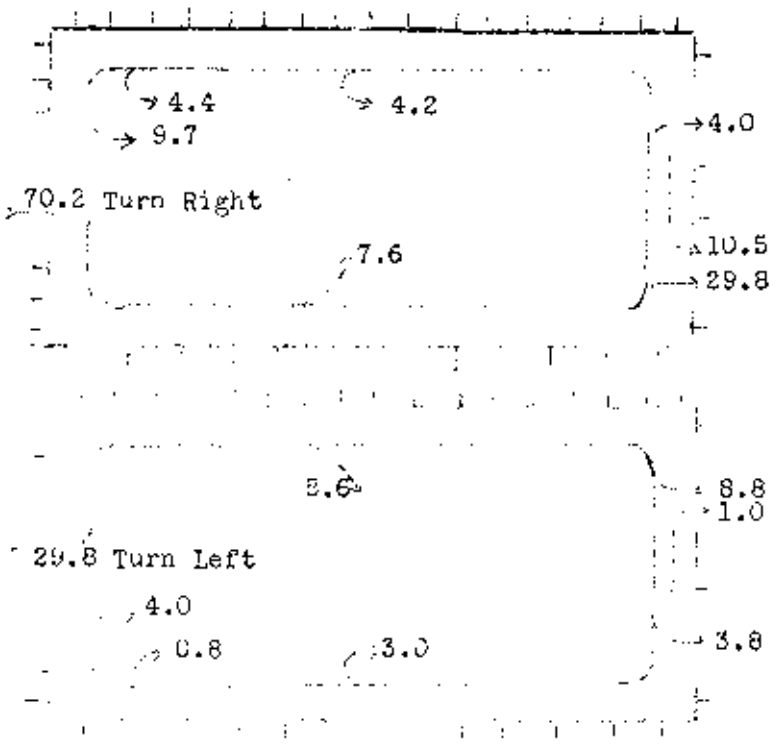


Figure 22 from "Publications of the American Association of Museums" 1935 Edition

"As shown in Figure 21, 70.2 of every one hundred visitors turned to the right on entering the gallery. Of this number 7.6 turned away from the right walls and passed one or more of the sections of the left walls before reaching the far end of the gallery, whereas the remainder (62.6) continued to follow the right walls until they reached the end of the gallery. Some 29.8 of the 62.6 visitors then left the gallery through the right exit without having looked at the paintings on the end wall. Another large group, composed of 14.5 visitors, passed the end wall before leaving the gallery either by the right exit (10.5) or the left exit (4.0). The remainder of the original group (18.3) managed to escape the siphoning effect of the exits and passed before one or more sections of the left walls. However 4.2 of the 18.3 visitors passed only one section before returning to the exit, another group of 4.4 visitors passed only two sections before returning to the exit, and only 9.7 of the original group of 70.3 visitors made a complete circuit of the gallery. The facts in Figure 22 are essentially similar to those presented in Figure 21, except for the reversal of the direction in which the visitors were moving.

"If we forget the differences in the particular walls passed by the visitors and pool the routes according to whether the visitors passed only the side of the gallery toward which they turned on entering, whether they passed that side and the end wall, or whether they passed that side, the end wall, and some part of the walls on the opposite side of the gallery, we find; as shown in Table XVII that 36.6 per cent of the visitors during the first installation passed only the side of the gallery toward which they turned when entering, 19.3 per cent passed only that side and the end wall, 12.4 per cent passed that side, the end wall, and at least half of the opposite side of the gallery, and 15.7 made a complete circuit of the gallery. Only 16.2 per cent of the visitors passed from one side of the gallery to the other before having passed the objects along the entire first side. The data on the visitors observed during the second and third installations confirm the gross relationships presented.

"The most outstanding characteristic was the tendency for visitors to leave the gallery through one of the exits before they had passed any of the objects located on the opposite side of the gallery from that toward which they turned on entering. During the three installations 57.9 per cent of the visitors, 60.5 per cent of the visitors, and 69.0 per cent of the visitors did just that. Moreover, the visitors often failed to traverse the entire length of the walls on the opposite side of the gallery before returning to the exit even though they succeeded in passing the exits when first offered the choice between the remainder of the Flemish-Dutch gallery and the objects in the next gallery."

It seems to us these figures cry out against more than one entrance and exit in small museum rooms. Why let 69 per cent of your visitors walk out at the far end of your room without passing before all your exhibits? Why not bring them back up that other side to the door by which they entered and let them see all the exhibits?

Do you think I am unnecessarily importunate on this matter of circulation of unguided visitors when it is our well known basic policy to guide all our visitors at Tumacacori? My reason is that I feel very sure that all the factors which operate to split individuals off the unguided parties will also be operating, to a much less degree it is true, but still operating, on the guided party. If 60 per cent of the unguided visitors will go through into the next room without seeing all we have in this room, that open doorway at the other end of this room will pull a certain per cent of my guided party away into the next room before I am ready for them to go there. By shutting the door I eliminate all these factors and bring my guided party around the room to the door by which we entered the room without losing a member. For similar

reasons we want the Tumacacori rooms laid out for a right hand circulation notwithstanding the fact that we expect to guide our parties. It will be a little easier to guide to the right than to the left and, on those occasions when our guide service breaks down, the museum will be laid out properly for unguided parties.

On page 137-138 of the above quoted report we find the following:

> "Aside from the question of whether or not a particular object will be seen more often in this position or in that position, there are in most museums of today expressions of the belief that the most perfect understanding comes from viewing objects or reading labels in some orderly sequence. Although this belief will probably undergo extensive experimental criticism, it stands as a reasonable educational postulate. We know from our studies that visitors are prone to follow the walls of a gallery very closely, that they do not shift from one wall to another and then back to the first in more than 10 per cent to 15 per cent of the cases. This normal regularity is a boon to those who would have visitors see exhibits in a specified sequence. But, assuming regularity, the order in which the objects are seen is "correct" for one group of visitors and the reverse of "correct" for another group of visitors. The direction of the normal movement of the majority of visitors through a sequence has usually been assumed to be from left to right. Thus, the most primitive paintings in the Flemish-Dutch gallery were placed to the left of the entrance, and the most recent paintings were placed to the right of the entrance. In this gallery only one visitor in every four followed the required route, because visitors have the habit of turning to the right on entering a gallery and will do it in 75 percent of the cases unless the habit is over ridden by some more potent determinant of behaviour."

Knowing this to be true, why lay out a left hand circulation in a museum?

We want a right hand circulation in individual rooms as against a left hand circulation in rooms joined in series.

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545 - do 1926

546 - do. 1930

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572 - The Kaiparowitz Region, by H. E. Gregory and R. C. Moore USGS Professional Paper #164.

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578 - Discoveries of the Seven Cities of Cibola, by Fray Marcos de Niza, Translated by P. M. Baldwin. Historical Society of New Mexico.

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580 - Rim of Christendom, by H. E. Bolton. MacMillan Co: 1936.

581 - Lessons from Southwestern Indian Agriculture, by S. P. Clark, University of Arizona Bulletin 125.

582 - The North American Species of Scutellaria, by E. C. Leonard Contributions from the U. S. National Herbarium, Vol. XXII Part 10.

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RUMINATIONS

I was startled the other day to get the news that Park Supervisor Gabriel Sovulewski had reached the age of retirement and was no longer on the active list. It doesn't seem like quite the same Park Service if Mr. Sovulewski is not over there in the Yosemite. I first met him when we had that conference of Superintendents over in Yosemite in 1921, I think it was. He has been an inspiration to me through all the years since; just knowing he was there on the job, doing the work he loved to do and doing it as no other man could.

One time when he and I were out together I well remember his saying that he cared not whether they put a monument over his grave after he was gone; that his real monument was up there on the side walls of the Yosemite Valley in the miles and miles of beautiful trails which visitors would be using for generations to come. I thought of this statement of his when I was reading this section from his letter:

> "We forget that trail construction is more common sense than engineering. Thorough knowledge of the country, love for that kind of work, a good, cool head with common sense, instinct of a dog to know which way to get home and last but not least, disregard for the time of day, are the principal requisites.
>
> "A man with tripod, transit and level has no business on trails. Personally I would consider him a nuisance. We put too much stress on technical knowledge in simple matters where only good common sense should prevail. In my experience in exploring, wild animals in many cases solved numerous difficult problems for me. Good, experienced engineers will see the point and agree with me. We are handicapped so much by inexperienced technical knowledge that it takes sometimes ten men to decide whether a certain shrub or tree should be taken out where a dozen could be taken out without injury to the landscape or nature. But the trouble goes further, we have a splendid lot of men in the Park Service, but their initiative is destroyed by details of a technical nature. Young technicians are sent to parks and tie the hands of Superintendents on projects on which they probably spent many sleepless nights. Our single-track scientific men bring up so many subjects, I have no doubt they give headaches not only to Superintendents but reach as high as the Director. I admire very much the patience of the Superintendents and the Director's diplomacy. To know their positions you cannot help but sympathize with every Superintendent and every man that holds an executive position. They have to be technicians of diplomacy."

Mr. Sovulewski has put his experienced finger on a thing that worries every Superintendent; we need more men of the type he is thinking

of to properly balance our organization.

Another thing I admired him for was that his park never became common-place to him. At that time I was a youngster with only eighteen or nineteen years of service behind me and he had served some twenty-six or twenty-seven years, yet he never grew tired of his work and he loved his park. It was he of whom I was speaking in another place some time ago who took me on a geological trip on the floor of the Valley which wound up at the foot of Capitan. We sat there three or four minutes; wordless; drinking it all in; and then he said something I've never forgotten: "You can talk all you want to about how this Valley was formed but <u>there</u> is where your science ends and Almighty God begins." And after fifteen years of ruminating on it, I still can't see how you can improve on that statement.

May he be spared these many years yet to give us of his wisdom and experience.

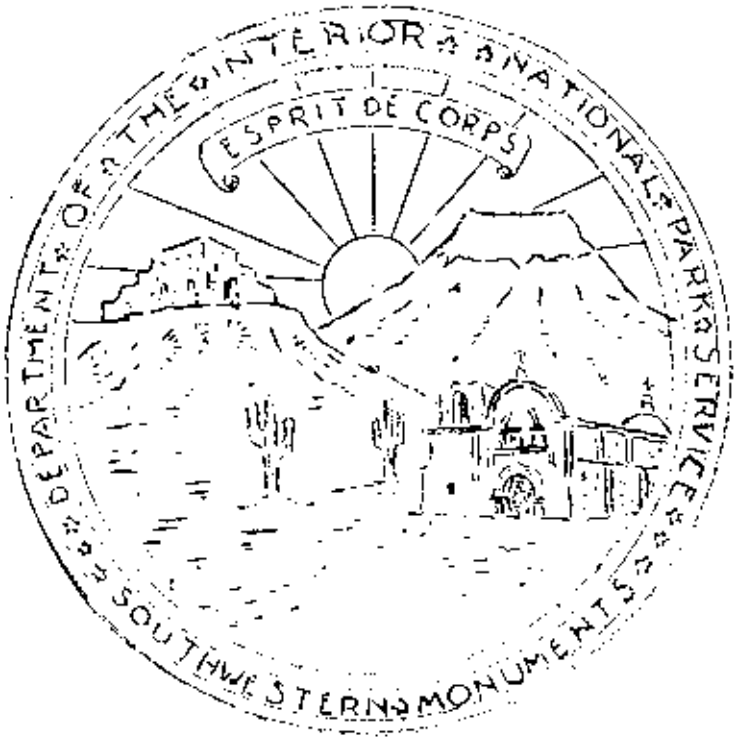
Cordially,

Jim Boss

SOUTHWESTERN MONUMENTS

MONTHLY REPORT

NOVEMBER 1936



DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS NOVEMBER 1936, REPORT

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SOUTHWESTERN MONUMENTS
PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; James Luther, Chief Clerk; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Charlie R. Steen, Junior Park Naturalist; Millard Singerman, Clerk-Stenographer; Luis Castellum and W. H. Sharpe, ECW Clerks.

FIELD STATIONS:

1. Arches - Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins - Aztec, New Mexico. Thomas C. Miller, Custodian.
3. Bandelier - Santa Fe, New Mexico. Jerome Hendron, Acting Custodian.
4. Canyon de Chelly - Chin Lee, Arizona, Johnwill Faris, Custodian.
5. Capulin Mountain - Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande - Coolidge, Arizona. W. J. Winter, Custodian; J. Donald Erskine, Ranger.
7. Chaco Canyon - Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua - Willcox, Arizona. Frank L. Fish, Custodian; Homer Bennett and Bronson Harris, CCC guides.
9. El Morro - Ramah, New Mexico. Robert R. Budlong, Custodian.
10. Gila Cliff Dwellings - Cliff, New Mexico. No Custodian.
11. Gran Quivira - Gran Quivira, New Mexico. George L. Boundey, Custodian.
12. Hovenweep - Cortez, Colorado. No Custodian.
13. Montezuma Castle - Camp Verde, Arizona. Martin L. Jackson, Custodian; Russell Farmer, Ranger.
14. Natural Bridges - Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo - Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring - Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge - Rainbow Lodge, Arizona. No Custodian.
18. Saguaro - Tucson, Arizona. No Custodian.
19. Sunset Crater - Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto - Roosevelt, Arizona. James D. Harritt, In Charge.
21. Tumacacori - Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon - Flagstaff, Arizona. Milton Wetherill, In Charge.
23. White Sands - Alamogordo, New Mexico. Tom Charles, Custodian.
24. Wupatki - Flagstaff, Arizona. J. W. Brewer, Ranger.
25. Yucca House - Cortez, Colorado. No Custodian.

CONDENSED REPORT
IN WHICH WE GIVE THE HIGH LIGHTS OF THE MONTH

Coolidge, Arizona
December 1, 1936.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for November:

TRAVEL	November, 1936	November, 1935	November, 1934
Aztec Ruins	654	409	666
Bandelier	518	528	632
Capulin Mountain	600	900	1,800
Casa Grande	2,909	2,165	2,389
Chaco Canyon	585	528	492
Canyon de Chelly	45	30	62
Chiricahua	330	175	---
El Morro	78	45	250
Gran Quivira	290	340	299
Montezuma Castle	353	445	1,299
Natural Bridges	---	124	---
Navajo	---	---	---
Pipe Spring	180	619	361
Saguaro	742	---	---
Sunset Crater	205	96	---
Tonto	233	396	421
Tumacacori	1,194	1,141	876
Walnut Canyon	353	334	272
Wupatki	107	93	79
White Sands	4,907	---	---
Actual Reported Registration	14,283	10,452	9,878

Although the travel count for November shows a gain of nearly four thousand over the corresponding month last year, two monuments are included for which there were no figures in 1935. The two are White Sands and Saguaro; when the figures for these two are subtracted from the total a decided decrease in traffic is noted. Generally bad road conditions on the plateau very likely have kept visitors from some of the northern monuments, but, as was suggested two months ago, travel to the monuments has apparently reached a peak and is leveling off. Casa Grande shows a gain of nearly 800 over last year's figures and Superintendent Pinkley believes that tourist traffic in the southern monuments is about at pre-depression heights once more.

CONDENSED REPORT (CONT.)

021 GENERAL WEATHER CONDITIONS

Jupiter Pluvius has been active all over the Southwest during November. None of the monuments have been snowed in yet but several expect heavy falls of snow at any time. Secondary roads have been very rough and muddy due to falls of light snow and rain. Only from Capulin Mountain is there a gloomy weather outlook. Northeastern New Mexico is experiencing one of the driest autumns in thirty years; range conditions are very bad with a consequent hardship on the wildlife.

120 PARK INSPECTIONS

121 SUPERINTENDENT

White Sands

123 NATIONAL PARK OFFICERS

White Sands - Frank Kittredge, Charles Richey, Jim Hamilton, A. E. Underhill.
Aztec Ruins - Charles Richey, Landscape Architect Carter, Jim Hamilton, Jerome Hendron, and John Ewers.
Chaco Canyon - Jim Hamilton, Jerome Hendron, Erik Reed, John Veale, and John Ewers.
Bandelier - Farrell MacLean, Andrew Clark, Fred M. Strieby, Clifford London, Frank Kittredge, A. E. Underhill, Jim Hamilton, Ansel Hall, J. C. Ewers, Hugh Miller, D. Sutton, Lorimer Skidmore, and Charles Gable.
Tumacacori - Lyle Bennett, Clinton Rose, Ward Yeager, Jack Diehl, J. H. Tovrea.
Chiricahua - Charles Richey, John H. Diehl, J. H. Tovrea.
El Morro - Charlie Steen and Walter Scott
Pipe Spring - Al Kuehl
Montezuma Castle - Jack Diehl and J. H. Tovrea.
Wupatki - Jim Hamilton, Jack Diehl, and J. H. Tovrea.

200 MAINTENANCE, ETC.

230 NEW CONSTRUCTION

White Sands - New Utility Building completed; the comfort station is about 90% complete and foundations poured for the residence and administration building.
Bandelier ECW - Quarters No. 3 is nearly complete
Trees and shrubs have been transplanted
Signs for Chiricahua National Monument completed and shipped.
One fire ladder completed and erected.
A large quantity of stone suitable for flagging was obtained from the adjoining National Forest.

230 NEW CONSTRUCTION (CONT.)

Casa Grande - Surfacing of the entrance road and parking area is nearly complete.

Chiricahua ECW - Echo Point-Rhyolite Canyon trail connection was complete
1350 feet of Massai Point-Balanced rock trail was constructed
5000 feet of present trails were maintained
Rock slide on Massai Point road cleared away
Headquarters ranger station 90% complete
Equipment shed 85% complete

Capulin - Road up the mountain is being worked in an effort to clear up gravel which has washed or blown down the slope.

Walnut Canyon - Trail improvements are being made

300 COOPERATING ACTIVITIES OF OTHER AGENCIES

GOVERNMENT AGENCIES

Chaco Canyon - Soil Conservation Service has about 50% of the dyke and revetment work complete.

320 NON-GOVERNMENT AGENCIES

Chaco Canyon - The School of American Research has continued work on the small ruin known as Layit Kin and has constructed several hogans as quarters for the staff.

400 FLORA, FAUNA, ETC.

420 MUSEUM SERVICE

Tumacacori - The custodian is constructing an old type arrastra as a graphic exhibit.

430 ARCHEOLOGY

Wupatki - Clean-up of room #7 of the Wupatki Pueblo is practically complete and the report of the work is being written.

470 FAUNA

Capulin Mountain - Apparently because of the very dry season and the lack of grass there are very few deer and elk in the vicinity of the Monument. Normally these animals are abundant in the region. The porcupines on the Monument are also continuing their depredations on the pines. Some control measures may be necessary to save the trees.

500 PROTECTION

630 ACCIDENTS

Chaco Canyon - A five-year old Navajo was accidently shot to death one mile north of the Monument boundary. The Custodian, at the request of the child's parents buried the boy and notified the proper Indian Service authorities.

MISCELLANEOUS

MAIL COUNT

Incoming:		
Government	1,372	
Personal	925	
Total incoming		2,297
Outgoing:		
Government only	1,441	1,441
Telegrams:		
Incoming	44	
Incoming	34	
Total telegrams		78
Grand Total		3,806

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

TUMACACORI

By Louis R. Caywood, Custodian

Visitor travel has finally begun its upward trend showing that the winter rush has descended upon Southern Arizona from all over the United States and some foreign countries. Thirty-seven states, Alaska, Canada, Nova Scotia, Mexico, England, Australia, and Italy were represented on the visitor register.

In all 1109 visitors were contacted and shown through the Mission, while 85 additional used the facilities of the Monument, making a total of 1194 visitors. This number, by the way, is larger than any November count in the history of the Monument. November, 1935, shows 1141.

Weather conditions have been good with no cold spells to date. October 24 was windy and rainy. November 22 and 23 brought rain which is much needed and wanted by the cattlemen. However, from now on it will probably be cold because of the recent rains and storms here as well as other sections of the country.

National Park Service visitors were rather few this month. On October 25 Mr. and Mrs. Lyle Bennett, Clinton Rose and Ward Yeager were visitors. On November 21 J. H. Tovrea and Jack Diehl spent some time making a topographical survey of the area where the new museum is to be built.

In October Dr. Lockwood of the University of Arizona and Dr. and Mrs. Nichol Smith of Oxford University, England, were interested visitors. On November 23 Dr. and Mrs. Chas. Vorhies of the University of Arizona Agricultural Department took a number of pictures and Dr. Vorhies asked if I had seen any of the spotted bats.

Fifty-one CCC boys from Camp F-64-A, Nogales, Arizona, were here on an educational trip. All of these boys were from Texas and they said they had a few old missions in that state also.

Thirty-six Indians from the Phoenix Indian School traveled down in an open truck to see the mission and arrived here in a rainstorm. They presented quite a spectacle wrapped in their blankets and everyone was "Chief Rain-in-the-face". They said they were returning by way of San Xavier Mission that day.

Jack Winter's eulogy on the owl brings to mind that "Way back when"

I remember that for about ten days there was only one owl in the ruins. He made a terrible racket every night until finally a mate made its appearance. I was telling one of the Coolidge residents about it and he said that he had shot an owl that was trying to steal his chickens about the time this one disappeared. So that might have been the ignominious fate of one of them. Another time Mr. John Fast, who was staying at the Vah-Ki Inn, told me that he had found a dead owl while setting up some bird traps. So, as Jack Winter says, we wonder how many times the ruins have changed residents since the first pair were seen there many years ago. Continuing with the dead owl that Mr. Fast found -- He asked me if I wanted the corpse and I told him I thought it might be a good idea to clean up the bones and keep them in the museum work room for identification purposes. So Mr. Fast kindly gathered up the remains and brought them over in a box. This was placed at the rear door of the office. When I looked for them to take them down to the work room, they were gone. I felt bad about it and finally decided that Teddy might know more about this matter. Sure enough he did. In fact, he had burned them!

The first Gambel Sparrows were seen here on October 15. But there is still too much natural food for them to be taken in the traps.

After telling several thousand visitors how an old Spanish arrastra worked and knowing that some of them did not comprehend, I have finally begun the construction of a small one which will be much better. I have been thinking it might be well to set up the old molino de trigo and borrow a burro on Sundays to show the visitors how it worked. Did someone say "No animals allowed on the Monument"?

On November 19 the Custodian and K.C.W.P. left the Monument for Hermosillo, Sonora, to visit the Exposition and Rodeo. We were both favorably impressed with the Exposition which was mainly agricultural although there were many fine exhibits of products made in Mexico. It was interesting to note in three of the large buildings housing the exhibits that approximately 90% of the Mexicans entering made a right angle turn and followed to the right while the entrance which was a short hallway had exhibits directly in front and to the left. It seems strange that 90% of the visitors would blindly turn right with exhibits in plain view to the front and left. Well, I suppose it is hard for teachers and parents to train some children to use their right hand, but they never forget.

We returned to the Monument on the 22nd and threatening weather prevented us from making any side trips to see Missions which we had originally planned to do.

o

Remark: Louis seems to have had a big month at Tumacacori; 222 parties as against 196 last month and 285 a year ago. His attendance was 1,109 as against 743 last month and 1,141 last year. He has an average party of

5 as against 3.7 last month and 4 last year. This is one of the few places where the average party has increased. I don't know why, but our parties this year are averaging smaller than last year. The time of stay was 29.5 this month as against 33.1 last month and 55 minutes last year.

Mr. Caywood's observation on the high percentage of visitors turning to the right is interesting and I might report here that it looks like we are going to get a right hand circulation in two of his museum rooms and a left hand circulation in the third. The Educational Division tells us that the visitor will see and be attracted by the cases to the left, there being no cases to the right for several feet, and will go backwards around the room without trouble.--F.P.

****

BANDELIER

By J. W. Hendron, Acting Cus.

Visitors

We had 515 people visit us this month, falling short 10 of November, 1935, the total for that month being 528. Visitors arrived in 173 cars from 20 states, District of Columbia, Hawaii, and Canada.

The six highest states by order of visitor count were: New Mexico, 212; California, 52; Illinois, 24; Kansas, 17; Colorado, 16; and Oklahoma, 15.

Eighteen people visited us from foreign countries, including England, Canada, Australia, Cuba, Hawaii, and Central America.

Return visitors numbered 60 and 15 of them took the guided trip through the ruins.

Weather and Roads

Days partly cloudy---:	10	
Days cloudy----------:	1	
Maximum temperature--:	.60	Oct. 29
Minimum temperature--:	.20	Nov. 4
Mean maximum---------:	50.3	
Mean minimum---------:	30.9	
Precipitation--------:	0.37	against 0.09 for Nov., 1935.
Snow and rain--------:		Nov. 2 and 18.
Dust storms----------:		None.

The entrance road is in fair shape with the exception of a few rough places on the Ramon Vigil. An occasional bit of snow can be seen lying on some of the south slopes but as yet the road is not affected by snow. Fall weather is still continuing in the Bandelier region; in fact, this

is one of the mildest seasons I have experienced in New Mexico. It can't last much longer, however, and I'm expecting a snowstorm most any time now.

Visitor Trip Chart:

72 parties took guided trips through the ruins, making a total of 249 people, the average time per party being 76 minutes. Nine parties were given short talks or partial ruins trips averaging 41 minutes per party.

It seems that individuals more interested in the sciences visit Bandelier in the fall and stay longer than our summer visitors. On several occasions parties have made trips to the lower canyon and have been most interested in the geology of the region.

Special Visitors

October 24 - Farrell McLean, engineer, in for several days working on the new entrance road. Andy Clark and wife came in, to be here several weeks. The Clarks have a trailer now and a few days ago they bought a new Packard coupe.

October 28 - ECW Auditor Fred M. Stricby made a short trip around the ruins.

November 2 - Cliff London, Jr. Engineer from Berkeley, was with us for a few hours.

November 8 - Frank A. Kittredge, Chief Engineer, was in on business A. E. Underhill, also of San Francisco, and Mr. and Mrs. J. B. Hamilton of the Santa Fe office.

November 10 - A. E. Underhill returned for a few hours. Ansel Hall and J. C. Ewers, from the Berkeley office, dropped in to talk over the museum. Mr. Ewers remained for a few days so that we could really hash things out.

November 15 - Assistant Superintendent Hugh Miller arrived to spend several days here on business. Mrs. Miller arrived later. D. Sutton & Lorimer Skidmore, architects from the Santa Fe office, were out for a trip around the ruins.

November 16 - Charles L. Gable, Chief, Park Operators Division, arrived for several days' conference with Mr. Miller.

General

Hunting season ended the 15th, and from what I can gather only three deer were taken from the north mesa this season. Game seemed to be

plentiful before the season opened but suddenly became scarce, nobody knowing their whereabouts. George Sholly and I rode over the south mesa several weeks ago to the "Stone Lions", and back by the upper crossing. We thought that game would be plentiful over there, but to our disappointment we saw only one deer; however, we did see about 30 turkeys about three miles above the Ceremonial Cave. The Cochiti Indians still hunt in the Monument and I suppose they always will. Shots can be heard every now and then but from all reports the Indians didn't kill anything.

I see from the Broadcast that Bill Sharpe is going to get married. I wonder why he doesn't let us hear from him and tell us all about it.

Earl Jackson wrote me a nice letter the other day. It seems that Earl is pulling out of it in fine shape and is almost ready to go back to work.

If I were High Miller I think I would be fed up on visiting Bandelier. We are there to visit him before he gets up in the morning and he can't even eat his breakfast in peace without having "shop" along with it. He is kept busy answering questions all morning and afternoon, and then we keep him up until mid-night sort of finishing things up for the day. We are like a bunch of hungry wolves---ready to pounce on the Headquarters staff when they arrive.

I took a most pleasant trip last month, visiting Aztec and Chaco Canyon. I met Johnwill Faris, who was all hot and bothered just before the arrival of the new addition to his family; nevertheless, Johnwill showed me the ruins and made the trip most interesting. I wish we had some of that swell pottery for the Bandelier Museum.

We arrived at Chaco just in time to make a trip with Cal Miller. He took us through the museum and all the ruins and then we went over to see Gordon Vivian and Paul Reiter, who are reconstructing some of the ruins. It surely is funny, everyone ribs me about the ruins at Bandelier, but I think they are pretty swell, not spectacular like the Puerco and San Juan ruins but they tell a story all of their own. Anyway, I had a swell time and I would like to get ribbed again.

Museum Notes

As I previously mentioned, Ansel Hall and J. C. Ewers from the Berkeley office were out going over the museum plan. Ansel couldn't stay but Mr. Ewers hung around for several days. Everything regarding the displays is much clearer now and so we propose to keep in touch with the Berkeley office at all times and then we will know what they are doing. Ansel said that they were in such a position that they could spend a considerable amount of time helping us, and so, Boss, we now know just what each office is going to do and that enables us to go right ahead.

Bandelier (Cont.)

Remark: Business has dropped off at Bandelier as against last month and this was to be expected because the peak load there is in the summer and the low spot comes in the winter. We have had more parties than last year, 72 as against 50, but less people, 249 as against 328. The parties this year averaged smaller, 3.4 against 6.5, but stayed longer, 76 minutes as against 60 minutes last year.

Assistant Superintendent Miller went over things pretty thoroughly at Bandelier and reports everything going well.--F.P.

****

BANDELIER E.C.W.

By H. B. Chase, Project Superintendent

A large number of enrollee man-days have been consumed on Quarters No. 3 for the past month completing the building and roof construction. Interior and finishing work is now in progress, with a program that the building will be ready for occupancy December 15.

Considerable transplanting of trees and shrubs has been carried on all this month. Construction of another tree carrying piece of equipment has enabled this work to progress more rapidly than in former planting seasons.

Signs for Chiricahua National Monument are now complete; crating and shipping will be made today.

One Fire Ladder has been completed and erected under the direction of Forestry Foreman Fulton this month. Location of this erection being on the South Mesa near the west boundary of the Monument.

Landscape work and road widening performed by the Forest Service on their new road, has enabled us to secure a large quantity of Flagstone rock which was readily accepted by us and hauled to a stock pile at the Monument for use in the construction of sidewalks and portals in the proposed hotel aspen and pine poles for this development have also been secured from the right-of-way clearing and has also been placed in a stock pile on the Monument.

A small crew of enrollees have been attached to the Headquarters office for assistance in the preparation of Museum Exhibits.

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WHITE SANDS

By Tom Charles, Custodian

We beg your pardon for last month's poor report. I remember that one of Gene Manlove Rhodes' favorite expressions about his writings was, "I'm not going to pump it up, it has got to flow", and I remembered that

motto last month but duty called - I had to pump.

But it is always darkest just before the dawn, and while last month dragged along, this one burst forth in a blaze of glory. About the first of the month the news began to trickle through that the White Sands Extension project was to get $28,000 for the new museum and headquarters area, with a little extra for a ranger's residence. The engineering crew was on the ground to prepare for the three miles of black top road, into the sand dunes, and the Governor of New Mexico had just assured us that in the near future the road between Alamogordo and the White Sands would be built to Federal Specification, 32-foot grade, and black topped.

Boy! Think of it - this program of ours at the White Sands was stepped up about seven or eight years overnight. That is pretty fast living for a man of my age.

Before I could get fairly turned around, here came a group of the brass collars; Chief Engineer Frank Kittredge, Superintendent Frank Pinkley, Chief Landscaper Chuck Richey, Jim Hamilton and A. E. Underhill. We fairly reveled in the association of these good friends and they were hardly gone until we had orders to come to El Paso and take one more degree, to meet Director Cammerer, Associate Director Wirth, C. E. Moskey, Herb Maier and a half dozen or more of the lesser lights. Pretty fast living, Boss.

In El Paso I slipped across the street to say "hello" to our old friend Captain Simons, Secretary of the El Paso Chamber of Commerce, and he tossed a Scribner's Magazine out before me. "Forty-five thousand, four hundred and thirty people read the story of the White Sands in Scribner's this time", said he. It developed that the El Paso Gateway Club is spending $15,000 this year on publicity in such magazines as Time, News Week, National Geographic, Harpers, Instructor, Scribner and others. They feature the Carlsbad Caverns and the White Sands, side by side. I do not know how Tom Boles likes that but as for the White Sands, we think it is pretty good company.

Another event of the month was Carveth Wells's broadcast over the national hookup in which he featured the Great White Sands as follows:

> "But now let's return to Las Cruces and start on a journey over Route 70 to Roswell via Alamogordo. On the way you will cross the fantastic Organ Mountains and suddenly find yourself in one of the most astonishing regions of earth -- White Sands National Monument -- a dazzling, fairy-land, thirty miles long and nine miles wide, a billowing sea of pure white sand that isn't sand at all, but pure alabaster, the only wonderland of its kind on earth. Over twenty thousand motorists visited this amazing place in June and July. Not only are there one hundred and seventy-six thousand acres

of pure white crystals heaped up in miniature mountains sometimes one hundred feet high but even the animals are white. I know of several caverns where the animals have turned white because they lived in the dark; but this is the only spot on earth where you can actually see white insects---white lizards and white mice living their lives in brilliant sunlight."

It has been a dazzling month to me. One day I sought relaxation in the columns of the Kansas University Graduate magazine and there was a six inch story, set out in a box, featuring the White Sands. It had been inspired by a visit to the Sands, by Clara Gillham of the library staff and Beulah Morrison, Professor of Psychology. Guess the world is just beginning to know about these Alabaster Sand dunes. To cap it all, Jack McFarland, of the Paramount News informs us that he will be here soon to make a news reel of the Sunday crowds. And the inimitable George Grant, Chief Photographer of the National Park Service, will be here this week to take more of the "best pictures ever taken at the Sands."

You would think we are on a bed of roses down here at the Sands, wouldn't you, Boss? But in the gay galaxy of color we find some thorns.

With the coming of cold weather the visitors build more fires, with consequent, black, ugly scars on the snow-white hills, making more evident the need of small, portable fireplaces. With each fireplace should be a table; in other words, more equipment, more convenience at the picnic grounds. Tracks on the hills will be erased tonight, holes will be covered up, loose papers will be blown away but the black scar of the campfire stands out against the snow-white hills.

Ben recently made a few "coffee stands" from scrap pieces of perforated iron plate, forming the legs by turning down the corners. It is a convenience which the average visitor will accept, and is at least a suggestion as to where his fire should be built. And, Boss, when you are working out a place for us to find the few dollars necessary for these tables and fireplaces, please do not forget the needed toilets at the picnic ground. In the next few months these $6.00 toilets of ours are going to be in strange contrast to the $6000 "comfort palace" at the entrance.

Traffic is still off; our registration at the Turn-Around shows only 687 and on the established percentage of 14, who register, it gives us only 4,907 for the month (no report last year). They represent 34 states and four foreign countries.

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Comments: We are glad Tom's verbal well "flowed" this month instead of having to be "pumped", though we can't complain about that report of his last month.

Things were going fine when we visited the White Sands during the

first week of the month. The new utility building is finished and it is a fine piece of work; the new administration building foundations were ready to pour; the foundation of the residence was poured, and the new comfort station was about 92% complete. The parking area was rough graded and the trenches were open for the footings of the surrounding adobe walls and the curbs. Mr. Happer,who is in direct charge of the work under the Regional Office, is getting excellent construction.

When Mr. Charles says that traffic is still off, he means it is lower than last month; 4,907 this month as against 5,978 last month. Last year we credited him with 3,507 visitors so there is a gain as against last year's record.

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AZTEC RUINS

By Johnwill Faris, Custodian

Business picked up a little this month so I can report an increase again over November last year and several like months in the past seven years. Visitors for the month total 654, which is very good for the season of the year. Nearly all the tourists feel that November is not a very good time to take a pleasure trip over the several mountain passes that are necessary to reach this section. While the passes have been closed for only a few hours at a time so far, it is expected that they might close for a day or two at a time at almost any storm. With the exception of one or two bad days the weather has been ideal. The days are clear and not too cold, but the nights are quite chilly and one appreciates several blankets. Of course, the trees are bare now and the usual bother of leaves is with us for a time. Oscar is trying to master the situation and it is only a matter of time before we will again be glad that we have the trees we do.

In this same line, we are making plans at the present time to do a little additional planting that was of necessity neglected due to the parking area gravel pile. When this is done and the front of our building balanced with shrubs, I honestly feel that Aztec can lay claim to one of the most fitting and unique administration buildings in the entire Park Service The setting is such that one just naturally falls into the atmosphere of the place and the guide has a wonderful advantage to start of with. This added to the great Kiva, the roofed kiva, etc., but then, Boss, that is enough of that kind of talk. The first thing I know I will end up by saying that this is the best Monument in the Southwest and then Budlong and Cal Miller will feel bad, so I won't carry it that far, but you know exactly what I mean.

Park Service visitors for the month include Chuck Richey, Mr. Carter, Jim Hamilton, and Hendron of Bandelier, Ewers of the Educational Division. Cal Miller of Chaco seems to have developed a sudden fondness for Aztec. He has been up several times, and I don't know but I believe I can see him feeling sorry for all the terrible things he has said about Aztec. He is

at last beginning to see the light and agree with me on the best Monument, etc.

Of the visitors mentioned above, Boss, Richey and Carter were in going over the Monument in general and then, too, Carter, as I understand it, is to be at Mesa Verde and will more or less have Aztec under his wing. We were pleased to present the Monument to them and hope to see Mr. Carter quite often. Jim, of course, was interested in the Kiva problem and that is taking care of itself well enough under the circumstances. There is little to be done without considerable expense and that at the present time seems out of the question. Kendron was here for the first time and we were more than pleased that he saw fit to stop off with us. We hope that he enjoyed his stay with us as much as we enjoyed his visit. The visit of Mr. Ewers was one that we have a great deal of faith in, and hope that from it some actual action may result on our museum. He was in and gave the problem some serious study and I know will do all he can to get something definite on this museum. We went over things in detail and Cal Miller shared in some of our final conclusions. Mr. Ewers went with me on two trips through the ruins and studied the action of the visitor from the field angle in connection with the museum, and did he put me on the spot. He had completed a field trip and at his suggestion I turned the visitors loose in the museum without a guide to help them. Now, of course, I wish to be fair with the Educational Division and admit that our museum is far from being ideal in self-guided trips, but they wished us to try them so we did. I suppose the party of about a dozen had lingered about ten minutes (longer than most of them will without a guide) when it became obvious that they were getting ready to leave. I was all pepped up, and after they were through looking about themselves, told Mr. Ewers that I would bet that even though they were through, that I could take them and start out at the first case and go right through the museum and not a one in the party would leave nor even act like they had just been through the said museum. Well, I didn't exactly expect what followed, but Ewers said "You wouldn't care to try it, would you?" Gosh, Boss, imagine my embarrassment, but I hurriedly asked the blessing of all the Gods and started out. Well, Boss, I think Ewers was just as surprised at the result as I was when he asked that I try the stunt. Every one of the visitors went right back over the same ground that they had apparently finished and not one of them showed any great disconcern at being told what they supposedly had gotten from the labels.

I do not know what the experiement might have proven to Ewers but it did even surprise me, in that I am willing to bet even money that, if you bar the student, that not any party of twelve or fourteen will spend that much time in the museum after a guide has spent as much time with them as the party mentioned above had spent on the labels. Then, too, I don't believe that the visitor gets as connected a story with the labels. They will criss-cross and go from one to the other without regard to sequence and that tends to confuse the average visitor, I think. Any way, Boss, Ewers spent a long time going over our problems with us and we appreciate it a lot.

Aside from the Park Service visitors we had with us for a few minutes Earl Morris, who of course has meant more to Aztec than any of us. He was in for a few minutes and we did much in discussing things concerning the monument. Mr. Morris stressed one point, and I would like to add my plea as an outsider, now that I am transferring, and that is that some consideration be given to ruins repair. As long as I was custodian one might feel that it was just that I wanted to oversee the expenditures but now that I am out, I hope that any pleas that I might make might be considered as a real need and without thought of personal glory if there be any in ruins repair expenditures.

And in connection with my leaving, Boss, I want to thank the Service and you as Superintendent, for seeing fit to leave me as long as you have at Aztec. I have enjoyed every minute of it, even though at times I probably thought that any place would beat this one. All the branches of the Service have been grand about cooperating and I can not express enough appreciation for the local support in the seven years I have been here. The public, the press, the workmen, my guides, and everything have blended for wonderful satisfaction in administration. To all I can but utter a big hearty "THANK YOU" and in leaving I know of not one individual I would rather turn the best Monument in the Southwest over to, than my friend from Chaco, Cal Miller. So in closing my last report from Aztec as custodian, I only say adios, from here, and hello from De Chelly. (By the way, Boss, I hear from very reliable sources that Budlong was dead right in his claim that Canyon de Chelly is the best Monument in the Southwestern setup).

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CHACO CANYON

By Thomas C. Miller, Custodian

General

More local people entered the monument during the month than at any one month during my tenure at Chaco. The approach roads have been in excellent shape all the month. The Indian Service and the State have maintained the approach roads both north and south. The Navajos and the Soil Conservation Service Siouxs have been having horse races every Sunday at the Wetherill race track west of Pueblo del Arroyo. Consequently, it has attracted a lot of local people to visit the monument. At this time the Sioux Indians have been successful in winning every major event.

Weather

The weather has been excellent all month. Maximum temperature for the month was 69°, October 29; minimum temperature, 10, November 4. Precipitation .40 rain and melted snow was recorded for the month.

Travel

585 people entered the monument in 197 automobiles coming from 10 states and the District of Columbia.

Special Visitors

Dr. Hewett and Dr. Fisher were business visitors October 26 and 27. C. .. Finaly, special deputy officer, U. S. Indian Service, arrived Oct. 28 and departed on the 30th. Mr. Gus Griffin and his assistant, Mr. John Lincoln of the Soil Conservation Service from Arizona were monument visitors November 4.

National Park Service Officers:

Associate Engineer Hamilton and Acting Custodian Hendron, Bandelier National Monument, arrived and departed October 28. Mr. Erik Reed, ECW Inspector, from the Oklahoma City Office, and Mr. and Mrs. John H. Veale, construction engineer, ECW, Santa Fe, arrived November 7. Mr. and Mrs. Veale departed the same day but Mr. Reed remained until the 10th and departed for Goliad, Texas. Mr. Reed informed us that he would return December 1, and would remain in Chaco until the WPA project closed some time in February. Custodian Faris, was in and out a time or two. Faris has developed a liking or something for cliff dwellings; however, he apologized for all those mean things that he has said about Chaco. However, he still maintains that good stuff comes in small packages and, Boss, that fellow is really convincing at times. I have begun to think that Aztec is a better ruin than the house mounds in Chaco Canyon. Jim Hamilton and Mr. Ewers, Field Curator, National Park Service, were monument visitors on the 14th. Mr. Ewers told me that Chaco was the best monument that he had visited and that if he had visited Chaco first he could not have looked at the other ruins in the Southwest. Mr. Ewers visited Pueblo Bonito and Chetro Ketl.

Activities of Other Agencies in the Monument

The School of American Research has been building new hogans and working on their water system all month. Miss Bertha P. Dutton has continued her work excavating the ruins of LAYIT KIN (Way down Deep House). This ruin was formerly known as Small House Unit No. 26. Excavation was started on this ruin in 1934, and it now looks as though it is going to be a fine ruin. Attached to this report you will find Bertha Dutton's report.

The County School in the Chaco was closed on November 20. The reason for this action was that many of the local ranchers moved their children to town for the winter months and the daily attendance was too low to continue school.

The Soil Conservation Service has continued their repair work on

earth dykes and revetments all month. This project is about 50% complete. All construction with this Service will be suspended November 25. We hope this shutdown is a temporary arrangement, as we have a lot of unfinished work in this monument.

Accidents:

On October 2o, we received a phone call from the trading post to come at once; this was at 6:30 p.m. When I got to the trading post I found several Navajos that seemed to be greatly excited. Mr. Springstead, the trader, informed me that the 5-year old son of Joe Yazzie had been shot to death by Charlie Atencity, 12 years old. The Fathers of both boys are employed in the Monument. We proceeded to the scene of the tragedy, which was four miles north of the Monument headquarters and one mile north of the Monument boundary. We learned the story fast after we found the body. Apparently the two Yazzie boys, 5 and 8 respectively, were hunting rabbits with Charley Atencity, 12 years old. Charley was carrying the gun and it was accidentally discharged hitting Nee-Yah Yazzie in the left eye. The bullet came out behind his left ear causing death immediately. After I touched the little boy to see if he still lived both the mother and father came up and touched him. Until that time neither of them knew that the boy was actually dead, but they were afraid to go near death until some one else touched the body. I have never seen people take a death any harder than the Yazzie family. After about an hour I asked the Yazzie family what I could do to help them. They informed me that we could bury the boy and say nothing about the death to the Indian Service. I told them that that was out of the question that all deaths would have to be reported. I then asked them if I could take the body to their hogan until morning. Of course, they said no, leave him where he is until morning. It was about one half mile to the hogan. I then gave orders to the Navajos to build fires near enough to the body to keep the coyotes from eating it that night and after much discussion they agreed to do this. We buried the little boy along with all his possessions the next morning on the floor of the Chaco Canyon in the Monument.

This accident was reported to the Eastern Navajo Agency on the morning of the 27th. It was later investigated by Mr. C. U. Finlay, special deputy officer, on the 29th and 30th. The Navajos were greatly excited when the officer arrived, but after I assured them that the officer just wanted the facts of the accident and did not want to take the little boy off to jail they were all right. The Yazzie family remained in their Hogan four days after the death without leaving the house.

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(Way down deep house) By Bertha P. Dutton

Four kivas: Two excavated to the first floor level; two excavated in part. Fourteen house rooms were excavated; two others partly excavated.

Kiva A: Rooms 7, 8, and 9, "niche" west of Kiva A, probably the room west of room 7 and the room west of room 9; the area northeast of Kiva A and the area north of Kiva A, and the room north of room 9, constituted one unit.

Room 9 and "niche" west of Kiva A excavated to first floor level. Room 7 and part of room 8 excavated to lower depths, revealing old underlying structures. The area southeast of Kiva A excavated to below first floor levels of rooms 7, 8, and 9. Area north of Kiva A excavated to depth of 10 feet below standing northeast wall of Kiva A revealing underlying kiva structure (Kiva C), and probably part of underlying structures of rooms 7 and 8. Room (?) north of room 9 unexcavated. Probably another room lies to the west thereof. The room west of room 7 was outlined but unexcavated.

Kiva B: Rooms 1 and 3, 2, 4, and 5; The area east of rooms 4 and 5; rooms 15 and 16; probably at least two rooms west of 15 and 16, with unknown limits to the north, and possibly rooms 10 and 11, constitute another unit. Kiva B is Mesa Verde in type (so-called) ("key-hole" type). Evidence from these house rooms seems to be in keeping with this. Kiva B lies almost directly north from but on a lower level than Kiva A.

Kiva D: Rooms 12, 13, 14, and area between rooms 12 and 14 and Kiva D, constitute another unit. Eastern limits are undetermined. Kiva D is of the 4-pilaster type but excavation insufficient to warrant further comment.

A strata test was made in a refuse mound east of unit A, and in refuse apparently from this sector.

Work was begun on this site (then designated as Small House Unit No. 26) in July, 1934. Work was carried on for about three weeks. In the fall of 1936, about six more weeks of work were put in on this site. Bertha P. Dutton has been in charge of the work since its inception. During 1936 she has been assisted by Marjorie F. James.

For the main part the site has been sterile as to important cultural finds, but numerous small items of mention have been found, such as: imprints of baskets, bone awls, arrowpoints, reed matting, the usual manos and metates, axes and sledges, objects of coalified wood and argillite, pigments, shell bracelets, etc. A rather large quantity of wood and beams were recovered.

An infant burial was recovered beneath the first floor level of room 16. It was disturbed by water action. The infant had been wrapped in reed matting. It was accompanied by two half bowls of Mesa Verde ware and numerous squash seeds. The body was extended, lying on its back with head towards the west.

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Comments: Again Carroll has given us a story good for the wires if we were looking for publicity. And again do we get that sharp contrast between the present year of our Lord, 1936, and the Navajo angle which is some five hundred years back. Our work is full of such anachronisms but they become so common to us that we only notice an exceptional case like this.

The Service should have another specialist whose specialty would be psychology. We want a study made of the reaction of the recent changes from Chaco to Aztec, Aztec to de Chelly and De Chelly to El Morro, and want to be set straight on just where the "Finest Monument in the Southwest" is; as it is, we are getting a little confused.

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CASA GRANDE

By J. W. Winter, Custodian

As predicted last month our visitor count rose somewhat, reaching 2,909. They came from 37 states, the District of Columbia, Canada, Ireland, India, Mexico, China and Germany. Only one special group is recorded, 21 Mohave Indian boys from Parker, Arizona, who had been visiting the Pima reservation at Sacaton.

We had a number of newsworthy visitors. October 27 we met Will C. Barnes of Phoenix, well-known pioneer and historian of frontier days. November 13 Dr. Emil Haury, Assistant Director of the Gila Pueblo, Globe, came in accompanied by Earl Morris, archeologist of the Carnegie Institution. November 13 we had the pleasure of meeting Dr. Hugh De Valin of the U. S. Public Health Service, San Diego. Dr. de Valin was at one time in charge of Hot Springs National Park before the Park Service took over. November 22 we were very glad to meet an old friend, Bill Thompson, manager of Mammoth Cave, Kentucky, whose area is now being taken over by the Park Service. An interesting visitor November 23 was Samuel T. Lee, retired Foreign Service officer, formerly U. S. Consul General in Brazil. November 22 the ruins were viewed by Edward M. Grooth, U. S. Consul, Calcutta, India.

As usual, most NPS visitors were for Headquarters, not the Monument. We can only record those who signed the register or went through the ruins. November 1 we met Fanning Hearon, Chief of the Division of Motion Pictures, USDI, and later in the month his partner in crime, Paul Wilkerson. Perhaps a visitor but rather a member of the family was Custodian Frank Fish of Chiricahua, whom I had the pleasure of meeting for the first time November 4. Last but far from least came our old friend Don Louis Schellbach, from Grand Canyon, accompanied by wife and son. Don Louis and I hadn't seen each other since escaping from the Washington Office over a year ago. We used to get together and talk over the matter of the contemplated escape. We finally made it.

CASA GRANDE (CONT.)

The weather was pleasant, on the whole, except for the extraordinary amount of east wind, with some dust. You may notice by SWM 16 that many ruins trips were shorter than usual and the reason was of course that people don't enjoy staying in the Casa Grande with a howling wind whipping the dust up off the floors. Temperatures ranged days from 65 on November 3 and 22 to 90 November 15. Nights from 31 on November 7 to 58 on October 27 and 30. Precipitation was .08 inch.

Our major gripes are still the same: Lack of personnel, no new sewer system, no funds for use in controlling our mesquite infestation. The first item has been helped considerably by our being authorized to hire an extra guide on Sundays, though I grudgingly spend the money from our regular funds. What has become of the new sewer system I don't know and until it is installed we must continue to spend money on our old make-shift sewer pump engine. As for the mesquite, the powers that be apparently prefer to let it remain infested even if it costs us all our trees. Perhaps the idea is that the bugs and worms have a right to life, liberty and the pursuit of happiness also.

The resurfacing of our entrance road and parking areas is practically completed. We deeply appreciated the opportunity of actually seeing Underhill at work. He does work, you know, every now and then. Everett asserts that my base insinuations regarding him in last month's report were utterly without foundation. Unfortunately he does not have access to the printed page whereon to "deny the allegation and defy the alligator."

A new coil water heater has been installed in the Chief Clerk's quarters. This provides hot water with the greatest of ease and now Jim can hardly wait until Saturday night to take a bath.

This time I haven't any nature notes to report so my material is practically exhausted. One other recent incident occurs to me, though - a lady entered my office and asked if the "gun expert" was in. I modestly admitted that she might mean me, whereupon she produced an ancient and rusty Colt .36 Navy revolver, cap-and-ball, vintage of about 1860. She wanted to know all about it and what it was worth. As a gun it had no market value, because of its poor condition and the fact that it was not of a rare type. However, she had found it in New Mexico (she lived in Lordsburg) near the spot where she said Geronimo had been captured, not very far from Chiricahua National Monument. I suggested that some collector might value it for its historical background or perhaps she might like to donate it to the Chiricahua National Monument museum when and if established. It really was an interesting piece, apparently highly valued at one time, as it had a silver front sight and a silver name plate (blank) set into the walnut stock. It was loaded in five of the six chambers. It is of no particular value but would be worth having in a museum as an historical relic of the sixties and seventies in the Southwest.

Last week the R.C.W.P. and I took a day off and visited Saguaro National

Monument. Paul was on the job and we were glad to see him again.

Last minute news flash: Our front curb shows an unbroken line of California licenses. Why? Can it be that the Californiacs are forsaking their much vaunted climate for ours? Okay, Chambers of Commerce, fire away!

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Comment: Business is picking up to pre-depression levels at Casa Grande and it looks like we are going to have a heavy winter traffic.

It looks like we will be back with our old familiar peak load problem on Sundays and holidays, but we think there is some way to handle up to about 450 or 500 per day before the congestion gets us down.--F.P.

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EL MORRO

By Robert R. Budlong, Custodian

November has been a very busy month. This officer has spent his time between two Monuments -- Canyon de Chelly and El Morro. At this writing we are at El Morro, with a fire burning in the new stove, while outside the wind howls around the rock and a fine snow drives against the windows of the cabin. Snow has remained on the ground in shady spots since the snowfall of September 27, and daily we expect a fresh, heavy fall of it.

The cabin has been rearranged inside, fresh chinking done around logs, weatherstripping put around windows and doors, and we are preparing the cabin for a cold winter, "just in case." Our greatest worry right now is the wood situation, but we have been promised several loads of it in the near future.

El Morro is a beautiful Monument. A great opportunity exists here for work during the winter, on which work we already have started. The new Custodian and the new HCWP have acquired over sixty volumes dealing with the early history of the Southwest, early expeditions, etc., and this material is being copied, where necessary, and arranged so that in the future both condensed and detailed information regarding the Rock and its history may be found in the official files without difficulty.

Compared with de Chelly, El Morro swarms with wildlife. While most of the "wild animals" seem to be cottontails and jackrabbits, some coyotes have been heard, and last week a wolf was reported as having been seen crossing the road between here and Ramah. Large numbers of birds seem to be making plans to spend the winter here, and these we are feeding at the cabin, and they are becoming very tame. Yesterday afternoon was spent hunting for a black cat that had made its home within the boundaries of the Monument. The hunt terminated in mid-afternoon, most successfully,

on a high ridge among the pines on the north side of the rock, and now we feel that bird life and the number of small animals will stand a much better chance of increasing.

Visitors have been somewhat scarce during the month. To date 78 persons have registered since Vogtie sent in last month's report. Beginning with next month, more detailed data on visitor attendance will be available -- if we get any visitors.

The NCWP and I met Charlie Steen in Gallup the morning of November 4, and we spent the morning listening to a discussion of plans for the taking of motion pictures by the group of Washington Interior Department men of the Division of Motion Pictures: Mr. Fanning Hearon, Mr. Walter Scott, and Mr. Paul Wilkerson. After lunch Mr. Scott and Charlie Steen started for El Morro, reaching it about an hour before we did. We all had supper at the cabin, and they returned to Ramah for the night. Next morning they came out early and Mr. Scott took motion pictures of many of the inscriptions. Then they left for points north, including de Chelly, where I later met them.

Vogtie departed before we moved down, and we were mighty sorry to miss him. We had spent several very pleasant days with him prior to his departure for Nevada, however, and he rendered all possible assistance in furnishing information relative to the Rock, in ordering wood, and doing a thousand and one things to make things easier and more comfortable for us. We miss him mightily, and greatly appreciate all the trouble to which he went in our behalf.

Numerous directional and other signs, now no longer necessary, have been removed. Some of the framed informational Park Service descriptions of inscriptions and early expeditions have been removed, where they contained erroneous information, and as soon as we complete brief summaries of information dealing with other inscriptions, the remaining framed explanatory placards will likewise be removed, since the permanent custodianship now makes such placards unnecessary.

We are considerably worried over the present condition of the Eulate inscription. While a cement footing was poured at its base some time in the past, we are not at all satisfied with the general condition of the rock slab on which this inscription has been carved. We will make a careful inspection of it and report more in detail in the near future.

A number of heretofore unobserved inscriptions have been found during the month, and quite a little information found on some of the later inscriptions. This information is all being assembled for the files, and if we can just get enough time during the winter, we hope to be able to present for your inspection a rather interesting file of such information. Right now we are both suffering from an old, familiar malady -- lack of time. The typewriter hums away busily at odd moments during the day, and

often well into the wee, small, hours; but when the snows arrive in earnest we hope to have more time to spend working on this material.

This has been a most unsatisfactory report, Boss, but I hope to be in a position to do better next month. Vogtie has set a high mark in reports for me to aim at, and right now I must admit that my marksmanship is poor, even though the object of yesterday's cat hunt might not admit it. Incidentally, while w e do not know where bird-hunting cats go after their departure from this vale of tears, we trust that that particular one I annihilated yesterday is now enjoying a warm, dry, climate on this cold winter's day.

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Remarks: This is the first report we have had from Bud and Betty in their new home.

We note the number of 20 guided trips this month compares with 30 last month and with 12 a year ago. The attendance was 72 this month against 153 last month and 45 a year ago. The average party this month was 3.6, last month 5.1 and a year ago this month was 3.8. The average time per trip this month was 73 minutes, last month 56.5 and a year ago was 80 minutes. It looks like Bud found something to talk about as soon as he arrived and is able to hold his visitors long enough for them to find what it is all about.

I might say that the Eulate inscription is not making its first bow to the puzzled investigator who wants to preserve it. We will go back through the files and see if we can uncover the correspondence of several years ago when that concrete footing was poured at the base of that slab, and if we do find it we will run it in the Supplement to the Monthly Report in order to put it into the record.

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CANYON DE CHELLY

By James D. Harritt, Ranger in Charge

Visitor travel for the month of November showed a marked increase over that of last November. Total visitors this month numbered 45. For the same period in November, 1935, the count was 30. Visitors took trips as follows:

Trip	No. Trips	No. Persons	Total Time	Average Time per trip
Rim	10	43	1,050 min.	105 min.
Car in Canyon	1	2	240 min.	240 min.
Trail	0			
Horse	0			

Visitors arrived in 13 cars, averaging 3.46-plus visitors per car.

The canyon started flowing late in October, and has been flowing steadily since that time, making travel by automobile within the canyons dangerous. The largest volume of water since last spring came out of the canyon October 30.

Weather has been generally good, with cold nights and fairly warm days; highest emperature during the month was 71 degrees on October 29; lowest temperature was 12 degrees on the 5th of November. Greatest range in 24 hours was 48 degrees on the 17th. Twenty-six days out of the last 30 have had a minimum temperature well below freezing. Ice and heavy frost have been common. Rainfall for the period amounted to .78 of an inch. On the evening of November 8 it snowed 1/4 inch. We came indoors about 8:00 p.m.; at 9:00 p.m. a cloud bank had rolled in and it was snowing heavily. The Southwest is not only a land of magnificent distances, but of fearful and wonderful climatic convulsions, as well. Several other snow falls were noticed at odd times, but amounted to little more than flurries, too light to record.

Only official visitors for the month were Johnwill Faris and Cal Miller who dropped in the 11th to look the place over. I had met Johnwill before, but this was a double pleasure to see both Chaco and Aztec Monuments represented here at the finest Monument, simultaneously.

Mr. Yokum, of the Geological Survey, with Mrs. Yokum, and a crew of two, came in the 12th, and have been doing preliminary triangulation and base line work for the boundary survey. They are to be followed shortly by the topographical crew, who will complete the work.

Went down to El Morro on November 16 to bring Bud back for a final cleanup here at de Chelly. We awoke the 18th to find it cold, blowing hard, and threatening very bad weather. Packing furiously all day we got out for Gallup that evening. I returned with the pickup the evening of the 19th; shortly after I was startled to find a large, heavily laden truck in town. It turned out to be Johnwill with a load of household goods. We unpacked, and he left again for Aztec the same evening. There is something about this northern weather that is most "moving". It must be the roads.

Work of other government agencies in the canyon has not been intensive Soil Conservation Service worked on some land protection during the month, but have shut down for this season. Aside from the survey which will be continued by the Geological Survey party when they arrive, little else probably will be done within the Monument boundaries till next spring.

I was certainly sorry to leave Bud and Betty down at El Morro last Thursday, but cannot help but envy them in their new location and beautiful country. I sure wish them lots of luck down there.

Well, Boss, I would like to have made a little longer report on this, my first attempt, but feel that my literary talent has about run out. For

this time I will close and get this to the mail if I am able to make the run that far through the swirling dust and wind.

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Remarks: Canyon de Chelly had about a normal month and we are safe now, after three years of testing, in saying that the travel season is over at that monument by November and we will probably not be able to increase the number of visitors in the winter for many years because of the bad roads and winter weather. - F.P.

**********o**********

GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for November, 290.

Last Sunday was a beautiful sunshiny day and we had 106 visitors. Fifty-two percent came from farther than 100 miles; thirty percent came from 25 miles or farther; and the balance was local. I think this goes to show we can expect a goodly number of visitors during the winter months, once the roads are in good condition.

More than anything else, this Monument needs a museum collection and a safe place to keep it. Not only will it enable us to gather in a considerable collection from the farmers in the vicinity, but it would go a long way toward attracting visitors from a distance.

Mr. F. V. Scholes from the Carnegie Institution, Division of Historical Research, Washington, D. C., spent about a week in the vicinity looking over Pueblo sites and studying the reservoirs, etc., in the Gran Quivira group of ruins. Mr. Scholes has promised us copies of some manuscripts recently discovered, dealing with this group of pueblos. From the records this ruin is evidently the Mother Mission and not Tiberia, Tiberia having been a small pueblo, a Visita of the Mother Mission. One manuscript tells of a protest the Chief of this pueblo made to one of the governors at Santa Fe in regard to priests watering four hundred head of cattle from the posos of this pueblo. He ends by saying that his people will soon be without water unless some of the cattle are moved.

We have a large survey party in the vicinity. They are re-establishing corners and definately laying out township lines, etc. They expect to be in the vicinity all winter.

I think we had a slight earthquake in this vicinity on Wednesday, the 18th. The wife had a pan of bread dough upset from near the stove, the bird baths were shaken from their pedestals and quite a few things in the vicinity disturbed. At the ruins quite a number of loose stone fell from the walls and in places some projecting corners had to be removed for fear

they would fall on visitors passing thru.

Three times during the month we showed pictures in the Community building down at the village. I was able to get some very interesting films on the pueblos in the vicinity of Santa Fe. One on the Indian Pottery of New Mexico was especially interesting. Animals in the National Parks and several films on the National Forests and Alaska were also very much appreciated.

Quite a number of people have been bitten by rattlesnakes in the vicinity lately but no casualties on the Monument. The natives say this is the latest the snakes have come in to hibernate in a number of years.

Several students from the University at Albuquerque and one of the directors of the New Mexico, Cuarto Centennial of Coronado, spent an afternoon here last week. They expect to return again in the near future to look over a group of ruins near the Atkinson Ranch. These ruins are some that Mr. Scholes did not succeed in finding and asked me to send him a report on them.

Practically all cisterns in the vicinity are dry and water has raised from ten cents to twenty-five cents a barrel. We have sufficient cistern water to carry us at least another month depending on the number of camping parties we supply, and of course the deep well is not affected by the drouth.

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Comments: Gran Quivira seems to be doing pretty well in the way of visitors. Mr. Boundey gave 64 guided trips this month as against 50 last month and 40 a year ago. His attendance was 290 this month as against 159 last month and 200 a year ago. His average attendance per party was 4.5 as against 3.2 last month and 5.0 a year ago. His average time per party was 51 minutes as against 56.7 minutes last month and 35 minutes a year ago.

We are interested in that part of the report dealing with snakes. "Quite a number of people" may mean anything above two, and we are going to ask Mr. Boundey to report the actual number with names and dates so far as he can trace them down. Also, it will be interesting to know if any of the bites resulted fatally.

**********o**********

SAGUARO

By Paul Beaubien, Ranger in Charge

From the morning of November 3 to the night of November 23, 742 visitors were checked by the CCC boys at the Speedway entrance of the monument. During that period, I contacted 147 people at the ranger station.

Travel figures for previous months: For the 19 days, July 13 to 31,

inclusive, there were 1,878 visitors. Six days of heavy traffic during that period were due to the filming of "The Gay Desperado" by the Pickford-Lasky Production Company. From August 1 to 31, there were 1,005 visitors traveling in 275 Arizona cars and 39 inter-state cars. From September 1 to 30, 405 people arrived in 99 Arizona cars and 2o inter-state cars. From October 1 to 31, 675 visitors were checked through the Speedway entrance.

The above figures are not complete as the CCC boys leave for camp at 4:00 p.m. on week days, and many visitors drive here in the evenings. Also, there are days when the gate is unguarded due to inclement weather. Probably few visitors are missed on these days.

Having a CCC boy at the main entrance has helped in several respects. They took several guns away from visitors each day during the first part of the hunting season. After the first week, they stopped about one gun a day. Sometimes they found visitors carrying away cactus plants. These people were made to take the cacti back and replant them in the Monument.

Several miles of roads in the monument are in bad condition due to the summer rains. I have filled a couple of cuts with rock, but they all need a general overhauling. I wish the improvement of existing roads could be made a project of the CCC Camp. Several thousand visitors will be using these roads this year and next.

I have comfortable quarters in the old tool shed, but do miss a water supply. By living in monument, I meet some night visitors that I missed last year. Have taken two parties on nature trips by flashlight. That isn't my idea of how to run a monument, but it's either that or having them come in to spend the evening with the poor ranger.

Have had several stormy days lately, but I expect the run of winter visitors to get under way shortly.

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Comments: We have moved our temporary man into Saguaro a little early this year in order to study the winter visitors and find when the curve there begins to rise.

Paul guided 44 parties, making a total of 147 persons. The average party was 3.3 persons and the average time the party stayed was 37.9 minutes. It must be remembered that this is a report for only part of the month, making the total number of visitors too low for the whole month. 742 visitors were checked through the gate, but, as Paul points out, some percentage came through after the checker went off duty at 4:00 p.m. We will have closer figures next month.

**********oo**********

CHIRICAHUA

By Frank L. Fish, Custodian

November weather has been quite changeable; the earlier part of the month was cold and windy; the first killing frost occurred on the third; pleasant warm days and cool nights prevailed from the tenth to the 20th; stormy weather has been with us since, mainly strong winds, rain and finally ending in snow. At the present writing a white mantel covers the Chiricahuas.

The approach roads to the monument have been in poor condition during the month, especially the one coming from Douglas and Bisbee. The Forest Service has a detached group of enrollees from the Turkey Creek Camp staying here rebuilding small bridges on the Pinery Canyon road.

Visitors show an increase over the number given last November. We have had 330 people in 101 cars coming from 20 states. 224, or 68%, were from Arizona.

Strong winds have kept many from using the trails at times, preferring to see what they could from their cars and Massai Point. It is also noticed that the majority visiting this monument for the first time are not dressed properly to enable them to get out and hike. I might be expecting too much but I feel my duty has not been performed unless I am able to show more of the wonders at the Monument than can be seen from a car. Still it is not practical for a lady in high heels to walk long distances. While she may make it, I have noticed it is not enjoyed; consequently, most of the guided trips have been short ones. Many of the visitors feel disappointed when they arrived at Massai Point in their cars and find that the Big Balanced Rock, Punch and Judy, and other famous formations are four miles away by trail. It leaves one undecided whether in the future it will not be necessary to run a spur road to these attractions. It might be possible to compromise and run a road part way and still keep the "Heart O' Rocks" in its natural state.

Accompanied by Mr. and Mrs. Hougham, Franklin, Indiana, guests at the Faraway Ranch, a cave with its walls and ceilings painted with Indian symbols was visited. This cave is about a half mile north of the CCC Camp.

Chuck Richey was here the 10th. Tovrea and Jack Diehl came in the 21st and 22nd. Jack was true to form - he arrived with another storm.

November 5 I accompanied Mr. Stevenson to Coolidge, It was a pleasure to see the Coolidge gang again. I observed a demonstration of how to pack humans in an office along with hay bailers, files, desks and other nick nacks. It is quite clear now why someone is in the field - otherwise it appears they would have to suspend someone from the ceiling.

November 7 I attended the opening and dedication of the Douglas underpass. It is a fine piece of concrete work and has a copper plaque of the famous Cochise adorning each end.

A lantern slide talk on general park views was given to the enrollees at the Camp during the month; attendance, 125.

A circulating heater and a cast iron range were purchased during the month to be installed in the new residence fast approaching completion.

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Comments: The 16 parties with 58 people who were guided this month at Chiricahua, were smaller than the 16 parties who were guided last month when there were [illegible] people. The average attendance this month was 3.7 as against [illegible] for last month. The average time on the trail was 80 minutes as against [illegible] minutes last month.

Frank raises an interesting point on many visitors not being properly dressed for trail walking. One of the things we want to study in the next year is this matter of how many visitors we can get out on trails and how far can we get them to walk. Chiricahua and Bandelier have several miles of fine trails now and we ought to begin gathering visitor reaction on them. I am not in favor of driving roads through the finest scenic section of Chiricahua and the Branch of Plans and Design stand with us on that. If the visitor cannot be persuaded to walk or ride a horse he will just have to miss something.- F.P.

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CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Sup't.

The Echo Point-Rhyolite Trail connection has been finished this month. The completion of this trail opens the Rhyolite-Massai Point-Echo Canyon Loop.

The Massai Point-Balanced Rock Trail has progressed 1,350 feet, and work has been started on the Sara Deming-Balanced Rock Section of this same trail.

Sugar Loaf and Echo Trails were maintained this month.

Maintenance has progressed rather slowly on Rhyolite Trail as many changes are necessary to meet Park Service standards. 500 feet of this trail has been maintained to date.

The rock slide on the Massai Point road has been cleared away and a small backsloping crew is at work to prevent any reoccurrence at this point.

The Headquarters Ranger Station is 90% complete. Installation of fixtures and painting being all that is left to do.

The Equipment Shed is 85% complete--all doors are ready for hanging, and rafters are all in place.

TONTO

By Francis M. Stevenson, In Charge

It was another interesting month at Tonto National Monument with a total of 230 visitors for the period ending today.

Several rains helped to keep the trail to the ruins in comparative good condition. The visitors, from all parts of the nation, showed a very understanding interest in the cliff dwelling. There were some complaints about the road leading to and from the monument.

Statistics show that 181 persons visited the Lower Ruin in 59 groups. The total guiding time on these trips was 2,064 minutes. The groups averaged 3 persons and about 35 minutes each. There were 169 persons guided in the museum at an average of 3 per group and about 12 minutes each.

Please give my best regards to all the fellows. Thanks again for your helping hand.

o

Comments: Steve handled 59 guided trips this month as against 65 last month and 50 a year ago. Business seems to have been normal. He had 181 visitors this month as against 177 last month and 248 last year, a drop in numbers over last year. His average attendance per party was 3 persons as against 2.7 last month and 5 last year. His average trip time was 34.3 minutes as against 45 minutes last month and 70 minutes a year ago.

He gave 63 museum lectures to 169 people, an average of 2.6 per party and the parties stayed an average of 12 minutes. Last month he gave 75 museum talks to 209 people who average 2.7 persons per party and stayed an average of 15 minutes.

Steve left us as this report was turned in and has gone back East. We are sorry to see him go. He has been with us only a short time but was liked by all who knew him. Good luck, Steve, wherever you go.

**********oo*********

WUPATKI

By James W. Brewer, Ranger in Charge

500 Use of Monument Facilities by the Public

62 guests registered at Wupatki; 52 at the Citadel Group; only 7 names are duplicated, leaving a total of 107 visitors to this Monument in November, 1936; 1935, 93; 1934, 73.

530 Newsworthy Visitors

Mr. and Mrs. J. B. Hamilton on the 24th; Mr. S. Wallace and Mr. V. Harris, of the Forest Service, on the 26th; Mr. and Mrs. Rotty of the

Forest Service on the 8th; L. L. Hargrave on the 14th; Ferrell and Mrs. H. S. Colton on the 15th; Jack Diehl and J. H. Tovrea on the 17th; R. V. Van Valkenburgh on the 17th and 18th.

021 Weather

Skies were generally cloudy from the 24th until the 3rd; then came 13 consecutive clear sunny days; it was cloudy on the 14th with a dust storm on the 15th.

Days cloudy:	10	
Days partly cloudy:	2	
Days sunny:	19	
Maximum temperature:	64	on the 25th
Minimum temperature:	16	on the 3rd
Precipitation:	.3	inches on the 29th.
Anemometer:	4216.9	total miles
Maximum:	478.6	on the 2nd
Minimum:	29.3	on the 14th.

220 Improvements

The back dirt from Room 7 was used to level the trail on the west side of Rooms 10 and 16.

The three glazed frames to be used in the registration room have been given two coats of white paint. The Tree Ring display is ready for hanging, and before this reaches you I expect to have all three displays finished and hanging.

General

This is a mighty short report but does not reflect a lack of interest in the Monument.

On the 3rd Erik Reed left for Chaco Canyon and I continued the work in Room 7.

I've spent almost all my time there or writing notes on the work since Reed left. (We enjoyed having Erik with us and learned a lot from him.)

As soon as the negatives are printed and the material sent off for identification is returned I will forward the report complete to your office.

Navajos

Sallie got Clyde an order for six hand-made silver spoons. It seems as though that's just too much to push onto a fellow all at once, because

WUPATKI (CONT.)

Clyde said he guessed he'd better get his brother Emmett to help him!

And the mystery of who cut Grandfather's drawers off is too good to keep. Occasionally the U.S.I.S. leaves a bill of Indian relief chuck or clothing here to be distributed. Several weeks ago, when the weather began to get a bit chilly, I gave Grandfather (Peshlacoi Etsedi) a set of long woolen underwear. He returned several days later; he was very indignant; he showed us the drawers; someone had cut them off just below the knee! His legs were cold! I rushed downstairs to get him a complete pair; while I was gone he talked to Sallie at length about it; he made motions as of scissors cutting; he wondered if Mexicans had done it? -- Navahos?--Americans? It was pretty bad, whoever had done it.

He went away quite satisfied with the long drawers I had brought back for him. But he was back yesterday; the affair had evidently been preying on his mind. Would we always keep the tool house locked? We should, because people from Gray Mountain might come through and go in there---we mustn't forget that someone had cut his drawers off! (The bundle of clothing had been left here in August, and I think that the drawers in question had probably been cut off for summer distribution.)

I took a party of visitors over to Clyde's camp today; as we drove up Clyde made a dash from his anvil (railroad iron) into the hogan. I'll bet somebody's Christmas present went with him. We're having the tree a little bit early this year so we can clean up and take off.

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Remarks: Business seems to have been about normal at Wupatki during the month. The average time per party went up to 68 minutes, due to a couple of long parties.

Lest you might think the Brewers should have explained to Grandfather that long handled underwear was out of style, and thus satisfy him, I might say the present Navajo women's dress is a copy of the dress of the officer's wives at Bosque Redondo, where the Navajos were held by the army back in the sixties. When a Navajo adopts a style he doesn't want to be bothered with minor changes every fifty or sixty years, to say nothing of changing from longs to shorts every six months. Grandfather has our understanding sympathy.-F.P.

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SUNSET CRATER

By J. W. Brewer, Jr., In Charge

205 visitors registered at Sunset Crater in November, 1936; 1935, 96; 1934, 117.

Attached is a written complaint regarding roadside directional signs. The writer did not sign it so I am including the registration sheet for

comparison of handwriting. (I believe "Mr. & Mrs. W. A. Tweser of Dallas, Tex." on line 37 wrote the note.

The new road into the cinder borrow is the only confusing place I know. A temporary sigh has been placed there and two months ago a permanent sign was ordered and will be erected upon its arrival.

A copy of this sign order was forwarded to your office.

o

Remarks: Copy of the complaint is as follows: "If only you knew what a great help it would be to tourists if the ones in charge of this Monument would mark the road to this section clearly at the various cross roads from Route 89! One may only guess at the turn to make."

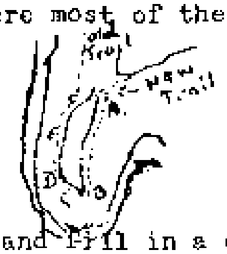
The complaint seems to be from a visitor who thinks we should mark the roads that ought not to be taken. After turning off 66 by a standard sign we presumed the visitor would stay on 89, which is a fine wide, surfaced road, running straight north, until he came to a sign turning him off to Sunset Crater. Instead of that, this visitor wants all those cow paths, wood roads and minor cross roads which quite plainly go nowhere, to be signed so she will know that she is not to take them. Reminds me of that time we had a party come into Casa Grande and protest about the terrible condition of the roads between here and Phoenix. We said the road was graded and surfaced all the way to Phoenix and we couldn't imagine where they found it bad. They said yes, but they left that road and got on a little, narrow Indian road which was in terrible shape and something ought to be done about it! - F.P.

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WALNUT CANYON

By Milton Wetherill, In Charge

The report for trail work can be handled best by showing a sketch of the island with points where most of the work was done.



A: A small rock wall and fill in a draw, wall about three feet high and four feet long. This wall and fill widen the trail on a bad corner.

B. A small rock wall and fill on a steep slope, wall about four feet long and two feet high.

C: Moved a large rock over which the trail went. By baring this large

rock into a wash, I lower the trail in the middle, and raised it on both sides with a rock wall and fill. (Some improvement can be made with powder.)

D: By moving a few large rocks I straightened the trail and lowered it about three feet. Fifteen feet of trail was straightened and lowered.

E. A large rock wall and fill. Wall 18 feet long and six feet at highest point.

F. A rock wall and fill. Wall ten feet long and four feet at the highest point.

Loose rock and gravel removed from between these points.

Made a trip to Wupatki National Monument by Sunset Crater Monday November 16, 1936, to see the type of burials they were taking out from beneath the floors. (Also took in the basin with Mrs. S. Brewer as guide)

Mr. Hugh M. Miller, Assistant Superintendent, Southwestern Monuments, has been the only official visitor.

The following birds were observed in the Monument this month:

Pine Siskin	American Ravin
Canyon Wren	Golden Eagle
Clark Nutcracker	Lead-colored Bush-tit
Red-shafted Flicker	Western Robin
Chestnut-backed Bluebird	Mountain Bluebird
Pygmy Nuthatch	Rocky Mountain Evening Grosbeak
Rocky Mountain Nuthatch	Red-breasted Nuthatch
Townsend Solitaire	Long-crested Jay
Woodhouse Jay	Pinyon Jay
Gray-headed Junco	Red-backed Junco
Pink-sided Junco	Shufeldt Junco
Red-naped Sapsucker	Western Red-tail
Ceder Waxwing	Mexican Crossbill
Mountain Chickadee	Long-tailed Chickadee
Cooper Hawk	Western Chipping Sparrow
Western Horned Owl	Flammulated Screech Owl
Spurred Towhee	Rocky Mountain Sapsucker

White-breasted Woodpecker

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

Another month rolls around and we find ourselves in bright sunshine and cool weather very very dry. The vicinity of Capulin Mountain National

Monument now has the appearance of a scene I well remember about twelve years ago when the family and I went to California; I recall topping the Oatman hill and looking across the Colorado River from Arizona into California and seeing cars drifting along the dusty highways with a trail of unbroken dust rising behind each car for about a mile. So I says to my family: "This is indeed the much-talked of desert of Arizona and California." Now when one is going upon Capulin Mountain getting views from three different directions over Highways 87 and 64 the same scene arises again unbroken columns of dust rising for almost a mile behind each car as they travel over the dusty highways. Never before in more than thirty years (for I have been here that long) has the dust been so bad and we are only blessed for the reason that we have had an extremely quiet fall. We are all praying that we get plenty of moisture before the spring winds set in. Capulin is one of the best parts of the state for big game, like deer and elk, and it has been so dry that not more than ten per cent of the hunters secured their deer this fall, the Custodian being one of the 90%.

Travel on the Monument has been very good this month and about 600 have visited this month. Several of the Forest Service boys have been our welcome visitors this month. They are in this vicinity classifying some of our grazing land here as to carrying capacity of stock, and, of course, they had to drive up on our Monument.

The Custodian has been doing some road work on the Volcano the past week. The lower half of the road is again taking fair shape but the constant sloughing of gravel into the road is a thorn in the side of the Custodian. Something, sometime, someway, must be done and this winter the Custodian is submitting a plan which if followed out he believes will forever eliminate the trouble.

This Monument hardly got a fair shake at the travel report for the year just past. It happened this way: in the years past the Custodian's reports for this Monument showing the monthly and annual travel have been only estimated and estimates have possibly run a little high and the Superintendent's Office knew this and has been slightly reducing the annual reports before it all went into the mill; and this year we have actually had far more travel than any previous year. The Custodian this time thought it better to be more conservative than in the past in submitting the amount of travel and the Coolidge office made the usual reduction. So I guess the Custodian bears the blame as he should. He will have to learn not to yell wolf.

This Monument expects far more travel this coming season than ever before. U. S. Highway 87 is undergoing a severe operation and the big bend in her back is being removed and the distance from Clayton to Raton will be reduced about twenty miles from the original route ten years ago and this U. S. 87 will according to plans be all paved from Denver to the Coast this coming season. I hope and expect to see this coming season 87

carrying more traffic than any highway in the state and, of course, they will all want to see Capulin Volcano.

Fauna

I noted quite an increase in our deer population immediately after the deer hunting season this year. Probably hunters have driven them to the Monument and a deer soon learns where it is protected. We might have plenty of game with us to stay if we only had water.

I am afraid that we are going to lose some more of our trees on account of dry weather and porcupines. I will try to make a close check on the damage done and report to your office some time next month.

**********oo**********

MONTEZUMA CASTLE By Martin L. Jackson, Custodian

Have had 353 visitors for the month, 179 climbing the ladders. Twenty states were represented; also had visitors from Canada, Honolulu, Alaska, Chile, and China. Have had some stormy weather and the usual complaints about the roads. Which complaints I am sorry to say are quite justifiable.

The three dude ranches situated near here report a good number of reservations being made. Already guests are coming in, and they predict a good season.

Dr. Wallace W. Atwood of Clark University paid us a visit during the month; he is a great booster for the Park Service.

Another interesting visitor was Carl E. Wallerstedt, Consul of Sweden. He spent a couple of hours with us and said he hoped to come back again.

Engineers Jack Diehl and Tovrea spent a few minutes with us on the 18th.

While we had very few visitors during the month I found them to be the hardest to interest, to hold their attention, than any month since I have been in the Service. I found on several occasions when I would get all hot and bothered about cliff dwellers and think I was doing my suff; then some one would horn in and ask me who I thought would be the next president, or what I thought about the Social Security Act, or who would carry New York state.

Ranger Farmer insists that the cliff dwellers were not as tall as he is.. Or if they were, they were hunchbacks, from going through the low doorways. Then we had a stout lady in today that insisted they were dwarfs. Otherwise they would have built doorways that a human being could get

through. Might add, however, that she climbed all through the building.

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Comments: Montezuma Castle shows a drop this year, from 445 last year to 353 this year.

We might state here that Mr. Jackson has a new set of store teeth in front to replace the set knocked out by the Westinghouse engine which he was trying to start. We have sent the bill through to the Compensation Commission for payment and it is nice to know that any of us can get a beautiful set like that any time we want to knock out six or eight of the ones we have in the regular line of duty. - F.P.

**********oo**********

PIPE SPRING

By Leonard Heaton, Acting Custodian

For some reason this report seems to be days late and weeks since my last report was sent in. It might be due to several things that have happened the past 30 days to make time drag.

One thing is the old Dodge Truck, which has taken some time to get in running order so that I could be sure of getting back to the bed ground at night. It seemed like first one thing would come loose or break, then another. After a lot of tinkering, stopping and starting, purchasing a battery, gas tank cap and filter bowl, it seems to run as usual, as I spent six hours Saturday in getting a load of wood for the monument.

There have been very few visitors to the monument this month. Two days took more than two thirds of the visitors. On October 27,19 school children from Short Creek stopped for ten minutes, and on November 14 (when the ECW had a barbecue to dedicate the completion of a reservoir they were nine months in building) 20 visited. The total for the month is 56. The local travel has not been very high. Probably 180 would cover all that has been by the Fort.

I gave a lecture to the Camp on the 15th, which turned out to be rather amusing. Mr. Matland, an ECW foreman, asked me to come down at 2:00 p.m. and talk to the boys on the history of this place. Well, when I got there there was not an Army officer or an ECW officer in Camp, so I just sat around in the recreation hall for about 15 minutes waiting for some one to come. Finally two boys came in and asked what I wanted. I told them and they went out and brought back the First Sargent. I told him that Matland had asked me to talk to the boys today. He then went out and blew his whistle and called the Company together. One could hear the boys cussing and not making very favorable comments on being called away from their books, sleep and other recreation at that time, and I was beginning to wonder what I would say, as the expression on their faces

was something like this: What in the _____ does he want? I explained the best I could that I was asked to talk to them on the history and if any of them wanted to go it would not bother me and that I was sorry they were disturbed. I guess they decided that now that they were out they might as well stay and listen to me. Well, I kept them for 40 minutes and only lost four or five boys that were cooks and had to go. After I had finished they were called to dinner, so I guess they were not altogether displeased.

November 16 most of the boys went on a work strike because of the food that was being served them, but on the 17th everything was all right again.

Bird Notes

On November 4 I set some of my bird traps and caught four Gambel Sparrows and since then I have been catching them almost every day. In my banding I have caught 71 Gambel Sparrows, 7 Rocky Mountain Song Sparrows, 2 Canyon Wrens; there have been three returns from the birds that I banded last spring: 36-15144, banded April 1; 36-15150, banded April 2; 36-116912, banded April 5. These have stayed here for a while and now I guess have passed on south.

I have lost two birds, one Song Sparrow that was hurt in the trap so that it died the next day, and the other one was killed by a chipmunk that got into the trap with the birds and before I could let them out one Gambel Sparrow was killed and two more were wounded but able to fly away. I am having a lot of trouble with the chipmunks getting into my traps and taking the bird feed.

On November 1 I vertified the statement of Mr. L. J. Brown that he had heard some quail on the monument as I saw a flock of 15 just back of the Fort. The quail stayed around for about a week then either they left or were killed by some of the camp hunters.

Since I wrote you about the complaints I have of the boys, I think they understand what the Park Service is trying to do as I have not seen any signs of their molesting or hunting in the Monument but they do some on the reservation.

On November 5 Mr. Al Kuehl came in to do some planning and drawing for future development on the monument. He was here almost all afternoon again on the 6th. He came in with Mr. W. J. Ward, U.S.B.P.R. and we three got into Mr. Ward's car and went out on the road toward Toroweep about 20 miles looking for the best route for the road that is to be built in a few years. Al and I had Mr. Ward look over the road in the monument and if the road is made up to standard it will have to be placed south about 50 feet or there will have to be two large trees cut just south of the road. Or the west pond will have to be moved back on the southwest corner

about eight feet. We feel that the road should be moved. This will mean that we will have to replace the whole set-up in the development of the monument, as to camp ground, move it south; parking area, residence area, planting of trees and the east and west entrances, I will be glad to get them established and finished up.

I have received the signs and will soon have them up.

Final arrangements have been completed so that I can get the fish that I want for this monument. If storm does not interfere I will go to the hatchery next Saturday for them.

There has not been very much work to report for the ECW this month. Since the cold weather has set in we will not build the fireplaces and we need drawings for the tables. The other projects need relocation since now the road is apt to be changed. The ditch elimination is the only project that we have to work on, and as there was some misunderstanding on it, it needs approval in the 8th period. I am letting them go ahead and haul in dirt as it will take them another six months or more to complete.

The last part of October and the first part of November we received more than two inches of rain, which was a God-send to the livestock, as most of the ponds and tanks were filled letting the stock out to better feed. Also it will help the growth of the plants. There has been some grass coming up on the south sides of the hills this month.

On November 10 a 12-pound boy was born to the Custodian and Mrs. Heaton in Kanab. Mrs. Heaton and the boy are getting along just fine.

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Comments: Congratulations to Mr. and Mrs. Heaton on the new arrival and we are glad to hear that the mother and baby are doing well.

I might say that it has been pretty definitely settled that the new highway will be carried to the south of the Monument and we will come in to our monument with a by-pass or stub road. This will keep the heavy traffic outside and not cause any change in our set-up.- F.P.

**********oo************

BANDELIER FORESTRY

By James Fulton, Forestry Foreman
(Received too late to consolidate with the other Bandelier reports)

From October 24 to November 13, inclusive, my crew of 23 men was engaged in cutting snow damaged aspen poles on Sawyer Mesa. These poles will be converted into ceiling material eventually. A total of 51,150 lineal feet of such material was cut and delivered to Frijoles Canyon.

Of this, about 10,000 feet has been peeled and split and piled to season.

Since November 13, I have had a crew of 14 men cutting and hauling Ponderosa Pine vigas and lintel material. These products are being obtained from the Soil Conservation Service on the Ramon Vigil Grant where the aforesaid Service is conducting a timber stand improvement project. We are doing them the service of cutting and removing mistletoe-infected trees. So far, 92 thirty-foot logs have been delivered to headquarters area.

At this writing we have just ceased the practice of requiring at least one foreman to remain in camp for fire guard duty. During the winter there is no need for this, however, there is always at least one foreman who remains in camp of his own accord.

Beginning on November 11, I began holding a weekly class in Forestry. In this class, general forestry subjects are discussed, along with elementary botany. Also, during each class period, identification of local trees and shrubs is carried on. The response I am obtaining is quite pleasing.

**********oo**********

PERSONNEL INCREASE

THE SCHMIDTS, CARL & BETH,
REPORT A BOY

LEONARD & MRS. HEATON
ARE NOT SO SPECIFIC,
THEY REPORT
A BABY

ANYWAY, ALL PARTIES ARE DOING NICELY AND WE WELCOME THE NEW PERSONNEL.

P.S. LATEST BULLETIN: BOTH BOYS!

HEADQUARTERS STUFF

By Robert H. Rose, Park Naturalist

On the evening of November 2 returned from Berkeley where I have been investigating Bancroft Library records of the Kino Missions. I also gave assistance to the Field Division Staff in drawing up museum exhibit plans. Junior Naturalist Charlie Steen has been at headquarters the entire month with the exception of a few days among northern Arizona and New Mexico with Fanning Hearon and Paul Wilkerson of the Division of Motion Pictures, and approximately one week of relief duty in the latter part of the month at Tonto National Monument. Junior Naturalist Dale Kink continues on leave in connection with his scholarship at Yale University. The vacancy incurred by his absence remains unfilled to date.

Gifts and Accessions

A number of bulletins and periodicals from duplicate sets in Field Division of Education were delivered to the Headquarters Library and have been taken up on our records. From that Division we have also received a 1200-capacity lantern slide cabinet, a consignment of 200 slides sent for color work, and a lot of 12 slides of old mission records.

Bird Banding Notes

Only 23 new birds were banded at the Casa Grande station during November. Two factors account for this very low number: there is a large amount of natural feed in this area and the birds have also learned that they can get out of a trap through the same aperture through which they entered. It is both amusing and annoying to see one or more birds hopping about the first compartment of a sparrow trap then turn and fly through the entrance as soon as the eager bird bander nears. Six returns have been recorded so far this season. One return is of particular importance for the bird was not banded at this station. 35/6502, a Gambel Sparrow was taken on November 12 but has not repeated. The band number has been sent to the Bureau of Biological Survey for information.

One other Gambel Sparrow, three house finches and a Bendire Thrasher have been registered as returns. Gambel Sparrow 35/38215 which was caught and banded October 26, 1935, was captured on October 13 this year. Bendire Thrasher 34/256919, banded October 22, 1935, returned on October 28. During the evening of November 18, 23 house finches were taken with nets from the picnic ramadas; three of the birds netted proved to be returns, all were banded in the same area last year.

Louis Caywood at Tumacacori reports that he also is having trouble getting birds into traps because of the abundance of natural feeds.

The station that has really banded birds this month is Pipe Spring. Leonard Heaton has banded 71 Gambel Sparrows, 7 Rocky Mountain Song Sparrows and 2 Canyon Wrens since November 4. He has recorded three returns, all banded during the first five days of last April.

BIRD BANDING TOTALS

Specie	Casa Grande		Pipe Spring		Tumacacori		Walnut Canyon	
	Prior	Nov.	Prior	Nov.	Prior	Nov.	Prior	Nov.
Bluebird, Chestnut-backed							29	
Bunting, Lazuli					1			
Cardinal, Arizona					4			
Cowbird					1			
Crossbill							28	
Dove, Inca	2				1			
House Finch		20	1		1			
Flicker, Red-shafted							2	
Fly-catcher, Arizona crested			5					
Goldfinch, Greenbacked							1	
Grosbeak, Rocky Mt. Evening							2	
Junco, red backed							1	
Mocking Bird					2			
Nuthatch, pigmy							12	
Nuthatch, Rocky Mt.							1	
Pyrrhuloxia					5			
Quail, Gambel	3	1						
Robin, Western							3	
Sapsucker, Red-naped							4	
Siskin, Pine							38	
Sparrow, Gambel		2		71			1	
Sparrow, Rocky Mt. Song				7				
Sparrow, Western Chipping							7	
Tanager, Western							2	
Thrasher, Palmer					1			
Towhee, Canyon					4			
Wren, Cactus	1							
Wren, Canyon				2				
Totals		29		66		20		131

Bancroft Library Research

I arrived at Headquarters with some 250 to 300 pages of transcripts in Spanish from the missions records most of which were already translated. About two weeks were spent in revising the translations and in organizing this material for use in some two or three articles of 20 to 25 pages each for the Supplement. In this month's Supplement will be found the first of the series which deals with Cocospera, San Ignacio, Magdalena and Imuris. Particular attention is called to the reproduction of the original Kino burial record. This is probably the first time that photographic reproduction of this notice has been published. Prints from these negatives have been supplied to the custodians of Tumacacori and Casa Grande. Cocospera burial and baptismal records running as late as 1836 have also been photostated and prints supplied to Tumacacori.

Outside Lecture Contacts:

The following outside lecture contacts have been made and have not been previously reported in this section:

1. Illustrated lecture on Southwestern Monuments before CCC Spike Camp, Strawberry Canyon Camp, Berkeley; attendance 35.

2. Illustrated lecture on Southwestern Monuments 12:00 noon Thursday, October 22, before the California State Hotel Greeters Association, convention in Oakland; attendance 400.

3. An illustrated lecture on Southwestern geology on November 6 before the geological honor society, San Diego State College; attendance 20.

4. An illustrated lecture at 9:00 a.m. on the morning of November 7; Southwestern Archeology and Geology; combined science classes of San Diego State College; attendance 180.

Miscellaneous work:

The 1200 spaces in the lantern slide cabinet have been numbered and letters of the alphabet assigned to the individual racks. This project will continue until the slides have been assigned their numbers and a catalogue of them prepared.

About 135 photographic negatives of Sonora Missions were loaned to Bancroft Library. They secured prints for library and research purposes then returned negatives and prints to this office for captions and identification. Some eight pages of detailed notes were supplied which required about one and one half days in compilation. The notes and prints were then returned to the Bancroft Library to have a place in their collections.

STATISTICAL SUMMARY OF EDUCATIONAL CONTACTS FOR NOVEMBER, 1936

SOUTHWESTERN NATIONAL MONUMENTS

Monument	No. Employes		Guided Trips					Museum Trips					Unatten'd		Outside Lectures		Total Educ'l Con-tacts	total travel	Travel last year
	Per	Tem	No.	Att'd	Time	Av Att	Av. Time	No	Att'd	Time	Av. Att.	Av. Time	No	Att'd	No.	Att.			
Arches																			
Aztec	1	1	127	584	3760	4.6	29.6	118	535	1885	4.5	15.9	47	181			1119	654	409
Bandelier	1	2	72	249	5530	3.4	76.0										249	518	528
Canyon dechelly		1	3	8	240	2.6	80.0										8	45	30
Capulin Mt.																		600	900
Casa Grande	2	*	335	2909	9890	8.6	29.5	233	1679	4936	7.2	21.1	154	1230			4588	2909	2165
Chaco Canyon	1		45	157	3030	3.4	67.0	41	146	769	3.5	18.7					303	585	528
Chiricahua	1	1	16	58	1290	3.7	80.0								1	125	58	330	175
El Morro	1		20	72	1460	3.6	73.0										72	78	45
Gran Quivira	1		64	290	3258	4.5	51.0										290	290	340
Gila Cliff																			
Hovenweep																			
Montezuma	2		90	301	3482	3.3	38.6	86	298	1337	3.4	15.5					599	553	445
Natural Bridges		*																	
Navajo		*																	
Pipe Spring	1		13	56	300	4.1	23.								1	135	56	180	610
Rainbow																			
Saguaro		1	44	147	1670	3.3	37.9										147	742	
Sunset																		205	
Tonto		1	59	181	2054	3.0	34.8	63	169	778	2.6	12.3					350	233	396
Tumacacori	1	*	222	1109	6569	5.0	29.5										1109	1194	1141
Walnut Canyon		1	100	353	1000	3.5	10.0										353	353	334
White Sands		*	70	1400	900	13	20	150	300	750	2	5.0					1200	4907	2930
Wupatki		1	19	52	1300	2.7	24										52	107	93
Yucca House																			
Headquarters															2	200			
Total this Mo.	12	9*	1299	7926	45733	6.1	35.2	691	3127	10455	4.5	15.1	201	1411	4	460	10553	14283	11204
Total last Mo.			1348	6184	52661	4.5	39	997	4713	16757	4.7	16.8		383	4	524	10897	14869	12608
Same Mo. last yr			1072	6354	52382	5.9	48.8	295	1859	6000	6.3	20.3	171	1365	7	485	10647	11204	

*Part time or part paid help.

Several small items of routine correspondence together with a few days on relief public contacts work concludes the resume of my activities for the three weeks since returning from Berkeley.

Visitor Contacts Figures

We had 14,285 visitors for the month which compares very favorably with 14,869 for last month (October), and with 11,204 for November of last year.

The largest gains as against last year are at White Sands and Casa Grande. The gain at Casa Grande is certainly due in great part to the heavy run of winter visitors from eastern states who have come to Phoenix and Tucson earlier and in larger numbers than for some years.

We gave 1,299 guided field trips as against 1,072 a year ago and 1,348 last month. Here again we hold up pretty well for November when we are generally expecting a drop.

These guided field trips handled 7,92o visitors as against 6,184 last month and 6,354 a year ago. Here is a nice gain over last month and over the same month a year ago. To handle this increased number of visitors, however, we dropped in our party time. A year ago this November our field trips averaged 48.8 minutes; last month they averaged 39 minutes and this month the average is 35.2 minutes. This drop does not come at the monuments of heaviest attendance. Casa Grande, Montezuma Castle show a slight gain in party time and Tumacacori shows only a slight loss. These three handled half the field trips for the month. The difference seems to come for the greater part among the monuments with smaller numbers of parties. Casa Grande handled one-fourth of all the guided field trips, 335; Tumacacori coming second with 222 and Aztec third with 127. Note that Aztec, Casa Grande and Tumacacori, all being on fairly level ground, with trips of about the same length, averaged a trifle over 29 minutes per trip at each place. Montezuma and Tonto, with longer walks up steep grades, run 34 and 38 minutes. El Morro, Bandelier and De Chelly, Chaco and Chiricahua, with much longer walks, take a correspondingly longer time. Does this mean that a guide can hold his audience for about half an hour plus any extra walking that may be necessary?

Museum trips were 691 this November against 295 last year and 997 last month. The sharp fall from last month seems to be due to 154 parties which were not given the museum trip at Casa Grande, being turned loose in the museum without a guide, and about a hundred parties at Walnut Canyon who could not be handled at the headquarters because the man in charge was working on the trail under roads and trails money.

The average time of the museum trips fell from 20.3 minutes last year to 15.1 this year; the previous month being 16.8 minutes. Aztec, Montezuma and Tonto fell about four minutes each and Casa Grande remained

about the same.

Further studies must be made at Casa Grande. The main trouble comes on Sundays and holidays when we have a peak load in the afternoons and the total attendance gets above about 200 for the day. The boys haven't developed a technique for handling the peak load.

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NATURAL BRIDGES

By Zeke Johnson, Custodian

(Zeke's report reaches us just as the press starts to roll - last minute flash!)

I have been working all this month on the trails. Wish I could go back and put in about 20 more days but I have run out of funds. I have entertained 28 visitors this month and there is another small party going out tomorrow. The roads are still very good and nothing to hinder people from seeing that country yet.

I am very much thrilled over a discovery I made the other day. I was working about half way between Agusta and Caroline Bridges and at lunch time I was in the narrow canyon where the sun does not shine very much at this time of year, but I could see that about thirty feet above me the sun was shining warm and bright on the cliff. I crawled up a broken ledge thinking that it would be nice to eat my lunch there when to my surprise I saw a ledge full of houses, within 80 yards of the trail over which I have walked for more than twenty years. There is one large kiva with the roof almost complete and a fine ladder standing in the hatchway with the small willows still holding the rungs in place. I could not tell how many rungs are on the ladder because of the debris which the pack rats have piled up around its base; only three and a half feet show between the top of the pile and the hatch. Beside the kiva are two well preserved stone and adobe houses with no roofs but walls which are in a fine state of preservation. A small barrel shaped structure abuted against one of the houses. Six or eight rooms with walls of fine masonry but partly torn down are also on the ledge. There is a lot of broken pottery and flaked stone lying about. I picked up six arrow points and several broken ones. You know, I felt like a foolish kid to have passed so near these ruins for so many years and not know of their presence, but some one had found them before I did many years ago; a few pits have been dug in the ruins but the kiva has not been touched.

Nearly every group of people that makes the trip to the bridges wants to know if there are any prehistoric houses to be seen and I have always had to tell them that we were aware of just a few, and those not very interesting. Now, after I build two short ladders and clean up around the ruins I can say "Yes, some of the very best" and they won't have to travel more than one hundred yards out of the way. I am just as proud of those

ruins as any man my age can be. They add one-third to the value of the trip.

In my September report I told you of a big flood that came down Armstrong Canyon. The greatest flood I have ever seen in this country came down White Canyon the last week in October; the Armstrong flood was just a garden stream in comparison. The scene all the way up the canyon is changed; three willow patches through which the trail went are gone and some large logs with which I talked each time I passed are washed away also. One of the big metal Park Service signs which I had nailed to an eight-foot log and then pushed as high as I could reach is gone and there are bits of water carried brush three feet above the top spike which held the sign in place. Nearly all the camp ground under the Caroline Bridge is gone. Thirty-five feet in the White Canyon side and 20 feet on the Armstrong side were washed out. I used to have six hitching poles in a row but only two are left and I wish the others had washed away too for the camp ground is ruined. These late floods have raised hovoc with the trails but I have them pretty well fixed now except that the trail from Agusta Bridge to the ladder is very tough. I will try and do some work up there early next spring.

One Navajo came down to the Monument after his buck this fall but I put the bee on him. There were several hundred does and fawns within a few miles of the Monument after shooting began on the mountain but they are well scattered now. Five mountain sheep were still in White Canyon when I left this morning.

I may go back for a few days and fix things up for I wasn't satisfied when I left, but I could smell the roast turkey and pumpkin pie. There are three prospectors near the monument and I do not know what they will do with my tent and supplies if they find I am gone for good, so I'd better go back for a few days before locking up for the winter.

K. S. Sager of Washington, D. C., and Superintendents Jesse Nusbaum and M. R. Tillotson and D. H. Madsen of Salt Lake City visited me at the Bridges not long ago.

I have some letters from people asking if they can see the Bridges at the last of this month. I answered that the roads are all right now but that they may be blocked with snow at any time.

I think that this has been a very interesting year at the Monument. More people than ever before have visited the Bridges and practically all have been from states other than Utah. I have heard no bad reports of the other monuments and nearly everyone seemed very much pleased with the one I have the honor to represent. I wish everyone of our bunch the compliments of the coming season.

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CLOSING

Another month has counted its days into the past and we have here made a record of its successes and failures. We hope the balance falls on the good side and there are not too many failures.

We seem to be in a period of considerable shifting of men and we might warn you that there is more to come, but it is all weaving a pattern of efficiency and the shifts are not without reason. The thing that is causing us about as much worry as any other, here in the office, is the lack of a register to choose from. We need an archaeological register the worst way and it may be several months yet before one is made up. That last archaeological examination proved to be the Waterloo of most of the students we have talked with. The hundred questions seemed to be about half eastern and half western archaeology and the eastern students missed the western questions and the western students missed the eastern questions. The highest standing I have heard of yet is in the low seventies.

Our work is now going into its winter phase; there is practically no let-up in the office work, but the visitor load lightens a bit and shifts from the north to the south part of the district. The work of the men changes in some cases from handling visitors to protection problems, research work and planning for the next season. The men in the south part of the district have their troubles intensified, peak load problems become critical and the general tempo of their work is stepped up well above normal.

A visit to White Sands National Monument the past month has built up quite a lot of enthusiasm between ourselves and Mr. Charles as to methods of handling that Monument after the completion of the headquarters area when we hope to be able to deliver some real service and get some real facts about the class of visitors we have there.

It was a very pleasant meeting we all had with the representatives of the Government of Mexico over at El Paso early in the month and especially pleasant from my own standpoint to get the visit with you, Connie, Herb, McCalm, and all the others. It is a fine gang we have when you get them all together.

We are looking forward to a busy December. Phoenix, Tucson and El Paso are already filling up with winter visitors and the hotel men tell us they are expecting the best season for many years.

Cordially,

Frank Pinkley

THE Supplement



CASA GRANDE WEATHER

By J. Donald Erskine

Mark Twain said something about everyone talking about the weather but no one doing anything about it. That is literally true here at Casa Grande especially during the extreme heat of mid-summer, but it might be of interest to put into a report some of the facts and remarks pertaining to the weather. Not only do we who work here talk about it, but it is the subject of very frequent questions and remarks by "dudes".

To those of us who live here in Southern Arizona one of the striking things concerning the temperature is the great range of temperatures between day and night. Every month in the year records "range" readings of over 40 degrees and about half the months will record readings of 50 degrees "range" or over. In our daily contact with that it means in other words that we are subjected day after day to great variations of temperature. This would be most welcome during the summer when the days register 115 and 116 in the shade to have the nights cool 40 or 50 degrees, but unfortunately the summer "range" readings are not as great as those during the other seasons of the year. The more frequent "range" readings at that season are between 30 and 35 degrees which results in the nights frequently being uncomfortably hot.

Dudes frequently ask at any season of the year: "How hot does it get here?" By that they usually mean the highest temperature recorded regularly. The correct answer to that would be anywhere from 112 to 116 degrees. The highest recorded temperature here is 117 degrees. During the past summer on June 18 the temperature reached 116 degrees, but there were 25 days during the summer in which the temperature was 112 degrees or above, and 11 days of 114 degrees or above. Considering the maximum temperatures for the months of June, July, and August, records over a period of eight years of observation indicate an Average Maximum Temperature of 103 degrees, whereas the corresponding months of 1936 show an Average Maximum Temperature of 106 degrees, so this past summer has apparently been excessively hot. The minimum temperatures during the summer months on the average run between 73 and 80 degrees with the highest recorded minimum temperature in 1936 being 83 degrees on June 23. This year June was by far the hottest month.

The Southern Arizona winters are most pleasant with day temperatures ranging between 65 and 75 degrees and the nights between 25 and 35 degrees. Killing frosts are apt to occur any time between November 1 and April 1. The record minimum temperature occurred during the winter of 1907-8 when the reading was 9 degrees. The last killing frost in the spring of 1935 was on April 10 while in 1936 it was April 2. The first killing frost in the fall of 1935 was October 31, while in 1936 it was November 3.

Our records on file here at Casa Grande are complete only for the years of 1935 a nd 1936, so statistical material for that period only can be presented; and even that is not entirely complete for comparison

because November and December of 1936 are still to be recorded. However, the comparisons available might prove interesting so some will be presented:

	Annual Mean Temperature	Highest	Lowest
1935	66.8 degrees	110 - Aug. 20	20 - Jan. 21
1936	70 " (Approx.)	116 - June 18	19 - Jan. 20.

The monthly and annual mean temperatures considered "normal" are as follows:

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
49.8	53.3	60.2	66.1	72.7	82.6	89	88.5	82.6	69.1	58.4	49.4	69.3

As explanation, the mean temperature is the sum of the mean maximum and the mean minimum temperatures divided by two.

Boiling these facts down a little will disclose that there are four months (May, June, July, and August) in which the mean maximum temperature exceeds 100 degrees. Thus there are four months of unpleasantly hot weather. There are two more months of weather that would be considered hot any place else, and there are six months of cooler weather with an occasional hot day thrown in.

Rainfall at Casa Grande is spread over the whole year with April being the month of least rainfall. The year of greatest rainfall was 1914 when 16.08 inches fell. That of least rainfall is somewhat in doubt, but 1935 with only 6.14 inches appears to be correct. So far this year with a little more than a month remaining to be recorded the rainfall slightly exceeds eight inches. The average annual rainfall is about 10.50 inches. Especially during the summer months our rain comes in little local showers with plenty of thunder and lightning. Because of the local character of our storms, variations in the a nnual rainfall between spots only a few miles apart may be several inches. One storm was spread over a large area and did considerable damage. The storm broke about 7 p.m. and rain fell in sheets accompanied by a wind which, according to the Phoenix Weather Bureau Station, at times exceeded 50 miles per hour. This continued for about five hours and 2.00 inches of rain was recorded. This storm did much damage to the ruins. Fortunately, however, most of the major damage was confined to the small buildings and the Casa Grande itself escaped serious damage.

The tabulation of rainfall for the past two years is as follows:

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1935	.52	.53	1.42	.00	.11	.00	.01	.61	.67	.00	1.03	.24
1936	1.13	1.63	.34	.00	.01	T	3.00	.54	.71	.51	1.01	?

So that an idea as to the character of our days may be obtained, the following tabulation of days in 1935 and 1936 as to character follows:

	Clear		Partly Cloudy		Cloudy	
	1935	1936	1935	1936	1935	1936
January	17	16	9	9	5	6
February	--	14	--	9	--	6
March	17	20	6	5	8	6
April	27	21	0	8	3	1
May	24	19	2	12	5	0
June	30	19	0	8	0	3
July	20	14	7	14	4	3
August	17	20	11	11	3	0
September	17	21	10	7	3	2
October	23	20	4	5	4	6
November	15	20	6	6	9	4
December	14	--	15	--	2	--
Totals	221	204	70	94	46	37

Note that the figures for February, 1935, and December, 1936, are missing.

The only other phenomena to be considered in this report is that of wind. As I write this the wind is blowing hard from the east and it has been doing so for over two weeks continuously. We have no wind velocity gauge here, so we have no records of that, but from personal observation and from "remarks" noted on our weather records by previous observers it seems to the writer that at least two or three days of high wind may be expected every month of the year. The prevailing direction of wind is from the southwest, but frequently, and especially at times of high wind, the direction is from the east. In fact, the wind is liable to blow from any direction except north. This observer knows of no case in which the wind blew from the north for more than a few minutes at a time. When the wind velocity is high, it brings itself to our attention very forcibly because of our need to keep the houses as open as possible in order to take advantage of every opportunity for cool air. Also sleeping out at night in summer makes the dust a problem and many nights when a sudden storm comes one can see flashlights in our residence area beating a hasty retreat into the protection of the houses.

Southern Arizona with its extremely low humidity is noted for being good for people suffering from lung ailments. But the extreme dryness and frequent dust and pollen-laden air seems to be quite irritating to at least some people afflicted with nasal or throat difficulties.

In short, we have our nice weather in the winter, our unpleasant weather in summer. We grumble at the unpleasantness of the heat and dust

but we manage to live here, and in comparison with weather conditions in other sections of the United States we can't complain too much. But, while Mark Twain may still be right about not being able to do anything about the outside weather, modern engineering is advancing so fast that one cannot be too sure that air conditioning of all buildings may not be just as common in the future as is heating of our houses today.

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MORE ABOUT ALCOVES By Martin O. Evenstad

I read with much interest your article in the August Supplement on "Tumacacori Alcoves or Transepts". The opinion you advance coincides closely with certain theories I have had on the same subject, although probably arrived at from different angles.

The theory of a radical change in the church, while it was under construction, never did appear reasonable to me, unless non-availability of certain needed materials, originally planned, would force a change. This would not be the case here, as there would be nothing to interfere, as far as materials were concerned, with the construction of alcoves, if it were feasible to construct a building of this type, in the first place. Any other theory, other than discovery of lack of planned materials, after construction work had begun, would presuppose lack of planning and engineering ability, on the part of the Padres This would have to be discarded, for the Padres certainly did demonstrate their ability as engineers and construction men.

During the years 1767-69, a decided change in the administration of the Mission system took place. The Jesuits were recalled by the Spanish King, and Franciscans were sent over to replace them.

The Apaches raided and partly destroyed Tumacacori in 1769. We must assume that on account of the limited time in which to operate before a counter attack could be organized against them, the Apaches would be unable to completely demolish a substantial building, such as a church built of adobe. The destruction was, most likely, limited to burning the wooden roofs of the various buildings in the Mission village, and inflicting such minor damage as was possible in a surprise raid. No doubt, a goodly portion of the original church would remain standing.

When the new padres came to Tumacacori, they were confronted with the problem, of again providing the natives, with a place of worship. They could do either of two things: build a new church, or repair and remodel the old. The salvage value of the old structure would, undoubtedly, govern their decision.

From the time of the Apache raid until the new priests started building their church, there was, I believe, a lapse of about 12 years;

sufficient time to allow some weathering of exposed walls; perhaps enough to cause a partial collapse of the alcove walls, so as to make it impractical to attempt to repair them. This would seem a pretty good reason for leaving out the alcoves, at this time.

Another reason, may have been a desire to keep from redesigning the old Jesuit church. The Jesuits were in disgrace, and this fact could have influenced the Franciscans in rebuilding, and caused them to make material changes in the ground plan of the layout of the old church. At any rate, it seems more reasonable to assume that there was a change in the reconstruction of an old building, than to assume that a change was made in a new structure, after being partially completed.

The above is, of course, just a theory I have, which is based mainly on an opinion of the need, in those pioneering days, of being practical, and that a keen sense of utilization would inevitably develop in men, who were confronted with problems, such as faced these men at every turn. This is also the first time I have set these thoughts down on a typewritten page, but you will recall that I have advanced something along this line before.

We had the pleasure of a visit from Bob Rose, with family, and Bob said he was on the track of something that would either prove or disprove theories like the above.

We are all enjoying this place very much, and appreciate being given the opportunity to come here. However, both Ethel and I still like to read the Southwestern Monuments report with Supplement, and hope that the Broadcast will soon be due again.

With personal regards to yourself and the Southwest family, I will say Adieu.

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EARLY HISTORY OF MOCCASIN

By Leonard Heaton

Just when Moccasin Spring received its name is not known but it was probably before 1865 as it was in that year that whites first settled at the spring. A local story is that some white man whose name has not been remembered found a Navajo moccasin near the spring.

During the spring or early summer of 1865 a man, name unknown, passed by the spring and went on to the Cannon Ranch, then owned by Mr. William Maxwell, and told Maxwell that he intended to take up a claim at Moccasin. Maxwell immediately sent his oldest son over to the spring to lay claim to the land and later the wayfarer was forced to pay $200 for the property. This unknown man built the first cabin at the site just west of the spring and lived there for about eight years. Mr. Christian Hanson Larson

BANCROFT LIBRARY RESEARCH

By R. H. Rose

INTRODUCTION

In the following pages will be found translations from a number of original documents on the history of the missions of Pimeria Alta. Cocospera, Magdalena, San Ignacio and Imuris are taken up in this report while in subsequent numbers other missions are to be treated. For the most part this material consists of extracts from baptism, marriage and burial records. In extracting from these documents items along the following lines have been taken:

a. Names of various priests officiating in baptisms, marriages and burial services as gathered from their signatures of testimony.
b. Dates of the baptisms, marriages and burials with the number of such officiated at for the various years shown.
c. Notes occurring at various places among the records which might contribute to a knowledge of events in mission history.
d. Copy of Padre Eusebio Francisco Kino's burial notice as recorded by Father Joseph Agustin de Campos, then the minister of San Ignacio. This is followed by a translation from Bolton's "Rim of Christendom."

It is not easy to predict the value of (a) and (b) above but it is believed that these items will have present and future value in completing the record for some of the missions where the record is scant or blank. In the case of Cocospera records continuing to March, 1836, have been found which prove this mission was a going institution until at least as late as that year. Listing the number of burials, baptisms, marriages, etc., for various years may prove of extreme value in determining the degree of prosperity in their work enjoyed by padres during some years contrasted with the scant harvest at times.

To scholars of mission history my method in at least one instance may appear bold and perhaps a little rash. I speak here of my listing of names of officiating priests. I have copied them as nearly accurate as I could make them out from the records. Thus, some of the names will be incorrectly spelled while a few may be so far from correct as to make them practically unrecognizable to one familiar with them. However, it was believed that the procedure was justified because in this way many new names of officiating priests may be brought to light which would not otherwise have been known. Most of the names I have been able to check while many others are so nearly correct as to make possible easy later verification. Several factors made correct copying impossible in some instances; these documents were in script and usually written in a very scrawly style and in Spanish, of course; the records were often faded and fragmentary; and in Pinart's summary often he was unable to determine the exact spelling of names; while lastly, errors probably crept into my copying of Pinart's records.

LIST OF PRIESTS OFFICIATING AND OTHER NOTES OF INTEREST TAKEN FROM THE ORIGINAL BURIAL, BAPTISMAL AND MARRIAGE RECORD BOOKS OF THE MISSIONS OF PIMERIA ALTA.

COCOSPERA

"Libro de Entierros, 1822-1836": (Book of Burials)

The first page of this record of burials contains a notice signed by Fr. Francisco Nuñez and Fr. Ramon Libetz who had the power of inspecting the records of the missions. These men seem to have been the Deputy Prefect and the Secretary, respectively. In this notice they are certifying that on April 20, 1822, the old burial book is being officially terminated and placed in the archives while this new book is officially begun. Fr. Francisco Solano Garcia is "Mitro. de esta Mision de Santiago de Cocospera" - Minister of Cocospera Mission - at the time of entry of the aforementioned notice.

A little further, Fr. Francisco Solano Garcia makes an entry which translated states that "In this book are set down the entries of the deceased people of this town of Santiago de Cocospera beginning the 9th of August of 1822." In my notes I have copied in the Spanish many of those burial records in full particularly those of the critical years around 1827-1829 and those of 1835 and 1836 terminating this book. Not all of these will be quoted in the extracts to follow but the dates and the padres officiating will be listed.

Fr. Francisco Solano Garcia:

1. Mentioned in the notice of April 20, 1822, with which this Book of Burials is officially opened.

2. Mentioned in his own notice of August 9, 1822.

3. Garcia then signs burial records dated as follows:
   a. Aug. 12, Sept. 2, Sept. 5, and Nov. 19 of the year of 1822.
   b. A very dim entry which appears to be dated in the year 1823.
   c. January 20, Feb. 3, 5; May 30; June 14; Sept. 4; and Oct. 5 of the year 1824.
   d. March 19, Aug. 25; Sept. 2, 23, 24, and 29; October 21, 26; November 3, and 12 of the year 1825.
   e. January 4; April 2, 5, 10, 12, 12, 13, 16, 2, 22 and 22; May 15; July 24; 29; October 5, of the year 1826.
   f. July 18, Aug. 1; Sept. 14; of the year 1827.

Fr. Jose Ma. Perez Llera (sp.?)

A. September of the year 1827. His rank in relation to Cocospera is not indicated in the text of the burial record of this date.

Fr. Rafl. Diaz:

a. November 12, 1829 Dias signs an entry referring to the unsettled conditions in the administration of the churches and points out that a number of people died to whom the sacrament could not be administered. Year 1829.
b. September 20, 1830.
c. May 26; Nov. 15; Dec. 2 and 25, year of 1831.
d. Dec. 8, 20, year of 1832.
e. May 1 and Aug. 10, year of 1833.
f. April 30 and September 20, year of 1834.
g. June 10, August 12, 20; September 2; and October 6, year of 1835.
h. March 2, year of 1836.

The March 2, 1836, entry is the last one in "Libro de Entierros" for Mision de Santiago de Cocospera. This entry ends about the middle of the page. Had entries continued after March 2, 1836, it seems that they would have immediately followed the entry of this date. Hence there is likely considerable significance in the fact that March 2 is the last date entered though there was room for more. It would appear, therefore, that Cocospera Mission was a going institution as late as the spring of 1836. See later summary of Cocospera Baptismal records.

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COCOSPERA

Libro de Bautismos, 1822 - 1836: (Book of Baptisms)

On the opening page of this book is a notice which states that "In this book are recorded that portion of baptisms of the Indians of this Mission of Santiago de Cocospera which begins on April 21, 1822." The list of padres officiating at these baptisms as noted from their signatures to the records, follows:

Fr. Franco. Solano Garcia:

1. April 21; May 17; September 4, 18, 18; October 7, 12; December 8; year of 1822.
2. January 31; March 29, 29; April 22; June 26; October 11; November 27, 29, and 29; year of 1823.
3. January 8; April 17; August 21; and September 29; year of 1824.
4. January 21; February 18; May 5; year of 1825.

5. Feb. 10; April 3, 4, 17; and October 15, year of 1826.
6. July 24; October 23; November 30; and December 23, year of 1827.
7. March 23, 1828. This is the last Garcia entry in this book as "Minister of this Mission" (Cocospera); year 1828.

Fr. Jose Ma. Perez Llera: ("Mntro. de esta Mision")

1. Nov. 6, year of 1828.
2. January 23, 27 and 27; and September 21, year of 1829.

Fr. Rafl. Diaz:

1. Obscure date, year of 1828 (ends in "re" and is Sept-Dec. some time).
2. July 23, year of 1829.
3. February 17, 18; May 2; October 28; and December 14, all year of 1830.
4. January 30; April 27; June 22; and December 3, year of 1831.
5. January 13; June 15; and December 9, year of 1832.
6. January 1; March 7 and 8; April 12; July 3, year of 1833.
7. Obliterated date; March 10, both in year of 1834.
8. February 15, 15; and April 2, year of 1835.
9. January 1, 1836.

This last entry, like others, is signed by Diaz as Minister of the Mission. These baptismal records end about two-thirds of the way down the page with plenty of room for further entries. This seems quite significant and probably means that had Cocospera been a going institution after early 1836, surely the baptismal records would have been entered, finishing out the page.

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SAN IGNACIO

"Libro de Casamientos, 1697 - 1737: (Book of Marriages)

Campos signs his name either as "Joseph A. Agustin de Campos", or simply as "Agustin de Campos". He designates himself as Minister of the Mission "por Su Magd".

Agustin de Campos:

1. Seven records; February; April 16; July 30; and remainder obscured. Year of 1713.
2. January 8, year of 1714.
3. See later entry for year of 1715.
4. August 30, year of 1716.
5. Space for 1717 entries but only entry is "Año de 1717".

6. October 23, year of 1718.
7. Two on July 22; two on December 24; all for the year 1719.
8. May 19, year of 1715.
   a. An item for 1715, exact date obscured, calls attention to the "Visitado" who visited the mission, inspected the records, and entered his name in the book of baptisms. Date 1715; exact date obscured. Name appears as Felix de Villatrese (?).
9. Six, all on February 16, year of 1721.
10. Four, February 22; February 22; July 10; 1722 and obscured date.
11. Eight Campos entries. Specific dates noted are March 23, 28; April 14; Oct. 17; and Dec. 26; year of 1723.
12. Four; specific dates noted, Nov. 3 and 4; and Dec. 14, year of 1724.
    a. Very same sheet begins about the middle of the page with entries for 1733.

13. One Campos wedding entry for July 30, year of 1735; another 1735 Campos entry noted.

Marquiam: (Probably Father Marquina, rector on the Yaqui - See Bolton's Rim of Christendom, Pages 135, 202, 203)

1. Aug. 1; Aug. 1; year of 1722.
   a. No rank indicated.

Gallardi:

1. Dec. 29, year of 1722
   a. No rank indicated and no further identification found.

Phelipe Segesser: ("Felipe" by Bolton)

Here, again, it is well to mention that year of 1733 entries signed by Segesser start on the same page as the 1724 entries signed by Campos. Thus, entries for 1725-1732, inclusive, are lacking in the San Ignacio Book of Marriages. It will be of interest to check from historical sources on events during this interval.

1. Total about 13 entries for 1733 by Segesser. Sheets lose their continuity and therefore there were probably many more. January 2, 6, and one obliterated January date; April 13, 13, 14, 20, and 20; June 29; July 12 and July 12, are specific dates noted. There were surely some August-December entries but due to missing sheets in the record these cannot be determined. Year of 1733.

IGNACIO Keller: (Father Ignacio Xavier Keller)

1. August 2, and illegible date, and four more later, allfor the year of 1735.
2. No transition entry "1736" noted.

Gaspar Stiger: (Father Gaspar "Steiger" - Bolton - P. 594)

1. Aug. 31; Jan. 10; Feb. 26; Mar. 22; April 22; Aug. 31, and other obscure dates, twelve in all, and all for year of 1737 except possibly the first one (Aug. 31) listed.

End of "Libro de Casamientos" for San Ignacio.

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SAN IGNACIO

"Padron San Ignacio - 1768 (Census)

This census of San Igancio was made June 25, 1768. The total census shows 158 souls. These are listed as to family heads, orphans, pimas, papagos, etc. Following the census there is an entry which refers to a family of four transferring on August 17, 1768, to San Pedro y San Pablo de Tubatama and later returning to San Ignacio where Casper Stiger was officiating minister. Ill treatment at Tubatama was the reason given for the return.

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SAN IGNACIO

Following is a summary of a list of officiating San Ignacio priests compiled by Alphonse Pinart. The list includes the period 1697 - 1814. San Ignacio had San Joseph de Himuri and Santa Maria Magdalena as visitas. It also included the town and mining camp of Santa Ana. (Pinart's notes presented herewith have been translated from the Spanish).

Fr. Mathias Gallo:

1. Gallo appears as minister up to the 11th of April, 1778. Pinart was unable to ascertain from what earlier date.

Fr. Francisco Zuniga: (Minister for His Majesty)

1. Signatures seen for June 4 and July 4, year of 1778.
2. They begin to be seen again on January 15, 1779, up to Feb. 17, 1780. Pinart says the book was fragmentary at this point.

Fr. Balthasar Carrillo:

1. "With the permission of the proprietory minister by commission, he was officiating from August 11, 1778, up to Dec. 26, 1778.

Under year of 1814 Pinart states that: "May 18 for the Mission of San Igancio there is a certificate signed Fr. Francisco Fontbona, by the Secretary who says that the Right Rev. Prefect (Fr. Juan Bautista de Cevallos) of these missions (College of Sta. Cruz of Queretaro) had been here in person and directed that in the baptismal book there should be separately placed those of the Indians and those of the residents."

Joseph Agustin de Campos - Mntro. (Minister of the Gospel for his Majesty, Jesuit)

"The following document appears in the 1st page of the book of burials. Begun on January 19, 1697, under the signature of said P. Campos: "Book of burials of this town of San Ignacio -?- of Pimeria, in which are also entered those of the town of San Joseph de Himuri.

"Himuri: 'I, having entered this mission in the year 1693, the 2nd day of October, there followed the uprising of the nation in the year 1695. And all the papers of administration were lost when they burned my things and my poor shelter. This is the reason for all that which I administered not being recorded.

"'And years later in a (illegible word) on account of the houses being like those of a pauper, other papers and writings were once more lost and badly treated. I mention it for the possibility of correction that we may be able to supply in the order of things'".

Pinart thus concludes as follows: "So we see that said Padre Campos began steadily the charge of minister of the mission in 1693. Even on November 1, 1731, there are still seen burial notices from his hand, although the last signature is on July 4 of another year. Furthermore, it appears that in January, 1732, he was still living in the Mission.

"There is a baptismal book in which many pages are missing at the front and back parts. The signatures of Padre Campos are seen in it from October, 1723, to March 23, 1735. (Due to a long siege of illness, in 1731 (Nov.), they placed as a companion to him Padre Segesser who was with him until March 7, 1733. According to this same (document), Campos did the recording at the departure of Segesser."

Phelipe Segesser: (Segesser--Jesuit) (Felipe)

1. "It appears that he was the clergyman or curate of the town, as in the burial book there appear entries in his handwriting and signature from November 8, 1731, up to May 4, 1733.

2. "In the baptismal book they are seen From Nov. 3, 1731, up to March 7, 1733. There is a note of July 13, 1733, by Padre Ministro Campos which says that due to a very long illness which he suffered, they lent him as a companion for the administration of the Mission, Padre Segesser, a Swiss, native of Lucerne, and he kept all these (records) and those of the other books mentioned."

3. For August 10, 1702, we see an entry by Pinart referring to "Fr. Franco. Gonzalvo, Minister of San Francisco Xavier del Bac". It is a burial notice of this Padre. There is a recent penciled notation here to the effect that Gonzalvo was not minister of San Xavier del Bac but that he merely came from a trip there. The entry goes on to say: "The Padre Augustin de Campos attests that on said day at about 4, after all sacraments being received by said Padre Gonsalvo, Valencian of 29 years of age, (he) died. He came from Spain together with this same Padre Campos. He became ill at San Ignacio in the house of Campos. He died of a cold, and in his right mind. He was buried in the presbytery (chancel) of the Church right near the Evangel (Evan.^{o}).

"September 19, 1725: The Bishop of the Diocese and his Secretary Ber. Diego Gonzalez, visited the town and examined its ecclasiastical books and found them in good order."

"Jan. 2, 1732: The curate, Phelipe Segesser, buried Ambrosio, Padre Agustin's horticulturist (gardener); that a bewitcher had killed him with his deviltries as he himself confessed afterwards when he had been caught."

"Jan. 9, 1732: "Cap^{n} (probably capellan, or chaplain) Don Juan Manuel Zelaya died today -- one who was married -- buried on the 10th."

"Dec. 19, 1737: The most illustrious Sr. Dr. Don Martin de Slizacochea, Bishop of Durango, realm of Nueva Vizcaya, and of His Majesty's Council, visited, inspected the books, and approved them."

Gaspar Stiger: (Gaspar Steiger)

1. Gaspar Stiger, curate, Minister of the Gospel for H.M.; his signatures appear from May 4, 1756, up to June 27, 1756 (he was probably a Jesuit (Pinart)).

2. His signatures are seen again from Nov.,1758, up to April 25, 1760. (In the book of burials.) (In the baptismal book his last signature is September 26, 1761).

3. He died on April 24, 1762 (it is seen two pages further). It appears that he was on a visit in San Ignacio and officiated in some baptisms on Dec. 30, 1733. (In the baptismal book in a memo we observe intervals in which other padres officiated owing

to the indispositions of Stiger which are explained in the certificate of his death and burial."

Joseph Och: Curate, Jesuit. (Father Joseph Och: - Bolton, P. 594.

1. His signature appears at the foot of several burial notices. (He was probably a Jesuit), from January 21, 1757, up to October 27, 1758.

2. In the baptismal book they are seen from Dec. 5, 1756, up to Dec. 20, 1758.

Jesus Franco. Pauer: Curate for H.M. (Jesuit)

1. His signatures begin from May 1, 1760 (continuing) up to Feb. 15, 1767. He was visiting on May 31, 1751; July 30, 1752, up to Dec. 28; also on the 4th, 6th, and 9th of Dec., 1753; 14th and 15th of April, 1754.

2. In the same book of baptisms they appear from Jan. 1, 1760 on, entitling himself the "Minister of the Gospel for His Majesty". continued in San Ignacio in October, 1761, and on August 25, 1762, up to March 12, 1767.

Padre Joseph Hoffenrichter: (Jesuit)

1. Luis Vivas attests: - "Rector of these missions of Pimeria that on said day (March 7?, 1762) died the above mentioned Padre in this (town) of San Ignacio; native of Wildstein in.....Bohemia, born on January 10, 1729, entered the Jesuit Order (Compania de Jesus) in 1754; came to these Pimerian Missions in 1761; he administered the Mission of Ati in the west where he became ill with fever and having suffered with other undetermined ills he came to this Mission to seek alleviation which he could in no manner give himself - Minister of pure conscience and exemplary life, was in righteousness on the most direct road to rejoice in his God.

"Buried in the Church of the Mission near by the Epistle (right) side of the Altar. ("Enterrado en la iglesia de la Mision al lado de la Epistola").

P. Gaspar Stiger: (Jesuit Minister of said Mission) (Gaspar Steiger) (Note that this is second entry for Stiger by Pinart)

1. April 24, 1762, San Ignacio: He (Stiger) died on said day receiving all of the Sacraments about 2:00 P.M. Swiss by birth of the Diocese of Constance, he was born October 21, 1695; Secular cleric, was ordained as priest in 1719 on the Pentecostal

Sabbath (Whitsuntide). After being a curate for one year in his fatherland, he entered the Jesuit Order on October 9, 1725; upon his petition he went to the missions of the Indies in 1729; Aug. 1 appointed by the Superiors to the Mission of Carichigui in 1731 at the instance of the Most Illustrious Sr. Don Martin de Sliza-cochea (?), Bishop of Durango he was named the Vicar General (Provisar) to this new realm of Christianity of Upper Pimeria and the new mission of San Xavier del Bac "in which envious of the fact that the glory of God and the faith of Jesus Christ was advancing, the Devil harassed (?) the Indians with witchcraft that they should kill him, which they tried to do on three occasions and it would have been accomplished (save for the providence of God through Padre Agustin de Campos and although free from enchantment Stiger remained suffering all of his life and the three evildoers had a hapless end, the Devil carrying one off, another suddenly fell dead and the third was killed by his own relatives.

2. "In the year 1730 he entered obediently this Mission of San Ignacio which he found almost depopulated by the continual epidemics and highly dynamic fevers, but with all-encompassing charity he resettled the three towns with Papagos------having found 10 families upon his arrival, he saw (later) more than 100 families."

3. He was buried next to the super altar of the high altar just by the Evangelio. (The foregoing is attested to by the Minister of the Gospel, Francisco Pauerm Jesuit).

Ber. Joseph Nicolas de Mesa:

1. His signatures appear from Nov. 22, 1767, to April 13, 1768.

Pinart next lists an entry for December 24, 1767, which is a burial notice for the infant daughter of the Captain Dn. Juan Thomas de Beldarrain.

2. On April 13, 1768, Ber. Joseph Nicolas de Mesa makes an entry about the death of some girl children who were deceased without confession during the absence of the R. R. P. P. (probably the officiating priest). Mesa goes on to say that at this time unruly Indians attacked the town and killed two people who were buried without confession, in the church.

Fr. Diego Martin Garcia:

1. His signatures are seen (by Pinart) from May 31, 1768, up until January 23 of 1772.

Fr. Fco. Sanchez Zuniga, Minister:

1. His first signature appears on January 23, 1772, up until March 28, 1780.

Fr. Ant°. Ramos:

1. Officiated in this mission October 4 and November 9 of 1773.

M. R. P. Fr. Manuel Carrasco: (Dated San Ignacio, March 2, 1776)

1. "Certif. Fr. Fco. Zuniga (that) the Padre Carrasco died in that (obliterated word) about 3:00 p.m. in the town of Magdalena. He was minister of Tubatama; he was buried in the Chapel of San Xavier just by the Epistle (side of the chancel). He received all the sacraments with exemplary devotion."

Fr. Pedro Arriquibar: (Mntro. de doct°. p. Smd)

1. His signatures are seen from April 16, 1780, up to the end of 1787 in which year this burial book ends.

Luis M^a. Gallardi: (Jesuit)

1. With permission of the proprietary Padre he officiated at a baptism on August 4, 1725; Feb. 7, and April 14 and August 3, 1727, are also seen. ("Con permiso del P. Mntro. propietario oficio en un bautismo 4 de Ag^to. 1725, 7 de Feb. y 14 de Abril y 3 de Agosto 1727 se ven tambien").

Inspection by Bishop of Durango:

"1725, September 17: Realm of S^n. Ant°. de Motepore. The Bishop of Durango, Dr. Don Benito Crespo, of the order of Santiago and of the Council of H. M. being in said Realm examined the books of the Mission of S^n. Ign°. presented to him by the Padre Joseph Agn. de Campos which he found in order. The Bishop was pleased to express to him in sincere manner his appreciation of the services which he had given in his ministry adding his apostolic seal his said certificate is signed by the said bishop, and by the Inspector- Secretary (de visita) Ben Diego Gonzalez Perianez."

Ign. Xavier Keller: (Jesuit Padre)

1. His signatures appear in the baptismal book from Oct. 8, 1732, up to April 10, 1735, and Oct. 24, 1741 - May 29, 1742. He styles himself the Minister of the Gospel of S. M. of the pimas.

Miguel Capetillo: (P. Jesuita)

1. On July 26, 1734, he officiated here at a baptism.

Joseph Foral: (Clergyman)

1. With the permission of the Minister he officiated here at a baptism October 13, 1736.

Jacob Sedelmaier: (Jesuit Clergyman) (Sedelmayr *Bolton P. 435)

1. Officiated today at a baptism, Jan. 3, 1737; another time on Feb. 12, 1738 - May 7, 1739.

Joseph Xavier (or Savier) de Molina:

1. Jesuit Minister of the Gospel in the Dolores officiated in San Ignacio on July 22, 1737. He titles himself "Vicario Gen. (Vicar-General) on Nov. 1740. He officiates at other times on May 12, 1742, and February 3, 1745.

Bishop of Durango Inspection:

1. San Ignacio, Dec. 19, 1737. On this day Martin, Bishop of Durango and his Secretary of Government and Inspection Dn. Pedro de Echenique(?), were in the Mission. After having inspected the books, sacred vestments and all of the rest (of the equipment) and having found them in perfect order the Bishop praised highly the merit and apostolic seal of the Padre Gaspar Stiger.

Alexandro Rapuani(?):

1. On April 17, 1740, he officiated at several burials.

Lorenzo Ign. Gutierrez: (Mntro. por S. Magd.)

1. His signatures and handwriting are seen in the baptismal book from Nov. 28, 1740, up until October 11, 1741.

Bartholeme Saenz: Jesuit

1. He officiated here at Baptisms on May 24 and On June 3, 1749.

Miguel de la Vega: (Clergyman)

1. Officiated at a baptism April 12, 1750.

Luis Vivas: Jesuit

1. On the 18th and 24th of March; and the 12th of May; 7th and 8th of October, 1753, he officiated at some baptisms with permission (con licencia) of the Minister; also on April 1, 8, 9, and 13, 1754.

Alonzo Espinosa: (Clergyman)

1. His signatures a re seen from April 24 to July 14, 1754; again on Dec. 23, 24, 25, 1754; Feb. 11, 18, 1755; and from Feb. 25 to April 15, 1755.

Antonio Ma. Bentz: (Jesuit)

1. He officiated at a baptism on July 8 and 31, 1756; Aug. 1, Nov. 14, 1756.

Franco. Gutierrez:

1. Officiated at Several baptisms from Sept. 21 to Oct. 3, 1756. One on April 5, 1757.

Juan Anto. Zedano:

1. Officiated at a baptism Sept. 18, 1756.

Franco. Alava: (Jesuit)

1. Officiated at a baptism Nov. 21, 1756. Several in April, 1757.

Bernardo Middendorff: (Jesuit)

1. Officiated at Several baptisms October 31, 1756; again Dec. 6, 1758.

Ign. P. Jefferson: (Jesuit)

1. Officiated at a baptism Dec. 4, 1756.

Miguel Gerstner (Jesuit)

1. Officiated at a baptism Dec. 8, 175o, and January 2, 1757.

Inspection of San Ignacio:

1. November 13, 1761: Today the Padre Ignacio Lizafsvair (Pinart says, "tal vez la alta letra es д-- perhaps the tall letter is n-) of the Jesuit Order (Compania de Jesus), Inspector General

of the Missions of this Province of New Spain and Ecclesiastical Inspector-General of said missions pertaining to the Bishopric of Durango for its present Most Illustrious Sr. Bishop Dr. Dn. Pedro Tamarron - and Romeral of the Council of H. M., inspected this Mission, its sacred vestments (ornaments), book, etc. This document is incomplete - and from here, on, the rest of the pages of the book are missing.

(End of Pinart Summary)

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MAGDALENA

Magdalena was a visita of San Ignacio and for that reason it is important that summarization of its burial, baptismal and marriage records be considered with those of its governing mission.

Libro de Entierros: - Magdalena - 1702-1816; part 1820-1824; (Book of Burials).

Agn. de Campos:

1. In 1702, range Sept. 3 to Dec. 14, he officiates at 10 burials.
2. In 1703, range March 3 to Nov. 21, he officiates at 39 burials.
3. For years of 1704, 1705 and 1706 the year entries are seen but there appear no burial records.
4. In 1707, March 22, Campos makes a burial entry but it is unsigned.
5. In 1708, July 17 and 19, two burials.
6. In 1709 to 1716, inclusive, no year entries nor burials are seen.
7. In August, 1719, one burial entry, apparently by Campos.
8. Five entries a 11 show Campos officiating, year 1720
   a. The first of the entries says in effect that on January 20, 1720, a certain Felipe was buried beside the ones who in 1695 destroyed the towns they themselves had built up.

Notice that here we find entries for the period 1709 to 1718 which were missing from their proper place in the series.

9. In 1709, range Aug. 27-Nov. 30, Campos officiates for 21 burials. They are unsigned but are in Campos' writing.

10. In 1710, Jan. 1, Feb. 2, and Aug. 5, and other dates obscure, Campos officiates at eight burials.

11. In 1711, March 15; Kino burial notice, the only entry for the year. Campos officiates. (See copy of original record on Plate II of this Supplement).

Año 1711=

En quinze de Marco poco antes de media noche Rezivio
nidos los Santos Sacramentos Con Grande Sosiego Yedifiz.
Esta casa y Pueblo de la Ynmaculada el P Cura Fran.co Guiot
de Edad de Setenta años Mis.es Sirvio Veinte y quatro de

Padre Sra Sa de los Dolores funda da por el mismo
Eusebio Peglo al franco Incansable mte Continuas pere
Franco grinaciones y Reduz. de todo la Cta Dia. Desde
Kino Rio La Casa Grande, Rio de Sla y Colorado Las
naciones Cocomaricopa y Sumas y los Quicamasa
de la Sla y descansando en el Sor esta enterrado
en esta Capilla de Sn Franco Xavier al lado del
Evangelio donde caen las eg.as Vtr.s a Sla en Altar
fue de nar.on Aleman de la prov.a a que pertenese las
Babieca sabiendo sido antes de entrar en la Pr.
mera Misionero Cosmografo en la California
en tiempo del Almirante D Yspido de Oconde

Agustin de Campos

(Bolton's Translation of the Kino burial, taken from "Rim of Christendom")

"'THE YEAR 1711

"'Padre Eusebio Franco. Kino.--On the fifteenth of March, a little after midnight, Father Eusebio Francisco Kino died with great peace and edification in this house and pueblo of Santa Magdalena at the age of seventy years, having been for nearly twenty-four years missionary of Nuestra Señora de los Dolores, which he himself founded. He worked tirelessly in continuous pregrinations and in the reduction of all this Pimeria. He discovered the Casa Grande, the rivers Jila and Colorado, the Cocomaricopa and Suma nations, and the Quicimaspa of the Island. And now, resting in the Lord, he is buried in a coffin in this chapel of San Francisco Xavier on the Gospel side where fall the second and third choir seats. He was German by nationality and of the province to which Bavaria belongs, before he entered the Pimeria having been missionary and cosmographer in California, in the time of Admiral Don Ysidro de Otondo.

AGUSTIN DE CAMPOS (rubric)!"

Note:

The above translation reads "....a little after midnight....." whereas the original burial entry reads ".....poco antes de media noche.." which would be ".....a little before midnight....."

It is interesting to note that Campos spells the name of the famous padre as "Quino" in the first few lines of his entry whereas in the margin we see the familiar "Kino".

A further observation of interest is the fact that Campos says Kino was of German nationality whereas it is now generally accepted that he was born in Italy but was educated and had taught in Germany.

13. January 1712 contains lengthy entry of burial by Campos.
    a. January to December 16, fifteen more Campos entries.

14. January 5 to December 29, 1713, Campos writing, showing he officiated at 24 burials.

15. February 7 to July 9, 1714, four officiations by Campos signing himself Minister of the Gospel for H.M.

16. July 1 to Nov. 18, 1715, show 11 Campos entries with an additional Nov. 1 audit entry.

17. Feb. 9 to Dec. 7, 1716, Campos officiates for six burials.

18. Jan. 20 to April 23, 1717, seven Compos entries.

19. June 1 to September, 1723, one entry by Campos.

20. January 15 to September 16, 1724, Campos enters 10 burial records.
    a. The last four of the ten may not be Campos' handwriting.

21. Years 1725, 1726 and 1727 have the year entries but there are no burial records entered.

23. Three unsigned September, 1728, entries apparently in same handwriting as the last 4 entries for 1724.

24. For 1729 - 1735 no year entries are made and no spaces allowed. Record appears continuous as far as entering is concerned.

25. For 1736, all entries are for August-October, inclusive. These are unsigned but the handwriting is radically different compared with that of the 1728 entries. Possibility they are burials over which Stiger officiated. See (1) below.

Gaspar Stiger: (Gaspar Steiger)

1. For 1737, fourteen entries by Gaspar Steiger, "Mnro de....por su Mgd", in same handwriting as the Aug-Oct. 1736 entries.
2. In 1738, Jan. 4-Nov. 21, seven Stiger entries.
3. July 10 - Dec. 21, 1739, officiates for four burials.
4. Jan. 19 - Nov. 2, 1741, officiates for four burials.
5. July 1 - Nov. 2, 1741, officiates for four burials.
6. February 3 - October 15(?), officiates for ten burials. (1742)
7. Jan. 12 to __(obliterated), seven burials. (1743).
8. Feb. 6 to (obliterated date), eight burials.(1744).
9. Feb. 23 - Dec. 31, 1745, Stiger officiates in 22 burials.
10. Jan. 10 - Aug. 26, 1746; twelve Stiger entries.
11. Jan. 20 - Nov. 8, 1747; 23 entries.
12. Jan. 1 - Dec. 31, 1748; 18 entries.
13. Jan. 24 - Nov. 17, 1749; twenty-six Stiger entries.
14. Jan. 15 - Oct. 20, 1750; 18 Stiger entries.
15. Feb. 1 - Nov. 6, 1751; 12 Stiger entries.
16. July 25 and Dec. (?) 24, 1752; two Stiger entries.
17. Mar. 30 - Dec. 17, 1753; three Stiger entries.
18. Feb. 26 - Nov. 22, 1754; four Stiger entries.
19. Mar. 15 - Dec. 27, 1755; eight Stiger entries.
20. Feb. 15 - July 28, 1756; ten Stiger entries.
21. Aug. 1 - Nov. 4, 1756; 26 more.
    a. First three are in different writing while remaining 23 are the same Stiger hand.
22. See Sept. 18, 1761, single officiation by Stiger.

MAGDALENA RECORDS (CONT.)

Entries for 1757:

1. Forty-four entries; Jan. 17 - Dec. 30, 1757; 32 of these are for November 3, 1757. A marginal entry reads "Las Cabezillas y Chepillo. A badly faded and fragmentary entry as nearly as can be interpreted, reads: "On the 3rd of November.....Pima and Seri enemies.....burned the houses and.....the follow- were soon left dead.... ."
   a. A list of the dead numbered consecutively from 1 to 32 then appears.
   b. None of these 1757 entries seem to be in Stiger's handwriting.

Franco. Pauer.

1. Jan. 4 - Nov. (?) 1758; twelve entries; not in Stiger's writing but apparently in handwriting of Pauer.
2. Mar. 27, Sept. 10, and Nov. 14; three, unsigned, but apparently by Pauer.
3. Jan. 24 - Dec. 24, 1760; 11 with one signed by Franco. Pauer, "M. P. Su. M.")
4. Jan. 19 - Oct. 25, 1761; seven, with one for Sept. 18 officiated over by Stiger. 1762.
5. Jan. 14 - Nov. 28, 1762; 13 burials officiated at by Pauer.
6. Jan. 8 - Oct. 3, 1763; seven burials entered by Pauer.
7. April 4 - Nov. 20, 1764; 12 burial officiations by Pauer.
8. July 20 - Nov. 3, 1765; four by Pauer.
9. Jan. 7 & 28; April 7, 7, 10, 13 and 30; and Nov. 20, 1766; eight entries, all apparently in Pauer writing.

Entries for 1767:

1. It seems significant that no entries are made for this year nor was the entry "año de 1767" even made.

Entries for 1768:

1. "Having received on the 29th of June that which pertains to the Church of the town of Magdalena, visita of the one of San Ignacio which goes into effect on the first of June by order of beloved Sr. de Viceroy and desire of the governor and assignment of the Right Perfect Prefect (R.P.Prefect) of missions of propoganda of the faith of the College of Santa Cruz de Queretero, Fr. Mariano Antonio de Buena and Alcalde are going to put the (affairs ?) (obliterated w ord) in the order (last word obliterated but ends in "nre").

2. See 1768 entries by Garcia immediately following.

Fr. Diego Martin Garcia: (Min. Por S. Magd.)

1. June 27 and October 19, 1768; two Garcia entries. It is interesting to note that these are numbered "1 & 2" showing that they are the first two entries after the change in administration.

2. Jan. 17 - Nov. 27, 1769, ten entries, numbered 3-12, by Garcia.

3. Jan. 3 - Nov. 9, 1770, twenty-six; #39-50; Garcia.

4. Feb. 21 - Dec. 10, 1771, twelve; #39-50; Garcia.

5. Jan. 5, 1772; one Garcia entry.. See immediately below for further 1772 entries.

Fr. Franco. (fhz?) Zuniga: (Rank not given.) (or Zunida?)

1. Sept. 17 and Oct. 20, 1772; two entries.
2. April 23 - Nov. 7, 1773; four entries.

Fr. Manuel Carrasco: (Mno. por Su. Magd.)

1. Jan. 13 - June 25; and one later in 1774 too dim to read; five entries in all by Carrasco.

Apparently no 1775 entry:

1. Record #62 is the last one for 1774 while #63 is first entry for 1776.

Entries for 1776:

1. Seven entries, Mar. 22 - Aug. 28, by Fr. Franco. Zunida (or Zuniger)

Nota: (Pedro Font)

"Note that on this 16th day of November of 1776 at 8 (o'clock) in the morning, the enemy - Pimas and Seris-fell upon this town, Santa Maria de Magdalena; they killed the girl of the aforegoing entry, ...they stole the sacred (word out) ornaments (or vestments); they outraged the church and sacred images; and finally carrying off (blurred words).....leaving the town and house of the Padre destitute and that it may be recorded it is signed by Fr. Pedro Font."

(The above is only an approximate translation due to fading and obscure words.)

MAGDALENA RECORDS (CONT.)

P. Franco. Zuñigal (or Zunida)

1. In 1777; two entries, June 19 and July 27.
2. In 1778; two entries of May 16 and June 13.
3. See below for two 1778 entries by Fr. Mathias Gallo.
4. In 1779, June 2; one lone entry styling himself "Mntro de la Mision".

Fr. Mathias Gallo:

1. In 1778; May 24 and May 28 entries. (See 3 above).

Fr. Pedro de Arriquibas: (Mntro. de Docta. P.S.M.)

1. In 1780; July 3 and Aug. 13; two. Arriquibas styles himself "Minister of the Gospel for His Majesty."

2. In 1781; Feb. 15 - Nov. 17; fifteen.

3. In 1782; Feb. 11; one only.
4. In 1783; six but dates too obscure to read.
5. In 1784; one in June.
6. In 1785; one on March 29.
7. In 1786; five from May 14 to 28th day of undetermined month.
8. In 1787; one on Jan. 15.
9. In 1788; one on June 20.
10. In 1789; three, two of which are Jan. 18 and Oct. 11.
11. In 1790; two; Aug. 30 and Sept. 2.
12. In 1791; entirely missing since from 1790 and 1792 entries begin without interruption on the same page.
13. In 1792; one on November 6.
14. in 1793; one on Jan. 7.
15. In 1794; ten between Jan. 16 and Nov. 30. Arriguibas styles himself "M.P.S.M." - Minister for His Majesty.
16. In 1795; entries lacking. On the same page entries continue uninterrupted from 1794 to 1796. "Año de 1795" appears but space for entries is blank.

Fr. Franco. Cobas: (Mnro de la Mision) - Minister of the Mission.

1. In 1796; three between Jan. 10 and Dec. 9.
2. In 1797; two, for Nov. 15 and Dec. 2.
3. In 1798; two for Jan. 27 and June 2.
4. In 1799; six for May 28; Aug. 23 and 27; Sept. 7; Sept. 15 and Oct. 17. Cobas styles himself "Minister of the Mission".

Fr. Joseph Perez: (Mnro) - Minister

1. In 1799, April 7; June 27 and July 15; Aug. 27; Sept. 9 and Sept. 9. Total, six. Perez styles himself simply "Minister".

2. In 1800; one of undetermined date. Minister.
3. In 1801; five between Mar. 1 and Dec. 6.
4. In 1802; four between June 8 and Oct. 20.
5. In 1803; two for Feb. 3 and Aug. 27.
6. In 1804; four between Jan. 31 and Oct. 3.
7. In 1805; three for May 9, 15 and 22.
8. Perez signs none for 1806.
9. In 1807; four between Feb. 22 and Oct. 20.
10. In 1808; two for Mar. 12 and May 8.
11. In 1809; four between Mar. 28 and Sept. 9.
12. In 1810; six between Feb. 20 and Oct. 24.
13. In 1811; four between Feb. 14 and Dec. 26.
14. In 1812; two for Sept. 8 & 18.
15. In 1813; five between January 28 and February 14.
16. In 1814, four between Jan. 13 and Sept. 20; and one for Oct. 11.
17. In 1815; no Perez entries.
18. In 1816; one July 25 and two for Apr. 30 and May 4 and 12 in Aug.
19. In 1817; 1818 and 1819 entries missing.

Frr. Juan Gonzalez: (No title given)

1. In 1805, one May 26 entry.
2. In 1806; one June 6 entry.

Fray Josef Gomez: (No title given)

1. In 1806; one Sept. 14 entry.

Fr. Pedro Ruiz: (No title given)

1. In 1813; one Sept. 7.
2. In 1814; four between Sept. 24 and Dec. 21.
3. In 1815; 31 between Feb. 8 and Oct. 6.
4. Many of the 1815 entries mutilated or faded and it is barely possible that Ruiz officiated for some of the burials missing.

Fr. Saturino Anzeta (Nearly a s can be made out)

1. In 1815; four between Dec. 7 and Dec. 22.

Fr. Miguel Montes:

1. In 1816; approximately 75 entries Feb. 3 to Oct. 23, with most of them falling in August. The series runs to #269 on Oct. 23, at bottom of page, by Montes, then begins with No. 1 in entirely different handwriting on the following page.
2. In 1821; one Oct. 12 by Montes.
3. In 1824; Nov. 22, 21 and Aug. 1, three.

MAGDALENA RECORDS (CONT.)

Fr. Mariano Llobet: (No official title given)

1. In 1816; one Oct. 2.
2. In 1821; two Nov. 3 entries.
3. In 1822; four for Jan. 27; Sept. 23 and Oct 17, 17.
4. In 1823; one for Mar. 1.

Fr. Juan Bta. Estebric: (Estebric as nearly as can be determined)

1. In 1820, four from Oct. 10 to Nov. 25. Record incomplete and obscure. These records are divided between Magdalena and San Ignacio.

Fr. Juan Nuñez: (No official title given)

1. In 1822; three on June 28, Aug. 9 & 19.

The year 1824 ends these records as nearly as can be determined. For 1824, Fr. Miguel Montes signs two entries and writes the third one. However, very dimly beneath the clearly written Montes third entry the name "Fr. Franco. Nuñez" can be seen. It looks as if perhaps the sheets had earlier Nuñez entries on them, then later got wet almost entirely fading out the writing. The sheets then were apparently used later by Montes for his entries. Thus,perhaps earlier Nuñez entries occur on the same reused sheets.

End of Magdalena "Libro de Entierros" 1702 - 1816; part 1820-1824.

o

MAGDALENA

"Libro de Casamientos": Pt. 1822-1825. (Book of Marriages)

Attention is again called to the fact that Magdalena was a visita of San Ignacio. These dates together with padres officiating should be considered in connection with the Magdalena burial records just preceeding this "Libro de Casamientos" and those records for San Ignacio; these pages of the Marriage Book are incomplete because it is noted that a record ends at the top of the first page and the first complete record is dated July 29.

Fr. Franco. Nunez: (Comizo. Prefecto. de estas....Las Misiones")

1. In 1822, incomplete record shows three entries for July 29, Aug. 19 and September 2. The title above is found in the texts of entries themselves.

2. For 1823: - No spaces and no entries of any kind. The marginal numbering continues from 54 to 55 in passing from 1822 to 1824.

3. In 1824; fifteen entries dated From June 10 to Dec. 1. All are over Nuñez's signatures but the entries themselves are in writing obviously not that of Nuñez. Perhaps the original Nuñez entries were becoming faded and some kind soul rewrote the texts to prevent total loss of the record.

4. In 1825; Jan. 8 to 19; seven Nuñez entries. He again styles himself "Comisario Prefto. de estas Misiones".

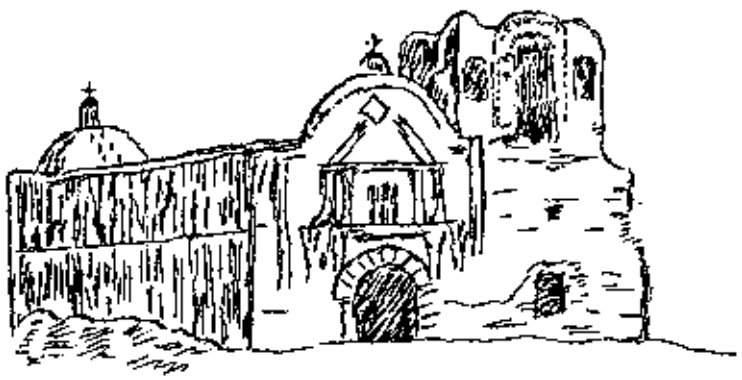
Fr. Miguel Montes: (Pred. Agco. por encargo)

1. In 1825; one entry for Feb. 7.

Fr. Juan Vano: (No title given)

1. In 1825; eight entries, June 2 - July 24.

End of Magdalena "Libro de Casamientos"; pt. 1822-1825.



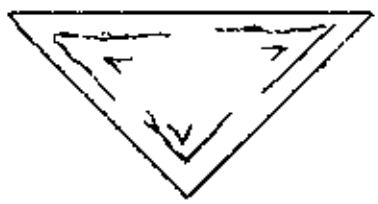
purchased the claim in 1874, kept the place for two years, then sold out to Messrs. Allen and Webb.

Allen and Webb farmed the land until they joined the Mormon Church at Orderville; at that time the United Order was running full blast and the Moccasin property was turned over to the Order. While Allen and Webb were residing at Moccasin two log cabins were built on a sand ridge about two miles east of the spring. Not one of the three cabins stands at present; one fell because of decay in the timbers; one was burned; and the third was demolished in 1904. The irrigated farm lands below the spring were used to raise sorgum, fruits and grapes for the Order and Moccasin became well known for its good sorgum and melons; even today the expression "Moccasin Melons" is often heard.

The five Heaton Brothers, then members of the Order, had been working the ranch for about two years at the time the Order was disbanded and received the ranch as their share of the property controlled by the organization. Later Jonathon Heaton purchased his brothers' shares and the ranch has been owned by Jonathon and his sons since 1893. Today there are nine nice homes and several outbuildings for the ranch at the townsite.

Paiute Indians were induced to farm the area during the period that the United Order had control of the spring and farm lands. The Indians received one-third the flow of the spring and ten acres of arable land; the foreman of the ranch was delegated to teach the Indians the art of farming. This arrangement was continued until 1908 at which time the Kaibab Indian Reservation was created and the Indians were moved to a new location two miles south and one mile east. At the time the reservation was made there were more than one hundred twenty Paiutes in the group: today there are but sixty. The reservation is twelve miles by eighteen in area, bounded by the Kanab Creek on the east and the Utah State line on the north. The Paiutes do very little farming today but raise some livestock.

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RUMINATIONS

Johnwill Faris struck a note which has been ringing in my ears ever since his monthly report came in. It has to do with the stabilization of ruins.

It seems terribly hard to work up much interest in the repair and protection of prehistoric ruins, and I don't quite know why. Possibly it is because we are all prone to get into a rut and not look out much over the sides of it. A good many years ago we got into the road building rut and now we can look straight down that run and not bat an eye over a proposed expenditure of a half million dollars. On the other hand, if we look out sidewise and see the need of expending a hundred thousand dollars in ruins repair and stabilization we get in quite a dither about it and have to expert it for several years with engineers, archaeologists, Branch of Plans and Design men and a lot of other specialists to see if we can't whittle the sum down to the vanishing point or prove that it is all a mistake and six hundred year old walls don't need any repairs.

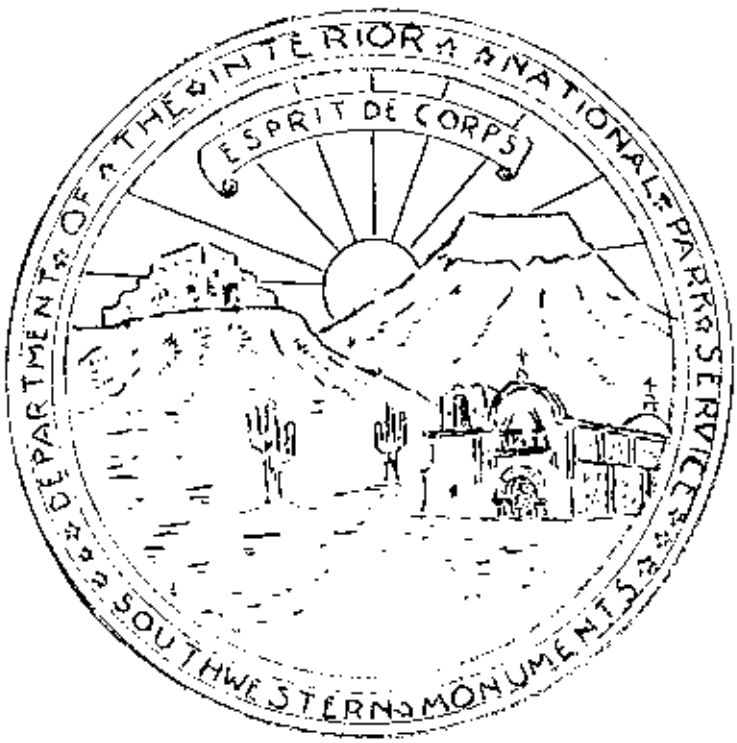
Looking back at it, I can remember what a ruckus was raised when it was proposed to allow automobiles to enter our national parks and I recall that it took quite an educational campaign before that new idea was brought to pass.

I suppose just such an educational campaign will be necessary to convince every body concerned of the need of a regular item in our budget for the stabilization of ruins and the last five or ten years that we have been hammering on this question have not been wholly wasted but are just the preliminary steps in this campaign. It is true that we have been getting about a thousand dollars now and then for this purpose, but with about three hundred ruins to take care of the three and a third dollars per ruin doesn't really do much toward stopping erosion, getting drainage, underpinning walls, and so on. It will take real money to handle this situation just as it takes real money to handle our road situation in the parks.

Cordially,

The Boss

SOUTHWESTERN MONUMENTS MONTHLY REPORT



DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

SOUTHWESTERN MONUMENTS DECEMBER 1936, REPORT INDEX

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SOUTHWESTERN MONUMENTS

PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; James Luther, Chief Clerk; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Charlie R. Steen, Junior Park Naturalist; Millard Singerman, Clerk-Stenographer; Luis Gastellum, and W. H. Sharpe, ECW Clerks.

FIELD STATIONS:

1. Arches - Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins - Aztec, New Mexico. Thomas C. Miller, Custodian.
3. Bandelier - Santa Fe, New Mexico. Jerome Hendron, Acting Custodian.
4. Canyon de Chelly - Chin Lee, Arizona. Johnwill Faris, Custodian.
5. Capulin Mountain - Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande - Coolidge, Arizona. A. T. Bicknell, Custodian; J. Donald Erskine, Ranger.
7. Chaco Canyon - Crownpoint, New Mexico. T. C. Miller, Custodian.
8. Chiricahua - Willcox, Arizona. Frank L. Fish, Custodian; Homer Bennett and Bronson Harris, CCC guides.
9. El Morro - Ramah, New Mexico. Robert R. Budlong, Custodian.
10. Gila Cliff Dwellings - Cliff, New Mexico. No Custodian.
11. Gran Quivira - Gran Quivira, New Mexico. Geo. L. Boundey, Custodian
12. Hovenweep - Cortez, Colorado. No Custodian.
13. Montezuma Castle - Camp Verde, Arizona. M. L. Jackson, Custodian; Russell Farmer, Ranger.
14. Natural Bridges - Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo - Kayenta, Arizona. John Wetherill, Custodian.
16. Pipe Spring - Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge - Rainbow Lodge, Arizona, No Custodian.
18. Saguaro - Tucson, Arizona. No Custodian.
19. Sunset Crater - Flagstaff, Arizona. J. W. Brewer, in Charge.
20. Tonto - Roosevelt, Arizona. James D. Harritt, in Charge.
21. *Tumacacori - Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
22. Walnut Canyon - Flagstaff, Arizona. Milton Wetherill, in Charge.
23. White Sands - Alamogordo, New Mexico. Tom Charles, Custodian
24. Wupatki - Flagstaff, Arizona. J. W. Brewer, in Charge.
25. Yucca House - Cortez, Colorado. No Custodian.

* James Felton, Park Ranger

CONDENSED REPORT

IN WHICH WE GIVE THE HIGHLIGHTS OF THE MONTH

Coolidge, Arizona
January 1, 1937

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for December:

TRAVEL	December, 1936	December, 1935	December, 1934
Aztec Ruins	576	391	336
Bandelier	227	130	214
Canyon de Chelly		23	3
Capulin Mountain	800	500	400
Casa Grande	3,052	2,135	2,463
Chaco Canyon	220	330	---
Chiricahua	273	120	---
El Morro	75	---	---
Gran Quivira	174	200	188
Montezuma Castle	512	568	775
Pipe Spring	105	214	274
Saguaro	767	---	---
Sunset Crater	141	55	53
Tonto	252	362	266
Tumacacori	1,375	1,311	738
Walnut Canyon	260	283	122
White Sands	3,864	1,840	---
Wupatki	108	63	42
Actual Reported Registration	12,801	8,525	5,874

Several times during the past year travel to the Southwestern Monuments has seemed to be remaining constant; at such time the headquarters staff have leaned back in their collective chairs, smiled complacently, and thought, "Aha, travel has now reached its peak. Perhaps we shall have a period of a few years during which we can build up the administrative personnel of the various monuments and take care of a lot of ruins which are falling apart due to the hordes of visitors which walk through them each year." As soon as such a pleasant state of mind had been reached, however, a month like December rolls around.

Now everyone knows that December is a holiday month. People are busy

doing their Christmas shopping. Roads are bad and the weather is threatening. A snow may fall at any time and only a darned (polite use of the term) fool will get away from the towns and off the paved highway to go poking around through a lot of cold ruins. That is, everyone except about thirteen thousand people knew it. Travel to the monuments was nearly fifty percent heavier this December than last and more than double the traffic during 1934. A few light rains and snows made the roads rough but not impassable. Since the reports were mailed to this office a storm of major proportions has swept the plateau region and some stations are no doubt snowed in.

PERSONNEL CHANGES

December 1 - Custodian Robert R. Budlong transferred to El Morro National Monument.
December 1 - Custodian Johnwill Faris transferred to Canyon de Chelly National Monument.
December 1 - Custodian T. C. Miller transferred to Aztec Ruins National Monument.
December 10- Ranger James Felton appointed to Tumacacori National Monument.
December 15- W. J. Winter resigned as Custodian of Casa Grande National Monument.
December 20- A. T. Bicknell transferred from Custodian, Craters of the Moon National Monument, Arco, Idaho, to similar position, Casa Grande National Monument.

100 ADMINISTRATIVE

123 INSPECTIONS BY PARK SERVICE OFFICERS

Gran Quivira - Engineer Stuart, Yellowstone National Park; J. B. Hamilton.
Saguaro - W. J. Winter; J. D. Erskine; Dr. W. B. MacDougal; Charlie Steen; Earl Jackson; and J. W. Hendron.
El Morro - J. W. Hendron.
Bandelier - Charles Richey; J. B. Hamilton; A. E. Underhill.
White Sands - A. E. Underhill.
Tonto - J. W. Hendron.
Chiricahua - Charles Richey; Clinton Rose; Architect Eastman, ECW; George M. Keller; J. W. Hendron.
Tumacacori - Dr. H. C. Bumpus; Paul Beaubien; Charlie Steen; J. W. Hendron; Dr. W. B. MacDougal.
Wupatki - Vincent Vandiver; Milton Wetherill; J. W. Hendron.
Yucca House - T. C. Miller.

200 MAINTENANCE, NEW CONSTRUCTION, ETC.

210 MAINTENANCE

Walnut Canyon - Trail maintenance and improvement was carried on throughout the month by the trail foreman.

Tonto - Trail was maintained during the month. The entrance road is still in a very bad condition. No improvement has been made to the road since it was constructed in 1929; it has been subjected to washing in addition to normal wear and presents very bad driving conditions. Jagged rocks cover the road over its entire length and in places ruts are more than a foot deep.

220 IMPROVEMENTS

Aztec Ruins - Native shrubs have been planted around the parking area and the museum. Natural gas has been installed in the custodian's residence and in the administration building.

230 NEW CONSTRUCTION

Bandelier ECW

Construction and interior carpenter work completed on Quarters #2

Four crews have been busy during the month planting and landscaping around the museum, residence and camp ground areas.

Work started on road surfacing project.

Another steel fire lookout ladder has been made and will be placed soon.

A small quantity of building stone has been quarried and shaped.

Carpenter crew busy constructing museum cases.

Flood diversion channels and ditches to protect the new hotel development were made.

Logs have been hauled from the Ramon Vigil Grant and cribbed for seasoning. A total of 230 logs have been secured; these average 30 feet in length and eight inches top diameter.

Casa Grande - Work started on the new sewage disposal plant. The project should be completed during January.

Chiricahua -

Massai Point-Balanced Rock trail continued 1500 feet

Sara Deming-Balanced Rock trail, 700 feet

One half mile of the Rhyolite and one mile of the Sara Deming trails maintained.

Headquarters Ranger Station 95% complete.

Equipment shed 95% complete.

Some landscaping in the headquarters area.

Maintenance on the Massai Point road.

White Sands - Walls of the parking area are nearing completion; the ranger's residence and administration building are progressing rapidly. Work is also being carried on the road into the sands.

300 ACTIVITIES OF OTHER AGENCIES IN THE MONUMENTS

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon - To date the Soil Conservation Service has planted 37,830 native trees along the Chaco Wash. 31,580 willows, 2,000 wild plum, 3,000 broad leaf cottonwood and 1,250 narrow leaf cottonwood have been set out. Rodent control has been continued on the dikes constructed by the SCS.

400 FLORA, FAUNA, ETC.

Saguaro - Dr. W. B. MacDougal, Regional Wildlife Technician, spent a week at this Monument determining the extent of various types of plant life.

Pipe Spring - Between 3,000 and 4,000 Rainbow and Eastern Brook Trout have been placed in the two ponds south of the Fort. These fish were obtained from the Mammoth Hatchery, Utah.

Several hundred rock-rose and shad-scale plants have been transplanted near the Fort. This was done with the help of CCC enrollees.

480 MISCELLANEOUS

MAIL COUNT

Incoming Mail:		
Personal	1,666	
Government	1,321	
Total incoming		2,987
Outgoing:		
Government only		1,701
Total Mail		4,688
Telegrams:		
Incoming	43	
Outgoing	30	
Total telegrams		73
GRAND TOTAL		4,761

Cordially,

FIELD REPORTS

FROM THE MEN ON THE JOB

SAGUARO

By Paul Beaubien, Ranger in Charge

298 visitors were contacted at the ranger station, while 767 were checked at the Speedway entrance by the CCC boys. As the checker leaves just before 4:00 o'clock, there were probably 1,000 people to visit the monument.

Park Service visitors included Mr. and Mrs. W. J. Winter, with Mrs. Winter's father, Mr. and Mrs. J. D. Erskine, Dr. W. B. McDougall, Charlie Steen, Earl Jackson, and J. W. Hendron. Chaplain Victor R. Stoner was here most of one day. Once during my absence, somebody registered with a signature a lot like Hugh Miller's, but I don't know who I missed.

Dr. McDougall spent several days studying the plant life of the 99 square miles included in Saguaro National Monument. I accompanied him on one trip (and one mountain climbing trip will last me for a long time) when he climbed into the juniper-oak belt of the Rincon Mountains. Many interesting plants were seen above the saguaro zone, but of particular interest to me were the numerous rainbow cacti which seemed to accompany a small specie (shotii) of agave. When I arrived last year, I found several rainbows which had been transplanted close to the ranger station. Being informed they did not belong on the monument, I divided them between Tumacacori and Fort Lowell. But now I can have them in my outdoor museum.

Said museum isn't what it used to be, since a "drunk" drove through it a couple of times.

**********oo**********

EL MORRO

By Robert R. Budlong, Custodian

Travel to this Monument during the month of December rather surprised us. A total of 75 persons visited the Monument. Thirteen of these did not receive guide service. One group of these arrived at the Monument during the only time that the HCWP and I were away from the Monument together. We had gone to town for supplies. Five persons in one group inspected the inscriptions on the north face of the rock before coming to the cabin to register. The remaining visitor not receiving guide service was a TWA pilot taking photographs of the Rock.

Guided trips were as follows: Total guided trips, 17; total time, 1,395 minutes; total persons, 62; average time per trip, 82 minutes; average number of persons per group, 3.6.

Two types of guided trips were given: Guided trips to Inscription only, and guided trips over the trail and to Inscriptions. These trips were made as follows:

Inscriptions Only:

Number of trips	11
Number of persons	46
Total time	915 minutes
Average persons per group	4.1
Average time per trip	83.2 minutes

Trail and Inscriptions:

Number of trips	6
No. of Persons	16
Total time	480 minutes
Average persons per group	2.6
Average time per trip	80.0 minutes

It is interesting to observe that trips to inscriptions only averaged 83.2 minutes each, while trips over the trail and to inscriptions averaged LESS time: 80 minutes each. There seem to be several reasons for this. After hiking over the trail, the average visitor is rather tired, and somewhat cold, and does not seem to be willing to devote so much time to the inscriptions. He seems more interested in getting back to his car and sitting down. Visitors who see the inscriptions only, do not get so tired, and those who are interested wish to spend more time in discussions of numerous matters of general interest.

A number of this month's visitors were local people, apparently interested in meeting the new Custodian and the NCWP. The majority, however, were visitors making their first trip to the Rock. The longest guided trips for the month were: one of four hours; one of two and a half hours; one of two hours.

Weather during the month has been most unusual for this time of year. There has been but little snow, and roads have generally been in good condition. Snow fell on November 21 and 28, and on December 1, 4, 5, 16, and 17. Greatest fall was five inches, on the 5th. While we have no weather bureau station here as yet, local people have reported temperatures of ten degrees below zero in early mornings during the early part of the month. More moisture is needed, the ground being quite dry. Water in the pool is getting low.

During the month another domestic cat, gone wild, was donated release from the monotony of existence, and the wildlife grows less wild in consequence.

The new pickup has not yet arrived. After Doug Harritt (who brought us here in the de Chelly pickup) had departed, we anxiously awaited each mailday, hoping for word that the new pickup was awaiting us in Gallup. I had left my own car at de Chelly for needed repairs, so we had no transportation. Our food supply gradually dwindled, and finally, when we received word on December 12 that the new pickup could not be delivered in Gallup until December 29, we found our food supply consisting of half a sack of flour and two cans of pineapple, plus some Christmas cookies. I decided to get to de Chelly at the first opportunity, and get my car, which had been repaired. As luck would have it, the following day Jerome Hendron from Bandelier drove up, on his way to Gallup and de Chelly. After a very pleasant visit with him, he and I departed for de Chelly, arriving there that night. Johnwill put us up for the night, and the following morning was devoted to getting my repaired car ready for the trip, the afternoon being spent going over various matters relative to de Chelly. I left there about dark that evening, got twelve miles out, and a corroded battery cable shorted and blew every light in the car. To put it briefly, I practically walked the car to Ganado, 45 miles from Chin Lee. That seemed easier than carrying it. The night was dark, with a threat of snow, and I would stop the car, walk ahead a few hundred feet to make sure the road didn't turn any corners (the road lies along the edge of the mesa, with splendid drops of several hundred feet on one side, and deep ditches on the other), walk back to the car, drive the distance I had walked, and repeat the process. A hand flashlight wasn't of much use. I managed to get within eight miles of Ganado when another car met me, and lighted my way to Ganado, where I spent the night. Next day I reached Gallup without difficulty, had new battery cables installed, loaded the car with provisions, and reached El Morro, to find that the HCWP had existed on Christmas cookies during my absence. We promptly celebrated the occasion by consuming a huge steak and a variety of fresh vegetables. I think the HCWP has lost her appetite for Christmas cookies for some time to come.

Employees at the Department of Commerce airfield a few miles distant inform us that they keep both snowshoes and skiis on hand, to enable them to get out for supplies in the event of heavy snows, so we are stocking the cabin with supplies to last us for some months in the event we have much snow. As a result, we are somewhat cramped for space, and have to back out of the door, being unable to turn around once we have entered. I think we would both make expert packers of Norwegian sardines, after so much practice.

With Christmas just around the corner, both the HCWP and I take this opportunity to wish the rest of the Southwestern Monuments group a very happy Christmas and a New Year crammed with visitors.

**********oo**********

GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for December, 174.

Although not great in number, we have had some very interested visitors this month. The major portion of the month has been cold nights and clear days with only two snows of any importance.

We enjoy our bird neighbors very much; they drink more than thirty gallons of water a day and are becoming very tome. We also found it necessary to provide a private cemetery for cats.

Our highway prospects looked very good for a while but now the work has been discontinued, but we hope it is only temporary.

We enjoyed a visit with Engineer Stuart and family from Yellowstone National Park. They were on the way to Deming to spend the Holidays with relatives.

We notice quite a few Golden Eagles in the vicinity, evidently a pair with three or four young birds.

I forgot to get a list of those bitten by rattlesnakes but the wife says Miss Mildred Freeman down at the village told her of these six. A Mr. Boggus, Elaine Ladd and a boy named Petross (still badly crippled) from Claunch seven miles south of us. Iva Lee Russell, Gran Quivira, a farm hand near Round Topp six miles north; a Mexican girl bitten twice and treated by our county nurse near Willard; all but the Petross boy have recovered.

Engineer Hamilton also made us a short visit the fore part of the month.

**********00**********

BANDELIER

By J. W. Hendron, Acting Custodian

Visitors:

Our total visitors for this month numbered 227 people arriving in 80 cars from 14 states, Canada, Mexico, and England. Out of this number 28 were return visitors.

Weather and Roads:	Days partly cloudy	12
	Days cloudy	3
	Days clear	16
	Maximum temperature	49 on Nov. 28.
	Minimum temperature	16 December 11.
	Mean maximum	40.5
	Mean minimum	24

Precipitation ---------- 1.3 against 1.94 for Dec., 1935.
Snow ---------- 2.1

The entrance road is in fair shape at the present time, precipitation being slight this month, and I think that is exceptional for Bandelier at this time of the year.

Visitor Trip Chart

Twenty-eight parties took guided trips making a total of 81 people with an average time per party of 81.5 minutes. Only one individual was given a short lecture which lasted 35 minutes.

Special Visitors

December 1 - Chuck Richey and J. B. Hamilton were out for a few hours on business. December 8 - A. E. Underhill was in for a short stay. December 9 - J. B. Hamilton arrived to confer regarding the new entrance road. December 15 - O. H. Reddoch, Assistant Director, ECW, Washington, was out on an inspection trip. December 20 - Director Hunter of Federal Art Projects was out from Santa Fe for a short visit.

General

To be truthful about this whole report I'm sitting here in the office at Headquarters pounding it out. The answer is that I had all of the dope sent down here airmail from Bandelier.

I could sit and write a great number of pages about my trip to Headquarters and some of the Southwestern Monuments, but I won't; I'll just hit a few of the high shots. It just so happened that I was fortunate enough to be here in time to be the best man at Bill Sharpe's wedding and I feel bad because he said that he was the best man, and then to top it all off, just as Bill and his bride were making their getaway Hugh Miller whispered in my ear, "Always a best man but never a groom."

I left Bandelier on December 9, too early I would say, but I had some business to take care of that had to be done for the Museum. Several days later I proceeded to El Morro where I met Budlong and his wife. Bud accompanied me to Canyon de Chelly and took great pride in waking Johnwill up in the middle of the night. Johnwill seemed to be pleased with de Chelly but he should have been very displeased with we two uninvited guests.

Wupatki was the next stop and I was cordially received by Jimmy and Mrs. Brewer who insisted that I should be a guest at their Xmas party for the Navajos that evening. The party was a huge success and several attended who were not even invited, so I was told. This was a treat for me, never having eaten in a Navajo Hogan before. The next day Jimmy and Sally

went with me to Sunset Crater which was most interesting. As bad as I hated it I had to be on my way to Walnut Canyon. Unfortunately Milton Wetherill twisted his neck in an automobile accident and I didn't get to see much of him.

My next stop was Montezuma Castle, where I met Custodian Jackson and Ranger Farmer. I took one of the guided trips and enjoyed myself immensely. From Montezuma I went to Tonto, arriving sometime after dark, waking up Doug Harritt from some sort of an interesting magazine. The next day bright and early in the morning I was escorted around the ruins, and then after a long conflab on archeology and the like I was on my way again.

Fortunately, I was able to see Earl Jackson in Tucson and I haven't seen him looking better in a long time. He tells me that he is feeling a great deal better than he did and is ready to go back to work so here's wishing him all the luck in the world. Earl accompanied me to Saguaro where we met Paul Beaubien who gave us a most interesting lecture on Arizona cacti. From here I went to Tumacacori. It happened to be Louie Caywood's day off, but I managed to meet him and also Mrs. Caywood just before I left for Chiricahua. As luck would have it Frank Fish and Bill Stevenson were out on business but I can say that the enrollee guide made my visit most interesting and pleasant and also the Commanding Officer and Lieutenant who received me most cordially.

I'm just about at the end of the road, since I'm leaving tomorrow for Bandelier and the cold country. I can say, Boss, that I have acquired a great deal from this visit and I am sure that it will enable me to carry on at Bandelier in a more successful manner. I still can't say which is the best Monument in the system since they all have their merits and are all quite different, and for the personnel, I can say that I haven't met a finer group of men in my life from a standpoint of personality, adaptibility, and congeniality.

This isn't the best report in the world but I feel that for this month it is sufficient since I'm all upset over the wedding or something.

**********oo**********

BANDELIER ECW

By H. B. Chase, Project Superintendent.

All construction and interior carpenter work in connection with Quarters No. 3 was completed this month, cold weather has retarded the drying of plaster and masonry work thereby causing some delay of painting and decorating. It is expected the building will be ready for occupancy by January 15.

Four large crews have been working all month on landscaping and planting in and around the residence, headquarters and camp ground areas, two

crane trucks transporting large trees together with other trucks moving small trees and shrubs have accounted for a large number of plantings.

Work was started this month on the road surfacing project preparing the subgrade for the work of surfacing the entrance road under contract. This work principally involves the building to grade of the super elevations, straightening ditch lines and building out the shoulders together with a small amount of culvert headwall construction where the toe of the fill has stopped up the culvert inlet.

Another steel fire lookout ladder has been fabricated in the blacksmith shop during the past month and will be erected near corral point on the south mesa in the near future.

A small quantity of building rock has been quarried and shaped in the preparation for starting the construction of the wall unit comprising a part of the new hote l development.

Most of the carpenter crew has been occupied all month in further construction of the museum cases within the museum. In connection with this project five pieces of porch furniture have been completed for use at the residences.

Some work on the project of excavation of channels and ditches was done in connection with the new hotel development for the control of any possible flood waters coming into this area.

**********oo**********

BANDELIER FORESTRY

By James Fulton, Forestry Foreman

On November 28, my crew finished hauling logs which were cut on the Ramon Vigil Grant through the courtesy of the Soil Conservation Service. In all, 165 logs or whole trees were obtained. Another week and those logs along with 65 old logs from previous cuttings were piled crib-style for seasoning. We now have a stock pile of 230 logs which average 30 feet in length and 8 inches in top diameter.

Since the 7th of December, I have been working on Quarters No. 3: one week with a clean-up crew and then the commencement of painting there.

**********oo**********

CASA GRANDE

By J. Donald Erskine, Park Ranger

Travel to Casa Grande during December has continued to improve and 3,052 visitors were given conducted trips. This is an increase of 143 over last month, whereas December usually has fewer visitors than November. In December 1935 the count was only 2,135 which gives us an increase of

917 visitors. The type of visitor also continues to improve most gratifyingly. Visitors came from 42 states, the District of Columbia, Alaska, Hawaii, four provinces of Canada, Mexico, England, Ireland, Norway, and Germany.

Newsworthy visitors of the month were Odd S. Halseth, Phoenix archeologist; Dr. E. P. Andrews, retired professor of archeology from Cornell University. Dr. Andrews was very much interested in "our" Cretan Labyrinth and since then has had sent to us a photo of the round maze (like on the wall of the Casa Grande) instead of the square one of our present photo. Bob Zuppke, football coach at the University of Illinois, was an interested visitor on December 17. On December 20 we had the privilege of showing the Casa Grande to Mr. and Mrs. V. W. Rowlett. Mr. Rowlett is an electrical engineer at Carlsbad. On December 19 Jerome Hendron arrived from Bandelier for a few days. He is to be best man at the wedding of Bill Sharpe and Lorraine Sewell on Xmas Day. Addison Pinkley is also on the Monument for a few days of the Xmas season.

Weather during December has been pleasant except for the extreme range of temperatures between day and night. The maximum temperature was 79 degrees on December 24 and the minimum temperature was 21 degrees on December 13. We had measureable rainfall of .08 inch on November 27 and 28. There were 16 clear days, six partly cloudy days, and eight cloudy days during the month.

We have had two overnight trailer campers during the month. The writer believes that more and more trailer parties are going to want to stay overnight here, as there are few places for them to stop conveniently between Phoenix and Tucson. While Casa Grande's picnic grounds were not built for overnight campers, two or three parties can easily be accommodated with our present facilities.

The writer has been quite amused by the thought of fighting a forest fire on the Monument, but such a thing happened during the month. On December 8 one of our overnight parties discovered a burning mesquite tree just west of the picnic ground. The falling of the tree upon being burnt through was the only reason it was discovered. The campers heard it fall and sought the reason. The fire was quickly extinguished with the aid of a fire extinguisher, as it was just a smoldering burn. The cause can definitely be placed on a campfire left burning several days before. No damage was done as the mesquite tree was already dead.

On December 8 Custodian Jack Winter went off duty in order to take some annual leave before his resignation became effective on December 15. The new custodian, Al Bicknell, arrived on December 20 from Craters of the Moon National Monument, Idaho, where he has been custodian for several years. Al comes to us with a long record in the Park Service, having spent 23 years in Yellowstone. He is a fine addition to Southwestern Monuments, but he is not entirely a newcomer to us, as Al helped out at

Casa Grande last winter for several months. Also helping us out for a few days is Woody Spires who started work December 19. Woody also has worked three previous week ends in December.

One of the best things to report for months comes with the beginning of work on our new sewer system on December 19. By the time the next report is due it should be all completed, if nothing goes wrong, and it will be a great relief not to have to pump the sewer out twice a day.

The writer is doing this report while on sick leave recovering from a bad case of influenza which put him to bed on December 19.

In closing may I extend, along with the rest of the Casa Grande bunch, the heartiest Holiday Greetings to all who may read this.

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I wish to express to the entire Southwestern Monuments outfit our regret at leaving the fine friends and associations made in the past year and a quarter. We think that the Southwestern Monuments is a grand unit of the Park Service and are sorry that we did not have the chance to meet everyone as we surely do like all of those we have contacted.

I am moving to new work which is a bit more in my professional line. For the rest of this fiscal year, at least, I can be located in care of Fort Marion National Monument, St. Augustine, Florida, and if any of you get into that neck of the woods be sure to stick your head into the door.

Adios, Jack Winter.

**********00************

WHITE SANDS

By Tom Charles, Custodian

Was Cabeza de Vaca the first white man to see the Great White Sands? For thirty years I have "messed" with these sands and cared but little whether this first transcontinental traveler passed this way or not. But now it is an important question. The State of New Mexico is to put on a Cuarto Centennial celebration and plans to spend $2,000,000 in advertising the points of early Spanish interest. There are plans for a pageant, portraying the coming of Coronado, following him from where he entered the State near Zuni, with his 100 Conquistadores, several hundred Indians, herds of horses, mules, sheep and goats. To my mind, if the State of New Mexico is to celebrate the coming of the Spanish then they should start with Cabeza de Vaca and his three companions who crossed this country at least five years before the coming of Coronado. Coronado's trip was the result of Cabeza de Vaca's inspiration and his guides were drawn from Cabeza de Vaca's party.

For years it has seemed to mean but little to any one where Cabeza de Vaca crossed. Each historian seemed to have an equal right with others in leading him through the historian's own particular desert, along his own river and over his own mountain range. But now it is different; in the past few weeks at least four of these historians have taken this remarkable explorer who marked his path with buffalo heads, (Cabeza de Vaca - the face of the cow) by as many different routes.

W. E. Wheeler who writes New Mexico history for the government at this time, has followed the party up the Pecos river nearly to Roswell, then across to Carrizozo, down on the west side of the Lava Beds and the Great White Sands to El Paso. Dr. Castaneda, librarian of the University of Texas, expressed the opinion in El Paso last week that this group visited El Paso, in their wanderings and turned from there, south, into Mexico. Another prominent El Paso writer thinks that possibly they crossed the Rio Grande down in the Big Bend country and followed the Conchas river westward.

It is evident that the historians are having trouble following this first explorer across the plains of Texas. I wonder if any of them ever thought of the possibility of backtracking him with better results. According to Cabeza de Vaca's own story it was eight months from the time he entered the mountains until he came out of them, into the plains country, "nigh the coast", and in that eight months' travel there is one point which is definitely fixed. That is the place where they ceased to go west and started to go, "downward toward the sea". That point was "200 leagues north of Culiacan."

Is there any question in any ones mind where that point is that was described as 200 leagues north of Culiacan? If there is then they better take a string that will represent 200 leagues on any Mexico-Arizona map and with that string as the radius of a circle, draw an arc across Arizona with Culiacan as the axis. This arc will show that they turned south some place between Phoenix and Springerville. When Estaban brought Coronado back a few years later he returned to Zuni, just north of Springerville.

The next question is, how did the party arrive at the point where they turned down toward the sea? According to Cabeza de Vaca's own story they had traveled 20 days westward from a river which they had followed "upward" in a 15 day march, "without stopping". Then, where were they at the beginning of the 15 day journey? It doesnit make much difference whether they reached the Rio Grande river at mile post 40 or 50 on the Camino Real, north from El Paso del Norte, but some place, not too far from the present site of Las Cruces, that group came upon the river which they followed 15 days upward. And immediately before that they had been in a desert which even the hardiest Indians had feared to cross. Can you think of a desert which will more accurately qualify than the red sand hills about 30 miles south of the Great White Sands?

To reach this desert they had "turned toward the mountains" at a point which was 50 leagues, (150 miles) east of the river which they had followed upward 15 days and for the first 15 days of that 150 miles they "waited" where the Indians had Pinon nuts and the men had gone hunting in the "cow country to the north". Prior to this 150 mile leg of the journey they had traveled, "along the skirt of the mountains, entering the country directly north." I do not care to follow Cabeza de Vaca further, he entered the state of New Mexico some place east of Carlsbad. When he entered the mountains where the pinon nuts abounded it had to be somewhere north of the Guadalupe Mountains for the pinon does not grow south of that range, and the cow country was never south of the Rio Grande or west of the Pecos. According to my geography there are several points which are definitely fixed. So let us turn around and follow Cabeza de Vaca as he went after entering New Mexico.

The journey which they made northward for 80 leagues, "skirting the mountains", was from some place down east of Fort Stockton. Turning north when they came in sight of the mountains they continued east of the Pecos until they came up to a point which is about two days east of Artesia, New Mexico, for when they turned west toward the mountains, they came upon a "beautiful river" on the second day. That was evidently the Pecos; from there on for 15 days, traveling slowly, they were in the pinon country which was probably near the present post office of Pinon, New Mexico. After this came the frightful desert where 300 of the Indians were "ill", the prickley pear had "ended", the guides urged the Christians, "to go after the cattle, upward, toward the north"; here they left their straw trunks and the "things which were old", and finally with "20 of those in health" they crossed the lower end of what is now the Tularosa Valley, through what is now St. Augustine pass in the Organ Mountains and came to the Rio Grande. From here they went 15 days "along a river, upward", probably to the present site of Socorro, then 20 days westward and then, "downward toward the sea", 200 leagues to Culiacan.

The facts are evident. The prize for establishing this route is worth while for if this coming celebration is staged in the proportion which is now planned, New Mexico will have 10,000,000 out-of-state visitors in the year 1940. It seems to me that the Park Service, which is in possession of all the leading attractions in the state should be most interested in offering help to stage this show correctly and successfully. Is there not a historian in the Park Service who can work up the material and be present when the programs are to be planned? It seems to me worth while.

The plot thickens in this travel count of mine. Last week I had the watchman at the headquarters area count cars for me when he was loafing -- just kind of checking up on myself. On four days when it was cold and damp we didn't have a single registration but the watchman reports that during that time he had counted 63 cars which stopped at the Sands. How are we going to work these "established" percentages on that kind of registration? I can't. But I have another place where I can work them.

The State Highway Department has established a pair of electric eyes just south of Alamogordo, which not only count the cars but also record the minute that they pass. In addition to this automatic counter, they have regular part time count several times a month and also the port of entry count just south of town. In answer to my inquiry as to the number of cars on the White Sands road, Mr. Sumner, State Manager, in charge, says, "We have been making regular traffic counts since June in addition to installing the automatic counter and while we are not yet ready to announce a completed count, to date our records show that there is an average of 241 vehicles per 24 hour day, using the road past the White Sands."

On the basis of this count, we would have 87,965 cars through the monument in a year and on the basis of four people to the car it would mean 351,860 people through the monument and on the basis of 36% stopping to visit it gives us 126,669 annual visitors, actually playing in the Sands. Pretty castles, in the air, aren't they, Boss?

But here are the facts in the case: 541 registrations from 34 states and four foreign countries. On the basis of 14% registration it gives us 3,864 visitors this month.

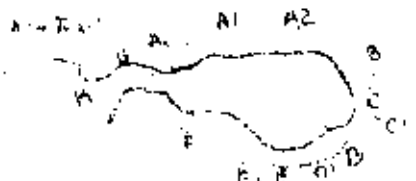
The walls of the parking area are nearing completion; the rangers residence and the headquarters building are moving rapidly. A. E. Underhill and his engineering crew are on the job in connection with building three miles of road into the Sands and a woman in Abilene, Texas, writes that she wants 88 souvenirs of the White Sands to give each of her senior bible class a Christmas present. So, all in all, we are progressing nicely.

**********oo**********

WALNUT CANYON

By Milton Wetherill, In Charge

The report for December trail work will follow along the lines for November report with sketch of the Island showing points where the work has been done



A-1 Shot and removed large rock which was in the center of the trail.

A-2 Shot and removed a large rock. With the removal of this rock, I was able to grade the trail and avoid steps which would have been necessary if the rock had not been removed.

C-1 Finished trail at point C of last month; this leaves a level trail and removes what was a bad place in the trail.

D-1 Widen the trail by building a small rock wall. This was done because the trail passed under a leaning Douglas Fir, which made it a bad place to pass.

E-1 Built a new trail around a large rock over which the trail went. New trail continued on for a distance of fifty feet on an easy grade. This section of new trail is about six feet lower than the old trail and eliminates a steep place that was on the old trail. This part of the trail was bad when there was snow on the ground.

G: Widen the trail which at this point went between two large rocks. The old trail was too narrow and had a right angle turn in it. With the widening of the trail at this point the right angle turn was eliminated.

H: Widen the trail which at this point was partly stairs. Also cut in a new twenty foot trail part of which was built by rolling large rocks in a draw and building up a wall.

Spent two days timber cruising for posts for signs; have cut a few of the posts, but good posts of the size called for on the blueprint are few and far between.

Animals observed at the Monument:

Mule Tail Deer	Coyote spc?
Albert Squirrel	Cottontail spc?
Texas Jack Rabbit	Say Ground Squirrel
Gray-necked Chipmunk	Arizona Porcupine
San Francisco Mountain Wood Rat	

Birds observed in the Monument during December:

Cooper Hawk	Spurred Towhee
Western Horned Owl	Mountain Chickadee
Red-backed Junco	Gray-headed Junco
Shufeldt Junco	Rocky Mountain Nuthatch
Pygmy Nuthatch	Long-crested Jay
Woodhouse Jay	Townsend Solitaire
Chestnut-backed Bluebird	Western Robin
Red-shafted Flicker	Lead-colored Bush-tit
Clark Nutcracker	Canyon Wren
Pine Siskin	Pink-sided Junco
American Ravin	White-breasted Woodpecker
Western Red-tail	Mountain Bluebird
Bandire Crossbill	Mexican Crossbill

149 birds were banded this month. This does not include repeats and returns.

TONTO

By J. Doug Harritt, In Charge

Total visitor travel to Tonto National Monument for the month of December was 252 persons. 168 visited the ruins and museum; 39 visited the ruins only; 31 visited the museum only. 14 persons saw the ruins from the parking area, making neither a ruin nor a museum trip. Total ruins trips numbered 62; total museum trips numbered 62. Total time guiding ruins trips was 3,098 minutes; total time guiding museum trips, 984 minutes; average time ruins trips, 49.96 minutes; average time museum trips, 15.54 minutes; average time total per party, 65.50 minutes.

Weather during the month was generally fair, although some rain fell early in the month and again as the report closes. Maximum temperature was 67 degrees; minimum temperature was 32. Total rainfall was 1.39 inches. Range conditions seem good with much new grass in evidence. The country generally is becoming greener, and all indications point to a fine display of flowers in the spring.

Work on the trail and road was limited to smoothing out of rocky stretches, removal of snags, and attempted drainage. Condition of the trail is fairly good. Numerous complaints were received on the condition of the approach road which is very rocky and rough.

Only official visitor of the month was Jerome Hendron of Bear Canyon section, who made an overnight stop on his way down from the northern country. We had a fine gab session, and I surely enjoyed meeting him and getting the news of more northern climes.

With this, the last report for the year 1936, going in, and the new year rolling around, I want to wish the outfit the best of luck and a Happy and Prosperous New Year. Also to express my thanks, and express the pleasure I have had working with the gang the past two seasons.

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CHIRICAHUA

By Frank L. Fish, Custodian

The end of last month left us with snow covering the monument. Cold nights prevailed during the larger part of the month. At high elevations snow remained for a long period on the trails. The cold snap finally gave away and for the past three nights we have had no frost. In fact last night a party of campers slept on the ground and remarked how warm it was. Don Erskine is right, Arizona's climate is quite changeable.

Some stretches of the approach roads are in very poor shape; so far visitors have not complained. It must be the scenery that makes them forget. The boys up in a few northern monuments have an erroneous idea about the best monument. When they have traveled more broadly I believe they will realize such a designation belongs further south in Arizona. For details the extreme S. E. Corner. It is probably their realization of

the fact that causes such a stir in the monthly reports from that way. I should never have entered any protest except their continual blowing is ruining our climate down here. Those north winds are plenty frigid.

Visitors for the month numbered 273 arriving in 59 cars. 22 states were represented. An even 200 came from Arizona. 61 of these were CCC boys in trucks from F-64-A, Nogales, Arizona. Most of these boys could be counted as out of state visitors. Counting the enrollees as a special party would leave us 212 regular tourists as against 120 for last year.

The weather and snow covered trails kept the hikers off the trails. Out of the entire group only seven or eight were actually dressed for hiking. Four others came dressed for riding and saw the monument in that way.

I concur that no roads should be made through the scenic wonders of the monument. My idea in last month's report was to bring the existing conditions out and suggest as a remedy a take off from the Massai Point road at the Barbecue Pit and take a course on the north exposure of the ridge there and arrive at an area approximately a mile from the "Heart O' Rocks". I also had in mind to keep the road to a truck trail standard and from looking over the sight it seems practical and I believe the road could be hidden very nicely. It must be remembered such a road would be entirely outside of the present monument boundaries.

Park Service visitors during the month were: Chuck Richey, Clinton Rose, Architect Eastman from Colossal Cave, George N. Koller, inspecting ECW equipment, and J. W. Hendron, acting custodian of Bandelier National Monument. I was sorry Hendron arrived while I was in town but we met on the road later and had a short visit. Incidentally, J. W. was slightly misinformed. Bronson Harris, CCC guide, meant 20 million more or less instead of 20 billion in regards to the age of Rhyolite. Bronson states he "kinda" detected a grin appear on Hendron's face.

A shipment of signs was received during the month from Bandelier. Clinton Rose desires to use these for temporary purposes until such time as a projectcan be set up for more permanent ones.

The ranger residence and equipment shed are about completed and the enrollees along with the men in charge can be proud of doing an excellent piece of work.

I expect to move into the new residence the 29th or 30th of this month but in the meantime it will be necessary for me to drive to Hobbs, New Mexico, for Corabeth and the "Minnows". Considering Bronson Harris and Homer Bennett are quite capable in handling the visitors and this is the slack season of the year, I shall leave here the 24th and arrive back the 29th expecting to see the famous Caverns on the way for the first time. MERRY CHRISTMAS AND A HAPPY NEW YEAR.

CHIRICAHUA ECW

By Wm. Stevenson, Project Sup't.

The Massai Point-Balanced Rock Trail advanced 1,500 feet, making a total of 2,650 feet to date.

The Sara Deming-Balanced Rock connection progressed 700 feet. Work will be discontinued on trail construction until after the holidays.

One half mile of Rhyolite Trail was maintained this month, making a total of one and a half miles. Actually 5,000 feet were completed in November. The 500 feet shown was an error in copying. One mile of Sara Deming was maintained.

The headquarters ranger station is 99% complete.

The equipment shed is 95% complete.

Some finishing work has been done this month on the headquarters utility area and service road. Landscape Architect Rose plans to spend some time with us after January 1 and assist in the completion of this project.

Backsloping on the Massai Point road has continued throughout the month. The recent rains have so loosened the material in the rock cut sections that 800 yards of rock were handled without the use of powder.

Work has continued on Highway Maintenance and the Rock Quarry.

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MONTEZUMA CASTLE

By Russell Farmer, Acting Custodian

Travel has been slow this month except for flurries on week-ends and holidays. Although the weather has been fine here, the entrance roads from Prescott and Flagstaff have been covered with snow a few times. This, along with road repairs and detours, has probably been sufficient to dissuade many prospective visitors from coming in. Travel seems to be increasing with the approach of the holidays and the neighboring dude ranches report that their facilities are fully reserved over Christmas.

The register shows that 512 visitors from 22 states and one party from Canada visited the monument this month. Of this number, 344 climbed the ladders to the castle and 395 attended the museum. We have a great number of local people who sign the register but do not avail themselves of guide service since they only desire a place to picnic. All these people are contacted but are not shown on the records.

On November 20, a group of seven students and two instructors from the Arizona Desert School spent a few hours on the Monument. On the same day, 26 men from the Sedona CCC Camp and 34 from the Beaver Creek Camp

visited the Castle and Museum. We have tried to impress the officers and educational advisers with the fact that they would receive much better service if they could come on Saturday rather than on Sunday when there is a peak load of other visitors.

Mr. Jackson's resignation became effective on December 1, and the community as a whole regretted to see him sever his connections with the Service with which he has spent so many years. Mr. Jackson says that half the people were mistaking him for Montezuma and that he thought he had better move on before he became a landmark. He very kindly continued to assist me with the contact work until I was able to secure the services of Harry Lockart as a per diem guide. Mr. Jackson is still here and I call upon him freely for advice and suggestions about the work.

The water system has had two of its customary breakdowns this month by way of initiating the new regime. Since neither of them occurred on Saturday night, the affairs were not serious. The eccentricities and intricacies of this water system sure prevent a man from brooding too much on his other troubles.

Bearing in mind the fact that accomplishment in the field is not measured by the length of the report, I close by wishing the personnel and their families, A VERY MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR.

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TUMACACORI

By Louis R. Caywood, Custodian

Visitor registration continues to climb to new high levels. For the past month there were 1,233 visitors contacted and shown through the mission. An additional 142 stopped and looked from the parking area or used the facilities offered by this monument, making a total of 1,375 which number eclipses any previous December record.

Weather conditions have been very favorable for this time of the year. A few days in the last part of November were rainy, but December to the time of writing has been sunny and warm. Eastern visitors spending the winter here certainly enjoy these springlike days and their usual remark is, "When I left _____ the snow was 12 inches deep and getting deeper every day."

A number of newsworthy visitors stopped at the monument during the month. Dr. and Mrs. H. C. Bumpus and Miss Florence Tarr Barton were here on December 16. Dr. Bumpus was extremely interested in the proposed museum developments and even asked if I belonged to the left hand or right hand school of museums. He said this controversy reminded him of another one about twenty years ago when the question was whether or not a prehistoric Indian pot should be washed before being put on display.

Dr. and Mrs. Ralph L. Beals and their two boys paid us a visit on their return from Mexico. Dr. Beals is now connected with the University of California at Los Angeles, Westwood, California. He was visiting the Yaqui country in Mexico.

Charlie Steen and Paul Beaubien were Park Service visitors on the 10th. Charlie looked over the Papago ceremonial material at this monument. Paul Beaubien came again on December 12 showing his sister, Nell B. Nichols of Topeka, Kansas, the highlights of Southern Arizona.

J. W. Kendron, Acting Custodian of Bandelier National Monument, visited us on December 21 on his way to Chiricahua National Monument.

Charlie Steen came again on December 22 bringing Dr. MacDougall, Wildlife Technician from the Oklahoma Regional Office.

Treasure hunters are as numerous as ever. The manuscript telling how to find the treasure is usually the same, but the conditions under which it was gotten are very different and always make the manuscript very valuable and old. The latest one is that a copy of the original was obtained by an old Spaniard who had made the copy in Mexico City many years ago. He then had visited the area around Tumacacori Mission and had seen the rock bearing the inscription $\frac{CC\ \ D}{T\ \ D}$ which was the identification for the buried treasure. Now, it seems, this rock is gone. The folks who have a copy of the original manuscript complained that they could not make out the words where the old paper had been folded. And the Spanish used in the manuscript was very different from modern Spanish. It seems as though even treasure hunters have their troubles.

The reproduction of the Spanish arrastra has been completed and is attracting considerable attention. I now feel that visitors go away with a better knowledge of what an arrastra looked like and how it worked. This arrastra is small, being only 5' 2" in diameter. The height is 7' and the distance between the two upright poles is 14' 6". It will only accommodate one arrastra stone and can be operated by one burro. When I find the old Spanish gold mine, Virgin de Guadelupe, I will try out the arrastra to see if it will really work.

Mr. James B. Felton and wife arrived at Tumacacori December 9. Mr. Felton, Jim to us, reported for duty on December 10 and has made rapid strides in mastering the knowledge to answer the questions regularly asked by visitors. Jim has spent two and one half years at the Petrified Forest before coming here as permanent ranger. I am sure everyone in Southwestern Monuments joins me in welcoming Jim and Margaret into our Southwestern family and wishing them the best of luck.

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WUPATKI

By J. W. Brewer, Ranger in Charge

500 Use of Monument Facilities by the Public

52 guests registered at Wupatki; 66 at the Citadel; 10 names are duplicated, leaving a total of 108 visitors to this monument in December; 1936; 1935, 63; 1934, 42.

530 Newsworthy Visitors

Dr. H. S. Colton and Mr. L. L. Hargrave to see the burials in Room 7 on the 30th.

Geologist Vandiver and Ranger Wetherill, to discus geological feature signs and installation, on the 12th. (These fellows caught me in bed with a touch of flu, and the next time I saw Van he was in bed with a span of broken ribs)

Mr. James O. Grandstaff of the Range Breeding Laboratory, to see the rugs Sallie's weavers are making with the experimental wool samples, on the 14th.

On the 15th, Mr. and Mrs. R. W. Hussey of the National Forest Service.

Acting Custodian Hendron on the 16th just in time to join the Navajo Christmas party.

021 Weather

Generally overcast days and cooler than expected nights have prevailed. (I'm trying to write this in Coolidge and find I do not have a record for the balance (24th to 30th) of November.

Days cloudy	16
Days Sunny	5
Light snow on the 11th	
Maximum temperature	56° on the 7th.
Minimum temperature	13° on the 17th
Precipitation	Trace
Anemometer	3,504 total miles
Maximum 24 hour reading	350.2 on the 18th
Minimum 24 hour reading	172.6 on the 12th

Since the anemometer does not record daily readings and requires constant close attention I thought it best to remove the cups and cover the instrument with canvas.

WUPATKI (CONT.)

Bird-Banding

Attached are the 1936 form Bi 860 bird banding records complete to date.

Banding records not previously submitted to your office are as follows:

October 27 - Two Gambel Sparrows
October 27 - Two Slate-colored Juncoes (This is the first record of the occurrence of Slate-colored Juncoes on Wupatki National Monument)
November 13 -Four House Finches
November 15 -One House Finch

Monument bird files are up to date.

General

On the 21st the Custodian abdicated and turned the keys over to Clyde Peslacai.

Correspondence is up to date; everything is under lock and work is laid out for Clyde so I'm turning the wheel over to Sallie who will take you on a trip thru the Kishmus party (See Supplement).

**********oo***********

SUNSET CRATER

By James W. Brewer, in Charge

141 visitors registered at Sunset Crater National Monument in December, 1936; 1935, 55; 1934, 53.

Photographs of the geology signs requested by the Washington office have been taken and prints will be supplied very soon.

This month I have had the CCC boys do a lot of planting of trees and shrubbery. On the 10th and 11th we got from Moccasin some 500 Wild Rose roots, and set out by the east entrance, at the head of the meadow, and some at the southeast corner of the meadow. On the 14th and 15th we set out 200 or more of shadscale in front of the west cabin and will get some other kind of brush when the weather gets colder.

December 21 and 23 we set out about 130 trees; some, to replace those that died from last year's planting; and then, some to fill up ground around the parking area and camp ground.

I believe that with all the trees and shrubbery now planted we will take care of all the water that we have until we can get it piped

closer to the trees (ought to have about 300 or 400 feet of 2" pipe for this).

I have fainally made a break to arrange the museum articles into groups and have taken the east room, second floor of the lower house, for the ancient and modern Indian material. The middle room I will use as a geological and rock room, and the west room will be left for the telegraph office when we get the material to go in it.

A part of the east room on the ground floor of the lower house is being used for an office, and I also have a few pioneer relics which will be assigned to other parts of the building when I get them worked out.

Nature Notes

On November 28, with two scouts and the old Dodge truck, I went to the Mammoth Fish Hatchery and brought back 3,000 or 4,000 Rainbow and Eastern Brook Trout and put in the two ponds in front of the Fort. The fish are doing fine as revealed by the fact that they will not take the bread and feed that is thrown into the pond. Apparently there is sufficient natural food in the food to satisfy their apetite.

I haven't done a lot of bird banding this month, partly because I have been doing something else and again the birds do not care for my feed. Nevertheless, I have banded the following:

11 Gambel Sparrows
4 Song Sparrows.

I have had many repeats. I killed one cat that has been around the fort.

The other day I was up on the hill looking the monument over and I saw hundreds of plants growing, some of them having four to six leaves. The grass on the southern slopes is ten to 12 inches high.

With all the moisture that has fallen this month we ought to have a lot of flowers next summer. On December 4 it rained and snowed, amounting to three-quarters of an inch; then on the 15th, 16th, and 17th it rained and snowed most of the time, giving us more than 1¼ inches.

The ECW projects that the boys have been working on this month are the planting of trees and the ditch elimination. I am anxious to get some of the plans for the tables and drinking fountains and pile lines if they have been approved.

**********oo**********

AZTEC RUIN

By T. C. Miller, Custodian

General

Approach roads to the Monument, except a short stretch of road between Aztec Ruin and Farmington, which is under construction, have remained in excellent condition all the month. Wolf Creek, Red Mountain, Monarch, Rabbit Ears, Tennessee and Berthoud Passes are all open and well maintained. Consequently the Aztec Ruin has received more visitors from the north and from the south during the month of December than it had last year.

Travel

576 people were guided through the ruins. They entered the Monument in 165 cars, coming from 19 states and one foreign country, China. Visitors average about 3½ persons per car. The travel for the same month last year was 391, showing an increase of 185.

Weather

Weather has been excellent the entire month. Weather statistics show maximum temperature 60 on November 27; minimum temperature, 5 on December 12; precipitation, .02 melted snow was recorded during the month.

New Improvements

Natural gas was installed in the custodian's residence November 21 and 22 for heating purposes. Then on December 12 we installed gas in the administration building for heating the office and museum, by placing a gas burner in the coal burning furnace. This arrangement has proven very satisfactory unless the cost is prohibitive.

On December 8 we began work with a small crew to plant the area on west side of administration building where gravel was piled for use on the parking area. This work was done under Roads and Trails allotment. The area was filled with sage, chamise, chico and rabbit brush, using the larger plants near the walls and sloping toward the building. There were also a few yucca and juniper planted.

On the east side of the area we removed the large cottonwood tree that was dead and filled this in with some of the above mentioned plants.

All this planting in front of the building is now complete and approximately 80% complete on the sides. In addition to the shrubs native grasses will be used around the building.

This work will probably be completed early in January.

Guided Trips

We have been doing q uite a bit of experimenting in taking our visitors through the ruins. On December 15 we started taking our visitors from the museum building up the paved walk on the west side of the ruin, entering the ruin at the northwest corner, showing the underground rooms which are all of prehistoric work, including the artifacts displayed, then ascending the steps to the highest point in the ruins overlooking the entire pueblo, where the visitor gets the best view of the ruins; then continuing our trip on down to the court and finishing with the Great Kiva, which, although restored, is the masterpiece of Southwestern archeology. The purpose of this change was to impress the visitor first that it was a prehistoric ruin and not a restored pueblo. It is believed that this trip is going to work out very nicely. However, we are still experimenting and studying the guide service in this Monument and should we find a better route that is the way our visitors will be handled, but so far excellent results have been obtained.

Personnel

I entered on duty at Aztec Ruin November 23 and Custodian Faris departed for Canyon de Chelly National Monument on November 30. Oscar Tatman, guide, separated from the Service December 15. We surely hated to see Oscar leave as we have found him to be a mighty good man and a good guide. Mrs. Viola Turner entered on duty as guide December 18 as we have been getting more visitors during the Christmas Holidays than one guide can handle. Mrs. Turner needs no introduction to the Southwestern Monuments as she has been employed in various capacities at this Monument for several years. To date her services as guide have been very satisfactory.

It was necessary to work a small crew of men planting shrubs around the administration building for about ten days, as mentioned elsewhere in this report.

Special Visitors

Mr. Lloyd Case and Mrs. A. W. Ayres, from Durango Chamber of Commerce, were interested visitors on December 15. Custodian Faris, from Canyon de Chelly National Monument, arrived and departed on December 23. It was nice to see Johnwill back on his old stomping ground if only for a few minutes and while we are on this subject, Boss, I would like to set all the readers of the Southwestern Monthly Reports right and save the Government money of employing a psychologist to study the changes from Chaco to Aztec, Aztec to de Chelly, and de Chelly to El Morro, referred to under the heading of Comments in the November report. Within the Monument boundaries of Chaco Canyon National Monument 18 major ruins are found. These ruins are without equal in the United States. No other

archeological area in the entire Southwest exhibits such a high development. In addition to the 18 major ruins some 200 house mounds have been mapped and surveyed, and these are what I was referring to in my November Chaco Canyon report when I said "Aztec is a better ruin than the house mounds in Chaco Canyon." However, Aztec is a good Monument with many advantages and I certainly appreciate being stationed here. Mr. Faris, former Custodian here, has certainly set a high standard of service and it is going to keep a man busy maintaining such a record. We hope he makes a good cliff-dweller and certainly wish him well with his new assignment.

**********oo**********

CHACO CANYON

By T. C. Miller, In Charge

General

Weather in Chaco this month has been very good. Not enough snow to make the roads bad at all; in fact, the road from Thoreau to Chaco is in better shape than ever before.

Weather Statistics

Maximum temperature, 54 on the 16th; minimum temperature, 5 on December 6. .05 inch precipitation, rain and melted snow, was recorded during the month.

Travel

220 people entered the Monument in 70 cars from ten states.

Activities of Other Agencies in the Monument

The Soil Conservation Service has planted 37,830 trees in and along the Chaco Wash. It has also replanted about 3,000 of the older ones that were planted by that Service more than a year ago. 31,580 willows, 2,000 wild plums, 3,000 broad leaf cottonwood, 1,250 narrow leaf cottonwood were planted.

Rodent control was continued around the earth dykes on the Canyon near the ruins of Bonito and Kin-Klet-soi, five gallons of carbon bisulphide gas being used. Seventy-five Kangaroo Rats and Antelope ground squirrels were trapped following the same ground that the carbon bisulphide was used on. The work was started with ten men and five more were added on the 15th. No dirt was moved by the Soil Conservation during the month.

School of American Research

The WPA Project is still under way under the supervision of

Gordon Vivian. There have been about 200 cubic yards of dirt moved from the small ruin of Lay-Yit-Kin under the supervision of Miss Dutton and Miss James. This work was done in the early part of the month and there is no excavation going on at present.

Four hogans have been completed and two more started. Mr. Vivian moved his family out and they are occupying one of the new hogans and he says they work swell.

Mr. Vivian has only a small crew of 11 men now but hopes to get more in January.

Threatening Rock

The three steel bars that serve as gauges in the canyon wall and in the Threatening Rock were checked several times during the month. First check, November 14, by Engineer Hamilton and at that time it had shifted one-fourth inch. It is now obvious that this rock is sure to fall and destroy the finest prehistoric wall in the Southwest. Boss, don't you think it would be wise to have the Engineering Department make a study of this problem soon? It is believed that we should ask for the money to take this rock down.

Monument Inspections

Chaco Canyon was inspected six times during the month by the custodian. Mr. Lavender seems to have the Monument running nicely at this time.

Personnel

Jack Lavender was employed on November 21 as guide and will remain on duty until December 31 and at that time Mr. McKinney will assume duties as custodian at Chaco Canyon.

Yucca House National Monument

This Monument was inspected on the morning of December 23. No evidence of vandalism was noted. The fence around the Monument is in fairly good condition with the exception of one gate that was repaired on that date. Mr. Ismay was away from the Monument so was unable to contact any of the local people as to travel and so forth.

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CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

Probably the warmest and finest December this country has seen for a century was experienced. At least all old-timers say the finest they

have ever seen in more than half a century. There was no precipitation nor wind, just fine warm days and frosty nights. We are all praying for snow but our prayers go unanswered. But even at that I believe we are blessed with better weather than some they have down Alabama way, according to a conversation the custodian here had with a lady from Alabama recently upon being shown around the Volcano, she stated "I bettcha hit shore was hot around here when that thar critter was sploden"; and she says "Mister, bout how hot does hit get here in the summer time?" And the Custodian told her that maximum mean temperature ran around 98, whereupon the lady said "Mister, I don't know what you're driven at but I want to tell you that hit gits meaner than that in Alabama."

Many visitors have been to our Volcano this month; I estimate 800. This is due to the fact that all roads in the vicinity of this monument have been in excellent condition all thru the month due to lack of snow and rain.

The roads and trails on and in the Monument are in fair condition and have all been used very much this month. Even the camp grounds have been used this month as never before. Much highway building is now taking place in and near the town of Capulin, 20 miles west from Capulin now being under contract and construction. This will be graveled and oiled and the ten miles east of Capulin I understand is to be let under contract this winter. This, when completed, will make all pavement from the Gulf of Mexico to Canada thru Capulin and within three miles of our Capulin Mountain National Monument, and this three-mile strip is well graded, graveled and kept in excellent condition. This coming summer no doubt we will have plenty of travel to our monument. We are expecting fifty thousand this year.

A rather interesting find was made a few days ago by some local boys here, not on but near this Monument. In a cave two large silver urns, unused but possibly very old. Observation pointed out that they had not been used but have been hidden in this cave for many many years. Effort is being made by the custodian to date them and secure them for our proposed museum. They have been rather costly in their heyday and no doubt were prized very highly by their owner. They are about 15 inches high and seven inches diameter at the base. Each has the capacity of possibly three quarts.

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BRANCH OF EDUCATION

HEADQUARTERS STUFF

Robert H. Rose's Activities

The period of December 24 to December 31 was taken off duty on sick leave because of tonsillotomy. The remainder of the month was spent in the headquarters offices. From a personal standpoint I do not recommend a day before Christmas tonsil operation as the best possible preparation for the enjoyment of a sumptuous Christmas feast.

Cataloguing 1,200 spaces and 674 lantern slides, a project brought to 40% complete in November was finished in December. Now all slides are in the cabinet catalogued and in designated spaces while a card file for each slide has been prepared. With this cabinet under lock and key it is believed that the issuing of slides to field men and to travelling headquarters officers can be controlled satisfactorily. It will be possible to identify and perhaps replace broken and lost slides. About eight days were spent in completing this project.

This month marks the appearance of a second Special Report (No. 12) on the Kino Missions Research work done in Bancroft Library, University of California, by the writer last summer. The official reports by Bishop de los Reyes made following the Jesuit Expulsion of 1767 comprise the principal material of this report. The shaping up and improvement in translations of this material required approximately five days.

Incidental to the resignation of W. J. Winter as Custodian at Casa Grande and Al Bicknell, the new Custodian getting established, part time assistance during a total of seven or more days was given to contacts work.

Outside Lecture Contacts:

The following outside lecture contacts were made by the writer during the month of December:

1. Gila County Archeological Society, Globe, December 1, at 8:00 PM; Illustrated Lecture on the Kino Chain of Missions; attendance, 110.

2. Florence Union High School, December 3, at 10:20 AM; illustrated lecture on Kino Missions and activities of Padre Kino; attendance, students and faculty, 175.

3. Community Church group, Coolidge, December 6, 7:00 PM; illustrated lecture on Sonora and Arizona Missions; Young Peoples' group; attendance, 25.

4. Arizona State College, Tempe, December 9 at 8:00 AM; illustrated lecture on Kino Missions; attendance, 65.

5. Florence (Arizona) Rotary Club; December 9 at 12:10 PM; illustrated lecture on Kino Missions; attendance, 25.

6. 7th and 8th grade, Coolidge Public Schools; December 14 at 9:00 AM; two groups; attendance, 110. (Illustrated Lecture on Life of Padre Kino)

7. Masonic Lodge open meeting at Casa Grande, Arizona; December 17 at 8:00 PM; illustrated lecture on Kino Missions; attendance, 60.

Totals: 8 groups; attendance: 570.

This is the last report which I'll be making as a member of the Southwestern Monuments organization. Starting early in the new year I begin duties as Naturalist for the newly established Boulder Dam Recreational Area with office at Boulder City, Nevada. In closing this report I wish to express appreciation for the great circule of friends among Southwestern Monuments and to express the pleasure I have had in working with you. The new Boulder Dam area is but a stone's throw from some of the monuments and I feel sure we shall have the pleasure of having Southwestern Monuments folk through our new field frequently. So, after inserting my card in the Monthly Report Mailing List that I might keep in touch ever afterward with life among the monuments folk, I close with "Adios" to all.

Report of Junior Naturalist Steen

At Headquarters during the entire month with the exception of the period December 10 to 23 which I spent at Saguaro National Monument with Dr. W. B. MacDougal of the Wildlife Division. Made two trips to Tumacacori National Monument; one, early in the month to take some notes on Papago ceremonial material which was collected by George Boundey; the second, in company with Dr. MacDougal.

Junior Naturalist Dale King is on administrative leave; his position remains unfilled.

Gifts and Accessions

A lithograph of a Pueblo Indian was received from the Berkeley laboratories. This picture is being framed and will be sent to Walnut

Canyon National Monument.

34 books and pamphlets have been added to the library. These have been catalogued and will be listed in the January, 1937, report.

Phil Hough, Washington's Birthplace National Monument, donated a fine map of Mexico and Guatemala, dated 1834. The map shows the boundaries of Mexico extending as far north as Great Salt Lake, (listed as Lake Timpanagos) which is shown to empty directly into the Pacific Ocean by means of the Timpanogos River. A number of the Indian tribes of the Southwest are located on the map, but with no great accuracy. The spelling and location of villages and natural features are of interest.

Bird Banding

At the headquarters station only 17 house finches were banded during December. Four returns were recorded during the same period, two Gambel Sparrows, one Crissal Thrasher and one House Finch.

Milton Wetherill reports 149 birds banded during the month but did not mail in a list.

The report from Leonard Heaton at Pipe Spring lists the following birds with new bands; 11 Gambel Sparrows and 4 Song Sparrows.

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Educational Contact Figures (See table on next page)

In December the Southwestern Monuments had a total travel of 13,021 visitors which compares well with 8,525 for December, 1935. It does not mean that our visitor curve has risen as much as one would think at first glance. White Sands and Saguaro account for a large part of the increase and I think at White Sands we were too low in our estimates last year while we had no one in charge at Saguaro last year and so had no report.

We do, however, get a real increase at Casa Grande where the same checking methods were in use both years.

Of the 13,021 visitors, we contacted roughly 6,061 individuals or a little less than half. A little less than half of these 6,000 individuals were contacted a second time, making our total educational contacts at the monuments for the month 8,063. Lack of personnel accounts for the comparatively small number of contacts. A man stationed at White Sands could have given a great deal of information to the visitors and two men there would have been three times as valuable as one man.

We gave 1,019 guided field trips during the month which compares

STATISTICAL SUMMARY OF EDUCATIONAL CONTACTS FOR DECEMBER, 1936

SOUTHWESTERN NATIONAL MONUMENTS

MONUMENT	No. Employe		GUIDED TRIPS					MUSEUM TALKS					Contact.		Outside Lectures		Total Educ'l Contacts	Total Travel	Total Last Year
	Per.	Tem.	No.	Att'd	Time	Av. Att.	Av. Tm	No.	Att.	Time	Av Att	Av Time	No.	Att	No	Att.			
Arches																			
Aztec	1		104	483	3637	4.6	35.	107	459	1835	4.6	17.1					972	576	393
Bandelier			27	81	2200	3.0	81.5										81	227	130
de Chelly		No Report																	23
Casa Malpais	P																	800	500
Casa Grande	2		311	3052	10342	9.8	33.2	182	1253	3906	6.9	21.3		1900			4305	3052	2145
Chaco Canyon		1	21	39	1215	1.9	56	21	88	440	4.2	21.0					127	220	330
Chiricahua	1	2	7	13	990	1.9	142										13	213	120
El Morro	1		17	62	1395	3.6	82										62	75	
Gran Quivira	1		50	176	2800	3.5	56.2										176	176	306
Gila Cliff																			
Hovenweep																			
Montezuma	2	0	91	344	3424	3.7	376	91	395	1709	4.3	18.7					739	512	568
Natural Bridges																			
Navajo																			
Pipe Spring	1		6	15	120	2.5	20										15	90	214
Rainbow																			
Saguaro		1	88	253	3510	3.4	40										298	1000	
Sunset																			
Tonto		1	62	305	3086	3.3	99	62	197	964	3.1	15.5					402	252	362
Tumacacori	2		225	1233	7614	5.0	33.7										1233	1375	1311
Walnut Canyon		1																220	283
White Sands	P																	3864	1840
Wupatki		1	10	30	600	3.0	60										30	108	63
Yucca House																			
Headquarters															7	570			
Total this mo.			1019	6031	41366	5.9	40.5	404	2902	6856	6.2	19.0			7	570	8,963	13,081	8,525
Total this mo.			1299	7028	45773	6.1	35.2	691	3137	10455	4.5	15.1	201	1411	4	460	10,853	14,283	
Same mo. lst yr.			924	4769	46277	5.1	49.9	284	1508	5680	5.3	20.0	30	1793	1	20	6,972	8,525	

with 1,299 the previous month and with 926 for the same month last year. The decrease in number of trips from November to December is to be expected; the increase of nearly 10% in number of trips over last year is a little surprising at first glance but is largely accounted for by the increase in visitors at Casa Grande and Aztec. The total time used in these field trips this year for December is 41,106 minutes as against 46,277 minutes in the same month last year. With an increase in number of field trips we get a drop in total time expended. The average field trip ran 49.9 minutes last year, 35.2 minutes last month, and 40.3 minutes this month. The average party was just under six persons.

We gave 464 museum talks to 2,902 persons as against 284 talks last year to 1,508 persons. The average museum talk was 19 minutes this month as against 20 minutes for the same month last year and 15.1 minutes last month.

The tabular matter would seem to show that the boys were on their toes last month and delivered good service but that we lost good opportunities at White Sands and probably at Saguaro for lack of personnel. We have a situation at Casa Grande which is causing us some worry in the unattended museum visitors but we hope to solve it in the next month or two.

CLOSING

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One of the high spots of the Chaco Canyon report is the news about Threatening Rock. I agree with Carroll that it is time to call on the engineers for some suggestions, but I don't want to take the rock down if we can avoid doing so. We once had an idea of making one or more great steel arrangements like a letter H whose middle bar would be about fifteen feet long and whose sides would be about ten feet high. The material would be of I beam steel, say a ten inch beam or larger, and we would bury the side bars, one in the cliff top and the other in the top of the Threatening Rock, letting them into the rock four or more feet and burying them with concrete. It seems to me two or three such ties ought to hold the Rock and stop all movement except the expansion and contraction of the tie beams which might amount to a little more or less than a quarter of an inch and would not hurt anything. We will ask the Engineers to look into this and give us their ideas.

I am greatly interested in the new method of handling visitors which Carroll Miller is trying out at Aztec. It sounds very logical and will probably be more impressive to the visitor. I would like to urge on all of our men not to be afraid to experiment along any new lines which might occur to them in this matter of handling visitors. We don't know very much about visitor reaction and part of what we do know is probably wrong, so experiments are certainly in order. After Carroll decides which method seems to him to be the best we will try to work out some method of making

a numerical or time check which will allow us to show the results in some tabular form.

Note that interesting detail in Mr. Boundey's report from Gran Quivira about the results on six rattlesnake bits; all recovered except one who is still badly crippled.

Bud's report from El Morro shows what can sometimes happen in the life of a custodian and shows why the life isn't monotonous to say the least.

Sorry I missed Jerome Kendron's visit to Headquarters by being in Washington, but he had a chance to see how the wheels go round and they tell me he made a fine best man at the wedding.

We intend to call the attention of all our Historians to the Cabeza de Vaca problem which Tom Charles raises in his White Sands report this month. It is a most interesting problem and, as Tom points out, ought to be settled or we may have four or five Cabeza de Vaca pageants traveling as many different routes around over New Mexico financed by various Chambers of Commerce, all to the great consternation of the non-historic visitor of the 1940 celebration.

Casual reading of the Montezuma Castle report might leave the impression that Custodian Jackson is now separated from the Service. Such, however, is not the case; he is taking some forty-odd days of accumulated annual leave and, while not technically on duty, will be with us until the end of January. As a little side light on Jack, I might say that when we had some trouble in locating a temporary guide to relieve him, Jack told me over the phone that if we had no objections to his doing so he would much rather stick around during his vacation and help the boys out! So his annual leave is largely technical.

We are glad to welcome Jim and Margaret Felton into our organization as reported by Louis Caywood from Tumacacori. Historical work is a little new to Jim but he has proven himself adaptable in his work at the Petrified Forest and we are sure he is going to make good with us.

Note the interesting find of the two large silver urns in one of the caves in the Capulin Mountain region as reported by Custodian Farr. Here is another chance for the Historians to help us out in checking and dating these pieces for us.

And, as a last word to these comments and to keep the record straight, it is certainly fine to come in from a three weeks trip and find practically nothing waiting on my desk and nothing to do about this report except to check over the excellent work of Don Carlos and Luis, write these few comments and ruminations and then settle back into the routine of watching the wheels go round. We have a fine group down here and it certainly is turning out a lot of good work.

THE Supplement



BANCROFT LIBRARY RESEARCH

By Robert H. Rose.

INTRODUCTION

The November Supplement contained the first of a series of Special Reports covering research done at Bancroft Library, University of California, on original records of the Missions of Pimeria Alta. This first report dealt chiefly with names of priests officiating at various missions with dates and such historical notes as could be found. Important among the material contained in this report is a mimeographed reproduction of the Padre Kino Burial Record taken from "Libro de Entierros" of Santa Maria Magdalena.

There is sufficient additional material for another one or two Special Reports on historical notes, padres officiating, etc., which has been practically worked into shape for publication. However, in order to vary the subject material as the reports appear, the second Special Report (#12) has been organized about the official reports of Bishop de los Reyes as the material of central interest. Most of the following pages are taken up with translations from Bishop Reyes' reports.

These reports have been known to students of Southwestern history for quite some time and passages from many of them have been cited by various historians. It was thought, however, that translations of the complete reports on those missions of interest to us would be very worth while because having these complete translations in hand during trips among these missions makes possible minute checking up on historically important details.

Perhaps first in importance among historical items this month is the reference, page 427 this report, to the building of a church at Cocospera. Noted here we find "...in the visita of Santiago de Cocospera where the missionary lives at the present time, and where there is being constructed the church..." The writer visited Cocospera in October 1935 with the NPS survey party. At this time it was noted that the present beautiful structure is the ruin of an enlarged and remodeled earlier mission structure. The earlier structure reveals itself as an adobe building with plastered and decorated interior walls. It seems that this adobe church is the building that was under construction in the early 1770's when Bishop Reyes is writing. The extension in front and rear of this adobe church together with the remodling of the interior, done in burned brick and plaster, were probably accomplished in the very late 18th or early 19th century. No specific reference was found on this point.

A second item of great interest is found on page 431, this report. In the report of the Scientific Commission to Puerto Libertad we find reference to the fact that construction on Caborca Mission was started in 1803 and completed in 1810. Since Fr. D. Tomas Robinson, Chief of the Scientific Commission, is writing of an expedition made in 1861, this would place the construction of Caborca Mission some 50 to 60 years prior

to the work of the Commission. It would be interesting to find other records more nearly contemporary with the actual building of the Church.

Present day visitors to Caborca note the appalling damage being done to the rear of the church by the incessant battering of the river. On page 433 of this report we find Fr. D. Tomas Robinson refers to the river and the damage it is doing. He states that formerly the stream ran in a channel some distance away and that it changed its course as a result of a great flood of the river happening in the year 1828. He further infers that the damage had not yet started in 1828 for he says that "..the church with this change being the nearest to the point of deviation, would be endangered in some new flood, and it would be desirable as a work of public welfare, that the Minister of Promotion, Colonization and Industry, would take it under his exalted consideration." All of the damage we now see at the rear of the church has apparently been done by floods subsequent to the inundation of 1828. Thus, we make two observations of interest; Viz., (1) in the 108 to 109 years past the damage observed has occurred; while (2) it is of intense interest geologically to observe how much transformation has occurred in the meander loops of this river in the period of slightly more than 100 years. Of further interest is the fact that in these 108 to 109 years the Minister of Promotion, Colonization and Industry has apparently not taken the matter of altering the stream to its original course under his high consideration.

Because of its interest in helping us spot the location of the earlier San Xavier Mission I am including in full the article by Rev. Father Mark Bucher, which appeared in the February 1936 number of the Hispanic American Review. No translation was involved in this article so it appears exactly as written.

On Page 427, this report, we see reference to Tumacacori as follows: "The town of San Jose de Tumacacori is situated seven leagues south of Guevavi, and one from the Presidio of Tubac..." This would just about describe the location of Tumacacori as we know it today. Again, on page 426, this report, we find "...The mission of Guevavi with three visita towns, is the most easterly of Upper Pimeria; to the east (oriente) at a short league from the town of Tumacacori is situated the Presidio of Tubac; to the west (occidente) at a distance of 12 leagues, the Mission of Suamrica ..." According to this last note, for Tubac to be located a short league east, Tumacacori at that time would have to have been situated a short league west of Tubac. This would describe the location of Tumacacori as somewhere along the flanks of the Tumacacori Mountains and in one of the valleys that opens out just west of Tubac. Since there is a discrepancy in describing the location of Tumacacori, between pages 427 and 427 this report, and since both references are from Bishop Reyes, one or the other is in error. It would be well, however, to explore thoroughly the canyons and mountain flanks west of Tubac because to date nobody seems quite sure of the location of the original Tumacacori Church of Kino's day, or of any church that might have within a few decades replaced this Kino Church. I call attention to these two varying descriptions in location in the hope the someone may do a little scouting.

CUCURPE

Reyes - July 6, 1772 (Los Santos Reyes de Curcurpe) P.749-
Pimeria Baja (Lower Pimeria)

The Mission of Cucurpe is the last and most northerly of these which are commonly called Lower Pimeria and the province of Sonora. At the present time it is reduced to a lone (sole) visita town, due to the other town's, named San Juan Bautista de Saracache, having been abandoned by order of the governor of the provinces. The soil of this abandoned town is very advantageous and the most rich in minerals of the province; in the year 78 (Is this an error and should it be 1768 and not 1678?) some gold and silver mines were being worked, and it was peopled with nine storekeeper's shops, and one hundred and thirty-seven families of Spaniards and "gente de razon." Of Indians native to the town it is evident according to the censuses: that before (the town's) becoming a mining camp there were forty-eight families; but at the time of the abandonment in the year 70 there were left only five families who congregated in the visita town of this mission of Cucurpe. All the land of this mission is continuous, broken, hilly country and ravines barren of trees for building (purposes) and of small valleys and level lands ("planes") for tilling and sowing. To the East at a distance of fifteen and twenty leagues this mission borders upon the towns and missions of Banauchi and Arispe, belonging to the Valle de Sonora. To the west all is deserted land up to the California Gulf thirty leagues distant more or less. To the south fourteen leagues (away) is situated the preceding mission of Opodepe, and fifteen leagues to the northwest (is) the mission of San Ignacio of Upper Pimeria.

DELORES: 750 -

In order that one may understand the actual state of Cucurpe Mission, it is necessary to mention, that four leagues north of the town of Cucurpe, is found situated a small farm of Spaniards and "people of reason" - who say they bought, or had given to them, all the land occupied by the towns and the old Mission of Delores which Padre Eusebio Kino administered for many years, and (which) served as a yardstick (model) and base for settling and establishing the missions of Upper Pimeria. This ancient mission is the one which is now called (the) town of Delores, whose fertile and extensive lands are divided up among farmers, who for the cultivation of their farms, (and) help with their cattle, admit and give a share to as many evil-doers and vagabonds as care to accommodate themselves. Of "Hiaquis" (probably Yaqui) Indians, alone, the missionaries of Cucurpe have counted sometimes thirty-five families who were publicly regarded as married, almost all being Indians fugitive from their villages and thieves and whomen unfaithful to their husbands; with this liberty some deviltries increase notedly in this town of Delores, where there is no longer a church nor a minister, as this missionary of Cucurpe administers to them, without the least bit of interest, the holy Sacraments and performs the offices and burial services (interments) when, they bring the dead, in order to bury them in lands of the mission. This disinterest is common (general)

and notorious with all of the missionaries of the college of Santa Cruz with the Spaniards and "people of reason" who live in the missions, in mining camps and farms (which), although they may be very distant, always when they are called help quickly; and if some died without the holy sacraments it was because they did not give notice in time, or because they did not want to enjoin in the known risk and danger of those frontiers and enemy lands. The missionaries do not find reason to obligate the Indians of the mission to accompany them. They serve in this continual and painful administration of the towns, farms of the Spaniards and "people of reason", and for (the occasions) when these die, only the Indians serve as pall-bearers, to dig the graves, and set the tombs in order to bury them; and, finally, it appears to be against reason and justice, these Spaniards' and peoples neither serving nor supplying with the least thing for the construction and maintenance of the churches of the missions. They solicit and desire to be the only ones to have the right of burials, (and) reserved (designated) sepulchers within the temple, and that the Indians of the town should be buried in the striums or cemeteries; but the Indians have to do all this and the missionary has to conform, if he does not wish that they should slander him with the accusations and complaints which these residents (neighbors) of Delores have made several times against the missionary of Cucurpe, writing to the governor of the provinces "that the Padre-missionary wishes to order all that which is the royal jurisdiction; that he offers resistance to the decisions of the governor and orders of the King; that he is the enemy of the Spaniards and of "people of reason" and other tales which they have skillfully fabricated and (which they) know are listened to with pleasure.

CUCURPE - Cont. P. 751

The town of Cucurpe is situated on a highland or plateau hard by a stream which in rainy season runs turbulently. It is entirely surrounded by mountains and high, useless, barren hillocks, and only on the northern side does it have a narrow valley with good lands where the Indians cultivate, and work their individual plots of wheat, corn, chickpea and other seeds; but they are (involved) in continual disputes with the residents of the neighboring town of Delores, who aspire to and say that the limits of their town will be extended very near to the plots of the Indians of Cucurpe. The Padre Nicolas de Perera, Jesuit missionary, in behalf of the Indians, bought for the sum of six hundred pesos the lands of a ranch which were in between the farms of the Indians and the lands of Delores; in their claims (pretensions) and contentions with the Indians of Cucurpe, this means had not been sufficient to curb those of Delores. Those of Cucurpe are of the Eudebe and Opata nations, similar in tendencies and customs to their neighbors and relatives of the preceding Mission of Opodepe. The church of the town is ornamented inside with two tiny collaterals and four altars with various paintings or several (pictures) and (lienzos) linen hangings with their borders gilded. The structure of earth has roofs of good wood and straw, and the sacristry has four

chalices, a custodia, a large drinking cup, a high cross, processional candleholders, an incensory, a holywater pot, four candlesticks, and a lamp, with other little adornments all made of silver, vestments (ornamentos) of all kinds and colors, with (the) decorations sufficient for altar and divine worship. The house of the Padre-Missionary forms an inner patio (court) with the church; (he) has an ample and adequate dwelling, and corresponding offices; the structure of earth, and although it is new, ruin is threatening some (of the) dwellings and offices. The settlement of Indians appears to make a plaza with the church and missionary's house; some have constructed their houses of adobes, but very squatty, and so little elevated that they do not attain the average height of a man; they are generally very poor in furniture and temporal goods. The most diligent and energetic ones have yokes of oxen. During these last years they have been spoiled by wandering over sandbanks neglecting to plant or cultivate their plots, for which they have suffered many needs and hungers. Owing to the shifting about of the Indians, the women are the ones who work in their individual plantings, but due to this method, although it meets the necessity, there arise great ills and injuries because being a frontier of enemies, these are able to kill and steal at will, and the Indians continuing in their disordered liberty there is no one to till the soil and defend the town, and it will be necessary to abandon it to the enemies. By the census which I have now there must be seventy-three families, four widowers and nineteen widows, twelve orphans, and the (total) number of souls is two hundred eighty-six: almost all understand and speak the Spanish language, and those who are willing to attend (the teaching of) the catechism are fairly well educated. The communal properties (temporalities) of the Indians are five hundred head of sheep, sixteen (head) of cattle, nine horses and mules, some ranches or small farms where they say there are wild cattle (being) raised belonging communally to the mission. They sow a plot of wheat, corn and other seeds and an orchard of trees adjoining the house of the Padre-Missionary; some Spaniards live in this town and many families of those who are called "people of reason" ("gente de razon") and in some years the number of these is greater than that of the Indians of the town.

TUAPE (San Miguel de Tuape) 752.6

The town of visit San Miguel de Tuape is situated on the flat top of a hill above the arroyo, seven miles south of the preceding town of Cucurpe. The next year of seventy, a terrific freshet of the river carried away all the lands and orchards of the natives of this town, so that at present there are none, nor does this town have lands for tilling and sowing within a distance of two or three leagues; they are of the Eudebe and Opata nations, speak their own language and very few understand the Spanish; generally, they are ill-inclined, idle and disobedient to the counsels and corrections of the Padre-Missionary. The children and some (of the) old people know the catechism and principal tenants of our holy religion, but the rest, because they are not willing to attend the teaching of the catechism, are ignorant of the necessary

(knowledge) with the (consequent) necessity of a medium in order to be able to save themselves. Almost all live needily, hungry, (starved) and naked. The church is large, the construction is of adobes (unburnt sun-dried bricks) roofed with straw and earth. Inside (it is) ornamented with two collaterals of linen, their borders gilded. The sacristry with two chalices, and a silver case; five chasubles, a white prist's gown, an amice, and other ornaments of altar and divine worship all very old and almost unserviceable. The house of the Padre-Missionary was ruined completely this next year of seventy. The town of the Indians composed of scattered huts and tiny houses of adobes is situated in the flat top of the aforesaid hill. By the census which I have now there must be forty-eight families, three widowers, twelve widows, and the (total) number of souls is two hundred twenty-eight. The properties (temporalities) or goods which are communal, are seventy head of cattle, a small planted field of wheat, corn, and an orchard of trees, whose fruits, although it is said they are for the Padre-Missionary, belong in common to the whole town. This is the present day state of the Indians and missions without any omission of any information for personal and material reason.

GUEVAVI

Documentos para la Historia de Mexico

Page 582: - F 1203 - D63-3 Ser. X

From Guevavi we took Southward along the Las Bolas Road towards the missions which remain (falten) and it is through a ridge of mountains whose pass is about ten leagues from Guevavi towards the south; and from Bolas we arrived two leagues farther to Agua Caliente, the old capitol, but at present very small, because of having been destroyed and having had killed a number of its residents in the uprising. (That) from here to Saric, (head) headquarters of the Mission of this name, with protection of Nestra Señora de los Dolores, along a southwesterly direction, five leagues through the town of Bussani, visita and station of this mission, two leagues distant from its headquarters, which is located at 31 degrees 56 minutes of latitude and 262 degrees 56 minutes of longitude. The Padre Miguel Gersmer works there (in the mission); he has three visita towns, the one which we already saw from Bussani; another about a half a league from the capitol, Agua Caliente, to the northeast; and the third located at two leagues to the east. In Saric the uprisen (Indians) killed sixteen people consisting of eight Spanish men and the remainder women and children on the night of November 20 of 751 (1751), and the Padre-Missionary on information which he had received succeeded in leaving a half hour before they searched for him at Tubatama, seven leagues away to the south, which is the headquarters of the Mission which follows.

Tumacacori - (F 1203 - D63)
(3 Ser x)

Page 582: "Doc. para de la Hist. de Mex. Chapter VII & IV
Reyes in 1764

"Here we move to travel another thirty leagues south, to the royal Presidio of Tubac, where we will be able to rest and, in the afternoon, to move on to Tumacacori and Calabasas, two other towns of Guevavi, on the "Guassdan Pima" or "agua grande" which is the principal part and is found in 32° 28' latitude and 263° 12' of longitude. Its missionary (is) the Padre Custodio Ximeno. (It or he) has three towns of visit which we already saw from the road, Bonostac, Calabasas and Tumacacori. The first is ten leagues distant to the northeast; the second four to the north and the third seven to the northwest; about one league from the Presidio (is) the fourth which it has, and it was called "Arivaca"; together with its locality the Pimas devastated it in the year 751 (1751), and it used to be about twelve leagues from the headquarters. There is a gold mine near to this town and several silver mines, and they are worked at the present time."

(This note on Tumacacori by Pinart is translated from the French and is placed here for comparison purposes.

Tumacacori: F 811 P 64 "Voyage Dans L'Arizona"
by Alphonse Pinart.
Excerpt from the Bulletin of the Geographic Society
Paris - March 1877. (Translated from the French)

Page 14 -

Having concluded my observations at the Casa (Casa Grande), I left Mr. Walker on the 18th of February (1876) and arrived at Tucson, the capitol of the territory of Arizona, on the morning of the 19th. Tucson does not present anything remarkable, if it were not that it is the first town built by the Spaniards in Upper Pimeria and owes its existence to a mission where the ruins, are seen still on the left side of the town. This one here (Celle-ci) is built American style and preserves all the originality of this population. After Tucson I visited the Mission of San Xavier del Bac where there is found a magnificent church still in good condition and built by the Jesuit missionaries during the course of the last century. It is also at San Xavier that there is found the principal village of the Papago Indians, allied to the Pimas and speaking their language. I took the direction to the south from there, attempting to penetrate into Sonora and visit the two ancient missions in ruins at Tubac and Tumacacori: I arrived near to the Sonoran town of Santa Cruz, but there difficulties presented themselves, and by reason of revolutions which were desolating this unfortunate country, I had to retrace my steps.

(Has desc. Casa Grande also)

TUBUTAMA

Page 583 "Documentos para de Historia de Mexico."

1. Its missionary is the Padre Luis Vivas, (who) has a visita town two leagues to the Southwest. Another four leagues farther in the same direction, comes the town of Ati, headquarters of this mission.....Due to the death of its Padre-Missionary Jose Hafenrichter, he administers this mission pending the arrival of a successor from Mexico. Padre Luis Vivas administers it with its visita Uquitoa three leagues away in this same direction; as also Niterin administers to the extent of his ability the Mission of San Miguel de Sonostac, where the Pimas killed, in the year already cited, Padre Enrique Ruen. Near Uquitoa there used to be a silver mining town in which on the night before the 21st day of November 757 (1757) the besiegers cruelly put to death Bomesario and some other Spaniards.....

....Padre Antonio Maria Beroz cultivates this mission (Caborca).... with its two visita towns Pitic which we saw, and Bissani eight leagues further to the southwest (the direction of nearly this whole river) and about twenty leagues from the ocean....

In Caborca there had died at the hands of the besieging Pimas two Padres of the Jesuit order, in the year of 1694, the Venerable Padre Fr. Javier Saeta; and in 1751, on the 21st of November Padre Tomas Tello; at the same time they cruelly put to death Padre Enrique Ruen in San Miguel de Sonostac, about fifty leagues to the northwest of Caborca.

OPODEPE

(Mission de Nuestra Señora de la Asuncion de Opodepe)
746 - Doc. Para de la Hist. de Mex. 3d Ser.

The mission of Opodepe with a visita town is situated on the banks of a stream which runs north (and) south between hills and has small plots of level ground for tilling and sowing; to the east, fifteen or sixteen leagues distant are situated the towns and mission of Aconchi; to the east, at a distance of eight leagues, is situated the ruined and destroyed mission of Populo where the Seris used to live stably prior to their rebellion and uprising of the year 40 (1740); to the south, at a distance of twenty leagues, is situated the mission of Ures, and fourteen leagues to the north, the towns and mission of Cucurpe, and on account of the Seris having revealed themselves, the Synod of the mission of Populo determined and assigned that there should be established a missionary in this one of Opodepe, with its visita town.

The town of Opodepe is situated on the mesa of a hill adjoining the stream which runs narrowly encased (encajonado) between a nearby mountain to the west, and the "plan" (Table land) on which the town is situated;

all the neighboring land is barren and has no level ground for tilling and sowing. The good lands which are somewhat distant in a northerly direction, have been taken and appropriated to themselves by twelve or thirteen families of people of reason, who are established in a ranch which is commonly called El Realito; at a short league from this town of Opodepe to the south at two and three leagues there are some level lands adjoining the stream with good soil, where the Indians go to sow their individual plots of wheat, corn and other seeds; in the environs of the town and on shores of the stream some Indians have their tiny orchards with figs, peaches, quinces, pomegranates, and other trees and fruits; the church of this town is being constructed of adobes (while) at the present time a bower with vestibules (porches) of the house of the Padre-Missionary serves as a church. This (the house) is composed of a patio and two inconvenient (uncomfortable) dwellings of which one serves as a sacristry. The adornments and service of altar and divine worship are two chalices, a high cross, processional candle holders, incensory, a lamp, "azetre", and an all silver baptismal case, three new vestments of gallooned (braided, trimmed) cloth, with some other ordinary ones of all kinds and colors. The Indian village is situated on the "plan" of the same hill, its houses badly disposed (placed) and embowered. The Indians say that they are of the Eudebe and Grata nations, but in reality they are a deviation and composite (mixture) of Spaniards, (mulatos) natives (coyotes) and other breeds. These crossbreeds, which almost all who are registered (included in the census) in the town are, wish to be Indians, so that the priest of the locality should not ask and collect his dues and prequisites, so that the Padre-Missionary should administer, should aid and rescue them in their needs; but they do not wish to be commanded and governed like Indians, nor do they obey the corrections and counsels of the Padre-Missionary; from this original cause there result many ills and gravest disturbances; it is impossible to instruct and indoctrinate them as they require (need); they are of a lively temperament, generally understand and speak the castillian tongue, and solicit clothes to dress themselves with but they are very poor in earthly (temporal) goods; they do not have furniture and their possessions reduce themselves to the small town plots which they harvest and sell immediately or barter for cloth (dry goods) to dress themselves in, and they are always in need of maintaining themselves on the communal goods of the town, or living wandering and (searching) looking for gold in the placers. In the spiritual realm, they generally are ignorant of Christian doctrine and of the principal mysteries so that of necessity they must know (or be instructed in) of a medium in order to save themselves; they have gotten into the habit during these last years of many vices, principally of inebriation, because of the neighbors' and people of "razon's" having instructed them and shown them the method of making (concocting, composing) mescal and rum (chinquirito) from lees of sugar and other drinks which previously the Indians of all these missions were ignorant of, and because this vice and license the missionaries have pitiful experiences. By the census which I have now there must be seventy families, twelve widowers, eight widows, fifteen orphans, and the [total] number of souls two hundred

fifty-seven. The communal properties (temporalities) are a ranch (farm) or plot of land where it is said there are some cattle being raised, thirty or forty head of sheep, six or seven teams of oxen (Yuntas-yokes de bueyes - bulls), fifteen or twenty cows and ten or twelve beasts (probably of burden; i.e. horses, mules, donkeys), a fruit tree arbor (orchard, garden) adjoining the house of the Padre-Missionary, and a small plot which they cultivate communally of wheat, corn, kidney bean, "lanteja" and chickpea (garbanzo); the Spaniards, mulatos and other breeds established in this town are many, and seemingly will be (number) more than thirty families.

748.5 -

The town of visit of Nuestra Señora del Rosario de Nacameri, seven leagues to the south of the preceeding one of Opodepe, is situated on a high land next to the river. To the west (it) is surrounded by high hills and mountains barren of trees for construction (purposes). Between east and south this town has an extensive valley with (of) good land for tilling and sowing. The nearest and best have been appropriated by many (Span. I presume) residents and people of "razon" who are established in this town, and the Indians sow little (land) or none, and in truth they are not to blame, because they are a very small number of families. The native Indians of this town which according to the census appear to have twelve families, are the only ones who have to bear the burden of attending and serving in what is necessary to the Padre-Missionary; of keeping up the communal houses; serving and giving escort to the (continual) mail couriers (possibly passengers of the mails) in order to deliver to their destinations the letters of the royal service and private ones; and, finally, of many other burdens to which the Indians who are of the mission, alone are obligated; and although there are Indians of other missions or gentiles of the frontier nations who serve in the capacity of slaves to the Spaniards and "people of reason" this is the cause which moves the nations of some towns to press (insist on) and beg the sacking of (the) mission rule because as they are simple (souls) it appears to them that by this means they will see themselves free from these burdens and (mis) treatments like the"people of reason". In this town the church and the house of the Padre Missionary are completely ruined. In order to celebrate the holy sacrifice of mass and to administer the holy sacraments, there is a chalice, an incensory, and an all silver (probably baptismal) case; there are three vestments of various colors, with other adornments, very old and almost unserviceable. By the census which I have now there must be 12 families, two widowers, a widow, and the (total) number of souls thirty-four; they are of the lower Pima nation; they talk their native tongue and some understand the Spanish tongue. All are very poor in furniture and (temporal) earthly goods, and some are very ignorant and backward in the catechism and Christian Doctrine. The communal properties are three or four hundred sheep which belong to Opodepe and there are in this town due to the goodly size of the pastures, three or four teams of oxen, and the fruits (harvest crops) of a small plot of wheat,

corn and other seeds. There live in this town more than fifty families of Spaniards and "gente de razon."

SAN XAVIER DEL BAC F 1203 D63 3d Ser. X

(1) "Documentos ... Historia de Mexico "FrAnt°. de los Reyes - July 6, 1772.

Page 756 #15

"The town of San Xavier del Bac is situated on a plain, abounding in water and good lands, where the Indians sow some small plots of wheat, corn and other seeds; the church is of moderate capacity ornamented with two collaterals of linen with their gilded borders. There are the (sacristry) vestry with four chalices, two of them unserviceable, a custodia, an incensory (a thurible), an extra conventual dish, and some all-silver mass wine vessels, four vestments of various colors, with other adornments of altar and divine worship, all very poor. By the census which I have now there must be forty-eight families, seven widowers, twelve widows, twenty-six orphans and the total number of souls is two hundred and seventy.

"The visita town of San Jose del Tucson is situated six leagues north of San Xavier. It has neither church nor a house for the missionary. Because of the fertility of the soil, a large number of Christian and Gentile Indians are united and congregated in the form of a town. It has not been possible to make a census, but it stands to judgment (reason) that the heads of families are more than two hundred."

Pimeria Alta (Upper Pimeria): Reyes - 1772

#15 P. 754 - Doc. para de la Hist. de Mex. - 3d Ser.

Speaking of the missions of Pimeria Alta, Reyes says: (754) 754.9 "The churches and dwellings of the missionaries are all constructed of adobes, roofed with timbers, straw and earth. The towns adjoin the churches, but are composed of scattered huts and poorly made native dwellings. Some Indians,in order to please the missionaries, build some houses of adobes, roofed with straw and earth; they plant very little; and in order to cultivate and benefit by their individual plots it is necessary that the Padre Missionary provide them with seeds, axes, hoes and all that is necessary, and if these are lacking (755.2) there is no planting.

"755.8 In the first survey (perhaps a report) it is observed that these missions, towns, and presidios of Upper Pimeria, are situated almost on the same parallel between 31 and 32 degrees north latitude, but it is necessary to note that the three missions of San Xavier del Bac, Guevavi and Suamrica, which occupy the most easterly land are higher

(either in north latitude or altitude?) than the five remaining ones situated to the west; and in order to proceed with clarity I shall arrange the description in the following manner:

(San Xavier - Guevavi, etc.)

PITIQUITO - (San Antonio del Pitiquin)

P. 765 - Reyes.

The visita town of San Antonio del Pitiquin, two leagues east of Caborca, has neither church nor missionary house. By the census which I have now there must be 75 families, 8 widowers, 11 widows, and the (total) number of souls 370.

The visita of San Juan Del Bisanig, six leagues west of Caborca, has a church and a house for the missionary, but is devoid of ornaments and furniture. The Indians, although they have good lands, plant little or nothing, and have a great predilection for fishing in the estuaries (inlets) and shores of the sea, eight or ten leagues distant. By the census which I have now there are sixty-three families, 11 widowers, eight widows, six orphans and the (total) number of souls 271. In this mission and the towns there have recently recongregated some families of rebels who were reduced in this last campaign; and by the letters of the padre missionaries it is known that at the beginning of this year of 72 some of these rebels were deserting and running off to the hills (cerros).

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The river Gila runs from east to west directly opposite these towns of Pimeria, until it empties into the famous Colorado River which runs its course from the north, and united, these two rivers form a bow deflecting to the south, emptying their waters into the upper part of the Gulf of California. In the area of land which the missions bound, together with the two cited rivers and the sea of California, there are found settled the Sobaipuris Indians, the Papagos, the Yumas, the Guaicamas, and the Cocomaricopas, and all gentle; and they have manifested great love for the missionaries, especially for Padre Garves (Garcés?) missionary of San Xavier del Bac who has visited them often; and they have requested (him) that he should come to live with them and bring other poor Padres, similar to Padre Garves, towards whom they had attained a great inclination and affection. Of all these nations or factions the one of the Papagos who are settled at short distances to the north of the missions, is the most numerous. These Papagos, part gentile and part Christian, speak the same language as the Pima Indians; from the towns and with the proper arrangements, the Padre Missionaries can gather them and reestablish and augment the missions of Upper Pimeria whose present day state (or poor condition) remains annotated clearly and truthfully.

1. Mexico, July sixth, seventeen twenty-two - Fr. Antonio de los Reyes

Note:

2. This reverend father was then the first Bishop of Sonora

(1 & 2 above apply to the accounts of all of the missions copied thus far. Cucurpe is in another section.)

TUBUTAMA

Page 76 - 4th Ser. Doc. Hist. Mex.

Reply

Which Padre Jacobo Sedelmair gave to the charges which the Padre Inspector General made against him.

"I entered as missionary in Tubutama in the year 1736; and in the twelve towns which were entrusted to my administration I did not find a single decent church or cemetery, and the majority of the towns were without houses, with few people present; and so it is true that taking the people out of their mountains (wilds) and gathering them together, I made them build in each of the seven main towns a church, construct and fence the cemeteries, and in eight towns I built a house for my subsistence, while all the time, not staying in one place, I went visiting these towns for their administration and for the teaching of the catechism which they need so much. These churches, cemeteries, and house, I built, constantly changing the Pueblos (crews of workmen) for the work; and with the roaming Papago Indians, gypsies and good for nothings who came down to work gladly, who ordinarily seemed so hungry as to appear as skeletons, and at the end of five or six weeks some of them returned to their lands fat, and others came. In this construction work their manner of work was: to gather between eight and nine o'clock and to quit about four; those who dig the ground do it seated; they carry two baskets of mud in their hands; they sit down to rest, and the same with the others; but something was accomplished with them, because of their being many. This construction work was done during the most leisure times, and when the Indians were not busy with their corn crops."

70.3 - "I now refer to the land situation: I say, and it is the truth, that since I gathered so many Indians at Tubutama, following my instructions in the harvests, I was assigning the Indians the best lands or very good ones near the town with all its conveniences, under the (irrigation) channel of the church, and above a tableland -- I was lending to them very often, and to others, the axes with which to open up (new) lands, never (not) occupying them with other things at those times; so that the town of Tubutama, by my direction and benefaction was seen (very)

much improved even in the dry farming (temporal) of the Indians; and other pieces of land, in this area, they always sowed them for themselves in addition to their own lands, of which I am not in charge, which doesn't worry me since I had not taken them away from them piece by piece, neither good nor bad; and I say that in order to liquidate this (situation) I would have to go to Tubutama to see the strips (of land) which they say were theirs and which I took from them: I say, in particular, of the Indian Ciprian that he is not (a native) of Tubutama but that I converted him to Tubutama together with his village which was of about sixty heads (of people) whose children and adults I baptized; as if for myself I built at my cost in the town a decent house of adobe, beams and flat roof, enabling them of his village to sow, and assigned them land; and thus do not know what lands Ciprian had in Tubutama which I took away from him. I have taken nothing from him; considered and reconsidered I say so, that the Indians have the habit of saying that lands loaned to them and then taken back by the original owner have been taken away from them. But even so Ciprian is not in the right, because if I had taken back from him a piece, I always loaned him another, just as I made loans to so many others; and how come this same Ciprian found so much new land to cultivate, according to what I've now found out in Pimeria, and before he had not done so?

GUEVAVI

(Los Santos Angeles de Guevavi)

Page 757 - Doc. para la Hist. de Mex. (3 Ser.) July 6, 1772.

The mission of Guevavi with three visita towns, is the most easterly of Upper Pimeria; to the east (oriente) at a short league from the town of Tumacacori is situated the Presidio of Tubac; to the west (occidente) at a distance of twelve leagues, the Mission of Suamrica - to the south at twelve and fifteen leagues the missions of the Valley of Sonora, and to the north the preceding mission of San Javier.

The town of Guevavi is situated on level and fertile land, adjoining a stream with good lands, where the Indians cultivate their individual plots of wheat, corn and other seeds, and a small communally sown plot. The church is interially ornamented with two altars and a tiny collateral of linen with gilded frames; the vestry with three chalices, two conventual dishes, and mass wine vessels. There are also a custodia, a large cup (drinking vessel or ciborium), a thurible, an incensory, an all-silver case, vestments of all kinds and colors with other adornments of altar and divine worship. By the census which I have now there must be nineteen families, five widowers, seven widows, twelve orphans and the total number of souls is 86.

The town of San Cayetano de Calabazas is situated two leagues east

(oriente) of Guevavi on a plain with good lands, but the Indians plant it little or not at all. There is neither church nor a house for the missionary. By the census which I have now there must be seventeen families, four widowers, seven widows, and the (total) number of souls is 64.

The town of San Ignacio of Sonoitac is situated in a valley encircled by mountains, six leagues east (oriente) of Guevavi and two from the preceding town of Calabazas. The lands are many and good ones for tilling, but the Indians cultivate them very little. The church and house of the Padre-Missionary has no adorned ornaments nor any furniture; when the Padre comes to this town and the other visitas to administer (them) he brings along all the necessities from the town of Guevavi. By the census which I have now there must be 18 families, 20 widowers and single men, 12 widows, and the total number of souls is 94.

Tumacacori: Page 758

The town of San Jose de Tumacacori is situated seven leagues south (al sur) of Guevavi, and one from the Presidio of Tubac, on a plain and with good lands. In this town there is a church and a house for the padre-missionary, but they are nude of ornaments or furniture. By the census which I have now there must be 22 families, 12 widowers, 10 orphans, and the total number of souls is 93.

Suamnca (Santa Maria de Suamnca)

Page 758:

This mission and town of Suamnca was attacked by Apache enemies in the following year of sixty-eight. They burned the church and houses of the mission and reduced them all to blood and fire. By the will of the savages the Padre-Missionary was saved, who, gathering some men, women and children, took refuge and gathered in the visita town of Santiago de Cocospera where the missionary lives at the present time, and where there is being constructed the church; but the soil of this town is infertile and there is a lack of water, due to which the Padre-Missionary and the Indians native to Suamnca have made repeated petitions to reestablish their ruined town which used to stand in a spacious valley with good lands for tilling and planting, five leagues from the Presidio of Terrenate. This is the present situation of the mission of Santa Maria de Suamnca whose natives, united with those of the visita town, comprise the number of 30 families, five widowers, 20 widows, and the total number of souls is 110.

Note: In the above account we find the following:

> ".....in the visita of Santiago de Cocospera where the missionary lives at the present time, and where there is being constructed the church....."

On the occasion of visiting Cocospera Mission in October, 1935, it was noted that the present structure is the result of remodling and extension of an earlier adobe mission building. The plaster could be discerned on the inner walls of adobe. Apparently at some later time burned brick and adobe were used to remodel the interior of the adobe church and extend it on the front and on the Sanctuary end.

Judging from the fact that other mission structures like Caborca, San Xavier and Tumacacori are early 19th century structures, the remodeled and extended mission at Cocospera also probably dates from the early 1800's. If this is the case then the church referred to above as being under construction in 1770 at the time Bishop Reyes is writing, was the earlier adobe church.

San Ignacio (San Ignacio de Caburica)

Reyes - 1772 (Doc. para la Hist. de Mex.) 3d Ser. - F 1203 D 63 X

Page 759

The Mission of San Ignacio with two visita towns is situated in a spacious flat lowland surrounded by high mountains; hard by the towns there runs a stream which offers easy irrigation for the many and good lands of these towns. To the east of this mission at a distance of 12 leagues is situated the town of Cocospera of the ruined mission of Santa Maria of Suamrica. To the west with some deflection to the south at a distance of five leagues are congregated some Spaniards and "Gento de Razon" in a small farm or stock raising ranch of cattle and horses which is commonly called the Santa Ana Camp, without a church or minister of the gospel. To the south with some deflection to the east is the mission of Cucurpe, fifteen leagues distant, and to the north the gentile nations and all the known land up to the river Gila.

The town of San Ignacio is situated on highlands surrounded on the north by high mountains. The Indians cultivate their individual plots and also communally plant corn, wheat, beans and other seeds. The church is interiorly adorned with three tiny collaterals. The sacristry has four chalices, four candlesticks, a custodia, a lamp, an incensory (censer) a wafer cup, and an all silver baptismal case, vestments of all sorts and colors with other adornments sufficient for the altar and divine worship. The house of the Padre-Missionary adjoins the church, but there were ruined during the next (proximo) year of '70 (1770) several dwellings and offices adjoining the church. The house of the Padre-Missionary has a large orchard with many choice quince trees, peach trees, and pomegranates, and due to the lack of cultivation there has been lost a good vineyard. By the census which I have now there must be 36 families, four widowers, seven widows, 15 orphans, and the total number of souls is 148.

Imuris - Reyes - July 6, 1772

The town of San Jose de Himuri three leagues east (al oriente) of San Ignacio is surrounded on the west and north by the mountains; it enjoys good lands, but the Indians work little or not at all at cultivating them.

The church and the house of the missionary are almost ruined. The ornaments of the altar and divine worship reduce themselves to a chalice, three chasubles, two white priest's gowns, three amices and other adornments, everything old and almost useless. By the census which I have now, there must be seven families, six widowers, nine orphans, and the total number of souls is 39.

Tubutama
(S. Pedro Y S. Pablo de Tubutama)
Reyes - "Doc. para la Hist. de Mexico - July 6, 1772"

Page 762:

The mission of Tubutama with a visita town is situated to the west with some deflection northward from the preceding one of Sario; eight leagues distant to the south lies the abandoned land of lower Pimeria; and the Papagos and other gentile nations are to the north up to the Colorado and Gila Rivers, about seventy or eighty leagues distant from this mission.

The town of Tubutama is situated in a spacious flat lowland of good and fertile soil where some Indians cultivate their individual plots and plant communally, wheat, corn, beans, and other seeds. The house of the Padre-Missionary is tidy and roomy, with an adjoining orchard of quince, pomegranates, peaches and other trees. The church is fully ornamented with two altars of linens with their borders gilded, with a tiny collateral in view (de perspectiva). The sacristry has three chalices, a custodia, a high cross, processional candleholders, a thurible (censer), three extra conventual dishes with their mass-wine vessels made entirely of silver, vestments of all kinds and colors, with other rare adornments for the altar and divine worship. By the census which I have now there must be forty-five families, twelve widowers, six widows, 18 orphans, and the total number of souls is 176.

Santa Teresa - Reyes 1772

The visita town Santa Teresa, two leagues east of Tubutama, has a tiny church denuded of ornaments and adornments, and a small Padre-Missionary's house. By the census which I have now there must be 13 families, seven widowers, two widows, and the total number of souls is 52.

Ati

(Mission de San Francisco Ati). Reyes - 1772 - July 6th.

The mission of Ati with a visita town is situated in a valley six or seven leagues long and two or three leagues wide, surrounded by high mountains and a stream with good and abundant waters. To the east with some deflection northward is situated the preceding mission of Tubutama four leagues away, and seven leagues to the west with some deflection southward is the Presidio of Altar.

The town of Ati could be the most prosperous and fertile settlement of Upper Pimeria, but at the present time it is reduced to that which the Indians wish to plant, which is little or nothing, individually (en particular) or communally. The church is a tiny chapel without ornaments. The sacred vestments of the sacristry are a chalice of silver, an incensory (censer) of copper, three old chasubles, a white priest's gown, an amice, and other vestments of altar and divine worship, almost useless. By the census which I have now there must be 36 families, seven widowers, two widows, 15 orphans, and the total number of souls is one hundred and thirty-seven.

The visita town of San Antonio de Oquitoa (Huquitoa), five leagues distant to the west of Ati, does not have either a church or a dwelling for the missionary. By the census which I have now there must be 23 families, nine widowers, five widows, ten orphans and the total number of souls is 106.

Sario

(Mission de N.S. de los Dolores del Sario) - Reyes

The town of Santa Maria Magdalena is situated two leagues west of San Ignacio and three from the aforementioned camp of Santa Ana. The house of the Padre Missionary is entirely ruined. The church is large, but almost ruined and only a chapel of San Francisco Javier has decent adornments. There are the sacristry with a chalice and a silver baptismal case, three chasubles, a white priest's gown, two amices, an incensory and two copper candlesticks, with other adornments of altar and divine worship very poor and almost useless. The native Indians of this town, although they enjoy good lands, plant them little or not at all. By the census which I have now there must be 19 families, five widowers, one widow, six orphans, and the total number of souls is 86.

This mission is reduced at the present time to a single visita town, because of the two towns of la Arizona and Busani having been abandoned in the following year of sixty-six, because they were continually being attacked by the ferocious Apaches, whose natives gathered in the two towns which exist at present. To the east at a distance of twenty leagues is situated the preceding mission of San Ignacio, and eight leagues west

of Tubutama; to the south the abandoned land of Lower Pimeria, and to the north the villages of heathen Indians and other gentiles who populate all the known land up to the river Gila.

The town of Sario is situated in a valley encircled by high mountains. Hard by the town runs a stream to the many and good lands of this mission. Some Indians cultivate their individual plots and also plant communally wheat, corn and other seeds. The church is interiorly ornamented with a collateral of linens, with its frame (borders) gilded. There are the high cross and an all silver baptismal case, vestments of all kinds and colors with a scarcity of other ornaments for the altar and divine worship. By the census which I have now there must be 32 families, 15 widowers, four widows, 12 orphans, and the total number of souls is 136.

The visita town of San Jose de Aquimuri two leagues southwest of Sario, has neither a church nor a house for the missionary. By the census which I have now there must be 14 families, five widowers, two widows, and the total number of souls is 58.

Caborca and Pitiquito

"Geografica y Estadistica" Vol. 10 (F 1201; S 62 a V 10)

A. "Account of Puerto de la Libertad"

In the Altar District (by the Scientific Commission to Port Libertad)

Page 273.

1. Pitiquito: This town is 24, 17-100 leagues distant from the port of Libertad along a good wagon road (observe the chart); it is situated one and a half leagues below the confluence of the San Ignacio and Altar Rivers, and is one of the greatest agricultural localities that this district contains. The town, which contains 1,200 inhabitants, extends about 750 meters from east to west by 160 from north to south; it has a good church and excellent farming lands located lengthwise along the river lowland with dimensions of one and a quarter leagues by three-quarters of a league in width. There are harvested superabundantly corn and beans; about 8000 fanegas of wheat; and its settlers (Span.) who also apply themselves to the raising of cattle possess more than 2,000 head.

2. Caborca - p. 273

"This town, distant 24,22-100 leagues from the port of Libertad along a good road is found situated on the lowland of the river Altar after it has formed the San Ignacio, and it is the second of the district in agriculture and the first in mining, for in the mountains which surround

it (Caborca) most of the mines are found there which the ancients (old explorers probably) used to work and four which are actually being worked. It contains a population of 600 souls; its farm lands which extend one league from east to west by a quarter of a league from north to south produce annually 6000 fanagas of wheat; plenty of corn, some beans, cane, etc. There are about 5000 head of cattle and horses raised on the surrounding farms and ranches, principally on the Calera Ranch belonging to D. Diomsio Gonzales. It has the best church in Sonora which the Jesuit Missionaries began to build in 1803 and which was completed in the year 1810. The farming of this town could be increased considerably and at very little cost, by changing the course of the river to the old channel which it had before, because in the old channel are to be found deep holes full of water which its current carries under neath the sand by which they are covered, and which formerly used to serve not only to irrigate some lands of Caborca but also those of Bisani which are extensive and of good fertility. The great flood of the river happening as a result of the rains of the year 1828, made it change the east to west course which it formerly had diverting it almost into the first houses of the town towards the south; the church with this change being the nearest to the point of deviation, would be endangered in some new flood, and it would be desirable that as a work of public welfare, the Minister of Promotion, Colonization and Industry, would take it under his high (exalted) consideration.

Notes (R.H.R.)
Commission
1. Formed during administration of Fr. Don Ignacio Pesqueira of Sonora.
2. Fr. D. Tomas Robinson - Chief of the Scientific Commission.
3. Done in 1861.
4. "Jesuit Missionaries" an error; must have been Franciscan.

(Vol. 10 - "De Geografica y Estadistica")
F 1201 - Sqr Co. Vol. 10

a. Page 673 contains material on Nuestra Señora de Loreto.

Caborca: F 1245 V 43

R. Velasco Ceballas: - Will the United States possess itself (take possession) of Lower California?" Pub. Mex. - 1911.

The Crabb Filibuster: - page 12.

The seed of the filibusterers Long, Edwards, Walker, continued giving its fruits. In the year 1857 it produced Henry Crabe who boldly penetrated into the State of Sonora.

The Sonorans, in gallant proof of their love of their native land and of bravery, attacked Crabe in the little town of Caborca, surrounded him, defeated him and knocked him to smithereens. Of the hundred and sixteen

men who composed the filibustering company, one hundred and fifteen died at the hand of the defenders. The remaining one, after having him in their power, they granted his life so that he could return to the United States to tell of the disaster.

Guevavi
"Documentos para la Historia de Mexico"
Series 4 Vol. 1

In "Informe a su escelencia por el Padre Miguel Quijano" the following excerpts are found:

P. 45. "The history of the prisoners of Guevavi, the account of their witnesses who were present and knew very well that which occurred; D. Jose Antonio Ortiz, D. Joaquin de Cazares and Jose Romero and another; those who affirm that it is untrue that they were to blame for the lance thrusts which they (the prisoners) wish to represent; that what happened was that having known in Ariac, whither Padre Garrucho had gone to give a confession, they had stolen from his mission a drove of horses. An Indian, offering himself to find the theft and the robbers, the Padre had said to the governor Lorenzo, to the Captain and to the Mayor of Ariac, that they, guided by the Indian who was offering himself to find the theft, should go in (search) hunt of the thieves, and finding them with the plunder, should bring them to Guevavi....."

Mission San Xavier del Bac, Tucson, Arizona. P. 190

Vol XVI; Feb. 1936; No. 1; page 91.

By Rev. Mark Bucher, O. F. M.

"Who built the present Mission San Xavier del Bac, has of late been a mooted question. Two assertions have been made. The first was that the structure was the work of the Jesuit missionaries. Later, when certain architectural features, distinctly Franciscan (eg. the Franciscan coat of arms on the facade), were pointed out, it was asserted that the mission was begun by the Jesuits and completed by the Franciscans. The purpose of this paper is to show that still greater modification must be made to the original assertions, for the mission was entirely the work of the Franciscans.

While I was staying at the Old Mission of San Xavier near Tucson, several questions gave me great concern. Why was the name Bac or Baac (meaning "where water comes out of the earth") given to this Indian village, when there is not even a traditional water spring nearby, and the river is over a mile away? How could the Jesuit missionaries, who followed Kino in the first half of the eighteenth century, complain in their reports that the mission was located in a swampy place, frequently inundated by the river, when the present mission site and the village lie on

ground several hundred feet above the river bed? Again, how could H. E. Bolton of the University of California imply that Grotto Hill was about a "quarter of a league" distant from the mission, when they are next door neighbors? Finally, how could the Jesuit missionary, Kino, enter in his diary the observation that water would flow into each room of the completed mission buildings, for which he had laid the foundation that day, when even now, no ater can be led to the lowest point in the present buildings, even after the government has built a dam several miles up the river?

In order to solve these puzzles, I began to interview the Indians in the village of Bac, as well as the old inhabitants of Tucson, to learn, especially from the former, their traditions concerning the mission. According to these, Bac, the Indian name for the village, had reference to the Santa Cruz River, which is mostly a subterranean stream, but here and there emerges to the surface and flows like a normal river. One of the places, where the river flowed above ground, was about two miles northeast of the present village of Bac. However, I was informed that this village had not always been located at its present site, but lay to the northeast, on the left bank of the river. Hence originated the name "Bac". The first query was, therefore, readily answered.

The solution of the first question furnished a key to the remaining queries. Aided by what I had gathered in lengthy talks with the Indians and almost equally long conversations with old Mexican families in Tucson, and assisted by Father Bonaventure Oblasser, O. F.M., an Indian missionary among the Papagos, I set out to locate the place, if possible, where the village once lay, and with this, the conjectural spot of Kino's church. From different sources, I had learned that until the close of the previous Century, there could be seen in a field lying to the north of the present village adobe walls ranging in height from three to nine feet. That these walls were the remains of Kino's Church, no person would even remotely maintain, since the missionary himself tells us that he used tezontle rock for foundation, while these ruins, to all appearances, were adobe. Appearances were deceitful in this instance, for the adobe, as investigation proved, had been laid upon a tezontle foundation, and had washed down on both sides and completely enveloped the foundation stones. This was brought to light by the plowing up of that whole section by a land company, which was unaware of what it was doing (in an historical sense). On finding these stones, the workmen carried them to the southern boundary of the field, as was learned from one of the men who had worked on the project. Here these stones lay, hidden for the most part by mesquite and ironwood, until in one of my exploration trips I happened to stumble over them. On digging nearby, I found fragments of pottery lying in great profusion all around. On another occasion I found a wide ditch now only faintly traceable and running down to the river bed. At the jagged edge is the cliff. Upon digging in the sand, I uncovered what looked like the remains of a dam. Likewise, where the water had washed broader and deeper, human bones could be seen.

These discoveries pointed to the evident conclusions that the old village of Bac or Baac had been located here; and that this was the place where Father Kino had laid his foundation stones of Tezontle. He says in his diary under April 28, 1700:

> "On the twenty-eighth we began the foundation of a very large and capacious church and the house of San Xavier de Baac, all the many people working with much pleasure and zeal, some in digging for the foundations, others in hauling many and good stones of tezontle from a little hill which was about a quarter of a league away. For the mortar of these foundations it was not necessary to haul water because by means of irrigation ditches, we very easily conducted the water where we wished. And that house with its great court and garden nearby, will be able to have throughout the year all the water it may need, running to any place or work-room one may please....."

As one stands in that field which was the original site, there looms up to the south, a short mile distant, the hill from which the tezontle rock was hauled, and where even today, that same variety of stone can be found in abundance, while on Grotto Hill, there is no such stone, either on it or in it.

These discoveries satisfactorily solved in various queries. Even now when the river, swollen by heavy summer rains, breaks its bounds, this section is still inundated and still suffers from unchecked erosion despite money appropriations by the Federal Government. When Kino's buildings were finished, water could be led "very easily" into any room for it ran naturally down hill. Finally, Dr. Bolton, writes me that he was unacquainted with the topography of Bac and that he is ready to accept my findings.

Rev. Mark Bucher, O. F. M.
Santa Barbara, California.

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KISHMUS PARTY

By Sallie Pierce Brewer

The Navahos gathered at the big "show" hogan for the Christmas par this year---thirty-six of them, by a fairly accurate check-up.

Four days before the 10th we had gotten the fir tree from the Peaks; two days before we had gotten the presents in Flagstaff; and the day before and day of the party we had cooked, wrapped presents, and trimmed the tree. At one time on the afternoon of the 10th I counted seven pots on the stove in the cook shack, not including a washtub full of beans which two Navaho boys had just carried over to the hogan; the other pots were full of rice and dried fruit.

Our friends of Wupatki Basin were all there of course; Nezca Yazzie and his family had made a 25-mile wagon trip from above Grand Falls, arriving a day ahead of time; seven of the Bela Cody family came almost as far; a nephew of Clyde's rode down from Gray Mountain (Coconino Point) with sacks of pinons and greetings from some of the Peshlacais up there; the inevitable modern touch was added when two Navahos arrived in a car--they had come for Nanil Cady, the medicine man, to sing the next day at their hogan--and had come in time for the feast.

Jimmie and I were awakened about sunup the morning of the party day by Nezca Yassie and family coming in to sit on the benches and wait for us to get up; it appeared that since he had come a day early he thought it was high time the party started--we had asked them to come, here it was sunup, and they had no flour or sugar! We realized how lax we were being in our duties as host and, as soon as we could persuade them to leave, got up and about the business of providing food.

Clyde and Sarah were the next arrivals, and set to helping us immediately; Clyde marshaling the boys to carry food and Sarah producing enough pots to cook with. With the gathering of the rest of the guests in the late afternoon I was asked for tissue paper and cards and they wrapped their presents to us; I stood discretely to one side and wrote "Jimmie from Katherine" and "Sallie from Clyde" on cards as they brought them to me.

That important business being over everyone adjourned to the hogan; after the tree was trimmed (with Hendron and Clyde throwing tinsel and snow with a will) we ate. And we really ate; besides the beans, rice, and fruit, we had tomatoes, and mutton, and bread and coffee. And I think we had enough, because the men left the bowls half full when they leaned back to smoke the cigars Jimmie passed, and that's the first time I've seen Navaho men fail to eat all that was put before them!

Before we went out to the tree the Brandeis came--they are long-time friends of the Peshlacais--and brought a crate of oranges and candy. They were passed after distributing our presents; then came the opening of the big box of clothes (contributions from whoever would contribute). Clyde

took over here, and had a fine time throwing socks, shirts, and hats around; everyone got something but Clyde--and Jimmie put by a couple of shirts to give him in the morning. When it was all over, the grown-ups were, like most grown-ups, watching the children get acquainted with their new toys, and we white people were admiring rugs and bags and jewelry they had given us.

The Museum of Northern Arizona had given some pictures of old rugs; I had covered these and twelve plates of old bow guard and pendant designs with cellophane; these pictures we passed around the assembled group and explained that we were leaving them with Clyde and Sarah as a sort of "lending library" for the weavers and silversmiths to consult from time to time.

We rather hated to say goodby at what may be our last Navaho Christmas party for our friends, so we slipped away soon after that; but most of them were up at the Pueblo early the next morning asking if they would see us next year and when we would be back to visit them.

*********oo*********

GROUND SLOTH CAVE

"Willis Evans, searching for archaeological sites along the Colorado River under direction of M. R. Harrington, scientific advisor to the National Park Service, has located a ground sloth cave, at a site in Arizona eight miles from Pierce's Ferry, containing two ground sloth skulls, some hide and hair, and dried internal parts. Excavations at the cave, which extends into the canyon wall some 200 feet, are being conducted under direction of the National Park Service. Another cave, containing Indian material, located three quarters of a mile farther up the canyon, is to be excavated at a later date." (Extracted from Museum News, December 1, 1936.)

The above-mentioned ground sloth den is located on the Colorado River just below the Grand Canyon, but within boundaries of the Boulder Canyon Recreational Area. Plans for showing the cave to the public have not been completed but it is hoped that an exhibit in situ can be made. Tentative plans include running a trench through the cave and lining the walls of the trench with glass so that bones or any possible human artifacts may be seen.

********oo*********

RUMINATIONS

After being almost the entire month in Washington, the first thing I hear when I set down at the desk expecting to get caught up on the

things that have happened during my absence, is Luis calling, in his gentle, flute-like voice, for some ruminations to close the Monthly Report.

Naturally my thoughts turn on my recent trip and a hundred things crowd through my mind like the flashing changes in a kaleidascope.

There is the fat lady in the lounge car whose strident voice still reaches me above the rythmic roar of the swiftly moving train.---There is the little lady who is quietly busy so much of the time with pad and pencil and who turns out to be a cartoonist for a couple of national magazines and who is greatly interested in that episode Carroll Miller wrote up in his last month's report.---There is the interesting discovery that the Field Museum takes advantage of the right hand movement of its traffic and delays lighting the halls to the left of the entrance for nearly an hour after opening the building in the morning, thus making a material saving in its monthly lighting bills, and proving, to our great pleasure, that it pays to study visitor traffic movement.---There is the swift change from the lazy days on the train to the busy morning traffic of Washington; stepping out of the taxi through the lobby and into the council room where fifty men are hammering through to compromise their fifty viewpoints on their various problems.---It is a high pressure day full of food for thought.---Then up to that intriguing room with its five doors, its triangular bath room, its quiet interior court where the street clamor cannot reach and where the desert dweller can sleep the deep sleep of the open country.---Down to dinner where the hat-check girl and the head waiter give greetings and ask about the southwest, and so out for the evening and finally back to bed in the room of the five doors.

The next morning down in the Department where it takes a couple of hours to go down that block-long hall, meeting the people who give you such a warm welcome and want to know how the rest of the Southwestern gang is getting along.---The rush and hurry of starting the mills to grinding on the various things I have to attend to; slowly the work settles into a routine and the details ebb and flow around one as the major items move down the tide to completion.---The successful attempt to crowd certain plans through before the Holidays so Hub Chase and his boys won't run out of work, and mostly so Hugh can collect that dollar wager from Hub wherein we promised to get those plans signed before Christmas; the final wire that Hub has lost his dollar, the plans are signed and he needn't hold up the work; we imagine the sulphurous joy with which he greets that wire and the pleasure he takes in losing that dollar; those Bandelier buildings are on their way.

The visit to the Lincoln Memorial; the lights of Washington from across the river with the dome of the Capitol dominating the background and the Monument piercing the sky in the foreground.---The magnificent group of buildings along Constitution Avenue which makes every American

proud of a country which can do things in such a big way.---The clamor and battle of Christmas shoppers, the striking beauty of the night-lighting of rain-wet streets; the pleasant roar of the crowd as its tempo steps up at the near approach of the last day to mail the home packages.---Christmas services and the lovely Christmas Day with its congenial companionship.

Back on the train.---The lady in the lounge car who had two too many and insisted on showing the Navy, the Park Service and the man-who Lost-Three-Million the wonderful photograph of her wonderful twelve year old "boy" who could distinguish "lunch" from "dinner" and could lie down and roll over upon request and had taken many ribbons; the Navy afterward remarking, however, that he had seen a lot of alley cats that could lick the tar out of hers.---The lady who listened to the monologue of her husband coming in over the radio as we were making sixty miles an hour and tried to keep her secret though the barber had told at least four of us who she was.---And, finally, the cold gray dawn as the 5:08 pulled in and Hugh met me, and, too late to go to bed and too early to go to work, he and I and the kid discussing a pot of coffee and a plate of toast and a thousand things before the open fire for three hours until it was eight o'clock and we could go to work.

There's room for Ruminations in all this but how am I going to put any of it down in detail without running off into a hundred ramifications and losing the original thread of the discourse? I pause to run back over them in my mind and Luis looks over from his stencil cutting long enough to say: "About ready with those Ruminations, Boss?" It is no use, Luis, it would take another month to straighten it all out and write anything; let it go as it lies and if these are not ruminations then let's call them pleasant sidelights of a busy month and let it appear elsewhere how profitable the trip was from a business standpoint.

Cordially,

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