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CAVES ALONG THE SLOPES OF THE GUADALUPE MOUNTAINS

By E. B. Howard

In the little known Canyons of the Guadalupe Mountains lie buried many secrets relating to the early inhabitants of that region. To unlock some of these secrets is, at times, a discouraging task but withal a fascinating one. Many caves have to be examined before one is found which shows evidences of human occupation of sufficient interest to warrant the necessary time and energy required to properly excavate it.

In outlining the work done during the past two seasons for the University Museum of Philadelphia, it will be well, perhaps, to give some description of the region which was explored for caves. The Guadalupe Mountains are a southward extension of the Sacramento Mountains and are largely located in Otero and Eddy Counties in southeastern New Mexico, and extending into Culberson County, Texas, where Guadalupe Point terminates in an almost sheer precipice of limestone 1500 to 1800 feet thick. The highest peak rises to over 9000 feet. On the west side are salt flats while on the east the land is cut up by many canyons heading in a generally eastern direction to the Pecos River.

The mountains themselves are formed of limestone, though in some places alternating with gypsum and sandstone. The country, like so much of the Southwest presents the usual semi-arid appearance, there being very few canyons which are not dry. How long this area has been as dry as it now is would be hard to say, but it seems to be generally believed that these conditions have been of no short duration. Upon the recession and shrinking of the great ice sheet which covered a large part of this country during the last glacial period, the climate of the desert regions underwent considerable changes. The ice sheet apparently was bordered by a belt with plants and animals characteristic of the modern tundras or barren grounds of the north. We shall refer to this later, and must now go on to some description of the caves.

The caves in this region range in size from mere shelters to the Carlsbad Cavern, the enormous size and beauty of which is rapidly becoming familiar to everyone. There are dry caves and caves in which water-action is evident by the formation of stalactites and stalagmites. The dry caves only are of interest to us here, inasmuch as material recovered from them is often found in the most remarkable state of preservation; and in many cases indicate very early occupancy. While some of these caves are found well up the sides of the mountains most of those showing the evidence we seek are found in the canyons cutting the slopes of the mountains and at no very great height above the beds of the canyons, probably from fifty to a hundred feet. The three principal canyons in which we worked are Last Chance, Anderson, which is a small canyon running into Last Chance, and Three Forks. Last Chance has running water in it at all times while the other two are dry. The cave of chief interest to us, to which we have given the name Burnet Cave, after R. M. Burnet of Carlsbad, lies on the south fork of Three Forks Canyon which is another name for the upper reaches of Rocky Arroyo, this latter running into the Pecos River above Carlsbad, New Mexico. Burnet cave is nearly west of Carlsbad and is reached in a roundabout trip of some fifty miles over ranch trails for a good part of the way. (See No. 1 Plate 1). The cave itself is about seventy feet above the bed of the canyon and at an elevation of approximately 4,600 feet above sea-level. It is in the side of a spur which extends into a small flat, on one side of which the bed of the dry stream is cut, piling up rocks washed down from above. The formation in which the cave is made is a limestone of late Carboniferous Age, probably representing a transitional stage into the early Permian. There are a number of other caves in this same formation most of them smaller than the one I am describing. There are others also nearby across the little flat, and only a few feet above it. In front of these last mentioned caves are what are known locally as mescal pits composed of mounds of burnt rock with circular depressions. These are no doubt similar to those described as being found in other parts of West Texas and New Mexico. The theory that they were
used over a long period for the purpose of cooking the mescal plant which contains a rather large percentage of sugar, seems to offer the best explanation.

To return to the cave, when we first went to it, we were faced with the fact that some one else had been there before us and had dug in it, probably for the purpose of looking for buried treasure. There were several holes along the right-hand or east wall extending towards the rear. These holes seemed to be about three feet deep and did not go to the bottom of the cave by any means, but they offered us a disappointing outlook as we had hoped to locate a cave which had been undisturbed. Looking at the cave from below it gives the appearance of having a very large high opening. This is due to the fact that large pieces of the roof have fallen off near the entrance and the weathering has formed a steep talus in front. In getting up to it you see that there is a second overhang inside the first formed by the weathering of the roof having struck a somewhat harder formation at this point. This second overhang is about 18 or 20 feet inside the edge of the outer overhang. The level as we found it in the undisturbed portion at the second overhang was only three feet from the roof and sloped steeply so that at the outer overhang the roof was some twenty-five feet above. From the inner roof to the back of the cave was a little over thirty feet. The cave faced east of south. The width of the cave was about 13 or 14 feet, the walls roughly parallel.

I was fortunate in being able to find one of the young men who had done the digging there before us. He told me that when he and his brother first went there a number of years ago, 1920 to be more exact, the cave had a wall across the inner overhang, and another a few feet farther in, the first one reaching to the top and the second one to within one foot of the roof. He said further that they had found a part of a basket lying on the surface inside the first wall and that, at a depth of about eighteen inches below the surface they had uncovered three other baskets, one of which he thought was now in the Museum at Houston. One of these he described as a flat tray-shaped basket and one of the
others a cone-shaped carrying basket. They also found pieces of netting, hide, sandals and beads. In one of the baskets were charred human bones.

In view of the disturbed shape of the cave, as we found it in the summer of 1930, we decided to dig a trench along the west side which was the least disturbed. We made this trench four or five feet wide and about three feet deep. From a point well in front of the inner roof we began to uncover bones of various animals scattered through the fine dust and rocks which had fallen from the roof. This dust, by the way, like that found in all the dry caves of this region is so fine that it becomes necessary to wear a respirator of some sort in order to protect the lungs. Aside from the dust the work was not unpleasant. We also found that it was better for us to strip to the waist while we worked in the cave since the dirt came off our bodies much easier than it did off our shirts and did not take so much water.

In addition to the bones which appeared as we progressed into the cave, bits of twined-woven cord and fragments of basket and sandals showed up here and there. As our trench reached about two-thirds of the way to the back of the cave we recovered two coiled baskets, one of which was placed over the other. They were not in very good condition, but we were able to take them to the Museum for further study which showed them to be similar in shape and make to Basket-maker types from other parts of the Southwest. They were found at a depth of approximately eighteen inches. Nearby, at the same level and in some cases not so deep and in others deeper, we found the animal bones already mentioned. Upon further study on the part of Dr. Malcolm R. Thorpe of the Peabody Museum at Yale University these bones were identified as being those of an extinct bison, two extinct horses, and a rather rare extinct antelope, Tetrameryx shuleri, the horn-core and part of the lower jaw representing the latter. There were also a number of large bird bones uncovered, and these were identified by Dr. Wetmore of the Smithsonian Institution as those of the California condor and wild turkey. With this evidence we ceased our work there for the season, being unable to draw any conclusions as to the association, in the same cave and at similar depths, of an extinct fauna with material such as coiled baskets, sandals, bone awls, spear foreshafts, and fragments of coiled twine, representing a material culture similar in many respects to the Basket-maker of other parts of the southwest.

It was with high hopes therefore that we went back to this cave at the beginning of the past summer. The party consisted of two of the same men who went last year with me, namely, R. M. Burnet and Norman Riley, both of Carlsbad, and without whose strong arms, keen eyesight, and intelligent cooperation I should have been lost. Nobody so far as we could see had disturbed our cave since we had left it at the end of the previous summer.

Acting on the sound advice of Dr. A. V. Kidder, that we should dig down to the hard-pan of the cave somewhere near the front and work in on a much deeper face, we started our excavation this summer at a point nearly directly under the edge of the outer overhang, throwing the large pieces of rock and the dirt over the edge of the cave, after carefully examining it. We found that bones of animals similar to those we were uncovering last year were showing up again, scattered through the dirt we were taking out; but in addition to this we began finding deep hearths. There seems little likelihood that these could have been anything else as there were pieces of charcoal and ashes in place and in some of the hearths burnt animal bones. These hearths were found at depths ranging from three feet to six feet below the surface of the cave.

As the work progressed and the face we were digging reached nearly to the inner overhang, we encountered on the east side and at a depth of approximately one foot and a half, a piece of hide on which was resting, what turned out to be, a very fine twined-woven bag. The skin was that of an antelope doubled over and with the hair turned in. On top of it and between it and the bag was a small piece of hide, with the hair still on, of a young buffalo. The bag contained small pieces of charred human bones. There was also what appears to have been a feather head-dress the cords of which were made out of the same material as the bag, the feathers were identified by Dr. Wetmore as golden eagle. The bag itself is typical of Basket-maker bags from other parts of the southwest, particularly those from the Grand Gulch region of
southeastern Utah. It had been split down one side.
The material is of some form of the yucca, made into
two-strand cord, alternating red and white. It is
decorated with several bands of black and yellowish
lines. (See No. 3, Plate 2). The depth at which this
bag was found is approximately the same as that of
the baskets found by us the year before further back
in the cave, and also those baskets which had been
found some years previously by the two brothers who
went to the cave before it had been disturbed, namely
about a foot and a half.

Slightly west of this cremated burial and about 18
inches farther under the surface was found a large
hearth containing animal bones. Other hearths
appeared as we progressed along both walls of the
cave, bones of horse, bison and bird being probably
the most frequently encountered. Of the horse bones,
in addition to teeth, jawbones and leg bones we found
a number of cores of the hoofs, one of which was so
small that it undoubtedly was that of an unborn horse.
There were also a number of the large bird leg-bones
similar to the ones identified for us last year by Dr.
Wetmore of the Smithsonian Institute as those of the
California condor and the turkey. This year we
recovered the beak of some large bird, no doubt that
of the condor. Dr. Wetmore has identified all of the
bird bones found this year and the list includes the
following: Lesser Prairie Chicken, Turkey, California
Condor (these two already mentioned), Turkey
Vulture, Cooper’s Hawk, Swainson’s Hawk, Prairie
Falcon, Great Horned Owl, Shorteared Owl, Flicker,
Yellow-headed Blackbird, Mountain Quail, and Black
Vulture (these last two being new to that locality, and
not found there today).

The most interesting hearth we came
across in our work was one along the
west wall. After a hard but rather fruitless
day of work, when we were just about
to stop, Bill Burnett’s eye focused on a
large rock which we had not yet removed
from the cave, and he said that he had a
“hunch” that we would find something
interesting under it. More or less to
humor him we lifted it up and he began
to feel around carefully in the dirt with
his hands, taking out some bison bones.
In a few minutes, however, his hand
struck a stone object, which, when I
examined it in the light, gave me quite a
thrill, because it was different from
anything we had found. It was a spear-
point and had a groove along the face
from the base similar to the points found
at Folsom, N. M., and now generally
known as Folsom points. (See No. 4,
Plate 3). It was not as beautifully made
as the Folsom points I had seen, but it
was made the same way and the material
from which it was made differed from that
of the points we had found nearer the
surface. It might be called a generalized
type of Folsom point, as it does not show
the remarkable control in chipping shown

PLATE 2
No. 3. Basket Maker Twined Woven Bag Found in Cave.
in the points recovered from Folsom. There have been a number of others found in west Texas and other places in the southwest like the one I am trying to describe here, the most noticeable feature of which is the groove along each face. The depth at which our spear-point was found was five feet seven inches below the surface and about four feet below the level of the Basket-maker burial. As I mentioned we had to move a large rock which was directly over the hearth. The rock had evidently fallen from the roof of the cave, and the underneath side was covered with charcoal.

At this point in our work we were running very low on supplies of food and water. This last was always a serious matter with us, since we had to carry along with us all our water for drinking, cooking and washing. For this purpose we had a tank constructed in the car, with a spigot on the outside, and this tank held close to forty gallons. We, therefore, covered up the place in the cave where we had been excavating the hearth, packed up our equipment and went back to Carlsbad to replenish our supplies.

When we returned a few days later Mr. W. B. Lang of the U. S. Geologic Survey very kindly went with us to help us check some of our calculations. He spent the day with us and returned that evening. While he was there we took up our digging where we had left off at the edge of the hearth in which we had found the bison bones and the spear-point. A few inches away from where we had found these and at approximately the same level we uncovered a horn which we recognized could not be bison as it had a peculiar twist to it. This turned out later to be the horn of a musk-ox. On the east side of the cave we found a horn of a bison, teeth of bison and horse and other bones associated with charcoal and ashes. At this time we dug to a depth of eight feet six inches, which was about as deep as we went. At seven feet below the surface we found bird bones.

It seemed wise, after a few more days, to discontinue our work in order to have some more competent judge than myself pass on the importance of these finds. A conference of those engaged in studies and field work in the southwest was scheduled to be held in Santa Fe within a few days, so I decided to embrace this opportunity to seek some information relative to our finds. I attended the conference and was much pleased to have everyone who saw the spear-point pronounce it as similar to the Folsom type. I had arranged earlier in the season to meet Mr. Barnum Brown of the American Museum of Natural History of New York at Folsom, and this turned out to be a fortunate circumstance for me, as I knew that he would be interested in the finds we had made. After a few days spent at the site where he had found the original Folsom points, Mr. Brown agreed to go back to the cave at Three Forks with me. In the meantime I had shown him some of the bones we had brought in from the cave, and he identified many of them, being particularly interested in the horn with the peculiar shape and which he identified as that of an extinct musk-ox.

Four of us went out to the cave, and choosing a camping-site a short distance away from our old site, in order to try to fool the gnats which had been a great annoyance to us before, we took up some further digging in the cave. It was very gratifying to me to have Mr. Brown begin almost at once to take out various animal bones, most of which he was able to identify on the spot. It was also a rare opportunity for me to see with what care he removed bones which were in very fragile condition. In this way Mr. Brown took out several jaw bones with the lower teeth in place; these turned out later to belong to the musk-ox. At a depth of six feet eight inches below the surface of the cave he took out a vertebra of a large camel. A number of small animal bones and bird bones came out at depths below this, almost all the way to the original floor of the cave.

As we worked down the face of our excavation we came across another burial. It was in rather a disintegrated state, but with the patience and care which
comes from a long experience in such matters, Mr. Brown removed a considerable quantity of human bones, among which were some skull bones. It was evidently a cremated burial like the one we had uncovered nearer the front of the cave, and although not very much remained, there was sufficient to show that there had been a twined-woven bag with it, and also some sort of grass basket. This burial was some three feet below the surface, and near the edge of one of the holes dug by the two young cowpunchers some years before. There was in the burial a large Unio shell, made into an ornament of some sort, and a smaller one for the same purpose. Mr. Brown identified a part of a very small skull, which from the size could have been only that of a human embryo. The larger skull is in process of being put together at the American Museum in New York, and enough of the work has been done to show that it is of a long-headed type. Taking into consideration the evidence of this burial and of the other objects found in the same cave, it would seem to be a safe conclusion that they represent what is now known as a Basket-maker culture, though there is nothing to prove that it is of the same age as the culture of the San Juan area of northeastern Arizona and southeastern Utah.

To return, now, to a further examination of the animal bones, the identifications made by Dr. Thorpe of Yale University and recently by Mr. Barnum Brown of the American Museum of Natural History of New York, make it appear evident that the fauna of this cave is largely an extinct one. A list of the forms found is made up of an extinct four-horned antelope (Tetrameryx), two extinct horses (Equus fraternus and E. complicatus), extinct bison (Bison allenii), extinct muskox (Bootherium sp), a large extinct camel, extinct California condor, and a number of other bird bones, including those of the wild turkey. There is also the red fox, ring-tailed cat, prairie dog, pack rat, kangaroo rat, field mouse, white-footed mouse, pocket mouse, true squirrel, pocket gopher, jack rabbit, cotton-tail rabbit, and turtle. A few invertebrate fossils were found in the rocks in the cave, a spirifer and a productus among others.

The first question that presents itself is: when did these animals become extinct; is there any way to establish the age of these bones? If so can it be definitely shown that the so-called Folsom point was in association with some of them, and therefore, of a contemporaneous period? It seems unwise to attempt to offer definite proof that these bones have been in the cave for years, measured by the thousands rather than the hundreds; in other words, that they represent Pleistocene animals. It is perfectly possible that these animals continued to live in that region, due to local conditions, long after the recession of the great ice sheet of the last glaciation. All that can be done is to present the facts as found, in the hope that they will eventually aid in proving the existence of man in this country at a period much earlier than the Basket-maker.

It can be readily seen, from an examination of the cave, that the rocks found there were dislodged from the roof; the material is the same and the shapes of the larger blocks are similar to those which can be removed from the walls today. There are pieces which are blackened by smoke and other blocks with a coating of charcoal and ashes adhering to one face—usually the under side. This would seem to indicate that parts of the roof-rock had fallen on to hearths below, as the appearance of smoke-blackened roof-rock is quite different. In this connection it might be mentioned, in passing, that the excreta of the daddy-long-legs found in the darker parts of these caves give a very similar appearance to a smoke-blackened roof, till examined carefully through a hand lens.

Between the rocks thus fallen from the roof there is a very fine dust, mixed in places with debris and pack-rat dung. The dust, under the microscope, shows it to be mostly the disintegrated rock particles of cave walls and roof. It is very fine and goes through a 200-mesh sieve readily. In spite of this fineness we were able, on account of the rocks and fibrous debris, to cut down the face of our excavation so that it was nearly vertical, showing that the undisturbed dirt and rock was packed down sufficiently to prevent the working down of objects to lower levels. However, the cave had been used by pack-rats for a long time, and where they have burrowed down along the walls, objects could undoubtedly work down to lower levels, and bones, showing tooth marks of rodents could be carried upwards.
Could the spear-point, therefore have worked its way down from a higher level than that at which it was found? It would be hard to prove definitely that it had not; but the facts are that it was found directly under the flat side of a rock, in size about two feet long by one and a half wide by ten inches thick, under which was a hearth composed of charcoal and ashes which extended beyond the edges of the rock, and some of the charcoal was adhering to the under side when two of us lifted it up. It looked as though the rock had fallen directly from the roof upon the hearth in which the spear-point and the bones were found.

Granted that the facts tend to show the spear-point and the bones in this hearth were at an undisturbed level of the cave, how can we date the spear-point by the age of the bones? To put it another way can we date the bones in a satisfactory way, and thus arrive at an approximate date for the spear-point, found in close association? The bones were not mineralized, but they were decalcified, and many of them broken, particularly the leg bones. They may have been broken by man for the marrow, although many were, no doubt, broken by the rocks which fell from the roof. The bones of the musk-ox probably offer the best evidence in helping to arrive at a time factor in regard to this cave, since climatic conditions must have been very different at the time he lived in that region from what they have been for a long period since. Today the musk-ox lives in Arctic North America—Alaska and Greenland. Remains of this animal have been found in a number of places which are very distant from his present habitat. According to Hay these fossil remains have been found outside the outermost moraines in Illinois, Indiana, West Virginia, Missouri, and Iowa; and within the glaciated area of Ohio and Indiana. So far as we have been able to ascertain the finding of the musk-ox in southeastern New Mexico marks the farthest point south that the bones of this animal have been found.

It seems reasonable to suppose, therefore, that the musk-ox moved south with the oncoming of the last ice sheet, and that he moved northward as the ice-sheet retreated. There is considerable evidence that the desert belts of Arizona and New Mexico underwent distinct climatic changes in post-glacial times, and it might be well to refer briefly to some of the references on the subject. The literature on glaciers and climate in this country is extensive and we shall refer to only two or three authorities. Good bibliographies can be found in “The Evolution of Climate” and “Climate Through the Ages,” by C. E. P. Brooks; and in “The Last Glaciation,” by Ernst Antevs. In these publications reference is made to the region we have been discussing. We may note that the last or Wisconsin glacier extended across two-thirds of the Continent from Nantucket and Cape Cod through Long Island, northern New Jersey, southern New York, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, the Dakotas, Manitoba, Saskatchewan, and Alberta. At the same time the Cordilleran centre probably bore valley glaciers.

The cave we have been discussing is at an approximate elevation of 4,600 feet, the highest peaks of the Guadalupes beyond rising to over double this height. During the period when the snowfall became greater on the mountains, during the last glaciation, mountain glaciers must have formed in the Guadalupes. Brooki says that further south, out of reach of the main ice-sheets, there are traces of two and in places three separate developments of valley glaciers resembling those of the Alps. There is, therefore, the possibility that even after the last glacier began to recede, a very much colder climate existed, at the altitude of the cave, for a long period; but how long this lasted would be hard to say. Ellsworth Huntington in Carnegie Institution Publication No. 192, says that the alluvial terraces of both Asia and America are evidently due to a series of changes of decreasing intensity, which makes it seem probable that the oldest terrace may represent the last glacial epoch, and that the others represent the post-glacial stages or minor epochs of glacial retreat. He adds, that if the oldest terrace dates back no more than 30,000 years, more or less, the youngest cannot be more than 2000 or 3000 years old at the most, and maybe much less. Antevs has done very extensive work on clay varves, or annual clay layers formed during ice retreat. Based on these studies, together with other lines of research upon the subject, it would seem to be safe to assume a date of say 20,000 to 25,000 years ago for the beginning of the last glacial retreat. It would also seem to be safe to assume that the musk-ox lived in the region of the Guadalupe Mountains for a considerable period after the ice began to retreat farther to the north and that
mountain glaciers were left in the higher parts of these mountains where such animals may have retreated until such time as the gradually changing climate caused their extinction.

We have no space for any further discussion of these questions but we should like to call attention to the fact that the bones of the extinct horses found in this cave bring up some interesting queries.

These things open up many interesting lines of thought, but we must curb our flights of fancy, and observe the facts. Summed up we may restate these: extinct animal bones have been found in a cave in southeastern New Mexico. Some of these have been found in hearths, some of them actually burned, and in the case of certain bison and musk-ox bones found in actual association with a spearpoint resembling the Folsom type. This particular hearth was four feet below a cremated Basket-Maker burial, the bones of which were placed in a very finely made twined-woven bag, wrapped about with antelope skin. We present these facts not with the purpose of proving anything, but with the idea that it will add to the evidence which seems to be accumulating and pointing to an occupation of certain parts of this country by people who antedated the Basket-Makers. To mention only two examples, of several which have been reported, as evidence of this kind, first the well-known discoveries at Folsom, New Mexico, of a large number of extinct bison bones found in association with spear points, which have given the name to the specialized type of points mentioned, secondly, the discovery, last summer, at Angus, Nebraska, by a party under the direction of J. D. Figgins, of the Colorado Museum of Natural History, of a spear point of the general Folsom type found under the shoulder blade of a large elephant.

The continuation of work of this kind, it is to be hoped will eventually produce sufficient evidence to enable something definite to be offered which will convince the most skeptical that man has existed longer in this country than we are willing to admit at this time.
PAINTED PEBBLES OF THE TEXAS BIG BEND

BY GEORGE CASTOR MARTIN AND SAMUEL WOOLFORD

Two hundred feet above the water in the high and abrupt cliff forming the north bank of the Rio Grande at Shumla, Texas, is a large cave shelter capable of housing a fairly numerous family. It has been long occupied in the past, its flooring is deeply covered with wood ashes and the usual debris always found in cave dwellings. The artifacts are of the typical “Big Bend” type of Basket-Maker remains, basketry, cordage, sandals, nets, pouches of skin, bone and stone implements, but, added to these were “painted pebbles” of a type hitherto undescribed as having been previously found in other typical Basket-maker habitations. When the Woolford-Martin-Witte Museum Expedition reached this cave in September, 1931, it had already been entered by several local investigators and the surface had been badly dug over in a hap-hazard manner, however, some spots were untouched and we were able to determine that the same types of remains permeated the ashes from the surface to the hardpan. Several skeletons had been removed and the bones scattered around the surface. The foot of one adult was mummified. Burials were in the ashes forming the flooring, the bodies were laid in grass-hay and the same material was spread over them before they were covered. This method of burial differs from that found in caves in the vicinity of Boquillas where the same types of artifacts were found in connection with burial in basketry and nets. One pelvis still in place showed that that portion of the body had lain on its back, while two leg bones still articulated denoted flexed burial. The Expedition found no complete burials in place in the Shumla cave. This article, however, is intended to treat only of the “painted pebbles,” the data on this cave and the other cave dwellings visited by the Expedition, will be published later by the Witte Memorial Museum in San Antonio.

A Hingston Quiggin, M. A., in his “Primeval Man,” London, 1912, mentions colored pebbles as having been found at Mas d’Azil, Department of Ariege, in France, in shelters occupied at various epochs from Paleolithic to Modern times, but does not state in which period the pebbles have been classified. He writes: “But the greatest interest centers around the famous colored pebbles (see Nos. 7 and 8, Plate 4). Some take these to represent the beginnings of a prehistoric alphabet; others regard them as magical signs; others again, think they belong to a game.”

M. C. Burkitt, in his “Prehistory,” Cambridge University Press, 1925, enters into more detail and places the painted pebbles at the end of Magdalenian times—”the latter being pebbles from the river Arise near by, which have been covered with red lines, smears, and patterns. These painted pebbles have been classified into various types according to whether there were one, two, or more dots or bars on their surface. In some cases the edge of the stone is indicated by a red circle, and the vertical bars are crossed by horizontal ones, etc. * * * * * Dr. Obermaier in his book, ‘El Hombre Fosil’, has compared these painted pebbles with certain ‘idol’ signs from the third Spanish group and has thus suggested that some of the signs on the painted pebbles represented conventionalized human forms. Again they have been compared with the Australian “churinga.” M. Piette suggested that they represented numerical signs, and they have been thought of as forming a sort of currency. The red paint on them is ochre mixed with fat, and several palettes (made of pecten shell) have been found in the cave. At the grotto of Birseck, seven kilometers south of Bael, in the rock on which the castle of Birseck is built, an Azilian deposit was found containing painted pebbles, all of which had been broken intentionally. Was this done by some enemy, or had it some sinister meaning? At La Tourasse there are painted pebbles on which are incrustations of stalagmite, a proof of their authenticity and contemporaneity with the deposits. Painted pebbles do very rarely occur in the deposits of Upper Magdalenian age, as has been shown by the diggings of Dr. Obermaier a few years ago in Bavaria and Cantabria. Painted pebbles occur in North Scotland in association with the keiss brochs. Examples
of these which the writer has seen do not seem to bear any relationship to the painted pebbles of the Mas d’Azil, etc. ** Their association with brochs denotes that they must be of late Celtic age. There is a chance, however, that they may be older, and that the brochs may have been built on the sites of the older civilization. With the pebbles were found chipped stone tools, tines of stags, bones of penguin, elk, and a few reindeer.”

The painted pebbles from the Shumla cave-shelter are, with one exception, pebbles from the Rio Grande, the exception a scale from the roof of the shelter which, when found, was much more complete than pictured, but which was broken by a Mexican workman after it had been placed in the collection at the cave. Two of the painted pebbles, the most interesting of those found, were missing when the collection finally arrived at the Museum. One of these was a perfect heraldic design which would have been technically described as “quarterly, gules and argent,” a vertical line crossed by one running horizontally, the first and fourth quarters shaded vertically. The other missing pebble bore a very clear and distinct track of a hoofed animal crossing it diagonally. It was of unusual interest as the tracks were apparently those of a horse. This stone may yet turn up again, misplaced in the Museum. Of the pebbles illustrated herewith, those in No. 5 were found by the Woolford-Martin Expedition and Miss Emma Gutzeit. All are from the one cave at Shumla. The designs are indescribable, they are not mere scratchings and certainly were executed with reason and for a purpose difficult to guess. There is a possibility that they were tallies or record stones, while one could have been a rough map or chart.

The decorative features, the markings, are all done in black, evidently soot from the cave roof mixed with animal fat or oil. From this paint all animal matter has now totally vanished and the black, itself, is faded and toned down by age and wood ashes from the cave flooring. All traces of paint can be wiped off with a dampened cloth.

The accompanying drawings were made by Mr. Ben C. Mead, official artist for the Witte Museum. His opinion on the painting of the pebbles is of interest. “The pebbles were painted with a brush, with a liquid
or semi-liquid pigment. I have worked a good deal with charcoal and when it is applied direct from the stick it will wipe off as clean as though it had never been applied. It takes some kind of binding vehicle to make it stick as well as it has on these stones. Also, the manner in which some of the marks taper out to a sharp point on the ends indicates the use of a fairly well made brush—perhaps the fibers from the end of a small piece of vegetation, or it may have been fur or hair.”

Mr. Mead continues: “It is extremely difficult to make a rendering in strong black and white of an object that has an indefinite pattern such as one of these stones. The designs simply fade out while you look directly at them, and are so intermingled with the dust and water stains and shading caused by the texture of the stone itself that it is simply impossible to look at the marking, put down a pen and ink stroke, and then say that you have made just what is there on the stone. In making these drawings I have tried to imitate the effect of what I see as nearly as possible, without putting down what I think may have been there at one time. Therefore I resorted to the use of some stippling to indicate the roundness of the stones.”
EXCAVATIONS AT TECOLOTE DURING SUMMER OF 1931

By W. C. Holden

The 1931 archeological field class of Texas Technological College spent five days excavating at the Tecolote pre-pueblo site during June and July. The report on the work of the previous summer was published in Vol. III of The Texas Archeological and Paleontological Bulletin. Most of the excavation in the summer of 1930 was done in Mound A. (See map, page 45, Texas Archeological and Paleontological Bulletin, Vol. III). This last summer (1931) a new policy was adopted. In view of the fact that the river is cutting back under Mound A on the north side and as there is a considerable extent of good “pay dirt” east of Mound A, it was decided to excavate at several promising points along the river bank. So far as material and a study of stratification is concerned, the plan turned out to be more profitable than the one of the year before.

One point of interest was room d. (See map, page 46, Volume III, Texas Archeological and Paleontological Bulletin). This room had been excavated to the first floor level during the previous summer. Something inspired W. D. McWilliams to dig a trial trench below the first floor level, and the deeper he went the more fruitful the digging became. The soil was loose and greasy and contained numerous shards, broken bones, charcoal and ashes. Some three feet below the present surface, and one foot below the first floor level, he found a much-used stone fist hammer.

Six feet below the surface he came upon a well preserved burial. It was that of an old man, above medium size, with bad teeth (he had evidently had pyorrea in a severe form), and a posteriorly flattened skull. No artifacts or mortuary objects of any kind were near the skeleton.

Two feet farther down and slightly to the east of the first burial was another, a child of perhaps six years. This skeleton was in bad condition. The skull was rather long and apparently not flattened. Just above the skeleton was an inch and a half layer of ash-colored clay. A few shards of pottery made of the same material were found in the vicinity. The shards have a red slip and are easily broken. Two mortuary objects were

PLATE 5
No. 9. Potsherds From Tecolote Ruin.
No. 10. Artifacts From Tecolote Ruin.
found at the child’s head, a white quartz spear point and a potshard with a hole in one end and its edges ground smooth.

The best “pay dirt” in room d is eight feet below the present level, or six feet below the most recent floor level. At one place at that depth McWilliams found twenty or thirty charred corn cobs. The cobs averaged from three to four inches long. In another place he found a stag-horn pressure flaker. Nearby was a round object made from a potshard, about the size of a dollar with the edges rounded and with a design of black on white on one side. Among other artifacts were a bone awl three inches long, a small twisting arrowpoint of obsidian-like flint; and a small scraper of milky quartz fashioned with exquisite care. Room d was not completely excavated to the eight foot level. Farther digging will probably yield additional material of interest.

A second point of interest was discovered by Herbert West on the river bank eighty-five feet east of Mound A and one hundred and thirty-three feet east of trench x, y in Mound A. After two days of puzzled digging, the place turned out to be an underground kiva. It was discovered quite by accident. West was passing along the bottom of the river bank (which is practically vertical and some fifteen feet high at the place) and saw an unusually large potshard extending from the bank. He procured the shard and began digging into the bank hoping to find other shards from the same spot. At a depth of eight inches he came to something made of red clay and exceedingly hard. Following it out, the object proved to be a hearth. It was almost round, thirty inches in diameter and twelve inches deep. The sides were ten inches thick, made of red clay hardened by fire and plastered with a grayish, cement-like clay. At the bottom of the south wall of the hearth was a hole, or vent, six inches in diameter. Embedded in the east wall was a large, flat rock standing on edge. The hearth was filled to a depth of eight inches with ashes.

The construction of the hearth was so different from the type usually found in kivas that we were at a loss for a time as to what to make of it. Meanwhile, the students referred to it as the “bath tub.” Finding the ground level around the outside of the base of the hearth hard and level, we began to follow
it out. Eventually someone discovered what was once a wall of the kiva. It was traced out and found to be practically round. Originally the kiva had been excavated and the earthen sides of the room plastered with a substance having the appearance of gypsum mixed with ashes. Three different coats of plaster were applied. The walls slanted outward slightly from the bottom upward. The floor of the room is six feet below the present level. The plaster on the walls reaches three and a half feet above the present level. As to the construction above that level we have not been able to ascertain as yet. Two feet east (slightly southeast) of the hearth were three large flat stones standing in line on edge, forming a fire screen customarily found in kivas. The river has already carried away over one-third of the room on the north side.

Two burials were encountered within the kiva. One was eight feet west of the hearth and two feet above the floor, or four feet below the present surface. The burial was that of a middle-age man. The skull was flattened in the typical fashion. The teeth were worn down considerably, but were in good condition. About half of the rest of the bones were missing. No hand or foot bones were found. The second burial within the kiva was three feet west of the first and eighteen inches above it, or two and a half inches below the surface. The condition of this skeleton was too bad for it to be removed. On and slightly above the kiva floor were found thirteen bone awls and needles, all in good condition; seven small arrow-points, one of obsidian; two small, finely shaped scrapers; three flint artifacts of doubtful classification; an arrow shaft polisher; a stone hammer; a bone digging tool; and several pieces of muscovite with a peculiar type of hole punched through each piece.

A burial of a woman was found near the river bank thirty six feet west of the kiva and five feet below the surface. The skeleton was that of a woman of medium size and past middle age. It was in good condition with the exception of the skull which was considerably crushed. Thirty feet west of this burial was another near the river bank and eighteen inches below the surface. It was that of a child about twelve years old and was in bad condition. No mortuary objects were found in either of these burials.

In addition to the skeletons and artifacts mentioned above about a bushel of potshards were taken from the various excavations. The shards have been assorted and classified by students in the archeological workshop, and several pots have been restored from the assortment. There is a possibility of getting several more.

No attempt will be made to generalize or form conclusions in regard to findings of the Tecolote excavations, but a prediction may be in order. A number of corroborating evidences seem to indicate a very definite relationship between the pre-pueblo Tecolote culture and that of the Panhandle along the Canadian River. But we must do more work, both at Tecolote and on the Canadian before we are ready to venture so definite an assertion.

In June, 1932, Mr. E. J. Lowery conducted further excavations at the A-C (Antelope Creek) ruin northeast of Amarillo. Mr. Lowry is not yet ready to make a full report on his season’s work, but a study of the accompanying pictures will indicate a similarity between the artifacts found by Mr. Lowery and those we excavated at the pre-Pueblo ruin at Tecolote.
On the Texas side of the river the delta of the Rio Grande covers a triangular area with its apex at a point on the river seventy-five miles inland and its base lies along the coast between the mouth of the Arroyo Colorado and the Rio Grande.

In its western area occur gravel hills, and along the coast the soil is composed of sands and silted clays. The delta terrain is crossed by alluvial ridges following the course of old overflow channels of the river. There also are small fresh water lakes and areas of nearly flat land.

In former times much of this area was covered with natural prairie grasses. At the present time due to pasturing with cattle, much of the uncultivated area is now covered with dense growth of thorny plants of a type found in the semi-arid regions.

In recent years much of the land has been devoted to citrus and other crops and the incidental cultivation has hastened erosive forces. Evidences of former human occupation are found inland during the digging of canals, drainage ditches, etc., bordering the old overflow channels of the river and in the land surrounding the small fresh water lakes.

The area where archeological material is most often found lies in the coastal prairie belt on clay hills within a few miles of the sea shore. Since 1908 a large collection has been assembled from the delta area.

Sea and fresh water shell artifacts are typical of the delta camp sites. Apparently only one culture complex existed within the Rio Grande delta. Within this area the types of artifacts listed below occur.

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**Plate 7**

**Worked Stone**

Flint projectile points, knives, scrapers, drills, hammerstones, chipped nodules, pitted stones, pumice stone pipe, rubbing stones, sand stone abrading, rubbing stones, fire marked beach stones or shales, and pieces of rubbed coral are found.

**Pottery Types**

The following pottery types are found:

Grey colored, thin, decorated with asphalt lines and coated with asphalt internally.

Buff colored, thin, not decorated, blackened by fire.

Brick red colored, purplish cast inside, 3-8 inch thick.

Light, greenish grey colored, wash, blackened outside, brown inside. 5-16 inch thick.

Heavy, buff to brown colored, no fire marks.

Pipes and disks.

**Paint Materials**

Small pieces of soft material showing use (suggestive of hematic that has been scraped from the natural stone, and compacted) are found.

**Bone Artifacts**

Bone awls, incised tubes, ornaments (pin like), flakers, notched pieces of bone ornaments resembling gorgets; perforated teeth; and tubular beads are found.

**Conch Shell Artifacts**

Artifacts made from sea shells, mostly conch, are as follows: Hand axes, scrapers, tinklers, beads, disks, sockets, plugs for drills, hook shaped objects, points, pendants, gorgets, specialized tools, (gouges), gaming disks, band ornaments.

**Fresh Water Shells**

Artifacts made from fresh water shells are as follows: Incised and plain gorgets and occasional beads and hook shaped objects.

**Shell Beads and Points**

Various marine shells perforated for stringing by drilling, notching, rubbing and breaking but otherwise unworked are found. Chipped projectile points of conch shell, similar in form to the triangular points of flint occur but are quite rare.

**Other Materials**

Green bottle glass projectile points similar to those of flint, are found but are scarce. Points of banded obsidian of greenish color are found but are rare. These points are similar in form to those made of flint.
THE AZTEC INFLUENCE ON THE PRIMITIVE CULTURE OF THE SOUTHWEST

BY COLONEL M. L. CRIMMINS

There are two ways to reconstruct the story of the primitive people of the Southwest. One, by chronology, and the stratigraphic system of studying the different layers of earth in their home sites and the other way is to try to bring the dead to life and clothe with living flesh, their dry bones. The first gives us a record “whence they came and why,” and the latter gives us the reason “why they go and where.”

As the Roman influence on the primitive life and culture of Europe, can be traced by the spread of the Latin language from Italy to France, Spain, and Portugal, so the Aztec influence on the primitive life of the Southwest, can be studied by tracing the wide geographical distribution of the Uto-Aztecan language. The different tribes of that ancient Shoshonian stock represent a very wide range of culture, although nearly all dwell in arid or semiarid regions. Concentration of the food supply with the subsequent concentration of population, is the source of greatest cultural development.

A study of the diagram of “American Chronology” of Herbert Spinden shows that the most probable ancestors of our American Indians were of Asiatic origin. Dr. Arls Hrdlicka wrote of the “Remains in Eastern Asia of the Race that Peopled America,” as follows: “The writer feels justified in advancing the opinion, that there exists today, over large parts of Eastern Siberia and in Mongolia, Tibet, and other regions in that part of the world, numerous remains, which now form constituent parts of more modern tribes or nations, of a more ancient population (related in origin perhaps with the latest paleolithic European) who are physically identical with, and in all probability, gave rise to the American Indian.”

It is believed that the primary invasion from Asia via Alaska, was between 15,000 and 10,000 years before Christ. They were a people of upper Paleolithic culture, who made chipped stone artifacts or lower Neolithic who started to polish stone, but they were without agriculture, pottery, or the knowledge of loom weaving. Contemporaneous existence of man, mammoth, and saber-toothed tiger was proven in the Dordogne region in Southwestern France by the pictographs painted in caves representing these animals, and a similar contemporaneous existence of man, cave bear, American camel, American horse and ground sloth, has been recently proved by finding their remains in juxtaposition in the Conkling Cave, thirty miles north of El Paso.

The great linguistic group that spread over our arid and semiarid southwest, were the Shoshonian. We find evidences of their Uto-Aztec language among the Utes as far north as Montana and Idaho, among the Paiutes of Southern California on the southwest and among the Comanche of Texas on the east, among the Hopi of Arizona in the south center and among the Pimas and Papages in Southern Arizona and in dialects of Northwestern Mexico.

There was a concentration of population and culture near sources of permanent water, as in central New Mexico along the Rio Grande and its tributaries and in the San Juan region where the corners of New Mexico, Arizona, Colorado, and Utah meet. This concentration was caused by a cultivated food. It required less labor to cultivate food, than it did to hunt and kill it. Consequently, there was a certain amount of leisure, and as the cultivation increased, leisure increased in proportion. This was due to a heavy-seeded grass introduced from the highlands of Mexico, called Teocentli, which was the ancestor of our corn. With it came the art of the Archaic Horizon and clay female fetishes, a pottery prayer for fertility and a sedentary life appeared. The crops had to be watched to keep animals from destroying them, cultivated to make them grow, and stored to save the harvest from wild animals. The people who did this, have been called the Basket-Makers. They built storage cists probably over four thousand years ago, in the San Juan region, and as their culture progressed, these storage cists, were transformed into single room pit-houses, in small groups, later on into the stone houses of the Cliff
Dwellers and finally into the terraced rooms of the Pueblos. While the simple arts of stone-chipping, basketry, and fire-making, were probably brought over from Asia, by the ancestors of our Indians, it is believed that pottery making, weaving, and agriculture were not practiced until long after the arrival of the first Americans. No cultivated plant of the Old World, seems to have been brought over to the New World, by these first Americans, and there is a broad barrier between the old and the new world, that does not show any evidence of agriculture, ever having been practiced there.

What rice was to Asia, corn was to America, and so it was that Teocentli started culture and sedentary habits, and soon other foods such as beans and squash were grown and with leisure came invention. The wanderlust that drove the first Americans onward, probably caused the younger and more active to push on south. Those in the San Juan region soon struck the Gila River and spread east and west, and those in Central New Mexico descended the “Rio Del Norte.” A unique and high state of culture was reached near the headwaters of the Mimbres, near what is now Silver City, New Mexico. It was here that the highest form of Ceramic art was reached in America, according to our late lamented, Dr. J. Walter Fewkes. Some of their effigy jars and designs, are similar to those of the Casas Grandes, and others were like those found along the Gila.

The most important motivating effect on migration was water, and constant water was found along the tributaries of four stream in the Southwest, the Gila, the Rio Grande, the Little Colorado, and the San Juan.

The relation of the Mimbro-Aztec to the Aztec of Atzlan or Casas Grandes, Chichuahua is shown by Dr. A. V. Kidder, who includes them in the pueblo culture area. Fewkes writes that while Mimbres pottery had been found in the Casas Grande area, Casas Grande pottery has not been found in the Mimbres area, which further shows that the Aztec tradition, that their ancestors came from the north, was probably correct. One hundred miles east of the Mimbres we do find a contact. At Three Rivers, New Mexico, one hundred miles north of El Paso, were found thirty-five petroglyphs which I copied and Dr. Fewkes said they were similar in design to those of the Mimbres, and at the Dona Anna Target Range, thirty miles north of El Paso, we found the typical Chihuahua copper trade bells, long associated with the Casas Grande culture. Again, thirty miles east of El Paso, we find Aztec pictographs showing the scroll word or tongue, the sign of speech, emerging from the mouth, both in profile and in front view; the black painted figures of the Aztec priests with a red god-band across the mouth, and the goggle-shaped eyes and some with crowns on their heads.
All the branches of the Shoshonian stock, the ancestors of the Aztecs, the Paiutes, Utes, Comanche, Hopi, Papago, and Pimas kept records of current events by painting pictographs or pecking petroglyphs. Many of these signs were Totemic signatures, so ably demonstrated by Dr. Fewkes in his list of four hundred, and are what we will call crests or “brands.” Others were probably maps with trails leading to the most important thing in arid country—water. Some were records of unusual events, like the spear penetrating the mountain sheep from below.

The American Indian is a great symbolist. He does not confine his illustrations to mere realistic commentaries, on things that surround his everyday life, nor does he content himself with making fantastic designs devoid of meaning. He unites the science of beauty in nature and art, with the intellectual appeal and consistently uses this mode of decorative realism. His art is the expression of a natural philosophy, which is closely related to his religion and folklore. He animated inanimate things just like our ancients. To him the sun, the rain, thunder, moon, stars, and rainbows were living beings. By making the picture of a power, he believed he was making friends with it. He believed that this relationship would help him gain his wishes and help him defend himself against his enemies. His art was first associated with a kind of magic. His practical purpose, was no bar to normal development in design, which we regard as aesthetic. The culture of the Aztecs and their related tribes in the Southwest all combine in their art, a magical purpose with an aesthetic form.

Dr. Edgar L. Hewett, Director of the School of American Research, of the Archeological Institute of America, identifies Casas Grandes, Chihuahua, as being the Atzlan of the ancient Aztecs. Here they erected a big house composed of many terraced rooms, up to seven stories in height and covering an area of about two hundred and fifty by eight hundred feet. It was supposed to have been occupied by about six thousand people. The Aztecs could have easily descended the Mimbres River, to Lake Palomas and then followed the route to Casas Grande, as we did on foot with General Pershing’s troops in March, 1916. General Pershing had his headquarters near the Casas Grandes, during the Punitive Expedition in Mexico in 1916 and 1917.

According to the Aztec picture-chronicle I will show herewith, they occupied Atzlan for two cycles of fifty-two years, from about 960 A. D. to 1064 A. D. Their tradition then said a bird appeared crying “Tihui! Tihui!” which their oracles claimed meant “Let’s go.” So they started from this region, surrounded by plenty of water, and after forty-eight stops, all of which are recorded here, they saw the sign they had searched for, for two hundred and sixty-one years. It was a Mexican eagle holding a snake in its beak and perched on top of a cactus. This symbol is still recorded on the Mexican coat of arms. The Aztecs said it was a sign, they were to establish their city at that point, which they did in 1325.

In this Picture Chronicle the point of starting the Aztec peregrination is shown as a blue square near the upper right-hand corner, with a bird above it calling “Tihui” and rod-like figures coming from its mouth. Figure two, shows the ten tribes of the Aztecs listening to the birds, and in the lake are two heads appearing, evidently of those who did not join the voyagers, and another man appears in a canoe. The bundle of herbs on the right of the lake means that they started their pilgrimage at the beginning of a cycle of fifty-two years. The phonetic hieroglyphics, over the heads of the human figures represents their picture-name or crest. The route of the peregrination is shown by the footprints and the green circles represented the number of years they stopped at the different places. These places are represented by name-pictures, most of which have been identified. This whole picture tells a story of the peregrination of the Aztecs covering a period of two hundred and sixty-one years.

We have the barbaric habit of always considering others our inferiors and some of us look on the cannibalistic religious practices of the Aztecs with horror. Still how seldom we look for good qualities, which are sometimes just as outstanding, as was shown by Anita Brenner in her “Idols Behind Altars.” She writes they were a people of enormous restlessness, who enjoyed possession, not in the sense of acquisition, but of control.

They were fighters and the conquerors of Mexico. They might, in ancient times, be compared to the
Romans, for the Aztecs adopted the culture of the Toltecs, as the Romans did the culture of the Greeks. Or this warlike nation, might, in their lust for power, be compared with the people of a late European Empire. They not only collected riches but also beautiful, artistic things; the sweetest flowers; the finest vases or artistically wrought jewels, but not the least beautiful were the thoughts of others as were recorded by Father Sahagun, the only great contemporary writer, who had direct contact with the Aztecs. The following is quoted from his Book VI, Chapter XIX:

“Do not lie,” the father said to his child. “This is bad; for when you sin you spoil yourself, and you begin to die. It is a if you blurred the paintings of your deeds, and broke or threw filth on the pool or mirror of your soul.” The young girl was admonished, at the moment when she “ceased to run and tumble on the ground, and began to exercise her reason,” in the following manner by her mother:

“Do not adorn yourself profusely with over elaborate things, because this is a sign of little sense. Neither must your garments be very poor, dirty, or torn, because these are the signs of people who are laughable. When you speak, do not do so very fast and breathlessly, but little by little, and in measure; do not raise your voice, nor speak too low, but with a medium sound. Do not move much when you speak, nor when you greet, and do not speak through your nose, but let your words be honest and of good sound. Do not use strange words. When you walk do not go too fast nor too slow, for it is a sign of pride and pomp to go too slow, and too fast suggests disquiet and little surety. When it is necessary to jump over a puddle, do so in such a manner that you seem neither heavy, clumsy, nor overlight. On the street and in the roads do not carry your head hanging, nor yet must you raise it too high. That is a sign of bad breeding. You will go straight, and with your head slightly inclined.”

“See likewise that you neither paint your face nor your lips, in order to look well, since this is a mark of vile immodest women.”

I do not think people capable of having such beautiful, wholesome ideas could be wholly bad. We all would be glad to see our children follow the kindly advice of the Mexican mother to her off-spring. Would we not all be glad to see the best of the Aztec principles influence our modern life?

My object in showing these pictures and telling the story of the Aztec influence on the primitive culture of the Southwest is to create an interest in the life of the early Americans and in their art, and to try to keep some of the energy and wealth now being expended abroad, for research in our own country where we have such vast, unexplored fields.

Bibliography

*Ancient Life in the American Southwest*, Dr. Edgar L. Hewett.


*Additional Designs on Prehistoric Mimbres Pottery*, J. Walter Fewkes.

*Smithsonian Miscellaneous Collections*, Volume 76, No. 3.

*Remains in Ancient Asia of a Race that Peopled America*, Arls Hrdlicka, Smithsonian Miscellaneous Reports, 1912.


*Southwestern Archeology*, Dr. A. V. Kidder, Harvard University Press, 1925.

When asked to give a report on archeological work in the vicinity of El Paso, Texas, I decided to describe a small mound high up in the Sacramento Mountains. The location, about seven thousand feet high, is by the side of a snow-fed mountain stream.

One of the facts which we so often notice about pre-historic ruins is how many times the remains of ancient man are found close to, or under the habitations of present day man. At the little town of Swatz on the Mimbres River in New Mexico, is a large pueblo ruin, almost in the backyard of the present houses. After three hundred rooms and six hundred burials had been excavated from this place, another ancient building of much older date was unearthed which was lying under the other walls at almost the same angle. This was excavated by Mr. and Mrs. C. B. Cosgrove, who were doing this work for the Peabody Museum at Cambridge. This older site lay beneath the present level of the river. For this reason the skeletons were disintegrated, and in a powdered condition. The pottery was also in the same condition and little or nothing could be ascertained, beyond the fact of the teeming life that lived and loved and died, and then made room for hundreds of others who followed the same life cycle, and who, in turn, made way for the inhabitants of the sleepy, pretty little Mexican settlement of Swatz.

At Phoenix, Arizona, remains of the ancient irrigation ditches are found in the town. Remains of bygone people are undisturbed within a short distance of the Capitol. A Phoenix man plowing his field may turn up a few of the stone axes peculiar to that part of Arizona, or strike his plow against a buried metate or big stone mortar, showing that where man has once lived, by some strange rule he seems to choose to live again. The reason for this is not always easy to see, if the houses were located by some big spring of water, or on a level flat in a river valley very suitable for agriculture, or on a rocky hillside adapted to defense purposes, one could understand this crowding together of different generations of people. But in the great spaces of the West, where one valley site is apparently no better than another, it is difficult to understand the

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PLATE 9

No. 17. Artifacts of Wood.
No. 18. Chupadero Black on White Pottery
reason for this piling of wall upon wall, of bones uponones of such different times and cultures.

Of this ruin in New Mexico, the same rule holds
good. This small heap of earth covered with tell tale
pottery sherds lies in a yard close to a ranch house,
and the ranch house borders on the little town of
Lincoln, New Mexico. Lincoln is a village situated on
the banks of the Bonita River, a few miles above its
confluence with the Ruidoso River, which flows into
the Pecos. The valley here is narrow, with high juniper
covered hills on both sides, with the pine covered
White Mountains in the near distance, and the rocky
Capitans to the north, affording safe retreat to
marauding Indians.

In the town is the remains of a circular stone building
where the people gathered to defend themselves
against the attacking Indian hordes who came from
the mountains to steal the horses and cattle and murder
the people who had dared to trespass on the hunting
grounds which they had for so long considered their
own. Tourists, farmers, cattle thieves, Indians, all were
there, and then, before the dawn of history, another
people tilled this same soil, made their pottery, built
their mud and stone houses and used the bow and
arrow instead of the leaden bullet, and began that cycle
of lives that was to continue until the present time.

Driving down the Bonita it was by chance that I
saw a metate being used as a watering pan for
chickens, and a sherd covered mound turned into a
play ground for the ranch children. I was in time to
salvage a few of the artifacts which they had
discovered, and I have hopes of eventually being
allowed to excavate.

This site lies in a field offering no particular
advantages for defense, so evidently the inhabitants
had no great fear of attack. Enough level land lay
around it to afford plenty of room for raising crops,
and the Bonito provided an ample water supply. In
the surrounding mountains game was plentiful. Deer,
bear, wild turkey and squirrels are still to be found
there, and I can remember when elk were often seen.
There is plenty of wild fruit in season, delicious
raspberries, wild strawberries, agarita berries,
gooseberries, plums, acorns, and penones, as well as
other plants that the Indians used of which we know
nothing, an ideal spot then, as well as now.

It would be premature to attempt to describe the
walls of this little house site, but we have preserved
enough of the artifacts to make a very interesting
collection coming from this small site.

I will describe the pottery first, as pottery seems to
be the great nucleus around which archeological
discussion centers.

Pottery

A surface collection shows a great number and
variety of pottery sherds. Coiled, corrugated and
incised ware exists in quite a large percentage. Red on
terra cotta, Lincoln black on white, a few very small
pieces of Gila Polychrome, plain red cooking ware,
and quantities of Chupadero black on white, which
was to be expected in a location only a few miles from
the Chupadero Mesa where pure sites of this pottery
gave its name to the ware. A few pieces of early glaze
were found, but no Mimbres which was strange, as
Mimbres is found in so many of these mountain sites.
However time may change this list, and add other
classes of pottery.

There were five complete food bowls. One is a
Chupadero black on white in a very crude but
interesting design. The other four are Lincoln black on
red. Two have simple designs extending into the bowl,
one is too burned to tell much about, and the fifth one
has a very ornate band around the top, this almost
approaches a glaze.

In addition to the food bowls there was also found
an El Paso Polychrome olla. This is rather rarely found
in an entire piece.

Other complete pieces of pottery from here were
carried off before we knew of them. These were
valuable as a whole but worthless scattered around
the country.

Another pottery object was a pipe three inches long.
It is very similar to one found at Three Rivers, and to
some I recently saw from northern Arizona.
Stone

In stone we have four little hammer heads, or tiny mauls, with a groove all around the center and each one only an inch and a quarter long. These may not be uncommon, but I have not seen others like them.

A drill rather crudely worked, a red arrow point, stones chipped and shaped as if for polishing pottery, several manos and metates, and a turquoise pendant of the usual shape make up the list of the stone work so far.

Shell

In shell, only a large pendant with two holes bored in it, and a large number of very badly preserved olivella shell beads were found.

Bone

Bone is most beautifully represented by two polished and carved awls, one of the usual shape and size, and the other shaped like a long needle, and about five inches long. Both are in a fine state of preservation.

Two hollow bone tubes made from the cannon bone of a deer are of unknown use, unless they were used for cases in which the polished and pointed awls were kept when not in use.

Wood

There were also objects made of wood, one in particular, being made something like a modern mustard spoon. But alas, these rare wooden artifacts were stolen by a passing traveler. Wooden objects are not often found in open pueblos, as time and weather together rot wood as well as fiber or cotton fabrics, the protected cave shelter is the place to find this sort of material, while the houses on the open plains generally yield only stone, pottery or shell.

So far there has been a rich harvest from this little site in the Sacramentos. At present we have not the slightest idea of its age, but we are inclined to think it is not very old as compared with sites not far away.
THE PRESENT STATUS OF TEXAS ARCHAEOLOGY

By Dr. J. E. Pearce

This brief summary of what has been done and of what remains to be done in Texas Archaeology, as understood by the writer, has been penned in the hope that it may be of immediate interest to those who are working in this field. A much more detailed account is to be published in book form.

Importance of the Texas Field

Texas occupies a position in the geography of North America which gives it large and unique importance in the history of early human culture on the North American continent. The three centers in which Indian civilization reached its highest development on this continent were (1) Southern Mexico and Central America, the Maya Aztec area, (2) the high plateau area of the upper Rio Grande and adjacent regions, the Pueblo area, and (3) the Mississippi Valley, the Mound Builder area. The distinctive cultures of these areas possessed certain fundamental culture elements that were common to all but which could not have originated independently in each of the centers. From known facts they must have originated in one of the centers and have been carried by diffusion to each of the others. Among these culture elements may be mentioned certain domesticated plants, such as maize, tobacco, squashes, pumpkins, melons, and beans, together with many of the methods of utilizing these plants; sun and fire worship and the worship of the rattlesnake.

It is virtually certain that, of the respective cultures of these regions, that of Central America and South Mexico is the oldest and that the culture elements named above originated there and spread to the other areas. We do not know however by what route they moved northward, to which of the two northern areas they came first, whether they came by migration in one or more movements, or if they came in the form of more or less continuous contacts involving culture borrowing, or reciprocal relations of give and take, over relatively long periods. Texas lies directly across the line from the old center to the Mississippi Valley and partially across the lines from the Pueblo regions to the Mississippi and from the Pueblo to South Mexico.

It follows certainly that if ever the problems of North American culture history are worked out in any complete and adequate way, much of their solution will come from the exploration of Texas archeological fields.

Again, the geography of Texas is so diversified that it constitutes several distinct environments in each of which the economic and social life of early man was distinctive. A study of the cultural practices peculiar to these areas and of the relations of the different culture areas to one another cannot fail to throw much light upon the problems of the relations of culture to geography in general. Culturally the Texas Indians were very far apart. They represent the extremes of the most nomadic group in North America, the Comanches, and one of the most sedentary and most highly civilized groups, the village-dwelling Caddoes. Furthermore the coast tribes had an almost complete sea food economy and lived in a way differing radically from the ways of any and all of the others.

In addition, Texas has, as a whole, certain distinctive geographical features and resources that were reflected in the life of her ancient inhabitants. The areas of Cretaceous outcroppings in Central Texas contain large quantities of flint of a very fine quality and this material was to primitive man what iron is to present civilized man. Central Texas flint was sought by tribes far and near, and was in fact extensively quarried in places and was widely transported. As a consequence the arts of working flint reached a high state in Central Texas and flint implements take on a variety of form and character in that region that is not only unique but highly illuminating.

In these same Cretaceous regions lie the great
springs that come up out of the Balcones Fault Line and which constitute the source of more than one important Texas river, examples the San Pedro Springs and the San Antonio River, the New Braunfels Springs and the Comal River and the San Marcos Springs and the San Marcos River. Inasmuch as the Balcones faulting occurred in Pliocene times, or, at latest, early Pleistocene, these springs have been in existence practically in their present form from early Pleistocene times to the present. Such places could not fail to attract any kind of man and we must expect to find about them traces of the earliest human inhabitants of Texas. Around all of these springs and along the perennial streams below them are numerous and extensive camp sites which have certainly been occupied by man more or less continuously since his first appearance in Texas.

Many of these camp sites take on the character of kitchen middens in which at least three distinct culture levels have been recognized and defined. These middens, known locally as the “burnt rock mounds,” are composed largely of fragments of limestone coming from slabs of this material that had been used in cooking and for keeping fires together. The flags of limestone were hardened by the fire and made brittle with the result that they broke into hard sharp-edged fragments and were replaced by new slabs. As a result of this practice, some of the middens are of enormous proportions. One at Cedar Park, eighteen miles northwest of Austin, is six feet deep in the middle and about 350 feet long by 150 feet wide.

These middens are ideal protection for the things which they contain. In them are found thousands of specimens of bones, shells and artifacts of flint or other stone that throw a flood of light upon the manner of life of the early man who occupied these places. No such middens are found elsewhere in North America and in view of their number, size and contents, probably nowhere else in the world.
The coastal region of Texas possesses large shell mounds that extend, in some sections, almost continuously around the bays and inlets of the Gulf and that are highly revelatory of the life of the early coast dwellers. These shell heaps are hard to work and contain artifacts in smaller numbers than are found in the burnt rock mounds, but in places they are rich. Everywhere in this region is evidence of pottery that is highly significant. It is very probable that at least one group of the bearers of Mound Builder culture into the Mississippi Valley came up out of Mexico and passed along the Texas coast. The writer hopes to prove that this was the case. He has considerable evidence to that effect already.

In East Texas is an area of deep forests closely related in climate and geography generally to the lower Mississippi Valley. This part belongs culturally to the Mound Builder area and it is one of the richest regions archeologically in the United States. Its distinctive significance as compared with Arkansas, Louisiana and other parts of the Mound Builder area lies in the relations that may be worked out in Texas between the cultural practices that belong to the forested areas and those that belong to the prairies and plains. Probably nowhere else in North America is the transition from forest to prairie and from prairie to plain so sharp and so complete.

**What Has Been Done**

The study of Texas Indian life has been scandalously neglected in the development of field anthropology in North America. Virtually nothing is known of the ethnology of the early Texas tribes. A little has been done with the Kiowas and Apaches by the Bureau of American Ethnology and a brief account of the Karankawa was worked out by Gatschet and published in the early Peabody Museum reports. A little sketchy information about the Texas tribes, mainly of an historical rather than ethnological character, has been published by Bolton in his two-volume work, *Mezieres*, and in the *Hand Book of the American Indian*. Some papers consisting of translations from the reports of the Spanish friars have been published by members of the Texas Historical Association and Texas University students of History. Mrs. Mattie A. Hatcher’s three papers are the most notable. All have appeared in the Southwestern Historical Quarterly.

Additional publications of like character from the old Spanish sources are now appearing in the “Preliminary Studies of the Tesas Catholic Historical Society.” These contain the diaries and notes of early Catholic missionaries in Texas and often such papers contain valuable detailed accounts of the Indian tribes and of their manners and customs.

Otherwise Texas is ethnologically unknown. Moreover this situation is largely irretrievable. Many of the tribes, like the Tonkawa, the Karankawa and Coahuiltec tribes have completely disappeared, while others, like the Comanches, and the Caddoes, are being broken up and assimilated so that all traces of their old tribal life will soon vanish where they have not already disappeared.

The neglect of the ethnology of Texas puts a heavy emphasis on the necessity of doing everything possible with Texas archeology.

Much creditable work has been done here and there by amateur archeologists but some of these have lacked funds and time, and some, unfortunately, have lacked an adequate knowledge of what to look for and how to work.

To attempt to enumerate these workers and to evaluate their work would take more time and space than can be had for the task here.

Professional archeologists are scantily represented in the Texas field. Archeologists representing the Museum of the American Indian, Phillips Academy and the Museum of the University of Pennsylvania have done some reconnaissance work and exploration in Texas. The writer has carried on archeological research under the auspices of (1) the Smithsonian Institution, (2) the University of Texas, and, at times, as a matter of personal enterprise. In describing this work in detail it is more convenient from this point on to write in the first person.
I worked with Smithsonian funds in the years 1918, 1919, and 1920, in research on the Central Texas kitchen middens and in working out a hasty archeological survey of the State. I then worked alone on my private resources using some student aid and labor, until the Rockefeller Grant was made to the University of Texas in 1927-28. I have shared in this fund to the extent of $3000 to $6000 per year and with it have done much the greater part of the research in Texas archeology that has been done under institutional auspices to the present time.

I have explored between thirty and forty of the burnt rock kitchen middens, a dozen or more caves and rock shelters of the Edwards Plateau, some thirty-five camp sites and burial places in the Caddo regions along the Red River and in northeast Texas, and have examined by trenching various shell heaps, burial places and camp sites of the coastal region.

In Central Texas, in the broken hilly country of the Cretaceous outcroppings, I have found three types of early culture represented in stratified levels of the larger mounds, the lowest a crude pure hunter type, the middle a higher hunter type with a great multiplicity of flint implements but without the bow and with little if any horticulture, and the upper representing a much finer culture with the bow and arrow and considerable horticulture. Like the others, however, the top layer culture is essentially a hunter type. It is certain that the upper layer culture has much in common with the general culture of East Texas. This is indicated by the types of flint chipping, the few fragments of potsherds found and the types of grinding stones. The people of this last or upper culture level probably came out of East Texas and under the influence of their new environment, gave up much of the life of their East Texas homes and fell into the life of nomad hunters. They ceased to make pottery, cultivated crops but little, and emphasized hunting and its concomitant arts of skin dressing and meat curing.

The quantity of artifacts and other materials found is not necessarily significant in making interpretations, but, because of possibilities of rounding out collections by exchange, quantities of returns from field work may have large significance for a Texas State Museum in the years to come. For this reason, I shall occasionally mention the quantities of things found in my field work.

In exploring these mounds I have recovered probably 10,000 first class specimens of flint implements including arrow points, spear heads, axe blades, and celts, fist axes (coup de poings), skin scrapers, knives, drills, adzes, etc., etc. I have found probably tons of bones of the animals hunted and eaten, including those of the bison, badger, dog, deer, Lynx (bobcat), rabbit, squirrel, turkey, and even man. Several of the burnt rock mounds explored contained the remains of cannibal feasts. In some instances the splintered human bones, broken up to get at the marrow, had been gathered up and buried in cists in the burnt rock mounds.

On the coast the situation is very complex. The surface and top layers indicate a complicated culture that seems to have degenerated from cultural practices of a higher order. Everywhere there are large quantities of sherds but nowhere so far as I know are there whole pots. Evidences of agriculture are uncertain. More over the cultural practices change in a strange, almost unaccountable way, as one proceeds along the coast. Around Brownsville, as indicated by Mr. A. E. Anderson’s collections, is evidence of much hunting and everywhere are numerous shell artifacts. Even arrow heads and spear heads are often of shells as are also axes, scrapers and knives. Around Corpus Christi are enormous shell heaps of oyster and conch shells mixed with fish bones and along the beach sands, where in some places old camp sites are being eaten away by the sea, are enormous quantities of sherd from a high grade of pottery. During the summer of 1930, with the assistance of Mr. George C. Martin of Rockport, I did considerable reconnaissance and some excavating in the shell heaps of this region. Digging up these old shell mounds is rather difficult. They are composed chiefly of oyster shells and the shells of dwarf conch, which are often cemented together with earth and mineral deposits, so that the beds are hard to penetrate. As all of the conch shells have holes in them, made with a blow of hammer or axe,
they were undoubtedly eaten and give positive evidence of the essential kitchen midden nature of these extensive reefs. This region will require a lot more work before anything like a complete interpretation of it can be arrived at.

What was probably a very ingenious fire-making and fire-keeping apparatus was found by Kingsville professors and students in a coast burial at Riviera Beach. It is a trumpet like tube of stone about nine inches long with a mouth piece of bone from the human arm. The specimen when found contained crushed asphalt and vegetable matter which had probably been packed over live coals. A smoldering fire could probably be carried in this apparatus for days. Other specimens are in the possession of Mr. A. E. Anderson of Brownsville, Mr. Albert Nowotny of New Braunfels and of the State Library at Austin.

Around Trinity and Galveston Bays above Galveston are extensive shell reefs which have much the semblance of kitchen middens. With the aid of Dr. A. R. Shearer of Montbelvieu, I explored several of these. They contain potsherd throughout, and are composed chiefly of clam shells of one species, a Cardium. Careful examination proved them to be reefs built up by the combined action of streams and waves and that the presence of the sherd was due to its shell-like form, which enabled the waves to get under it and throw it upward as they do the shells.

The Galveston Bay sherd differs materially from that about Corpus Christi though both contain many specimens of fine quality. About Corpus Christi many specimens show application of asphalt for water proofing on one or both surfaces; about Galveston Bay I saw no signs whatever of any application of asphalt but much evidence of the application of slips and paint. The forms of decoration on pottery in both regions differ radically from those found in East Texas proper, where many designs are incised and many are of the raised applique type.

The unraveling of all of the problems of the coast will take time, labor and patience but cannot fail to be very important for the history of culture in America. I have found remains (in some places in quantities) of a small dog of peculiar anatomical characters. These remains, of exactly the same type of dog, have been found from near Longview to Brownsville. Moreover some of the potsherd around Brownsville shows unmistakable characters of Haustecan origin. The historical Haustecs of the Tampico coast region are a branch of the Mayas and are supposed to represent the first cultural movement out of their early home up the coast to the north. A group of them may have been one of the emigrant waves out of Mexico that constituted the ancestors of the Mound Builders, and this may be a part of the explanation of the beginnings of the Mound Builder culture.

I began intensive work in East Texas in the summer of 1930. My reconnaissance in that part under the auspices of the Bureau of American Ethnology in 1918-1920 had led me to suppose that I should find this part of the State rich in archeological material of a high order but my success in locating rich sites and in recovering such materials as pottery, stone implements and shell beads and ornaments from camp sites and from nearby burial grounds was astonishing. Altogether during the first summer we secured nearly 1,000 specimens of pottery alone, that is, of whole pots or of specimens capable of restoration. Many of these are remarkable for their symmetry and beauty of form and for the delicacy and beauty of the incised designs executed on them both before and after firing.

Mr. Burleigh Gardner, Tutor in Anthropology, has written his master’s thesis on the decorative designs on this pottery. He copied about eighty separate and distinct designs and did not exhaust the returns from the first summer’s work. In fact, many of the specimens that are in pieces are still in the boxes in which they were packed when dug up. We haven’t the funds sufficient to keep the laboratory work up with the field work.

Mr. A. T. Jackson, the field foreman, brought in from one site in Franklin County 154 specimens of pottery, two magnificent specimens of flint ceremonial knives, many plaques, pearl beads, celts, arrow points, some fragments of copper ornaments,
and other objects, all of which he had obtained in about a week of active field work with three trained assistants. Several of the specimens he brought in from this trip were exceedingly beautiful and of types that had not been found before in Texas.

During the summer of 1931, I sent two expeditions into the field, one under Mr. Gardner, to the coast around Galveston Bay and one under Mr. Jackson, mentioned above, to Wood, Upshur and Harrison Counties. Jackson was very early incapacitated by an automobile accident, and I had to move Gardner to northeast Texas and put both forces under him.

Early in the summer this combined force of seven men uncovered a rich burial site on the H. R. Taylor farm near Ore City, Harrison County, and spent about half of the summer at this place.

They obtained at this site between 500 and 800 specimens of pottery alone. The exact number cannot be known until the restoration work in the laboratory has been completed. In addition, we got many beautiful arrow points, all of one type, and all of which had been buried in quivers of arrows with many specimens of ground axes, grind stones, personal ornaments and artifacts.

Near the middle of the summer Jackson returned to work and I sent the combined crews to the T. M. Sanders farm on Red River in northwest Lamar County.

For variety of high grade materials found, for quantity and high quality of beads, gorgets and shell work, all of conch shells brought up from the coast, for the uniqueness and beauty of designs in pottery, this, the Sanders site, has been the most interesting in which we have worked. We purchased some specimens which had been plowed up and collected by the owner of the place but many of these were in a lamentable condition due to the carelessness and roughness of the farmer in getting them out. Moreover, he destroyed more than he got out, gathered no archeological evidence except that

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PLATE 11

No. 22. Fire Keeping Device from Coast Burial.
No. 28. Caddo Bottles from Red River District.
No. 24. Fine Carved Shell Gorget from Caddo Area on Red River.
contained in the few specimens obtained and ruined the parts in which he dug for later scientific research. We got from this place nearly five thousand specimens of conch shell beads, several highly worked shell hair ornaments, a dozen or more beautiful and intricately carved shell gorgets and several dozen beautiful specimens of pottery, some of double and triple compartment form.

At neither of the above mentioned places were there any traces of white contact. At the Sanders place the skeletal remains were so well preserved that the burials could not have been over a few hundred years old and one group burial of five skeletons was removed intact. At the Taylor farm, all of the sixty-four burials encountered showed great age and from some all traces of human remains had disappeared. In these old burials the same types of artifacts, especially of arrow heads, were found as in the recent burials, from which I judge that the historical Caddoes, who occupied most of the Northeast Texas region when the whites first came in, must have been in undisturbed possession of this region for a long time. They were probably not merely descendents of the Mound Builders but were Mound Builders and were practicing that culture when the whites came.

Throughout the East Texas region are extensive mounds that are probably burial or funeral mounds in character, but they are too large and will require so much time, labor and money for proper exploration that I have not as yet attempted to explore any of them.

I have just had trenched, June, 1932, one large mound on the banks of the Guadalupe in the Coast region, known in local archives and land records as the Morhiss mound and situated about eight miles below Victoria. My field force, under Mr. A. T. Jackson and Mr. A. M. Woolsey, has just finished cutting through this mound along the short diameter with a trench four feet wide and down to hard pan. This mound is 610 feet long by 300 feet wide and nearly twenty feet high. Within this narrow trench we found 26 burials, 32 flint implements, and a few, very few, potsherds, some insignificant shell ornaments, and some fragments of animal bones. All bones were found to be highly mineralized and evidenced relatively great age. Much additional work will have to be done in this region before the full significance of this mound can be determined.
No doubt collectors interested in assembling Indian specimens, have for many years discovered articles which were they now available with accurate records for study, would yield much valuable information concerning the ancient inhabitants of the Big Bend of Texas. So far as we know, however, no attempt was made to keep careful records of locations, depth of finds, associated artifacts, etc., until after the establishment of the Sul Ross State Teachers College at Alpine in 1920. Several interested faculty members, who were later to organize a museum under the auspices of the West Texas Historical and Scientific Society, began to collect specimens, keep field notes, photographic records, label specimens, observe parallel finds elsewhere, and to assemble data of value for later study and comparison. At that time, however, we little suspected that our finds were not only strikingly similar to those found in districts more directly in the southwestern area but also to the Basket Maker culture. Mr. Edwin R. Smith of Austin first called our attention to this similarity. I had described our museum specimens to Mr. Smith during a trip to Austin and he later wrote me, enclosing clippings, and otherwise calling attention to the fact that our artifacts were strikingly similar to true Basket Maker materials. I was not convinced, but at every opportunity undertook to study the characteristics of Basket Maker culture.

A second step related to the topic of this paper occurred in 1926 at which time I wrote a short article describing the dry rock shelter finds in West Texas for the *Anthropologist.* While this article was written with the idea of assisting in tracing the origin of the Ozark Bluff Dwellers, sites of which had just been investigated by M. R. Harrington, Museum of the American Indian, it served a double purpose in calling attention to the exceedingly close parallel of our Texas finds to those of Earl H. Morris, as reported in the thirty-third *Report* of the Bureau of Ethnology. Articles discovered by Morris in these New Mexico and Arizona sites which are almost identical with artifacts found in the Big Bend of Texas are: reed arrow fragments (in shallow areas only in Texas), sharpened wooden sticks, fire sticks, coiled fiber material (possibly basket rests), bone awls, rush matting, coiled baskets (Morris does not give his weave analysis but the illustration is similar to the Big Bend type of basket), a variety of matting, and miscellaneous yucca articles and foodstuff. Here the comparison ends as Morris reported abundant pottery and buildings which are entirely absent in Texas localities.

Another development in the line of present interest occurred with the receipt of Dr. A. V. Kidder’s book, “An Introduction to Southwestern Archeology,” and J. L. Nusbaum’s, “A Basket Maker Cave in Kane County, Utah” contained in the *Indian Notes, Heye Foundation, 1922.* This volume includes also a report by Kidder and Guernsey concerning their examination of Nusbaum’s finds in which is a valuable supplement to their former report in Bulletin 65 of the Bureau of Ethnology. All of these volumes have assisted greatly in making possible the development of a list of distinguishing characteristics of true Basket Maker as contrasted with other neighboring types. Kidder recognizes and refers to the transitory periods between Basket Maker and post-Basket Maker, and post-Basket Maker and pre-Pueblo. Since many characteristics of one period extend into the next, we find an explanation as to the similarity of certain finds by Morris with those of earlier periods. Other authors recognizing Basket Maker characteristics are: Montgomery, Prudden, Pepper, Judd, and Fewkes.

In our annual report to Dr. Carl E. Guthe, Editor of the American Research Council’s annual report on Archeological Field Work in North America (1929), we reported, “A culture closely resembling Basket Maker” found in the Big Bend. In the same report Dr. Clark Wissler says that Dr. R. L. Olson, American Museum Staff, found, “skeletal material
and artifacts which may determine possible affinity with the Basket Maker horizon.” The evidence here referred to was unearthed near Brackettsville, Texas, somewhat to the east of the Big Bend proper. Also in the same report, Director G. G. Heye, Museum of the American Indian, mentioned the work of M. R. Harrington (1928) and E. F. Coffin (1929), at Eagle Canyon, south of Marathon, Texas. A variety of baskets and other woven articles were found at Eagle Canyon as well as near the Devil’s River to the east. We must await the published report of the Heye Foundation before confirming the rumor that the atl-atl was found by their investigators. Mr. Heye, however, had previously reported, “older deposits * * * suggesting a type of culture related to the Basket Maker.”

A still less cautious announcement than I had hitherto made was contained in Bulletin No. 3 of the Texas Archeological and Paleontological Society, Abilene, 1931, in which attention was called to the close resemblance of the Big Bend materials to Basket Maker types. At that time material had just come into the museum which seemed to justify the claim, namely, several throwing (rabbit) sticks and a shaft with a fore-shaft which has every appearance of a true atl-atl shaft. The true throwing member of an atl-atl, however, is missing and we know of no find in west Texas justifying the claim of being identical with the type of throwing device used by the southwestern Basket Maker. This elusive but all important implement, however, may yet be found, in fact, I know of no site in New Mexico, Arizona, or elsewhere, which has yielded these distinguishing artifacts in abundance. F. H. Roberts, Bureau of Ethnology, Washington, in Publication No. 3009 of the Smithsonian Institution, does not report the finding of the atl-atl but has stated that the caves near El Paso showed evidences comparable to those of the Basket Makers. Roberts reports numbers of items identical with the finds of the Big Bend, prominently mentioned are sandals, rabbit sticks, and netting.

Up to this point I have attempted to sketch the progress in establishing the claim for a type of Basket Maker culture peculiar to the Big Bend and to indicate some of the sources for the tabulation of
typical Basket Maker characteristics in the left column following. In the right column I have indicated the comparisons as based upon my own work and a limited amount of contact with reliable investigators such as Harrington and Coffin, and Setzler whose investigation is under way in southern Brewster County as I write. No doubt, when the published reports of these men are available, a more reliable column of “Big Bend Evidence” can be developed. (See Table 1.)

This brings us to a consideration of items of major importance concerning which I wish to quote one paragraph by Kidder with reference to the Basket-maker culture:

“No trace of the use of the bow and arrow has ever been found. The projectiles of the Basket Maker were light darts four or five feet long hurled by means of the spear thrower or atl-atl, a device intended to add greater length and therefore greater propulsive force to the arm. The most striking difference between the Basket Maker culture and that of the other peoples * * * * is the absence of true pottery. A few unbaked clay dishes of the crudest sort have been found * * * *.

We are now able to conclude our tabulation with four items which seem to be of major importance as compared to those previously listed: (See Table 2)

In spite of my frequent use of the term “Basket Maker” I hold no brief favoring such a name for the old culture represented in the Big Bend. A complete tabulation of comparisons with Mr. Harrington’s finds in the Ozarks might as well justify our calling the Texas materials “Bluff Dwellers” since much of the culture evidence is closely parallel to that found in the Ozarks, particularly in the use of old baskets and grasses for pit lining. Enough material, however, has been accumulated to deserve an identifying name for the older culture extending from El Paso to the Devil’s River. For some time we have used the term “Big Bend Culture” as descriptive of the area. Evidence points to the fact that this culture was not only pre-Colonial but may be assumed to be of considerable antiquity. This question of age must receive further study before any definite conclusions are reached.
In referring to the “deeper finds” the reader has probably assumed a top layer of more recent deposits. This is the case at a number of sites. At others the stratification is poor and masses of rock mixed with debris preclude any record save the location and depth of the find. Exact differences between “top layer” and deeper finds will be evident when more detailed descriptions of certain sites with complete tabulations of specimens found are available. I am indebted to F. M. Setzler, U. S. National Museum, for calling attention to the typical coiled basket technique of the Big Bend, a bifurcated weave concerning which little reference material is now available.

It is believed by the writer that the culture herein discussed for the Big Bend must be worked out before many difficult questions concerning the whole Southwest can be answered. What was the relation of the Big Bend cave dweller to the southwestern Basket Maker and to similar cultures in old Mexico? Did the Ozark Bluff Dweller migrate from or to the southwestern area? The historical and rather temporary occupation of West Texas by the Comanche can be herein ignored. But what of the Mescalari Apache who is known to have occupied the area for many years prior to inroads by other Indians and whites from the east? Are we crediting to an older culture the artifacts actually left by these Apaches? This we very much doubt.

Recent years have extended the Basket Maker horizon. Harrington found this culture in Nevada. Kidder states that a similar culture occupies a part of New Mexico and extends as far as Mexico. He also predicts that such evidence will be discovered in yet more remote areas. It is possible that Dr. Kidder’s prediction has been partially fulfilled in the Big Bend area of Texas.

* Published April, 1927.
A Tabulation Comparing Basket Maker Culture With Evidence Found in the Big Bend of Texas

**TABLE 1**

<table>
<thead>
<tr>
<th>True Basket Maker</th>
<th>Big Bend Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.  Minor Items</td>
<td></td>
</tr>
<tr>
<td>1. Natural, undeformed skulls.</td>
<td>1. No deformed skulls found.</td>
</tr>
<tr>
<td>2. Used buckskin.</td>
<td>2. Bits of buckskin found.</td>
</tr>
<tr>
<td>3. Basket mending practiced.</td>
<td>3. One specimen so amended.</td>
</tr>
<tr>
<td>4. Used lumps of red pigment and other colors.</td>
<td>4. A variety of pigments found.</td>
</tr>
<tr>
<td>5. Made petroglyphs.</td>
<td>5. Three petroglyph sites found.</td>
</tr>
<tr>
<td>6. Made pictographs.</td>
<td>6. Many pictographs observed. Note: The typical square shouldered man of the basketmaker is not found among Big Bend petroglyphs nor pictographs.</td>
</tr>
<tr>
<td></td>
<td>7. At one Big Bend site there are three such figures of similar size but the shoulder “squareness” is not pronounced.</td>
</tr>
<tr>
<td>7. Three square shouldered human figures, 7-8 feet high reported from one Basket Maker site.</td>
<td></td>
</tr>
<tr>
<td>8. Many handprints.</td>
<td>8. Seven “hand print” locations.</td>
</tr>
<tr>
<td>9. Bone awl used.</td>
<td>9. Many bone awls found.</td>
</tr>
<tr>
<td>10. Vegetable fiber string found.</td>
<td>10. Hundreds of bits of fiber string recovered. Size range 1-16” to 1-4”.</td>
</tr>
<tr>
<td>11. Carefully made implements.</td>
<td>11. A number of implements found indicating care and skill in the making.</td>
</tr>
<tr>
<td>12. Art of twined woven bag makings.</td>
<td>12. Several such specimens found. Cordage fragments suggest mesh and other types of bags.</td>
</tr>
<tr>
<td>13. Lived in caves. Caves used in severe weather. Combined caves with open camp.</td>
<td>13. Lived in caves and shelters. Most Big Bend sites have open camp signs near the occupied cave or shelter. Used caves for storage but not to the extent reported by Nusbaum.</td>
</tr>
<tr>
<td>16. Used diagrams and colors on basketry.</td>
<td>16. Several specimens, including an 18” gourd, have such use of color.</td>
</tr>
<tr>
<td>17. Made fur cloth.</td>
<td>17. None as such. One specimen using fur in making net bag.</td>
</tr>
<tr>
<td>18. Were of medium stature.</td>
<td>18. Skeletal remains indicate medium stature.</td>
</tr>
<tr>
<td>19. Made large panniers.</td>
<td>19. Two such specimens found. Other fragments.</td>
</tr>
</tbody>
</table>
22. Elaborate sandal weaves. Human hair ties.

23. No beans or cotton.
24. Loom used sparingly.

26. Other types of fine basketry.
27. Used native vegetable and animal foods.
28. Little or no evidence of body clothing.
29. Dressed leather.
30. Seed and stone beads.

31. Various uses of feathers.
32. Cradles.
33. Matting of grass and yucca

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A Tabulation Comparing Basket Maker Culture With Evidence Found in the Big Bend of Texas

| TABLE 2 |

<table>
<thead>
<tr>
<th>True Basket Maker</th>
<th>Big Bend Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Absence of true pottery.</td>
<td>1. Entire absence of pottery save for a few small surface sherds at open camps, and several pieces crudely fashioned and unbaked.</td>
</tr>
<tr>
<td>2. No trace of the bow and arrow.</td>
<td>2. A few fragments of reed arrow shafts have been found in shallow cave deposits. None in deeper excavations. No bows nor fragments.</td>
</tr>
<tr>
<td>3. Use of the atl-atl. Foreshaft 3 3-4” to 6 3-4” long. Distal end 3-8” to 1-2” in diameter. Length 3’ 6” to 4’ 2” (Cave DuPont). Foreshaft point tanged; 5-8” to 1” wide; 1 1-2” to 2 1-4” long. “Holes in socketed specimens *** seven-sixteenths inch in diameter at the mouth.”</td>
<td>3. One shaft with foreshaft in place. Exposed foreshaft 3 3-16” long and 7-16” in diameter. Total 4” (&gt;). Distal end 5-8” diameter. Proximal end missing. Now 2’ 9 3-8” long. Point is typical shape, 3-4” wide and 2” long.</td>
</tr>
<tr>
<td>4. Throwing (rabbit) sticks. Characteristics: carved lines, curved shape, etc.</td>
<td>4. Five specimens and one fragment of typical shape, size, wrapping, carving, and material.</td>
</tr>
</tbody>
</table>
The solution of many of the archeological problems of the Abilene district await the attention of some individual or institution having sufficient funds and interest in pure science to excavate camp sites buried from eight to twenty-four to twenty-seven feet deep. Out of one charcoal stratum site, buried twenty-four feet deep, erosive forces left exposed in place, three whole flint blades, one other nearly whole, and the point tip of a fifth. Despite some opinions otherwise, the patterns of these artifacts do not resemble those found in Burnt Rock mounds. Many man made flint flakes were also found exposed in place. A picture of this bank appeared in the Society’s 1930 Bulletin opposite to page 56.

Nothing But Bones in Prehistoric Graves

Many of the Indian Burial sites in this section have been destroyed either by readers of current treasure hunting fiction books who take their stories seriously or by arrow head collectors who imagine that every aboriginal grave must be full of arrow heads. Of the many undisturbed graves opened by the writer in the Abilene region not one contained an arrow head which could definitely be said to come from a grave. In one instance one small bird point was later found in the soil from the excavation and might have come from the grave. In another instance two shell beads were found but the greater number yielded nothing but bones. In no instance has anything of intrinsic value been found, and it is very unfortunate that people who care nothing for the preservation of the bones of these curious human types for scientific study continue to excitedly dig into every rock pile found. The only basis locally for such beliefs besides the wild stories in current fiction books is the fact that the historic Comanches and other historic tribes did bury a few old guns and glass beads with their burials, which were either in rock piles on the tops of prominent mountains or were thrust back into crevices in ledges of rocks, and then covered with loose stones. Nearly all such burials were early seen to be the work of man and destroyed. No undisturbed Indian grave of the historic period has ever been found by the writer.

Scientific Values Destroyed

Considerable useless destruction of the flexed stone grave burials has been done by treasure hunters who ruthlessly destroyed the curiously shaped skeletons in a mad hunt after non-existent relics. Fortunately the rocks of these graves are usually so deeply buried beneath the soil that it requires erosion to reveal them or there is too little showing on the surface to attract the untrained eye.

Pottery and Scraper Sites

Pottery sherds are found in sites scattered over the whole region. Thus far neither whole bowls nor pieces of any size have been found. Most of the pottery sherds have been found in sites buried only within plow depth, but there are indications that one site covered with three feet of deposited soil also contains pottery. Types of pottery include both thick and thin, light brown, plain undecorated and unpainted ware. Thick scratched, brushed, incised and finger nail print decorations, coal black in color inside and brown outside are found.

Pottery Sites Contain Unpatinated Flint

All of the pottery sites contain abundant blue unpatinated flint scrapers which are usually of the large pear shaped keel backed type. There are also a few pottery sites which contain very small, finely worked, narrow oval scrapers, pointed at one end. The pottery sites contain in addition to plain unbevelled knives, pointed at each end, another type which has four beveled cutting edges. The bevelled knives are larger at one end and are beveled from the place of maximum width, which is from a fourth to a third of the distance from one end, in each direction on each side to the points at the ends. This beveling in opposite directions produces four different cutting edges on each knife.

There are two characteristic forms of small arrow or bird points found in pottery sites. One type is flat on one side and finely and minutely chipped on the
other down to points of almost needle sharpness. It has long sharp barbs, a long slender pointed stem, and some of this type have beautifully made minute serrated edges. The general outline is that of a columnar cedar or of a slender fir tree.

There is another type of finely chipped point of slightly elongated triangular shape. It also is some times flat on one side, but it usually is chipped on both sides. This point is neither barbed nor stemmed, but is slightly recessed at the base and this has an indentation in its center. Near the base of the blade a notch is also cut into the edge on each side. This type of projectile point appears to have been found over a vast territory extending from Central West Texas to the Pacific Coast. A study of the total area of distribution of this form of artifact might prove enlightening in explaining some of the routes of travel of prehistoric peoples and cultures. This type occurs not only in the more recent unpatinated flint sites but also in the heavily patinated “Sand Dune Blowout Culture” complex.

One patinated point of this type was dug out of a horizontally stratified charcoal layer in a high eroding creek bank at a measured depth of four feet from the surface. So it is evident that this form of artifact is not only widely distributed but quite old.

Pottery and Keel Backed Scrapers Relatively Recent

It seems that the typical pear shaped keel backed scraper and pottery are not only associated in camp sites but that both were of comparatively recent introduction in the Abilene section although several other scraper types are found in various much older flint cultures. Most of the pottery and unpatinated scraper sites also contain bones and teeth of bison and other large animals. In several pottery sites a few flakes of obsidian have been found. No material of this kind is known to exist within several hundreds of miles to the west. The number of the unpatinated scraper sites and the abundance of artifacts in them would seem to indicate either a thick occupation of the country or a long period of thin occupation. While most of the pear shaped keel backed scrapers are unpatinated there are some sites where patinated spots are clouding the flint and others where a complete gray coating impervious to light has covered them.

Material from a plow depth site on Elm Creek may be separated in this manner and it then appears to the writer that a different technique was used and the shapes are also different. There may have been erosion at this point after the first deposition of patinated scrapers and then another camp was made and more scrapers were left a few hundreds or a few thousands of years later and then the plow turned them all up together. If in Texas patination of flint progressed at anything like the slow rate estimated by the British Museum for English flints (4,000 years) then some of the patinated artifacts are rather old.

Rock Mound Cremated Burial

Three burials have been excavated by the writer during the past year. A grass covered hill rises from close beside the Clear Fork of the Brazos River and on its eroded sides out-crop many signs of a covered camp site. On the highest point a small bush covered mound existed, the elevation of which did not seem to quite follow the natural contour of the rest of the hill, and from its soil the tips of several rocks projected. Assisted by Prof. Otto Watts the writer early in 1929 attempted to excavate it. The top of the mound appeared to be composed mostly of wind deposited soil. The mound center was filled with flat limestone slabs two feet or more long and ten or twelve inches wide. These were set up endwise in the mound very close together but with no symmetrical circular cist arrangement such as the usual stone grave of this region shows. The mound was also much larger than usual. The stones were so large, long, and wedged in endwise so tightly, that after digging for some time in the hard dry soil between them and finding the hole still full of rocks and no definite signs that it was not a natural soil covered rock pile we abandoned the digging on the approach of a thunder storm. However despite the fact that hard caliche deposits had formed in the sandy loam between the rocks since the pile had been made and the soil apparently was too hard to have ever been disturbed, the writer had always been unsatisfied and suspected that after all the rock mass might have been artificially formed.

So this year after a heavy rain the writer again cleared the hole out and resumed work. Finally after much prying loose of tightly wedged stones set endwise,
at a depth of three feet a large flat stone was found lying horizontally in the bottom of the hole. It seems that all of the long flat stones had had one end resting on top of this stone to hold it down. Under the center of this large horizontal stone there was an oval deposit of calcined bones about a foot long and six inches wide. These bones were in very small fragments, most of them less than a half inch in length. It appeared as though the bones had been burned almost to ash elsewhere and then put into some perishable container and buried under the rock. The oval symmetrical shape of the bone deposit would indicate a bag container of some kind. While the writer believed the bones to be human they were in too small pieces to identify. However on screening them three calcined and blackened human teeth were found which definitely identified it as a cremated human burial. No artifacts of any kind were found. Only a few mussel shells were found just above the horizontal stone. The limestones composing the grave were not calcined, reddened, nor blackened and there was no evidence whatever that the cremation had been done there.

The deep covering of wind blown soil and the deposition of caliche between the stones would seem to indicate that the grave had been there a very long time. All of the mound has not yet been excavated and it is possible that other parts may contain more cremated cist burials.

**Stone Grave Near Oval Mortar Holes**

A week end trip was made recently to a place ninety miles west of Abilene for the purpose of making a further examination of the bedrock oval mortar hole groupings previously found along the Colorado River and its branches west of Colorado, Texas.

A visit was made while there to the home of Mr. Will Berry to see his collection of flint artifacts. Mr. Berry then conducted the writer to an extensive series of oval mortar holes on the banks of the Colorado River a few miles northwest of his home. Mr. Berry inquired as to the
external appearance of the stone graves. When the writer informed him that usually little showed on the soil surface and that the best clue was the arrangement of the stones, he then stated that he knew of one such place.

This proved to be a typical soil covered stone grave. It was situated in the soil above a sandstone bluff on the top ledge of which were many old oval mortar holes. A covered camp site’s debris was eroding out of the soil edge where it was gullied a few feet below the grave. Stones two feet in length were set in an oval ring around the edge of a hole cut about six inches deep into the sandstone bedrock. The flexed body had been placed in the rock excavation with the head to the south and facing west towards the brink of the River Bluff on top of which it lay. A large flat rock had been laid on the body horizontally and then long flat rocks were thickly set vertically to fill the space inside the oval ring, their ends resting on top of the horizontally laid rock which covered the flexed body. The grave was between two and a half and three feet deep and all but six inches was in soil. No artifact of any kind was found in the grave. The bones appear to have all of the peculiar features seen in the skeletons of stone slab graves found in the Abilene region and for seventy-five miles east of Abilene.

The upper jaw is incomplete and the number of teeth in it cannot be determined. There is a complete tooth however imbedded in the middle of the roof of the palate. This was only revealed by an accidental break in handling it. The lower jaw is nearly entire. On the right side the third and second molars are in place. A space larger than that occupied by either of the other molars is vacant where the first molar should be. Where the second premolar should be there is a tooth, longer in tongue to cheek diameter than otherwise, which seems to be intermediate in size between the molars and premolars. Beyond this are two premolars, one canine, and two incisors. The outer side of the fossil jaws sent by Mr. Martin are almost flat. The lower jaw found by the writer and described above has better developed ridges than the Rockport fossil jaws but is far more flattened inside than the usual human jaws found.

The skull as a whole is exceedingly narrow and long and it has the peculiar bun like posterior projection of the occipital region seen in some ancient European and in Australian skull. Mr. E. B. Sayles’ measurement gave it a cephalic index of 68. If this skull also had eighteen teeth in the upper jaw, to fit the eighteen below, then we have a condition affording much material for
speculation. None of the lower jaw teeth seem to be crowded or irregularly placed and all had plenty of room.

**Another Flexed Burial**

In western Taylor County is a small creek branch which is dry except for a very short period after rains. Several miles from its source its channel goes between two low hills which approach rather closely on either side. There is a large flat basin area above these hills. If this small gap were closed a lake would form. In fact it is probable that this may have once been a lake as both hills are covered with a large camp site extending over many acres. The burnt limestone fragments and flint debris go into the soil and are exposed in a thick stratum on the edges, but are covered up rather deeply on top. At the present time there are some small water holes only a few feet deep which retain flood water for two or three weeks after rains. These however would not support or explain the presence of such a large and evidently permanent camp site.

The deeply buried artifacts have a heavy white coat of patina and are of large crude workmanship. This level seems to have been occupied a long time and it contained few scrapers and no pottery. Superimposed on this and buried but a few inches deep on its northern margins is a more recent blue unpatinated flint occupation level. Here small bird points, fine drills, thin brown pottery sherds, abundant blue flint keel backed scrapers and flint knives were found. Three large shell beads were also found.

In an eroded gulley washed in the margin of the older occupied area a flexed skeleton was exposed this year. Its head lay to the south and it faced west. Its hands lay on each side of the face and the knees were bent and the thighs flexed on the body. There were no stones over it, nor were any artifacts found with the burial. Cattle had stepped into, and ground half of the skull to pieces before discovery. The other half and the lower and upper jaws were protected by a soil covering and were restored. This skull had a very marked forward projection of the muzzle. The canines and incisors of the lower jaw project as far forward as the chin does below them. The molars and canines are unusually large. The upper canines are especially large and are slightly less than one and a half inches long. All of the thirty-two teeth are whole and in place.
MUSEUM NEWS AND FIELD NOTES

One of the Society’s major objectives is the building and proper maintenance of Museums in Texas.

The scientific specimens found in Texas should be housed within the State so that the people can see them without traveling to distant regions.

In furtherance of this idea and in support of those worthy institutions which are attempting to fill this need, we are publishing short notices in the Bulletin, from several Texas Museums, describing some of their exhibits. Next year we hope to publish similar reports from the other Texas Museums.

MUSEUM COLLECTIONS AT THE UNIVERSITY OF TEXAS AUSTIN, TEXAS

The University possesses at present enough high grade natural history materials to fill one large building after the manner of the Museums Building at the University of Michigan. The materials cannot now serve the general public as they should and will not do so until they are housed and displayed in a building constructed for museum purposes.

The history collections of the University comprising coins, medals, original documents and manuscripts, copies of codices and rare books, antique vases and other objects, if gathered from the Library, safes and vaults, might well occupy one floor of a museum building.

There are enough paleontological and archeological materials to occupy another floor and enough botanical, forestry and zoological materials to completely occupy a third floor.

The anthropological collections now on hand would more than fill our new museum room in Waggoner Hall, which is 65x100 feet, if only we had money to buy cases. We have besides much material of high scientific value not suitable for display purposes that should be classified and stored in a permanent way for the study of archeologists in the years to come. Among these are skeletal materials of man, bones of animals eaten and other materials from kitchen middens and camp sites, shells and shards, copies of pictographs, and photographs of all sorts of anthropological sites, situations and materials.

The anthropological collections would easily and completely fill one floor of a large building.

The museum materials of the Anthropological Department may be briefly listed as follows:

1. Between 2000 and 2500 specimens of Indian pottery from East Texas. Many specimens are in process of reconstruction and until that work is finished the exact number cannot be known.

2. Some 500 specimens of Neolithic stone implements (weapons and tools) from the Scandinavian countries of Europe (S. W. Swenson Collection), representing the Stone Age life of North Europe before our ancestors of the white race had learned to work metals.

3. Probably 20,000 specimens of flint weapons and tools from the kitchen middens, camp sites, and burial places of the American Indians. Most of these have been obtained in the archeological explorations of the Department of Anthropology in recent years and come from regions within 100 miles of Austin. They include practically every known type of stone tool and weapon.

4. Many small donations and purchases such as:

   (1) The Carr Collection of Navaho ethnological materials representing basketry, pottery, throwing sticks, ceremonial objects, etc., of the Navaho tribes.

   (2) The Richard Mannen collection of Bushmen ethnological materials, including rattles of gourds, horn snuff boxes, skin clothing, beads, etc.

   (3) A small collection of Eskimo objects.

   (4) Three or four different collections of Central African ethnological materials including some fine specimens of African iron spears, knives, swords, arrow heads, etc.

5. Seventy-five life masques of Melanesians.
6. Many skulls and casts of skulls representing the races and peoples of the world.

7. A large collection of high grade Aztec pottery and other archeological materials, the donation of Mr. George McClendon, who excavated them out of an Aztec village site near Mexico City.

8. A collection of several thousand stone artifacts representing the northeastern portions of the United States.

9. Many single objects of museum value such as the mortar stones in front of the Main Building, ceremonial axes, Philippino weapons, etc.

10. About twenty casts of Mexican antique objects, statues of gods, altar stones, etc. Originals now in the Mexican National Museum, presented to the University by the Mexican Republic.

GEOLOGIC MUSEUM OF SOUTHERN METHODIST UNIVERSITY, DALLAS, TEXAS

The teaching collection consists of about 10,000 specimens of rocks, minerals, ores, and fossils. The most outstanding fossil in the museum is that of the Elasmosaurus recently collected at Cedar Hill, Dallas County, Texas. This specimen has an excellent skull, complete cervical vertebrae, the petrogirdle, and two paddles. The specimen is in an excellent state of preservation. A very nice specimen of Platycarpus corphesus was taken from the Austin chalk of the city of Dallas. According to Professor Hull the museum has one of the largest skulls of Elephas imperator known. An almost complete skeleton of Elephas columbi and a skull of Elephas, species undetermined, has been loaned to the Texas Museum of Natural History.

One case in the Geological museum is given over to a collection of early Eoliths from Great Britain, donated by Gilbert Floyd, a British writer of note. Most of these are from the North Downs of Kent and from the Norfolk Broads country. In this collection also there are two bronze implements from Normandy. Professor J. F. Smith has donated to the museum an interesting collection of minerals, among which are a near perfect quartz crystal weighing 100 pounds and some unusual specimens of galena from Joplin, Missouri. The Dallas Sand Pits have yielded specimens of Smilodon, mammoth, two types of camels, two types of horses, and a new genus and species—a four-horned antelope. Several species of ancient bison complete this list.

The Theological Department of Southern Methodist University has a museum of more than common interest. In it are found gifts, from Dr. A. V. Lane, of Dallas, of ancient Babylonian tablets and other clay writings from the valley of the Euphrates. It contains a collection of papyrus and other objects of special interest to students of ancient languages. This museum contains a number of idols, weapons and musical instruments from Africa. The collection as a whole centers around the case of a mummy of an Egyptian princess.

SIMMONS UNIVERSITY MUSEUM, ABILENE, TEXAS

The Simmons University Museum is sponsored by The Round Table Club composed of the wives of the faculty of the University and is housed in the Science and the Fine Arts Buildings. It consists of gift collections, known after their donors, and working collections in Geology, Mineralogy, Biology and Indian artifacts.

The chief collections are as follows: The James E. Simmons Collection is composed of historical articles of interest in the life of the founder and early days at Simmons; The R. C. Crane Collection consists of early Texas documents, coins and paper money; The W. A. Hamlett Collection is of Palestinian articles and World War trophies; The M. A. Jenkens Collection is also of European and Palestinian articles; A varied collection of Texas and Arkansas Indian artifacts is the gift of Y. P. Kuhn and Jerry Walker. Special rooms are devoted to Colonial, Chinese, and World War exhibits.

Articles of especial interest in the museum are a track of a dinosaur, a meteorite weighing over 100 pounds, rare fossil cycads, several Indian skeletons of primitive type, collections of types of gypsum deposits, petrified woods, geodes, stalactites, calcites (including a curved face spar). It also contains typical fossils of West Texas formations including several elephant bones and teeth; and also a complete lower jaw with teeth, in place, of a fossil baby elephant.
THE HALL OF THE AMERICAN INDIAN,
WITTE MEMORIAL MUSEUM,
SAN ANTONIO, TEXAS

This article is intended to give a survey of the material to be found on exhibition in the Hall of the American Indian. These exhibits show the amount of material which can be obtained in a short period of time when proper housing and exhibition space is made available. The Witte Museum is now nearing its sixth birthday.

This hall contains exhibits of Indian art from Alaska to Mexico, particularly those of the Southwest. The exhibits are grouped as follows:

**Basketry**, 135 pieces, representing the work of the Apaches, Jicarillo, Pima, Pomo, Yurok, Modoc, Maidu, Makah, Tulare, Skokomish, Choctaw, Haida and Eskimo. The collection consists largely of large storage baskets, trays, carrying baskets, water bottles, and bowl-shaped and jar-shaped baskets.

**Pottery**, of the Hopi-Zuni, Acoma, and Mimbres Indians; and an effigy bowl found at Kickapoo Springs in Eastern Texas.

**Wearing Apparel**, of the Sioux, Apache, Cheyenne, and Oklahomas, is attractive both for the originality in the use of raw material and the designs worked out by the various tribes. The collection is especially rich in beaded moccasins, boots, and buckskin clothing; and ornamented necklaces, knife cases, and bags.

**Ceremonial Objects**, while limited in number, show many types of ceremonial use: Obsidian spears; small arrow-points made of precious stones and of delicate workmanship; rattles and musical instruments; and Hopi Katchinas.

**Articles of Warfare**. Bows and arrows collected after battles with white settlers, stone arrow points picked up generally, spear-heads, tomahawks, war bonnets and shields of the Sioux and Cheyennes, war clubs both plain and highly decorated, saddle bags, and knife cases.

** Implements of the Chase and Household Articles**, are equally represented. Most important are stone hand axes for splitting bone to get the marrow; flint knives, scrapers and fleshers for preparing skins for clothing and tepees; rubbing stones for smoothing the finished skins; awls and drills; crude stone hoes; mortars, manos, and pestles used for grinding, and colorful blankets of the Navajos and Cheyennes.

**OUTSTANDING COLLECTIONS**

*Woolford-Martin Big Bend Collection*. Of special interest to the archeologist is the collection of artifacts made in the Big Bend District in Western Texas and said to belong to the Basket Maker Period. In this collection are fragments of the Atl-atl, which were used by the Basket Makers before the invention of the bow and arrow, game stones, arrow-points made of flint and semi-precious stones, basketry, nets and cord, a snail necklace and other ornaments, fiber sandals, hammerstones, and baskets containing burials. Prominent in this exhibit is the reproduction of a petroglyph selected from a group of eighteen huge basalt rocks containing similar picture writing. Equally significant are mortars varying from sizes that were easily transported when tribes migrated, to those weighing up to six hundred and fifty pounds; and metates and rubbing stones made of various types of rocks.

*Emma Gutzeit Pictograph Collection*. This collection consists of 121 copies in color of pictographs and petroglyphs located principally in rock shelters in the Big Bend region of Texas, and made under the direction of Miss Gutzeit in the summer of 1931.

*The George C. Martin Coastal Collection* contains the basic material used by the donor of the collection, George C. Martin of Rockport, in his research reports on the Karankawa Indians. Included in the collection are arrow-heads, bird points, stone knives and scrapers, bone and stone drills, “turtlebacks”, shell pendants, a piece of rolled sheet-copper, carved bone, a “boat stone” which is supposed to have been used on an atl-atl or throwing stick, and three carved stone fetishes.

*The Theodore Friedrich Flint Artifacts Collection*, was obtained through field work and purchase, and represents many of the known Indian campsites in Texas.
The Alaskan Indian Collection has many small articles showing the skill of the Eskimo in carving, and his resourcefulness in securing food and clothing. In the exhibit are a twenty-foot totem pole displayed at the entrance of the Museum, several smaller totem poles, models of the kayak and bidarka, snow shoes, and dog sleds; buttons, labrets, and animal toys carved of walrus ivory; a whale oil lamp; dancing wands and masks made of drift wood; spears used in securing the seal; bear-baits; shell money and Hudson Bay Trading Beads; ladies and spoons made of the horn of the Rocky Mountain Sheep; witch rattle baskets; basketry cooking vessels; and other articles showing the life of a now vanishing race.

THE MUSEUM OF THE WEST TEXAS HISTORICAL AND SCIENTIFIC SOCIETY, ALPINE, TEXAS

Shortly after the establishment of the Sul Ross State Teachers College in 1920, several faculty members became interested in the possibilities of a centrally located museum in the Big Bend of Texas which would be instrumental in collecting and preserving all procurable specimens of anthropological, biological and paleontological value, and to collect all information possible bearing on the history and folk-lore of the Southwest. With the aid of interested citizens of West Texas, a society was organized and incorporated in 1925 for the purpose mentioned above and to promote research in the above mentioned fields. College authorities have materially aided the progress of the museum by providing 1600 square feet of floor area for display and work rooms. Twenty-two glass cases contain the collections herein described as well as other valuable specimens too numerous to mention in a short article of this nature.

The outstanding specimens or groups of specimens, included in the exhibits are as follows:

1. The Susan M. Janes Collection. This is a general collection contained in four cases, the most important part of which is the famous Mt. Livermore collection of arrowheads, a group of 1250 flint points, many of them skillfully and beautifully wrought, all of which were taken from a cache under a cairn of rocks on the tip of Mt. Livermore, the highest peak of the Davis Mountains.

2. The Williams Indian Shield. Loaned by R. C. Williams, Ft. Davis. This shield was taken from the body of an Indian killed in battle by Col. R. V. Cook. It is built upon a base of quills, covered with tough rawhide, and finished with soft deer skin upon which are a number of decorations and symbolic drawings.

3. The Townsend Collection of Weapons. This group is a portion of the famous E. E. Townsend collection of unusual and interesting weapons. Two old flintlocks, one having had a barrel 3 1/2 inches in diameter, and several weapons of Spanish origin are the most interesting of this group. An old Spanish sword with the inscription, “For my God and my King,” is of unusual value.

4. The V. J. Smith Collection of Historical and Anthropological Materials. A lead sun dial, a powder horn, and an old compass, all used in the early colonies, are the most valuable of the historical group. Several hundred Indian specimens represent fairly well the old cave culture of the Big Bend as well as the open camp artifacts. The assistance of Joe Ben Wheat and other friends made possible the Bat Cave display which occupies an entire case.

5. The McNutt Indian Collection. This includes 105 specimens from the eastern section of the Big Bend and represents a culture more closely akin to Basket Maker than any other materials on display. Baskets, cordage, mesh bags, skeletal remains, throwing (rabbit) sticks, and an atl-atl shaft (with fore shaft and typical point) comprises some of the interesting parts of this display.

6. The Pottery Display. This case includes specimens from South America, Arizona, New Mexico, the El Paso area, and a few sherds found in the Alpine neighborhood.

7. The Fletcher Green Valley Collection. This is a case representing minerals and fossils collected in Green Valley, Brewster County, by Henry T. Fletcher. It is of interest to geologists because it is completely representative of that interesting area south of Alpine.

8. The Caldwell Collection. This is a group of specimens loaned by W. E. Caldwell, Alpine. Important among the historical items is an old
cocked hat. Among the several interesting Indian specimens is a hafted flint hatchet, the handle being a 2-inch sotol stalk.

9. The Book Collection. Notable among the books in the Museum is a Bible loaned by President H. W. Morelock. Under “Births” the date “1713” is easily legible. Other books of value include an assortment of old textbooks; architecture of the Civil War period; religious publications of the ’70s; a Bible owned by W. D. Bloys, founder of the Bloys’ Camp Meeting; a book presented to G. W. Baines, Sr., by President Sam Houston; and a treatise on Pioneer Homes containing instructions for building a log cabin. Among the historical documents is a letter in the handwriting of President Houston to his friend G. W. Baines.

Other items of interest to visitors is the collection of mounted animals; huge fossil bones of prehistoric mammoths; world war weapons; and photographs of historical interest.

The museum is open to visitors at posted hours and at other times by arrangement. Contributions by loan or gift are gratefully accepted and a catalogue file of all materials is available to students or research workers. Inquiries are invited and the resources of the society are at the disposal of all who may be interested.

Mr. Floyd V. Studer reports the finding of many more interesting sites in the Amarillo region.

Mr. E. B. Sayles has been employed by “The Medallion” of Globe, Arizona, since January. It seems that Mr. Sayles is making a general State survey and collection of type specimens for that Institution.

Mr. W. J. Van London of Amarillo has found a site in that region which contained numerous exceedingly small, beautiful, bird points and a Folsom point of somewhat larger size than those of the type station. However it has the same beautiful workmanship characterized by straight chipped edges and channeled centers. Two of this type have been found in the Abilene section also, besides many of the larger generalized type of channeled points.

FIGURINE FROM A GRAVEL PIT OF DALLAS, TEXAS

In the spring of 1930 Miss Ada Hays of Dallas, Texas, brought to Professor H. M. Law a well carved head of a small figurine which she reported had been found in a load of gravel dumped in her yard. The identity of the gravel pit from which the head came is unknown.

The head, is carved from a hard cemented volcanic ash. The lips are distinctly negroid, thick, and outcurving, but pushed forward from high cheek bones. The nose is beaked and Aztec in character. The forehead is flat and receding. From the front the impression is Mayan; from the profile, Aztec.

The head shows little water action and it seems improbable that it had been carried far in the stream gravel; more likely, it had been dropped on the surface by transients passing along the Trinity. — Ellis W. Shuler, Southern Methodist University.

Mr. E. B. Howard of the University of Pennsylvania reports the finding of much additional material of interest during this season’s excavations. Mr. Howard spent several days examining sites near Abilene on his way out and a similar period with Mr. Studer at Amarillo on his return trip.
SECRETARY AND TREASURER REPORT

Statement for the Period From January 13, 1932, to
September 15, 1932

RECEIPTS:

Balance from previous Secretary .............................................................. $9.95  
Subscriptions from Institutions ................................................................. 56.40  
Refund from deposit in Abilene State Bank .............................................. 11.59  
77 Memberships @ $3.00 ........................................................................... 231.00

$308.94

DISBURSEMENTS:

Stamps and Mailing expense ................................................................. 7.79  
Feb. 15, Abilene Printing & Stationery Co., 1931 Bulletin ......................... 20.00  
March 19, Abilene Printing & Stationery Co., 1931 Bulletin ..................... 29.50  
March 19, West Texas Engraving Company, 1931 Bulletin ..................... 30.00  
September 8, Pender Company, Stationery ............................................ 9.25

ACCOUNTS PAYABLE:

June 24, Worth Engraving Company, 1932 Bulletin ................................. 34.66  
August 12, Worth Engraving Company, 1932 Bulletin ............................ 26.11  
300 Copies 1932 Bulletin in Process of Manufacture ............................... 180.00

$337.31

Debit Balance ...................................................................................... $28.37
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