

Sagueros

Lieutenant Emory **REPORTS**

A Reprint of
Lieutenant W. H. Emory's

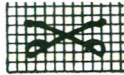
NOTES OF A MILITARY RECONNOISSANCE

Introduction and notes by
ROSS CALVIN, Ph.D.

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*Junction of the Gila and the
Colorado . . . The Desert . . . Across
Imperial Valley . . . Arrival at Warner's
Rancheria . . . Bathing Pools at Aqua
Caliente.*

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*Battle of San Pasqual . . .
Rescue . . . Arrival at San Diego . . .
San Luis Rey . . . Fighting at the San
Gabriel . . . Los Angeles Occupied . . .
Final Observation.*

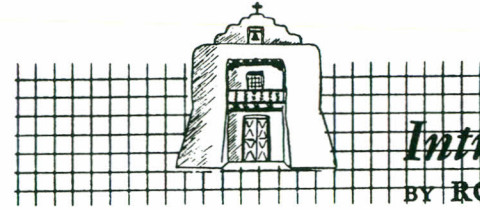
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Introduction BY ROSS CALVIN

Herewith is made an attempt to introduce or, rather, re-introduce to readers the earliest competent scientific account of the American Southwest: W. H. Emory's "Notes of a Military Reconnaissance." The young lieutenant was reporting in the year 1846 to the government at Washington, and through it to the nation at large, on the character of a vast and mainly unknown tract including New Mexico and California, which the United States was at that moment engaged in wresting away from Mexico.

Scholars in the field of Western history need no introduction to the "Military Reconnaissance." As "Executive Document No. 41," as "Senate Document No. 7, 30th Congress, First Session," and in the Long edition (H. Long and Brother, N. Y., 1848), one or all of which are available from the stacks of better research libraries, it has long been known among scholars as a gold mine of accurate, first-hand observation. But this new edition has in contemplation a considerably enlarged circle of readers, not scholarly perhaps, yet with alert, intelligent curiosity.

Emory was writing for the knowledgeable American public of a century ago, and so it seems fitting that this re-issue of his book should be addressed to the same kind of audience. Here for his fellow Americans is the rugged, salty story of his travels, minus only the great mass of now obsolescent scientific data which would distract or bore today's reader. But it still remains the same unadorned, factual picture of lands and peoples looming with three-dimensional vividness through the mistiness of legend and fiction.

How to present the "Notes" was something of a problem. At first there was only one certainty: that the story should speak for itself instead of being swallowed up in a morass of footnotes or curtailed off behind a pretentious critical introduction. Emory's account is clear, well-carpentered, and about 98 per cent accurate. Yet in many places it was necessarily incomplete; in others it requires explanation for today's readers; in a few others it was mistaken. These last, in particular, require plain marking with a signboard lest the wayfarer be misinformed.

So a question arose at the very outset: for whom should the introduction and the footnotes be intended? Should Emory's bluff, outdoor manner be gentled for elderly, bespectacled men in libraries? Or should the editing be done with college history classes in mind? Or perhaps for collectors of Americana? Or possibly, after all, it should be an island of text surrounded widely by footnotes for arm-chair strategists seeking to unravel the wavering, obscure politico-military situation in New Mexico and California through that critical year 1846.

Fortunately, still another possibility remained. Since Emory originally wrote for those Americans who wished to learn something of the look, the fauna and flora, and the inhabitants of the Southwest, it might be wiser again to keep *them* in the forefront. The travelers who go streaming westward by car, by train, and by plane might wish—some of them, at least—to add knowledge as well as mileage on their journey. Here was a book written for them a hundred years ago, still highly readable, more accurate than half of today's stylized westerns, and with the added interest of the mid-nineteenth century's antiquarian mosses and lichens. So the decision was made, and it will be seen that the scale dips somewhat in their favor.

For them the "Notes" should provide no end of enjoyment. Many of the greater landmarks that attracted Emory's notice a century ago can still be observed from the highway by anyone willing to stop long enough to focus his binoculars and his attention. Here pass in review for him the Spanish Peaks, Raton Pass, the Pecos Ruin, the extraordinary City of the Holy Faith, the Rio Grande trough, Steeple Rock, the Gila Canyon at San Carlos, Casa Grande, and the sahara of sand dunes west of Yuma.

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For closer observers, the footnotes regarding Emory's botanical record will, I hope, be found worth while in indicating some of the conspicuous plant life along the way: the first chollas or elkhorn cacti in southern Colorado; the plains of grama grass near Las Vegas, New Mexico; the vast zone of creosote bush beginning near Socorro and extending clear to the western margin of the desert; the mesquite everywhere, easily identifiable by its thorns and long beanlike pods; the saguaros or giant cacti first noted by Emory in the vicinity of Mt. Turnbull; the increasing bareness of the desert floor west of the Colorado River.

The editor felt no uncertainty, since a very considerable part of Emory's data is now obsolete, in leaving out the formidable two-hundred-page "Table of Astronomical Observations." The determinations of time and the contentions about latitude and longitude, fought out long ago by geographers and cartographers, are no longer of general interest. And similar considerations led to the omission of the appendix containing the charts of geographical positions and meteorological data.

The correspondence with Albert Gallatin regarding ethnographic relationships among the Indian tribes, though not without interest, is likewise out of date and could be safely dropped. For the same reasons the interesting botanical supplement was excluded. Many of Torrey's* scientific names have been superseded; and in a place or two even the classification has been revised; and a student of cacti would no longer look to Engelmann* today even though he knew more about them than any American botanist of his time.

The botanical pictures, however, were not excluded without much regret. Mr. Stanley's drawings of the cacti are of great interest and remarkable fidelity. They were made on the spot, and they would have been retained, had it been at all feasible, to show how explorers managed before the days of cameras. Other plant drawings were made later on by artists of great skill, possibly from dried specimens in the Smithsonian, and printed in Emory's appendix as engravings. On the other hand, some of the illustrations included in the body of the text itself, although they

* John Torrey: famous Princeton botanist, who, with G. Engelmann, St. Louis physician and botanist, provided botanical addenda to Emory's writings.

*Lieutenant Emory Reports, a
reprint of Lt. W. H. Emory's
Notes of a Military Reconnaissance.*

*Intro. Ross Calvino. ABC:
UNM Press, Payable
1968 (c1951)*

A boy about 12 years of age, of uncommon beauty, was among our visitors. Happy, cheerful and contented, he was consulted in every trade, and seemed an idol with the Apaches. It required little penetration to trace his origin from the same land as the gauze of the old woman. We tried to purchase him, but he said it was *long, long*, since he was captured and that he had no desire to leave his master, who, he was certain, would not sell him for any money. All attempts were vain, and the lad seemed gratified both at the offer to purchase, and the refusal to sell. Here we found the mountains chiefly of red ferruginous sandstone, altered by heat.

November 4.

Six miles from our camp of last night we reached a summit, and then commenced descending again rapidly towards the Gila, along a deeply cañoned valley, the sands of which were black with particles of oxide and peroxide of iron. Near the summit the hills on each side were of old red sandstone, with strata sloping to the southwest at an angle of 25°, and under this were strata of black slate and compact limestone, and then granite.

In the ravines we found, at places, a luxuriant growth of sycamore, ash, cedar, pine, nut-wood, mezcal, and some walnut, the edible nut again, Adam's needle, small evergreen oak and cotton-wood, and a gourd, the cucumis perennis.

There was every indication of water, but none was procured on the surface; it could no doubt have been found by digging.

The last six or eight miles of our route was down the dry bed of a stream, in a course east of south, and our day's journey did not gain much in the direction of California. It was necessary to ascend the river a mile in search of grass, and then we got but an indifferent supply. Except in the two camps nearest to Mount Turnbull, and the one at the San Carlos, we have never before, since leaving Santa Fe, had occasion to complain of the want of grass.

We encamped in a grove of cacti of all kinds; amongst them the huge pitahaya, one of which was fifty feet high.

The geological formation on this slope of the Piñon Lano mountains was: 1st. Conglomerate of sandstone and pebbles; then red sand-

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stone in layers a foot thick; then granite, very coarse. The depth of the two first was many hundred feet, and in some places its stratification much deranged. Many large masses of sandstone, with thin seams of vitrified quartz.

In the dry creek down which we travelled, we saw a cave of green sandstone, in which a fire had been built; for what purpose I cannot conjecture, as it was too small to admit a man.

The Apaches gave us to understand that a marauding party of their people were in Sonora. The broad fresh trail of cattle and horses leading up the arroyo, induces the belief that they have returned—successful, of course.

Last night was mild, the thermometer at 63° above Fahrenheit; and, what was very unusual here, the heavens were overcast, which prevented my getting the rate of the chronometers.

Although we have had no rain except at Mount Graham, where we had a shower which scarcely sufficed to lay the dust, yet the whole face of the country bears marks of rains, and running water, met with in no other part of our journey. The absence of vegetation will, in some measure, account for the deep incisions made by running water in the earth.

November 5.

The howitzers did not reach camp last night, yet the grass was so bad, and our beds, on the round pebbles everywhere covering the surface of the ground, so uncomfortable, it was determined to move camp.

The Gila now presents an inhospitable look; the mountains of trap, granite, and red sandstone, in irregular and confused strata, but generally dipping sharply to the south, cluster close together; and one ignorant of the ground could not tell from what direction the river came, or in what direction it flowed onwards to its mouth. The valley, not more than 300 feet from base to base of these perpendicular mountains, is deep, and well grown with willow, cotton-wood, and mezquite.

At several places, perpendicular walls of trap dyke projected from the opposite side of the river, giving the idea that the river waters had once been dammed up, and then liberated by the blow of a giant; for

the barrier was shattered—not worn away. In the course of six miles we had crossed and re-crossed the river twice as many times, when we left it by turning abruptly up a dry ravine to the south. This we followed for three miles, and crossed a ridge at the base of Saddle-Back mountain, (so named by us from its resemblance to the outline of a saddle,) and descended by another dry creek to the San Pedro,⁹¹ running nearly north.

The valley of this river is quite wide, and is covered with a dense growth of mezquite, (acacia prosopis,) cotton-wood, and willow, through which it is hard to move without being unhorsed. The whole appearance gave great promise, but a near approach exhibited the San Pedro, an insignificant stream a few yards wide, and only a foot deep.

For six miles we followed the Gila. The pitahaya and every other variety of cactus flourished in great luxuriance. The pitahaya, tall, erect, and columnar in its appearance, grew in every crevice from the base to the top of the mountains, and in one place I saw it growing nearly to its full dimensions from a crevice not much broader than the back of my sabre. These extraordinary looking plants seem to seek the wildest and most unfrequented places.

The range of mountains traversed to-day is the same we have been in for some days, and is a continuation of that of Mount Graham, which turns sharply westward from Turnbull's peak, carrying with it the Gila.

Saddle-Back is an isolated peak of red sandstone that has every appearance of having once formed the table land, and being harder than the surrounding surface, having withstood the abrasion of water.

The uplands were covered as usual with mezquite, chamiza, ephedra, the shrub with the edible nut, and cactus, of which there was a new and beautiful variety. In the cañon we heard in advance of us the crack of a rifle; on coming up we found that old Francisco, one of the guides, had killed a calf, left there, doubtless, by the Apaches.

The dry creek by which we crossed to the San Pedro river was the great highway leading from the mountain fastnesses into the plains of Santa Cruz, Santa Anna, and Tucson, frontier towns of Sonora. Along this valley was distinctly marked the same fresh trail, noted yesterday, of horses, cattle, and mules.

The bed of this creek was deeply cut, and turned at sharp angles, forming a zigzag like the bayoux laid by sappers in approaching a fortress, each turn of which (and they were innumerable) formed a strong defensive position. The Apache once in possession of them is secure from pursuit or invasion from the Mexican.

Since the 1st November, we have been traversing, with incredible labor and great expenditure of mule power, the stronghold of these mountain robbers, having no other object in view than making our distance westward; yet here we are at this camp, only five seconds of time west of camp 89, at Disappointment creek, and one minute and four seconds west of our camp at the mouth of the San Francisco.

Nature has done her utmost to favor a condition of things which has enabled a savage and uncivilized tribe, armed with the bow and lance, to hold as tributary powers three fertile and once flourishing states, Chihuahua, Sonora, and Durango, peopled by a Christian race, countrymen of the immortal Cortez. These states were at one time flourishing, but such has been the devastation and alarm spread by these children of the mountains, that they are now losing population, commerce and manufactures, at a rate, which, if not soon arrested, must leave them uninhabited.

November 6.

For the double purpose of allowing the howitzers to come up, and to recruit our mules, it is decided this shall be a day of rest. The grama is good, but sparsely scattered over the hills, and it is necessary to loosen every animal and let them graze at will.

We are yet 500 miles from the nearest settlement, and no one surveying our cavalry at this moment would form notions favorable to the success of the expedition.

Except a few saddle mules,⁹² the private property of the officers, which have been allowed to run loose, every animal in camp is covered with patches, scars, and sores, made by the packs in the unequal motion caused by the ascent and descent of steep hills.

The failure of the Apaches to bring in their mules, was a serious disappointment, and entirely justifies the name given to the creek, where

they agreed to meet us. Besides, being the only means of transportation, they are, in extremity, to serve us as food, and the poor suffering creatures before us, give no very agreeable impression of the soup which their meat will furnish. However grave the subject may appear, it is the common source of merriment. All seem to anticipate it as a matter of course, and the constant recurrence of the mind to the idea, will no doubt accustom us to it, and make mule as acceptable as other soup.

In the sandy arroyos where our fires burn, that look as if they had been formed but a year or two since, was broken pottery, and the remains of a large building, similar in form, substance and apparent antiquity to those so often described. Strolling over the hills alone, in pursuit of seed and geological specimens my thoughts went back to the States, and when I turned from my momentary aberrations, I was struck most forcibly with the fact that not one object in the whole view, animal, vegetable, or mineral, had any thing in common with the products of any State in the Union, with the single exception of the cotton-wood, which is found in the western States, and seems to grow wherever water flows from the vertebral range of mountains of North America; this tree we found growing near the summit of the Piñon Lano range of mountains; indeed, always where a ravine had its origin.

In one view could be seen clustered, the *Larrea Mexicana*, varieties of cacti, green wood acacia, chamiza, *prosopis odorata*, and a new variety of sedge, and then large open spaces of bare gravel.

The only animals seen were lizards, scorpions, and tarantulas.

I made elaborate observations for time and latitude, and for longitude by measurement of lunar distances. Anxious to observe eclipses of Jupiter's satellites, I determined once more to try the small telescope with which the satellites of Jupiter could just be discerned. I strained my eyes for two nights in succession to see if I could discover the moment of immersion and emersion of I and III satellites of Jupiter, which were visible from our camp. My efforts were fruitless, and the result to myself is a distressing nervous affection of the eye; which may injure the correctness of my other observations of this night.

The resulting latitude of the place is $32^{\circ} 57' 43''$.

longitude " " 7h. 23m. 19s.

Rate of the chronometer 2075, losing $12'' 7s.$ per day.

The height by barometer 2115 feet above the sea.

The latitude was deduced from 13 circum-meridian altitudes of beta Aquarii, and 12 altitudes of Polaris. The longitude from 8 distances between the alpha Arietis and the moon, 9 of Regulus and the moon and 5 of Aldebaran and the moon.

November 7.

About two miles from our camp the San Pedro joins the Gila just as the latter leaps from the mouth of the cañon. The place of meeting is a bottom three miles wide seeming a continuation of that of the Gila.

It is principally of deep dust and sand, over grown with cotton-wood, mezquite, chamiza, willow, and the black willow. In places there are long sweeps of large paving pebbles, filled up with drift wood, giving the appearance of having been overflowed by an impetuous torrent. The hills on both sides of the river, still high, but now farther off, and covered to the top with soil producing the mezquite and pitahaya, as the day advanced, began to draw in closer, and before it closed, had again contracted the valley to a space little more than sufficient for the river to pass; and at halt, after making seventeen miles, we found ourselves encompassed by hills much diminished in height, but not in abruptness. The road, except the deep dust which occasionally gave way and lowered a mule to his knee, was good, that is, there were no hills to scale. The river was crossed and re-crossed four times. At 12 and 14 miles there were good patches of grama, burned quite yellow, but for most of the way, and at our camp, there was little or no grass, and our mules were turned loose to pick what they could of rushes and willow along the margin of the stream.

Wherever the formation was exposed along the river, it was a conglomerate of sandstone, lime and pebbles, with deep caverns.

Nearly opposite our camp of this date, and about one-third the distance up the hill there crops out ore of copper and iron, easily worked, the carbonate of lime and calcareous spar. A continuation of the vein of ore was found on the side where we encamped, and a large knoll strewed

with what the Spaniards call "*guia*" the English of which is "guide to gold."

The night has set in dark and stormy; the wind blows in gusts from the southwest, and the rain falling in good earnest, mingled with the rustling noise of the Gila, which has now become swift and impetuous, produces on us, who have so long been accustomed to a tranquil atmosphere, quite the impress of a tempest. We have been so long without rain as to cease to expect or make provision against it, and the consequence is the greatest difficulty in getting the men to provide coverings for the destructible portion of our rations.

Three Indians hailed us just before reaching camp, and after much parley were brought in. They feasted heartily, and promised to bring in mules. At first they denied having any; but after their appetites were satisfied, their hearts opened, and they sent the youngest of their party to their town, which was at the head of the dry creek of our camp, of the night before last. The fellow went on his way as directed, till he met the howitzers, which so filled him with surprise and consternation that he forgot his mission, and followed the guns to camp in mute wonder. These people are of the Piñon Lano (piñon wood) tribe, and we had been told by the Pinoleros (pinole eaters) that the chief of this band had mules.

Flights of geese and myriads of the blue quail were seen, and a flock of turkeys from which we got one.

The river bed, at the junction of the San Pedro, was seamed with tracks of deer and turkey; some "signs" of beaver and one trail of wild hogs.

Our camp was on a flat sandy plain, of small extent, at the mouth of a dry creek, with deep washed banks, giving the appearance of containing at times a rapid and powerful stream, although no water was visible in the bed. At the junction, a clear, pure stream flowed from under the sand. From the many indications of gold and copper ore at this place, I have named it Mineral creek; and I doubt not a few years will see flat-boats descending the river from this point to its mouth, freighted with its precious ores.

There was a great deal of pottery about our camp, and just above

us were the supposed remains of a large Indian settlement, differing very slightly from those already described.

November 8.

The whole day's journey was through a cañon, and the river was crossed twelve or fifteen times. The sand was deep, and occasionally the trail much obstructed by pebbles of paving-stone. The willow grew so densely in many places as to stop our progress, and oblige us to look for spots less thickly overgrown, through which we could break.

The precipices on each side were steep; the rock was mostly granite and a compact sandy limestone, with occasional seams of basalt and trap; and towards the end of the day, calcareous sandstone, and a conglomerate of sandstone, feldspar, fragments of basalt, pebbles, &c. The stratification was very confused and irregular, sometimes perfectly vertical but mostly dipping to the southwest, at an angle of 30°. Vast boulders of pure quartz at times obstructed our way, and the river, in places, was paved with those of less magnitude.

About two miles from camp, our course was traversed by a seam of yellowish colored igneous rock, shooting up into irregular spires and turrets, one or two thousand feet in height. It ran at right angles to the river, and extended to the north, and to the south, in a chain of mountains as far as the eye could reach. One of these towers was capped with a substance, many hundred feet thick, disposed in horizontal strata of different colors, from deep red to light yellow. Partially disintegrated, and laying at the foot of the spires, was a yellowish calcareous sandstone, altered by fire, in large amorphous masses.

To the west, about a mile below us, and running parallel to the first, is another similar seam, cut through by the Gila, at a great butte, shaped like a house. The top of this butte appears to have once formed the table land, and is still covered with vegetation. Through both these barriers the river has been conducted by some other means than attrition. Where it passes the first, it presents the appearance of a vast wall torn down by blows of a trip hammer. Under to-day's date, in appendix No. 2, will be found many interesting plants, but the principal growth was as usual, pitahaya, Acacia, Prosopis, and Obione canescens.

The latitude of this camp, which is within a mile of the spot where we take a final leave of the mountains, is, by the mean of the observations on north and south stars, Polaris and beta Aquarii, $33^{\circ} 05' 40''$; its longitude, derived by measurement, and also by chronometric difference of meridian between this and the camp of November 5th, is $111^{\circ} 13' 10''$ west of Greenwich, and the height of the river at this point above the sea, as indicated by the barometer, 1,751 feet.

At night, for the first time since leaving Pawnee Fork, I was interrupted for a moment in my observations, by moisture collecting on the glass of my horizon shade, showing a degree of humidity in the atmosphere not before existing. In the States there is scarcely a night where the moisture will not collect on the glass exposed to the air, sufficient in two or three minutes to prevent the perfect transmission of light.

November 9.

The effect of last night's dampness was felt in the morning, for, although the thermometer was only 37° the cold was more sensible than in the dry regions at 25° .

We started in advance of the command to explore the lower belt of mountains by which we were encompassed. The first thing we noticed in the gorge was a promontory of pitch-stone, against which the river impinged with fearful force, for it was now descending at a rapid rate. Mounting to the top of the rock, on a beautiful table, we found sunk six or eight perfectly symmetrical and well-turned holes, about ten inches deep and six or eight wide at top; near one, in a remote place, was a pitch-stone well turned and fashioned like a pestle. These could be nothing else than the corn-mills of long extinct races. Above this bed of pitch-stone, a butte of calcareous sandstone shot up to a great height, in the seams of which were imbedded beautiful crystals of quartz. Turning the sharp angle of the promontory, we discovered a high perpendicular cliff of calcareous spar and baked argillaceous rock, against which the river also butted, seamed so as to represent distinctly the flames of a volcano. On the side of the river opposite the igneous rocks, the butte rose in perpendicular and confused masses.

This chain continued, not parallel, as I supposed, to the first described barrier, but circled round to the east, and united with it. It also

united on the north side, forming a basin three or four miles in diameter, in which we encamped last night. Except a few tufts of *Larrea Mexicana*, these hills were bare of vegetation. Away off to the south, and bordering on the banks of the river, covering the surface of the ground for one or two feet, was an incrustation of black cellular lava or basalt, like that seen about the Raton. Nothing more was wanted to give the idea of an immense extinct volcano. Through the centre of the crater the Gila now pursues its rapid course.

The Gila at this point, released from its mountain barrier,⁹³ flows off quietly at the rate of three miles an hour into a wide plain, which extends south almost as far as the eye can reach. Upon this plain mezquite, chamiza, the green acacia, prosopis, artemisia, obione canescens, and pitahaya, were the only vegetation. In one spot only we found a few bunches of grass; more than four-fifths of the plain was destitute of vegetation; the soil, a light brown loose sandy earth, I supposed contained something deleterious to vegetation.

We made our noon halt at the grass patch. At this place were the remains of an immense Indian settlement; pottery was everywhere to be found, but the remains of the foundations of the houses were imbedded in dust. The outlines of the zequias, by which the soil was irrigated, were sometimes quite distinct.

The soil was moist, and wherever the foot pressed the ground the salts of the earth effloresced, and gave it the appearance of being covered with frost. In this way the numberless tracks of horses and other animals, which had at times traversed the plains, were indelible, and could be traced for great distances, by the eye, in long white seams.

We found fresh trails of horses, which might be those of General Castro, or the Indians. When leaving California, Castro's determination, as we learn, was to go to Sonora, beat up recruits, and return. Our route might easily be reached, for we are now marching along a road everywhere accessible, and within three days' march of the settlements of Sonora and the fort at Tucsoo, said to be regularly garrisoned by Mexican soldiers.

We passed the deserted lodges of Indians, and, at one place, remote from the lodges, we saw thirteen poles set up in a sort of incantation

⁶⁸ The laws of Montezuma: Probably Emory is a bit too romantic here. Captain Johnston's account quotes the Indian as saying, "We fight for plunder"—which seems somewhat closer to the observed facts.

⁶⁹ Often called also the scaled quail (*Callipepla squamata*).

⁷⁰ Pala may be a corruption of palo verde; but that tree is not found as far east as New Mexico. The larch does not grow in the arid Southwest.

⁷¹ The appropriate name has persisted ever since. Steeple Rock is visible from the 70-80 Highway west of Lordsburg, N. M.

⁷² Puebla: The name should be Pueblo.

⁷³ Dr. G. Engelmann, of St. Louis, who classified Emory's cactus specimens, named this barrel cactus *Echinocactus emoryi* "after its zealous discoverer, who found leisure to do so much for the advancement of our knowledge of the wild countries traversed by him." But later on Britton and Rose ungraciously changed the name to *Ferocactus covillei* in honor of a Government botanist.

⁷⁴ The reader is warned of a switch of names here. Emory's map makes clear that by the Prieto he means the San Francisco of modern maps; by the Azul, Eagle Creek; by the San Carlos, Bonita Creek. The stream which empties into the Gila above Coolidge Dam, although called by both Emory and Johnston the San Francisco, is now always called the San Carlos. In the wild, unknown country which Arizona then was nomenclature was sketchy and still unsettled.

⁷⁵ In the remote back country north of the Gila, home of the San Carlos Apaches, where one must go either on foot or on horseback, the traveler still finds these smoke-blackened rock caves, rude shelters of sheepherders, littered with skins, ropes, pack saddles, cooking pots, etc.

⁷⁶ The three streams enter the Gila a little to the east of Safford, Ariz. The San Francisco (as now named) has a drainage basin of nearly 3,000 square miles, Eagle Creek of 639, Bonita Creek of 366. Except in flash floods the flow of all three is small.

⁷⁷ The "green-barked acacia" is the name applied farther on in the "Notes" to the palo-verde tree of the desert. But they were not yet within the range of that species. A shrub easily confused with it is the *Canotia* or staff tree, which is probably meant here.

⁷⁸ Emory, although an engineer, had a cavalryman's eye for pasturage. His remarks on the grasses help to correct present day impressions formed from the badly overgrazed condition of the country. Great areas that are now almost worthless for grazing were formerly mantled with rich, nutritious grasses.

⁷⁹ These barren, treeless mountains are now mapped as the Peloncillos.

⁸⁰ Mount Graham, southwest of Safford, had received its name but a short time before. It towers to an altitude of 10,500 feet, a vertical mile and a half above the desert out of which it rises. On its summit stands a dense, chill Canadian forest of firs and spruces different from any that Emory encountered on his entire journey from the Great Plains to the Pacific.

The valley east of the peak is that of the San Simón, which, within a few years, was to become a part of the international boundary between the United States and Mexico. Today so great is the man-caused erosion along its course that even a cavalry party could scarcely effect a crossing.

⁸¹ San Bernardino, in 1846, was the ruined settlement where Colonel Cooke encountered the famous wild cattle. He reported that they were "as wild and more dangerous than buffalo." Fronteras, as the name indicates, was a frontier Mexican outpost used in early campaigns against the Apaches.

⁸² This editor found juniper (cedar) posts at the same ruin, still in position

nearly one hundred years after Emory saw them. The reddish wood had long before lost its characteristic fragrance, but after several centuries it was still undecayed.

⁸³ The ruins along the flood plain of the Gila from this point westward for many miles have been carefully studied by archaeologists, and much has been written about them. Captain Johnston, a member of the expedition, sketched many of the sherds. The finest ware is that which is called Gila Polychrome, a beautiful red-black-and-cream pottery, which, after being washed, looks as bright today as when it was fired centuries ago.

⁸⁴ Mt. Turnbull is a remarkably sharp-pointed peak which serves as a landmark for many leagues to travelers either on the ground or in the air.

⁸⁵ Wild hogs: Peccaries. The animal is now very rare in the Southwest. A commoner name is the Mexican *jabalina*, a word which, however, is seldom found in dictionaries.

⁸⁶ This is not the San Francisco of modern maps, but the San Carlos, which flows into the reservoir of the same name.

⁸⁷ Johnson: This oft-repeated story, which appears in various forms, probably has a core of truth. But in time it varies through half a century, and in locale from Sonora to the Santa Rita copper mine.

⁸⁸ This was the sahuaro or giant cactus (*Cereus giganteus*). Emory later on calls it the *pitahaya*. The traveler going westward across Arizona should notice it first a little before reaching the Coolidge Dam.

⁸⁹ Probably the jojoba or goat nut (*Simmondsia chinensis*).

⁹⁰ The correct form of this name seems to be Pinalañes—i.e., "Those who live in the pine forests."

⁹¹ The soil along the San Pedro is extremely friable, and "the deep incisions" noted by Emory in the locality have since been magnified by overgrazing, etc., into some of the most remarkable examples of man-caused erosion to be found in the entire Southwest. The dry creek by which they approached the Gila seems to have been the Aravaipa.

⁹² On early western expeditions army officers often rode mules, which, when going became difficult, were more sure-footed and much less excitable than horses.

⁹³ The Gila emerges from the mountains not far from the modern town of Florence, Ariz. The wide plain mentioned is a part of what botanists call the arboreal desert of southern Arizona.

⁹⁴ Pimos: The modern spelling is Pimas. The neighboring tribe is the Maricopa, not Maricopo. Albert Gallatin requested Emory's permission to transmit a part of his notes on these tribes to the Ethnological Society of New York for publication.

⁹⁵ The "mud house" is the famous Casa Grande, now a national monument. It is situated near the modern village of the same name. The great ruin has long been a favorite object of study by archaeologists. The first white man to see it, so far as historians know, was the Jesuit, Father Kino. He wrote a description of it in 1694.

⁹⁶ The "long-sought bird" is quite clearly a phainopepla, one of the silky flycatchers. No other bird resembles it.

⁹⁷ Col. Philip St. George Cooke's Mormon Battalion, which followed General Kearny's expedition through the Pima village and on westward shortly afterwards.

⁹⁸ San Francisco: More confusion in names. On October 27, 1846, the party had already passed the place where the San Francisco—on modern maps, the San Carlos—joins not the Salt but the Gila proper. The Verde is clearly the stream indicated here. It must be kept in mind that in what has since become known as Arizona the nomenclature was then sketchy, and that various names have been changed.

⁹⁹ The modern town of Gila Bend marks the elbow in the river's course.