

PREHISTORIC CULTURES OF THE CIMARRON  
VALLEY, NORTHEASTERN NEW MEXICO  
AND WESTERN OKLAHOMA

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INTRODUCTION

During the past few years very significant discoveries of stone artifacts were made in the Western Plains; notably in Texas, Oklahoma, New Mexico, Colorado, Kansas, and Wyoming. Everywhere they consist of flaked stone points; in several instances, of material not represented in collections of stone artifacts manufactured by historic Indians. Moreover, some of these points display a skill and a technique superior to that usually seen in recent implements found in the same region. Finally, a few of these prehistoric points, though of different geographic origins, are evidently of the same specialized type as first observed at the Folsom Quarry, in Northeast New Mexico, thus suggesting a community of culture. The importance of these various finds comes from the fact that they have been recovered from gravel beds recognized by geologists as of Pleistocene age. This would make them, by far, the oldest weapons ever found in America. Further, at some sites, such as at Folsom, these missiles were discovered closely associated with, or even in immediate contact with the bones of an extinct species of bison much larger than the modern buffalo. This indicates that these dart points belonged to ancient hunters of a remote antiquity. The exact time of their existence remains to be decided by geologists and paleontologists.

But, as soon as artifacts are found, the archeologist becomes interested, his mission being to look for, collect

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and study all possible human relics of the culture signalled to his attention by the first chance finds. Thus, during the seasons of 1926-27-28, the Colorado Museum of Natural History of Denver had done important paleontological field work at the Folsom Quarry, east of Raton, New Mexico; in 1928 in collaboration with the American Museum of Natural History of New York. There, while digging fossil bones of various species of animals, including those of the large bison previously mentioned, over 15 beautifully flaked points were recovered from the Pleistocene beds, and under such conditions that it was impossible for any scientist in good faith to deny the coexistence of the prehistoric hunter and the now extinct buffalo he had shot with those missiles. It was then in order for the anthropologist to search in the vicinity of the quarry for the remains of the body, dwelling and artifacts of the Folsom Man. A first attempt of the sort had been made in 1928 under the direction of Dr. Clark Wissler; but a vast region remained to be explored. To that end an expedition was sent into the field in 1929 by the Colorado Museum of Natural History, under my direction, and in collaboration with Mr. H. J. Cook, head of the department of paleontology at the Museum.

#### OBJECTIVES OF THE EXPEDITION

The first aim was to look for any indication of remains of the Folsom Man. It may be said immediately that in two months of active search over an extensive area nothing was discovered apparently connected with the Folsom Man or his material culture, except a fragment of the base of a dart point, so similar in shape and technique to those previously collected at Folsom that there was no doubt as to its origin. This bit of evidence was found in the lowest layer of a lava cave on the T. O. Ranch, some 5 or 6 miles west of the Folsom Quarry, over the hills. But it does not in any way tie up the Pleistocene hunter with the culture represented in several neighboring caves, as all the rest of the material and remains recovered from that district is radically different and, although quite ancient, is very much more recent. This older

fragment of point was probably picked up by one of the early inhabitants of that cave while hunting in the adjacent valley. The stone, shape and finish, being unusual, attracted his attention, and he brought it to his shelter, possibly to show it to others.

The Folsom Man was a hunter and as such a nomad, hence his belongings were few and mostly of a perishable nature, outside of his stone points and a few other implements; thus rendering discoveries a matter of rare chance. The finds made in Texas, Oklahoma, New Mexico, Colorado and elsewhere suggest the vast hunting range of a probably scanty population, living in the open, leaving few traces to be discovered when least expected in an accidental exposure, such as the cut of a river bank or a sand pit or dune. Luck in such matters may be fully as successful as a systematic search, although the latter should not be disregarded.

The second purpose of the expedition was to explore caves in lava and sandstone, reported to exist in the valley of the Dry Cimarron, both in Northeastern New Mexico and Western Oklahoma. This was in the hope of finding either fossil bones or cultural remains, possibly related to the Folsom Man. This represents the intensive part of our task and was diligently done, from June 10 to August 5, 1929, by the four men under my direction and at various times with the active collaboration of Mr. H. J. Cook. The results of these excavations in three districts were successful beyond expectation and will be reported more at length further on.

The third and practically incidental objective was to survey the northeastern corner of New Mexico and adjacent districts in Southeast Colorado and Western Oklahoma. This was to broaden out our horizon and see whether by chance we would run across some traces of the Folsom Man. It was also to look for connections between the cultures of the Cimarron valley which we were uncovering and neighboring cultures, such as that of the Plains people in the East and of the Pueblos and Basket Makers in the Southwest. We were there on virgin soil, as no archaeological survey had ever been attempted in that region. Almost every week, accompanied by



THE "FUMAROLE"<sup>2</sup> CULTURE

In April, 1929, Mr. H. J. Cook and I undertook a reconnaissance trip under the guidance of Mr. Fred Howarth of Raton. The main result was the visit to several "fumaroles" in the extreme northeast corner of New Mexico, where we picked up stone implements on the surface of these mounds. Back in Denver, I found them to resemble very closely other quartzite flaked artifacts just described by Mr. M. Boule of the Museum of Natural History of Paris, and coming from the lower strata of the "Grotte de l'Observatoire" at Monaco. Without inferring the same antiquity for both prehistoric industries, it was clear that the American specimens represented a very primitive technique of stone implement making and deserved attention. This is why we were led to excavate some of the "fumaroles" and to study the cultural remains contained, something entirely new in the archaeology of the Southwest.

For that purpose, on June 11, we established camp, 102 miles east of Raton, near highway No. 64, our only means of communication up and down the valley of the Dry Cimarron. Four large "fumaroles" were in the vicinity of our camp. The first one visited was sterile. The second contained two rock shelters which we dug up carefully. The third one was not in condition to be explored and the fourth and last one, farthest east, presented a splendid vertical cross-section of the implementiferous layer, completing our observations made on the second site.

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considerable depths the interior of some of these mounds, and disclosed the character of the deposits and cave debris that has filled up many of these holes, disclosing evidence of human habitation as deep as excavation has gone, some of which is evidently of great age.

As to the probable age of these deposits, too little detailed work has been done as yet to warrant any definite statement. However, much of the debris present in these "caves" is of a character that appears to have been washed into its present position. If this is true, then considering the present elevated position of these deposits, these materials must have been washed in at a time when the general level of the surrounding surface was many feet above its present level. Considering the hard and resistant character of these surrounding beds, this, of necessity, implies a lapse of time much greater than the occurrence of the oldest known "Basket Maker" or other similar culture of this country. This, in turn, suggests a possible reason for the apparent absence of arrow points in these deposits, and the primitive type of flaked implements that are found here, and their similarity in cultural stage to early stone implements of Europe, which Dr. Renaud points out.

May 8, 1930.

HAROLD J. COOK.

The two rock shelters of "Fumarole" No. 2 were, the first or Location A at the foot of it, the second or Location B on the top platform. The lower shelter was rendered accessible by a trench, 8.50 meters long, cut by a mining company which prospected all that region for copper. The shelter faced N. 60° E. Its inside measurement following the roughly circular wall was 8.25 m. It was partly protected above by thick blocks of lava forming an irregular roof 1.85 m. high in the center and 3.85 m. above the bottom on the west side after excavation. The layer we excavated was from 1.40 m. to 2 meters in vertical depth. On the south side there was an irregular roundish cavity going up as a chimney, 2.80 m. in length from the foot to the top, on the upper platform of the fumarole. It was closed above by an enormous "metate" or grinding stone.

Location B opened west on a spacious plaza 7.20 m. by 10.80 m., but encumbered by tumbled-down boulders. High rocks surrounded most of that platform towering 4.40 m. on the north side. What was at first believed to be a burial place turned out to be in reality a large rock shelter. The width of its opening was 2.45 m., surmounted by a thick roof 2.70 m. in height. The inside diameter on the modern floor was 3.60 m. and the external measurement from the mouth to a window-like hole in the back of the little cave was 6.80 m. The maximum height in the center after excavation was 2.70 m. Except for the distance to water it was a very desirable dwelling for primitive hunters, as it was roomy enough and was made commodious by the large plaza in front. From there one could survey the whole basin, from hills to hills north and south, and up and down the valley east and west, espy game and enemy without being detected, and thanks to the large rocks of the fumarole, also drop down the sides of the mound in any direction. No wonder it was occupied several times and probably for a long time!

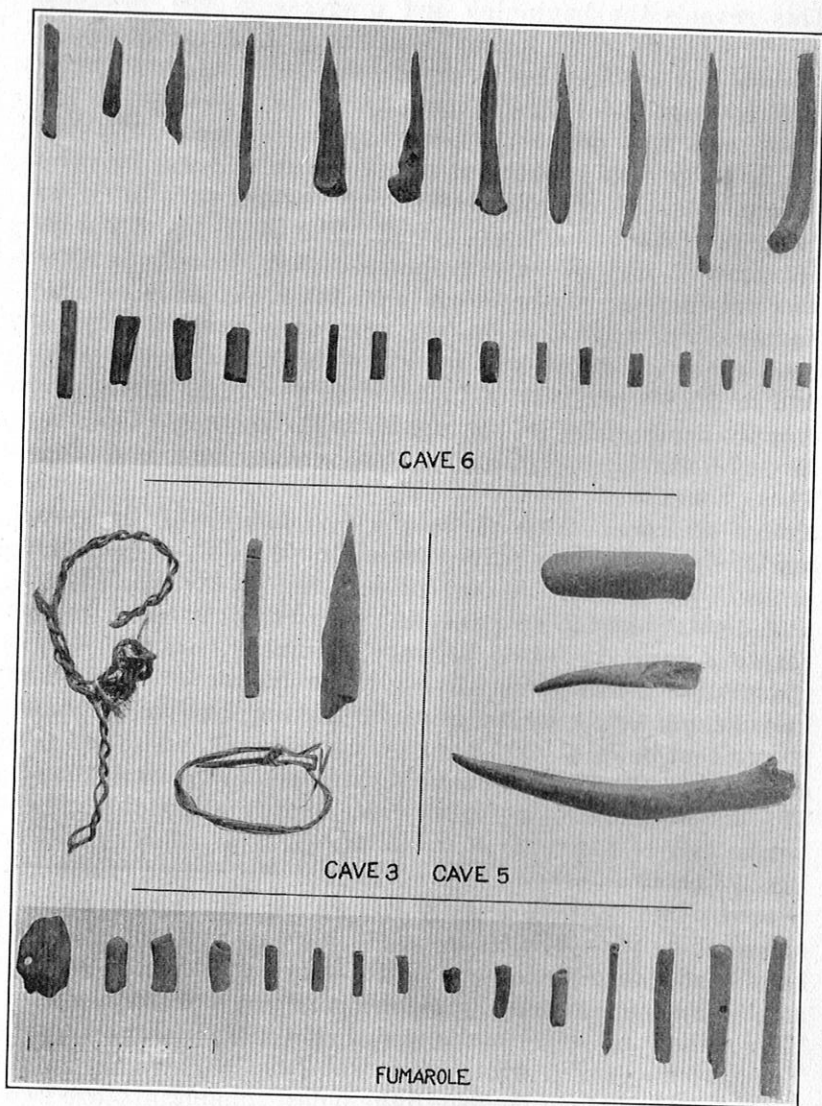
These facts were revealed by two fire places, the upper one 1.80 m. from the roof and near the entrance, the second hearth 20 centimeters lower and farther back in the cave. An unexpectedly large number of metates were encountered,

13 in all, no two alike in shape or size. The largest ones came from the upper level, the smaller from the next stratum, none from the deeper layer resting on the rock bottom. This reveals the beginning and progressive use of these grinding stones which had only one thing in common, a pecked oval-shaped trough in the center, the same as those found at Frederick, Oklahoma. They do not prove necessarily that maize was then grown, for such milling stones were used for grinding wild grass seed, roots and dried meat by primitive people. They imply, however, a certain stability of the dwellers who made and used them. The thickness of the bed of charcoal and ashes corroborates that deduction. This was not the case of the older inhabitants, probably nomadic hunters, who used the shelter more as a hunting lodge as need required, when chasing game in the valley. For we find in the lowest layer of Location B, as well as in Location A, only bones badly broken up, often in fragments too small to be identified, but probably representing bison and deer. These bones were partly fossilized. The animal matter was almost all gone. They were thickly coated with dark red matter due to the iron oxide permeating the dirt of the "fumeroles." Sixty-one bones were identified by Mr. H. J. Cook, as follows: bison 7, deer 12, elk 3, jack rabbit 9, cotton tail 4, coyote 3, wolf 1, fox 1, badger 1, skunk 1, prairie dog 2, rodents of various kinds 15, eagle 1, and 1 other large bird. Considering the three main groups hunted for food we have 20 per cent buffalo, 42.85 per cent deer and elk, and 37.14 per cent rabbit. Strangely enough no antelope bones were found. The rabbit and coyote bones came mostly from the upper levels.

We know nothing of the vegetable diet of these prehistoric people. Two or three fresh water mussel shells were found, one of them with a hole for suspension as a pendant. Also 9 bone beads were picked up. They are of the tubular type, a small leg bone sectioned by sawing it with a stone implement. Three other and larger beads were found in the lower stratum. They are made of a white horny substance. From the same depth, and so belonging also to the oldest inhabitants, are two

bone whistles, with roughly made holes, probably bird-calls, and a bone tube with irregular superficial marks.

Besides those few and simple remains we have a very



0.33 1/3 Actual Size.



large collection of stone implements. They are mostly of quartzite and made by percussion by means of a hammer stone. They are broadly flaked and seldom retouched with finer chipping. There are flakes of all shapes and sizes, used as scrapers, knives, points, borers and answering the unspecialized needs of primitive people, living on the products of the chase, practised by men, while the women collected probably wild seeds, nuts, berries and roots.

The thickness of the layers of the two shelters suggests a long period of occupation, at first temporary or seasonal, later more permanent, as indicated by the hearths of Location B, with a cultural modification marked by the presence of metates in the upper two layers, and of larger and more deeply worn grinding stones on the level of the higher fireplace, testifying to more sedentary habits and increased use of a vegetal diet. How long ago was this? We do not know. But, by comparison we are safe in stating that it certainly preceded the advanced culture of the Pueblo-Cliff Dwellers, and even the earlier cultural stage of the Basket Makers, a primitive phase of which we were to discover in Oklahoma caves after we finished studying the "fumaroles."

The observation of "Fumarole" No. 4 furnishes us with a clue to the long period of occupation of these places by the nomadic or semi-nomadic hunters of the Cimarron valley. There, the mining company referred to previously, cut a deep rectangular pit cross-sectioning vertically the deposit containing archaeological remains clear down to the rock bottom. The west face of that well was examined and measured. On top, the purplish brown miners' dump was 1.10 m. in thickness. Below it came 47 centimeters of fine red dirt, a sterile stratum. Then a compact layer, 3.80 m. thick, of brownish red dirt resting on the solid rock and containing, at all depths and anywhere on the facing, stone implements similar to those collected at Site 2. The rock slopes on the south side; and flaked stones were found there 30 cm. lower yet. That is to say that remains of the occupation of this place by man are found through a vertical depth of about 4 meters. This would indicate that the prehistoric hunters fre-

quented the shelters of the "fumaroles" throughout a very long period.

At two different times we visited a number of other "fumaroles" farther up the Cimarron valley, on both sides of road 64, principally on MacCuiston's Ranch, near Peacock Canon. Our finds there were of the same general nature as at the "fumaroles" on the Wagner Ranch, just reported.

It will suffice then to remember that remains of a very primitive culture, that of nomadic or semi-nomadic hunters, were for the first time studied in rock shelters located on "fumaroles" over 100 miles east of Raton and near the New Mexico-Oklahoma line. These early people frequented that part of the Cimarron valley in a remote and as yet indeterminate past. Their occupation of that region covers a long period, towards the later part of which they seem to have become more stabilized, as in places at least we have proof of their more permanent stay. To their rough stone implements the metate is added. A few specimens of their bone industry have also been found. Their position in the chronological scale of the Southwest is intermediate between the Folsom Man of Pleistocene time and the Early Basket Maker of the Oklahoma and New Mexico caves. They may be the nomads postulated as preceding the Basket Makers in the Southwest; and the metates of the upper levels of Site 2 may suggest the transition expected to exist between the nomadic hunting stage and the beginning of agriculture, leading to sedentary maize-growing Basket Makers of later times.

#### THE CAVE CULTURE OF WESTERN OKLAHOMA

Sandstone caves, 5 to 7 miles southeast from Kenton, Oklahoma, were visited in November, 1928, by Mr. N. J. Vaughan of the Museum staff. Under his guidance I visited several of those caves, rock shelters and camp sites, in the canons of the west end of the Panhandle. Three caves were selected for archaeological exploration, and yielded surprising results.

## CAVE 1

The first cave dug up was 15 miles from our camp and 2 miles south of highway 64. It is a large cavern on top of a rocky slope in the east cove of a side canon. It faces west and the afternoon sun penetrates to the back wall, on the roundish face of which ancient red paintings, of difficult interpretation, were seen and copied. Two square shouldered women and one man are easily recognized, but the rest is puzzling. The height at the middle of the opening of the cave is 7.30 m. The length from the overhang to the back wall is 14.80 m. It and the width at the entrance is 12.35 m., the maximum inside diameter reaching 16.70 m. The length from the overhang to the back wall is 14.80 m. It is therefore a spacious place, well lighted and splendidly located for protection against the elements, and giving a view of neighboring mesas and cañons. There was game in the country and the great plains are only a few miles away. Corn could be cultivated on the flats below. Water is not far, and an outcrop of fine quartzite a quarter of a mile away furnished excellent material for implement making.

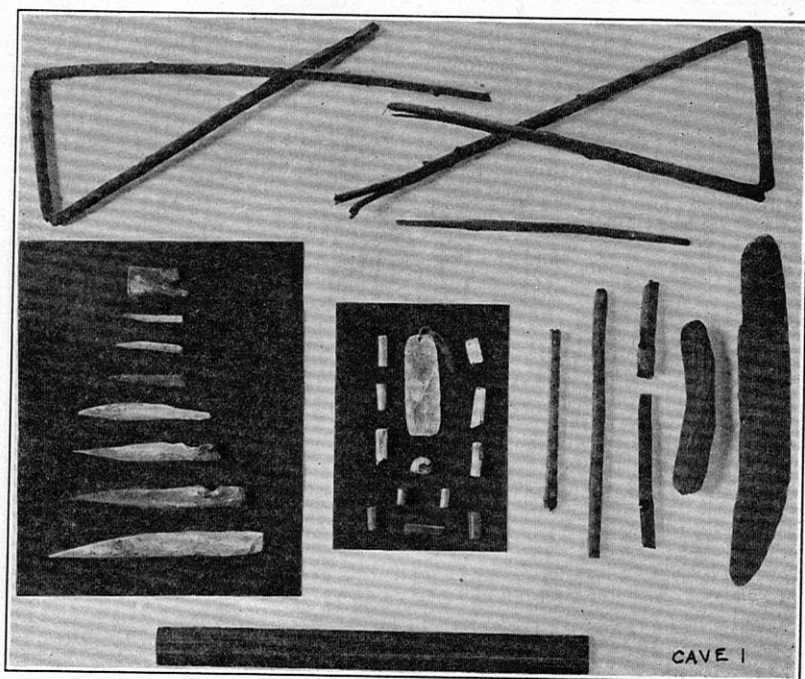
For lack of time we had to explore this large cave vertically, that is by means of trenches giving us a sufficient sampling of the material culture of the prehistoric inhabitants. These were, first, hunters as proved by the 128 bones collected around their fireplaces and identified as belonging to: bison 33, deer 23, elk 6, antelope 19, jack rabbit 19, cotton tail 7, and the rest scattered among coyote, wild cat, badger, rodents, birds, including an eagle and a wild turkey, and finally a turtle. The proportions of the four principal groups are the following: bison 30.84 per cent, deer and elk 27.10 per cent, antelope 17.75 per cent and rabbit 24.29 per cent. In comparison with the "fumaroles", we see that the proximity of the plains increased greatly the number of buffaloes hunted, the cervidae are also actually more abundant and so are the rabbits, although the percentages of these two classes are relatively smaller. The significant difference is the presence of the antelope in Oklahoma.

As to the vegetal diet of the Cave Dweller, we are more fortunate than with that of the "Fumarole" people. Besides a variety of wild seeds, acorn, wild fruit and berries, squash represented by seeds and pieces of rind, we have the absolute certainty that maize was cultivated. It is represented by corn husks, many grains of a single kind, reddish brown in color, scattered all over; one ear with 10 spiral rows; 35 cobs; and 8 or 10 fragments, many very short and thin, suggesting a primitive type. We also found two grass bundles containing shelled corn and weighing  $11\frac{1}{2}$  ounces each, and a prairie dog-skin bag containing ears of maize an weighing  $12\frac{1}{2}$  ounces. Hence these ancient folk were early agriculturists. They also made food cakes of acorn mixed with wild plums or cherries. Three of these cakes, dark brown, circular, and now excessively hard, were recovered from Cave 1. They weigh respectively 11, 20 and 21.6 ounces. Their diameters range from 109 to 156 mm. and their thickness from 30 to 35 mm. A small central hole was used for suspension by means of a string of grass fiber, probably to keep the cakes away from the rodents. A few metates were found, all of irregular shape, as if not yet standardized, but every one with a central trough pecked oval, as previously seen on the grinding stones from the "fumaroles." Small one-hand manos, sometimes used also as pounders, were employed for crushing wild and cultivated grains.

Of the clothing, likely scanty, of the prehistoric cave dwellers, we found only one article, namely sandals made of yucca leaves. There are two types represented: two, and one fragment of, square-toed sandals, diagonally woven, with double thickness soles; then one pair, plus one smaller and one larger, of sandals with rounded toes, made of simple square weaving of yucca leaves with cedar bast reinforcement or padding in between the two layers forming the sole. These sandals are really products of the basket maker's art. Several fragments of basketry were also discovered, representing three or four kinds, one of which is the classical coiled basketry. Many knots and loops made of yucca leaves and grass stems were also found. Numerous samples of cords

and strings of vegetal fiber neatly twisted must also be mentioned. Bits of rabbit fur, some still attached to strings, suggest the making and use of fur blankets or capes, as found elsewhere.

As ornaments we have a small and finely worked selenite pendant, 75 by 25 by 2 mm., with the string still tied through a perforation at one end of the tag-like jewel; also 11 bone beads of the style previously described. Among bone objects

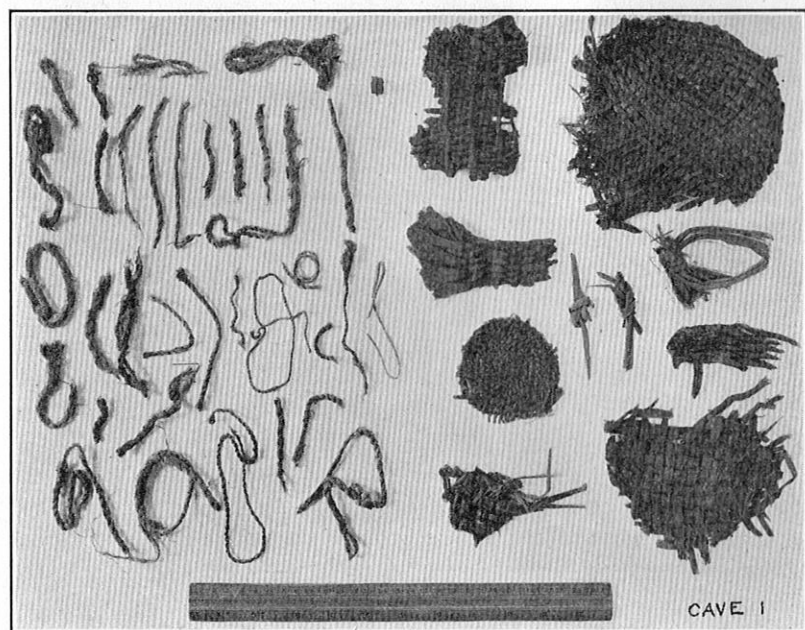


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we may cite 7 awls, some flat ones with many parallel marks on their working surface suggesting use in basket making. Probably employed in the same manner, was a wooden object, shaped like the broad blade of a knife and with two small holes on the dorsal edge; its dimensions are 244 by 42 by 15 mm. Among wood implements we may name a well shaped, round, foreshaft of a dart (209 by 7.5 mm.), a tube (136

by 7.5 mm.), a fire drill, pointed sticks and two triangular snares.

It is due to the dryness of the cave that such perishable material as basketry, fur, strings and wood could be recovered in a good state of preservation, and so furnish us with important items of the culture of the ancient inhabitants of Cave 1. The layer containing these remains was about one meter deep and rested on a thick deposit of sand filling the bottom of the cave. The fire places covered mostly the left



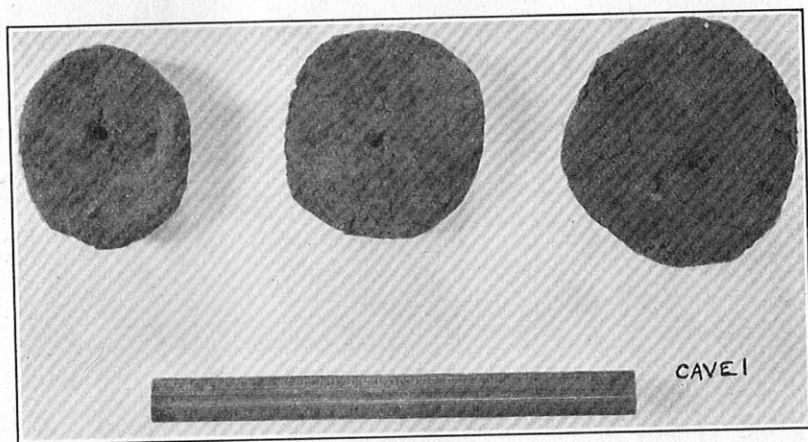
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or north side of the cavern, while the right or south section contained a wadding of leaves and vegetal material, possibly used as bedding, and such as found in other Basket Maker caves in Utah and Arizona.

Three hundred and twenty stone implements were collected, most of them made of quartzite, very few well shaped or retouched, the great majority being flaked with a minimum of chipping done by percussion. A large number were

used as scrapers, simple or compound, commonly convex, but some straight and a few concave or notched, others end-scrapers. There were also knives and borers and a good many points of all sizes. In all, serviceable artifacts, but not belonging to a beautiful or advanced type or technique.

Remains of a similar culture were gathered from two smaller caves not far distant. Two miles farther south and in the west branch of the canon, instead of the east one, these caves are located in the north cliff of a side canon, not

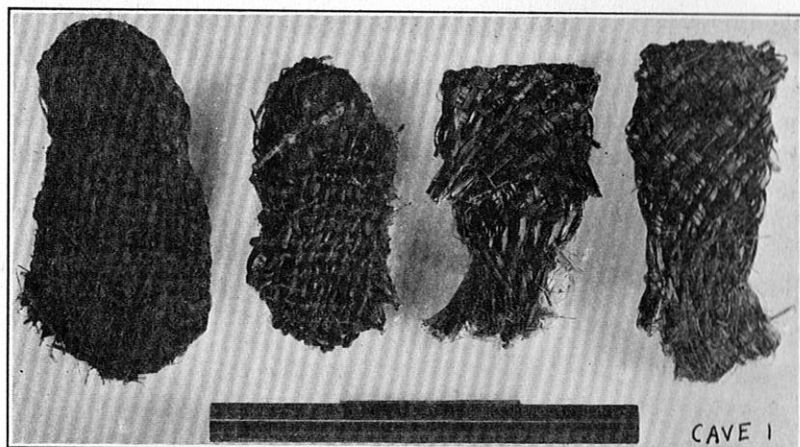


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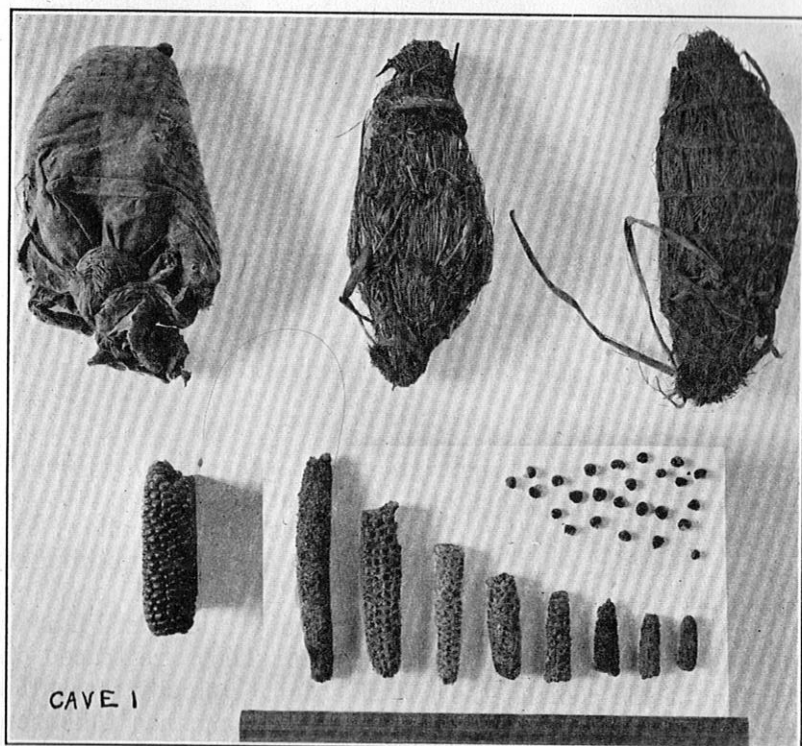
far from the Reignar's place. Their entrance is hidden by heavy blocks of sandstone. They are on the same level and only a few steps apart, hence their designation as Twin Caves.

#### CAVE 2

The first cave on the right is not very large, its depth being only 4.50 m., its height 3.10 m., but the opening is 11.10 m. wide. The deposit of that cave was rather shallow, except at the west end, and as it is not a dry place, nothing of a perishable nature could be found. The most interesting feature is a red painting composed of conventionalized figures difficult to recognize, as they are dim. They are traced on a ledge of the roof on the left side and originally measured 2.42 m. in length, but one end, 1.10 m. long, has fallen on



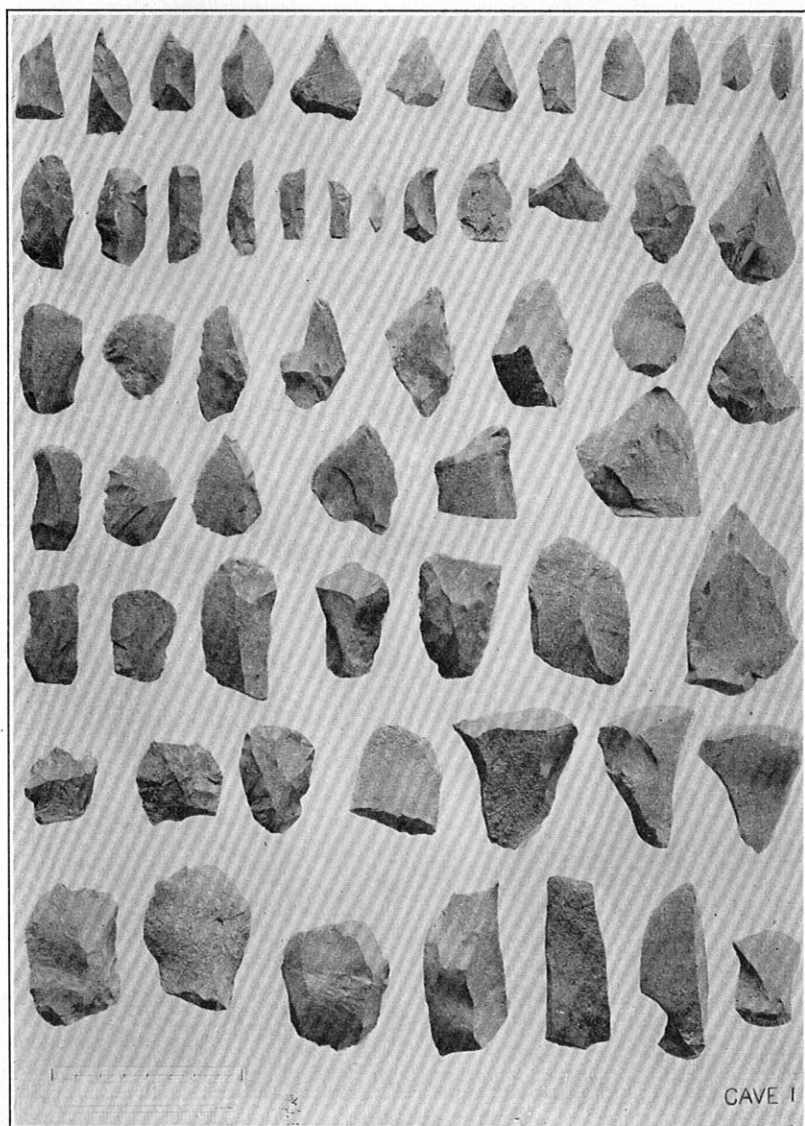
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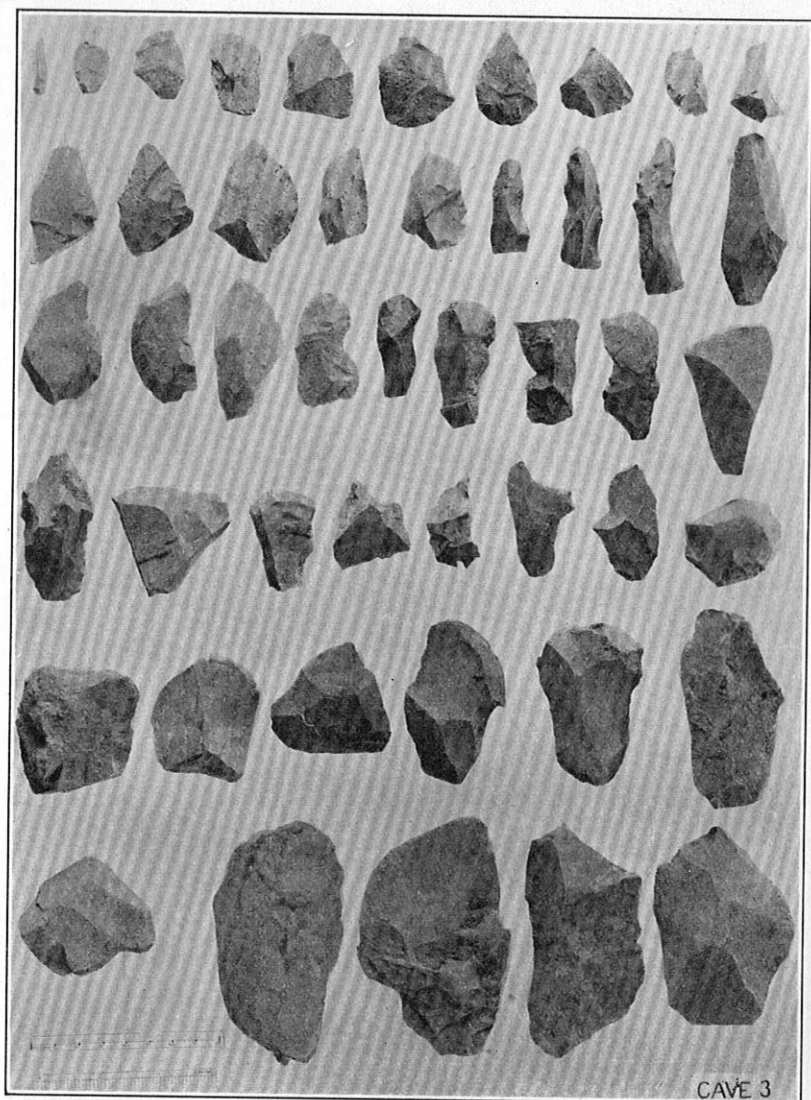
the floor of the cave and is partly effaced by rain water, leaving a mark 29 cm. high on the vertical face of the painted rock. On the other side of the shelter, there is another large



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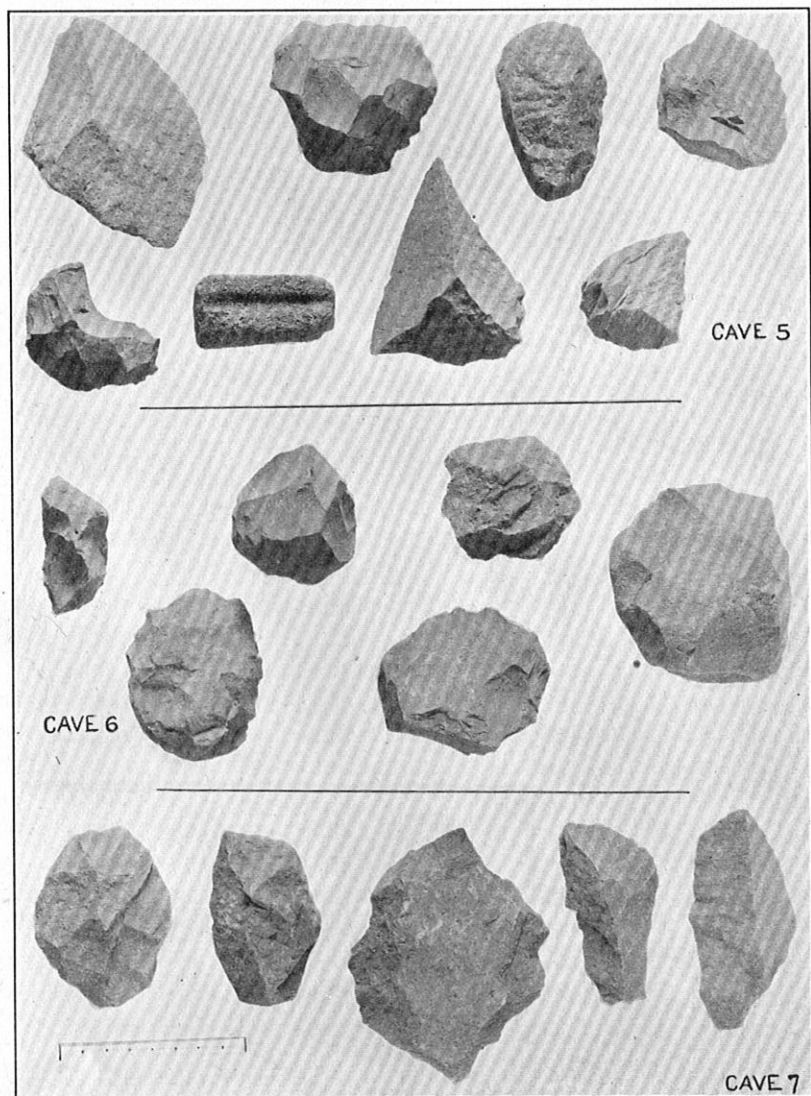
block of sandstone lying on the ground and bearing several grooves, as if made by sharpening tools.

There seem to have been two roughly circular enclosures



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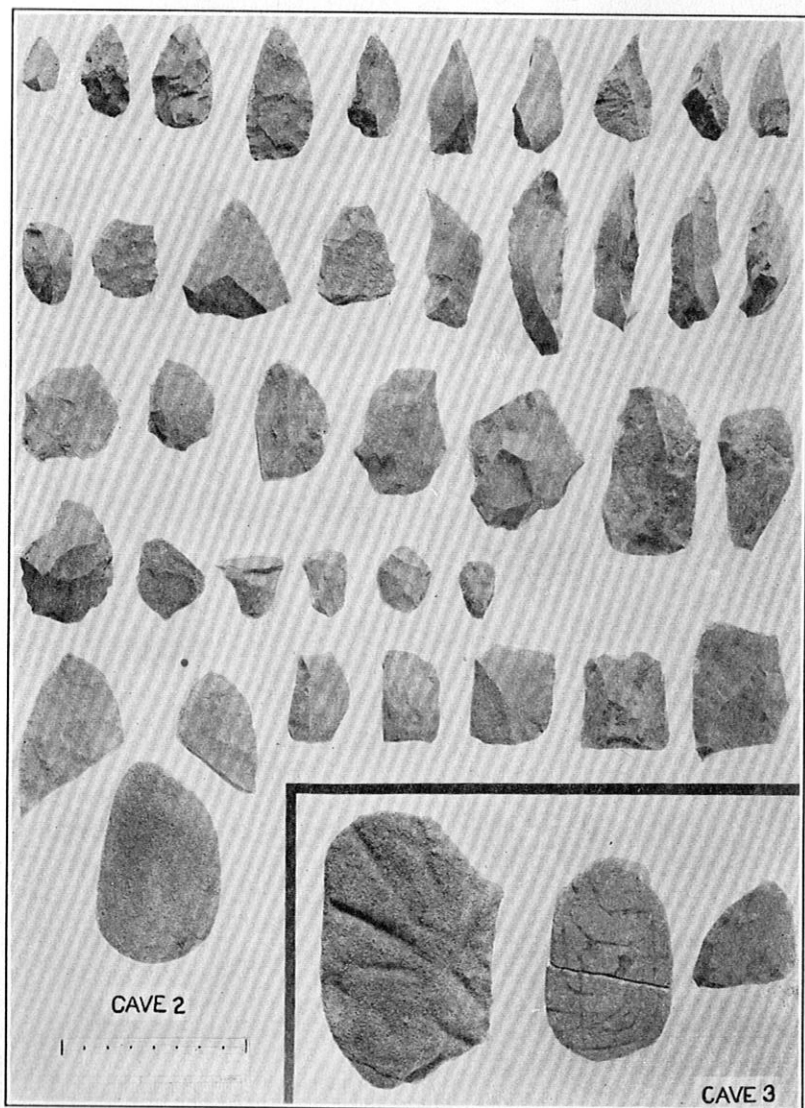
made of rocks on edge, one on the right and the other on the left side of the cave, leaving a squarish plaza in the middle. In the right enclosure, built directly on rock bottom, was a



0.22 Actual Size.

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fireplace. Another one was located at the other end, and a mano was picked a meter deep in that west enclosure. Most of the objects found come from the central portion of the



0.22 Actual Size.

cave, such as a fresh water mussel shell, a good stone knife, and half of another large one, and many quartzite implements, some more carefully chipped than others. In all 230 flaked articles were gathered from that cave, of the same types as in Cave 1.

### CAVE 3

Going under a large block of rock leaning against the cliff, one easily reaches Cave 3 to the west of Cave 2. Its shape and proportions are entirely different. Narrower in front, only 8.40 m. wide, it is about as high, 3 meters at the opening, but it is very much longer, measuring 11.20 m. from the overhang to the low back wall. The anterior part, 7 meters long, is the more desirable section for dwelling purpose. On the roof we noticed a small sun with rays, and painted in red, the same as in Caves 1 and 2. The east side of the cavern is encumbered with blocks of gray sandstone, some with troughs on their upper surface and used as metates for grinding corn or wild seeds, others for sharpening tools. Only one trench was cut to explore this site, from the middle of the entrance to the center of the cave, where the principal hearth was located, and the layer of human deposit rested on the sand. From the rock bottom to the roof at that place, it measured 4 meters.

Bones of bison and antelope were found, as well as a good bone awl. The cave being dry, we recovered a yellowish gray bag of folded smooth skin tied up with vegetal fiber in two knots, also a piece of squash, a few sticks, and we saw a layer of cedar bark and leaves as previously noticed in Cave 1. We also collected a couple of metates of the pecked-oval-trough type and some 118 flaked quartzite implements, scrapers, points, knives, etc., similar to those from the first two caves. This Cave 3 should be dug up completely, as, due to its dryness, it might contain valuable evidence interesting to possess for the study of the Cave Culture of that district.

### CONCLUSIONS

If we put together our finds from these three caves near

Kenton, we begin to recognize some features of a primitive stage of Basket Maker culture. As to "art," the red paintings common to the three sites, and reported also from Basket Maker caves in northeast Arizona, are interesting. Then the single kind of Indian corn, and the irregularly shaped metates and one-hand manos, representing the first stage in agriculture. The pecked oval trough is seen on all the milling stones of the district, thus differing from Rio Grande and San Juan metates. The squash may have been wild. No beans nor cotton were found, as they are in Pueblo ruins. The cakes I described are mentioned for Cave Dupont, Southern Utah, and Mr. Earl H. Morris told me of some others he found in Canon del Muerto shelters. This then seems to be a typical food preparation of the Basket Makers. No arrowheads were picked, except two or three from the surface and probably belonging to more modern Indians. No polished stone implements, no grooved and hafted axes, hammers or pounders of any sort were seen in that district. The lithic industry was essentially of the flaked kind, with a minimum of retouching, and done by percussion. The basketry is very simple and comprises one example of coiled fabric. No weaving was recovered anywhere. The sandals were of two types, one square toed, both primitive in make.

So that, by its positive and negative aspects, this culture material reveals a stage somewhat above the semi-nomadic hunters, but inferior to the sedentary, skillful potter, mason, and advanced agriculturist Pueblo, and below even the full development of the Basket Maker culture, with its cists for storage and burial, its fine basketry and weaving. The only possible conclusion is that the finds from the Oklahoma caves must belong to an early, very primitive phase of Basket Maker culture, an incipient stage preceding its more complete characterization as found elsewhere, such as in northeast Arizona and neighboring districts. It is more advanced than the rude culture of the dwellers of the "fumarole" rock shelters, since we have here clear proof of the beginning of agriculture and basketry.

If we may venture a guess, based on the suggestions made by Dr. A. V. Kidder to guide us in an estimation of the relative chronology of the Southwest, we will say that the Pueblo culture started somewhere along the beginning of the Christian era. The Basket Maker culture may have lasted two millenia before Christ. The final or post-Basket Maker phase with pottery, with enlarged cists in caves and pit-houses in the open, may have covered several centuries. Preceding it, the main period of typical Basket Maker culture with skillful basketry and weaving, may represent a thousand years of cultural development. Our primitive stage, transitional between nomadic and sedentary habits, with the beginning of agriculture and basketry, would possibly last between 2000 and 1500 B. C. But as we are in a peripheral area here in Oklahoma, several hundred miles from the known centers of the classical Basket Maker culture, that which would seem a very early phase may simply be a survival in marginal position, and so, although suggestive of a very ancient cultural stage, it may not be quite as old relatively as it seems in itself.

The discovery of what appears to be a primitive type of Basket Maker culture in Oklahoma was the element of surprise in our explorations near Kenton. For it had never been reported nor been suggested to exist so far northeast, possibly some 400 miles from its cultural center in northeast Arizona. Such is the significance of the culture represented by the finds made in 1929 in these three caves in the extreme western district of Oklahoma.

#### THE CAVE CULTURE OF NORTHEASTERN NEW MEXICO

The exploration of caves and shelters in the lava cliffs of Oak Creek district, in the upper Cimarron valley, east of Folsom, did not reveal anything of the importance at first expected. But three caves, thoroughly excavated on the T. O. Ranch, west of the Folsom Quarry and about 28 miles east of Raton, contributed finds of interest.

These caves are located at the same level, although in different mesas. They open at the foot of a vertical cliff on

the side of an ancient lava flow, and at the top of a long slope littered with stones and loose blocks of lava, covered with tall grass, cactus and bushes forming a thick undergrowth dominated by scrub oak and other trees. This renders the ascent difficult and tedious. From the front of the caves, one enjoys a broad panoramic view over a landscape shaped by volcanic action. The bottom of the valley or basin is on a low, wide-spread lava bed, showing here and there sharp heads and large blisters. Two other lava flows of different ages form long straight-top mesas, one series very high and abrupt, the other lower as a middle terrace. Higher peaks are seen farther away. Springs and water holes, never dry even in the summer, keep the grass green and must have attracted plenty of game, and so also the wooded slopes of the mesas. The caves on the T. O. Ranch were thus very desirable dwellings for primitive people. These three lava caves were explored horizontally, by layers, observing the superposition of the hearths, and were completely dug up.

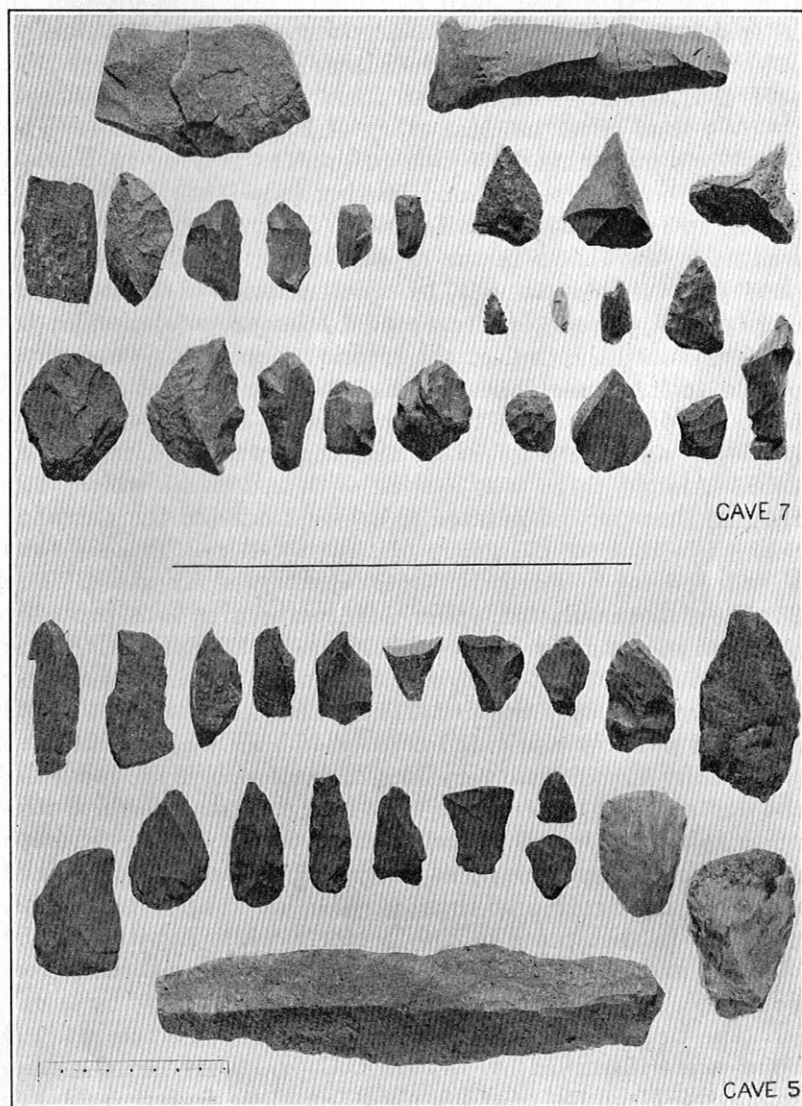
#### CAVE 5

This cave was slightly over two miles from our third camp. It faces N. 80° E.; its maximum width near the entrance is 3.50 m.; the depth from the overhang to the back-wall is 5.50 m.; the height in the front part is 2.20 m. and, after excavation, 3.45 m. from rock floor to roof. On the flat surface of the vertical cliff a short distance to the right of the opening of the cave, there are pictographs. The nearest is a small, conventionalized male figure in red paint, as in the Oklahoma caves, and farther on is an important panel of pecked and incised figures of more recent origin and difficult interpretation.

In the course of excavation three beds of charcoal and ashes were recognized. The oldest and deepest was a small fireplace near the front of the cave, a little over one meter in depth. The bottom of the cave sloped back and very few things were recovered from that deepest layer, although a long, skillfully-shaped knife must be mentioned, of triangular cross section, unretouched, measuring 219 by 49 by 17 mm.,



and recalling the Pressigny blades. It is made of gray volcanic material and is partly incrustated with limy deposit. It is the oldest looking implement from that district.



0.3 Actual Size.

The second fireplace was farther inside the cave and spread over a length of 1.50 m., forming a rather thick pocket at the rear end. Most of the specimens recovered came from that level. The third and upper hearth is broader in extension reaching 2.30 m. in maximum length, but thinning out once past the center of the place. It is on that floor that several irregular metates were found and a single corn cob.

We thus have the clear story of three occupations. The oldest one may have been due to hunters staying in Cave 5 during a hunting season and leaving only a small lenticular hearth in front, a long knife and a fragment of another, as well as a few flakes in the deeper layers: or the place may have been visited casually by small parties of hunters. A long period elapsed, represented by an accumulation of 30 to 50 cm. until the time of the second occupation. Then more people took up residence in the cave for a relatively long period, as is attested by the larger bed of charcoal and ashes, its depth and the number of artifacts recovered from that floor. Among these was a stick with red paint which may suggest that the red painted figure just outside the entrance belongs to that second group of cave dwellers. The site was abandoned for a length of time represented by about 20 to 25 cm. of accumulation. The third occupation was probably by a larger number of people, since the fireplace is more spread over, but not likely for as long a stay, as the layer of coals and ashes is thinner. These folk made use of vegetal food and possibly cultivated corn. Then, this attractive cave was finally abandoned very long ago, if one is to judge by the depth of the upper layer 60 to 65 cm. from the third fireplace to the modern surface. Traces of fire were seen here and there between the rocks on the more recent floor, mixed with dust and trash, and these may be due to historic Indians, stopping in that place during a storm while hunting in the vicinity, and they would also account for two or three arrow points picked near the surface.

The prehistoric occupants of Cave 5 were hunters; 109 bones were identified by Mr. H. J. Cook. They are thus distributed: bison 58, deer 25, elk 3, antelope 6, jack rabbit 1,

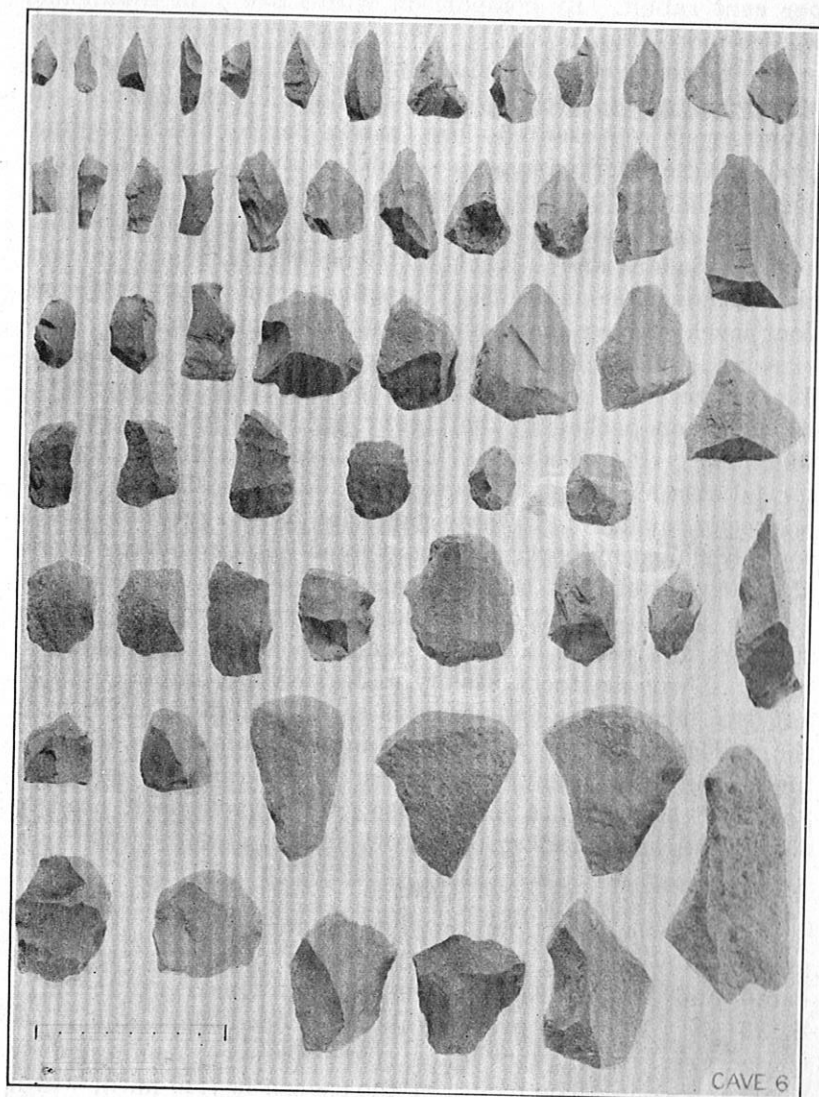
wild cat 2, mountain lion 1, porcupine 2, and 11 rodents. Or, for the principal game animals: 62.35 per cent bison, 30.10 per cent deer and elk, 6.45 per cent antelope and only 1.07 per cent rabbit. By comparison with Cave 1 in Oklahoma, we see more than twice the proportion of buffalo, somewhat more cervidae, but only slightly over one-third the number of antelope and practically no rabbit, while near Kenton, the rabbit group represented more than 24 per cent of the animal food. These discrepancies are doubtless due to the differences of altitude and type of country.

Only one bone awl was found, two prongs of deer horn used as flakers and a blackened bone flaker neatly shaped, also cylindrical bone beads. These finds come from the second floor level. I have mentioned 4 metates from the upper fireplace and another from a deeper layer; there were also trough-like depressions in rocks near the entrance of the cave; all had been pecked in the center ovally as noticed for the Oklahoma grinding stones. Twenty one-hand manos, having served also as pounders, were collected. The lithic industry is mostly made of volcanic material, dark gray or black, roughly flaked by percussion, and some implements are made of quartzite, but not so fine grained as the Oklahoma stone. I have already mentioned a knife; there are also a few scrapers and points, a thick planing tool and a hook-shaped blade. Three artifacts of slaty material were better chipped, and two large flinty end-scrapers seem foreign to the rest of the collection, which is poor in number, simple as to technique, but otherwise homogenous. A rectangular piece of very soft stone had a lengthwise deep groove as if used to shape and smooth dart or arrow shafts.

#### CAVE 6

This second cave on the T. O. Ranch was in the same general direction as Cave 5, but about 5 miles away from camp and the nearest to the Folsom Quarry. It faces S. 20° E. It opens over a thickly wooded slope and a secluded grassy park with lakes in the distance, dominated by a volcanic cone. The mouth of the cavern is 7.45 m. in width

and nearly 5 meters in height, or more than twice the same dimensions of Cave 5. The inside is naturally divided into two parts, one directly in front of the entrance and squarish



0.3 Actual Size.

in shape, and the other in the form of a semi-circular vault to the right. The width of that arch, from the right corner of the cave opening to the back wall, is 4.50 m., the height of the archway 2.50 m., and the depth of that round vault 4.50 m., the same as the depth of the main portion of the cave from the overhang to the back wall, where the right arch joins it. Cave 6 is therefore large, and the high entrance allows plenty of air and light in the whole place.

The modern floor was littered with lava blocks of all sizes fallen from the roof. Some were deeply imbedded in the archaeological layers; others rested on the very bottom of the cave. Several of the larger boulders cut out of the main part of the cave made a kind of well defined central squarish plaza, with a long rectangular left portion outside that natural rough fence, an exiguous rear section, besides the semi-circular vaulty part, already mentioned, and a sloping rocky bench on the extreme left.

The hearths were well marked in the quadrangular central enclosure and also in the rear of the cave, but not as clearly elsewhere. The oldest, resting directly on or slightly above the rock bottom, was at a depth of 1.40 m. and was less thick and extensive than the two others above. The next up, or second fire place, was about 90 cm. from the modern surface, and the third or upper bed of charcoal and ashes was some 60 cm. from the top. Traces of fire were also visible here and there on the present floor of the cave or under the loose dirt. In the rear section we see two hearths and scattered charcoal below. In places they were quite thick. The lower one was about one meter down, and a skeleton rested partially on it. The upper fireplace was 70 cm. below the present surface. Knowing that the cave sloped slightly backwards will account for the ten centimeters of difference between the relative positions of the hearths in the center and the rear. If compared with the depth of the fire places of Cave 5, we have a very fair parallelism. This leads us to conclude logically that the story of the occupations of the two neighboring caves is essentially the same and contemporaneous. Besides, the close resemblance of the lithic industry

imposes the conclusion that we are dealing with the same culture.

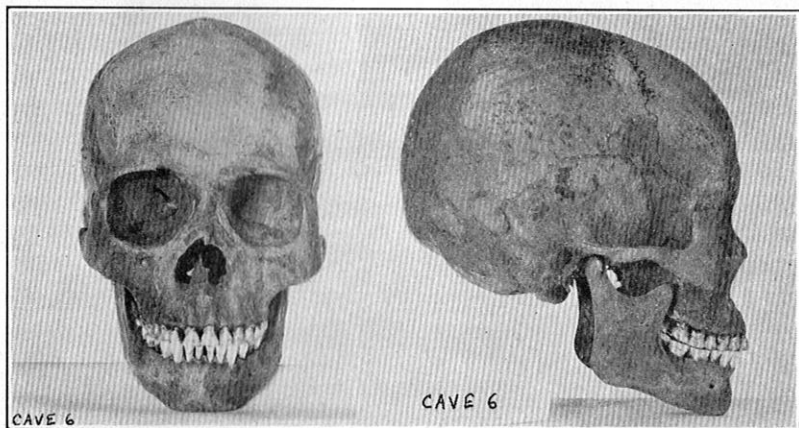
Out of 144 bones collected around the fire places, 89 belong to the species of game as identified in Cave 5, but reveal some differences in distribution. Thus in Cave 6 we have 43 bison bones, or 15 less than in the near-by cave; the deer and elk group is practically identical in both places and the antelope (8 in Cave 6) slightly more numerous. But the main divergence comes with the small animals; here we have cotton-tail 8 and jack rabbit 3, or 11 in all against a single rabbit in Cave 5. This is curious, but may not be significant.

As Cave 6 was not very dry, even quite damp in places, we did not find wooden specimens or vegetable remains. Thus we are ignorant of a part of the diet of the prehistoric dwellers. However, many metates or grinding stones were gathered, 30 whole or fragmentary, and 40 manos, many of them rather small, round or squarish and here, as elsewhere, bearing traces and scars showing their use also as pounders, either at both ends when rectangular in shape, or even all around their edges when oval or roundish. This suggests a relatively large population in this cave, bigger than in the preceding one, and a seemingly long occupation if we are to judge by the thickness of the hearths in places and the degree of wear of some of those bulky metates. They also have the oval pecked depression in the center, although a couple of them are made of concave blocks of lava without the usual trough.

The bone industry is represented by 11 awls of varied dimensions, half that number coming from around the fire-place in the rear section of the cave, where the ancient inhabitants probably liked to gather and work, behind the protection of the large boulders and away from the too exposed high and wide entrance. There is also a bone whistle, or bird-call, with two holes, and a prong horn probably used as a flaker. But by far the largest class is that of the bone beads, 124 in number, and of all dimensions from 13 to 46 mm. in length and from 3 to 10 mm. in diameter. Most of them

have been found on or near a female skeleton, buried in the middle back of the cave, and protected by a heavy saddle-like rock held between the back wall and a large boulder.

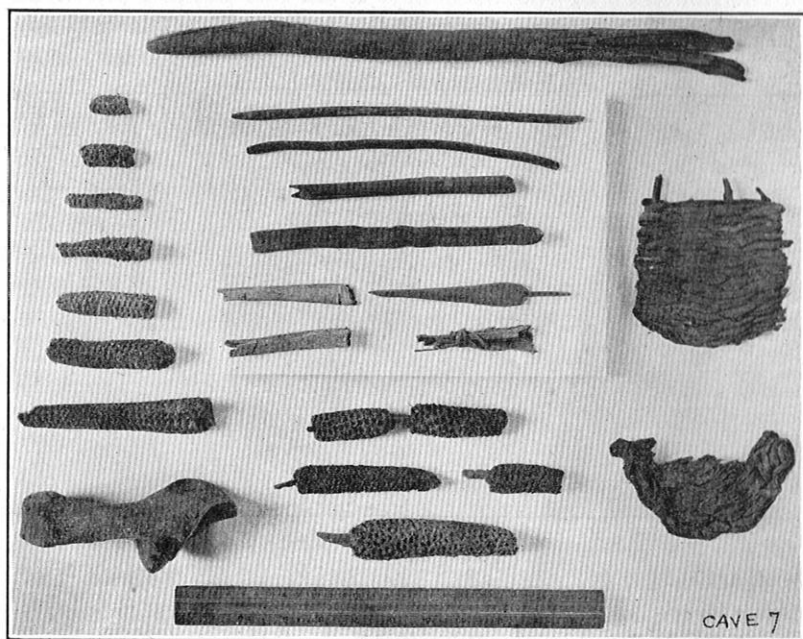
This burial was intentional and unusual. The body was face up in an oblique and slanting position with the head down and the legs up, the right violently folded back and the lower left vertical, the foot in the loose surface dirt. A large metate had been placed on the chest and a smaller one on the abdomen of the woman, a small one holding the head in place against a projection of the back wall. These heavy



the crania I have studied. This confirms my opinion that stones were to prevent animals from disturbing the body. The left shoulder, some 90 cm. lower than the left ankle, rested on the hearth of the second occupation, thus dating the time of the sepulture. The rocks placed over the burial had forced the people of the third occupation to build their fire farther to the right, thus saved the bones from accidental incineration. This was a middle-aged woman, a fraction above 5 feet in height, 1225 cc. in cranial capacity, and of the Proto-Negroid type common to the Basket Maker people, as found elsewhere in the Southwest, according to in the caves of the T. O. Ranch, as well as in those of western

Oklahoma, we are dealing with Basket Maker culture and people; which is an important conclusion.

The stone industry was abundantly represented in Cave 6, the finds, much more numerous than in Cave 5, again proving a larger population. But it is essentially similar in material and technique. The principal stone used in that district is a dense silicious lava, containing a high percentage of ferro-magnesian minerals, sometimes it is more slaty, in



0.18 Actual Size.

both cases black or dark gray. The second material in importance is a rough gray limatic quartzite. A few smaller and rarer objects, generally found on or near the surface, are made of different stones and probably from pebbles picked on the lower slope or down the valley. Flaking by percussion is the general process of fabrication.

There is a great variety of points, 59 in all, some micro-lithic, others quite large, different in shape and destination, all simple in make. A few are sharp enough to be well used



as borers. There are 33 blades, many of them small. The scrapers are numerous and often made of an unretouched flake with bulb of percussion clearly visible; among them there are side-scrapers, simple and double, convex and straight, and 40 micro-scrapers as small as 15 mm. long and 3 to 5 mm. thick. The end-scrapers are abundant and several are large with retouched working edge. There are a few discoidal scrapers of good size. Knives are rare, but some straight scrapers could be used for cutting. In all, we have a primitive and homogeneous lithic industry, if we discount the small percentage of pieces made of different material, better flaked and more recent, if not foreign.

This Cave 6 on the T. O. Ranch, occupied in regard to the two smaller Caves 5 and 7, about the same position as Cave 1 in connection with Caves 2 and 3, near Kenton. It was the largest and best peopled of the district. Its contents in the form of an abundant stone industry, three well marked fireplaces and floors of occupation, and especially the skeleton found there, a Proto-Negroid female, evidently belonging to the Basket Maker family, give to Cave 6 a capital importance equalled only by the varied sampling of cultural remains found in Cave 1.

#### CAVE 7

This was the last cave explored on the T. O. Ranch. It was also the farthest from camp and the smallest. It faces S. 80° W. and from there one could see Cave 5 and our third camp. The entrance measures 6.60 m. in width and 2.30 m. in height, but the roof slopes back rapidly and it is only 1.35 m. high in the center of the cave and, as the side walls also slope in, the rear part of this place is like the acute apex of a triangle. The breadth is reduced to 2.60 m. along a rocky bench and an accumulation of stones fallen from the roof and sides of the cave in the middle part. The deposit was very shallow and in places, especially the left side, mixed with pebbles. But as the right side was very dry, especially in a pocket protected by large rocks, a few significant finds were made there.

The animal food was poorly represented; only 11 bones, apparently all from the same female bison, and the calcaneum of a buffalo with evident marks of its use as an anvil on which sticks had been trimmed and sharpened with a scraper. Such finds are frequent in prehistoric European stations, but practically never mentioned in this country. Two or three ribs showed cuts also made with a stone knife. Four rabbit leg bones of the same size, broken exactly the same length, were found still tied together with some vegetal fiber and may have a ceremonial significance.

Corn cobs from very small to reasonably long, were gathered, 28 in all, furnishing us with precious evidence of the food cultivated by the former occupants of Cave 7, adding importance to the lone cob picked in Cave 5, and safer interpretation for the presence and probable use of the metates from Cave 5 and so numerous in Cave 6. It seems then that the prehistoric dwellers of the T. O. Ranch district were primitive maize growers, as were those of the Oklahoma caves.

An added and interesting feature is the fact that some corn cobs had artificially perforated butts. Others had small sticks inserted in that hole and a few were actually found coupled by that means. A possible interpretation which suggests itself, on the basis of native psychology, is that in this manner some cobs were made "female" and others "male", while the coupling of the cobs is symbolical of a prayer for the fecundation and multiplication of maize in their fields, a magical means to assure and increase their food supply. A similar find had been made by Kidder and Guernsey in Arizona caves.

A few objects made of wood were also found in Cave 7, such as a stout pointed stick which could be used for digging or planting, and a couple of fire sticks with one end charred. Another shorter but bigger stick, 143 mm. long, is carefully notched at one end, possibly to hold a stone point, and the other extremity is bevelled around the base, suggesting a sort of fore-shaft. Two other wood objects remain problematical as to their use. The first one is rectangular in cross

section, 206 mm. long, 15 mm. wide and 7 mm. thick; one end, roundish, is curved up, the other is square and bevelled. The second one, and more puzzling yet, is 143 mm. in total length, with a narrow stem 33 mm. long, the rest being in the form of a long, flat point shaped with much care, but of no apparent use other than ceremonial. From the same south side where the coupled corn cobs and these strange wood specimens came, come also sticks with traces of red painting, like the one already reported for Cave 5. One has the impression that some sort of shrine was located in that dry pocket protected from sight by a large boulder. A small paint tube of bone and a single bone bead were picked not far from there.

Finally, we have two fragments of sandals of a type different from those found in Cave 1, but resembling one of the kinds from Northeast Arizona caves, as represented by Kidder and Guernsey.

#### CONCLUSION

From the evidence collected by the Museum Expeditions of 1926-27-28, it seems that nomadic hunters dating back to the Pleistocene period, and extraordinarily skillful in shaping beautiful dart points by pressure flaking, chased an extinct species of large bison in the upper Cimarron valley around Folsom, east of Raton, New Mexico.

From the excavations done by the 1929 Field Expedition under my direction, two ancient, but relatively more recent, cultures were revealed in different parts of the same Cimarron valley. First and older, the "Fumarole" culture, heretofore unknown. It suggests hunters of deer, bison and rabbits, for a long period purely nomadic and stopping in rock shelters at times, but later stabilizing enough to leave well marked fireplaces and beginning to use metates. Their bone industry is scanty, their stone implements are numerous, but of little variety and very primitive in technique, the unretouched flakes obtained by percussion being exclusively employed. The remains of that early culture were found in "fumaroles" on the Wagner Ranch and on the MacCuiston Ranch, near Peacock Canon, in the Cimarron Valley, over

# 148 PREHISTORIC CULTURES OF THE CIMARRON VALLEY

CULTURAL CHRONOLOGY AND RELATIONS OF  
THE DRY CIMARRON VALLEY  
(According to explorations of Summer of 1929)

Plains	Period	Southwest
Modern Plains Indians in Western States	Historic Period	Modern Pueblo Indians in Southwest States
	Before 1540	PREHISTORIC PERIOD
		Whole Pueblo Culture in Southwest
		<ul style="list-style-type: none"> <li>Pottery developed</li> <li>Masonry invented and developed</li> <li>Pueblos and Cliff dwellings</li> <li>Basketry on decline</li> <li>Some hunting and gathering</li> </ul>
Prehistoric Indians of the Plains Hunters and gatherers N. and N.E. of territory explored Summer 1929, from Texas to Canada	About beginning of Christian Era	"Post Basket Makers" New Mexico Arizona Colorado Utah
		"Typical Basket Makers" (Southwest of territory explored summer 1929)
	Possibly 1500 B.C. or earlier	"Basket Makers" Primitive type of culture West. Oklahoma N.E. New Mexico and other peripheral districts of S.W.
Camp sites visited Summer of 1929 of various periods		<ul style="list-style-type: none"> <li>Beginning of agriculture</li> <li>Hunting and gathering of wild food</li> <li>Basketry</li> <li>Better stone implements</li> <li>Living in caves, lava and sandstone.</li> </ul>
	(Space of time unknown)	Summer 1929
	(Space of time unknown)	"Fumarole People" N.E. New Mexico So far unknown elsewhere
		Hunters and gatherers Living in rock shelters Rough stone implements
	Exact time of existence not yet fully determined. Varies in different states.	"Folsom Man" (Summer 1925, 7, 8) N.E. New Mexico and neighboring states according to finds in
		<ul style="list-style-type: none"> <li>Hunters and gatherers</li> <li>Probably lived in open</li> <li>Very fine dart points</li> </ul>
		<ul style="list-style-type: none"> <li>Texas</li> <li>Colorado</li> <li>Oklahoma</li> <li>Kansas</li> <li>Wyoming</li> </ul>
	PLEISTOCENE	

100 miles east of Raton. The Fumarole culture has apparently no connection with that of the Folsom Man, but it precedes and seems to foreshadow that of the first phase of the Basket Makers.

The second cultural stage discovered during the summer of 1929 was that represented by the finds from the three sandstone caves near Kenton, Oklahoma, to which stage may well

belong the remains collected in the three lava caves on the T. O. Ranch in New Mexico, east of Raton.

At Kenton, the prehistoric people lived in caves. They were hunters of bison, deer, antelope and rabbit, gatherers of wild vegetal food, but they also cultivated one kind of maize and had squash, but no beans. They wore sandals of yucca leaves and made simple basketry comprising the coiled type, as did the typical Basket Makers. They were, however, very much less skillful in that art and do not appear to have done weaving. They knew nothing of pottery making, masonry or even storing in cists. They had bone awls, a few bone and antler flakers, bone beads and rare whistles. We know little of their wood artifacts, except fire drills, digging or planting sticks, a couple of snares, a foreshaft or two, and some problematic objects. Their stone industry consists mostly in utilized flakes obtained by percussion and seldom displaying retouching. Fine quartzite is by far the principal material employed in Oklahoma, but less often in New Mexico, where dark lava allows only rough chipping. The metates from the "Fumarole," the Kenton, and the T. O. Ranch caves, have one characteristic in common, an oval trough shaped by pecking. These grinding stones are of all forms and sizes, as if not having reached yet the standardized types of later epochs. Red paintings are found in the three Oklahoma caves and on rocks near one of the New Mexico caves; sticks with red painting also come from two of these caves.

We are in the presence of a very primitive phase of Basket Maker culture never before known to exist in North-east New Mexico and Western Oklahoma, very far from its classical centers of Northeast Arizona. Early in appearance, it may really be a survival in a marginal area of an older stage, surpassed then in the cultural center by a more advanced evolution co-existing with the lower and slower peripheral development.

So that, even if not fortunate enough to find the Folsom Man and his cultural remains, we at least were happy enough to contribute to the archaeology of the Southwest the first knowledge of the very ancient "Fumarole" culture and the

most primitive type of Basket Maker culture, and also to reveal its existence in that far northeast corner of the area, thus extending considerably the known distribution of that very interesting early culture.

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