

# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



### MONTEZUMA CASTLE ARCHEOLOGY PART I

#### EXCAVATIONS AND CONCLUSIONS

By  
**Earl Jackson**

and

#### MATERIAL CULTURE

By  
**Sallie Pierce Van Valkenburgh**

with Appendix

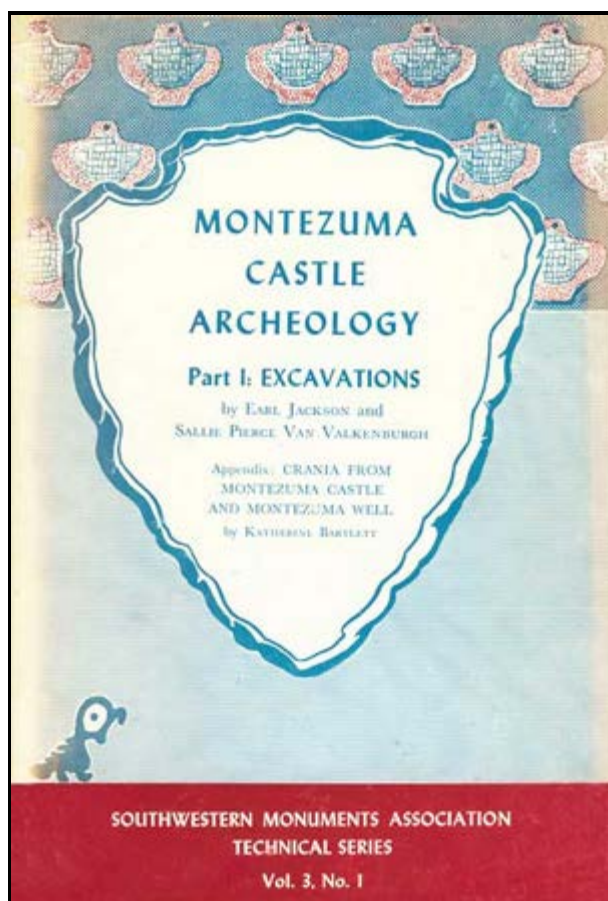
#### CRANIA FROM MONTEZUMA CASTLE AND MONTEZUMA WELL

By  
**Katharine Bartlett**  
*(omitted from the online edition)*

**1954**

SOUTHWESTERN MONUMENTS  
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Gila Pueblo, Globe, Arizona

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# SOUTHWESTERN MONUMENTS ASSOCIATION

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U.S. DEPARTMENT OF THE  
INTERIOR  
NATIONAL PARK SERVICE

SOUTHWESTERN NATIONAL  
MONUMENTS  
GILA PUEBLO, GLOBE, ARIZONA

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The Association, which is an incorporated nonprofit sharing Organization, has several objectives, of which probably the most important is to publish, and make available to the public, accurate and interesting scientific and popular material. Others of its goals include the fostering in the Southwestern National Monuments the development of libraries, museum and traiside exhibits, the encouragement of research, etc.

The eight booklets of the Popular Series (which are listed on the back cover of this report) have appeared with some frequency, and have enjoyed immediate acceptance as valuable information concerning the Southwestern scene. The only Technical Series publication to appear, however, was *Prehistory of El Rito de los Frijoles, Bandelier National Monument*, by J. W. Hendron in 1940, now long out of print.

It is hoped that the logjam of unpublished scientific papers, of which this is the first to emerge, can be broken to make this valuable material available for use by scientists, and to form the solid foundation for a well-built interpretive structure in the Southwestern National Monuments.

Herein is announced a change in nomenclature: the above-mentioned Technical Series No. 1 will henceforth be considered as Volume 1, and archeological and historical volumes will be numbered with odd numbers. Natural history ones will receive the even numbers. Thus an individual or library interested in only one of the subjects need be concerned with only one of the number series. Most volumes will be complete in one cover, but in order not to delay the issuance of minor papers on the multiplicity of activities which center in the widely-varied Southwestern National Monuments, an occasional volume will be made up of shorter articles, each printed promptly upon completion, and issued unbound, but with successively numbered pages. When these parts add up to a hundred pages or so, a final paper will close the volume and include an index.

To sum up: those requesting notification of publications of historical and archeological papers should specify odd-numbered volumes; conversely, for natural history, even-numbered ones. Volumes containing miscellaneous shorter papers, in both series, will be closed, when of a convenient size, by the issuance of a volume index.

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This little Gambel Quail, as painted in red on a piece of buff pottery by a prehistoric Hohokam Indian artist, is the colophon of the Southwestern Monuments Association. As such, it has appeared on many hundreds of thousands of pieces of stationery, and interpretive booklets, and, through the latter, has become widely known as a symbol of authentic interpretation of the great Southwest.

Strangers are inclined to think him a squawking parrot, but the "upper beak" was really meant to represent the curved feather topknot of this interesting desert bird. The design was copied from a piece of broken prehistoric pottery at Casa Grande National Monument, Arizona.

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Excavations



## EDITOR'S PREFACE

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For many years the development of the necessary scientific basis for an interpretative program in the Southwestern National Monuments was delayed because the National Park Service was unable to obtain adequate federal funds for research and the subsequent publication of its results. The problem was, and is, nationwide. To help solve it, and to gain cash to carry on interpretative activities unprovided for by budgetary allowances, Service naturalists all over the country have established auxiliary organizations, comparable to the Southwestern Monuments Association, whose net profits from sales of publications and projection slides are expended in donations "to do for the government (actually the park and monument visitors) what the government cannot do for itself."

The Southwestern Monuments Association, inspired by some of the older Associations, notably Grand Canyon Natural History Association, came into existence in 1939. It was the Executive Secretary's fond hope to bring to light by publication the old reports which early CWA and other programs had failed to publish (first, and specifically, this volume), and to issue and sell popular booklets to finance the extremely expensive technical ones.

All these years the authors—Mrs. Van Valkenburgh and Mr. Jackson since 1934, and Miss Bartlett since 1946—have waited patiently, or, at least, silently. They deserve the greatest of credit, not only for having completed their work promptly and effectively, but also for bearing with good grace a long delay in its publication.

Prospects for the future are considerably optimistic, and subsequent publications should appear fairly steadily. This, and other Associations, are growing into maturely effective tools, which fact, plus the modest but gradually increasing allowances for research being made by Congress, should enable this country's citizenry, who are the real owners of the national parks and monuments, better to understand and value them through the use of a steadily growing body of literature embracing both scholarly investigation and stimulating and perceptive interpretation.

DALE STUART KING  
Editor and Executive Secretary  
Naturalist, Southwestern National Monuments

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## ACKNOWLEDGMENTS

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We are indebted to the following persons for aid in checking the information contained in this report:

Dr. Harold S. Colton, director of the Museum of Northern Arizona, for bringing pottery terminology up to date, and for many valuable suggestions.

Dr. Emil W. Haury, head of the Department of Anthropology, University of Arizona, for aid in pottery classification.

Mr. Lyndon L. Hargrave, formerly field director, Museum of Northern Arizona, for valuable suggestions and aid in classifying pottery.

Dr. John Provinse, former professor of Physical Anthropology, University of Arizona, for cranial measurements.

The late Dr. Byron Cummings, former head of the Department of Anthropology, University of Arizona, for general suggestions and advice on field technique.

Dr. Edward H. Spicer and Dr. Harry T. Getty, of the Department of Anthropology, University of Arizona, and Louis R. Caywood, National Park Service, who supervised excavation of Tuzigoot Ruin, now a part of Tuzigoot National Monument, and gave many valuable suggestions and much help in checking pottery and artifacts.

John Martinez for re-drawing Figures 1-6; the late James W. Brewer, jr., for re-photographing, with the help of John Cook and Lloyd Pierson, Photos 35-38, and 43-46.

Collotypes of the photographs are by Wyatt Davis, Santa Fe.

Save for revision of classification and discussion of pottery types, this report is substantially as originally written in 1934. A few of the major Conclusions were brought up to date in 1946, in line with other scientific findings of the many years since completion of the field work and preparation of this report.

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## INTRODUCTION

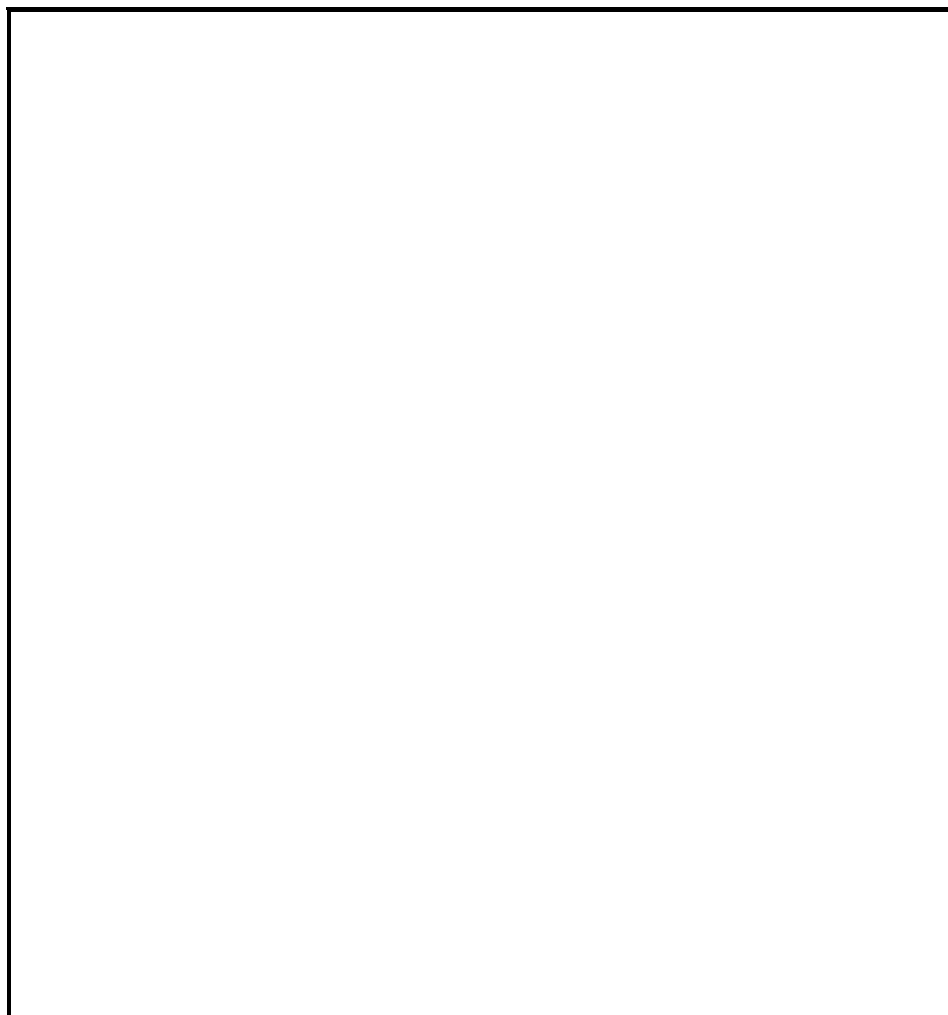
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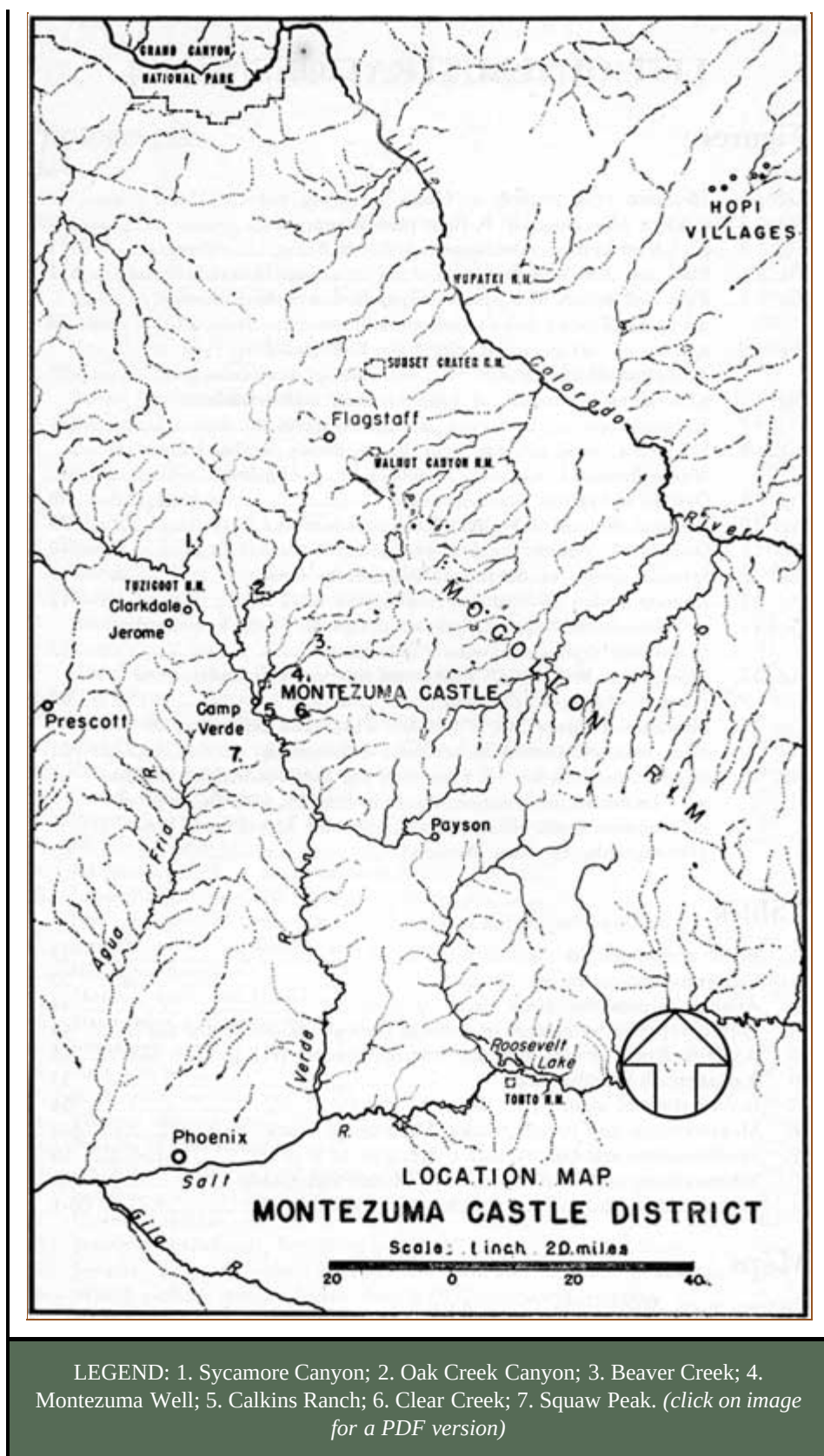
## INTRODUCTION

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The archeological paper which follows describes what was found in the excavation of a cliff dwelling in Montezuma Castle National Monument. This area is located slightly to the northeast of the geographic center of Arizona, and lies along the banks of Beaver Creek, a tributary of the Verde River.

The stories which archeologists uncover with shovel, trowel and whisk broom in the Southwest reveal many fascinating insights into the strange and complex Stone Age civilization which ebbed and flowed through many centuries before the white man first cast his eye upon this land. The Verde Valley was one of many dense centers of aboriginal population which reached a peak and fell into decline before the coming of the Spaniards.





Indians are often spoken of as nature's children. Let's see what Mother Nature did to set the stage for the prehistoric Indians who lived and loved and fought and died so long ago in the Verde Valley. We can't start with the beginning of time, but we can drop back several million years, at a time when the Grand Canyon of the Colorado wasn't nearly as deep as it is now.

There was a gradual sinking of a large oval section of country in eastern Yavapai County. On the west side of this sunken area is still visible the line where some of the slipping took place, and it could doubtless be found in other marginal spots. You can see where this slip, or fault, occurred when you drive your car through Jerome, Arizona. Part of that modern town, below the fault, is still sliding at the rate of several inches a year, while the other part remains stationary.

After this sinkage of the earth's crust, which started the Verde Valley, the extensive drainage of waters from southern portions of the northern Arizona plateau began. This started the erosion which has produced the upper canyon of the Verde River, Sycamore Canyon, the gorgeous Oak Creek Canyon, Beaver Creek Canyon, and others. During long ages the Verde River carried all its water and that of its tributaries, as it dashed along through the great sink and through a gap in the mountains at the south end, onward to the Salt River.

You might say the Verde Valley was a thing complete, as soon as the main subsidence occurred. But the valley's cross-section was far more rugged than at present. The great escarpment of the Mogollon Rim on the east was more extensive, and the frowning slopes of the lesser Black Range to the west far more imposing than now. Down the steep slopes toward the ragged gash of the river the young streams toiled prodigiously to establish milder gradients, carrying enormous quantities of rock, sand and mud away toward the sea.

Off to the southwest of the valley sat Squaw Peak; deep down in her core was turbulent heat. From her east side belched a fiery mass of molten lava which seethed and hissed its way down the slopes toward the river bed, filling the narrow canyon which the river had cut through the south end of the valley. You can imagine there was a great deal of steaming and fussing when the Verde River hit this molten dam, but there was no doubting the lava had temporarily blocked the right-of-way.

The river, effectively dammed, began backing up behind the barrier. The lake which was formed spread from the dam, about 10 miles south of Camp Verde, to about 10 miles north of Clarkdale, Arizona, and spread out until at one place it was 13 miles wide. Towards its eastern edge it included the territory around Montezuma Castle and Montezuma Well.

The streams which fed the new Verde Lake were doing a big job besides that of carrying water. They were converting large portions of the northern Arizona plateau into fine silt, and depositing it by the millions of tons on the lake bottom. As Oak Creek, Beaver Creek, and other creeks worked their canyons deeper into the Mogollon Rim they cut through incredibly ancient limestone sea beds, now thousands of feet above the original level. This lime was dissolved and carried in solution into the valley. Since the lake had no outlet, except for flood drainage over the dam, it lost most of its water in dry periods by evaporation. This caused the concentration of lime and other mineral salts to become so heavy they sank to the bottom, to make a limey ooze.

Now let's take a look at a spot 6 miles southwest of Montezuma Castle, where a large whitish hill marks the site of the largest prehistoric Indian salt mine in the Southwest. What could have caused that salt deposit?

Climatic changes affected the water level in the Verde Lake. During some drouth eras the only water remaining was at the lower end, from the Camp Verde district southward. There were great concentrations of minerals in this small body of water. As evaporation took place the lime was first to settle, then various other mineral salts, and finally among the last to settle was the true salt.

After the salt beds were thus made, nature hustled herself and brought more water to the lake again, and more silt and mud, which formed a protective blanket for the salt. These beds

were to remain covered as long as the lake lasted.

In the course of time the limey blanket of the lake bottom was built to a fair thickness (over 2,000 feet in the deeper spots) and had a fairly level contour from one end to the other, although the edges were deeply serrated by intrusions of igneous ridges from the mountains of the east and west. Then things began to happen again. You have heard the old saying, "He who laughs last laughs best." The Verde River had been frustrated by the lava from Squaw Peak, and had found it necessary to back up. But the old river wasn't quitting, it was just getting its second wind. As a lake, its flooding overflows gnawed at the lava barrier, and the rock began to weather and crack and get old. Perhaps nature threw in an earthquake or two to further hasten the inevitable. At any rate, the lake finally worked an outlet through the dam.

With the lake drained away, the river once again continued uninterrupted toward the sea. The old lake bed was now a whitish plain of limestone. The river and its tributaries worked tirelessly at making new stream beds, cutting them down for hundreds of feet into the lime. The channels widened, and after a losing struggle of two or three million years to hold its identity, the white plain degenerated into a valley border with limestone fingers sticking out between the curves of the broadened water courses. With the maturing of the streams and a lessening of the gradient, they meandered and deposited in their S-curves rich layers of volcanic soil which was brought down from the mountains. In this soil developed dense growths of grass, bushes and trees to fringe the water edges.

Rains and streams eventually uncovered the salt beds at the south end of the valley. The stage was now set for human occupancy, with a fertile valley abounding in vegetation and wild life, ample water for irrigation of the loamy river terraces, and salt for the human palate and health. Thus we complete a brief picture of the geological forces which made the valley a livable place.

Today the region of the old Verde Lake has a distinctly arid climate. From Camp Verde, near the lower end of this area, at an elevation of about 3,200 feet above sea level, to Clarkdale, near the upper end, with an elevation of a little over 3,400 feet, the average annual rainfall is around 11 inches, although as much as 27 inches in a year has been recorded, and as little as 7 or 8. The native vegetation is typical for this rainfall pattern, where temperatures vary 100 degrees during a 12-month period, reaching 112 above zero F. in summer shade.

Along the banks of Beaver Creek are dense growths of Arizona Sycamore, with liberal sprinklings of Nettle Hackberry, Desert Willow, Fremont Cottonwood, Velvet Ash and some Arizona Black Walnut. The sand bars have great quantities of Watermotie, Single Whorl Burrobrush, and Desert Willow. Slopes leading down to the watercourse have, on north exposures, thickets of Scrub Oak mixed with Mesquite and Catclaw.

The native growth on the stream terraces consists mostly of dense Mesquite and Catclaw thickets. As these areas merge into the white bordering limestone hills the Mesquite becomes stunted and then dies out, being replaced first by *Canotia* (*Canotia holocantha*) and Creosote-bush, and a little higher by Juniper growth.

Seventy-five years ago early settlers in the Verde Valley found the Mesquite flats along the Verde and its tributaries grown so high in grass that they used to scythe it and use it for hay. Today, in the best farming areas, most of the native growth is gone and the fields are in modern crops of alfalfa, corn, wheat, oats, etc.

Early plowing of the terrace lands in the valley often revealed evidence of the pit house structures which were occupied by primitive Indians before they learned how to build walls above the ground. Charred hearth levels were found, and places where the dwellers had

smoothly mudded the cut-bank walls of their pit structures. Hohokam pottery dots these vicinities. How early some of these homes may have been used is yet open to conjecture, but it is safe to imply that some of them are at least 1,500 years old. Later Indians constructed small surface houses with walls of mud and stone. And we see, through evidences crowning many low hills near the terraces, how need for protection from enemies forced the people to combine small houses into great community structures. Whether the first enemies of these people were outsiders, coming in to raid the harvests from their small fields of corn, beans and squash, or whether the danger was from other groups of farmer folk in the same valley, we do not know

Finally the communal dwellings, or pueblos, reached the classic stage of their existence, so that during the 1300's several hundred people might live in a single communal apartment house. Usually these pueblos occupied hilltops near the fields, so farm workers could retreat to their homes in case of sudden attack, and so they would live near enough to the principal source of their livelihood to be very short-distance commuters. Sometimes, when conditions were suitable, the communal dwellings were built against the faces of the limestone cliffs, which bordered streams in many places. Outstanding among these latter was Montezuma Castle, in combination with its large structure a short distance to the southwest, designated in the following pages simply as "Castle A."

Montezuma Castle is situated on the north side of Beaver Creek, about 200 yards from the present water channel, in a deep recess in the south face of a limestone cliff 150 feet high, overlooking a broad expanse of winding river terrace and low foothills in the valley to the south. A slope rises to the foot of the cliff about 50 feet above the level of the river bed, and 70 feet above this is the base of the structure. This considerable slope, directly south of Montezuma Castle, is partially covered with a deep trash fill, in which are signs of graves and older house structures.

One hundred yards southwest of the Castle, in a continuation of the same cliff face, in a similar large recess, is the fallen ruin of another cliff dwelling which, at one time, was more than twice the size of the Castle. This dwelling, Castle A, was the focal point of C. W. A. research activities on this monument. It is numbered N. A. 1278A in the survey files of the Museum of Northern Arizona.

Castle A originally contained five stories, built into the cliff face over a base level of two tiers of rooms resting on a shelving ledge 10 feet above the present river terrace. When this building collapsed in prehistoric times, presumably because of the fire which destroyed all its ceilings, the crumbled mass covered the two lower floors and spread below and beyond onto the terrace.

Our task in 1933-34 consisted of the excavation and removal of fill from above these lower rooms, and partial restoration of weak standing walls; excavation and removal of fill from the section in front of the ledge, and test trenching on this level in search of graves or earlier horizons of occupation. In addition, some test trenching was done on the slope in front of Montezuma Castle (see folded map at end of this report).

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## REVIEW OF PREVIOUS WORK

The Verde Valley has received less consideration in view of its archeological possibilities than perhaps any other well-defined region in the Southwest. From the late 1880's until the summer of 1932 no archeological work which was careful enough to be designated as such had been done, with the exception of four survey reports, which were on surface studies and did not cover any excavation activities. Prior to that time, in the days of Indian troubles, no scientific work was done, although pot-hunting was indulged in extensively by the soldiers and few settlers.

The first survey, that reported by Cosmos Mindeleff,<sup>1</sup> was an exhaustive review of the architectural characteristics of ruins from Camp Verde south to the Salt River, covering only those sites along and near the river terrace. He gave detailed surface description of construction, location, and size of the ruins, with much careful mapping and plotting. He divided prehistoric remains in the Valley into five groups, which follow:

- a. Stone villages in bottom lands.
- b. Stone villages in defensive sites.
- c. Cavate lodges.
- d. Boulder-marked sites.
- e. Irrigation ditches and works.

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1. Mindeleff, 1896.

J. W. Fewkes,<sup>2</sup> in 1895, conducted his first expedition to the Verde region in search of museum material for the Smithsonian Institution, although very little actual excavation was done, this little being in the nature of cleaning trash on the floors of two large cliff-dwelling ruins. His work was confined chiefly to the Red Rock country, 25 miles north west of Montezuma Castle. He describes in great detail the two cliff ruins of Palatki and Honanki, with attendant artifact material, but confines his work more to cataloging and sketching than to drawing conclusions.

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2. Fewkes, 1898, pp. 536-76.

Fewkes' second visit to the Verde, in 1906, resulted in a superficial investigation of ruins in the upper section of the Verde, in which he described and mapped a great number of ruined dwellings and fortresses on Walnut Creek, a tributary to the Verde River which heads in the mountains west of Chino Valley.<sup>3</sup>

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3. Fewkes, 1952, pp. 191-213.

Mention should here be made of Dr. Edgar A. Mearns, who, while not an archeologist by profession, was possessed of a keen and intelligent interest in the subject. Stationed at the army post of Camp Verde in 1884, he visited the nearby Montezuma Castle, and in 1886 caused the debris to be carefully cleaned from the floors of this structure. In an article which he wrote he described the artifacts taken from the dwelling, and presented a careful ground plan of the building.<sup>4</sup> This plan has been of interest in checking the condition of the building of today as compared with that of years ago.

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4. Mearns, 1890.

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H. S. Gladwin, in 1930, conducted a survey in the Verde, attacking it from the angle of surface sherd investigation, in the endeavor to determine the relationship, if any, of the Verde aborigines to the people who made Red-on-buff ware in the Gila Valley.<sup>5</sup> To Mindeleff's division of prehistoric remains he added the following:

- a. Cliff dwellings.
- b. Small-house groups.
- e. Fortresses.
- d. Rubbish mounds.
- e. Sherd areas. (Probable camp cites, without structures.)
- f. Rock shelters.

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5. Gladwin, 1930(a).

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This division was not followed up as an architectural study, but as somewhat of a guide to the sherd charts he constructed.

Gladwin's conclusions were quite tentative, and held that a considerable culture complex existed in the Verde Valley. The ceramic evidences of at least four different groups of peoples were recovered. The chronology of these occupations could not be positively decided from surface work. The diffusion of pottery types from other regions which affected this area indicated the Verde Valley to have been a strong trade center for Little Colorado and Gila wares, or a center of great imitation of the styles of contiguous peoples. Difficulties in determining pastes of locally-made and traded pieces prevented positive conclusions on this score.

In the summer of 1932, under the direction of Dr. Byron Cummings, director of the State Museum, Tucson, Arizona, the King's Ranch ruin in Chino Valley, 60 miles west of Montezuma Castle, was excavated, Edward H. Spicer, in charge. A 12-room pueblo structure was found overlying the ruins of much earlier pit house habitations. This ruin was considered to be a site of manufacture of Prescott Black-on-gray pottery. A very crude decorated type, it was made, without change in style, throughout the period of occupation at this site (from pit house times until Pueblo III). Spicer considered the people to have developed a normal pueblo culture, but, paradoxically, to have been very backward in pottery development, and to have depended for quality wares almost entirely on trade pieces from the north and south. (Six tree-ring dates from Room 6 at this site indicate that the pueblo was built in 1028 and extensively repaired about 1055 or 1060 A. D.)<sup>6</sup>

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6. Baldwin, 1939.

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In the winter of 1933 and the spring of 1934, a large ruin 20 miles northwest of Montezuma

Castle, known as Tuzigoot, was excavated by Spicer and L. R. Caywood.<sup>7</sup> The pueblo had quite a long period of developmental occupation, extending through the Classic Period of the community-type pueblos. In common with the Chino Valley people 40 miles west the inhabitants developed a fairly advanced culture, but appear to have traded in most of their quality decorated wares from the Little Colorado and San Juan regions. Two timbers from a roof in this ruin gave the date of 1200 A. D.

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7. Caywood and Spicer, 1935.

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Six miles northeast of Montezuma Castle, on the I. M. Jackson ranch, a large hilltop pueblo was excavated in the 1920's by the owner. As no data are available on this work, the excavation is of slight value as a reference. The pueblo belongs to the late period of latest occupancy in the Verde Valley, and shows great abundance of northern types of decorated pottery.

In 1932-33, the writer made a surface investigation of ruins in the Verde drainage,<sup>8</sup> in which he visited and charted, in addition to those covered in previous survey reports, a great many sites, chiefly in the region east of the river terrace margins between Clear Creek and Cottonwood Canyons, southeast of Camp Verde. Sherd collections were made from all these sites, and percentages of type occurrences estimated. A pit house site on the land of the Calkins Ranch, 5 miles east of Camp Verde, was partially excavated, and was found to contain specimens of trade ware of pure Colonial Red-on-buff.

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8. Jackson, n. d.

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Such tentative conclusions as were drawn pointed to a strong Hohokam or Lower Gila influence in the older sites of the Verde Valley, with the influence growing progressively stronger farther south, weaker to the north. At about the time of the advent of Colonial Hohokam Red-on-buff from the Lower Gila, it is believed, northern influences commenced definitely to come in also, and that as time passed, Little Colorado pottery types almost completely dominated Verde Valley decorated ware in design and form. Eventually, the Verde peoples must have drifted north during the Pueblo IV period, and finally population units fused again to help found the villages Which are occupied today as modern Indian pueblos.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## PROCEDURE

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The CWA research work here began on December 18, 1933, with 10 men (working a 30-hour week) and myself as supervisor. Sallie Pierce began work as laboratory technician on January 8. On January 22 the crew was cut to a 15-hour week, and the force reduced by half, although the same number of men worked in staggered shifts. The last laborers were laid off on April 4, Laboratory Technician Sallie Pierce and myself being carried one more week, to April 12, to finish up the work and report.

In the excavation, since it was known that most of the rooms to be cleaned occupied the upper level of the sloping fill, our method of attack was to begin digging at the top, throwing the refuse over the steep slope, instead of starting first at the terrace level and digging against the slope on grade. This method of starting above and working outward at first might seem wasteful of time and labor but was the only means of properly excavating the rooms. Our method enabled us to work a consistent level downward, completely outlining the dimensions of a room before actually cleaning the floor, without danger of undermining structures from below and causing them to cave.

Picks and shovels removed the fill above floors until the fallen ceilings were approached, usually a foot or so above the actual base floor; from this point care necessitated use of hoe, miner's pick, trowel, and whiskbroom, and this task of cleaning the debris immediately adjacent to the floor devolved upon the supervisor.

After the room outlines had been sufficiently indicated, the crew was switched from the upper level, and started in with wheelbarrows attacking the fill from its base on the terrace level. The dirt and rock was hauled by this means less than 100 feet to a deep arroyo which needed filling, while all suitable building rock obtained from fallen walls was stacked up in the event of possible future need. Observations were made during the progress of this removal for possible advantageous use of stratigraphic tests, but as all of the sloping fill seemed to be made up of fallen wall and ceiling material, it was impossible to secure a satisfactory chronology of stratum depositions. Test trenches in the terrace level, below the slope, provided the only stratigraphic work feasibly possible.

On excavation of graves, pick and shovel work removed fill from above until the capping slabs were reached, or until the interiors of chambers were just touched; from this point down the trowel, whisk broom, and pointer completed the work. All dirt from grave chambers which showed possibilities of beads and small objects was screened. Burials and artifacts appertaining thereto were outlined and left in position until photographs could be taken, and then removed to the laboratory for final cleaning and repair.

Materials used in the restoration of Room 5, (which was removed a few years later. Ed.) which consisted of walls and ceiling, were few. We used rocks from the fallen material which had seen previous use in walls; and our mud, which was made by mixing with water the unscreened lime dirt and small amount of river sand which was found with it in the fill, appeared, after restoration, to be the identical material the cliff dwellers used to build their

houses, harmonizing perfectly, even in color.

Timbering and small growth for ceiling support was taken from local growth in the river bottoms, consisting of Sycamore and Willow—the same materials the builders used in Montezuma Castle. We were unable to obtain the Sacaton Grass which was then used for one ceiling layer, as it no longer grows in this section.

Skilled workmen were not used in the restoration work; they would have been unsatisfactory, for their work would have been too careful and exact. The construction work of the cliff dwellers was no better than the intelligently guided hands of an unskilled worker of today.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## RESULTS ACHIEVED

### House Remains

Castle A originally contained five stories, with possibly a balcony level atop the fifth floor. A calculation as to the number of rooms it contained can be, beyond a certain conservative estimate, only hypothetical, for the cataclysm which resulted in its destruction so completely tore away the front rooms of the third, fourth, and fifth floors as to leave only the slightest trace, if any, of certain rooms. When the building fell it simply peeled off from the face of the cliff, almost as if a great knife had made a diagonal slice from the cliff wall at the top to the front base. (Fig. 1, p. 10.)

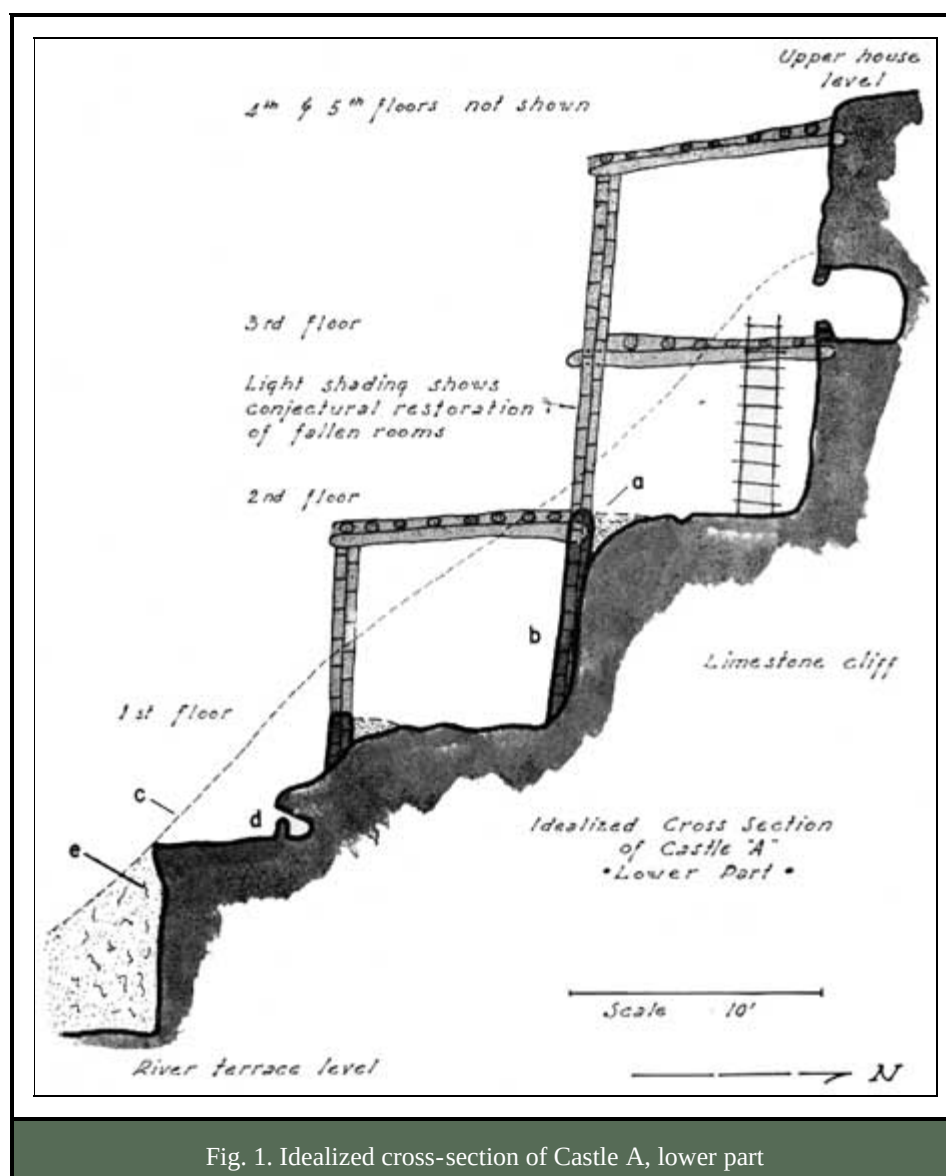


Fig. 1. Idealized cross-section of Castle A, lower part

At present there are positive indications of 26 rooms, some showing a complete floor outline, others only a corner or wall trace. Beam sockets in the cliff face, and evidence on ceilings which were excavated from the two lower room tiers, indicate conservatively a room total of 44 or 45. A dozen more rooms could easily have existed.

The floor remnants and caves of the third, fourth, and fifth floors, and part of Rooms 1 and 2 on the second floor were excavated or cleaned by George Boundey, former custodian of Tumacacori National Monument, in the spring of 1927. No report on his work is available. The rooms he excavated seem consistent with the construction type employed in the later type rooms which this work has uncovered, and so will be covered by that description.

The rooms uncovered in this project are numbered in the order of excavation. The second, or upper tier, was cleaned from east to west and includes Rooms 1, 2, 3, 4, and 5, and was completely finished before the first, or lower, tier was begun. Rooms 1a, 2a, 3a, and 4a were found to lie immediately in front of their corresponding numeral indications of the former group. (See ground plan on folded map.) The caves which were cleaned will be described in conjunction with the rooms which they adjoin.

Structural features typical of the whole building, insofar as our incomplete evidence reveals, include: use of masonry walls, and ceiling dependent upon two master beams running transversely to the long axis of the room.

The walls, of uniformly crude construction, were built of unfaced limestone blocks set in thick courses of caliche mud. No knowledge of staggering, or breaking of joints, was had by the builders. Room walls were double, averaging between 18 and 24 inches in thickness, without rubble fill, although small stones were used for chinkers. Walls of storage chambers and small caves were of single construction, averaging about 1 foot in thickness.

**Room 1.** This room was previously excavated by Boundey. Nothing was found, in cleaning. There were no ceiling indications left, and no signs on the cliff wall forming its north side of beam sockets for a second story. The southeast corner of the room was built over fill, and has sloughed off, together with the east and south walls. The remaining floor section is cavate and is separated from Room 2 on the west by the fragment of a double wall partition. A few inches above the floor level, in the north side, are two large cavate storage chambers.

**Room 2.** This room was also excavated in part by Boundey. Cleaning away of debris revealed a complete floor, of the same style as in Room 1, save that the floor had been plastered with a reddish clay. In the north side two small natural eaves had been partially walled up from below, to serve possibly as storage pits. Wall fragments were found on the east, south, and west sides. The south wall, being the longest, was expected to show signs of a side doorway, but was so badly crumbled nothing could be determined. A clay ridge, running north and south 6 feet east of the west wall, marked a 6-inch drop in the west third of the floor. In the west side of this ridge, slightly south of the floor center, was found the charred stump of a large post upright, which had served as a support under one of two large master beams. Sockets in the north wall, 11 inches in diameter and 8 feet above the floor, had supported the north ends of the beams, while the south ends had rested on top of masonry wall. Other beam sockets, higher in the cliff, show definitely the original presence of two stories above Room 2.

**Room 3.** The floor is cavate, while the north wall is cliff. The south end of the floor was built upon fill, as the natural ledge graded off sharply before the end was reached. (See floors in Fig. 1.) The firebox, in the south center, was lined with upright basalt slabs, making a pit 6 inches deep with edges protruding 2 inches above the floor. West of the firebox under a

slightly elevated portion of the floor, were two shallow pits which contained three baby burials. (Photo 10.) (See Human Burials.)

The burned ceiling rested directly on the floor (Photos 8-9), and, because of a large metate which rested above it, we believe the roof to have marked a second story of occupation. No post holes were found in this floor. Master beams ran north and south. Above the closely spaced Sycamore rafters were sticks 1/2 to 1-1/4 inches in diameter, then a transverse layer of Reeds, then smaller transverse sticks, then a 4- or 5-inch layer of clay.

The south wall of the room was entirely gone, save for a pile of stones entirely below and in front of the floor level, which may have served as a rear masonry wall for Room 3a and as a front wall for Room 3. The east wall, adjoining Room 2, yet stands against the cliff to a height of 8 feet. The west wall, resting on an arm of the native limestone, is fragmentary. No sign of door opening was found.

Artifacts found on the floor consisted of: three three-quarter grooved axes (one double-bitted); five metates, one with mano in position; 12 manos, and parts of several others; one tiny, molded shallow bowl, 1-3/4 inches in diameter and 3/4-inch deep; two bone awls; one bone dagger; one bone needle having an eye (a rare feature); half of a spindle whorl of bark, 3 inches in diameter; one obsidian arrowhead; several fragments of stone hoes; many fragments of crude, plain pottery.

Two caves adjoined Room 3 in the north cliff face. The easternmost had never been inhabited, but was used solely for burial purposes (see Human Burials). The westernmost cave was of good size and showed much evidence of occupation, having considerable charcoal and broken pottery on the floor and a long-used circular firepit in the center of the floor. A storage pit in the north wall, partially sealed with a single stone wall, had served as a granary, as it yielded many fragments of corn stalks and leaves.

**Room 4.** This room was constructed in the same manner as Room 3, with one important exception: it had the south end of the floor built over fill and had the same arrangement of ceiling material, at least insofar as the badly broken charcoal fragments indicated. The floor showed no apparent layer of clay, although small patches were scattered over it, which may have belonged to the ceiling clay. The ceiling, on the north, or higher, side of the floor, contacted the bare rock, while the south side rested on stratified sand and lime dirt which had been washed in. The firebox, on the south center of the floor, was as in Room 3, only the slabs were of limestone instead of basalt.

This was the first room to reveal an unusual feature which appeared also in three of the others later excavated. There were 10 post holes in the floor, arranged into two groups of four each at the ends, joined by two larger holes nearer the center of the room. (Fig. 2b, Photo 11.) Post holes averaged 2-1/2 to 5 inches in diameter, corner posts and center posts being the larger. This use of supports for ceilings is very typical of the earlier pit house structures found in the Gila Valley and other parts of the Southwest, in which the posts form the sole support for the roof, in lieu of masonry walls. However, where such arrangements were used in this building we know there were walls, and hence no structural need for so many posts unless great weight was to be borne by the roof. That a second story existed here was shown by the discovery of a large metate, several manos, and a three-quarter grooved stone axe above the ceiling. On the floor of Room 4 were found four metates, several manos, and much broken plain pottery.



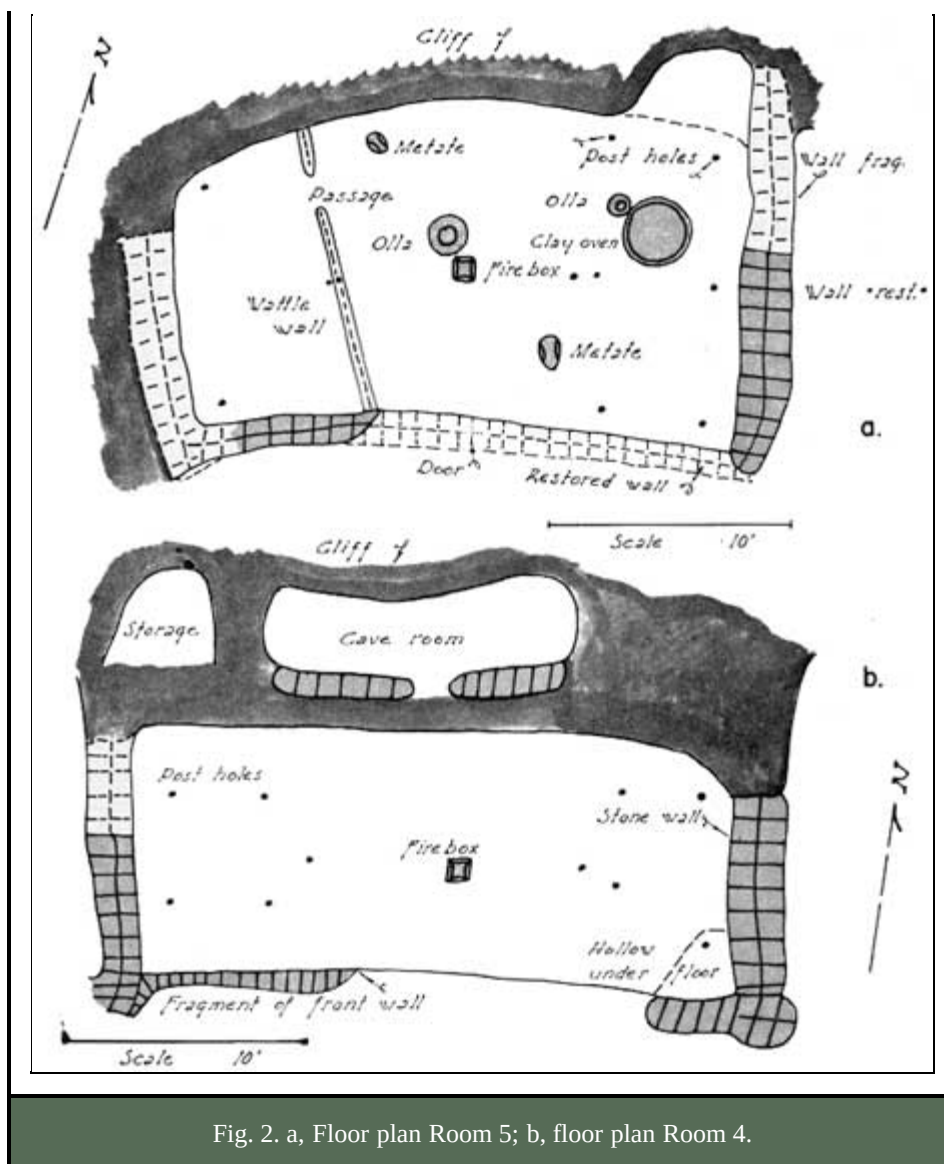


Fig. 2. a, Floor plan Room 5; b, floor plan Room 4.

Eight feet above the floor of Room 4 was found the mouth to a cave room, opening onto the second story level. This room was entirely cavate, with a single-thickness masonry wall on the south. In the center of this wall was a narrow doorway, 15 inches wide, 29 inches high, the upper ledge forming the lintel, the bottom being 1 foot above the floor. The walls of this room showed no smoke, but the floor, plastered with clay, showed much blackening. One crude stone axe and a broken plain olla were found. Any perishable artifacts would have rotted, as the dirt which filled the cave was all rainwashed.

**Room 5.** As in Room 3, the front wall was entirely gone, and the floor sloped off with the ledge. The floor was entirely cavate, with cliff on the north and cliff slope on the west, and a high arm of limestone on the east, capped with fragmentary masonry wall. Stratified sand and lime soil, mixed, were found all over the floor to a depth of 3 inches, with gravel and larger material in layers on the top. Only the slightest traces of a burned ceiling had been preserved from action of water, although part of the clay roof material found on the floor showed the closely set, parallel impressions of Willow stems about 3/4 of an inch in diameter.

In the south-central part of the room (Fig. 2a) was an excellent firebox of lime slabs, mudded on the outside and plastered on the inside (Photo 12). Cutting off the western third of the room, running north and south, is the standing clay remnant of what was once a wattle-wall partition, with an entryway near the north end. This wall stands about 1 foot high, and 3 to 5 inches thick, presenting a smooth face on the east; the west side shows imprints of a vertical

row of sticks, placed close together, between which the soft mud had oozed. The sticks have long since rotted away but the imprints convinced us they were willows, about five-eighths of an inch in diameter. Whether cross sticks interlaced the vertical ones when the wall stood to a greater height could not be determined.

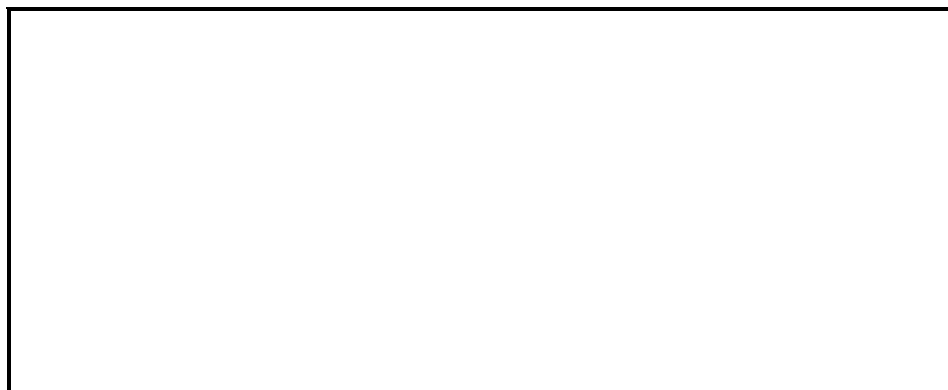
Near the east wall of the room is a circular clay wall built on the rock floor; its walls average 4 inches thick and its diameter is 30 inches, with a height of about 8 inches. It may once have been a low dome, but the top, if such, has fallen and disintegrated. No sign of firing is visible within this enclosure, which fact precludes the probability that it was used as a firing or baking oven. Its function has yet to be understood.

The floor of Room 5, as in Room 4, is pitted with a number of post holes. (Fig. 2a). These 12 holes (*Ed. note: 9?*) are arranged much on the order of those previously described, and represent the same convention in building. Whether they represent a roof structure which was used before any masonry walls were constructed in front, or whether they were built along with the masonry wall, is problematical. If there were a shortage of long or strong timbers available it is logical to assume that the pithouse type of roof supports would have been of good secondary assistance to the walls. However, the repeated presence of this style of building, coupled with the older-type wattle partition wall, proves pretty conclusively that the builders had not forgotten pit house days.

On the floor of Room 5 were found: three large metates; four manos; two partial ollas, one of which had rested on the west end of the roof; one stone pounder; two large plain ollas, one resting against the firing oven (?) and one against the firebox, where some woman must have conceived the idea of keeping hot water at all times. (See Photos 12-14.)

Near one metate which was found in position were found two small holes in the floor, 2 inches deep and five-eighths of an inch in diameter, one 6 inches from the northeast corner, one 6 inches from the northwest corner. Two similar holes were found north of the large olla, one 8 inches northeast of it, one 6 inches northwest of it. The purpose of these holes is not known.

Because of the numerous interesting features about Room 5, the fact that it had been undisturbed save by water, and that there appeared to be no second story, it was decided to restore the walls and roof. This we did, making the walls of fallen rocks found in the debris and using the lime dirt from our excavation, mixed with water, for the mud. The roof was restored of Sycamore timbers, as that is the tree growth which abounds here and which was originally used. Over the Sycamore was placed a closely fitting layer of Willows, above which were transverse layers of light Willow and Cottonwood sticks, on top of which was placed a 5-inch layer of mud. (Fig. 3.) The roof had a slight pitch to give drainage. We knew the exact height of the roof against the cliff, because of the old beam sockets there, but had to guess at the height of the front. A side entrance was made in the center of the south wall, considered the logical entrance to a ground-floor room.



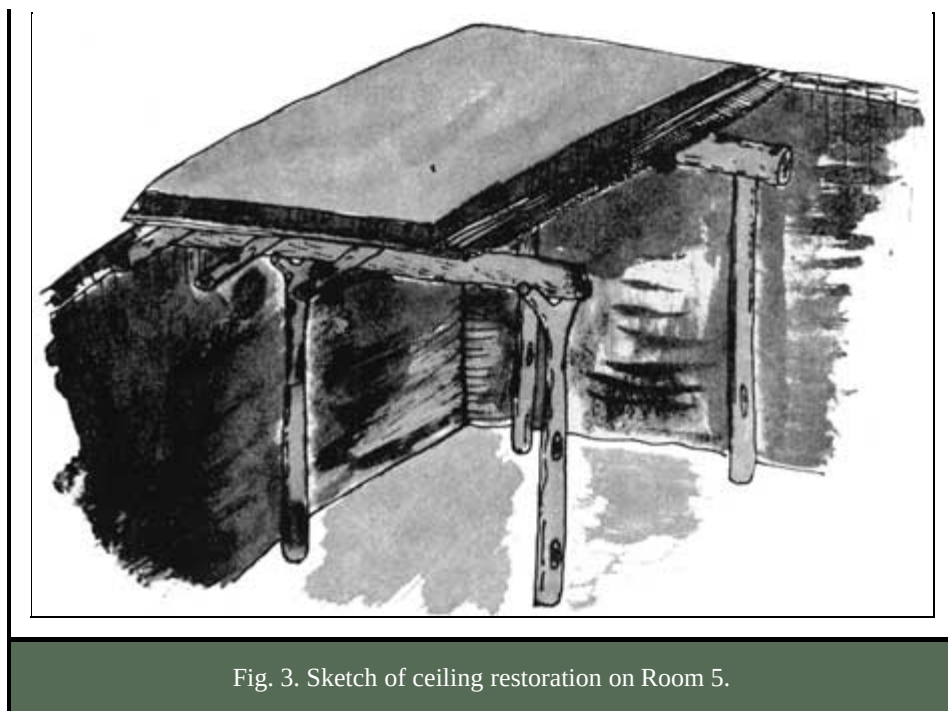


Fig. 3. Sketch of ceiling restoration on Room 5.

**Room 1a.** This room is at the extreme east end of the base ledge for Castle A, 11 feet above the river terrace level, and 9 feet below Room 1. To the north and west is solid limestone. No wall remains on the south at all and only a slight fragment abuts the north wall at the east end. Only the cavate floor outline, which is slightly lower than the rest of the ledge, indicated the boundaries of the room. Two to 4 inches of sand and lime dirt covered it, and this layer in turn had become so hard packed as to suggest another level of occupation with a new floor. No remnants of ceiling material were found, and nothing to suggest a second story.

In the center of the floor was a storage well, 2 feet wide and 2 feet deep, which could have held water. A few inches from the edge of the well was the single large post hole of the room, pointing to probable use of only one supporting master beam for the ceiling. Two storage pits in the north wall, one walled half way up from the bottom, produced only trash and broken pottery, none complete.

In the fill above the floor were found: two large metates; three manos, and numerous broken sections; parts of several plain ollas which had rested on the ledge outside the south wall of the house; half of a corrugated olla, and part of three Black-on-white bowls; one spindle whorl; one stone pottery molder; and one three-quarter grooved axe.

**Room 2a.** This is a large cavate room, directly in front of Room 2, and 10 feet below it, with cliff face forming the north side, and lime rock extensions from the cliff forming bases for fragmentary remaining masonry walls at the east and west ends; the south wall stands a few inches above the floor but presents no sign of a doorway.

A layer of scattered and charred ceiling fragments lay about a foot above the floor, while in the west third of the room other fragments touched the floor. Proof of a second story was lacking, for the broken pottery throughout an 8-foot thickness of debris could have fallen from any of the floor levels higher up the cliff, but it is believed to have existed. Two to 4 inches of water-washed sand and lime dirt covered the floor, and patches of clay which may have been a covering or merely parts of ceiling clay fallen through the destroyed ceiling, were scattered about, touching the limestone base.

The customary firebox of limestone slabs was found south of the center of the room. Six feet east of the west wall was a low clay ridge running north and south the width of the room.

Extending from the north wall along this ridge for 7 feet, 6 inches, and then turning at right angles west to join the west wall, was the remnant of a clay wattle-work partition wall, (Photo 15) similar to that in Room 5. It was very low, and no positive doorway was found.

Only three post boles were in this floor, and they had undoubtedly been placed for much-needed supports to help hold the considerable span of roof over the east end of the room.

Found on the floor were: one excellent large metate; one small round basin metate; eight good manos, and parts of several broken ones; a chunk of yellow ochre; two broken stone hoes, and one complete; a thin, circular sandstone slab, painted red (probably used as a grinder for iron oxide paints); parts of three plain ollas, and a large portion of a broken Brown-on-yellow bowl.

**Room 3a.** This was the only room excavated having the longest axis running north and south. It lies directly in front of and 8 feet below Room 3. The north wall is now solid limestone, although a jumbled pile of rocks here probably formed at one time the base wall to the south end of Room 3. Masonry walls were built on the east, south, and west sides, although those to the east and south are practically demolished. That Room 3a was built later than Room 3 is indicated by the juncture of the west wall with a wall fragment parallel to the cliff; this is the only wall juncture showing positive chronology of building to postdate construction of the lower tier of rooms in relation to the second tier.

The floor is solid limestone, although the south end was built over dirt fill, and it had never been flooded as had the other ground floor rooms. Fragments of one charred ceiling were directly on the floor, while the second-floor ceiling, also charred, was about 15 inches above. No accurate details of either ceiling could be made out. Because of the shape of this room, the master beams probably ran east and west instead of north and south.

The customary firebox, contrary to form, was placed to the north center of the room. (Fig. 4.) Four feet south of the firebox a crack in the ledge had provided a sizeable hole (Photo 16), in which were found most of the pieces of a large plain olla. In the northeast corner was found a large olla, shattered but complete. By the side of this olla was a large metate, one end propped up on a stone, in position as it had evidently been used.



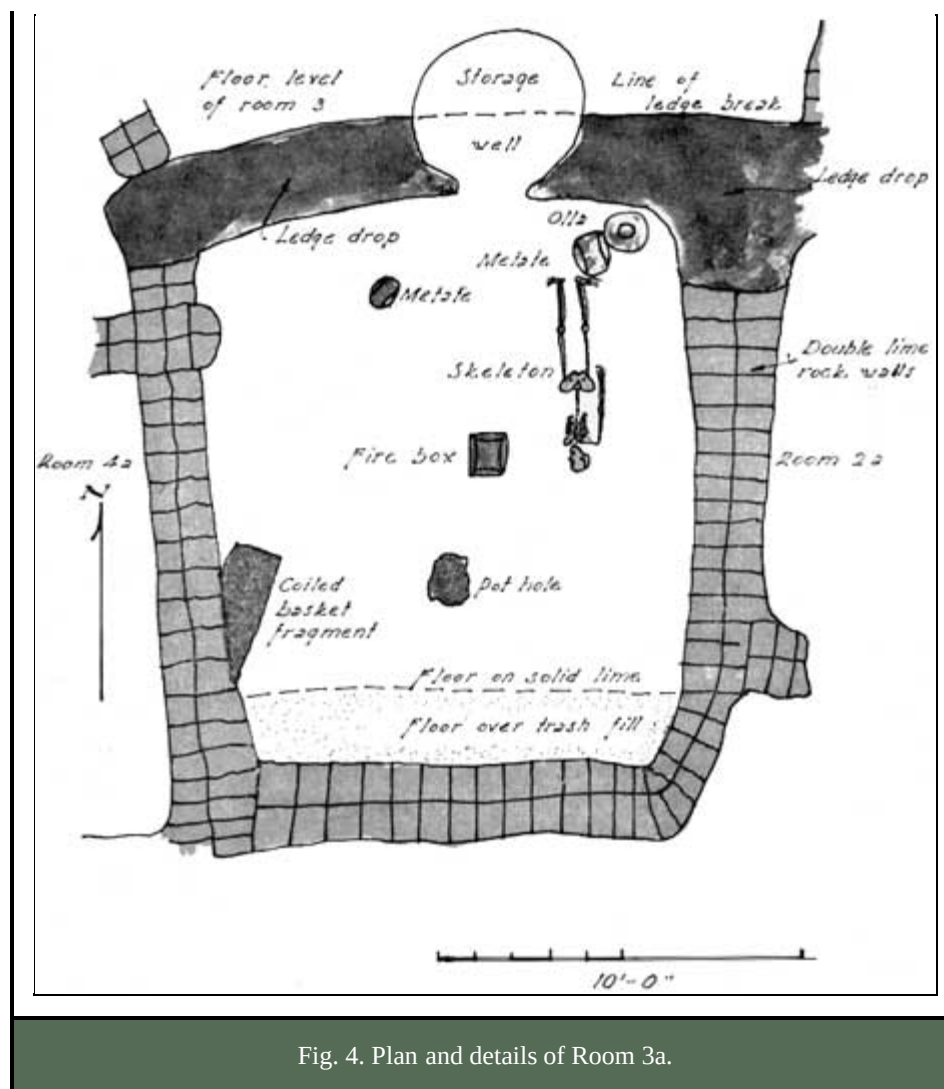


Fig. 4. Plan and details of Room 3a.

Northeast of the firebox, supine and extended on the floor, with feet to the north, was a skeleton of an adult, believed an elderly male (Photo 17). Because of doubt as to whether this individual was buried here, the circumstances should be described now. The skull was twisted sharply to the left and was too badly decayed to determine any sign of injury before death. The left arm was missing, but may have so decayed as to be unrecognizable. The bones were all in proper position, underneath a several-inch thickness of scattered ceiling fragments, but not burned; and directly underneath them, in contact with the floor, were more pieces of the same charred material. No burial artifacts were found, and no indication that a grave had been dug for the body. Whether this body was buried on the floor after the ceiling fell, or was lying on the floor at the time of the fire, or was buried under the clay floor of the second story cannot be determined.

Artifacts found on the floor, in addition to those already described, were: one round basin metate; one antler, badly rotted; three manos; two bone awls; parts of several stone hoes. From the second story came one grooved stone pick and one grooved axe. Near the west wall on the bottom floor was found a large section of charred and rotten basketry of a coiled weave strikingly similar to that of the modern Papago granary baskets, made of a grass rod foundation, and bound with yucca fiber, each binding strip piercing the adjacent bundle and holding some of the grass stems.

**Room 4a.** This room, also cavate, is in front of and below Room 4, separated by an elevation of 8 feet, 5 inches. The east wall, adjoining Room 3a, stood 8 feet high. The west and south walls were fragmentary, and there was a fragment of north wall against the ledge which

probably served as the base to the front wall of Room 4. The floor was unevenly covered with a thin layer of clay, and the south end was over dirt fill. A low clay ridge 6 feet, 6 inches, east of the west wall ran north and south across the width of the room but was broken down at the south end. The customary firebox was slightly south of the center of the floor. There were nine post holes, four in a square on the east side, the others scattered (Photos 18-19).

The burned ceiling material, badly disintegrated, was 2-1/2 feet above the floor, while the stratified sand and lime dirt beneath was rain or flood-washed; the natural supposition of a second story found no support, for there was no sign of a lower ceiling nearer the floor. This unusual depth of fill beneath the superstructure suggests, if we assume the building burned all at one time, which is the most reasonable thought, that Room 4a had been abandoned long before any of the other rooms on the same level.

Another peculiar feature about Room 4a was a group of 39 small holes in the floor, arranged to the west, east, and north of the firebox. These holes, like the four mentioned in Room 5, were small and shallow, averaging five-eighths of an inch in diameter by 1 inch in depth. They seem to have formed a design (Fig. 5) similar to two horseshoes placed together with the open ends apart, with the ends of the north shoe closed by a straight line. These holes were probably made to hold the lower ends of vertical sticks, which in turn could have supported a wattle-and-daub framework; or, the sticks could have been forked at the upper ends and supported light crosspieces for a table or shelf-like arrangement. But neither of these functions could be expected here. The wattle framework would not have been in the right position (in front of the firebox) to act as a wind deflector, but could have sufficed to prevent sparks flying all about the room. All of these reasonings seem weak, and the suggestion of ceremonial significance occurs; yet there is no other structural feature about the room to suggest a kiva or other type of ceremonial chamber.

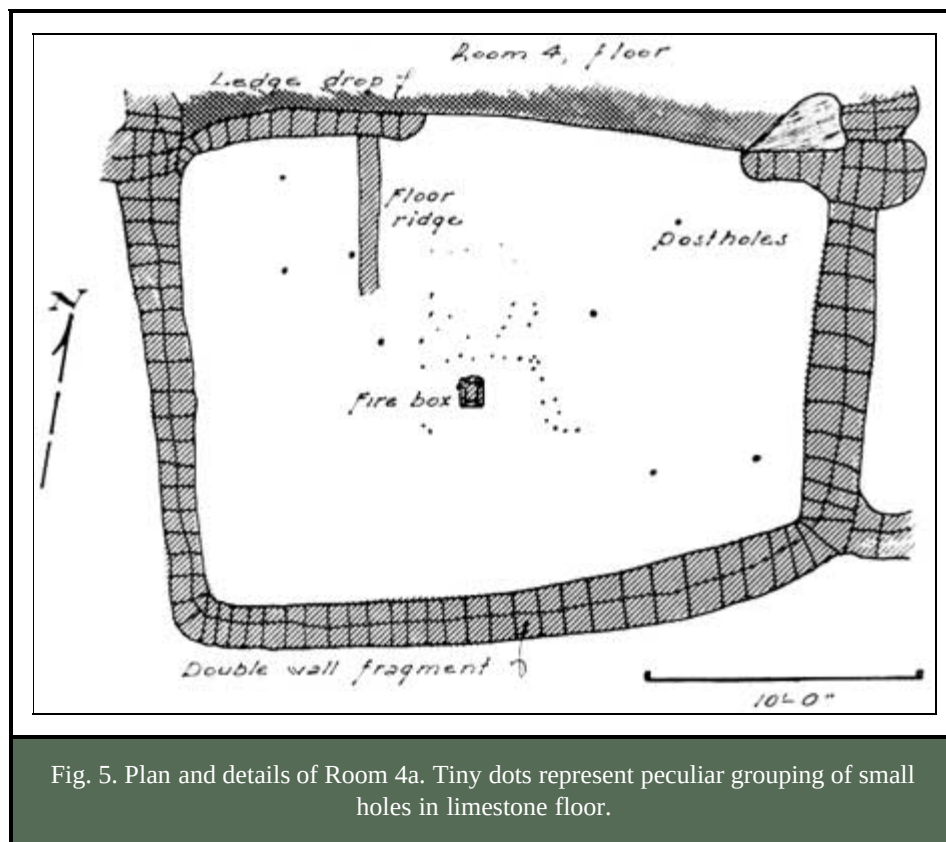


Fig. 5. Plan and details of Room 4a. Tiny dots represent peculiar grouping of small holes in limestone floor.

Artifacts found in Room 4a included: one basalt metate; one broken sandstone metate; one round basin metate, found above the ceiling (probably fallen from Room 4), with a grinding surface on one side and a pounding surface on the other; three manos; two or three polishing

pebbles; one sandstone pot surfer; two hoes, one broken; one full grooved axe and one three-quarter grooved pick at ceiling level; one tiny three-quarter grooved axe on floor at west end; one large complete bowl, shattered; parts of two large plain ollas.

### **Test Trenching in Front of Castle A**

Ten test trenches were dug in the terrace level below the fallen wall material to the south, southwest, and southeast of Castle A in search of graves or former levels of occupation. (See map.) These trenches extended southward from the cliff base.

No graves were found, and no floors, although plain, utility-ware pottery sherds and some finer sherds with highly-burnished interior surfaces were found in abundance in Trench 6 and to a lesser extent in Trench 9. Trenches 1, 2, 3, 4, and 5 were shallow, striking shelving limestone ledge at an average depth of 5 feet, showing stratified river soil and lime dirt from the top to the ledge base beneath.

Trench 6 was 27 feet long, extending from the cliff 21 feet, 6 inches, to the point of greatest depth. Lime and river soil were mixed to 9 feet. Nine feet to 10 feet, three inches, was lime fill. Ten feet, 3 inches, to 11 feet, 10 inches, was mixed clay and river soil with chunks of lime rock. Scattered sherds were found from top to 10 feet, 3 inches, and charcoal was scattered from top to bottom. A crude three-quarter grooved axe was found in a pocket of river soil at 9 feet, 3 inches.

Trenches 7 and 8 were shallow, and did not contact the cliff. Trench 7 struck solid rock, at 4 feet, which was evidently fallen from the cliff. No sherds found here. Trench 8 revealed nothing and ended in scattered lime rocks and river soil at 5 feet.

Trench 9, at 10 feet from the cliff, reached a depth of 12 feet, 9 inches. Eighteen inches of lime fill covered the surface. From 18 inches to 12 feet was river soil. Twelve feet to 12 feet, 9 inches, was river soil mixed with limestone rocks. At 6 feet, 2 inches, was a well defined layer of charcoal, containing plain sherds, but no slightest indication of any clay floor or even packed hardpan. The layer was about 1 inch thick. At 5 feet, 6 inches, 6 feet, 2 inches, 8 feet, 7 inches, and 12 feet, 9 inches, were found sherds, all plain and showing no variation. At 11 feet, 2 inches, to 12 feet, 9 inches, were found numerous small fragments of charcoal.

Trench 10, at a depth of 6 feet showed pure river sand and dirt, with no sherds or charcoal. It was discontinued at this depth because of tree roots.

Taking trench work in front of Castle A as a whole, we learned little. Testing the river terrace level proved that at one time the stream had swept in against the cliff under the building at a depth of at least 12 feet below the present ground level at that point. The presence of pottery at such depths indicates the stream changed its course away from the cliff face during periods of human occupation of the upper ledges, and that sherds and refuse were thrown over the ledges at different times, covered by flood overflows of sand and soil, and the process repeated. Lack of house structures, human remains, or artifacts on the terrace level as at present seen through sections, precludes possibility of giving great significance to the fact that no decorated sherds were found. The plain wares found were identical in type with those found in conjunction with decorated types of the later occupation of Castle A, but changes in utility ware were very slow, as we can see all through the Southwest. Further test work here would be necessary, and more material found, if these sherds were to be more closely located in time sequence.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## SUMMARY AND CONCLUSIONS

### Findings of Reconnaissance

Two test trenches were dug in the trash and dirt fill of the hill slope directly in front of Montezuma Castle. Both started near the existing road level, and ran toward the cliff to the north. The purpose of these trenches was to locate a possible burial ground or indication of house structures under the surface.

The western trench, just a few feet east of the old trail to the foot of the Castle, was stopped at a depth of 6 feet, 35 feet north of the road. At this point, 3 feet beneath the surface of the trash fill, was found a fragment of a stone wall running east and west. The wall was traced for 6 feet, and the base was found to be 6 feet below the surface. No floor was found, so the trench was evidently on the outside of the wall.

Forty feet east of the first trench a second one was dug, starting 10 feet north of the road and about 2 feet above its level. This trench was dug to a maximum depth of 7 feet, and extended toward the cliff about 40 feet. From top to bottom of this cut, the soft lime soil was filled with large boulders which had fallen from the cliff, while great quantities of potsherds and charcoal fragments were scattered through out. This slope had evidently been the refuse heap for the Castle dwellers.

Five feet below the surface, centering about 40 feet north of the road, this trench revealed the upper ends of the clay walls of a pit house. This house was excavated to a depth within 6 inches of the clay floor, but was not cleaned. All traces of superstructure were gone, and the north and south walls were broken down. The west and east walls stand about 18 inches high, slanting slightly outward. The room measures 12 feet north and south by 11 feet east and west, the long axis lying northwest 20 degrees by southeast 20 degrees (approximately).

Six inches above the floor, in the northwest corner of the room, was the burial of an aged female. The supine body was oriented east and west, head to west, extended, with the head and feet slightly elevated above the center of the body. The left ankle was crossed over the right foot. Head was tilted forward.

The bones were in good condition, and the skull was excellently preserved. Occipital deformation was extreme, resulting in a strikingly brachycephalic index.

No artifacts were found with this burial, and it had no connection with the pit house occupation, belonging to the later period of occupation which deposited the deep trash fill. We believe the people who buried this individual had long since forgotten about the pit house ruins underneath, and in seeking soft soil for the grave accidentally came in close contact with the floor of the old structure.

Because of lack of funds and time, this pit house was not cleaned, the 6-inch layer of dirt being left on the floor as a protection from the elements.

## **Age of the Ruins**

It is to be regretted that no single definite date can be given for Castle A, or, in fact, for any other ruin on the monument. Dendrochronology has as yet devised no means of dating the Sycamore and Juniper timbers used in the cliff dwellings here, and we have found no specimens of the wood of datable conifers.

Dating on the basis of sherd analysis is also restricted at this site. Stratigraphic tests at Castle A were useless, for the only trash mound used by the occupants of this building was on the river terrace level in front of the structure, and this repeatedly must have been swept away by floods of Beaver Creek. As was brought out in the section on pottery, pottery here shows widely heterogeneous trade influences, and may in some cases represent survivals or carry-overs. However, on the basis of pottery and other evidence, we can assume Castle A was occupied in early Pueblo III and that the latest period of its occupation carries it well into the early part of Pueblo IV. This could have been as late as 1425 A. D. It cannot be doubted that by far the most important period, culturally speaking, of the Castle A peoples, was toward the end of their occupation; material artifacts, of an advanced type, as exemplified in stone work, weaving, and jewelry, all point to late Pueblo development.

Structurally, Castle A presents points of interest, but not necessarily of significance as regards probable time of building. The presence of pit house style of ceiling supports, as has been remarked, is suggestive of carry-over of pit house structural ideas. As a general rule, rectangular pit houses having rounded corners and ceilings of this type belonged to Pueblo II, but not always. There is no doubt that in some instances pit houses were occupied contemporaneously with pueblo community type structures of Pueblo III period. Tradition need not necessarily have played any part in the usage of multiple-post roof supports in Castle A; if small master beams and small stringers were used, or if the ceilings became old and weakened, the use of the many supports would not have been at all incongruous in any period.

Likewise, use of wattle partitions, as indicated in Rooms 5 and 2a, need not have belonged to an early house period; wattle partitions were easier to build than stone walls, and took up less room; and the use of room partitions could as easily have been a late cultural desire to insure greater family or individual privacy of quarters, as an early one.

## **The Abandonment of the Castles**

We know the inhabitants of Castle A reached a high cultural level before leaving the Verde Valley. We also know they were extensive traders. As to the antiquity and place of their origin we could give nothing safer than a guess. Practically no archeological work has been done in early sites in the region, but such little evidence as we have at hand shows no sign of a cave-dweller forerunner of the unbroken Pueblo sequence in central Arizona. All of the prehistoric human remains from this section, insofar as is known at present, tie in admirably with the characteristics of their putative descendants, the Hopi. Legends of the Hopi Indians of modern times, especially those of the Water Clan, strongly imply an earlier existence in the cliff dwellings to the south of Hopi Land.

Castle A fell from the cliff as the result of a great fire which razed the structure from top to bottom. It was at first believed that this fire was the cause for the abandonment of the building; research here has shown this not to be the case. The weight of evidence, as seen in the silt accumulations underneath the charred ceilings, shows the ruin to have been

abandoned, perhaps for a considerable time, before the firing occurred.

Various ideas have been advanced in the past as to the probable reason for the departure of Pueblo peoples from the Verde Valley, a land which, because of its rich farming possibilities, should have appealed to an agricultural people as the place for a permanent home. Since Castle A, along with Montezuma Castle and most other ruins in the region which belong to the late Pueblo period, could easily have been turned into a fortification on short notice, it has been suggested that the peoples may have been harassed by warlike, nomadic groups, Yavapai or Apache, who would raid the farmers' homes and fields and lay waste, stealing their women and their crops. That such persecution could eventually drive the peaceful ones out of the country has been held tenable. However, in our opinion, it is very unlikely that the Pueblo people left the Verde because of defeat by nomads. Such a large population as this region must have boasted, intent on retaining its land, would have required a more intense and organized opposition to be driven out than the haphazard methods of occasional marauding bands of enemies could have given.

Drouth could have caused wholesale departure from a home region but it seems to us that if drouth assailed the Pueblo peoples they would have flocked into, rather than out of, this valley.

Pestilence could have been a cause. Insanitary living conditions might have rendered these peoples susceptible in great numbers to fatal diseases. However, nothing was seen in the excavation of Castle A to indicate a precipitous departure; rather, the relative scarcity of artifacts remaining in rooms would suggest a leisurely leave-taking.

No single satisfactory reason for the abandonment, in the fifteenth century, of the Castles and of other Verde Valley sites can be offered at the present.

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## Montezuma Castle Archeology - Part 1: Excavations



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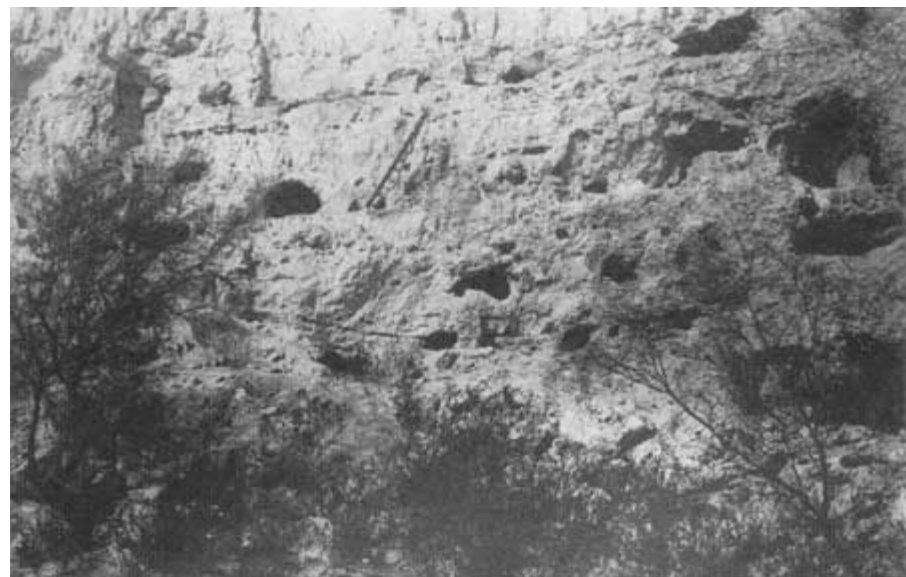
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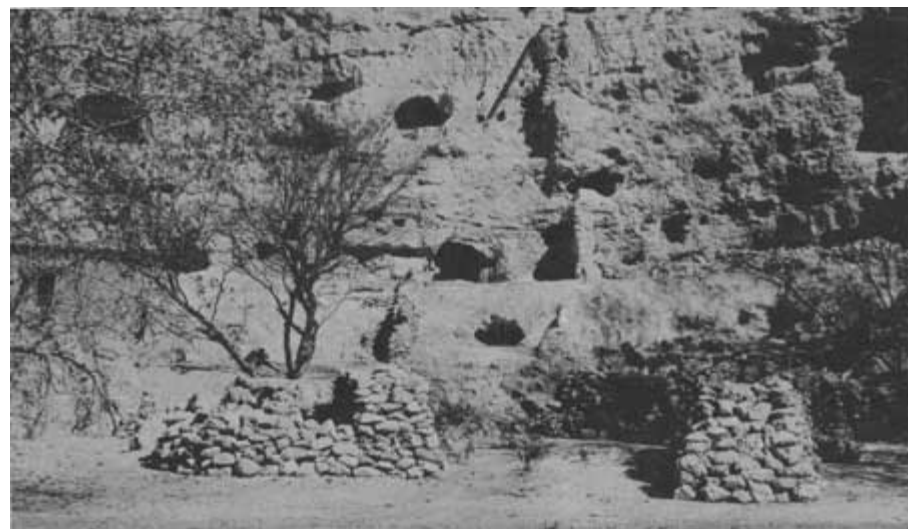






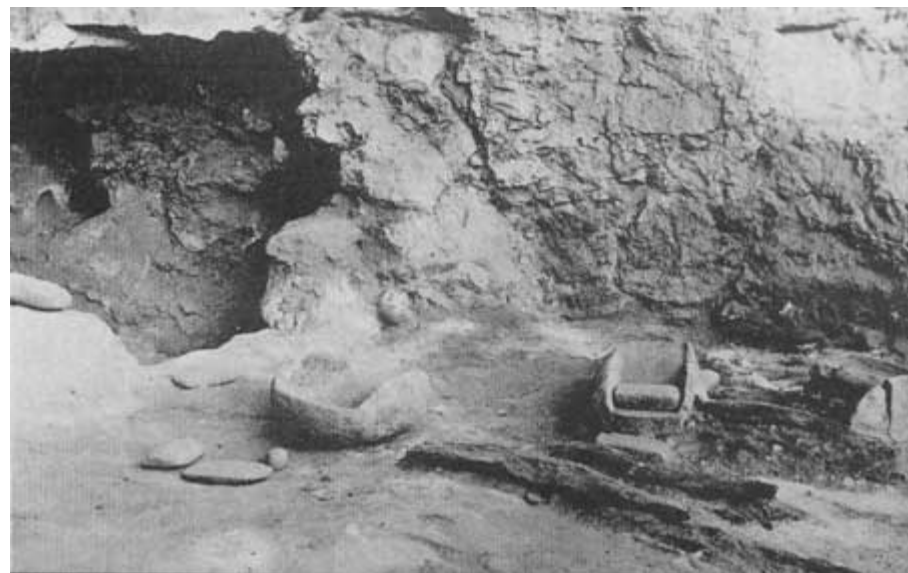




















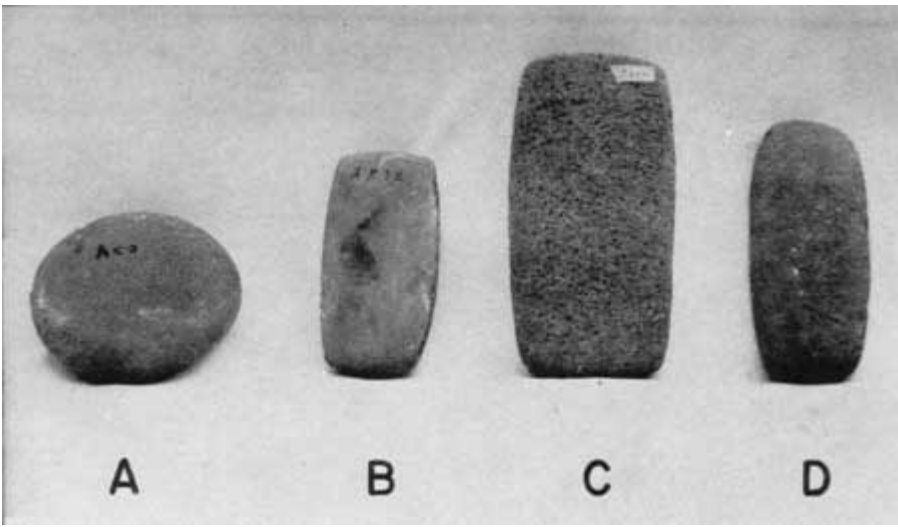


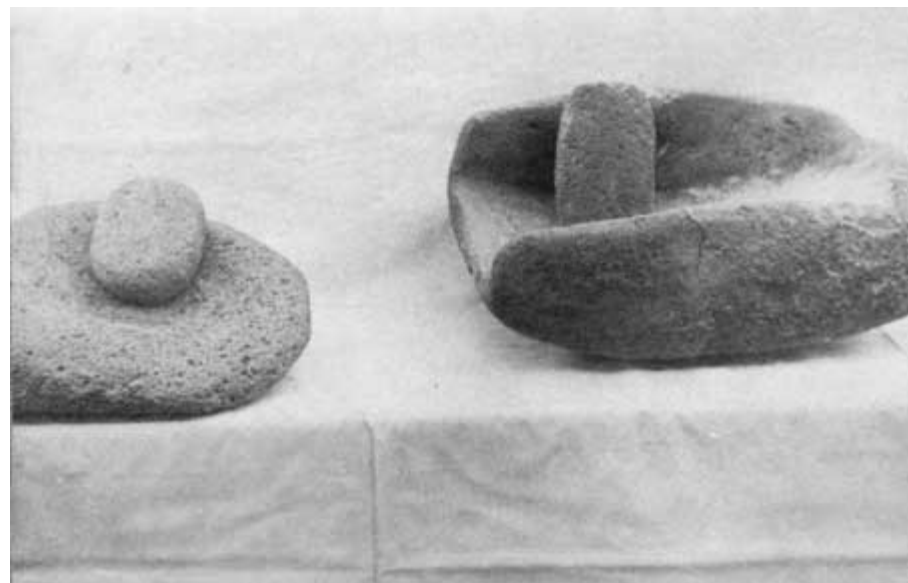


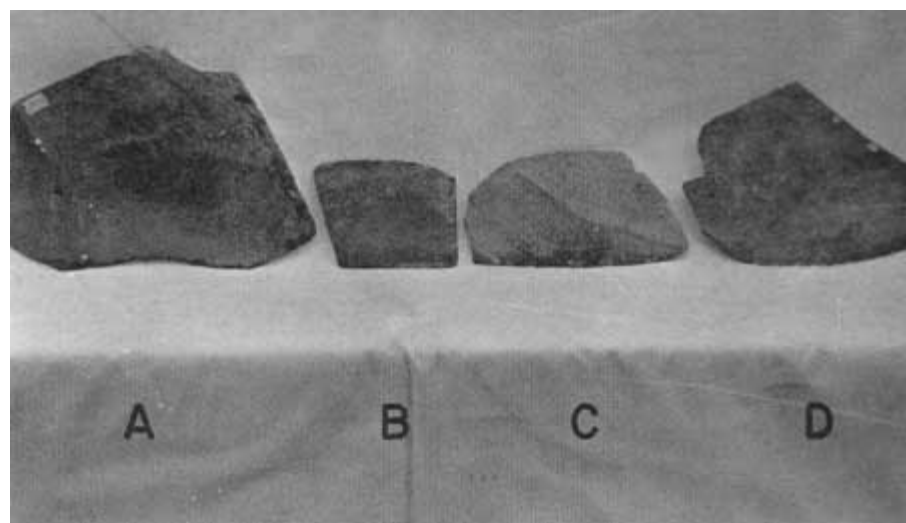


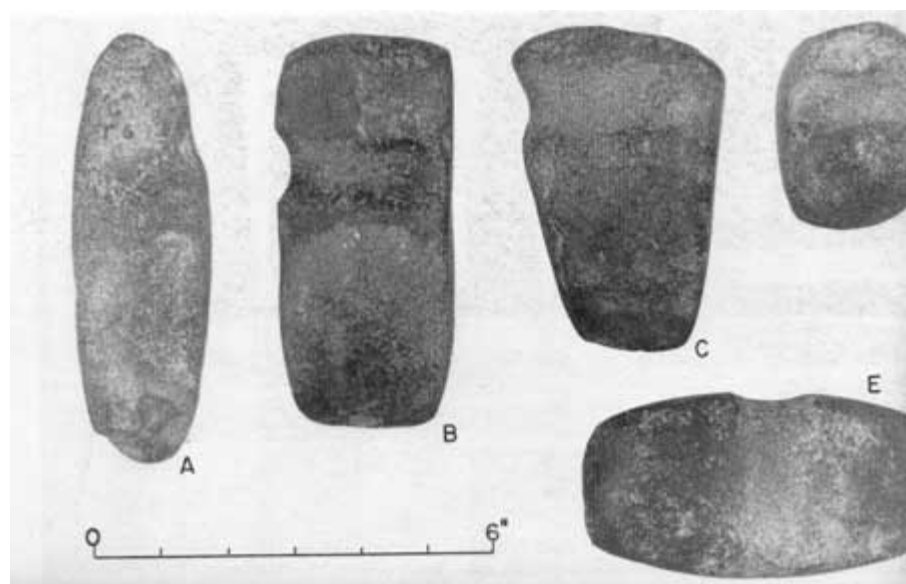


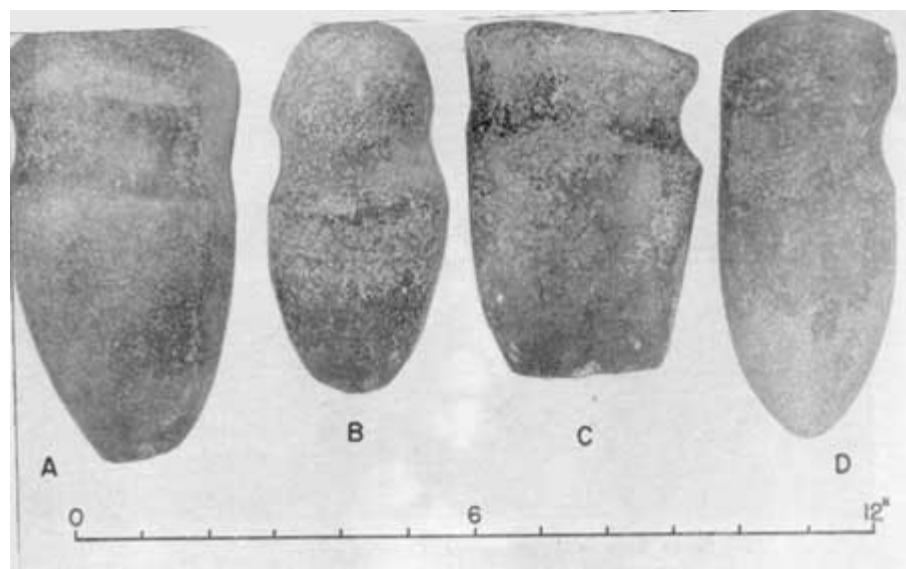


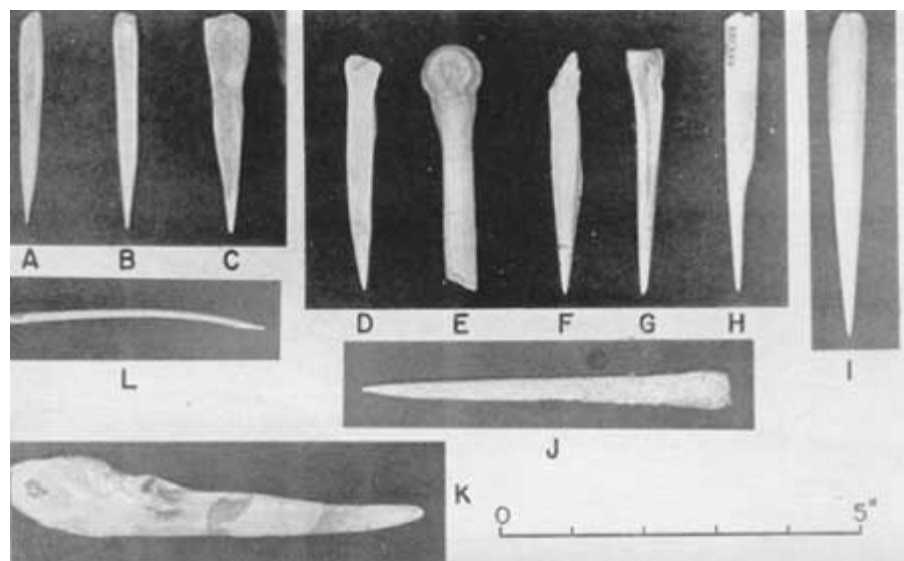


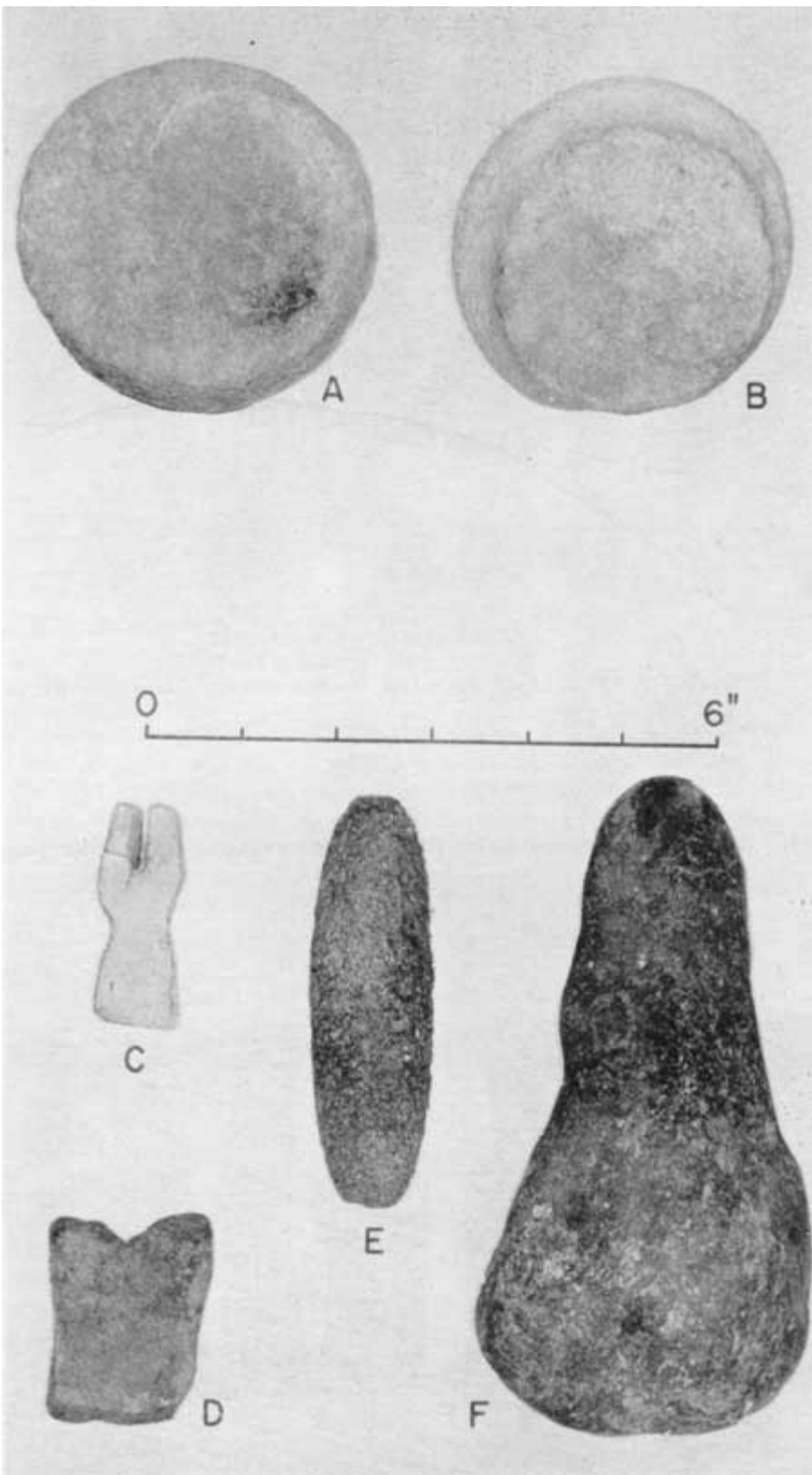


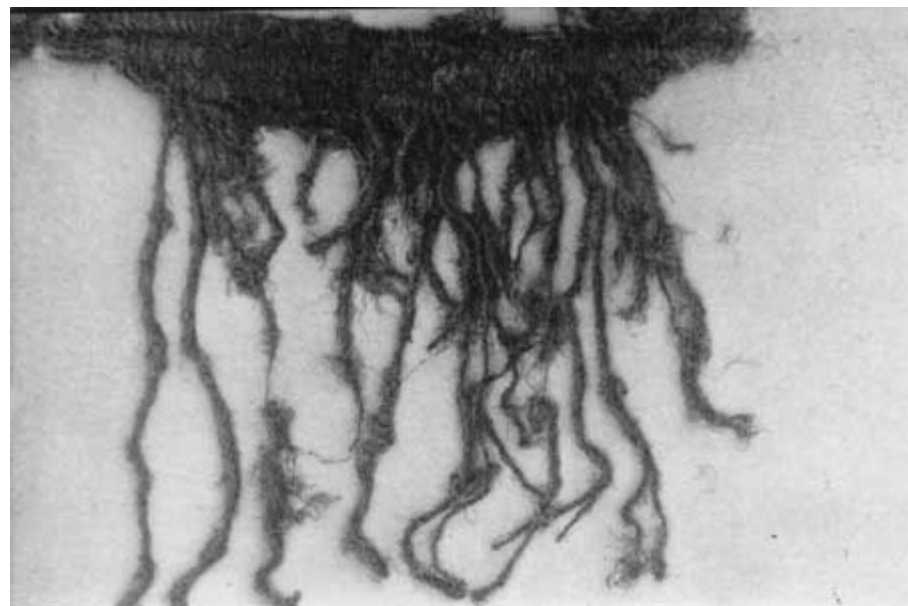


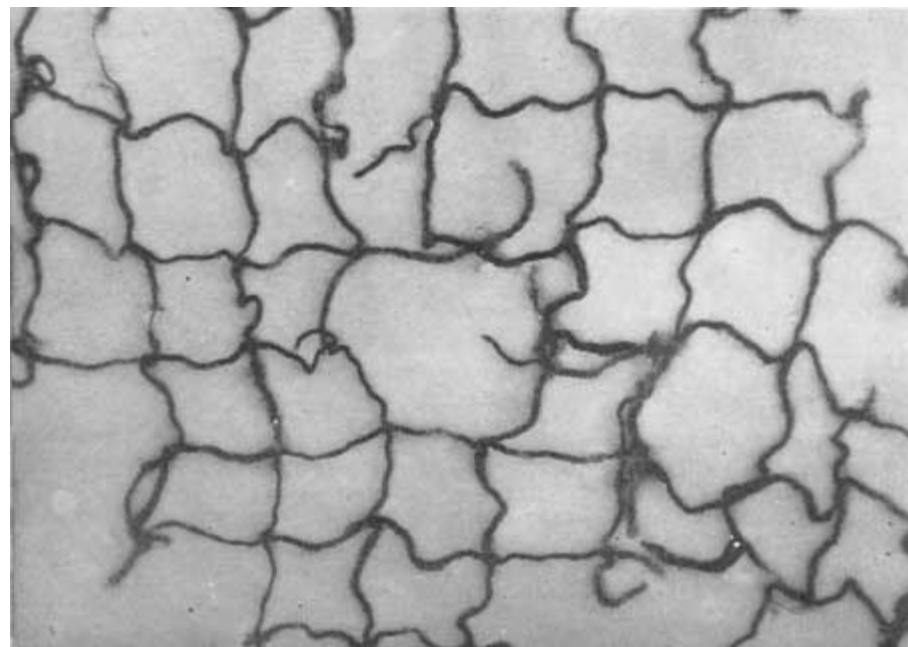


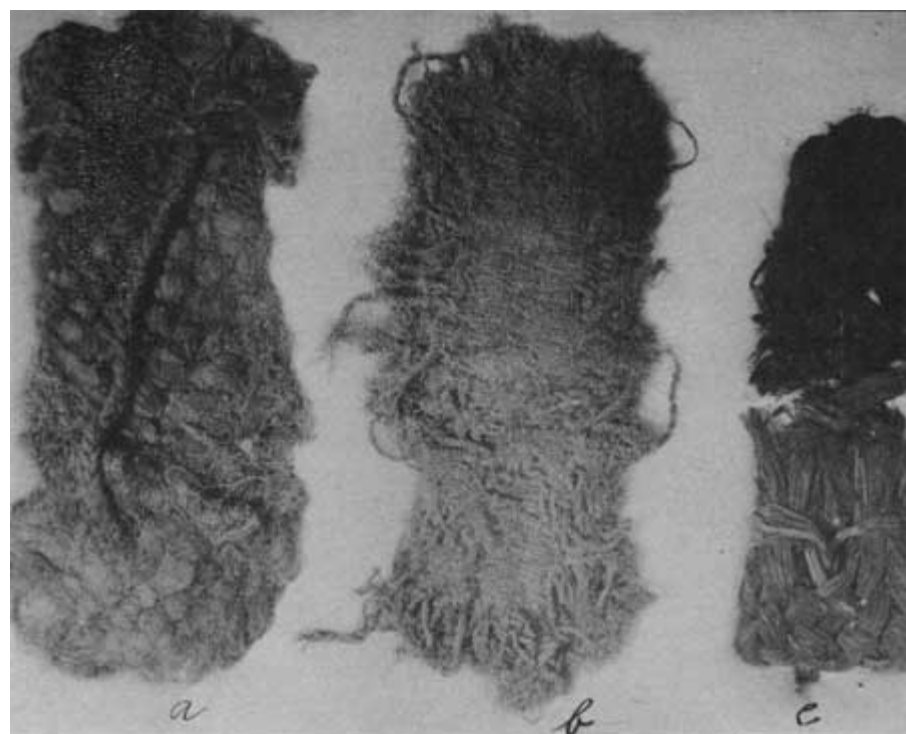




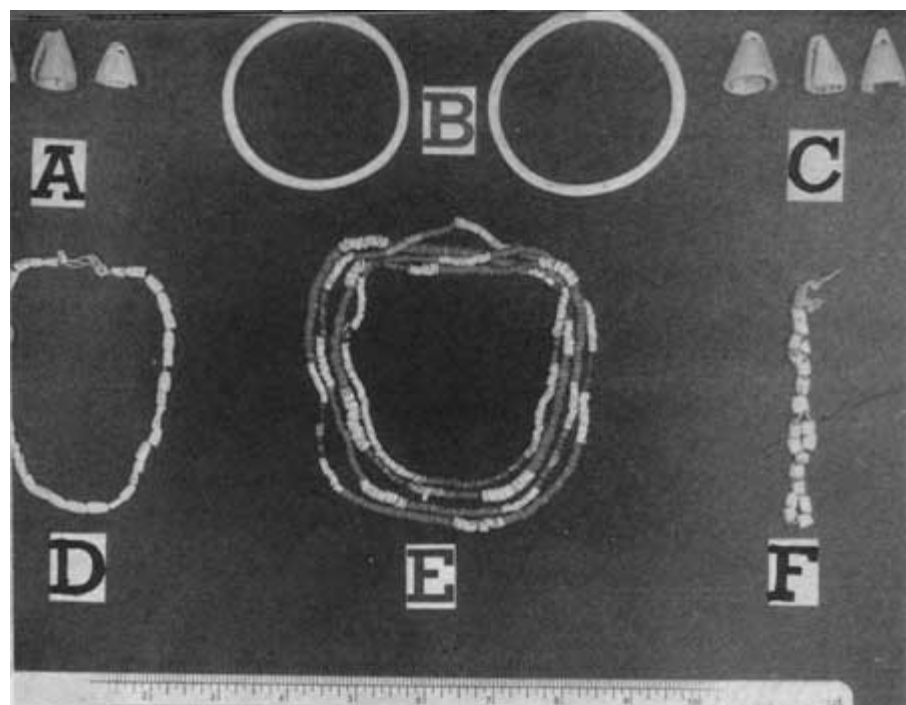


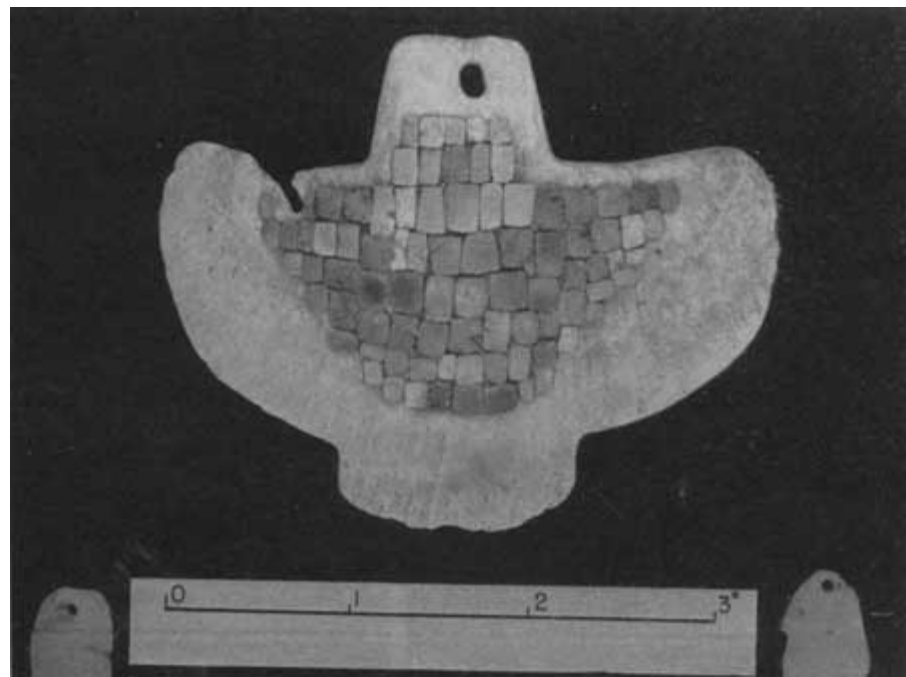


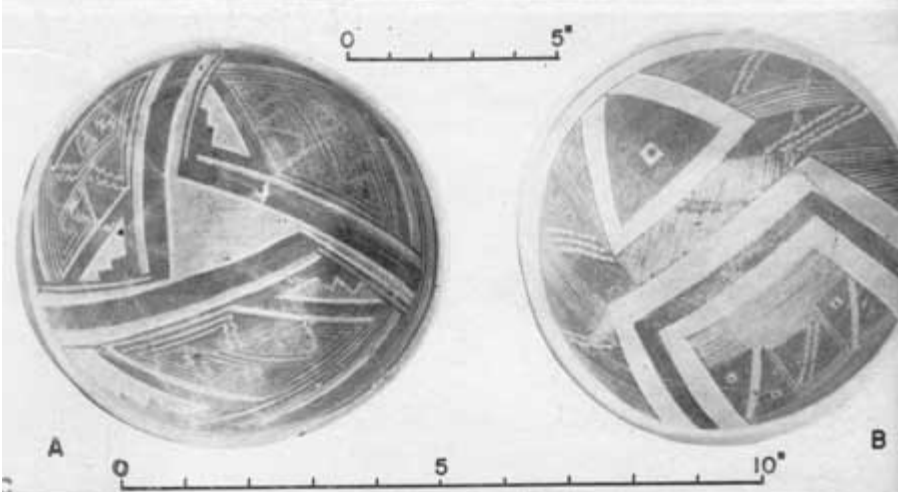


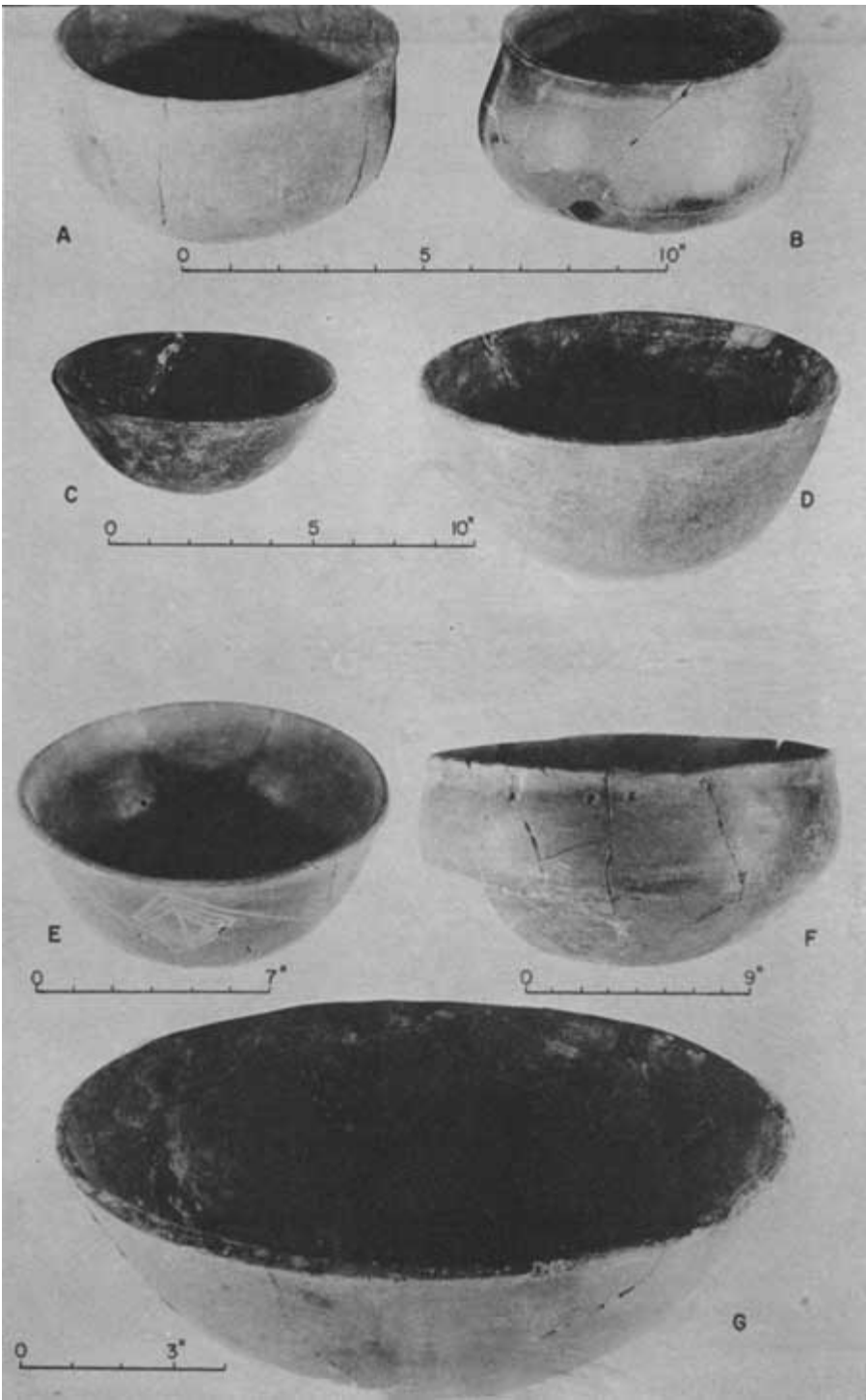


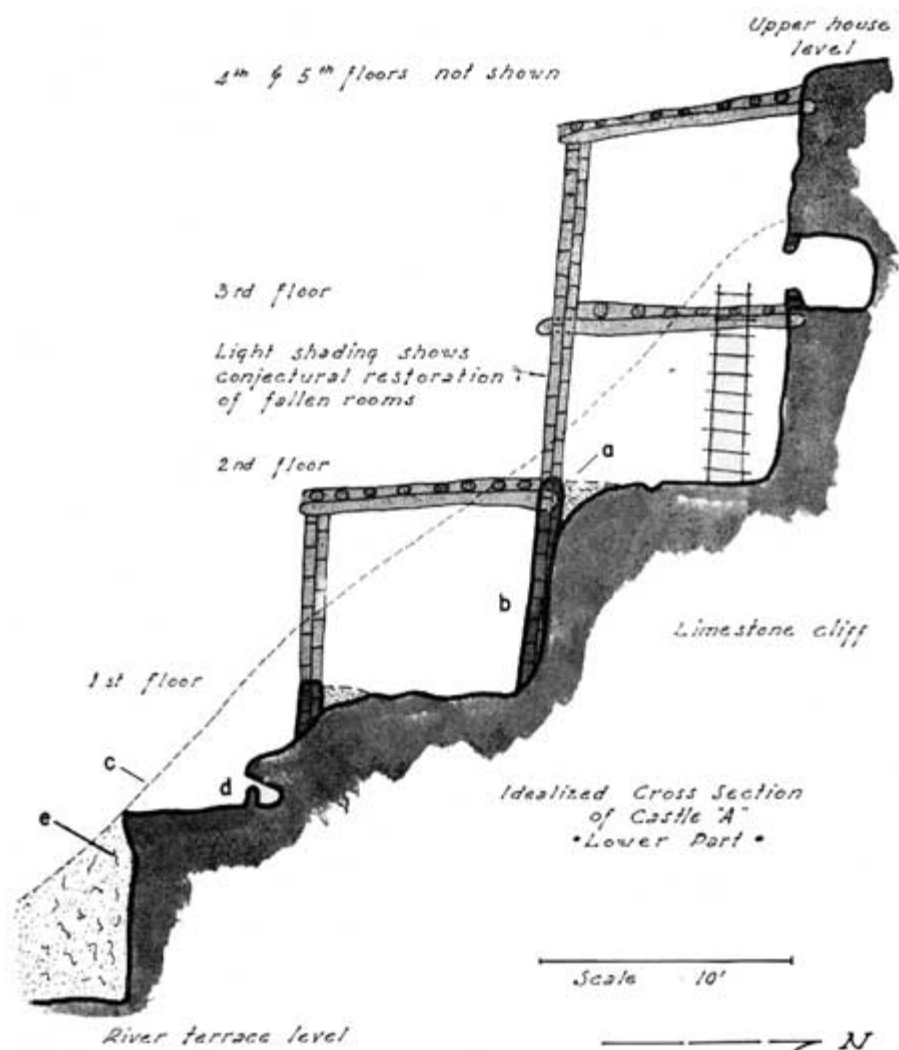


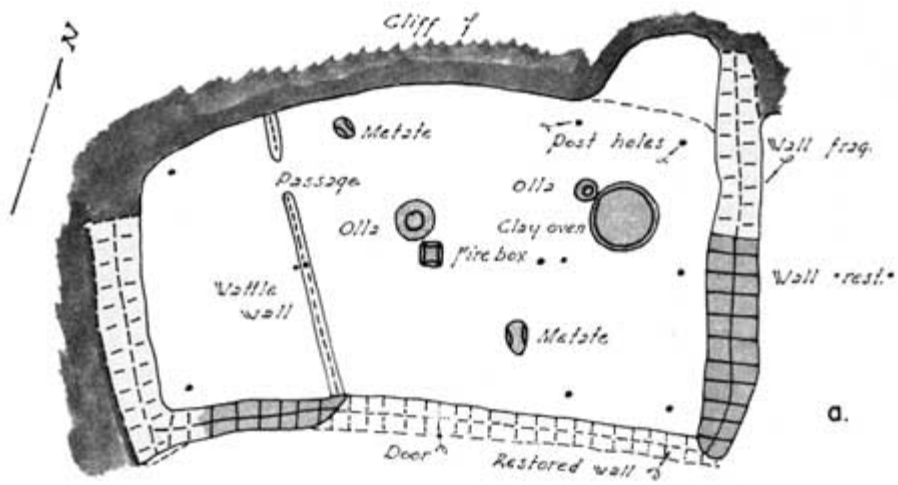






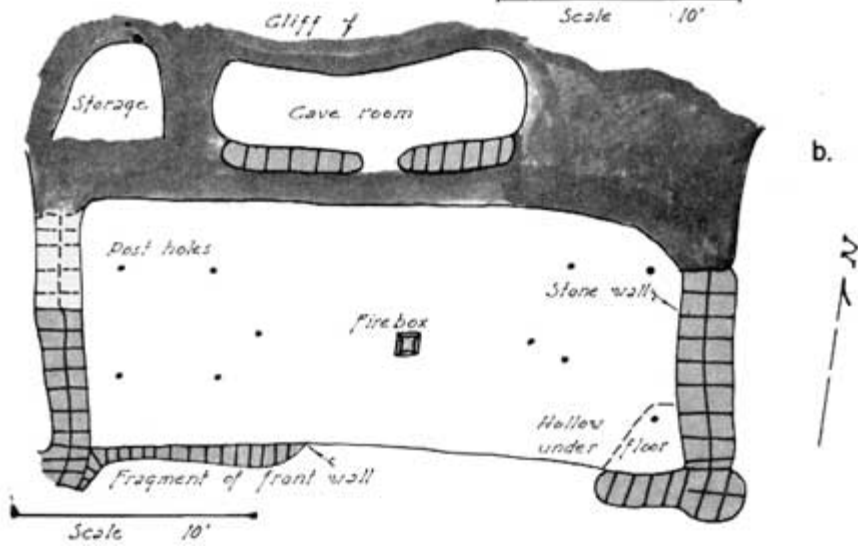






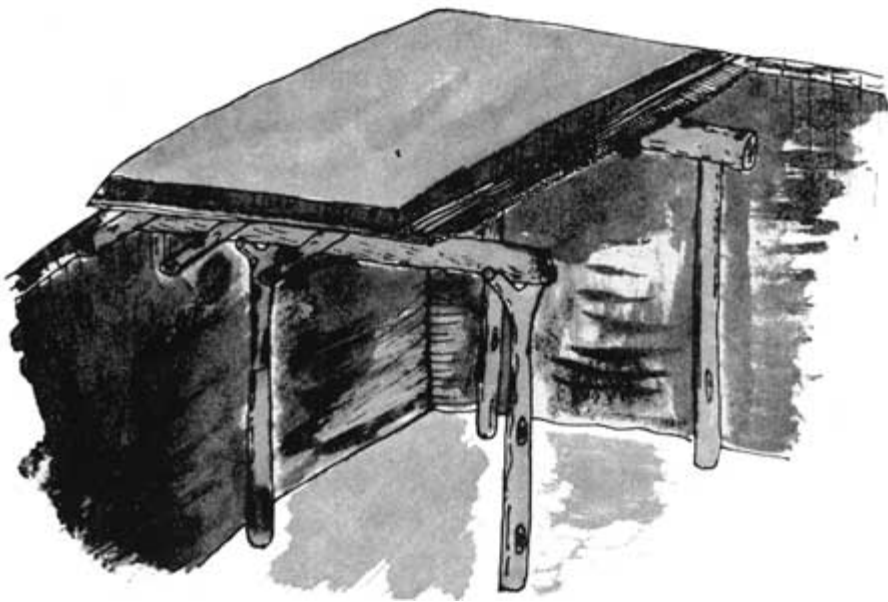
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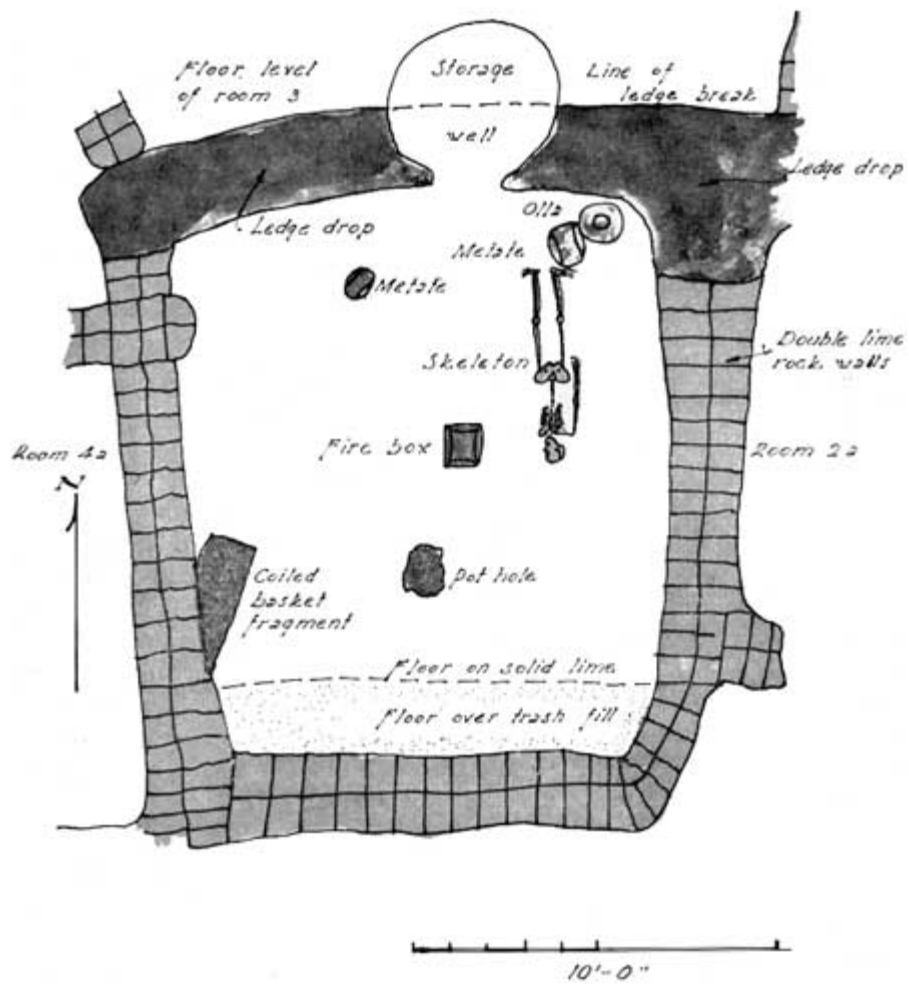
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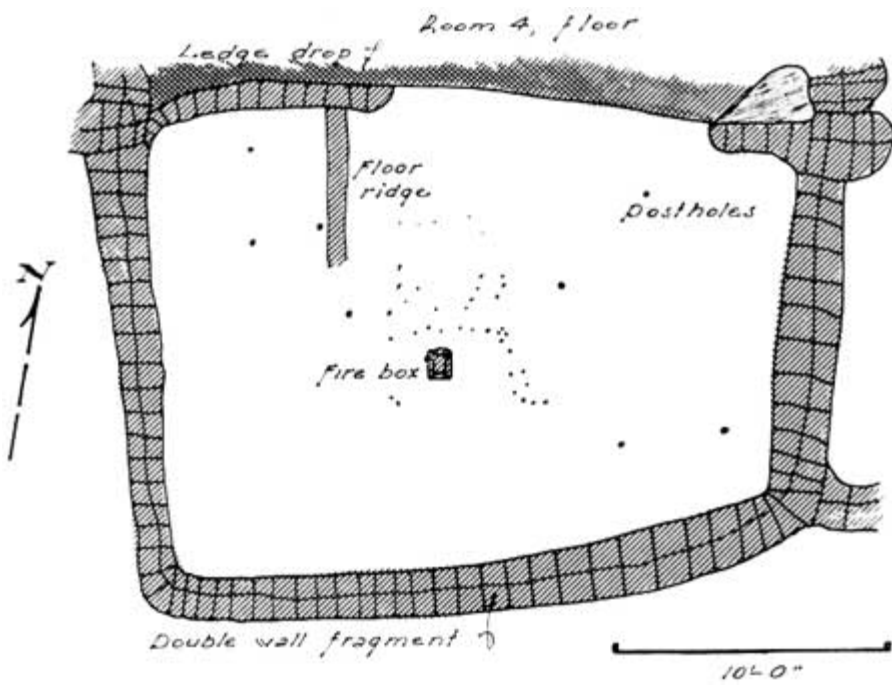


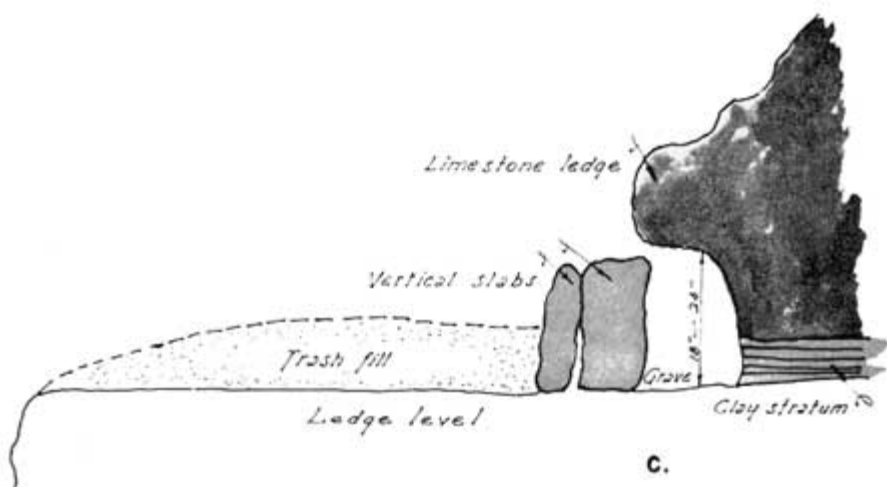
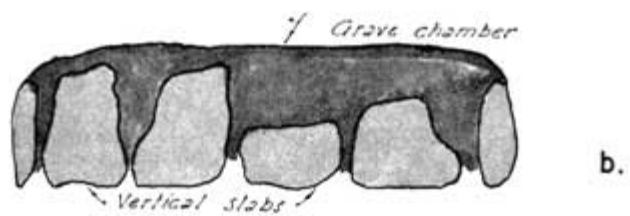
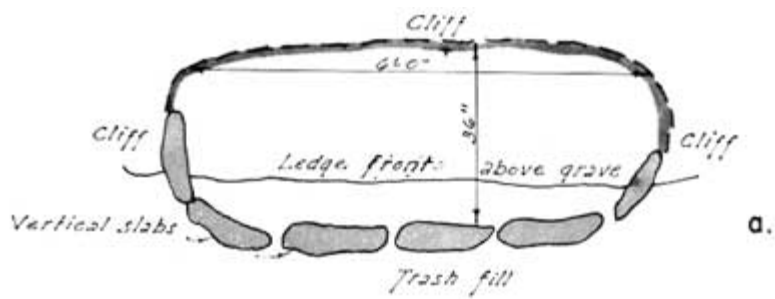
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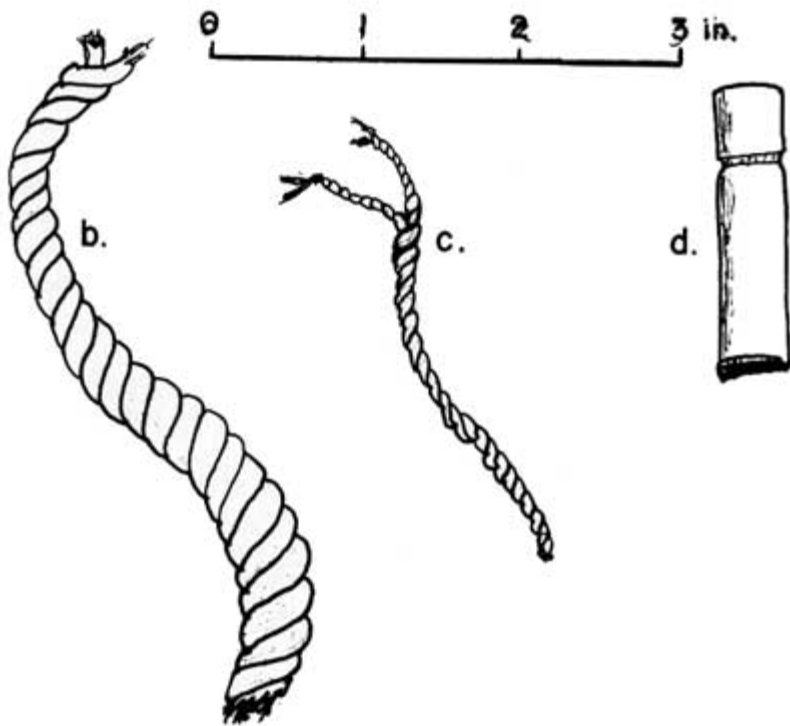


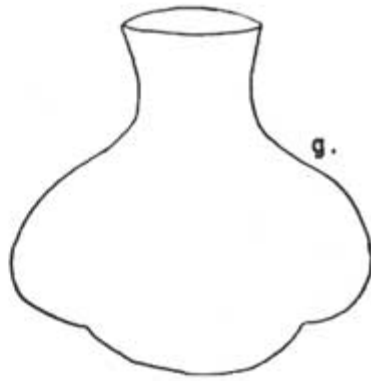
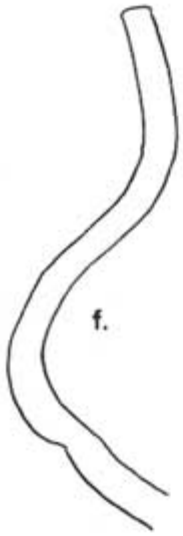
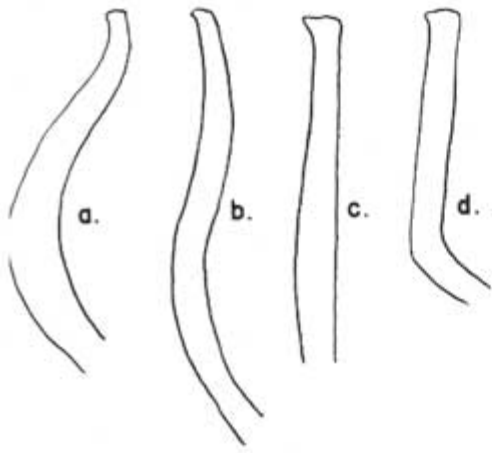






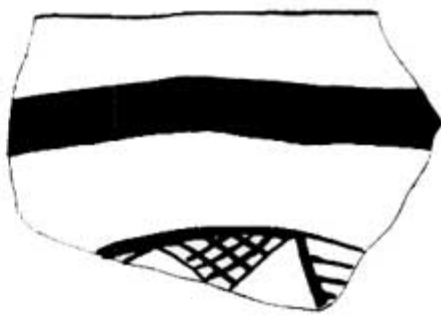
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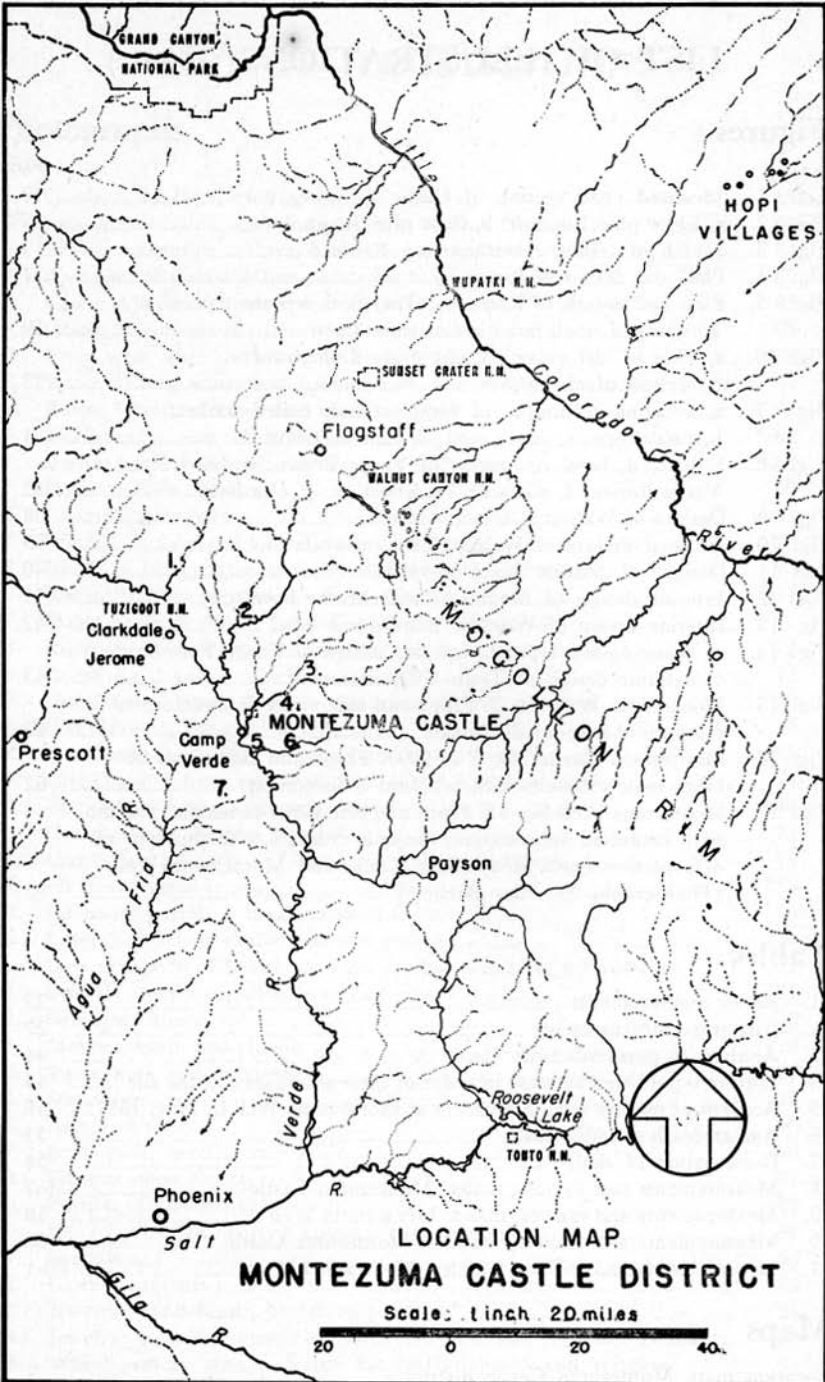


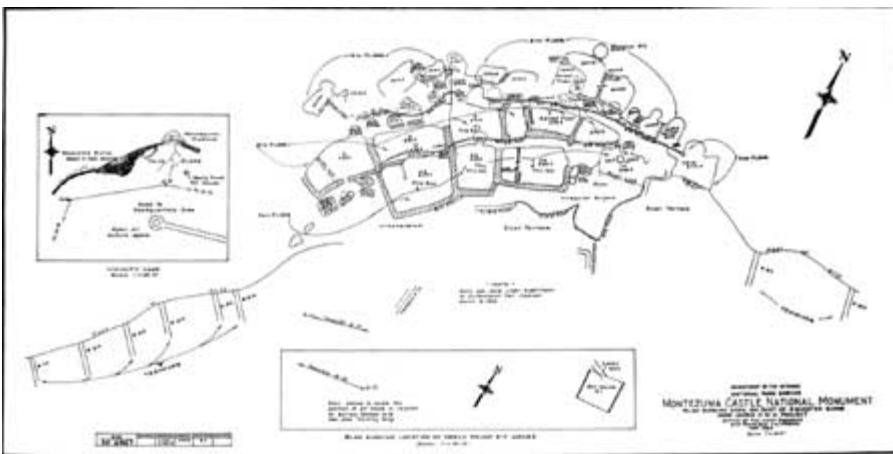












# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## RESULTS ACHIEVED (continued)

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### Petroglyphs

No petroglyphs of any kind were discovered. While other ruins in the Verde Valley have such evidences, and the famous Red Rock country of Oak Creek, 25 miles northwest of here, is noted for its rock carvings and paintings, the people who built Castle A seem not to have been interested in this branch of aboriginal art. Probably the crumbly and uneven faces of the limestone formation here were unsuitable for such attempts.

### Objects of Material Culture

#### STONE IMPLEMENTS

**Metates, manos.** Metates are of two types, rectangular with rounded corners (trough type), and flattened, rounded forms (shallow trough on one side and shallow circular pit on the other, for rotatory or pounding motion.) The former type is of by far the most frequent occurrence, only two of the latter having been found. (Photos 32-33.)

The material is almost always basalt, although one broken metate of sandstone was unearthed. Of the rectangular forms, the average length is 16 inches, average width 12 inches, average depth of trough 4-1/2 to 5 inches.

Manos are typically of lava (basalt), rectangular with rounded corners, and with but one grinding surface, although both sides were shaped. They were made for the trough-type metate. Occasionally a sandstone mano is found, one of which showed a triangular cross-section with two grinding surfaces, the type usually associated with flat metates. Manos averaged 5-1/2 to 8 inches long, 3-3/4 inches wide.

**Grinders.** Numerous surfaced stones of sandstone or diorite were found which must have served grinding or whetting purposes. Two paired sandstone disks were found together, with grinding surfaces on both sides. One sandstone slab with a well-worn concave surface, covered with powdery red paint, had seen service as a paint grinder. One small sandstone slab, 4-1/2 by 5-1/2 inches, was concave-convex in form, with the convex surface well worn, probably used as a crude finisher for rough, unfired pottery surfaces, or as a wood finisher.

**Polishers.** A number of small pebbles, of irregular form, well worn on all surfaces, some highly polished through use, must have served as polishers and smoothers.

**Scrapers, or knives.** Several large flint and obsidian chips, of both side- and end-cutting types, were found. These were all brought to a cutting edges by flakings on one side of the blade, which resulted in small conchoidal depressions.

**Hoes.** None of these appear to have been made for handles. All were thin plates of hard stone, well pointed, with one unaltered flat surface, showing a point in cross-section similar to that of a plane blade. (Photo 34.)

**Anvils.** Suggestive of an anvil or pottery moulder was one hard grayish stone, circular and flat, with a neck or handle tapering from the smoothed body. (Photo 38B.) This stone measured 3-1/2 inches, greatest diameter, by 1-1/4 inches thick.

**Hammer-stones.** One hard grayish stone, round and flat, with two utility surfaces, was found. A well-defined groove entirely circles it, indicating that a loop handle had once been attached. This stone (See Photo 38A) was 3-1/2 inches in diameter by 1-1/2 inches thick.

Three basalt stones, shaped somewhat in the form of large corks (Photo 38F), with the small ends used for handles, were probably used for pounders. Average length was 5 inches, greatest diameter 3-1/4 inches. These must have been held in the hand.

**Miscellaneous.** Three small cylinders, of basalt, in miniature pestle form, showing no evidence of wear at the ends, had speculative functions. They averaged 3-3/4 inches long by one inch in diameter. A possible use for shucking corn has been suggested. (Photo 38E.)

A small carving made from very soft lime formation resembling talc, deeply crotched at one end (Photo 38C), suggests no possible utilitarian function. It measures 2-5/8 inches long, 7/8 inch wide, and 3/8 inch thick. Its remote resemblance to a human form could hardly class it as an effigy.

Another forked or crotched stone, of hard grayish material, made from a crude rectangular block (Photo 38D), is likewise enigmatical. It is 2-1/8 inches long, 1-3/4 inches wide, 1 inch thick at the base, tapering to a thickness of 1/2 inch at the top.

**Stone axes.** Of 14 axes found, all were diorite or gabbro. Eleven were three-quarter grooved, three were full-grooved. One three-quarter grooved double-bitted axe was found. (Photos 35-36). No handles were found. Average length of axes was 5-1/2 inches. Two tiny ones measured 2 inches long, and one large crude specimen, on which the point had never been finished, measured 7-1/2 inches in length.

**Stone picks.** Three stone picks came to light in the excavation. Two were full-grooved, one was three-quarter grooved. They averaged 6-1/8 inches in length. A great many stone picks of this type have been found in the aboriginal salt mines 1 mile southwest of Camp Verde, 7 miles from Montezuma Castle. (Photo 36.)

## FOODS

Corncobs, husks, and plant stems were found in storage caves, on floor levels, and in the room fills of Castle A. Rinds and stems of several varieties of squash occur at the site. From the excavation by Boundey were saved four kinds of seeds or beans, which probably augmented the plant foods of the inhabitants. Yucca "quids" were fairly plentiful, although the other cavate sites of the region contain them in greater numbers.

Irrigation for farming in the Verde Valley has been necessary since prehistoric times, and from the number of remains of irrigation ditches and canals in the valley we judge the inhabitants to have been both intensive and extensive farmers. There is a great deal of fertile land deposited in former stream beds of Beaver Creek in its lower portion and left accessible to farming as the stream changed its course to meander back and forth between the limestone cliffs of its borders.

Before the advent of cattlemen into the region in comparatively modern times, game must have abounded. Since the ranges have been over-stocked with cattle, forage has suffered, surface runoff of water has been much faster, and the ground surface has become pitted with deep, rough arroyos.

At a site 6 miles northwest of Camp Verde, Dr. Mearns found bones he lists as those of elk, mule deer, antelope, beaver, rabbit, turtle, and fish. At Castle A, we found few bones of game animals and birds. Deer, or antelope, and jackrabbit have been tentatively identified among these. A partial skeleton of a macaw was found. This bird, not native to Arizona, turns up occasionally in ruins such as this; evidently live macaws were traded up from Mexico to the Pueblo Indians.

## WEAVING

No textiles were found in the excavation of Castle A. (Ed. note: Because Mrs. Kent<sup>9</sup> has now studied the entire Montezuma Castle collection of textiles and weaving, duplicating descriptions have been deleted from this report.)

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9. Kent, 1954.

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Three types of sandals were found, of which the one most common to this immediate region is described as follows: yucca leaves are plaited, with both ends of a leaf left loose at the heel end of the sandal. This bundle of loose ends and 1 or 2 inches of the plaited leaves are turned back on the upper side of the sandal and fastened there, forming a cushion for the heel. The tie is usually of a thinner strip of yucca, with one toe loop, sometimes none, extending from the front of the sandal to behind the heel of the wearer.

Another type is of tightly plaited bundles of yucca fiber and was secured to the foot by three toe loops and a diagonal strap of braided yucca fibers. The third is of fibers handled in much the same manner as on fringe skirts. Cords are twined over two foundations with the looped ends extending approximately an inch on either side, making a soft, springy sandal. (Photo 41.)

One fragment of a leather sandal sewn with sinew completes the footwear material. This piece is in the form of a moccasin, and, as it was found on top of fill, may have derived from a later Indian visitation.

A very small piece of yucca weaving recovered may have been used as matting. However, the yucca elements are unusually small, and the weave is very fine, making the material pliable enough to have been used as a cloth.

A net of knotted yucca cords was probably used in carrying vessels or bundles; the two fragments found measure approximately 13 inches by 14 inches when laid together. (Photo 40).

Many fragments of yucca cordage were found. An interesting specimen is a 6-inch section of yucca rope 1/4 inch in diameter (Fig. 7).



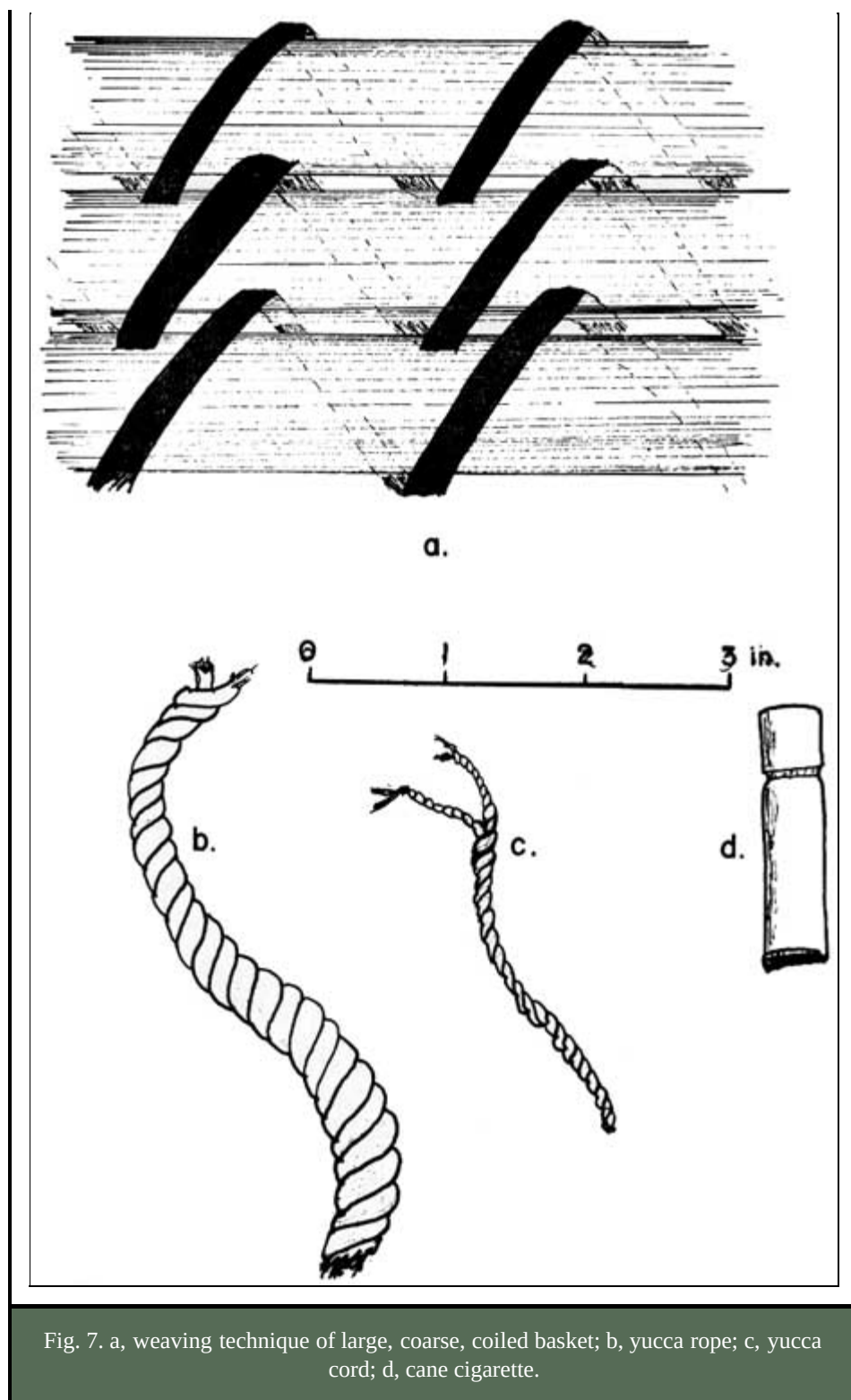


Fig. 7. a, weaving technique of large, coarse, coiled basket; b, yucca rope; c, yucca cord; d, cane cigarette.

Some weaving materials were recovered: bunches of unspun cotton, soaked and pounded yucca leaves, cotton and yucca threads, several spindle shafts, and a pottery spindle whorl. A wooden batten, 35 inches long, lay over the right hand of a female skeleton in Cist Grave 4.

A section of what was probably a large, coarse, coiled basket was uncovered on the floor of Room 3a. With the burning of the ceiling above it the basket also burned, so that we were able to save only a small section, but the charred material sufficiently suggests its weave. Bundles of grasses about an inch thick had been bound together with yucca strips, each strip binding one bundle and part of the fibers of the adjacent bundle (Fig. 7a).

## BONE AND HORN IMPLEMENTS

Fifteen bone awls were found, varying in length from 2 inches to 6-3/4 inches. The longer ones might easily have served as weapons as well. Most of the pieces were excellently pointed but it was impossible to determine whether they had been fire-hardened. A bone needle, having an eye (Photo 37L) is considered an unusual find; this needle is hollow from one end to the other. A very good example of a knife, or dagger, broken but well finished, is shown (Photo 37K). The prong of a deer or antelope horn showed striations around the tip, and was very probably used for flaking stone.

## WOODEN IMPLEMENTS

The wooden artifacts recovered were few and varied. There is the half section of a bark spindle whorl, 3 inches in diameter, the batten stick previously mentioned, a section of cane probably used as a cigarette (Fig. 7d), a small digging stick, a section of wood which is crudely incised in a criss-cross design, part of a curved wooden axe hafting, and part of an arrow foreshaft. From the work at Castle A by Boundey, we have two battens, and two flattened sticks with narrowed handles and smooth surfaces, probably paddles used in smoothing pottery.

## LEATHER WORK

From the excavation by Boundey came a piece of tanned buckskin, evidently cut for some use to which it was never put. This piece is as soft as chamois skin.

A leather rattle was made of a piece of buckskin bound over a foundation circle of yucca fiber. The leather was tightly stretched on one side and tied on the other. One bead was found inside and there probably had been others before the leather cracked open and allowed them to fall out. This rattle reminds us in function of the gourd rattles used in Hopi ceremonies today.

## ORNAMENTS

A few perforated *Conus* shells were found within rooms; the rest of the ornaments recovered occurred in graves.

Beads, discoidal in form, were found scattered through grave dirt. Screening of this dirt from several graves produced enough for a string 28-1/4 inches long, containing 735 beads. They averaged 1/8 to 1/4 inch in diameter and were made of red argillite, an unrecognized black stone, and of white shell. (Photo 43e.)

Seventeen olivella shell beads were found, also scattered; they were pierced at the closed ends for passage of the string (Photo 43d).

A number of *Conus* shells were evidently for pendants, as they had been pierced through the sides instead of at the ends for the string. (Photo 43a).

Two large bracelets were found on the left lower arm of a female in burial. These are of the rims of shells, all the rounded surface having been ground off (Photo 43b).

A half dozen small turquoise pendants, flat, of circular or rounded rectangular form, pierced at one end, were found. These must have been mainly used as ear pendants; one was found in position in a grave.

The prize of the collection, previously mentioned in connection with Cist Grave 3, is a

glycymeris shell carved into the form of a thunderbird, having a string hole at the head end and the form of a thunderbird in miniature set in 85 pieces of turquoise on the convex surface of the shell. (Photo 44.) The shell measures 2-1/2 by 3-1/4 inches. When found, two partial rows of the sets were in place, and only a vague outline remained on the shell to indicate where the loose ones should be replaced. The adhesive material with which the sets were originally held must have been some kind of gum or pitch, probably lac, mesquite gum, or pinyon pitch, and the sets seem to have been glued to a bark base which in turn was stuck to the shell, although this base was so badly rotted its nature could not be positively determined.

## POTTERY

**Foreword.** Since this report was written, the *Handbook of Northern Arizona Pottery Wares*, by Harold S. Colton and Lyndon L. Hargrave, 1937, and *Tuzigoot, the Excavation and Repair of a Ruin on the Verde River Near Clarkdale, Arizona*, by Louis R. Caywood and Edward H. Spicer, 1935, have been published. The appearance of these two works makes desirable some revisions of the following section on pottery. Two pottery types occurring both at Castle A and Tuzigoot have been named by Caywood and Spicer; most Arizona pottery types have been classified according to wares by Colton and Hargrave; and competent descriptions of the recognized pottery types found at Castle A have been printed.

The revisions appear as a list of Castle A pottery types by ware. page 45 (the classification having been made by Dr. Colton in 1939 when he reviewed this paper), and as footnotes. Unnecessary pottery descriptions have been deleted; descriptions of important local types and of local variations of well described types have been retained in this report.

Thanks are due Dr. H. S. Colton for his careful checking of this section in 1939, and for furnishing the revised dates on the time range of types listed on page 45; and to Dr. E. W. Haury for confirming that we have learned little about the central Arizona red wares in recent years—that the time range of these wares is "something that will have to be argued with the shovel."<sup>10</sup>

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10. Haury, 1946.

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**Discussion.** Castle A yielded very few whole pieces of pottery. Three restorable ollas and one large bowl were found *in situ* on room floors and 7 vessels were taken from the cist graves. With a total of only 11 complete pieces, we are forced to obtain almost all knowledge of the pottery of this site from the examination of potsherds.

All of the sherds were saved from Rooms 1, 2, 3, 4, 5, 1a, and 2a; Caves 1 and 2; the cavate recess of Room 4a; and from the fill, over all but the easternmost end of the excavation. From the remaining rooms, all decorated sherds and representative samples of plain sherds were saved. These sherds were first separated into the divisions of plain and decorated wares, then counted.

From the areas from which all sherds were saved, there were 4,452 plain sherds and 259 decorated ones. Accounting for the fact that the plain utility vessels were probably much larger than the painted vessels and would therefore add more sherds per vessel to our count, it is still safe to say that plain pottery formed about 90% of the pottery of Castle A.

The plain ware divides into three types: a coarse utility type, Verde Brown; better finished Tuzigoot Red; and "Gila Red."

**Verde Brown.**<sup>11</sup> This type, which forms approximately 65% of the plain sherds, is probably

that noticed by Gladwin to be so abundant at Verde sites and described by him as a "red, porous, brick-like ware, unpolished."<sup>12</sup>

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11. Caywood and Spicer, 1935, p. 42; Colton and Hargrave, 1937, p. 167.

12. Gladwin, 1930(a).

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*Paste.* Usually tan, sometimes yellow; frequently there is a gray core.

*Temper.* Very coarse and abundant; quartz and feldspar predominate, with some mica.

*Texture.* Porous and very friable. Surface disintegration is visible on many pieces.

*Surface treatment.* Anvil marks are seen on nearly every sherd. Many sherds show scraping marks which are especially noticeable inside the neck sherds of the ollas. Most of the surfaces are rough; seldom is a sherd sufficiently polished to reflect light. There is no slip on this type. The sherds are commonly smudged from use on or near the fire.

*Forms-Ollas.* Two restorable jars were found *in situ*; one near the fireplace of Room 5 and one in the corner of Room 3a. The latter is 16-1/2 inches high; the diameter of the mouth is 9 inches, that of the body, 18 inches. The body is globular in shape and the neck is very short. The olla in Room 5 has a longer neck and flattened hemispherical body; the mouth diameter is 10 inches, the shoulder diameter, 22 inches, and the height, 16 inches. Rims vary from nearly straight to deeply recurved forms. Vessel walls are sometimes a half inch thick. Verde Brown was evidently used for the heavier duties of pottery: storage of food materials, cooking, and heating. The vessels were large but not well enough made to last long in use, a fact which probably accounts for the unusual preponderance of sherds of this type.

**Tuzigoot Red.**<sup>13</sup> This type was first distinguished by Spicer and Caywood and is more fully described by them in their report on the excavation of Tuzigoot. It occurs in substantial amounts at Castle A, forming approximately one-third of the plain ware. Three whole bowls and one olla of this type were recovered (Photo 46A, B).

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13. Caywood and Spicer, 1935, p. 43; Colton and Hargrave, 1937, p. 167.

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*Paste.* Buff or brick red (depending probably on the firing). There is sometimes a gray core.

*Temper.* Predominantly feldspar with some quartz, a little mica, and frequent characteristic red particles.

*Texture.* Moderately coarse.

*Surface treatment.* Bowl exteriors are smoothed and sometimes polished; they may be the yellow or the red color of the paste or have a red slip. Bowl interiors often show anvil indentations but are usually somewhat smoothed, and sometimes are polished equally as well as the exterior. If the exterior is slipped, the interior is likely to be. Jar exteriors are treated as are the bowl exteriors. The interior surfaces are slightly, if at all, smoothed, and are the color of the paste or are smudged.

*Forms.* The only two shapes detected are bowls and jars, or ollas. Bowls are more common. The rims are slightly recurved, the tops flat. There are no flaring rims; there is always a slight lessening of the bowl diameter just below the rim. The thickness of the vessel walls varies from 1/8 inch to 5/16 inch in different vessels. The curve of the bowls varies from nearly straight to globe-like; infrequently there is a sharply bent shoulder on the straighter-sided

bowls. (See Fig. 8.) The one restorable olla of this ware measures 9 inches high, with a lip diameter of 4 inches and a body diameter of 11 inches (Fig. 8). Judging from the many sherds showing the tall neck and deeply curved shoulder, this shape seems to have been typical.

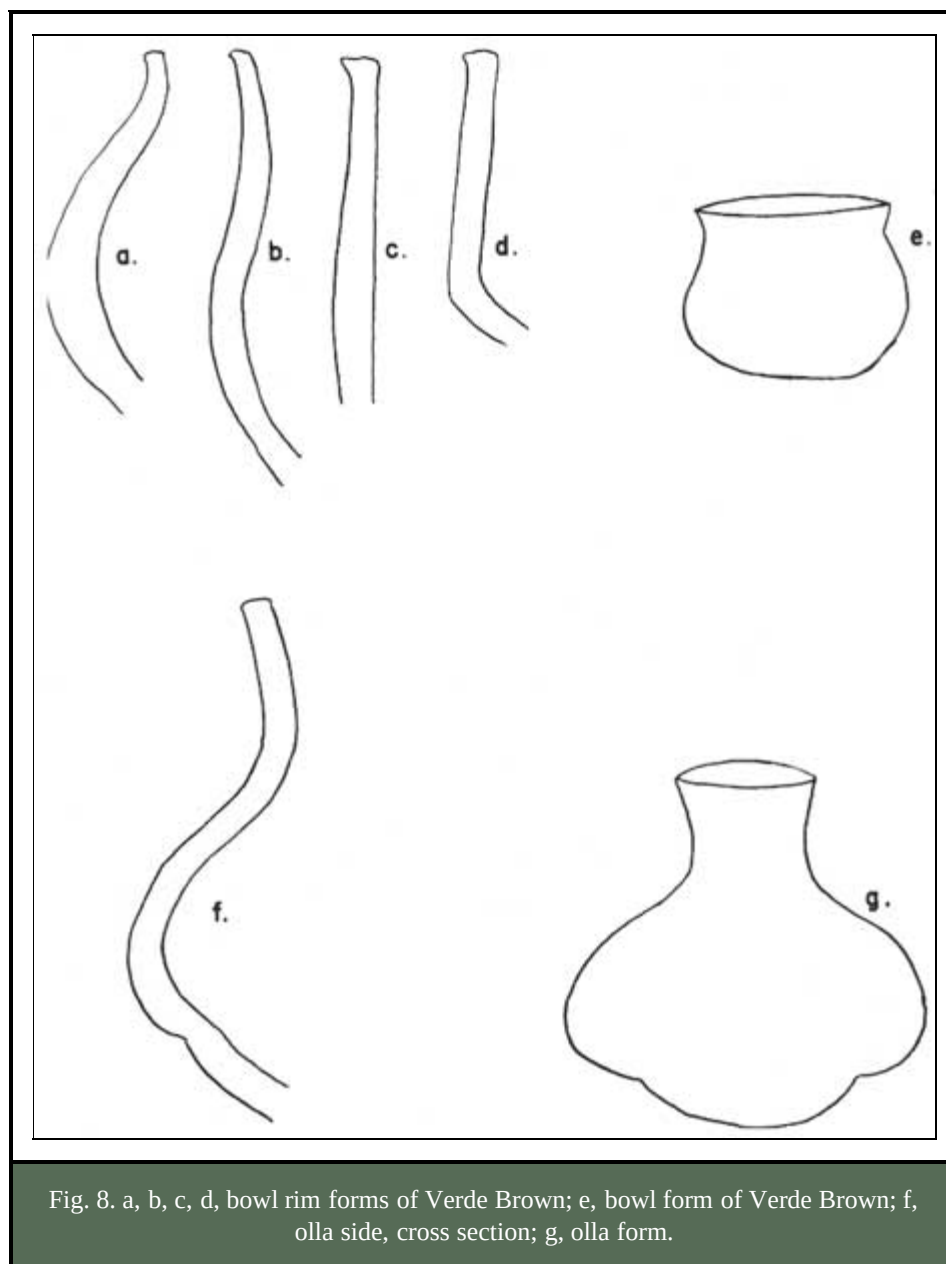


Fig. 8. a, b, c, d, bowl rim forms of Verde Brown; e, bowl form of Verde Brown; f, olla side, cross section; g, olla form.

*Remarks.* This type forms the bulk of pottery other than utility ware at this site. It is distinguished from the coarse utility type Verde Brown by its smoothed, often polished surface, its finer texture, and its thinner walls.

**Gila Red.**<sup>14</sup> While the bulk of the sherds so classed do not correspond in all respects to the published descriptions of Gila Red, they are probably of that type and have been so classified by Haury. (From the description Albert H. Schroeder suggests they may be Verde Red—Ed.) (Photo 45F).

14. Gladwin, 1930 (6), pp. 12-15; Colton and Hargrave, 1937, p. 176.

*Temper.* Sand

*Texture.* Fine and hard.

*Forms.* Bowls (one partially restorable bowl was found); slightly flaring sides with direct rims; vessel walls are thin (1/4 to 1/8 inch) and uniform throughout.

*Interior surface treatment.* Smudged and sometimes burnished: smoothing marks obvious.

*Exterior surface treatment.* Covered with red slip which sometimes shades into yellow near the rim (probably a form of firing cloud); usually well smoothed and polished.

*Remarks.* Gila Red forms approximately 3% of the plain wares at this site; no type like it was found at Tuzigoot. With the exception of a few long-necked vessel sherds which are typically Gila, this red ware is of a deeper red than the usual Gila ware. In color it is nearly identical with Sunset Red but it lacks the cinder temper characteristic of red wares of the Flagstaff region. Its nearest analogy in whole vessels seems to be in bowls in the Scorse collection from the vicinity of Holbrook. The center of distribution of the ware described may be east of this region, between the Tonto and Gila Basins and the northern plateau.

**Corrugated pottery.** One partially restorable olla of Tusayan Corrugated<sup>15</sup> was found. The vessel is 9 inches high with a wide mouth, recurved rim directly joining the gently rounded body.

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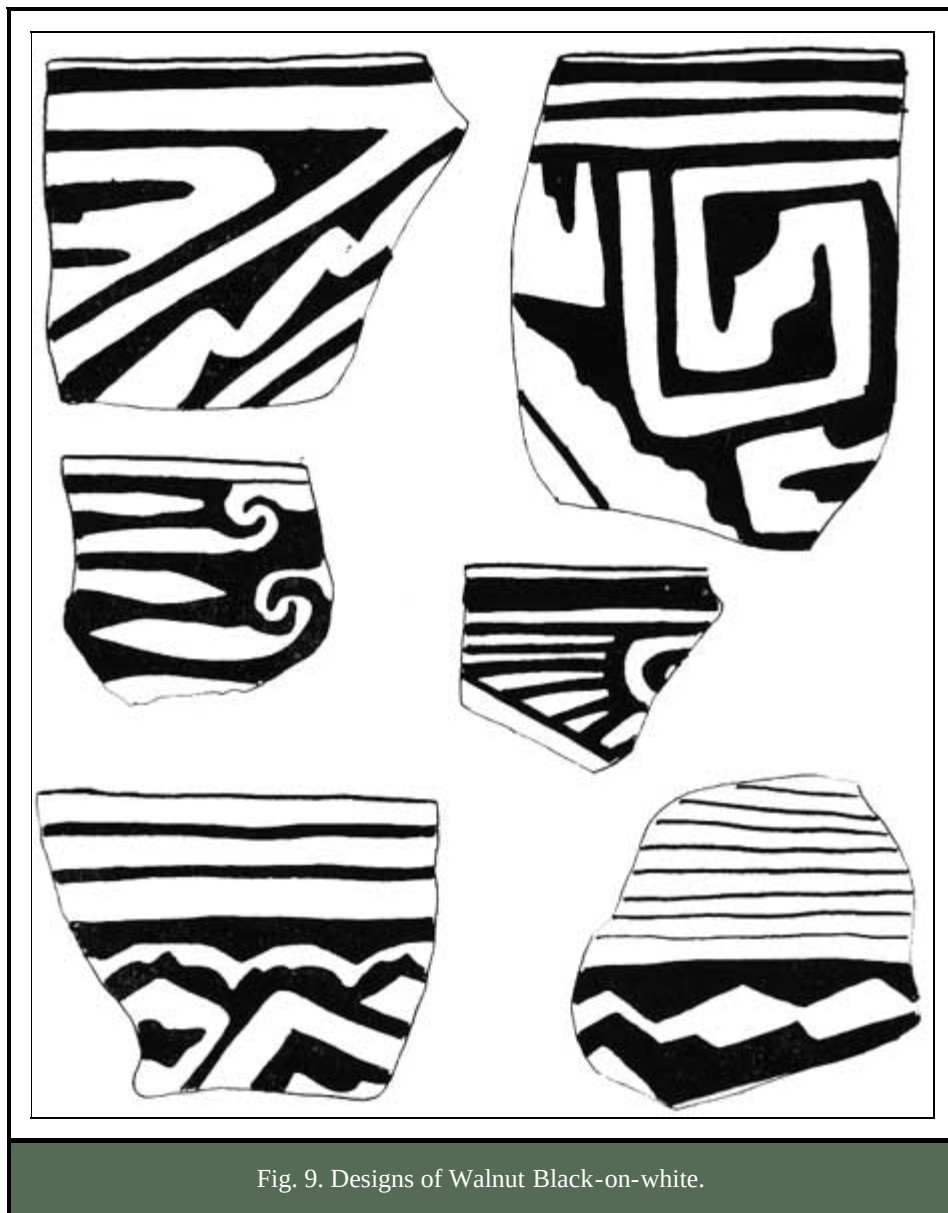
15. Colton and Hargrave, 1937, p. 196.

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**Painted pottery.** Of the decorated wares, Black-on-white forms 52% of the sherds. Considered on the basis of design elements Black-on-white sherds reveal these general divisions: a large majority of the sherds are decorated by solid straight lines forming triangles, squares, or scrolls with the frequent addition of a two- or three-step element at the termination of a line; a second division shows the above elements and the use of serrated or barbed lines; a few sherds include circular elements in the design; six sherds, from two different vessels, have spaces between lines filled with longitudinal hatching, the hatching lines being as broad as the bordering lines; a very few pieces show woven or mosquito-bar negative designs.

All of these elements are found in Black-on-white types to the north. The absence of fine-line hatching or the combined use of fine and broad lines, and the predominance of straight linear elements, mark a closer relation with Flagstaff types of Black-on-white than with those of the Roosevelt, Rio Puerco, or Tularosa areas. A representative sampling of our Black-on-white sherds was sent to Lyndon L. Hargrave of the Museum of Northern Arizona, and all except two sherds were identified by him as types occurring in the Flagstaff region.

**Walnut Black-on-white.** Approximately 80% of the Black-on-white sherds may be classified as Walnut Black-on-white.<sup>16</sup> Walnut Black-on-white heretofore has been found only at Pueblo III sites. Here, the sherds which total second in number are of Jeddito Black-on-yellow, a criterion for Pueblo IV. While no crushed vessels of either type were found in conjunction with the other, the fact that sherds of both types were found scattered throughout the fill raises the question of their possible contemporaneous use at this site—during, of course, Pueblo IV. Undoubtedly the Jeddito Black-on-yellow was traded or brought into this region from the Hopi country; it occurs in its typical form in numbers at other Verde sites. Walnut Black-on-white, so far as known, is also trade ware at Castle A; its occurrence with Jeddito sherds may be explained by Walnut Black-on-White trade pieces being still used at this site long after the type had ceased to be manufactured to the north. (See Fig. 9.)



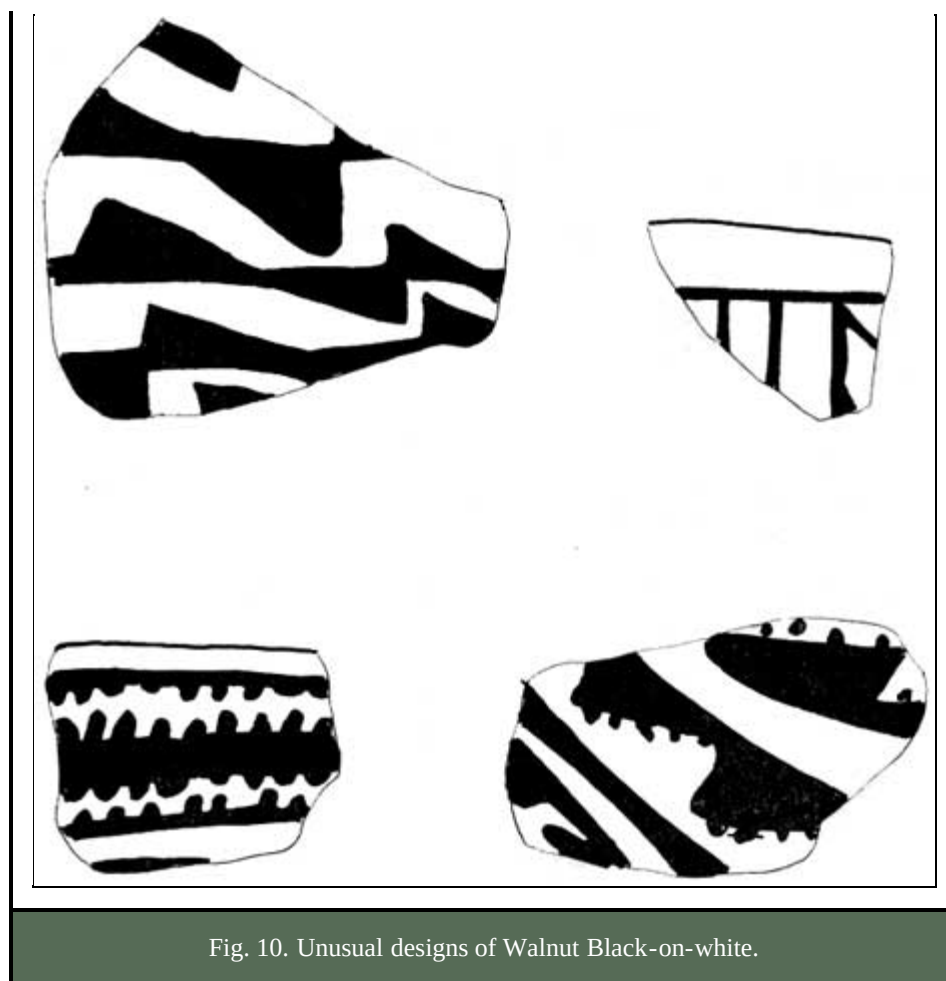


Fig. 10. Unusual designs of Walnut Black-on-white.

**Deadmans Black-on-gray.**<sup>17</sup> One sherd of this type, which is usually found at Pueblo II and early Pueblo III sites, was uncovered in trenching into the fill in front of Castle A.

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17. Colton and Hargrave, 1937, p. 253.

Other Black-on-white types were identified as Flagstaff, Tusayan, and Dogoszhi Black-on-white.<sup>18</sup> Each occurs in very small numbers and merely represents other trade pieces from the north. Several pieces of Flagstaff Black-on-white show a negative design.

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18. Colton and Hargrave, 1937, pp. 209, 213, 225.

Two "hybrid" sherds with Black-on-white interior and corrugated exterior were found. (Ed. note: Possibly Shato Black-on-white.)

**Kayenta Black-on-white.**<sup>19</sup> A small jar with vertical handle, and a ladle of the bowl-and-handle type were found in Cist Grave 3 and 3a, respectively. (Photo 45C, D.)

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19. Colton and Hargrave, 1937, p. 217.

**Black-on-red types.** These total 20 sherds. Eight of these are Tusayan Black-on-red,<sup>20</sup> although some have more sand tempering than is typical. One sherd shows the buff paste on the same surface with the black and red design and may be classed as Tusayan Polychrome

## or Citadel Polychrome

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20. Colton and Hargrave, 1937, p. 74.

21. Colton and Hargrave, 1937, pp. 75, 96; cf. Reed, 1944.

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The other sherds, presumably from one vessel, are of a different type, and were thought by both Haury and Hargrave to come from east of this region, probably along the Mogollon Rim. Similar sherds were found at Pinedale. The paste has coarse sand temper and a gray core. The slip is a pinkish red which has weathered to a light rose in places. The design is partially obliterated by the flaking off of the black pigment. Dr. Colton pointed out that this is undoubtedly a type of White Mountain Red Ware,<sup>22</sup> and Reed suggests that it resembles the Showlow series.<sup>23</sup>

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22. Colton and Hargrave, 1947, pp. 101-131.

23. Mera, 1934.

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**Jeddito Black-on-yellow.**<sup>24</sup> Approximately 36% of the decorated sherds are Jeddito Black-on-Yellow. No whole vessels were recovered. Bowl sherd designs are illustrated in Fig. 11.

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24. Colton and Hargrave, 1937, p. 150.

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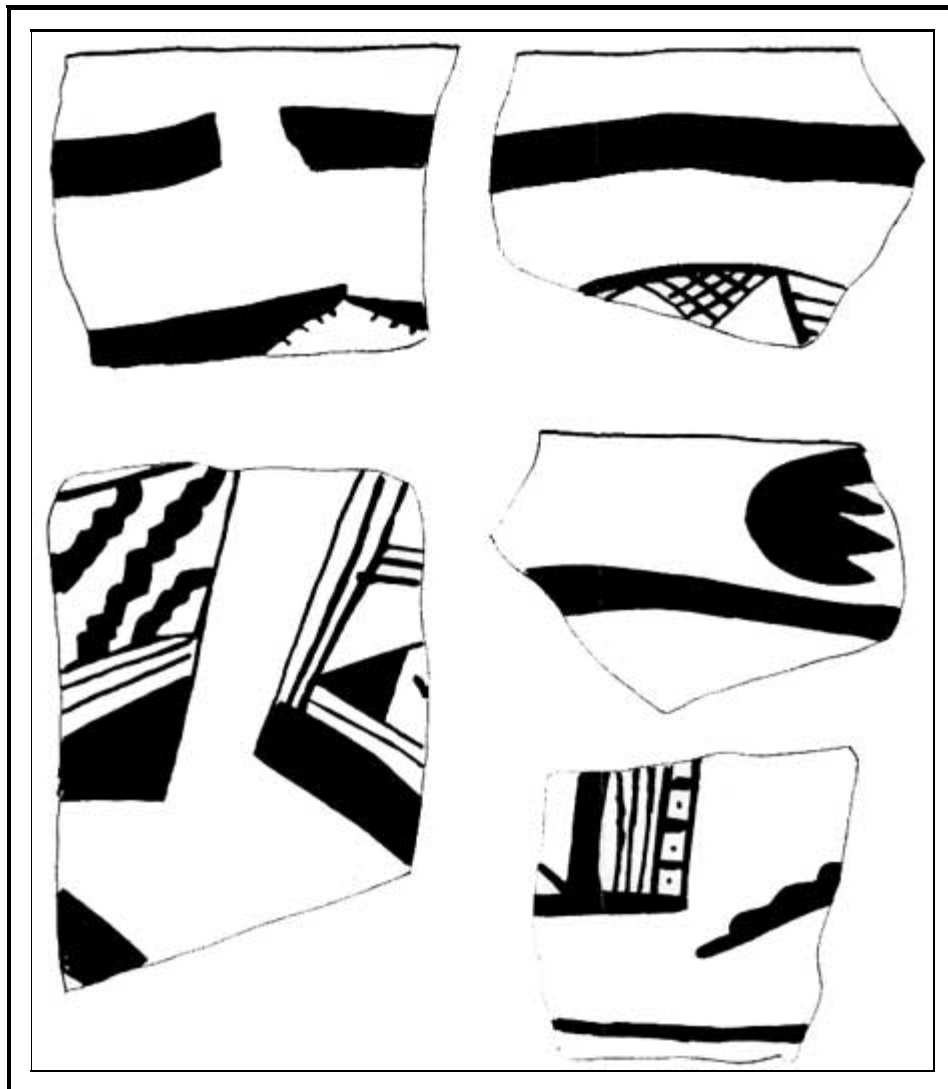


Fig. 11. Designs of Jeddito Black-on-yellow.

**Bidahochi Polychrome.**<sup>25</sup> Fragments of one vessel were taken from Cist Graves 1 and 2, in the fill above the burials. A restorable bowl was obtained in Cist Grave 3a (Fig. 12, Photo 45A).

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25. Colton and Hargrave, 1937, p. 151.

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Fig. 12. Interior design of Bidahochi Polychrome bowl.

Other northern wares include polychromes identified by Hargrave as Winslow and Homolovi Polychromes<sup>26</sup>

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26. Colton and Hargrave, 1937, pp. 82. 139.

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**Winslow Polychrome.** One bowl of Winslow Polychrome was found in Cist Grave 3. In design and general treatment, it corresponds very closely to the Bidahochi Polychrome bowl (Fig. 13, Photo 45B.) However, the paste is entirely different; the temper is coarse quartz and feldspar sand with occasional black and red particles; the texture is somewhat porous; a pinkish core is characteristic. Sherds of this type, while not plentiful, were well distributed throughout the site.



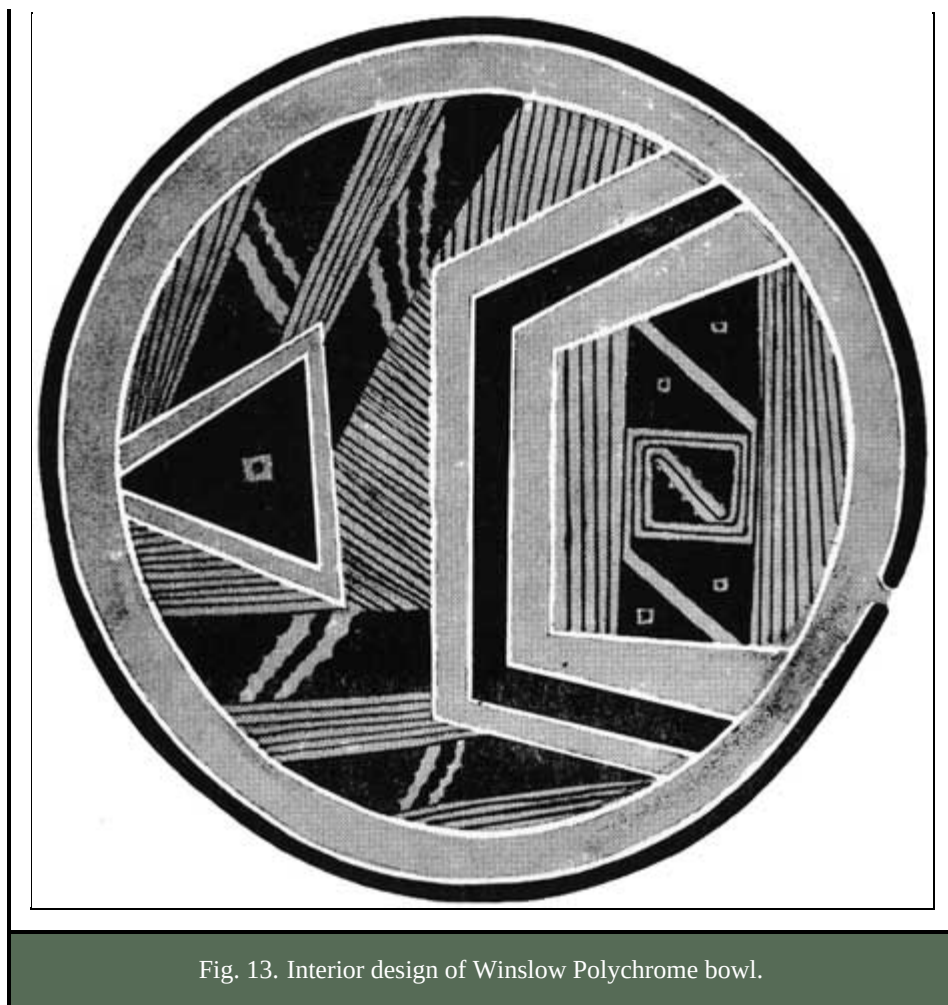


Fig. 13. Interior design of Winslow Polychrome bowl.

**White-on-red Ware.** In design this type is closely related to Salado Red but the surface is smoother and shows no corrugations. There are differences in several details from Tuzigoot White-on-red.<sup>27</sup> As far as the writer has been able to determine, there is no published description exactly fitting this type.

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27. Caywood and Spicer, 1935, p. 50.

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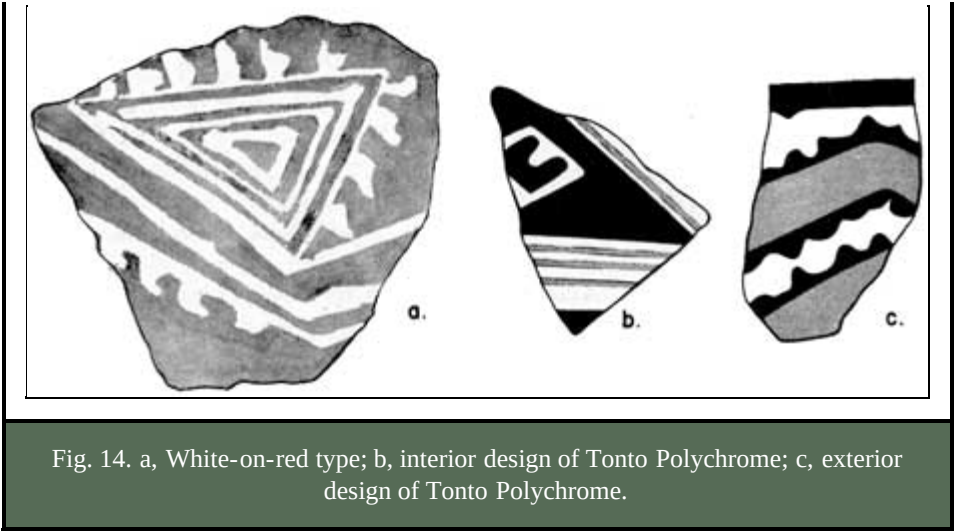
*Paste.* In the bowl found, resembles the paste of Tuzigoot Red. In sherds, the paste is yellow and the tempering material is coarse quartz and feldspar sand.

*Texture.* Coarse and friable.

*Surface treatment.* Nicely smoothed and polished; interior and exterior surfaces equally well finished; faint smoothing indentations are visible. Both surfaces covered with a red slip. Sometimes the interior is smudged.

*Forms.* Bowls and small, large-mouthed ollas; rims slightly recurved and rounded.

*Design.* White lines, appended dots, and single fret elements; lines are fairly accurately drawn but dots are commonly put on sloppily. The design is always on the exterior, on bowls as well as on jars, in contrast to Tuzigoot White-on-red (decorations confined to bowl interiors). The design is usually unbordered and extends in units or as a whole around one level of the vessel (Fig. 14a).



*Remarks.* A few sherds and one whole bowl (Photo 46E) occurred at Castle A. The bowl came from Cist Grave 1, in which there were no other whole vessels. Whole pieces of this type are seen in private collections from sites of this region. The largest number of vessels taken from one site were found when Gila Pueblo excavated the Rye Creek Ruin, near the foot of Ox Bow Hill south of Payson. Center of the type may have been in the upper Tonto Basin; it appears to have been the most common trade ware from the south and east in this region.

**Tonto Polychrome.**<sup>28</sup> Tonto Polychrome is represented at this site by 14 sherds, probably from three different bowls. The interior is covered with a white slip, on which the design is drawn with broad black lines and narrow red lines. On the exterior red slip are bands of white and black design (Fig. 14b). Tonto Polychrome occurs at Tuzigoot<sup>29</sup> but it is rarely found among the surface sherds at sites of this region.

28. Gladwin, 2930 (6), pp. 8-9; Colton and Hargrave, 1937, pp. 90-91.  
29. Caywood and Spicer, 1935, p. 48.

**Four-Mile Polychrome.**<sup>30</sup> One sherd of this type was found.

30. Haury, 1934; Colton and Hargrave, 1937, p. 109.

**Red-on-buff.** The one sherd found resembles in paste the Red-on-buff ware at Tuzigoot<sup>31</sup> much more than any of the Gila Basin series; it is believed by Haury to be a late Verde Valley variant of the red-on-buff ware of the Hohokam.

31. Caywood and Spicer, 1935, p. 52.

**Table 3. ANALYSIS OF POTSDHERDS FROM MONTEZUMA CASTLE A\***

|                          | No.  | Pct. |
|--------------------------|------|------|
| Dogoszhi Black-on-white  | 3(?) | T    |
| Flagstaff Black-on-white | 3(?) | T    |

|                                                |           |
|------------------------------------------------|-----------|
| Black-on-white                                 | 3(?) T    |
| Kayenta Black-on-white                         | 3(?) T    |
| (?) Red-on-buff                                | 1 T       |
| Chevelon Black-on-white                        | 2 T       |
| Walnut Black-on-white                          | 109 37%   |
| Tonto Polychrome                               | 14 5%     |
| Four Mile Polychrome                           | 1 T       |
| Tusayan Black-on-red                           | 8 T       |
| Citadel Polychrome                             | 1 T       |
| Winslow Polychrome                             | 14(?) 5%  |
| Jeddito Black-on-yellow                        | 93 36%    |
| Bidahochi Black-on-white                       | 1 T       |
| White Mountain Red Ware                        | 3(?) T    |
| Deadmans Black-on-gray                         | 1 T       |
| Tuzigoot White-on-red                          | 1 T       |
| All others together                            | 17%       |
|                                                | <hr/>     |
|                                                | 261 100%  |
| Verde Brown (Coarse utility)                   | 2894 64%  |
| Tuzigoot Red                                   | 1469 33%  |
| Verde Red (Ed. note: Gila Red in text, p. 36.) | 99 3%     |
|                                                | <hr/>     |
| Total Alameda Brown Ware                       | 4462 100% |

(?)—Estimated number.  
T—Trace

Ceramic Group 8 to 11. Alameda Brown Ware 100% Southern Sinagua Branch, Honanki and Tuzigoot Foci, 1200-1350 A.D.

\*Studied by Mrs. Van Valkenburgh in 1934; classification by H. S. Colton in 1939.

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**Table 4. POTTERY TYPES LISTED BY WARE IN ORDER OF THEIR ABUNDANCE AT THE SITE**

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(The time range is that given in H. S. Colton and L. L. Hargrave, *Handbook of Northern Arizona Pottery Wares*, 1937, or a later revision by Dr. Colton.)

**Alameda Brown Ware**

|              |           |                                    |
|--------------|-----------|------------------------------------|
| Verde Brown  | 1000-1300 | (These dates not well established) |
| Tuzigoot Red | 1150-1400 |                                    |

**Little Colorado White Ware**

|                       |                                 |
|-----------------------|---------------------------------|
| Walnut Black-on-white | 1100-1275                       |
|                       | (1130-1250 period of abundance) |

**Jeddito Yellow Ware**

|                                                                        |                                              |                                              |
|------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|
| Jeddito Black-on-yellow                                                | 1325-1600                                    |                                              |
| Bidahochi Polychrome                                                   | 1320-1400                                    |                                              |
| <b>Gila Red Ware</b>                                                   |                                              |                                              |
| <b>San Juan Orange Ware</b> (formerly Tsegi Yellow Ware) <sup>32</sup> |                                              |                                              |
| Tusayan Black-on-red                                                   | 1050-1150                                    |                                              |
| Citadel Polychrome                                                     | (1075-1130 period of abundance)              | 1076-1175<br>(1120-1150 period of abundance) |
| <b>Winslow Orange Ware</b>                                             |                                              |                                              |
| Winslow Polychrome                                                     | 1350-1400                                    |                                              |
| <b>Tusayan Gray Ware</b>                                               |                                              |                                              |
| Tusayan Corrugated                                                     | 950-1275                                     |                                              |
| <b>Tusayan White Ware</b>                                              |                                              |                                              |
| Flagstaff Black-on-white                                               | 1125-1225<br>(1130-1200 period of abundance) |                                              |
| Dogoszhi Black-on-white                                                |                                              | 1075-1140<br>(1090-1130 period of abundance) |
| Kayenta Black-on-white                                                 | 1250-1300<br>(1270-1280 period of abundance) |                                              |
| <b>Roosevelt Red Ware</b>                                              |                                              |                                              |
| Tonto Polychrome                                                       | ca. 1400?                                    |                                              |
| <b>Alameda Red Ware</b>                                                |                                              |                                              |
| Homolovi Polychrome                                                    | 1300-1400                                    |                                              |
| <b>San Franciscan Mt. Gray Ware</b>                                    |                                              |                                              |
| Deadmans Black-on-gray                                                 | pre 750-ca. 1100                             |                                              |
| <b>White Mountain Red Ware</b>                                         |                                              |                                              |
| Four-Mile Polychrome                                                   | 1350-1400                                    |                                              |
| <b>Hohokam Buff Ware</b>                                               |                                              |                                              |
| Verde Red-on-Buff?                                                     | ?                                            |                                              |
| <b>White-on-Red</b>                                                    |                                              |                                              |

(A type which may belong with Alameda Brown Ware but which more resembled Salado Red Ware; see description in text.)

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32. Reed, 1944; Colton, 1946, p. 23.

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**Table 5. ANALYSIS OF POTTERY (whole pieces) seen in Museum at Montezuma Well, in May 1939. Probably from burials.  
Site N.A. 1273\***

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|                                     |            |             |
|-------------------------------------|------------|-------------|
|                                     | <b>No.</b> | <b>Pct.</b> |
| Flagstaff Black-on-white            | 1          | 3           |
| Wupatki (or Kayenta) Black-on-white | 7          | 21          |
| Walnut Black-on-white               | 7          | 21          |

|                                                                                                                                                  |    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|
| Tusayan Black-on-red                                                                                                                             | 1  | 3   |
| Citadel Polychrome                                                                                                                               | 1  | 3   |
| Jeddito Black-on-orange                                                                                                                          | 2  | 6   |
| Jeddito Black-on-yellow                                                                                                                          | 10 | 29  |
| Bidahochi Polychrome                                                                                                                             | 3  | 9   |
| Winslow Polychrome                                                                                                                               | 2  | 6   |
| Total                                                                                                                                            | 34 | 101 |
| Tonto Red or Turkey Hill Red (mostly bowls)<br>(Polished red with black interior) (Ed. note: Probably the Gila Red of Author<br>Van Valkenburgh) | 47 |     |
| Crude red with black interior (Type ?)                                                                                                           | 2  |     |
| Verde Brown                                                                                                                                      | 11 |     |
| Total Alameda Brown Ware                                                                                                                         | 60 | 82  |
| Salado White-on-red                                                                                                                              | 4  |     |
| Salado Red                                                                                                                                       | 8  |     |
| Elden Corrugated                                                                                                                                 | 1  |     |
| Total Mogollon Brown Ware                                                                                                                        | 13 | 18  |
|                                                                                                                                                  | 73 | 100 |

Ceramic Groups 8-11. Alameda Brown Ware 82%, Mogollon Brown Ware 18%. — Southern Sinagua Branch, Honanki and Tuzigoot Foci, 1200-1300 A. D.

\*By Harold S. Colton and Katharine Bartlett

**Conclusions, pottery.** In the 10 test trenches dug into the fill below Castle A scattered plain sherds were found from the surface to the greatest depth of a trench, 12 feet, 9 inches; no refuse area was found. There were no structural leads as to different periods of occupation within the building. Hence no stratigraphic or chronological occurrence of changes in pottery is available. The finding of crushed vessels in graves is our only check of contemporaneous use; and this criterion must be regarded skeptically, since burials did not occur singly or in recognizable time order within the cist graves. The dirt fill of the cists showed the same mixture of sherd types found in the fill of all other parts of the excavation.

The occurrence at Castle A of Jeddito Black-on-yellow and Bidahochi, Winslow and Tonto Polychromes, show that it was occupied as late as Pueblo IV. Considering that Jeddito Black-on-yellow and other Hopi type wares are found in substantial numbers, we might reasonably expect to find Sikyatki Polychrome and other late developments of the Hopi series if this site was occupied during their time of manufacture. In the absence of datable wood from Castle A, this partial occurrence of the Hopi series seems to furnish the most reliable data on the termination of occupation at this site; since Sikyatki Polychrome and other fifteenth century developments are not found, Castle A was probably abandoned before or during the first quarter of the fifteenth century.

To the earliest time of occupation at Castle A, the pottery has given us no clue. Any known chronological changes in plain ware would be of help but there are no reports on the excavation of Pueblo I or II sites in this section of the Verde Valley. Decorated types of Castle A are of Pueblo III and Pueblo IV periods of adjacent regions.

At a site occupied during the Pueblo III and IV periods in contact with the country to the

northwest, north, northeast, east, and southeast, it is probably not surprising that the decorated pottery should be composed of types whose centers are far apart geographically. It is because of this wide distribution of regional origin of our decorated wares that each type, even if represented by only one sherd, has been mentioned in this report. The feeling of the writers is that the decorated pottery of Castle A cannot be regarded as showing a local integrated ceramic art, but that it can be regarded as showing trade with, or infiltration of, peoples of other regions. This mixture of regional influences, as shown by the pottery of a late Verde site, may, after more excavation in the middle Verde and further work on the pottery so recovered, prove to be the key which will make clearer the composition of the later Verde Valley cultures and throw some light on the movements of Pueblo IV peoples in central Arizona.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## PLATES

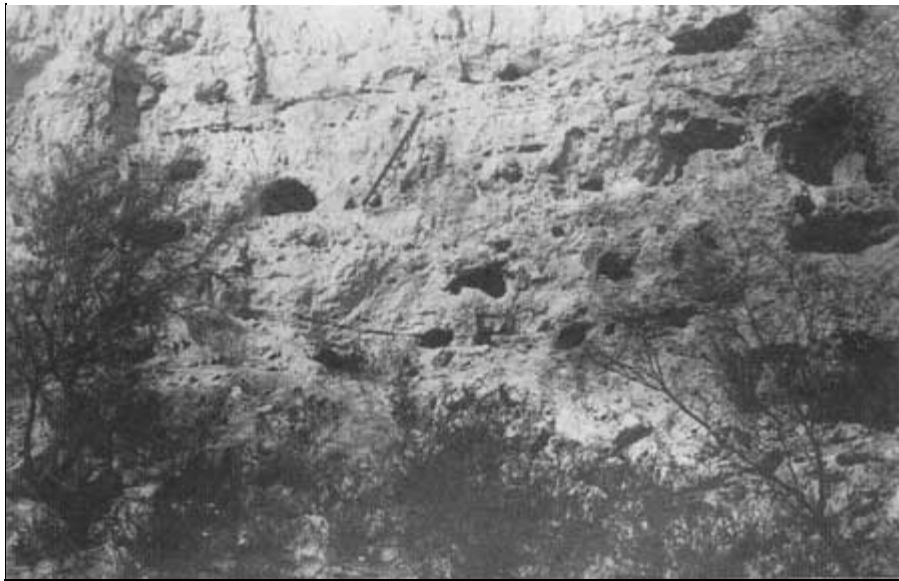


1. Castle A in 1929. (*George Grant photo*)



2. View before excavation, east end Castle A from front.





3. Before excavation. Central and west parts Castle A, base, before excavation of any floors. Ladder leads to fifth floor.



4. East part of Castle A base, from west, after start of excavation.



5. Castle A east, after second tier of rooms was cleaned.

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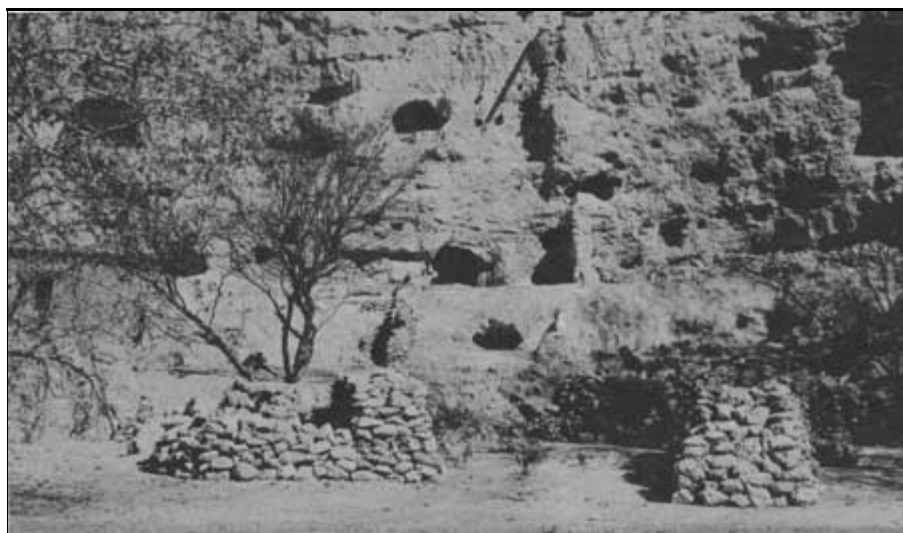
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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## PLATES



6. Castle A from south, front, after completion of work.

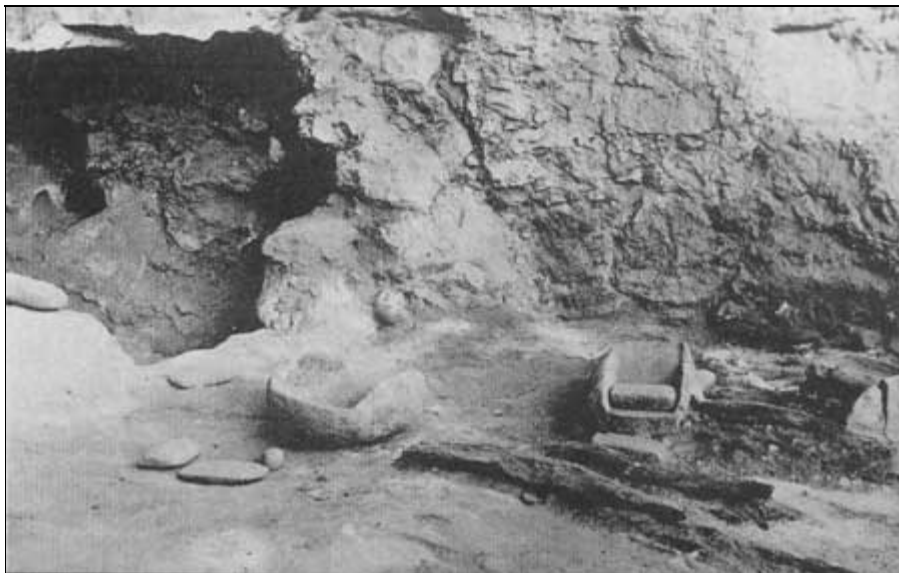


7. Castle A, from west, after work was finished. In left foreground is Room 5, restored.





8. Room 3 from southwest. The black cave in the background was a burial chamber.



9. Room 3, closeup from the southwest, showing metates in position and fragments of ceiling intact on floor. Burial cave in left background.



10. Northwest corner of Room 3, showing mouth of large cave room to right. Under raised floor to left center were found baby burials.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## PLATES



11. Room 4, from east. Note firebox in foreground, and beyond it the charred stump of post upright.



12. Room 5 from south, showing details as found on floor. Fragment of wattle wall is just out of picture to the left.



13. Room 5, from west end, showing floor details. Room 4 in extreme background, right.



14. Room 5, showing firebox and large water olla as found against it.



15. Room 2a, from southeast. Note clay wattle wall section in left center.

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# MONTEZUMA CASTLE

## Montezuma Castle Archeology - Part 1: Excavations



## PLATES



16. Room 3a from southwest, showing details as found on floor, with storage well in left background.



18. Room 4a from southwest. Left background shows rise to level of Room 4.



19. Room 4a, detail. Firebox in left center.

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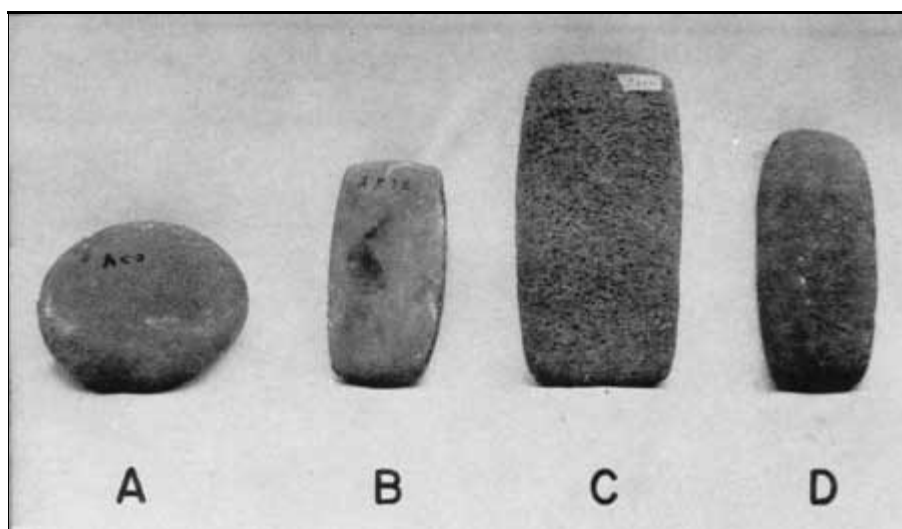
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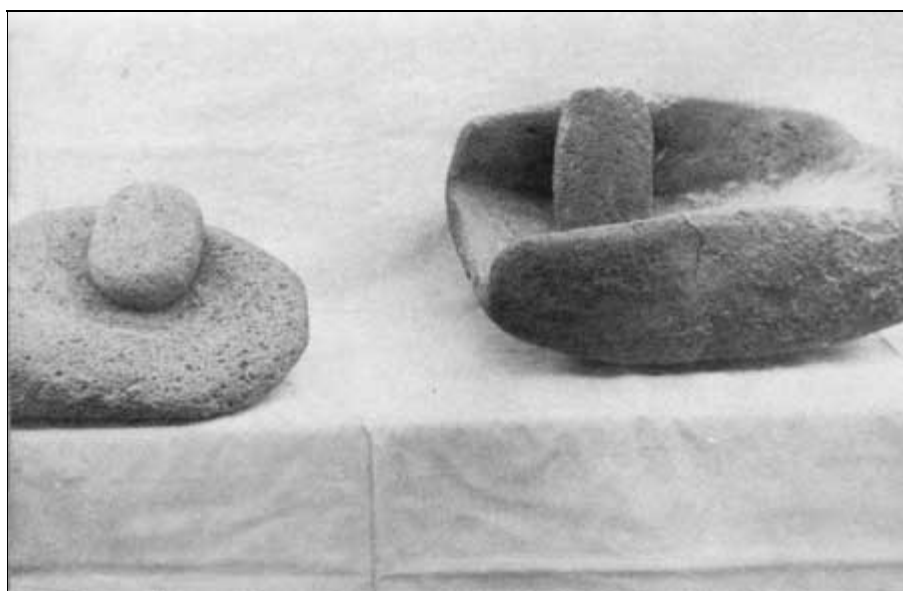
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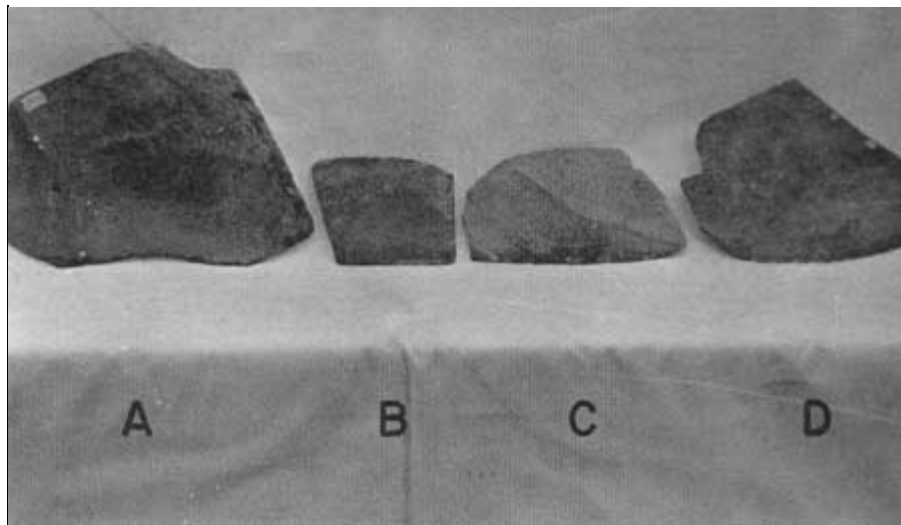
## PLATES



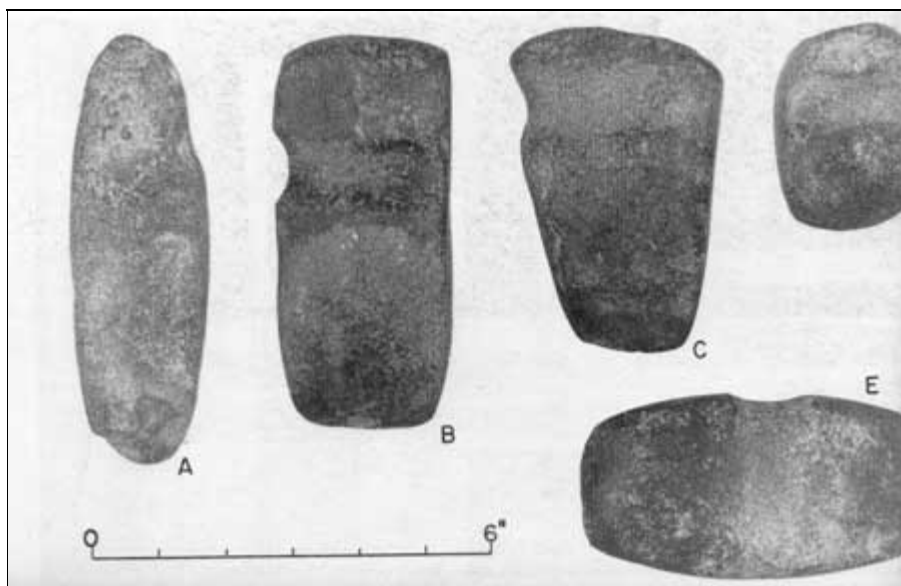
32. Shapes of grinding stones: A, rotary grinder; B, triangular-cross section mano; C, D, typical metate-type manos.



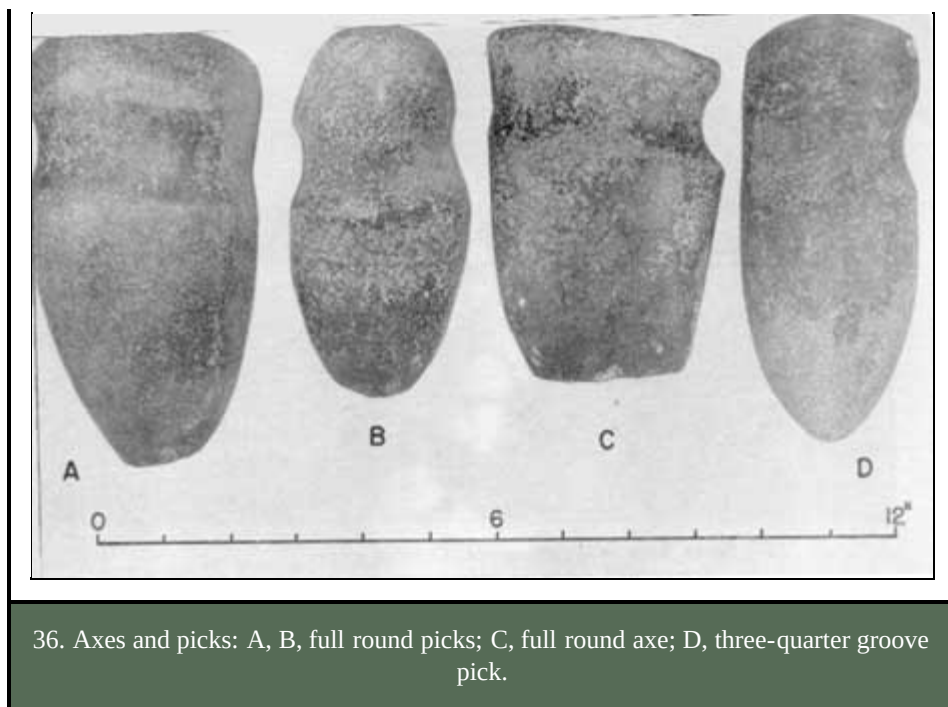
33. Metates. Two types shown: basin and trough.



34. Stone hoes and fragments. Cutting edges are turned down in this photo.



35. Representatives stone axes: A, crude specimen found about 9 feet below surface in test trench; B, C, D, well-finished three-quarter grooved axes; E, only double-bitted axe found.



36. Axes and picks: A, B, full round picks; C, full round axe; D, three-quarter groove pick.

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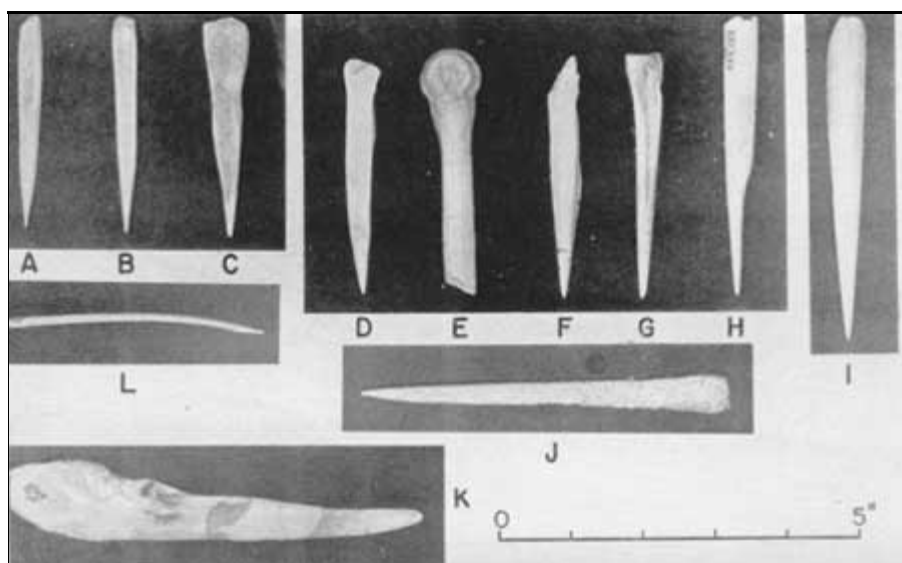
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# MONTEZUMA CASTLE

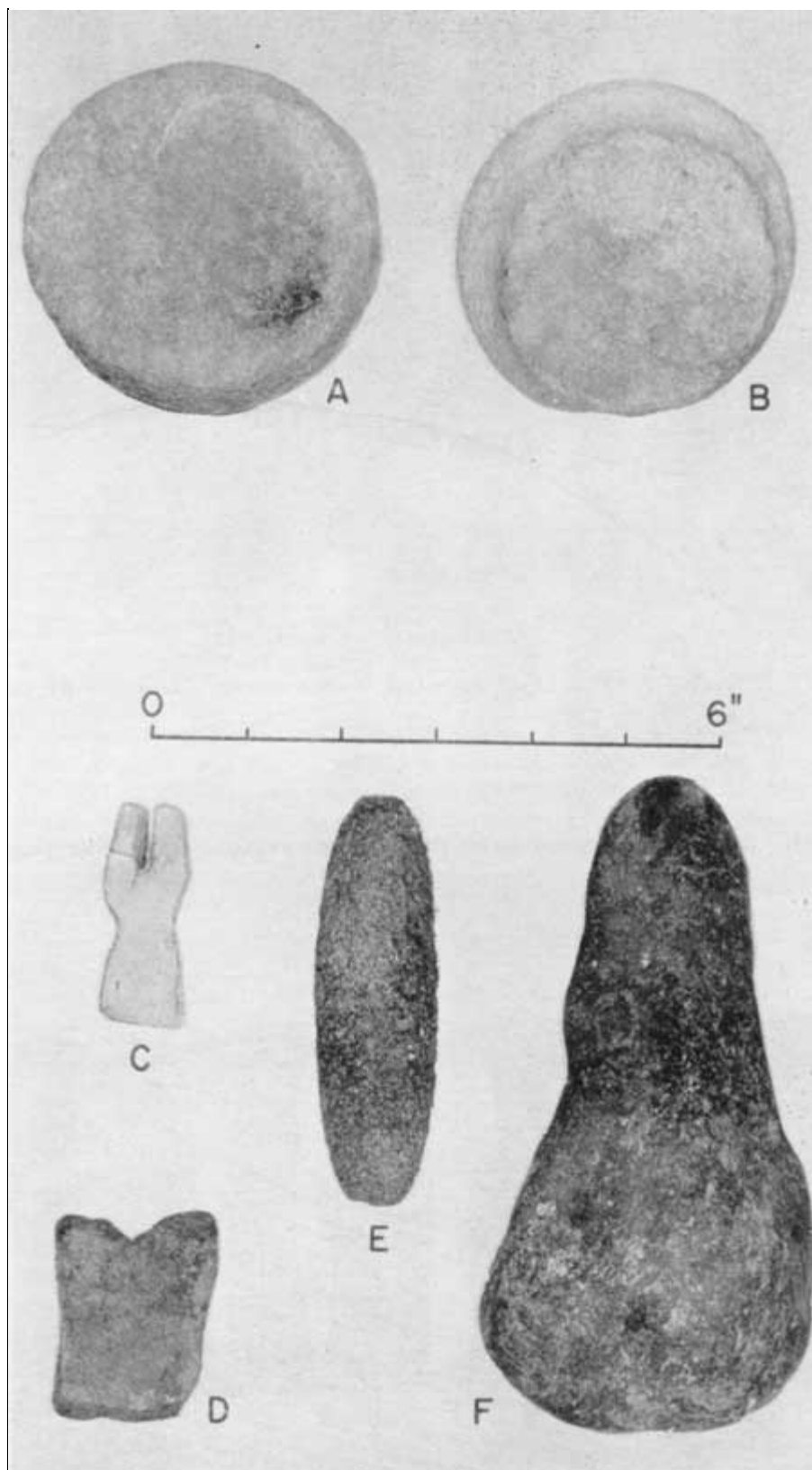
## Montezuma Castle Archeology - Part 1: Excavations



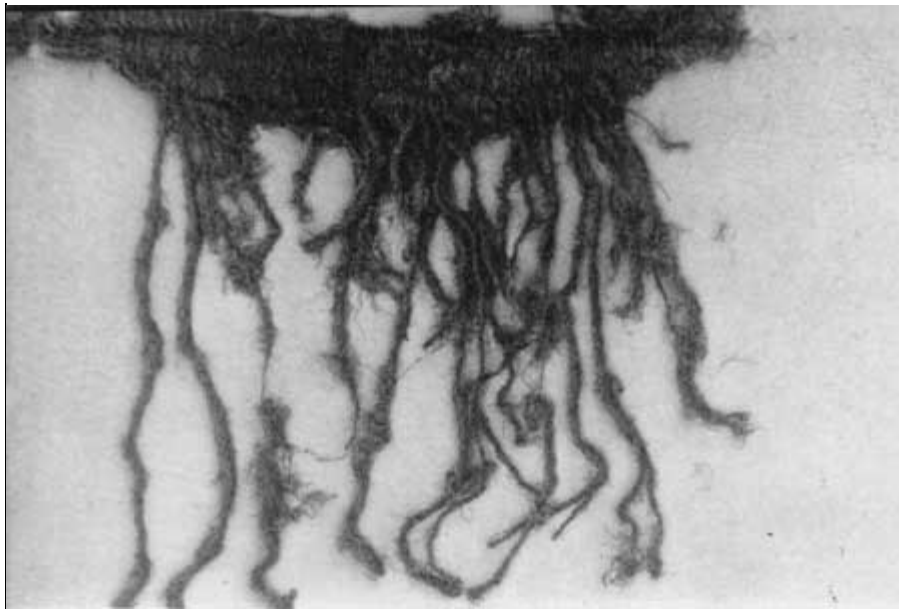
## PLATES



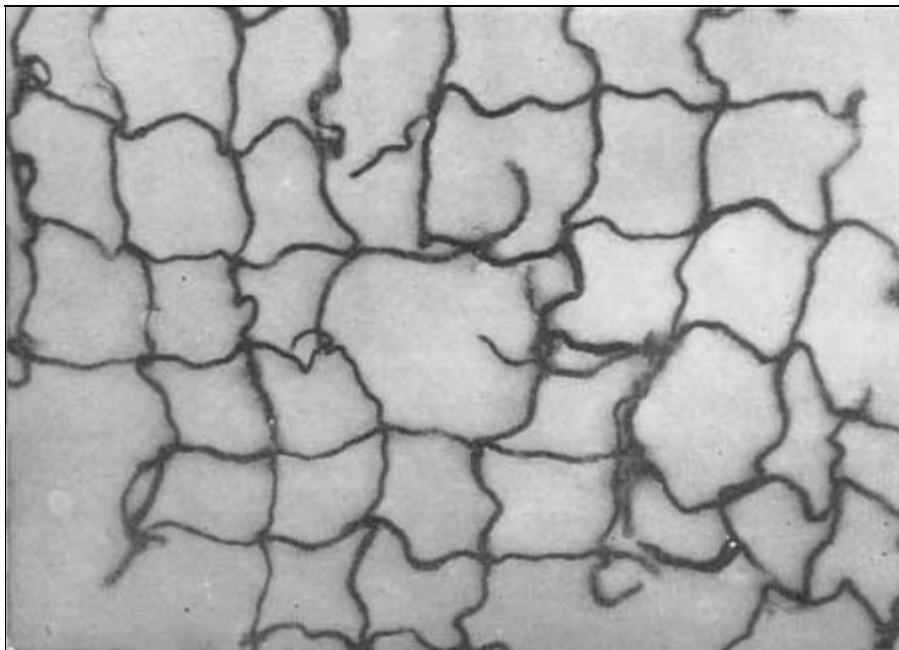
37. Bone awls of various shapes and sizes. L, hollow bone needle, with eye. K, bone knife.



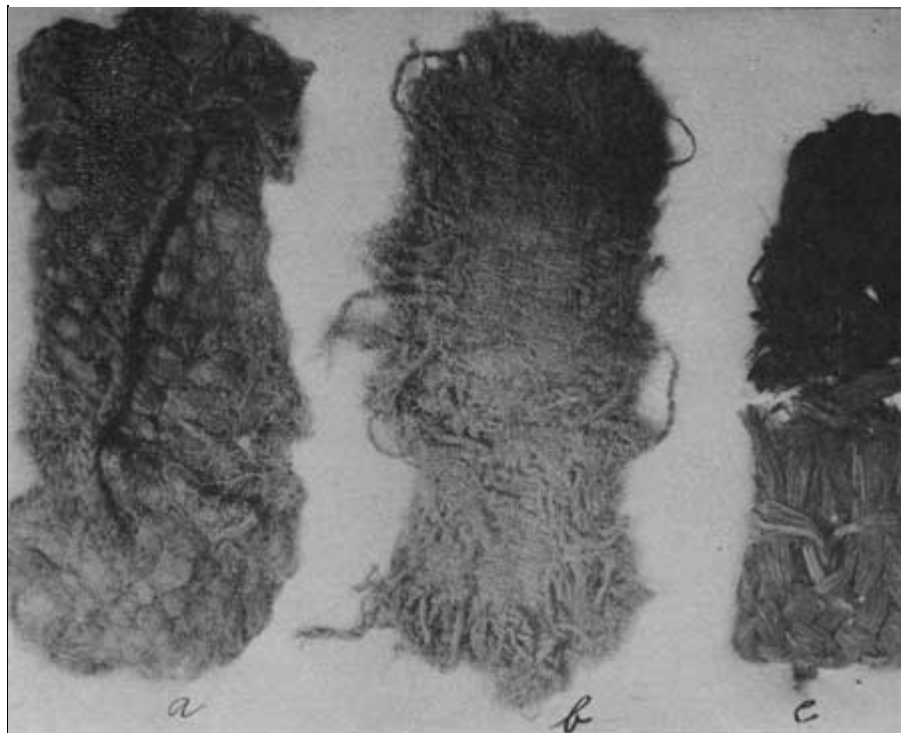
38. A full-groove stone hammer; B, pottery anvil; C, small, carved, soft stone (to chalk strings?); D, hard, crotched stone of unknown use; E, vesicular basalt stone (corn sheller?); F, basalt pounder.



39. Portion of Gee-string.



40. Net fragment of knotted Yucca cords.



41. Sandals: C, commonest type in this region.

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# MONTEZUMA CASTLE

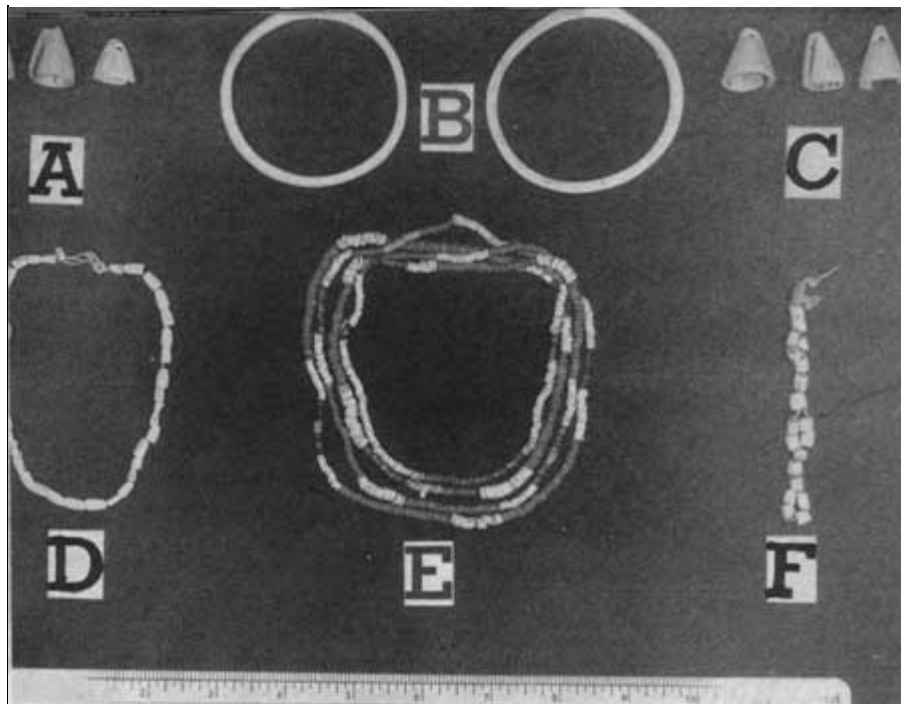
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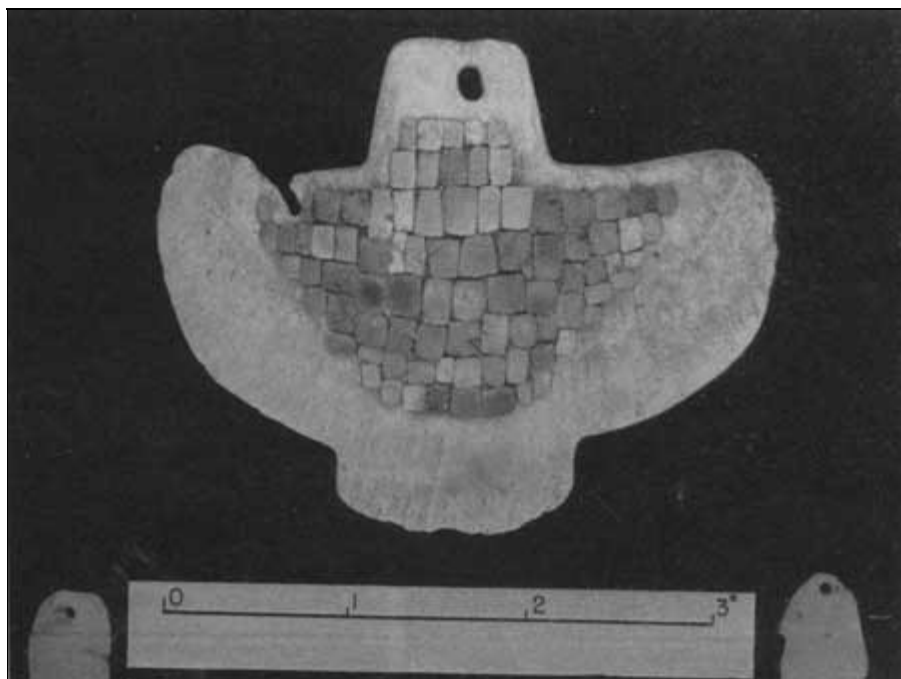
## PLATES



42. Cloth fragments: A, D, plain weave; B, simple drawn work design formed by pulling out weft strands at regular intervals; C, cloth showing practice of weaving single weft thread over two warp threads.



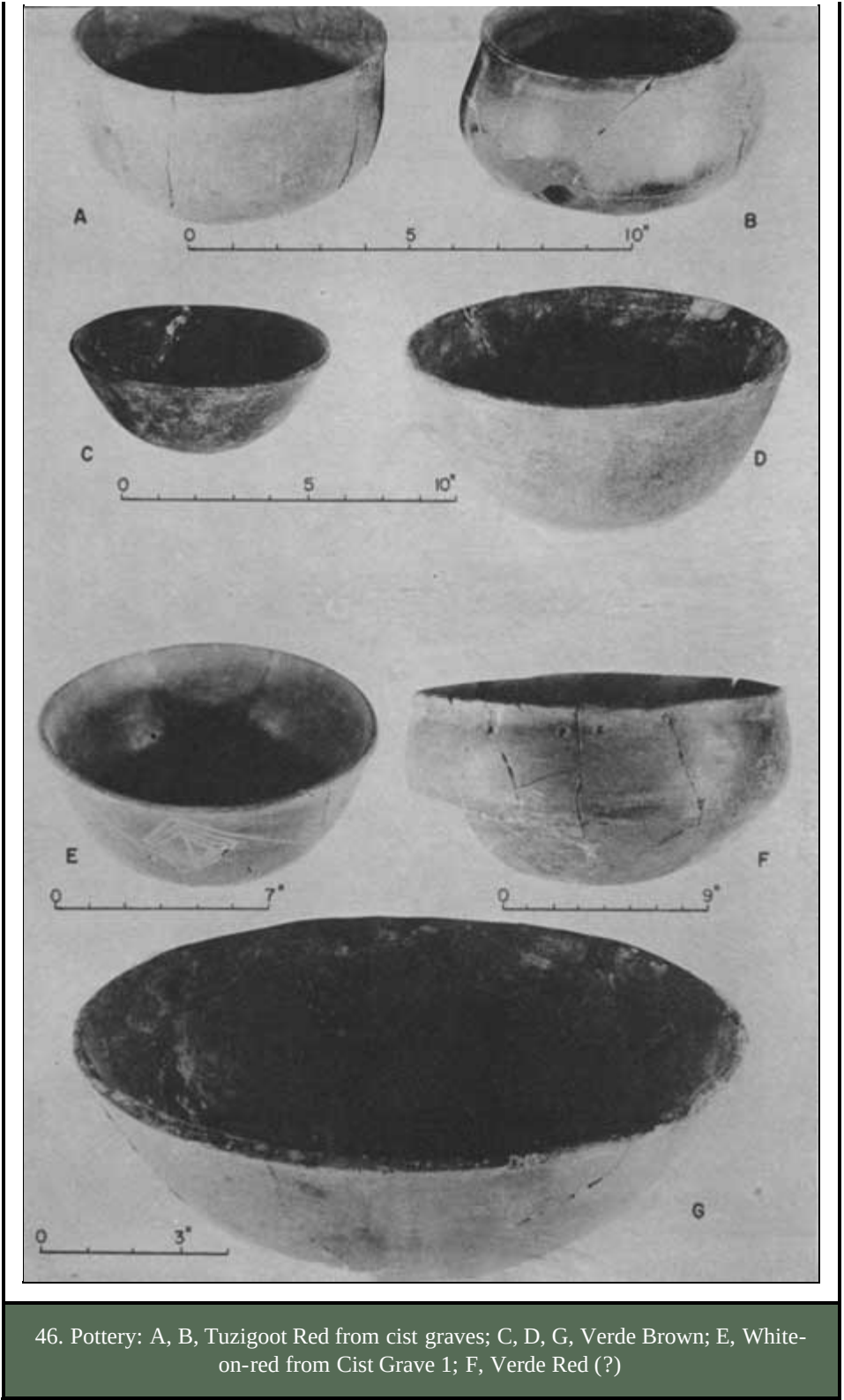
43. Jewelry: E, necklace of discoidal beads; B, glycymeris shell bracelets; D, olivella shell beads; A, C, conus shell pendants.



44. Jewelry: Eagle-shaped shell pendant set with miniature bird form in turquoise. Also separate small turquoise pendants.



45. Top, large olla from Room 3a; A, Bidahochi Polychrome bowl from cist grave; B, Winslow Polychrome bowl from cist grave; C, D, Kayenta Black-on-white jar and ladle.



46. Pottery: A, B, Tuzigoot Red from cist graves; C, D, G, Verde Brown; E, White-on-red from Cist Grave 1; F, Verde Red (?)

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