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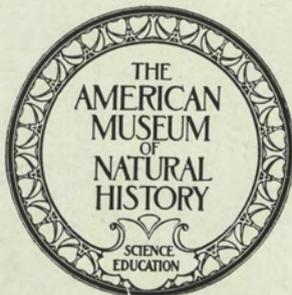
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EXCAVATIONS AT GUASAVE, SINALOA, MEXICO

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BY GORDON F. EKHOLM

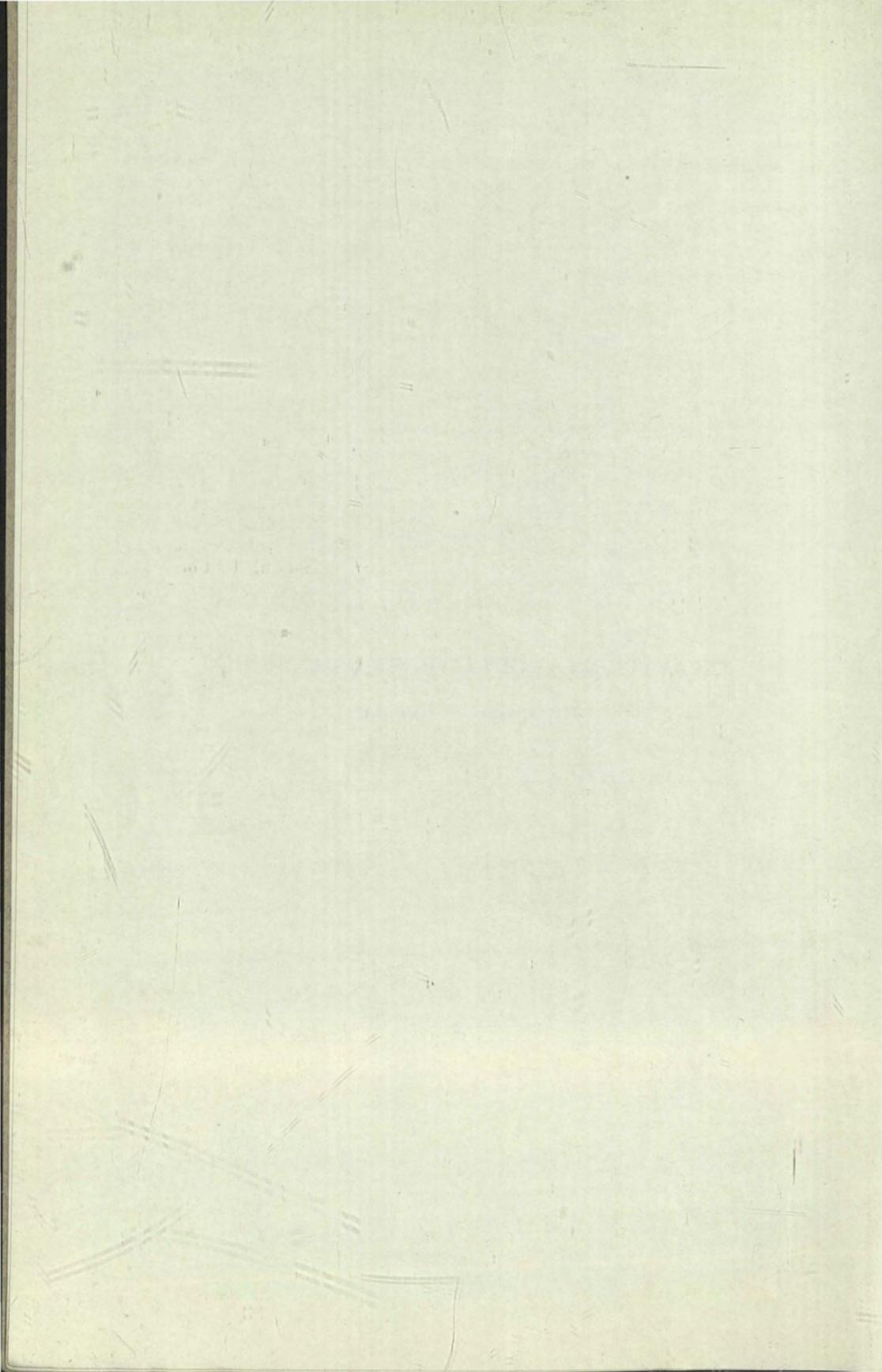


BY ORDER OF THE TRUSTEES
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BY GORDON F. EKHOLM



ACKNOWLEDGMENTS

The American Museum of Natural History project for archaeological research in northwestern Mexico was supported entirely by generous grants from the late Mr. Edward S. Harkness and during the last year from the Harkness Estate.

I am greatly indebted to the instigator and director of the project, Doctor George C. Vaillant, for advice and encouragement throughout the progress of the work, and to both Doctor Vaillant and Mrs. Suzannah B. Vaillant for personally introducing us to Mexico.

My wife has participated in all phases of the field-work and in the preparation of the material and the manuscript.

Our work in Mexico has been facilitated in every way by the archaeologists of the Instituto Nacional de Antropología y Historia of Mexico. I refer especially to Doctor Alfonso Caso, Arquitecto Ignacio Marquina and Señor Eduardo Noguera.

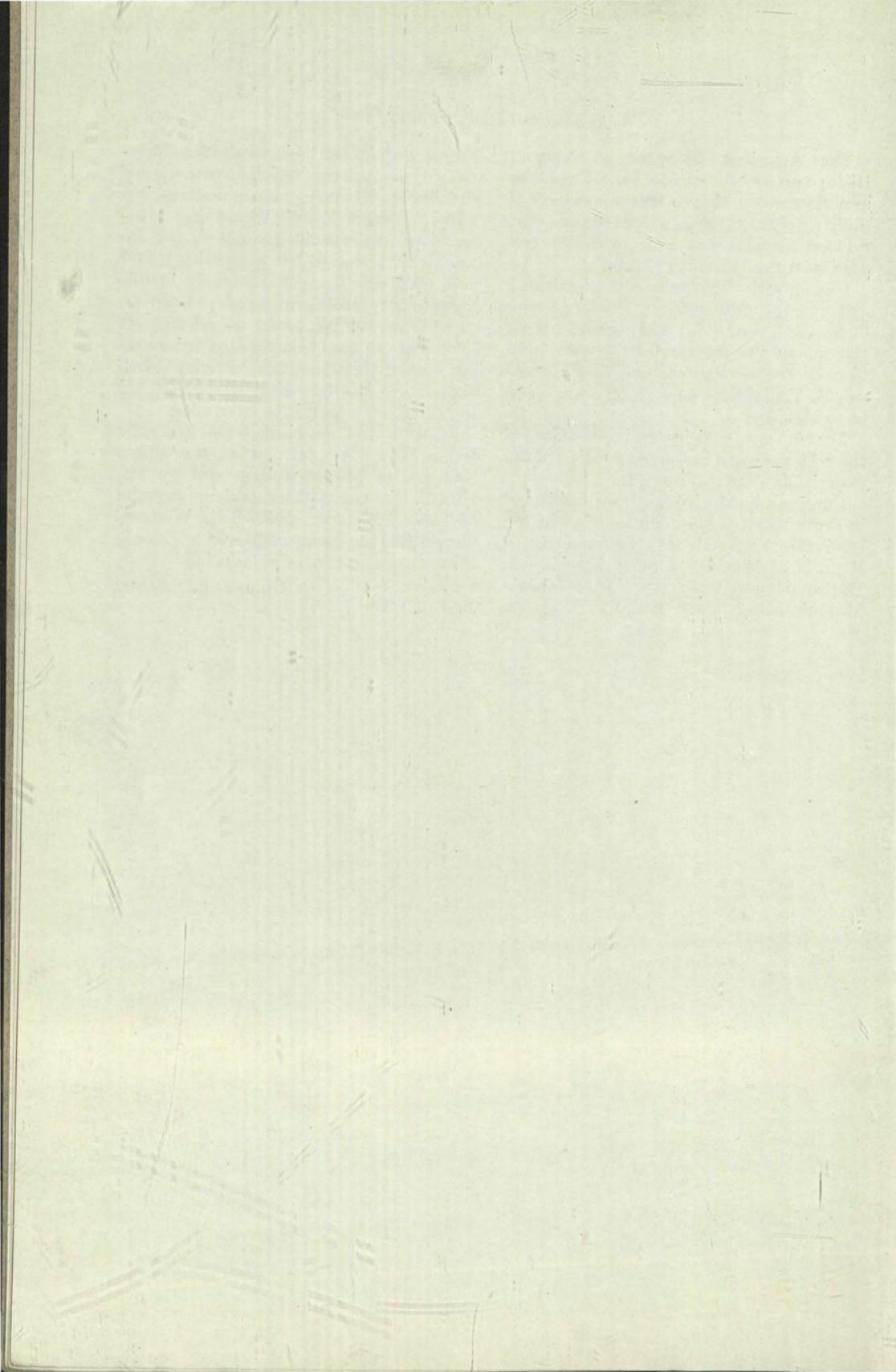
We are grateful for their constant coöperation and many favors which have made our work in Mexico a very pleasant undertaking.

Doctor Isabel Kelly's report on her excavations at Culiacán has not as yet appeared; it is due to her generosity that I have been able to refer repeatedly in this paper to the Culiacán material. I have not seen the manuscript, so that all references I have made to the Culiacán excavations result from conversations and correspondence with Doctor Kelly. If I have misstated any details, the fault is entirely mine.

Most of the drawings were made by Señor Mateo A. Saldaña of the Museo Nacional of Mexico and several by Mr. Paul T. Richard of The American Museum of Natural History. Miss Bella Weitzner has readied the manuscript and has seen it through the process of publication.

GORDON F. EKHOLM

June 10, 1941



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NOTE

The interiors of bowls are usually drawn as from above. In the side views of complete vessels the right half is in profile, the left in elevation, and thus the exterior decoration is to the left, the interior to the right. Sherds are drawn with the exterior decoration to the right of the profile, interior decoration to the left. Sherd profiles are drawn with the exterior of the vessel to the right.

In general, the following key has been adhered to in representing colors:—

Black	—Black
Gray	—Cross hatching
White	—White
Red	—Vertical hatching
Rose red	—Vertical hatching, widely spaced
Buff	—Close stippling
Light buff	—Open stippling

Where expedient, red has been drawn as black—as in Guasave red-on-buff and in Cerro Isabel engraved. In the latter ware hatching would have interfered with a complete rendition of the design. In many cases the stippling to indicate a buff background has been omitted, as it too would over-complicate the drawings.

The catalogue numbers in the captions indicate the location of all objects figured. A number terminating in M is our field number, M indicating that the object was retained by Mexico and is to be found in the Museo Nacional in Mexico City. Numbers preceded by 30.2 are the catalogue numbers of The American Museum of Natural History in New York.

INTRODUCTION

This report is concerned with certain excavations at a site located near the town of Guasave in the northern part of the state of Sinaloa, Mexico. In these excavations a large amount of rather elaborate cultural material was found which, because it is unique and from an area little known archaeologically, is here described in considerable detail. Also because this material illuminates some formerly perplexing aspects of the prehistory of northwestern Mexico, certain generalizations concerning cultural complexes and the movements of peoples have been attempted.

The excavations at the Guasave site were part of a larger project, which was to make an archaeological survey of the entire coastal region of northwestern Mexico, from the international border south to the Culiacán River. A detailed analysis of the surface material gathered during this survey and that from certain minor excavations will be presented in a later paper. This division of the study is practical because the Guasave site represents a cultural pattern common to the state of Sinaloa, and distinct from those cultures which prevailed to the north in Sonora.

In this paper it has been found convenient to use the term West Coast to designate that geographical area which lies between the base of the Sierra Madre and the Pacific Ocean and extends from approximately the southern border of the state of Nayarit north to the international border. This long narrow band of coast land, at its southern end and all along its eastern side, is bordered by high mountain masses which have to a large extent prohibited movements of peoples or cultures between the coast and the central plateau. It is best defined geographically as that area to the west of the main bulk of the Sierra Madre where conditions are such that agriculture can be efficiently practised by sizable communities of people. On this basis, despite its rugged terrain, the western half of the state of Sonora must be included in our area, as it is of relatively low altitude and there is excellent agricultural land in many of the river valleys.

The West Coast area, then, is a long narrow strip of country forming a corridor free from any major geographical barriers and entirely open to travel from north to south. It is crossed at intervals by many large rivers, along most of which are fertile bottom lands, excellent sites for agricultural communities.¹

As if the area were designed to be a corridor, the easiest pass from it to the highlands is at the extreme southern end. This is the route of the only railroad and automobile road at the present time crossing the Sierra Madre, and as it was the road of the first Europeans to enter the West Coast area, it seems to have been a highway in prehistoric times as well. Actually, there is an open easy path from Guadalajara to Tepic and the coast. The railroad, maintaining an even gradient, clings to the steep sides of the valleys, and when traveling on it one gets the impression of traversing an extremely difficult mountain pass. In traveling by automobile, however, as we did several times in going to and from the West Coast, it becomes clear that the famed *barrancas* would offer no obstacles to peoples traveling on foot. From Tequila one gradually descends open valleys and only in the vicinity of Plan de Barrancas and coastward from Tepic are there series of minor hills to cross.

It is as a corridor that the West Coast area has become famous in New World history. Within twenty years after the conquest of Mexico by Cortes, Spanish explorers had descended to the coast west of Guadalajara and had moved through the entire length of our area to explore the region which is now the Southwestern United States. By 1531 Nuña de Guzman had reached Culiacán and the treatment of the Sinaloa Indians by this *conquistador* and those to follow is reputed to have been one of the most brutal episodes in the history of the conquest, resulting in the almost immediate destruction of the native cultures. Only through the meager accounts of the earliest explorers can we gain

¹ For a valuable description of the geography of Sinaloa see Sauer and Brand, 1932, and for the northern part of Sonora, Sauer and Brand, 1931.

some idea of the cultural situation during conquest times. The Indians of Sonora fared somewhat better, for various reasons, and such groups as the Mayo and Yaqui still maintain much of their earlier way of life. The available ethnographic details have little application to this study and those mentioned are obtained from several recent analyses of the early historical sources.¹

Previous to the work begun by Sauer and Brand in 1930² practically nothing was known of the archaeology of the West Coast of Mexico. They discovered the presence of formerly unsuspected well-developed cultures, especially notable for their elaborately painted pottery. They found a number of important sites extending from Culiacán south to the Acaponeta River in Nayarit. In 1931 Doctor Kelly made extensive excavations near Culiacán and certain stratigraphic tests at Chametla, Sinaloa,³ which is near the mouth of the Baluarte River, about thirty-five miles south of Mazatlán. At these two sites stratified materials were obtained, and on this basis Doctor Kelly has established four successive phases at each site (see p. 123). More recently Doctor Kelly has made some small excavations at additional sites near Culiacán and a thorough survey of the southern end of the West Coast area which will serve to define and delimit the cultures there.

The Guasave excavations, while giving no further stratigraphic data, have added an entirely new aspect to the study of the

painted-ware cultures of Sinaloa. Strong evidence of contact with the advanced cultures of the central highlands is present, giving us a good estimate of the chronological position of at least one phase of the Sinaloa cultures. The previous studies have treated the cultures of Sinaloa as an isolated unit, as the material did not warrant the postulation of any direct ties with the known cultures of Central Mexico. This was due to the fact that at Culiacán the Aztatlán phase was poorly represented and that few complete pottery vessels were recovered. It is in the complete designs painted on pottery, which cannot be observed in sherd material, that the outstanding analogies with the highland cultures are to be seen.

Of course, not the least interesting aspect of West Coast archaeology has been the probability that it would clarify the problems of the contacts between the Middle American and Southwestern areas—as from the point of view of geography it seems the most likely route by which agricultural peoples or agricultural practices could have passed between the two. This problem of relationship has been a perplexing one ever since the study of Southwestern archaeology was begun; at the present time it is more prominent than ever, due in part to the excavations at Snaketown, Arizona, and their interpretation by Gladwin. These basic questions of relationship between north and south have not been solved by the Guasave excavations, but a step in that direction has been taken. A certain phase of the problem has been fixed and this forms a basis for further work and discussion.

¹ Beals, 1932; Sauer and Brand, 1932; Sauer, 1934, 1935.

² Sauer and Brand, 1932.

³ Kelly, 1938.

THE SITE

The town of Guasave lies on the west bank of the Sinaloa River in the center of an extremely fertile agricultural area. From the town of Sinaloa, south to the mouth of the river, are broad flood plains of soft river silt which are mainly under cultivation and which, when irrigated, yield two harvests a year. In addition to the usual crops of corn and beans, much of the land is devoted to the growing of *garbanzos* (chick peas) and *ajonjolí* (sesame seed), which are entirely export crops. The uncleared land is covered with a low and dense thorny growth through which it is impossible to proceed without cutting a path.

The course of the Sinaloa River, as it flows across this delta-like plain of silt, is obviously not stable, as after each flood some changes are notable. South of Guasave and to the west of the river are a number of its old channels, some of which are roughly indicated on the map (Fig. 1). In some places these are barely noticeable broad troughs, but where the river has cut deeply in rounding a sharp bend, they are narrow and deep. Since irrigation has been extensively practised in this district, the deepest of these channels contain water throughout most of the year.

THE BURIAL MOUND

The burial mound, the excavation of which is the subject of this paper, was located within a hundred meters of a deep portion of one of these old river channels (Fig. 1). It is on property belonging to Señor Ramon Valdez and within the confines of the rancho, El Dorado. It is approximately five kilometers south of Guasave on the road to Tamazula. In our notes and in the museum catalogues this mound and the surrounding living sites are known as Site 117. In this paper it is generally referred to as the Guasave site. There is a slightly greater elevation at this point than anywhere within a radius of two or three miles, a fact not noticeable to the casual observer, but attested to by the surveys for irrigation canals. During one flood which occurred some time in the 1890's, this point alone was above water

and the mound was considered a last refuge. It is known locally as *el Ombliigo*, the umbilicus.

At its highest point the mound stood no more than 1.5 meters above the surrounding cultivated fields. It was roughly oval in shape, the long axis running approximately north and south, slightly northeast-southwest. Its northern border was fairly definite and had apparently not been disturbed, except that cultivation had extended up to it and thus probably more clearly outlined the lower edge. At the southern end, a great deal of disturbance had taken place, as the owner of the property had at various times attempted to cut it down and fill in several large hollows lying about fifty meters to the southeast. There was no distinct southern edge to the mound. It extended into a large area of lesser elevation, which is partly shown in the cross-section, C-D (Fig. 22). Another promontory to the east of the excavated mound has been completely leveled out.

In their original state these mounds may have displayed interesting features, but they had been so much altered by recent disturbance and the descriptions of the local men as to their original form were so uncertain, that it was impractical to attempt to draw their contours. They were not described as having any definite shape, such as round or square. The portion which was intact, that in which the largest part of the excavation was made, was originally the highest point of all, according to the owner of the land. It had not been entirely cleared, several hardwood stumps remaining on the top.

EXCAVATION OF THE MOUND

The extent of our excavations in the burial mound can be seen in the plan (Fig. 22). When we first saw the site in May, 1938, we did not suspect that it was a burial mound. It was the first definitely artificial mound we had seen in working from north to south, and, as there were a fair number of sherds scattered on and around it, it was thought to be probably a rubbish deposit. A meter-wide trench was

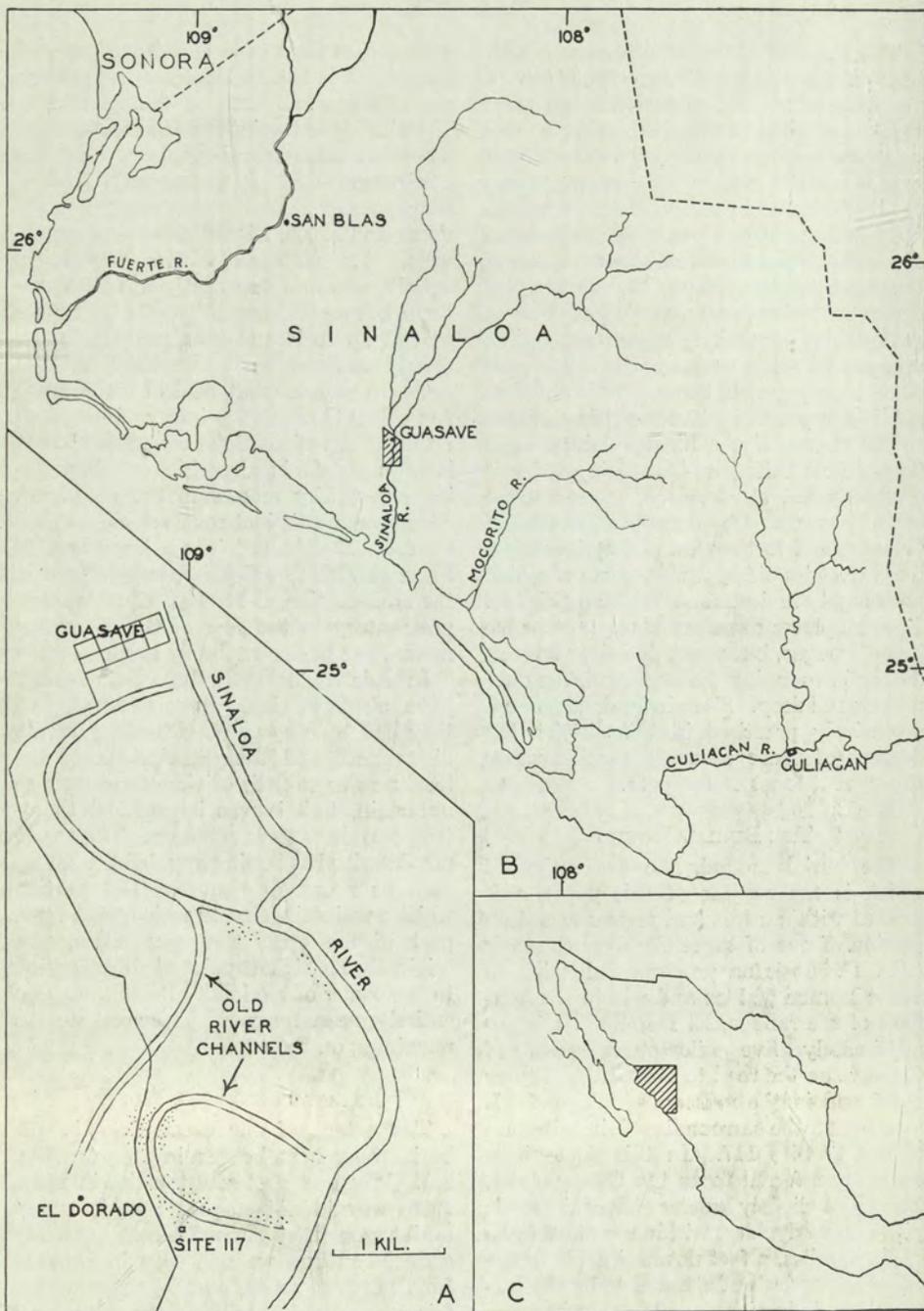


Fig. 1. Maps showing location of Guasave site. A, Vicinity of Site 117, stippling indicates living sites; B, Northern Sinaloa; C, Location in Mexico.

begun across the mound in an east-west direction. Burials were immediately found and the trench necessarily widened. Loose sherds were not numerous in the fill of the mound. Although in several places they were saved stratigraphically, no significant differences according to level have been observed. Burials were too numerous and too disturbing a factor to allow or to warrant careful stratigraphic testing.

During the first season a four-meter wide trench through the mound was completed. In the two following seasons the excavations were carried to the extent shown in the plan. The mound was originally staked at five-meter intervals. A point to the east of the mound, at approximately the level of the surrounding fields, was taken as base level. The levels of all burials and other features were determined by sighting with a level. We did not reconstruct the mound, but assisted the owner of the property by partly hauling the excavated earth to a lower portion of his fields to the east. When we first saw the site, the owner informed us of his intention to destroy the mound completely to enlarge his field. This in part stimulated us to do as much work as we did.

Throughout the area shown in the plan, excavation was extended to a depth of approximately 1.75 meters below the base level, and, until this depth was reached, the soil consisted entirely of even-textured water-borne silt indistinguishable from that forming the surface of the surrounding fields. At this depth, however, the silt uniformly gave way to heavy sticky clay which was tested at various points, but never yielded any cultural material. We must therefore assume that it was sterile.

Until the underlying clay was reached the soil consisted of this even-grained silt. There were practically no changes in texture or color which could be interpreted as having any structural significance. At the southwestern corner of the excavations, extending into the connecting corridor between the two main areas of excavation, at the level shown in the cross-section was a horizontal layer of white ash. This was 10 to 20 centimeters thick, composed of mixed earth and ash, and appeared to have

been a surface level. More sherds than were usual in the fill of the mound were found in this ash layer and also the two miniature vessels shown in Figs. 5c and 7f, and the annular base in Fig. 17gg. Presumably this represents a surface level used at some time between two periods of construction. At the northwestern corner of the mound several changes in the color of the soil were noted, but these did not extend into the mound, and their significance is not known. In the main, the earth composing the mound and that of the surrounding fields is unfortunately all so homogeneous that structural details cannot be seen, and we can make no definite reconstruction of the history of the mound.

There can be no doubt, I believe, but that the mound was artificially constructed. From the deepest to the uppermost burial is a vertical distance of about three meters, and there is considerable superposition of burials. In a delta-like area of this kind natural hills of this size are not otherwise present. As mentioned before, this is the highest point in the vicinity and thus a place where one would not expect excessive building up by river currents. There is also evidence in one burial that it was made on the ground level with a roof construction over it and that this structure had been completely buried before it disintegrated.

The deepest burials lay approximately 1.75 meters below the base level or present surface level. It is questionable whether or not they had been put into excavated graves of that depth. It is quite possible that they were, in that the earth is soft and easily dug into. On the other hand, the graves may originally have been quite shallow and the surface in general may subsequently have been raised through deposition by flood waters. This could have happened during the time the site was in use, or much later. In the latter case the mound would have been originally considerably larger than it is now, having been covered in part. During the excavations it seemed most likely that the latter supposition was correct, but test trenches in the vicinity of the mound did not bear it out.

LIVING SITES

On the banks of the old river channels in the vicinity of the mound, and to a lesser extent on the banks of the present river, sufficient sherds were found to indicate that these were the living sites of the people who built the burial mound. In no place are there any thick concentrations of sherds and it would seem that there had been no closely grouped dwellings in the form of a village. The houses may have been scattered along the river banks, much as they are today; it seems likely that, to a large extent, the modern house sites are the same as those occupied by the people of the Guasave culture.

The presence of the sherd areas along the banks of the old river channels seems to indicate that they constituted the course of the river at that time. This is not certain, of course, as such sites may have been desirable living places even after the river had deserted those channels. It must also be observed that many sites could have been destroyed by the constant widening and changing of the river channels.

In the hope of finding stratified rubbish

deposits or in any other way increasing our knowledge of the cultural scene, eleven test trenches were made in the most promising of the sherd areas. Several were to the east, at the point where the old river channel which runs past the mound becomes indistinct on approaching the present river; some were in the immediate vicinity of the mound on both sides of the channel; and others were to the south, where the road most closely approaches the old channel.

In general no depth of rubbish was found. Sherds were fairly plentiful within twenty centimeters of the surface, but then diminished in number downward to a depth of fifty centimeters, below which there were none. In parts of some of these trenches the excavations were carried below the occurrence of any sherds to depths as great as 1.90 meters below the surface in the attempt to find deeper layers of refuse which may have been buried by the building up of silt deposits. Thus these trenches do not substantiate the theory that the burial mound had been partly covered by silt deposits.

BURIALS

In the excavation of this mound were found and cleared one hundred and sixty-six complete burial units plus twenty-one variously fragmented skeletons. The presence of partial skeletons could in some cases be explained as due to disturbance by later burials or recent excavations, but in other cases whole skulls or fragments of skeletons were found unrelated to such disturbances and were probably buried in this form or accidentally included in the building of the mound. The bones were, in general, very poorly preserved. Some skeletons had so disintegrated that it was just possible to determine their presence and to make observations on position and orientation. Usually the shaft portions but not the ends of the long bones could be cleared. It was possible to save a few skulls intact, but more often their condition was such that they could be preserved only in fragments or not at all.

Three general types of burial occurred: full length, secondary bundle burials, and secondary burials in large jars. I shall not describe these individually but as classes and point out certain variations of these forms, their positions and distribution being observable on the accompanying plan of the excavation (Fig. 22).

FULL-LENGTH BURIALS

The majority of the skeletons were lying on the back, with the legs extended, and the arms at the sides (Fig. 2d, e). Slight variation from this position occurred rarely. In several skeletons the limbs were partially flexed (Nos. 69, 166, 17), the knees and elbows being somewhat out from the body. Two skeletons (Nos. 86, 113) were in a half-flexed position, lying on the right side. There were several instances of slight flexure of the legs and in two burials the lower legs were crossed. The position of Skeleton 143 was unique in that it was lying on the left side with the right arm thrown forward and the legs partially flexed.

Most of the skeletons lying thus in a supine position were complete and showed no evidence of mutilation. However, in four cases (Nos. 64, 68, 81, 92) the skulls

were entirely absent. This might be considered as having been due to disturbance, except that in five other cases (Nos. 89, 115, 150, 164, 181) the lower mandible was in its proper position in relation to the remainder of the body, while the skull itself had either been moved or was missing. In two of these (Nos. 164, 181) the skulls, in relatively good condition, were lying on the thigh and on the chest, respectively. In Burial 89 the mandible was in proper position, but the remainder of the skull was turned at right angles to the axis of the body; in Burial 115 the skull itself was missing; in No. 150 the skull had been moved to the left. These positions seem to indicate that the bodies were occasionally completely decapitated, but just as often the mutilation was such that the lower mandible was left in position on the neck portion.

Skeleton 73 presented another extremely curious form of burial. The body had been mutilated by breaking the humeri, femora, tibiae, and fibulae at mid-shaft. It was lying on its face, the legs bent around outward to rest under the torso. The broken center portions of the humeri extended outward from the sides of the body, the elbows close to the sides, and the lower arms again directed outward. The bones were in very poor condition, but in several places the splintered fractures could be clearly seen.

One skeleton (No. 86) was in a tightly flexed sitting position, the head between the knees, and the legs crossed at the ankles.

BUNDLE BURIALS

Eleven secondary bundle burials were found (Fig. 2f). These consisted of neat compact bundles of all of the long bones covered with the ribs, scapulae, and innominates, usually with the skull lying on its base at one end of the bundle in the same position as in the primary burials.

OLLA BURIALS

Twenty-eight large jars or ollas were encountered, all containing some skeletal remains (Fig. 2b, c). The ollas and the large bowls, which inverted were used as covers, will be considered in the section on

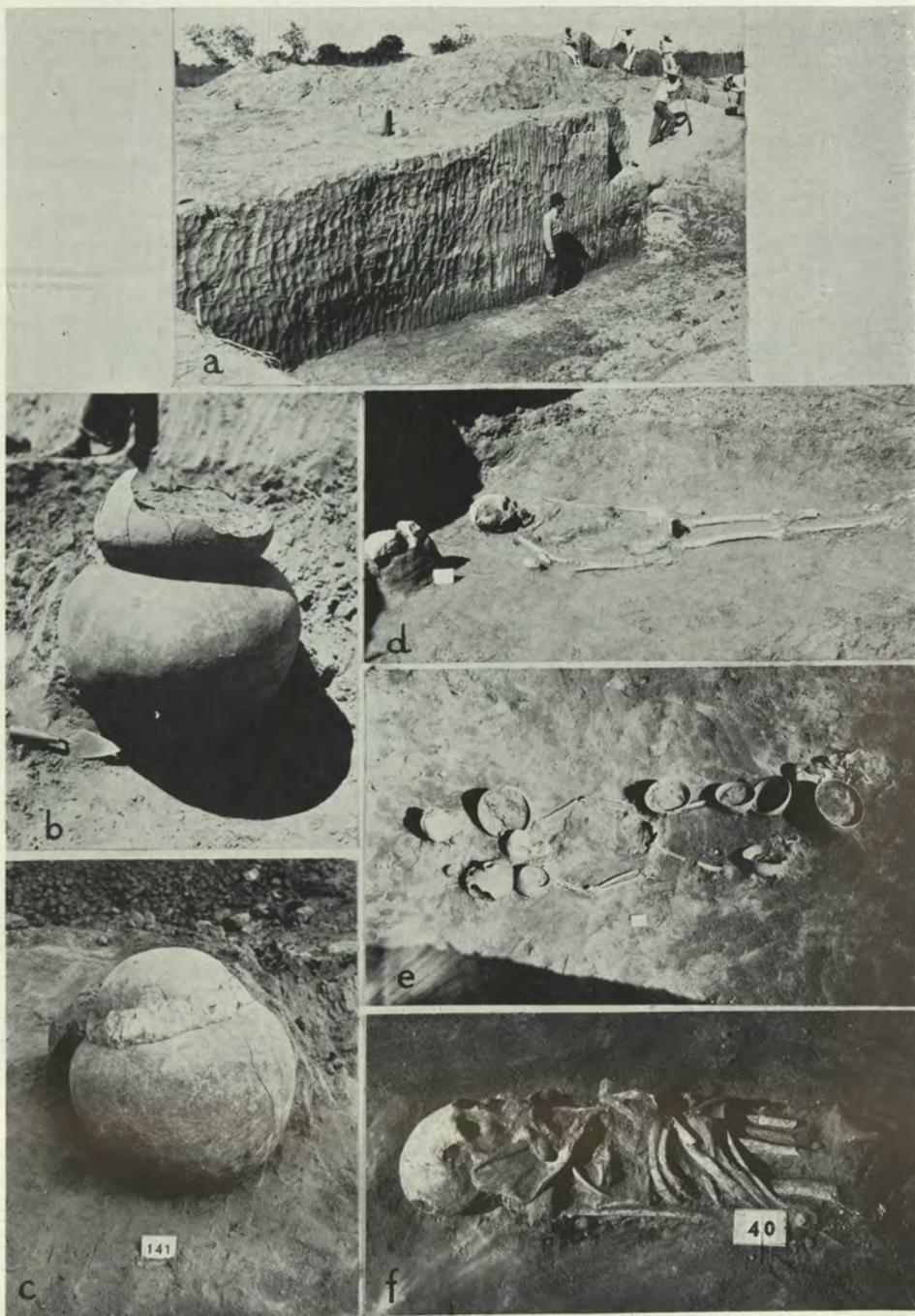


Fig. 2. View of Mound during Excavation, and Typical Burials *in Situ*. a, Burial mound partially excavated, view to the northwest in the southern half of the main area of excavation; b, c, Burial ollas *in situ*; d, e, Full-length burials; f, Bundle burial.

pottery. In all except one example the jars were entirely filled with silt which had been washed in through the cracked walls. Apparently because the bones had been for some time free from contact with the soil and were later covered, they were usually in poorer condition than the bones of the primary or bundle burials, consisting of only a small mass of broken bone at the bottom of the olla. Because of this condition and the difficulty of clearing the bones inside of the vessel, it was often impossible to determine the form of the burial. Occasionally some bones, such as the vertebrae, were in articulated position, and there seemed to be some evidence for primary burial. However, enough clear evidence of improper bone relationship was found to make it seem likely that all of the skeletons were placed in the ollas as separate bones and that those instances of proper relationship were due to only partial disarticulation before burial. Olla 199 contained only a skull. The face was colored with red ocher, apparently intentionally, as the color extended to only about one centimeter above the upper edges of the orbits.

The olla of Burial 141 was completely free of earth, the bones lying in a mixed pile at the bottom. The burial was unique in having a decorated polychrome bowl as a cover (Fig. 2c) and in having the juncture of the olla and cover bowl neatly sealed with a band of hard gray clay. The bones were very soft, but not broken, and most of them could be saved.

Most of the large ollas were found in the entirely undifferentiated silt. There was no evidence to indicate whether they had been put into excavated holes or had been set on the surface and covered with earth. Ollas Nos. 38, 39, and 46, buried deeper than any of the others, were the only ones which had certainly been put into excavations. This was apparent because the excavations had reached the clay subsoil and some of this clay which was distinguishable from the silt was found around the sides of the ollas. Olla No. 46 was distinctive in having decorated vessels both inside and below it and in having been placed in a hole on a prepared base consisting of three large lumps of burnt clay. These were

roughly hemispherical, well-fired on the upper surfaces to a depth of several inches but not on the bottom, suggesting that they were burned in place. However, there was no sign of ash or charcoal, and, if there had been a fire, all traces had been cleared away. A layer of clean light-colored sand had been spread around the base of the burnt clay supports. Also, the hole in which the jar had been placed had not been immediately filled at the time of burial, as the fill consisted of laminated water-sorted material such as was usually found inside the jars.

Approximately 3.5 meters of vertical distance separated the lowest and uppermost burials, in a number of which there was direct or nearly direct superposition. A difference in burial type and orientation according to level was obvious. Although this stratigraphy was not absolutely clear, we can be certain that there was a more or less rapid change in burial custom during the use of the site. Burial ollas were nearly always found near the surface. Their depth was always measured to their rims; only in the three cases mentioned above was this point below the base level. Olla burial was apparently an alternate method for those who usually buried their dead in a full-length position with heads to the north.

The full-length burials were usually oriented with their heads in the general direction of either north or south, as can be seen in the plan of the excavation. There is a distinct stratigraphic difference in these two directions of orientation, those burials with their heads to the north usually being in the higher levels of the mound. Computing the depths of the fifty-two full-length burials with their heads to the south, we find that they were at an average depth of 1.0 meter below the base line. The seventy full-length burials with their heads to the north were at an average depth of .13 meter below the base level. These figures do not seem to demonstrate as marked a difference as actually existed since, although those with their heads to the south were quite uniformly deep, those with their heads to the north were also represented in the deeper levels, and in the southern part of the excavation all burials were deeper,

as though the surface level had been lower there.

Six full-length burials were oriented with their heads to the west. One of these (No. 27) was high in the mound, relatively well-preserved, and had with it a modern button which proved it to be a recent burial. Although there was no definite proof, it is possible that Nos. 137 and 139 were also recent, but the others with their heads to the west were not, being too deep below the surface and in the same condition as other burials at that depth.

Apparently there were two phases in the use of this site at Guasave as a burial ground: the earlier, when the bodies were buried full-length with their heads to the south; the later, when the heads were directed to the north, accompanied by the practice of secondary burial in large jars. Bundle burial was practised during the earlier as well as in the later phase. This trait cannot be ascribed to either period.

Unfortunately, this quite distinct stratigraphic difference in burial type cannot be correlated with possible changes in other cultural items as the deeper burials were almost entirely unaccompanied by pottery. Only two pottery vessels were found with those burials having the head to the south. The red-on-buff bowl (Fig. 3cc) was found with Burial 80, deep in the excavation. Although it differs in size and is somewhat distinct in design from any other whole specimens of this ware, it cannot be considered a different type. The rather elaborately decorated Aguaruto incised bowl (Fig. 8g) was with Skeleton 122, eighty centimeters below the base level, and, although it is unique in shape and design, it undoubtedly belongs to the general Guasave horizon. The burial was within the vertical range of both the head to south and head to north burials.

Eight spindle whorls were found with the head to south burials, but they do not show any typological difference from those found with higher burials. The elaborate copper ear spool (Fig. 19b) was found with Burial 23, slightly over a meter below the base level. The only cylinder stamp (Fig. 17dd) was found with Burial 42 at the same depth. Of the fifty-one burials with

their heads to the south, fourteen had with them remains of the paint cloisonné decorated vessels—as many as were found with the higher burials. The use of decorated gourds as burial pieces runs through the entire period of burials, but the practice of putting many pottery vessels with the dead prevailed only in the second phase. The large mass of pottery vessels was found with those primary burials in the upper levels of the mound which were oriented with their heads to the north.

Burial custom has usually been considered to be a rather fundamental and stable trait and it is significant that there is such a distinct stratigraphic difference in burial type and orientation within the Guasave mound. It seems to me that it is one of the important pieces of evidence which, among many others to be seen in the pottery and artifacts, indicates that the Guasave culture was a mixture of several patterns or traditions of culture which had not as yet become amalgamated into a unified complex.

Bundle burials were never accompanied by offerings—and ollas only occasionally. Olla 46, buried at a greater depth than any of the others, was accompanied by four vessels, three underneath and one inside. The fragments of one vessel lay beneath Olla 90 and bowls stood alongside Nos. 20 and 32. In addition to several copper bells and some small shell ornaments these were the only artifacts found with ollas.

The manner of placing artifacts with the full-length burials followed a fairly uniform pattern, and certain general remarks should suffice in place of a detailed description of each burial. Unless otherwise noted, pottery vessels were usually found surrounding the burial and at the same level. When only two vessels were included, they were usually symmetrically placed on either side and slightly behind the head. More vessels were often placed regularly around the body, along the sides, and below the feet (Fig. 2e). Only occasionally were they lying on the body. Vessels nearly always stood upright and supposedly contained food offerings, as in several instances we found fish scales and bones and other food remnants.

A few of the full-length burials were richly supplied with ceremonial goods. Burial 29 was surrounded by eighteen pottery vessels, No. 184 by ten, No. 166 by twelve, No. 21 by eleven, and No. 28 by ten vessels and two pipes.

BURIAL 29

Burial 29 was unique in several ways and warrants special mention. It was a full-length burial surrounded by eighteen pottery vessels, more than in any other burial found in these excavations. These vessels were lying on a level about one foot below the skeleton, so we assume that either the pottery had been put into a trench around the body, or the body had been placed on an earthen platform. Whichever was the case, the body was not placed in an excavation, as we found the remains of a wooden structure or roof over the burial, and this must have been covered in the building of the mound.

Lengthwise over the skeleton several fragments of wooden poles lay horizontally. Above the head and just below the feet were several vertical posts which undoubtedly supported a roof. The head of the skeleton was up against the wall of our excavation at this point and we were able to clear these uprights. They were posts about ten centimeters in diameter, thirty-eight centimeters apart, and extended to a height of approximately fifty centimeters above the base of the platform. Near the top and at the side of each of these uprights were the ends of horizontal beams which apparently had been tied to the uprights and extended the length of the burial. In the center of the burial, in the region of the chest, was the mould formed by another upright which had apparently been well squared, five by eight centimeters in size. In none of these remains of the roof structure was there enough wood preserved to allow any possibility of studying the rings. The presence of the wooden elements was observable more in the earthen moulds they formed than in the few rotted fragments of the actual wood.

The skeleton itself also showed evidence of having been protected by a roof. It was not intact, the skull had rolled down off the

platform, the sacrum was turned at right angles to the axis of the skeleton, and the leg bones had been rolled over. Apparently the skeleton had been lying free of earth for some time.

Undoubtedly this was the burial of a relatively important person in the community. The skeleton was obviously that of a male and of large size. Besides the eighteen pottery vessels surrounding it were two large obsidian blades, two large shell plaques, two thousand large shell beads around the upper portion of the body, eighty-seven copper bells on the right ankle, other shell beads on the left ankle, two pats of red ocher, nineteen shell bracelets on the left humerus, a bone dagger in the right hand, and two trophy skulls lying beneath the skeleton. The body had apparently been wrapped in plain cotton cloth colored with red ocher. It had also been wrapped in a twill mat, a small section of which showed as a mould. Some charred twigs above the skeleton may have been part of the roof.

The two extra skulls found underneath the skeleton were obviously trophy skulls. They lacked the mandibles and were well coated with red ocher. They were better preserved than the skull of the skeleton—supposedly because they had been cleaned of flesh before burial. Another trophy skull, similarly colored, was found with Skeleton 166.

BURIAL TYPES, DISTRIBUTION, AND SIGNIFICANCE

Olla burial appears to be a common form throughout Sinaloa. At Culiacán Doctor Kelly found them in the Aztatlán complex, but I do not know whether they occurred in the later phases. At Chametla she found twenty-seven olla burials in the upper five levels of her two stratigraphic cuts at Tierra del Padre.¹ These would apparently be in the Middle Chametla complex rubbish and were probably made in what she calls the Middle Chametla and Aztatlán red-rimmed pottery complexes or phases and thus may be earlier at Chametla than at Culiacán and Guasave.

¹ Kelly, 1938, 62.

Secondary urn burial is not found in the Southwestern United States, nor did we note its occurrence in Sonora. It is not a widespread trait in Middle America, but among other types of burial, occurs sporadically in Michoacán.¹ The trait is possibly continuous from Michoacán to northern Sinaloa.

As far as we know, cremation was not practised anywhere in the West Coast area except in northern Sonora, among those cultures related to the Hohokam of Arizona. It was a common practice in Michoacán, the burnt bones and ashes being found in great quantities at Tzintzuntzan² and in jars and bowls at other sites.³

¹ Caso, 1930, 450; Lumholtz, 1902, Vol. 2, 427.

² Rubin de la Borbolla, 1939, 102.

³ Plancarte, 1893, 83.

No bundle burials comparable to those from Guasave have previously been found in Sinaloa or in other parts of Mexico. Secondary burial and mutilation of various forms are also common in Michoacán. As to the orientation of full-length burials, nothing can be said.

The series of late flexed burials from Cholula described by Romero⁴ are, without exception, oriented with their heads to the south. This similarity to the deeper burials at Guasave may prove to be significant. So few burials have been reported from Central Mexico that we do not know what burial traits are associated with the various cultures or cultural phases in that area.

⁴ Romero, 1937.

POTTERY

INTRODUCTION

Our study of the material remains found in the excavations at Guasave must deal overwhelmingly with pottery. This emphasis is due solely to the fact that more pottery vessels were found at Guasave than all other classes of objects and that they give us by far the most detailed picture of the cultural status and affinities of the group with which we are dealing.

The Guasave excavations yielded one hundred and fifty-five complete or nearly complete vessels, giving our study a very decided advantage over those which are based entirely on fragmentary material. If we had sherds only, we would possibly have been able to make the same classification of wares and types, but we would know very little of design motives and vessel shapes. We could have drawn few conclusions as to the outside affinities of the Guasave culture and these form the most significant results of the excavations. The relatively small lot of sherds found in the fill of the mound and on the surface in the immediate vicinity has been used to complete the classifications.

In the main, the Guasave pottery can be classified very readily into the larger or "ware" groupings, such as Guasave red-on-buff, redware, etc., but in the series of polychrome and incised vessels we can make no very rigid classification of types. Design styles and elements overlap to such a degree that, with the one or two specimens available in some classes, it has been impossible to set up a classification which would be likely to follow through a larger sampling. It is to be regretted that we did not find a mass of sherd material which would have enabled us to segregate types more clearly. The very few polychrome and incised sherds found in the excavations and on the surface in the vicinity only add to the complications, since several distinct types are represented by only one or two sherds. These types and some of those represented by only one vessel have not been given definite names.

Following the description of each pottery type I have chosen to discuss its

affiliations and probable origins. It is thus necessary to anticipate certain of the general conclusions to which a careful study of all the Guasave material has led. Three basic complexes appear to be present in the Guasave culture. These have become amalgamated to a certain degree but can still be recognized: a painted pottery complex from central and southern Sinaloa may be seen in the Early and Middle Chametla periods at Chametla; a plain redware strain is apparently indigenous to the region of northern Sinaloa and southern Sonora; and, finally, there are close affiliations with the cultures of the central highlands. These latter resemblances are mainly to the pottery designs and codex drawings which come from the states of Puebla, northern Oaxaca, and adjoining parts of Vera Cruz, and it is obvious that there was a very strong influence from the cultures in that area. This influence stems from the late polychrome cultures in that region and thus could not have been earlier than approximately 1300 A.D.

The mixture of three cultural strains probably accounts for the great variety of designs and shapes present in the Guasave pottery. It is not the end result of a local evolution of pottery styles. Its complexity results from a mixture of diverse elements which had not as yet become blended into a single entity. In spite of the outstanding resemblances to pottery of foreign cultures there is no evidence whatever of importation of the objects themselves. A thorough technical study might possibly establish the presence of foreign wares, but that seems unlikely.

Descriptions of designs and shapes have been minimized, as they can add little to the nearly complete series of drawings and photographs reproduced. Descriptions of paste characteristics are not complete for every type of ware as in general there is a marked uniformity in this regard. The tempering material is apparently fine-grained sand of various colors and materials, white predominating. Temper is usually abundant, varying somewhat in amount according to pottery type.

The paint in most of the elaborate polychrome types is highly fugitive. It was undoubtedly applied before firing and its impermanence may be due either to the nature of the paint materials or, more likely, to the insufficient firing of many of the pieces.

GUASAVE RED-ON-BUFF

This series consists of thirty-one complete or nearly complete vessels, and several thousand sherds from within or in the immediate vicinity of the mound (Fig. 3).

Treatment. Temper is always abundant, medium in size, consisting of angular particles of various colors and materials, presumably sand. White materials predominate.

Paste color varies. More often than not, a gray core merges into brown or reddish-brown near the surfaces. In many cases the paste is uniformly brown or reddish-brown. Hardness varies, apparently according to firing, from fairly soft to brittle.

All surfaces, except the interiors of jars, are well-smoothed, but not polished, and have a mat appearance. Surfaces are slipped, except the interiors of jars and the exteriors of the flatter bowls. The slip is brownish-buff, varying to a dark cream, usually somewhat lighter than the surface. It is uneven, with a markedly wiped or streaked appearance, soft, and somewhat fugitive. Usually the slip and painted decoration are slightly polished. Black firing clouds occur.

Vessel Form. Only two complete jars, nearly identical, were found (Fig. 3w). According to the sherds this form is common, but mainly in larger vessels. Jars, incurved-rim bowls, and vertical-sided bowls with exterior decoration are approximately as numerous as open bowls with interior decoration. Bowls are flat to hemispherical. Flat bowls commonly have an angle or shoulder on the exterior, below which is a slight gadrooning (Fig. 3m, p, r). Heavy deep gadrooning (Fig. 3i) is rare. Neither the angle nor the gadrooning is visible on the interior.

The bottoms of both bowls and jars may be indented. Only one vessel (Fig. 3s) has a tripod support, a feature foreign to this

ware. There is one fragmentary scoop-shaped vessel (Fig. 3o) and two sherds of longer scoop handles (Fig. 3n). One sherd (Fig. 3j) is from a double bowl with connecting tube. Two small dishes are oval in shape (Fig. 3v, y).

The average thickness of vessel walls is about five millimeters.

Decoration. The paint is red, a somewhat brownish-red. It is usually fairly thick, even colored, and slightly crackled. It is not very durable, apparently due mainly to the fugitive slip. Painted areas are slightly polished, often blurring the design.

The rims of all vessels are painted, the paint extending down both surfaces to about one centimeter below the edge. Six of the complete bowls have no decoration except this plain red rim band. Several of these bowls are of inferior quality, but the others are as finely made and of the same shapes as the decorated ones. According to the sherd material, the red-rimmed undecorated style is confined entirely to open bowls and is as common as the decorated variety.

Vessels with constricted necks, jars, globular bowls, and vertical-sided bowls always have a band of decoration below the rim on the exterior and broad tapered lines extending to near the center bottom (Fig. 3t, u, w-cc). Characteristic is the narrow checkerboard-like band below the main design band. Interiors are plain. The decorated open bowls normally have plain border bands, usually one broad and two narrow, and a one-unit design in the center (Fig. 3m). Band designs, like those on the exteriors of jars, occur rarely on the interiors of bowls. The painted rim band is lobed or scalloped in about fifty per cent of the decorated vessels, both with interior and exterior decoration. Triangular scalloping (Fig. 3h) is rare.

Brushwork is neat, but never fine. Lines are always broad and usually a considerable portion of the surface is covered with paint.

Nearly all design variations are shown in Fig. 3. In bowls the one-unit radial motive (Fig. 3m, p, r) is by far the most common, having various modifications. The style of

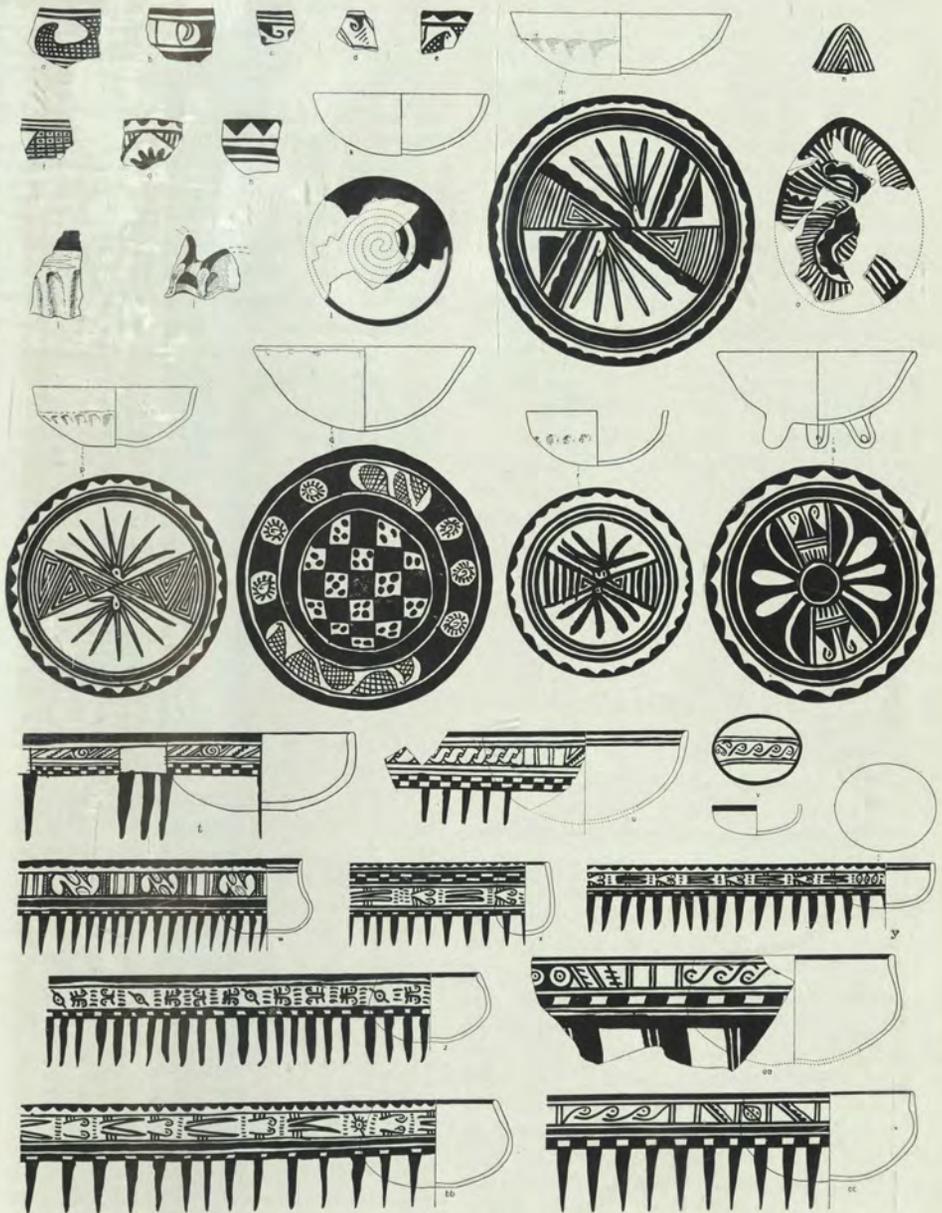


Fig. 3 (a, 30.2-5439; b-h, 30.2-5438; i-l, 30.2-5439, 4845, 4824, 4841; m-s, 225M, 30.2-4847, 4842, 627M, 715M, 30.2-4839, 576M; t-w, 30.2-4829, 4844, 4828, 4833; x-cc, 371M, 1059M, 689M, 30.2-4843, 669M, 30.2-4830). Guasave Red-on-Buff Pottery. (All $\frac{1}{8}$ nat. size.)

design in the fragmentary scoop (Fig. 3o), with vertical lines descending into the bowl and relatively crudely painted, is more common than is indicated by the complete vessels. The designs in three vessels (Fig. 3l, q, s) seem to be atypical in this ware. The spiral stepped grecque is similar to that in the Guasave polychrome bowl (Fig. 9d).

Certain of the design elements, such as the small figures in bands, or the one-unit radial motive in the shallow bowls are extremely curious and certainly cannot be described simply as geometric decoration. Considering the symbolism apparent in certain other Guasave types we can assume that it is present here also, possibly in some such manner as it is in the Aztec I bowls from Culhuacán, where the designs are such that we can interpret their symbolism,¹ but which would normally appear to be purely geometric.

Discussion. Guasave red-on-buff is a uniform and very distinctive type. On the basis of all characteristics except possibly paste and temper, it is very readily distinguished from any other type within its area of distribution. Only one sherd is of a distinctly variant type, the decoration being gray-black, the design a single broad sinuous line running between three framing lines on each side.

The associations of the Guasave red-on-buff in burials indicate definitely that it was contemporaneous at Guasave with all of the polychrome types. It occurs on sites throughout the lower Sinaloa and Fuerte river drainages where it is the most common, or, on many sites, the only painted ware to occur. Throughout this area it appears to be quite uniform in shape and design, the only marked difference being that bowl sherds found on the Fuerte River sites indicate that the exteriors were solid red. To a certain extent Guasave red-on-buff was probably a service ware, as it is found on all the living sites.

This pottery type has not previously been reported. According to Doctor Kelly it is similar in color and in the plan of exterior decoration to the Culiacán red-on-buff, but could never be confused with that ware. The finish, the one-unit radial de-

sign, the pendent lines to the bottoms, and the shoulder and gadrooning on shallow bowls are the most outstanding traits by which the ware is distinguishable from the red-on-buff of central and southern Sinaloa. There were no interior decorated red-on-buff bowls at Culiacán. In this regard the Guasave ware is closer to that of Chametla, where there was an equal division between interior and exterior decoration. However, in a more general classificatory scheme, it may definitely be considered a subdivision of that large group of red-on-buff wares found throughout Sinaloa and northern Nayarit, which, for the sake of convenience in this discussion, I shall call Sinaloa red-on-buff. This includes:—

- Red-rim decorated (Chametla)²
- Utilitarian buffware with red rim (Chametla)³
- Plain and decorated red-rimmed red-on-buff (central and southern Sinaloa)⁴
- Red-on-buff ware of the Aztatlán complex (Culiacán)

The pottery of the Hohokam culture of Arizona,⁵ geographically the nearest of the Southwestern cultures to Sinaloa, is mainly red-on-buff, but this is a similarity in color only; certainly no other than, possibly, an extremely remote affiliation is indicated. Furthermore, throughout Sonora we found no evidence to suggest a linkage in this direction.

Doctor Kelly has not as yet published the results of her recent survey trip into coastal Nayarit, Jalisco, and Colima, but we may say that she did not find there any continuation southward of the Sinaloa pottery complexes, including the basic red-on-buff ware. Without this confirmation, however, it is obvious, in the Guasave material at least, that the coastal red-on-buff is genetically related to wares from the Central Mexican highlands.

Red-on-buff pottery is restricted to certain areas and periods in the highlands. In the Valley of Mexico the Mazapan⁶ and Coyotlatelco⁷ wares were not made before the Intermediate or Chichimec period which is dated from about 1100 to 1300

² Kelly, 1938, 18.

³ Kelly, 1938, 10.

⁴ Sauer and Brand, 1932, 63.

⁵ Gladwin and Associates, 1937.

⁶ Linné, 1934, 76.

⁷ Tozzer, 1921.

¹ Brenner, 1931, 28.

A.D.¹ Red-on-buff ware was the common type in the Valley of Toluca, the Matlatzinea region.² A form of red-on-buff ware belonging to the late polychrome period is found in the Mixteca region of Oaxaca. In the western highlands it is the commonest painted ware, being found particularly in the vicinity of Atoyac and Lake Chapala.³ Lastly, it is the dominant decorated ware in the north, in Zacatecas and Durango.⁴

All the wares mentioned have a certain uniformity of color, design patterns, and shapes suggestive of some genetic relationship. Some vessels in The American Museum of Natural History, collected by Lumholtz in western Michoacán, are markedly similar to Guasave red-on-buff. The colors are practically identical, the arrangement of design is similar, and several vessels have pendent lines to the bottom of the vessel such as are characteristic at Guasave. From Atoyac, Jalisco, there are red-on-buff bowls with a wavy-line decoration very similar to Mazapan ware, which was contemporaneous with Coyotlatelco ware. There is a marked resemblance between Coyotlatelco and Guasave red-on-buff. The Guasave ware is not so well polished and the vessels are usually not legged, but certain definitely related design elements occur in both places. Noguera has pointed out the similarity between Coyotlatelco ware and the red-on-buff from the Mixteca.⁵ In my opinion the red-on-buff wares of the northwestern plateau—from La Quemada to Zape—belong to the same complex. Both Brand⁶ and Kelly⁷ have claimed to find it closely similar to the Sinaloa red-on-buff, but to me Guasave red-on-buff is more closely related to that of Michoacán and the Valley than it is to this ware found in the contiguous highlands. The movements which did take place between the highlands and the coast were more likely through the passes to the south than across the Sierra, and

thus the relationship of these wares was an indirect one.

Simple red-rimmed buff ware was present during all phases at Chametla, but the decorated variety appears only with the Aztatlán complex. Supposedly it was either brought into the West Coast by the people coming from the Mixteca-Puebla or it was the result of a supplementary migration or diffusion. Because the Guasave red-on-buff more closely resembles that of the western highlands than it does the varieties in Central Mexico, the latter alternative seems the more likely. Whichever it was, it may have been readily acceptable to the peoples of Sinaloa, because they already possessed the red-on-buff technique as seen in the utilitarian buffware of Chametla.

During the Intermediate period of the sequence of cultures in the Valley of Mexico populations were not so settled as they were either before or after. The Mazapan and Coyotlatelco cultures seem to have been intrusive; the Mazapan ware at least seems to have come from the west; and perhaps the center or place of origin of red-on-buff pottery was somewhere in western Mexico. All of these wares seem to have been approximately contemporary and it is my opinion that when we learn more of the cultures of Mexico we shall find that they are all closely related.

BOWL WITH FEATHER-COSTUMED "GOD"

This bowl (Fig. 4a) is unique in form and decoration and cannot be classed with any of the other types we have established.

Treatment. All of the interior and the sides of the exterior are covered with a buff slip which is almost exactly the color of the paste surface. The slip is thin, does not completely cover, and has a wiped appearance. All surfaces are very well smoothed. It is polished over the design, but the paint is not smudged. The rim, exterior sides, and the feet are especially well polished and to a greater extent than the painted interior surface.

Shape. This is the only vessel of this shape found at Guasave (Fig. 4a).

Decoration. The painting is in black and red. Where the paint is thin the black is brownish, but where it is thicker at the end

¹ Vaillant, 1938, 544, 554.

² Noguera, 1932, Plate 6.

³ Ross, 1939.

⁴ Mason, 1937.

⁵ Noguera, 1937b, 12.

⁶ Brand, 1939, 102. On p. 104 Brand postulates the relationship of all of the western red-on-buff wares but does not include those of the Valley, etc.

⁷ Kelly, 1938, 42.

of the brush stroke it is pure black. The painting is very neatly executed.

The band of design on the exterior appears to be largely geometric decoration. At about the center of the band (Fig. 4a) is an element which had, possibly, some symbolic significance, as it is similar in its details to a form more clearly seen on the Cerro Isabel engraved bowl in Fig. 6e, which we have considered to represent the "flint knife." The interior decoration is discussed below.

Discussion. It has an obviously sophisticated form, and with its flat bottom and gracefully outcurved sides is not unlike vessels belonging to various of the later advanced cultures of Southern Mexico and Central America.¹ However, the entire vessel, including the bulbous feet, is not exactly duplicated anywhere, but is most nearly approximated by several bowls from Vera Cruz figured by Strebel.² The tripod supports of these vessels are longer than in our bowl, but are similarly bulbous. It is to be noted that the feet on this bowl have a marked keel at the greatest diameter. This type of foot occurs in several other vessels from Guasave, but was not found at Culiacán, nor has it been reported from any other part of Mexico.

We shall consider the painting on the nearly flat interior of the bowl in some detail, as it is perhaps the most outstanding evidence we have as to the southern affiliations of the Guasave culture. With this as a basis, other less precise similarities to things in far distant cultures which are to be described will be more understandable.

This is obviously a drawing of a human figure standing erect and completely clothed in a costume of feathers. The painting is entirely foreign to any known class of ceramic decoration in Mexico, and artistically and in the handling of details, is very similar to the representations of gods in certain of the Mexican codices.

As in many illustrations of gods of the "Mexican" pantheon the face is here shown as a skull. Comparing it with, for instance,

the skull face of Mictlantecutli on pages 75 and 76 of the Codex Vaticanus B, it will be seen that there is a marked similarity. The teeth are painted in precisely the same manner, square with round root ends. There is a similar curve to indicate the ascending ramus of the mandible. The skull is approximately the same shape, with a pronounced projection in the mid-face region and the eye in both cases is a circle with a dot in the center and set rather far back. In the codices, figures shown as skeletons always have this round eye.

The ear ornament in our figure, apparently a ring with a pendent object through it, is one of the most common types to be seen in the codex drawings (see Vaticanus B, p. 67). The U-shaped element which is part of the costume and occurs behind, below, and in front of the figure, although marked differently, is analogous to a similar object in a drawing of Tlahuiscalpantecutli in Codex Borgia (p. 19), where it is shown hanging from the region of the ear, and on page 21 being carried by Texcatlipoca. Seler considers this object in the latter case to be the protective leather used when playing ball.³

There are sandals on the feet, the portion about the heel being square, with the toes slanting downward at an angle, much as they were drawn by the codex artists (see Vaticanus B, p. 78). In front of the face, placed at right angles to each other, are two almond-shaped figures which apparently represent the hands. If so, they are conventionally painted and unlike those in the codex drawings, but are curiously similar to a band of design on a pitcher from the Mixteca in The American Museum of Natural History.

It may be that this painting was meant to represent Tlahuiscalpantecutli, the god of the evening star, an important personage in the Aztec pantheon. The gods are most clearly identified by their peculiarities of facial painting, but since this does not occur in our figure, the identification must be based on other characteristics. According to Caso⁴ several features usually associated with the god mentioned above are an erect

¹ See, for example, Merwin and Vaillant, 1932, Plate 29.

² Strebel, 1904, Figs. 36, 205.

³ Seler, 1901-1902, 137.

⁴ Caso, 1927b, 147-148.



Fig. 4 (a, 183M; e-i, 239M, 30.2-4874, 4873, 239M, 672M). a, Feathered "God" Bowl; b, 1-4, Aztatlán Polychrome, incised Bands on Exteriors; c-d, Aztatlán Polychrome, Profiles; e-h, Aztatlán Polychrome, Interiors; i, Animal Face Bowl. (All $\frac{1}{8}$ nat. size.)

feather headdress, several almond-shaped objects standing vertically in the headdress, and two little plumes or tie-straps projecting out over the forehead. In this drawing we have the erect headdress and the two plumes, but only one almond-shaped object, and that lies horizontally. Such an identification is certainly not conclusive, but considering the location of Guasave its close approximation is indeed surprising.

It is clear that the artistic-religious cult which was dominant in Central Mexico in Aztec times was present also in a state of considerable purity in the Guasave culture. This drawing is so much like those of the codices that it would not be out of place in one of them; yet there are differences which attest to somewhat of a breakdown in their characteristic symbolism. The artist who decorated the bowl seems to have been largely intent on filling in his circular space in a pleasing manner, as much, perhaps, as he was interested in depicting any one deity. Much of the Guasave material will substantiate this conclusion. The Guasave culture consisted in part of a strong infusion of the religious-artistic traits common to the advanced cultures of Central Mexico, but those were becoming diluted and had, to a large extent, it seems, lost their ritualistic significance.

AZTATLÁN POLYCHROME

Five complete vessels and one sherd (Fig. 5a, Fig. 4b-h) were classified as Aztatlán polychrome.

Treatment. The slip is brownish-buff, uniform in color. One bowl (Fig. 5a, Fig. 4d) is slipped on the interior and only to below the rim lines on the exterior. The other bowls are slipped interior and exterior. Surfaces are very well smoothed and burnished, especially the rims and exteriors which have a very high gloss. Polishing has not smudged the paint. Despite the extremely good finish, the paste is relatively soft and crumbly, due to poor firing. Surface layers tend to scale off.

Vessel Shape. Four vessels are of identical shape and size (Fig. 4c). Walls are thicker than in most Guasave types. One

vessel (Fig. 4d) has slightly outcurved sides and a tripod support.

Decoration. Four vessels are very similar in form and decoration. As they were all found in one grave, they may have been made by the same potter. The other is distinct in form and, to a large extent, in decoration, but is included in this category because of its similar interior painting.

Interior painting consists of fine-line designs in a deep brownish-red color. Brushwork is extremely neat. A broad band of design lies below the rim with a single unit design in the center. The odd bowl is distinct in being more finely drawn than the others and in having another color, the framing of the side panels being rose-red.

Exterior decoration is practically identical in three of the bowls.¹ A finely incised white band lies between brownish-red bands; below this is a narrow white band, and then converging radially toward the center are four sets of white and brownish-red areas bordered and bisected by narrow black lines. One bowl (Fig. 4b4) is distinctive in having a rose-red instead of a white incised band, with a white dotted black line above it. Rose-red instead of brownish-red bands radiate from the bottom. The bowl with a tripod support has no exterior decoration, except three narrow lines at the rim and painted feet. The exterior incised bands are reproduced in Fig. 4b.

Discussion. Doctor Kelly has given the name Aztatlán to a phase of West Coast culture which is characterized by a certain complex of pottery types. What she has called Aztatlán ware is a red-on-buff pottery with a white incised band, a cruder, simpler ware than that we are considering here.² However, as the plan of design, an outstanding feature of Sinoloa pottery of this phase, is very similar, we are calling this Aztatlán polychrome. It has been found only at Guasave.

Before discussing in detail the designs of the typical Aztatlán polychrome bowls, we will consider that of the one atypical specimen (Fig. 5a), as its painted design, like that of the "feathered god" we have previ-

¹ Ekholm, 1940a, Plate xv, No. 6.

² Kelly, 1938, 19.

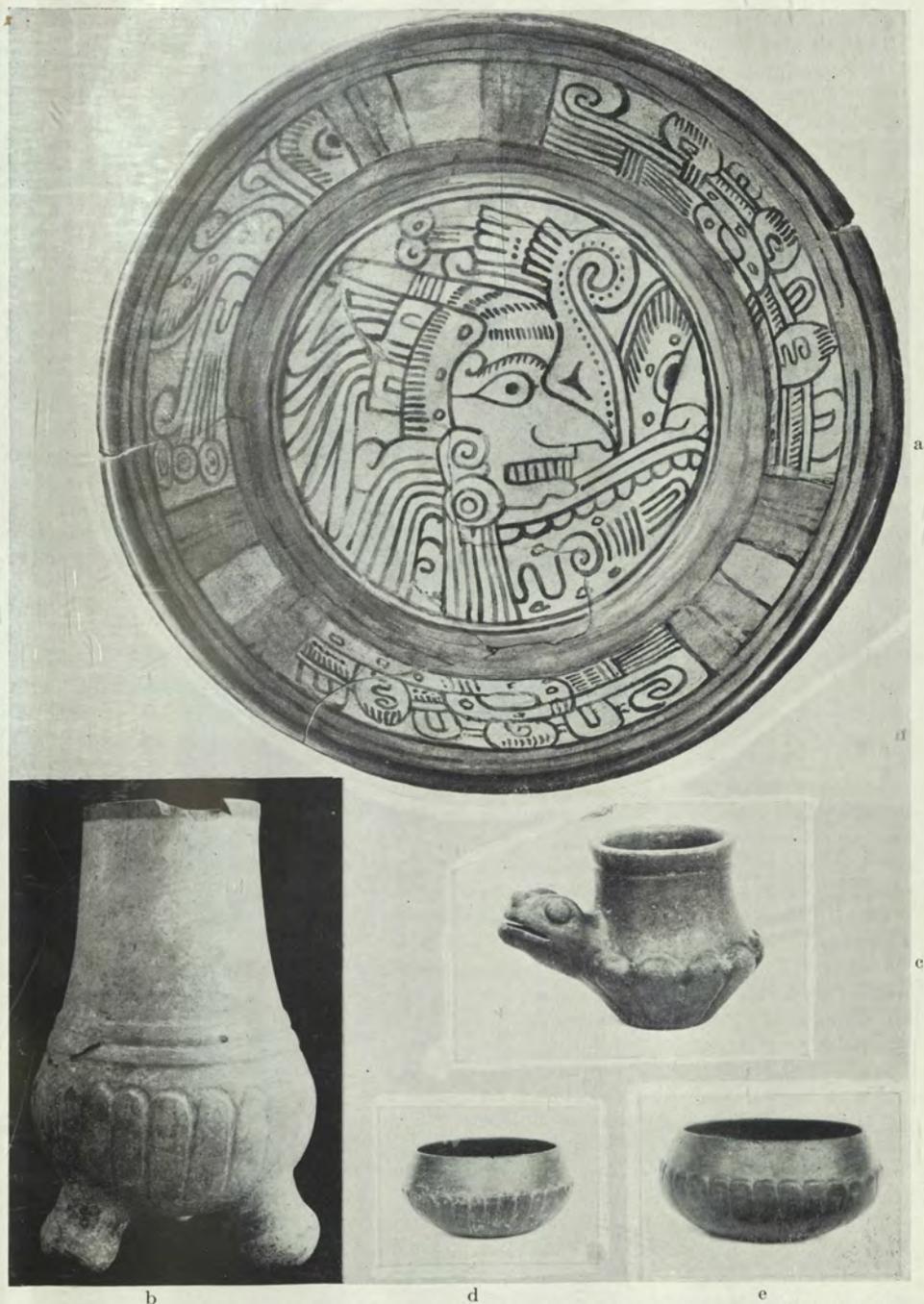


Fig. 5 (a-e, 240M, 286M, 1075M, 30.2-4907, 263M). a, Aztatlán Polychrome Bowl, Interior; b, Tall White Jar (height, 20.5 centimeters); c, Miniature Effigy Vessel (height, 6.2 centimeters); d-e, Guasave Redware Gadrooned Bowls (diameter of d, 18 centimeters). [a, Photograph of a water color reproduction.]

ously described, is also in the style of Central Mexican art.

The central drawing is that of a human head with an elaborate feather headdress and with other curvilinear elements in front of the face. In general, the arrangement of the painting in the bottom of the bowl and, to some extent, the features of the face itself, are reminiscent of the bowl decorated in paint cloisonné found by Charnay at Tenepango on the slopes of Popocatepetl.¹ Otherwise, there is no similar ceramic decoration anywhere in Mexico, but we can pick out certain elements which do occur in the codex drawings.

The nose is extremely long and curved; the line indicating its base is upcurved in a manner common to the art of the "Mexican" codices. The hair is tied in a long conical bundle. The method of indicating hair by rows of short parallel lines is quite characteristic of many codex drawings (see the Coyote in Vaticanus B, p. 29). The element which is apparently the base for the feather headdress and is here shown as a slightly curved rectangle is used in precisely this manner in one of the drawings of Xochipilli in Vaticanus B, p. 35. This device, an outlined area with short lines along one side and circles in the free space, is very common in the codices as decoration on stools and articles of clothing and represents the jaguar skin. The teeth and the chin are drawn in a manner similar, for instance, to that in the upper figures on page 17 of the Codex Borgia.

The scrolls in front of the face very adequately fill in that space, but they also resemble and are placed in the same position as in many "Mexican" illustrations. The two opposed scrolls issue from the mouth and may be merely speech scrolls, but, as in various codex drawings and stone sculpture from Central Mexico, they have the conventional form of the jaws of the feathered serpent, and on the upper one there is a feather crest. The object with the marks of the jaguar skin is between the jaws. The element below the jaw, the scroll, cross lines, and U's, all occur on various pieces

from Guasave. For convenience, I am calling it the scroll-U motive and will discuss it more fully later.

The side panel at the upper left is distinct from the other two which are nearly identical. The motive is like that in front of the face in the center panel and may similarly be the conventionalized serpent head. Three scrolls representing jaws again have the tiger skin object between them and the feathered crest. Highly symbolic serpent heads commonly occur in Middle American art, but their features are usually more standardized than these. We have here the feeling of such drawings and it seems to me that the origin of these scrolls and crests was in such conventionalized forms, but that their symbolic significance has been lost to such a degree that they are mainly just pleasing designs. It seems most logical to assume that these designs were made by a person who had only a meager knowledge of the religious symbolism of Central Mexico or was in the process of forgetting it.

The design in the right hand and lower panels may possibly represent the same feathered serpent motive even more schematically drawn. It is similar to a design on Aztec I pottery which is figured by Brenner.² The circular device with a sinuous line rising from the base and the short parallel lines at the upper edge, repeated five times in these two panels, is common in "Mexican Art." According to Seler³ and Caso⁴ this is the "downy feather ball" usually associated with sacrifice. It occurs on various types of Guasave pottery.

The U-shaped figure repeated three times in each of these panels is a common element in Aztec I pottery from Culhuacán.⁵

The four vessels which we consider to be the type specimens of Aztatlán polychrome are all very similar in general appearance. That in Fig. 4g has painted in the center a face very much like the one we have just described, but somewhat more crudely drawn and with slightly different features.

² Brenner, 1931, 43.

³ Seler, 1900-1901, 117.

⁴ Caso, 1927a, 50.

⁵ Boas, 1911-1912, Plate 1, No. 4.

¹ Charnay, 1888, 173; also Peñafiel, 1890, Plates 62 and 63.

The hair is treated differently, there being wavy cross lines instead of the lines of dashes. The hair at the point of the cone is apparently tied. The headdress is practically the same as in the other drawing, but here its upper part is composed of a series of concentric circles. The graceful scrolls which we assumed in the other drawing represented the jaws of a serpent are not present here, but there are several similar small scrolls in front of the mouth at a point where the painting is poorly preserved. The long figure containing two circles does not occur in any other of the Guasave drawings and the only similar motive of which I know is an Aztec I pottery from Culhuacán.¹ Along the upper right edge of this center panel is a series of half circles, a very common device in Guasave design, in the previous example lies below the face. The border design appears to be purely geometric.

Two bowls (Fig. 4e, f) have interior paintings which are not realistic like the previous two but are obviously abbreviated forms, only the feather headdress being represented. In these two bowls, as in many of the Guasave paintings, feathers were considered to be most important. The same headdress foundations and plumes are present and below each is an upcurved scroll which may possibly be the conventionalized upper jaw. The "downy feather balls" are present in both, and in Fig. 4e, the scroll-U device is repeated twice. In both cases the series of half circles at the edge of the field also occurs. At the right side in Fig. 4e and containing two of the "downy feather balls" is a larger half circle, a common feature at Guasave, which also occurs on Coyotlatelco and other wares from the Valley of Mexico. The border designs are interesting geometries, that in Fig. 4e being unique.

Unlike the interior paintings so far described, the central panel in Fig. 4h appears to be a purely geometric design. But continuing our comparison with the art of Central Mexico, we see that its form is identical to an often repeated symbol. The entire panel, considered as a unit, is a circle cut with seven arcs and an extension from

one side becomes a scroll in the center. This is the same device that Seler described as *ecailacatzcozcatl*, an ornament characteristic of Quetzalcoatl, the Wind god.² It is found in most of the codices as the design on an apron or breast ornament or on shields.³ The same device is painted on some small red-on-buff vessels from Nochistlán, Oaxaca, in this Museum. A number of the bowls from the Altar de los Craneos, Cholula, bear similar designs or adaptations of them.⁴ The use of this device is limited to Aztec times.

The incised bands on the exteriors of the four Aztatlán polychrome bowls are shown in Fig. 4b. Of particular note in Nos. 2 and 3 is the element which is the same as on the exterior of the feathered-god bowl and which we suggested was the "flint knife." Repeated twice in No. 3 is a very elaborate example of the scroll-U device. The design band No. 4, from the exterior of the bowl, in Fig. 4f, is the only example of a white-dotted black band on Aztatlán polychrome.

"ANIMAL FACE" BOWL

This small bowl (Fig. 4i) is unique in shape, finish, and decoration. It is complete and unbroken and the paste cannot be well observed, but it appears to be identical with that in all of the Guasave polychrome and incised wares.

The form of decoration is curious in that a complex painting covers the entire exterior of the bowl, the principal part, the face, being on the flat central part. Such decoration of the exterior bottom of a vessel, which is foreign to ceramic art in general but which occurs several times at Guasave, is suggestive of gourd decoration. The interior decoration is simpler, but is no less curious in being a four-color spiral completely covering the surface.

Before painting, the surface was light buff and well polished. This is observable only in narrow spaces between the spirals on the interior. The exterior up to the rim paint was covered with a chalky white slip, which is soft and flaky and has to a large

² Seler, 1902-1903, 140.

³ Codex Magliabecchiano, XIII, 3, fol. 89.

⁴ Noguera, 1937a, Plates 29, 46.

¹ Boas, *op. cit.*

extent peeled off, destroying the decoration. The design is outlined in black paint which, due to uneven firing, changed to brown at the center. The rim and the background for the design are dark maroon. The large spiral on the interior is in dark maroon, rosy red, white, and dark brown paints, the latter possibly the same as the black paint of the exterior. The interior is polished, blurring the colors. The exterior is unpolished.

The reproduction of the exterior drawing in Fig. 4i is fairly accurate. No reconstruction of the design has been purposefully attempted, but many of the lines are vague in the original and very difficult to follow. Black stains from contact with the soil, almost exactly the color of the black paint, partly obscured the design on the surface.

At the center of the exterior of the bowl, a well-preserved portion of the painting is obviously the full-faced drawing of an animal. It seems impossible to identify it and there are no similar drawings from Middle America. Perhaps it was meant to represent a jaguar as it has painted black-tipped ears, is spotted above the eyes, and has an upturned snout. The latter characteristic is unrealistic, but is the conventional treatment of this part, in, for instance, the jaguar design on Nicoya polychrome.¹ On the other hand, the face is pointed like that of an armadillo or peccary; in the latter case the devices at the sides of the snout could represent tusks.

Surrounding this central figure, starting below it and extending up on both sides, are what appear to be the representations of plants or flowers. These are repeated in the decoration on various types of Guasave pottery, but I have found no exact duplication of the motive elsewhere in Mexico. In being three-lobed it is somewhat similar to flower designs in the codices, as, for instance, in Codex Telleriano-Remensis (fol. 18, verso 19).

I know of no comparable use of the spiral.

CERRO ISABEL ENGRAVED

This type (Fig. 6, Fig. 7ab) was named by Doctor Kelly on the basis of material from Culiacán. Among our material she

recognizes only one bowl (Fig. 7a) which conforms in all details to her definition. Because of the variety of similar types from Guasave, it is necessary to expand the definition unless we wish to establish an excessive number of types, each based on only one or two specimens. Grouped together here are all of the Guasave bowls which are mainly painted in one color and have at least part of the painted design outlined with fine incision or engraving.

In texture, the paste is not distinguishable from that of the other wares, but in some of the specimens it is definitely better fired and harder. A single description, either of surface characteristics or of decoration, cannot be given, thus this is done under the several sub-types.

Sub-type A. These three bowls (Fig. 6e, f, i) are very similar in shape and color. The surfaces are brownish-buff and only in the bowl shown in Fig. 6e is a slip observable. In one (Fig. 6f) the surface was polished before decoration and the painted areas are rougher, but in the other two the paint was polished over, leaving it slightly smudged. Shapes are fairly uniform, but the feet differ. In the smallest vessel (Fig. 6i) they are of typical Guasave shape, but solid. Those on another vessel (Fig. 6f) are unique at Guasave in having the perforations at the bottom.

The paint is dark brown. Exterior decoration is very similar in these three, a simple band of scrolls and diagonal lines. In two, the band consists of four units, round and rectangular scrolls alternating, and in one, a continuous series of rounded scrolls. The interior designs will be considered later.

Sub-type B. The shape is unique, the bottom being nearly flat and the lip thickened and everted (Fig. 6c). Legs are bulbous and grooved. All except the exterior bottom is slipped brownish-buff. Paint is dark maroon and very highly polished, considerably smudged. The exterior design is quartered, opposite panels being nearly identical.

Sub-type C. In finish, slip, and paint color this bowl is Guasave red-on-buff (Fig. 6g). It is different from that ware in its shape, in being incised, and in its design.

¹ Lothrop, 1926, Vol. 1, Plate 41.

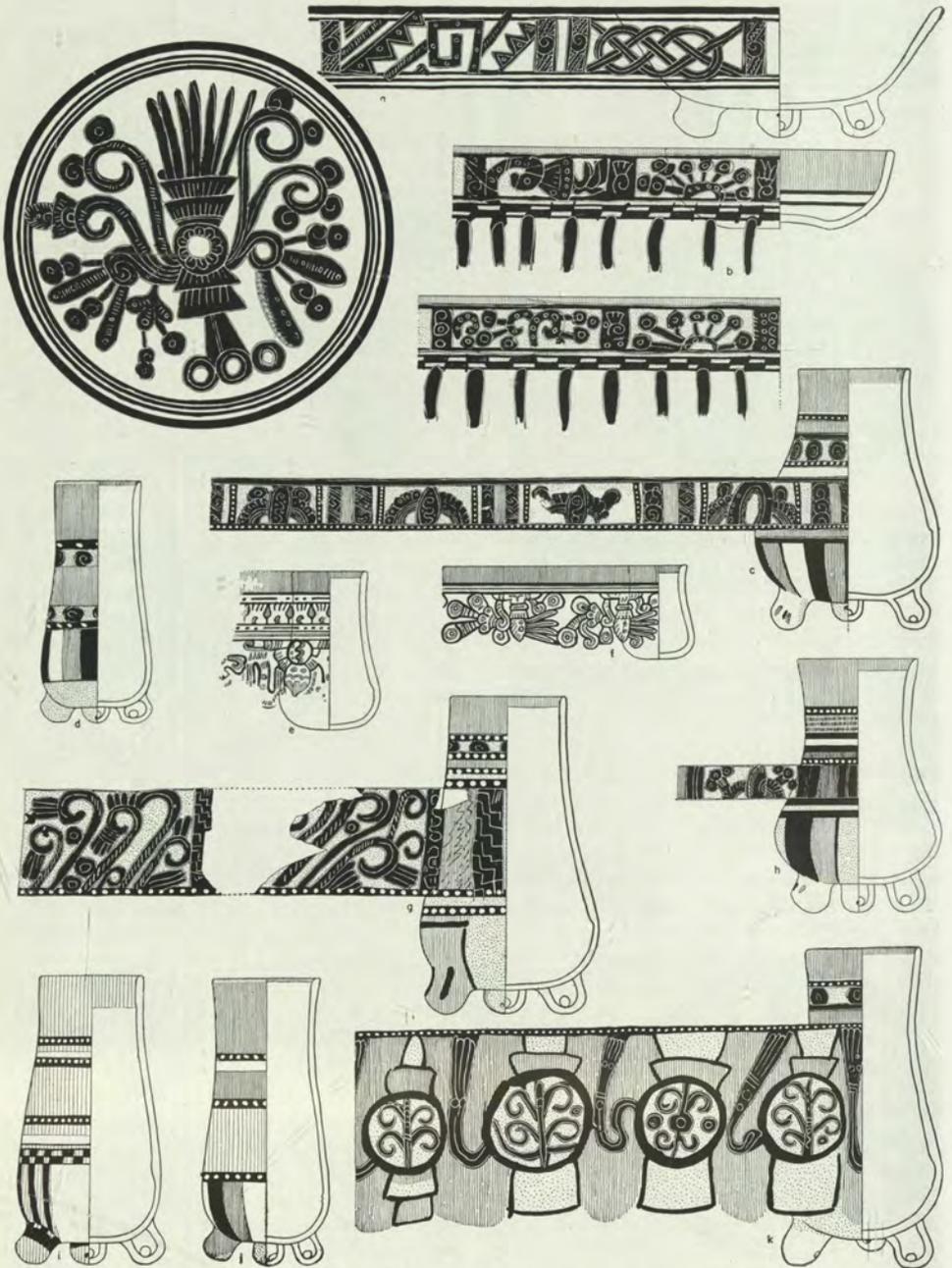


Fig. 7 (a-k, 30.2-4853, 661M, 578M, 30.2-4879, 4880, 1074M, 30.2-4878, 4876, 4877, 587M, 216M).
 a-b, Cerro Isabel Engraved Bowls; e-f, Small Legless Jars; c, d, g-k, Sinaloa Polychrome Jars.
 (All $\frac{1}{6}$ nat. size.)

Sub-type D. In color this bowl is like Guasave red-on-buff, but it is highly polished and different in shape and design (Fig. 7a). The exterior band of design is quartered, opposite panels being nearly identical.

Sub-type E. This vessel is thinly slipped with buff inside and out and has a wiped appearance (Fig. 6a). Decoration is polychrome, black, and orange-red, both highly fugitive. It is well smoothed, but not polished. The incising is lightly done.

Sub-type F. The slip is buff, painting is red and black, as in Sub-type E, not well polished (Fig. 6h). The flat rounded shape is unique at Guasave.

Sub-type G. The slip is more brown than buff, being colored in part by the smudging from the painted areas (Fig. 7b). The design is painted in dark brown, the rim and interior walls are rose-red, all highly polished. The incision is rather carelessly done.

In addition to these various sub-types, a classification based entirely on the complete vessels, other combinations and variations may be seen in the collection of sixty-six sherds which are not completely described and illustrated. An exceedingly fine piece (Fig. 6d), very highly polished and beautifully executed, does not fit into any of the above described types. The polychrome variants, such as those in Fig. 6a, h, are more common in the sherd material than in the whole vessels and could perhaps be considered as an entirely distinct type.

Discussion. A characteristic of this type of ware is its complex, curvilinear, and in part, I believe, pseudo-symbolic design. Next to Guasave red-on-buff it is the most common decorated type from the Guasave excavations and one of the most interesting.

The interior designs of the bowls in Fig. 6f, g are similar and appear to represent bundles of something or a twining or twisting of elements. This is not a common motive in "Mexican" art. The only closely similar example I have found is the incised design on a jar figured in the Boas album.¹ A comparison with this plate will show the obvious relationship. The tied or

twisted element is identical in both cases; other details, such as the curved arms terminating in circles, and the three-petalled flower-like effect are closely similar. According to Gamio² this decoration is of a type intermediate between Teotihuacán and Aztec. In the Codex Vaticanus B (p. 11) are two intertwined snakes, the twisted parts of which are drawn as three symmetrical wrappings in a manner very similar to these two drawings from Guasave.

In the two vessels under consideration, as well as that in Fig. 7a, series of small circles and cross lines are used as a filler for the various curved elements. Elsewhere in Mexico this is not an element of ceramic decoration, but it is precisely the motive seen repeatedly in the codices of the Borgia group as a decoration on the bare skin of the figures. (See, for example, Vaticanus B, p. 41.)

One design (Fig. 6c) is somewhat more realistic than the others. There is obviously an eye and a feathered headdress. The long curved element may represent hair, as it has the zigzag cross lines like the head in Fig. 4g. Originating from a circle to the right of this are three scrolls which one would expect to be the mandibles; below is more feather ornament to fill in the space. Both the interior and exterior designs on the sides of the vessel are quartered, two of the sections on the exterior being the solar-symbol motive.

One of the most curious Guasave designs is on the interior of the bowl shown in Fig. 6e. It is a conglomeration of various elements which are common to Mixteca-Puebla-Aztec religious art. The central almond-shaped figure I would take to represent the "flint knife" which is one of the simplest and most commonly recurring elements in "Mexican" art, both as a day sign and in various ways connected with sacrifice. It is given different features; half of the knife may be painted red to indicate blood or very often a face may be drawn on one side. The same almond-shaped form occurs commonly at Guasave. The markings are usually those seen in the example we are considering, a wavy line in the

¹ Boas, 1911-1912, Plate 36.

² Gamio, 1921, 7.

center and a series of arcs along one side. Perhaps the arcs suggest the chipping. Where a face may have been drawn by the "Central Mexicans" our figure has an extension ending in several plumes and a U-shaped hip protector. This gives some basis for our associating the Guasave drawing with the "flint knife" of the "Mexicans," as in the degenerate type of symbolism seen at Guasave several feathers could be all that remains to suggest a face. Furthermore, in our drawing, the supposed knife appears as if set in a supporting base very much like one figure in the Codex Magliabecchiano (p. 27). The analogy with that drawing is striking; in both cases the horizontal elements extend out from below the base and in the center is a circle cut with a curved line. Note also the jaguar skin markings on the projections of the base and the small circle and cross line device in the vertical side elements.

From the point of view of "Aztec" symbolism, this design does not make sense. It was obviously made by someone who was only partially acquainted with the standards of that tradition and was here, I believe, most interested in drawing a pleasing design.

In the band designs on the exteriors of the bowls to be seen in Figs. 6a and 7a, the outstanding element is what appears to be a knot. In Fig. 6a, this could be the ordinary square knot, such as is used to tie the ends of two ropes, but in Fig. 7a, another continuous element is inserted. I know of no similar use of the knot as a design in Middle America.

The interior of the bowl in Fig. 7a bears a pleasing symmetrical design with a marked "Mexican" feeling. The central vertical portion appears to be a modified feather crest and there are the jaguar skin and circle and cross-line devices and the three-petalled flower.

The painted design in the center of the bowl illustrated in Fig. 6i suggests a face and an arrow, but as the paint is poorly preserved and incomplete, no importance can be attached to it. The band design about the sides is a simple geometric. The vertical rectangular panels are a common feature of design at Guasave, occurring com-

monly in this type and also in Sinaloa and Guasave polychrome. This motive is not present in early Chametla design, but a bowl from Cerro Montoso, Vera Cruz, with a clearly similar type of panelling is figured by Strebel.¹

The most outstanding technical characteristic of the Cerro Isabel incised vessels, but not confined to this type at Guasave, is the use of painting and incising in combination, the latter outlining the painted areas. In both the Archaic and Teotihuacán periods in the Valley of Mexico this technique was used to a slight extent, but it was only in the Puebla region, in certain forms of Cholula polychrome, and in the Cerro Montoso culture of Vera Cruz, that it was used as effectively as at Guasave. This similarity to a trait of the Mixteca-Puebla area would not by itself indicate cultural affinity, but combined with many other specific resemblances in design motives and other objects, it attains significance.

SINALOA POLYCHROME

Eight complete vessels and one fragmentary vessel (Fig. 7c, d, g-k) belong in this series.

Treatment. The paste in these vessels is not distinguishable from that in the other decorated types. Only two vessels (Fig. 7c, h) have what can be considered a high polish over the paint. All of the others are well smoothed, but the paint surfaces are dull.

Vessel Shape. All are tall jars, varying in size and somewhat in proportions.

Decoration. The arrangement of the decoration is uniformly in bands around the vessels, but these vary in the presence or absence of incision and in the designs employed. All have black bands with white over-paint dots.

Sub-type A. Paint colors are maroon, black, and white on a brownish-buff slip. The incision is very light. Both of these vessels (Fig. 7c, h) are very well polished over the decoration, the paint being considerably blurred. In Fig. 7c the decorative band has four panels; in Fig. 7h, three panels.

¹ Strebel, 1885-1889, Vol. I, Plate 8, Fig. 21.

Sub-type B. (See Fig. 7k) A large fragment of a nearly identical jar is not figured. In both jars the paint is dull, as if faded. Fig. 7g may also be included in this category on the basis of color and finish, although it is a more straight-sided shape and has a different design pattern.

One of two identical vessels found together in one burial may be seen in Fig. 7d. (The other, 1056M.) The colors are as in the others of this sub-type, but the only incision is in the simple bands of spirals.

The jars shown in Fig. 7i, j have no incision. There is a difference in paint color. The jar in Fig. 7i is mainly colored with the light rose-red that forms the central band in the other.

Discussion. It is to be noted that most of these vessels have broad lines extending in a radial fashion toward the bottom center of the bowl, a feature which crops up repeatedly in various Guasave types and which is particularly common in Guasave red-on-buff.

The combination of painting and incising is the same as in Cerro Isabel engraved. In Fig. 7c, g there are the same vertical rectangular panels with simple geometric incision as in some examples of that type. Fig. 7h has three main panels of incised decoration in the central band, all with the same motive. The central figure in each has the same shape and, in part, the same features that we have considered elsewhere to be the "flint knife." These are also present in Fig. 7c. Both have the same elaborate arcs on each side, the component elements of which recur in other types in the Guasave series.

In "Mexican" ritual art, the flint knife is associated with sacrifice and the "precious blood" which it makes available. On page 66 of the Codex Vaticanus B, at the lower left, is pictured a vessel which, according to Seler, is filled with blood, which is indicated by a serrated arc extending up over the vessel, with some plume-like extensions reaching up from it. In our figures the arcs which extend outward from the "flint knives" are drawn in precisely the same manner as is the symbol for blood in the codex; we have also the upward ex-

tensions corresponding to the plumes. The association of a "flint knife" with a symbol for blood is highly significant, indicating that the artistic symbolism of sacrifice was retained at Guasave, not exactly as in Central Mexico, but by using the same elements of such symbolism.

The large bold design on the jar in Fig. 7k is undoubtedly symbolic. Doctor Alfonso Caso suggested that it may represent the ornamentation at the butt end of an arrow or maguey spine, such as is so commonly pictured in "Central Mexican" art.

Discussion of the Tall Jar Shape. These remarks apply also to those tall jars classed as San Pedro polychrome, Las Arganas incised, tall white jar, and small legless jars. Vessels of this shape were found at Culiacán by Sauer and Brand¹ and by Doctor Kelly who found them limited to the Aztatlán complex phase. They were not found at Chametla.

Jars of a similar shape are known from the region of Atoyac and Lake Chapala,² several closely resembling our tall white jar (Fig. 5b). There are no others from western or northern Mexico, nor are there any vessels of exactly similar shape from the Archaic or Teotihuacán cultures of the Valley of Mexico. The only piece from Aztec levels is one we have previously noted as having an incised design comparable with certain Guasave designs.³ A Cholula polychrome vessel illustrated by Joyce⁴ and some from Cerro Montoso figured by Strebel⁵ approach similarity in form, but they are without feet and could not alone be considered as related to the Guasave vessels.

Among the vessels from the Isla de Sacrificios are several which resemble the Guasave specimens in shape. I shall point out in a later chapter the very close similarity which exists between our white gadrooned jar and the tall alabaster jar from Sacrificios. These vessels from the Isla de Sacrificios seem to have come from Central America where this shape is most com-

¹ Sauer and Brand, 1932, 34.

² Lumboltz, 1902, Vol. 2, 318.

³ Boas, 1911-1912, Plate 36.

⁴ Joyce, 1914, 190.

⁵ Strebel, 1904, Figs. 254-257, 380, 381.

mon and where there are many almost identical to those from Guasave. The best series is that from Costa Rica published by Lothrop.¹ The jar in Lothrop's Plate 87 is almost identical to the Guasave form, even including the perforations in the feet.

This form of tall jar is definitely a Central American trait. How it arrived in northern Sinaloa is an important question for which we have no answer at the present time. Lothrop has pointed out that the closest Mexican connections of the late cultures of Nicaragua and Costa Rica are with the cultures of Cholula and Vera Cruz.² This connection seems to have consisted chiefly in movements to the south, making it difficult to explain the similarities between the tall jars of Central America and Sinaloa, when they do not occur in the Mixteca-Puebla where one would expect them to have originated. Perhaps there were movements northward into the Mixteca-Puebla, and the trait of making these tall jars was transferred through that area without its having been completely accepted into the ceramic pattern.

SMALL LEGLESS JARS

Two complete vessels (Fig. 7e, f) of this class were found.

Treatment. Paste characteristics are as in all other polychromes. The surfaces are buff slipped. There is a fair polish over the design.

Vessel Shape. These are like the tall jars, but without legs.

Decoration. Paint colors are brownish-red and black. In Fig. 7f this is nearly a pure brown; in Fig. 7e it is more of a purplish-brown. The designs are completely extended in the drawings. The surface of the taller jar has been eroded over all except a small portion, and all of the remaining design is reproduced.

The smaller vessel has an elaborate and very neatly drawn design. The same motive is repeated twice. Its central element is apparently the "flint knife" set in a base, similar to that on the Cerro Isabel incised bowl in Fig. 6e, but inverted. In both

cases, there is a three-petalled flower to the left of the "flint knife" from which extend several conventional rays, and at the other side are the conventional plumes.

The upper band on the larger jar consists of the solar-symbol motive; both above and below it are lines of dots and dashes, all characteristic of Navalato polychrome. The complex design below is more poorly drawn than in the smaller vessel, but the heart-shaped figure is highly significant, as it seems to resemble closely the sacrificial heart as it was drawn in Central Mexico. Its shape is the same as that of the hearts in the frescoes at Tizatlán, Tlaxcala,³ but its markings are different. However, the red painted portion of the lower end has a wavy border much like the hearts portrayed in, for instance, the Codex Borbonicus. Perhaps also the wavy line in the circle above and extending upward from the top of the heart was meant to represent the blood vessels as they are shown in the Tizatlán frescoes, but this may be carrying the analogy too far. The remainder of the design eludes any interpretation.

TALL WHITE JAR

Shape and Decoration. The entire exterior surface of the jar, except for the red rim band, is covered with a fairly thick white slip which was polished to a high gloss (Fig. 5b). The rim is a light faded red, extending down about eight millimeters from the lip on both the exterior and interior. Separating the red from the white is a fine indented line, as if made with a rounded point, not noticeable unless the piece is carefully examined.

In shape this is not unlike the other tall jars we have considered, except that the legs are somewhat more bulbous.

The chief decoration is in the modeling of the lower section. The gadrooning is formed by broad impressed grooves radiating from the bottom edge of the jar, curving over and joining at the top. Above this are two raised bands or ridges about six millimeters in breadth.

Discussion. In considering the possible

¹ Lothrop, 1926, Fig. 79, Plates 82 and 87.

² Lothrop, 1926, 398-399.

³ Caso, 1927b, Plate 2.

origin of this form of jar we meet with the surprising similarity between it and the large banded onyx jar in the Museo Nacional of Mexico which comes from the Isla de Sacrificios in Vera Cruz harbor.¹

The polished white surface of the Guasave vessel may have been meant to imitate white onyx. Although it is smaller and somewhat less graceful than the Isla de Sacrificios piece it is close enough in general form and in some details to have been copied from it. The closest correspondence is in the gadrooning of the bottom sides and in the presence of two raised bands just above. In the onyx jar the gadrooning extends higher up toward the neck and there is also the incised decoration not present on the Guasave specimen. It is to be noted, however, that the incised designs, circles, and hooks are common devices in Guasave decoration.

These very close resemblances in a number of features certainly indicate without much doubt the genetic relationship of these two pieces. This is one of the most outstanding bits of evidence we have that a part of the Aztatlán culture of Sinaloa had its origin in southeastern Mexico.

AGUARUTO INCISED²

Four complete vessels and twenty-three sherds (Fig. 8g, j-n, p-r) were classified as Aguaruto incised ware.

Treatment. In texture, the paste is not distinguishable from that of, for instance, Aztatlán polychrome, but it has been smudged in firing to such an extent that the surfaces and the paste are mainly black. The former varies in color from pure black to light brown, the paste is black or gray, or brown in those areas where the surface is brown. The surfaces are usually very well polished and in some pieces the marks of the polishing tool are prominent.

Vessel Shape. Most typical is the open tripod bowl (Fig. 8p-r), which is also the common shape at Culiacán. The small footless bowl (Fig. 8g) is unique.

Decoration. In the typical Aguaruto incised vessels the incision is evenly and

beautifully made. It was apparently done in the damp clay as the edges are only slightly ragged.

The bowl shown in Fig. 8g has a layer of powdery brilliant blue pigment spread over the design area. Remnants of such a blue paint are noticeable in the incisions of the bowl shown in Fig. 8r and in the small vessel (Fig. 8h) which we cannot consider true Aguaruto incised.

Discussion. As there is no uniformity of decoration we will consider each specimen separately.

The bowl illustrated in Fig. 8q is extremely well finished and the design excellently drawn, making it perhaps the most beautiful vessel in the Guasave series. It is obvious that the design is in some sense symbolic, in the manner of late Central Mexican art but also that the primary interest of the artist was to fill his space with pleasing design, which he did admirably.

In the side panel, at the top in Fig. 8q, is unquestionably a representation of the head of a feathered serpent, such as is common, for instance, on Aztec I pottery from Culhuacán. The curved element containing the small circles is supposedly the mandible, partly enclosing the eye at the left. The upper mandible which curves forward has a crest of feathers projecting from it and filling in the space in front of the jaws. A similar crest behind the mandible emerges from below the eye. The design at the other side of the bowl is basically the same, but the lower jaw is obscured and the curving arms end in rounded elements instead of the feather pattern. The two series of triangular elements on opposite sides of the bowl and between the serpent head sections are unlike any other designs from Guasave, the only possibility being that they are related to the solar-symbol motive.

From the point of view of "Mexican" symbolism the circle in the center of the bowl may be thought to consist of the scrolls forming two mandibles and the surrounding designs as crests emanating from them, but here the degeneration has proceeded farther than in the designs in the side panels. These interpretations are merely suggested as it is not possible to be

¹ Nuttall, 1910, Plate 8, Fig. 3.

² This type was found at Culiacán and named by Doctor Kelly.

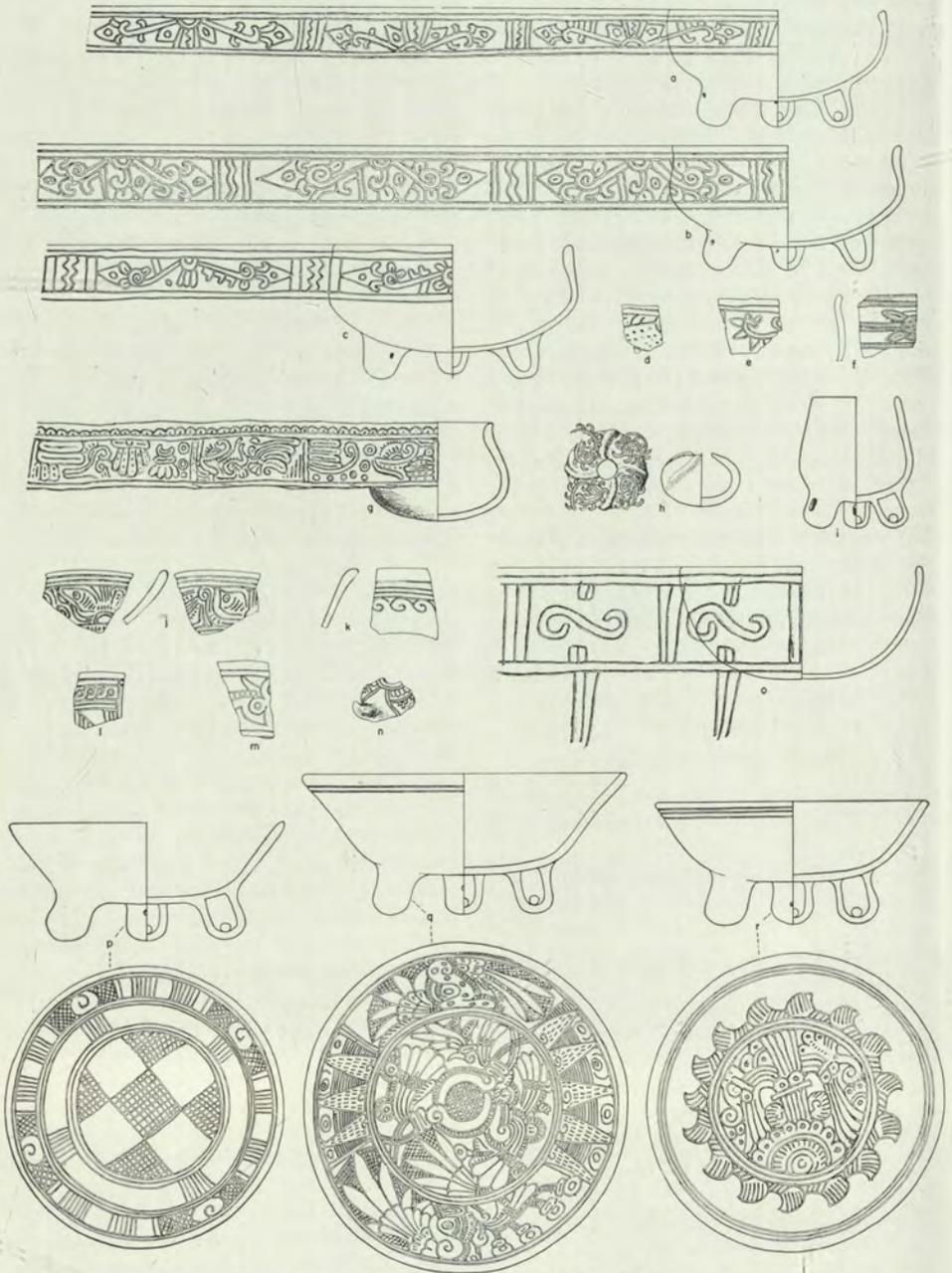


Fig. 8 (a-c, 30.2-4852, 4851, 671M; d-f, 30.2-5423; g, 635M; h, 555M; i, 30.2-4849; j-n, 30.2-5422; o-r, 258M, 287M, 632M, 30.2-4848). a-f, El Dorado Incised Pottery; g-r, Aguaruto Incised and other Black-Smudged Wares. (All $\frac{1}{8}$ nat. size.)

certain of the meanings of such designs. There can be no doubt, however, that there is a close resemblance in style and motives to the art patterns of the civilizations of Central Mexico.

Like the preceding, the bowl in Fig. 8r bears a design reminiscent of "Mexican" art and probably had some symbolic significance to the people of the Guasave culture. At the bottom is an arc cutting the circle, an element common in Guasave design. Projecting upward from it is a vertical element with drooping arms suggesting a plant or tree. Perhaps this is comparable to the drawings of trees in the Codex Vaticanus B (p. 17). At the upper right of this area is the three-petalled flower device which occurs on various Guasave pieces and on each side of the "tree" a "downy feather ball."

The various bars and dots of the design in Fig. 8g, plus the thrice-repeated serpent motive, give the impression of its being a series of glyphs and numerals, and, although no coherent scheme seems to exist, it may be an imitation of such a series. The upper border of the design is the motive variously used in the Aztec and Mixtec codices, often to indicate maize in a vessel. It is repeated here thirty-eight times. If it had been thirty-nine, we could imagine that it had some calendric significance. The pendent tassels device repeated twice in the first panel is suggestive of various Mexican corollaries, but it is not an exact duplication of any. The three curvilinear figures can be identified as conventionalized feathered serpents, in all cases facing to the right.

The simple design occurring on a somewhat cruder bowl (Fig. 8p) than the others just described is the only suggestion of a *molcajete* or *chile* bowl found at Guasave. However, the incisions are shallow and do not cover the entire bottom of the bowl and this could not possibly have been used for grinding.

The sherds in Fig. 8j-m are all from fine Aguaruto incised bowls and indicate variations in design. Of particular note is the fish-like motive on both the interior and exterior of Fig. 8j, which is precisely like a design on a red-on-buff bowl from Lake

Chapala in this Museum. On the exterior of the sherd in Fig. 8k is a simple scroll design, very much like that on a black incised ware of the Teotihuacán culture.¹

At this point we will consider all of the other black smudged vessels from Guasave, some of which are incised, but none of which conforms to the type known as Aguaruto incised. In no case is there more than one of each kind and it is impossible to establish types on this basis.

A miniature bowl (Fig. 8h) has four curved ridges radiating from its mouth. Between these ridges are four very lightly engraved curvilinear designs; both the incising and the designs are very much like those in the spindle whorls. There are remains of blue over-paint.

A bowl representing a distinct type of black incised ware is very thin-walled, the clay being hard and brittle and the incision deep and rough (Fig. 8o). The surface is deep black, extremely well polished inside and out. The simple design is repeated in five panels from which four sets of radial lines extend toward the bottom.

Another bowl (not reproduced, 30.2-4850) is identical with the above in shape and has a similar design. However, it is large, twenty-seven centimeters in diameter, and the paste is much coarser than in the preceding. It has a very deeply incised simple band design, consisting of half circles and hooks extending inward from each border of the design band.

A small, plain, black, undecorated tripod jar is the only one of its kind from Guasave (Fig. 8i). It is well polished and the marks of the polishing tool are quite prominent. The perforations in the feet are rectangular slits, the only occurrence of this at Guasave.

Two small jugs of the size and shape of that in Fig. 12g are black smudged. They are very poorly fired and tend to crumble when wet (not reproduced, 30.2-4882, 236M).

Sherds with designs exactly similar to those from Guasave were found at Culiacán and form the closest link we have between the Guasave culture and the Aztatlán complex at that other site. Aberrant forms, such as those in Fig. 8h, i, o, did not occur at Culiacán.

¹ Boas, 1911-1912, Plate 62, Figs. 11, 14.

No pottery in Mexico has such elaborate incised decoration as some of these Guasave bowls, in spite of the fact that incising is a decorative technique widespread among the higher cultures. Perhaps Aguaruto incised stems from the black incised wares of the Late Teotihuacán culture, but the only very exact duplication of design is the simple scroll decoration of the single sherd we have described.

The only similar use of blue over-paint of which I know is on some black incised Aztec pottery found at Churubusco, a suburb in the southern part of Mexico City. The color and nature of the paint seem to be identical with that on the Guasave vessels.

EL DORADO INCISED

We found three complete vessels and seventy-two sherds (Fig. 8a-f).

Treatment. Paste and surface finish are identical with that of Guasave redware. If there is a slip it is not visible, as the hard firing in what was undoubtedly an oxidizing atmosphere has made the paste red throughout. The surface is commonly slightly cracked and dark firing clouds occur. The marks of the polishing tool are visible and directed as in Guasave redware.

Vessel Shape. The three complete vessels are uniform in shape. As far as can be determined, all of the sherds are from bowls of the same form. The rim is constricted and the lip is usually slightly everted. The feet tend to be tapered, instead of bulbous, and may or may not have rattle pellets inside. Each leg uniformly has two perforations—a trait in general restricted to this type at Guasave.

Decoration. In all specimens decoration is confined to a single band of incised design around the exterior sides. The incising varies somewhat, being rather deep and ragged in Fig. 8b, and finer, smoother, in Fig. 8c. The incisions were undoubtedly made in the damp clay and their roughness is due to the abundant temper.

In five sherds the incisions are filled with a white chalky material containing white sand temper. This does not seem to have been characteristic of the type, however,

as it is unlikely that it could have been entirely leached out in the majority of specimens.

In the three complete specimens, and apparently quite uniformly, the decorative band was divided into three panels, separated by vertical or diagonal lines, one or two of which are zigzag. In comparison with the other Guasave types the design motives are remarkably uniform, nearly all of the sherds indicating the same design that is on the three complete specimens. This can only be described as two arrows emerging from a half circle and with various curvilinear ornamentations.

In one sherd (Fig. 8d) the area within the design is roughly punched. Another (Fig. 8f), although belonging with this type on the basis of its paste, shape, and incision, is a distinct variant. Before incising, both the interior and exterior were covered with a grayish-buff slip, and later the surfaces within the design were crudely painted a dull red. Only one sherd of this variant type was found.

Discussion. At Guasave this is a uniform and well defined type, but nothing comparable to it is seen at Culiacán or anywhere to the south. The vessel shapes are not unlike those of various Middle American wares, but this combination of shape and design is not found elsewhere. The incised designs have no definite parallels in other areas, but are vaguely reminiscent of certain Central Mexican motives.

Apparently this type represents a local development. It is my impression that the ware itself is in the tradition of the redwares of the Huatabampo complex and that the design is an adaptation from the Central Mexican style which was so strong in the Guasave culture.

GUASAVE POLYCHROME

Six complete vessels and sixty sherds (Fig. 9) were found.

The vessels included here as Guasave polychrome are not a uniform type, and with more material it might have been possible to classify them in several categories.

Treatment. In all the pieces the back-



Fig. 9 (a-g, 30.2-4859, 716M, 30.2-4858, 4864, 4861, 720M, 30.2-4860). Guasave Polychrome Bowls. (All $\frac{1}{6}$ nat. size.)

ground color is buff and the surfaces are fairly well polished.

Vessel Shape. The bowls are both tripod and plain hemispherical. Two are tripod bowls with more vertical sides than any others from Guasave and thus less graceful in shape (Fig. 9a, b).

Decoration. They are painted in black, red, and white; two are incised. Common to all specimens is the black line with the white dots. Each, however, must be considered separately.

The technique of painting and the motives are unique at Guasave (Fig. 9a). The painted surface is well polished so that the paint is considerably blurred. There is no exterior decoration except the red rim band.

The design is crudely, roughly painted (Fig. 9b). The side band is quartered, opposite panels being approximately the same. The center design contains elements which we have previously described: the half circle at one side, and in the center the large heart-shaped figure which may be the "heart" or "flint knife." Among the figures in the center of this is the scroll-U device.

The simple geometric interior decoration of the bowl in Fig. 9f is found in only one other specimen at Guasave, a fragmentary piece which in paste, finish, and exterior decoration is like the bowl in Fig. 9d. In the piece under discussion, the paint is polished to such a degree that it is badly smudged. The band on the exterior is painted red and finely incised. In the reproduction the hatching to indicate the red paint is omitted as it would confuse the design.

In treatment, surface finish, and shape the fragmentary bowl in Fig. 9d is similar to the fragment mentioned above, and the sherds of the two were found together. It is a fine thin ware and the paint is hard and durable and very highly polished. The design consists of two largest stepped grecques, the scrolls interlocking in the center of the bowl. Large grecques of this kind are found on other pieces, such as the scoops in Fig. 13a, b, and apparently similar interlocking grecques were the motive on the Guasave red-on-buff bowl shown in Fig.

3l. In Fig. 9d, half of the bowl is painted white and half red, each area bearing spots of the opposite color.

The exterior decoration is the red-on-buff checkerboard pattern similar to other Guasave polychrome pieces, but the black band with white over-paint is unique. This is one of the best examples of the scroll-U device which occurs in so many of the Guasave drawings. It is a curious motive which must have had some symbolic significance, and despite the fact that no exact counterparts occur, I feel certain that it is derived from "Central Mexican" art. It resembles the "blood" issuing from the wound on page 22 of the Codex Borgia and on page 26 of Vaticanus B. It may have originated in the manner of drawing the base of the arrow or maguey spine, but we can be certain of none of these comparisons.

In shape the bowl in Fig. 9g is very much like the previous one, and the plan of the exterior decoration is similar. The interior painting is in thin red paint and crudely executed. The interior surface is badly eroded.

The design in Fig. 9c is crudely drawn. In the center panel it is outlined with incision. The motive is obviously the same as in the two samples of Cerro Isabel engraved, that of several elements tied or twisted together.

In shape and exterior decoration the bowl in Fig. 9e is very similar to the Aztatlán polychrome; however, the paint is dull and thin and not well polished. The division of the interior design into quarters is unusual. It is crudely drawn, but in two of the quarters there is the suggestion of plumes. The border has the solar-symbol motive, but without the hooks at the bottom and with the pendent lines from above occurring irregularly.

LAS ARGANAS INCISED

One vessel (Fig. 10d) and seven sherds were found.

Treatment. A white slip was applied over the incised decoration and then well polished. The burnish on the maroon rim bands is better than that on any other Guasave types, being nearly as smooth as polished glass.



Fig. 10 (a-g, 262M, 30.2-5427, 4881, 564M, 207M, 184M, 241M; h-j, 30.2-5428). a, Burrión Polychrome; b, c, San Pedro Polychrome; d, Las Arganas Incised; e, "Insect" Bowl; f, Bamoa Polychrome; g, Nio Polychrome; h, i, Polished Red-on-Buff. (All $\frac{1}{6}$ nat. size.)

Shape. All of the seven sherds appear to be from tall jars of the same shape as the complete specimen. The feet on the complete piece are keeled and grooved, a shape not common at Guasave.

Decoration. The decoration consists of designs in delicate incision, made before slipping and firing. No sherds are large enough to indicate any other designs.

Discussion. The top band of decoration consists of the solar-symbol motive, here somewhat elaborated by the addition of a frame-line around the ray. In another way, however, this example of the motive is more like that on the Cholula polychrome vessel (Fig. 11e) than are any others from Guasave. Instead of the curved line or hook at the bottom of the band, this jar has concentric half circles exactly as in the Cholula specimen, and in the band below there is a similar series of circles. In our specimen, however, the circles have the two arcs which we have described elsewhere as occurring in "Mexican" art (see Fig. 10e).

The lowest and major band of design is highly complex and completely "Mexican" in style. Across the top of this section and dipping down to delimit the four panels of design is a band nearly identical with one which similarly frames a picture in the drawing on page 41 of the Codex Vaticanus B. Within the panels are included various elements such as scrolls and plumes, common to Mixtec art. The only identifiable elements are perhaps the oval figure in the third panel, which could be the heart with its blood lines or, in the second and fourth panels, the pairs of pendent figures which have the shape of the "flint knife." The details have, in general, lost their identity, but there can be no doubt as to the affiliations of the style.

SAN PEDRO POLYCHROME

One complete vessel and seven sherds (Fig. 10b, c) were classified as San Pedro polychrome.

Treatment. The surface of the single complete vessel is unfortunately badly pitted and eroded. However, it had been well smoothed in its manufacture, but does not appear to have had a very high polish.

Several of the sherds have an extremely good polish.

Vessel Shapes. The complete jar is the tallest example of this shape from Guasave. Three sherds are apparently from similarly shaped vessels and three are from open bowls, probably very similar to the Cerro Isabel incised bowl illustrated in Fig. 6c.

Decoration. The drawing of the complete vessel in Fig. 10c is probably not entirely accurate because of the poor preservation of the finish. This is especially true in regard to the separation of the two shades of red. In its plan of decoration this jar is, of course, very much like the Sinaloa polychrome jars, with its main design in a broad band, the radial lines to the bottom, and the white-dotted black border line. Peculiar to San Pedro polychrome, however, is the use of red over-paint on the white areas, and, in design, the variously decorated circles. On the exterior of one of the bowl sherds is a typical example of the solar-symbol motive.

The color and the interior decoration of several of the bowl sherds are exactly like the interior of the Cerro Isabel incised bowl mentioned above. In various ways this type is closely related to others.

NAVALATO POLYCHROME

One complete bowl and twenty-seven sherds (Fig. 11a-d) are included in this classification.

Treatment. The painted surfaces are apparently buff slipped, the same color as the clay. Surfaces are fairly well polished, but to a higher gloss in the one complete bowl than in any of the sherds.

Vessel Shape. All sherds are from more or less hemispherical bowls, occasionally with rims slightly incurved as in the complete specimen. Vessels of fairly large size are indicated.

Decoration. The painted decoration is always in two colors, black and red. The red varies from a light orange red to brown; the black may also vary to dark brown, as it does in the case of Fig. 11a.

In all but three of the twenty-seven sherds only the exteriors are decorated. The style of the interior decorations is the same as the exterior. The arrangement

and the motives present in the complete bowl are most typical of this class of ware. Nearly all examples have the band of small stemmed triangular or quadrangular elements with the pendent lines between them and the hook below. I have called this the "solar-symbol" motive. Also common is the broken line with the series of three dots.

A common variation of this band design is one which has large spirals below it and

The motive forming the band of decoration on the bowl in Fig. 11a, which is most characteristic of Navalato polychrome design, also occurs on five other vessels of various types and sherds of others (see Figs. 6c, 7e, 9e, 10d, 10f). It is usually restricted to a narrow band near the rims of vessels. The various elements of the motive differ somewhat in shape and proportion, but always present are the row of "pine tree-like" triangles, a series of short

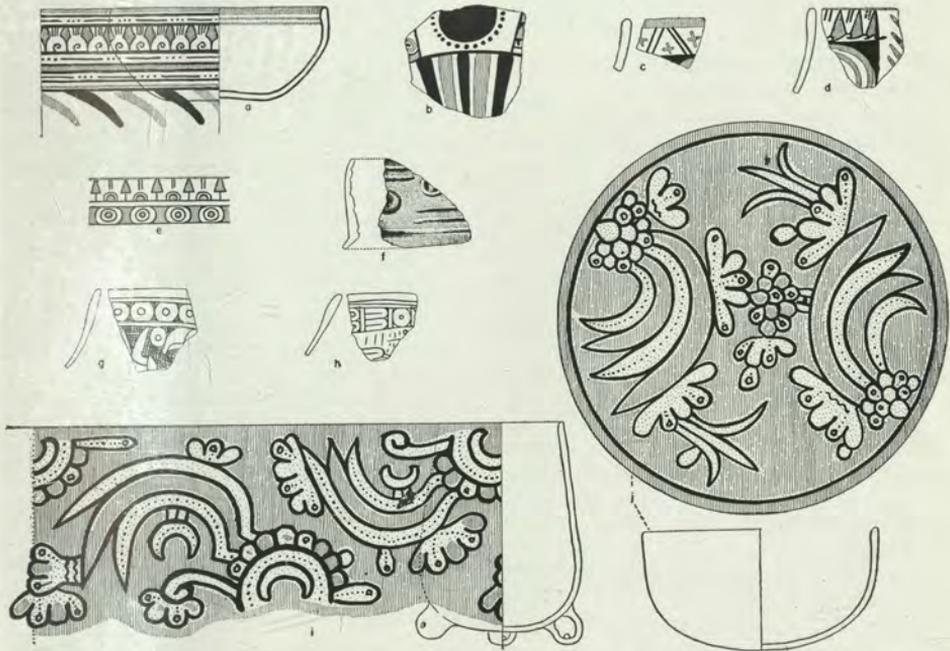


Fig. 11 (a, 280M; b-d, 30.2-5424; f, 30.2-5432; g, h, 30.2-5435; i, 742M; j, 1009M). a-d, Navalato Polychrome; e, Design from Cholula Polychrome Vessel; f, Red Grooved Ware; g, h, Red Incised Ware; i, j, Tamazula Polychrome. (All $\frac{1}{8}$ nat. size.)

the band is broken as in Fig. 11d. Several other designs are shown in Fig. 11b, c.

Discussion. Navalato polychrome was found by Doctor Kelly at Culiacán and named by her. The Guasave variety is not identical to that from Culiacán but is sufficiently similar to be classed as the same type. It seems to have been perhaps the most popular polychrome in northern Sinaloa as it is the only painted ware other than Guasave red-on-buff that is found on the sites along the Sinaloa and Fuerte rivers.

lines from the upper edge of the band, and usually the hook coming up from the lower border.

This motive is, I believe, a very strong indication of relationship between Guasave pottery and Cholula polychrome which is found in the state of Puebla. In Fig. 11e is shown a portion of a band design taken from a Cholula polychrome vessel found near the town of Cholula.

In general, it is precisely the same motive which is so common in Guasave design,

except that usually the latter has small hooks instead of the half circles along the lower edge. Only in the Las Arganas incised vessel in Fig. 10d are the half circles used exactly as in the Cholula design, and here there is also a band of circles just below.

This motive is not common on Cholula polychrome ware, but is undoubtedly a simplification of a more complex and obviously symbolic design which occurs commonly on both Cholula and Cerro Montoso polychromes. Usually the triangle or arrowpoint shape with the recurved base alternates with a simple triangle.¹

Beyer has discussed these symbols and points out their obvious resemblance to the rays of the sun disc, as on the Aztec calendar stone, and calls it the band of solar-symbols.² It seems clear that the simpler design from a Cholula vessel which we have figured and the same motive as found at Guasave must be a simplified form of the solar-symbol motive. It is impossible to say whether or not the Guasave artists understood this origin of their design, but it seems very likely that they did not.

"INSECT" BOWL

Treatment. The paste of this "insect" bowl (Fig. 10e) is not distinguishable from that of the other polychrome vessels from Guasave; thus, despite the unique features of the bowl it must have been a local product. The surface is an even brownish-buff color without any visible slip and is well polished inside and out. Slight marks of the polishing tool appear on the exterior, but not on the interior.

Vessel Shape. This one vessel is quite distinct in shape from any other found at Guasave. (See profile.) The walls are thicker than in most Guasave vessels, but it is a very graceful and well-formed bowl.

Decoration. The rim and the outlines of the figures are in reddish-brown paint, browner than that in the Aztatlán polychrome. The circles in the side panels

and the insect design are filled with a thin, pinkish-red paint. Certain of the rectangles in the side band are buff, but the remainder of the sides of the bowl, down to the central circle, was covered with a creamy white paint. This was the first to be applied, and as it is quite fugitive it has in large part disappeared, taking with it some of the overlying red paint. However, this destruction has not proceeded so far that we cannot determine the entire design with certainty.

Discussion. The figure in the center of the bowl is obviously meant to represent an insect. It is somewhat realistic only in its general form; the body is divided into two sections, to the anterior of which the appendages are attached. Realistic details are lacking; it seems that the painting was meant to be either a symbol or, as is attested by the symmetry of the design and its adaptation to the circular space, merely an artistic production.

Without the many other elements of Guasave design whose relationship to Central Mexican art is certain, it would perhaps be unwarrantable to compare this insect with the spider which was an important symbol in Aztec mythology and which is painted a number of times in the Tonalamatl of the Codex Borbonicus. There it is seemingly painted with eight legs and in our drawing the various appendages could perhaps be counted to that number. Comparison of the two will show their general similarities. Paso y Troncoso, in his commentary on the Codex Borbonicus,³ interprets the spider as being a symbol of Mictlantecutli, the god of death. Selser⁴ thinks it is rather a symbol of the series of deities which descended from the heavens on spiders' webs.

Another resemblance to a Central Mexican motive is the following. The abdomen or rear section of the body of the spider in our drawing is almond-shaped, and the painted area at the end terminates in a wavy line like that of the "heart" on the small jar in Fig. 7e. The scroll at the other end, however, has a marking common to those figures we have called the "flint

¹ See Joyce, 1914, Fig. 39; Strebel, 1904, Figs. 371, 373, 374, 375.

² Beyer, 1922, 17-18.

³ Paso y Troncoso, 1898, 72.

⁴ Selser, 1900-1901, 52.

knife." If our other analyses are correct this is a composite figure.

The circular elements in the side panels, which also occur on the jar in Fig. 10d, are very similar to those on one vessel from Cerro Montoso figured by Strebel,¹ where they are in conjunction with the heart and skull motive which is in turn much like the frescoes of Tizatlán.

We cannot point to any one culture or area as the place of origin for the influences we see in this bowl. This may be due either to the eclectic nature of the Guasave culture or the fact that in our limited knowledge of the distribution of cultures in Mexico we have not yet defined that cultural entity from which the Guasave traits sprang.

BURRION POLYCHROME

We have only one complete vessel (Fig. 10a) classified as Burrion polychrome.

Treatment. The vessel is unbroken, but the paste is certainly not radically different from the general Guasave type. A buff slip covers the interior and the rim of the exterior, ending irregularly just below the painted area. The slip has a somewhat wiped appearance. The surface is well polished, the painted design being considerably smudged. The polishing extends down to a triangle outlined by the three legs. The bowl has a somewhat different feel from any of the others—something which cannot be better described than to say that it is "wooden-y."

Vessel Shape. The bowl is deeply rounded, not exactly like any other vessel in the Guasave series. The feet are smaller and rounder than is usual.

Decoration. Paint is black and red, uniform throughout. The style of decoration is quite unique at Guasave. There is no occurrence of a similar rim treatment wherein the colors on the lip itself alternate. Parts of the side band design, like the checkerboard and the vertical zigzag line, are common to other types, but the circles containing sinuous lines are strange.

The design in the circular center panel is painted partly in negative, the red paint serving to outline the central motive which

remains buff. Several elements of the design are recognizable as occurring in a number of other types of ware, but here they have been adapted to even a greater extent in forming a simple pleasing combination, as in the half circle at the bottom with the three-petalled flower just above it, somewhat distorted to fit into the available space. However, it is quite certain in this case that the artist was interested almost entirely in design and not in symbolism and that he was highly successful in the use of his material.

BAMOJA POLYCHROME

Bamoja polychrome consisted of one bowl, no sherds (Fig. 10f).

Treatment. The paste is definitely harder than in most of the polychrome Guasave types and the tempering material is perhaps finer. The walls are very thin and fractures are straight. The vessel is thinly slipped with buff which has a wiped appearance. All surfaces are very well polished.

Shape. The shape is different from that of any other bowl at Guasave (see profile, Fig. 10f).

Decoration. The paint is red and black. There is a fine incision on the exterior. The exterior band design consists of the solar-symbol motive, but varies in that the "rays" are square instead of triangular. The lines radiating toward the bottom center are curved. Below the band of design is the band of checkerboard which is also common in Guasave red-on-buff.

Interior decoration consists of a quartered band, opposite panels of which contain the solar-symbol motive. The central panel is badly destroyed and the design, as reproduced, is quite incomplete. However, if the drawing is observed from the left, what is perhaps a long curved body with plumes at the tail, in the form of a long feather headdress, can be seen. At least the design is of this nature, if the details cannot definitely be determined.

NIO POLYCHROME

Two bowls and twelve sherds have been classified as Nio polychrome (Fig. 10g). (30.2-4857, not illustrated.)

¹ Strebel, 1904, Fig. 374.

Treatment. Interiors are slipped, fairly well polished.

Vessel Shape. The two complete bowls are nearly identical in form. (See profile.)

Decoration. Paint is black and red. In the two vessels these colors are quite different. In the one illustrated the red is more of a light reddish-brown and in the other it is purer red. The sherds show this same variation in color.

On the exterior the two complete bowls have only the painted rim lines and the paint on the outside halves of the legs. Five sherds have the main decoration either on the exterior or on both sides. In the two complete bowls the painted design is similar in the division of the field and in that they are crudely and carelessly painted. In Fig. 10g various elements we have previously described can be distinguished. Perhaps the radial figures in the center area are feathers. Note that the solid figures in the side band are outlined with black, a feature of Navalato polychrome.

The other complete bowl, not figured, has a somewhat similar band design, but that in the center panel has entirely disappeared.

MINIATURE EFFIGY VESSEL

The paste and finish of this miniature effigy vessel (Fig. 5c) are, as in Aguaruto incised, gray and well polished. The bottom is flat and the sides gadrooned in the same manner as in the tall white jar. The projecting head may represent either a frog or a turtle. It is hollow and contains a clay pellet to form a rattle. This is the only vessel from Guasave with moulded ornament of this kind. This is surprising when we consider that the Guasave culture contained a great many traits which originated in the higher cultures of Central Mexico where various kinds of modeling were always present and usually abundant. In the main the West Coast cultures eschewed modeling in pottery and stone carving, and yet they must have been acquainted with these techniques.

At Culiacán Doctor Kelly found a tall jar with an animal head protruding from the side, and a purchased collection from El

Dorado, Sinaloa, contains some small vessels modeled in the form of human figures. The Culiacán and Guasave pieces more closely resemble Central American forms than they do any Mexican pottery, and that is also true of the turkey jar which Lumholtz found at Tepic. Our specimen is a miniature of the tall jar form and its history is perhaps linked with that of the tall jars.

GUASAVE REDWARE

Forty-two complete or nearly complete vessels (Fig. 12, Fig. 5d, e) belong under this classification.

Treatment. The paste in Guasave redware does not differ in composition from that of all other types of ware from Guasave. It is, however, definitely harder and lighter in color, seemingly due only to a difference in firing technique. In some vessels the paste is extremely hard, leaving very straight fractures. The bowls have a light gray core, merging into brick-red, approximately the color of the slip at the surfaces. In the small-mouthed jugs, the gray core continues to the inner surface, only the exterior surface being reddened.

Jugs and jars are slipped over the entire exterior surface, or to a point slightly above the bottom-center depression. Bowls may be slipped only on the interior, the slip reaching out to just over the rim, or they may be slipped both on the interior and the exterior. The bowls with incurved rims are completely slipped, interior and exterior. The slip varies in color, ranging from slightly brownish-red to a somewhat rosy red. Firing clouds are fairly common. The slip is usually quite hard and durable, but is occasionally fugitive, particularly in the larger bowls.

After the application of the slip the polishing tool was used and the marks or facets caused by this can always be seen. In bowls the strokes of the polishing tool were around the vessel near the rim and crosswise in various directions on the bottom, both on the interior and exterior surfaces. In jugs the necks were polished vertically, the tops of the bodies in short straight lines and the main body of the jug around the circumference. Some jugs also have a

slight dimpling of the surface like small anvil marks, commonly on the sides and bottoms. However, the surfaces are not highly burnished, being usually quite dull. Atypical is the large globular jug (Fig. 12k) which is very highly burnished.

Vessel Shapes. Most of the vessel shapes of Guasave redware are illustrated in Fig. 12 and in Fig. 5d, e. There are seventeen small-mouthed jars of various types. Two of these have straight chimney necks like Fig. 12a. Ten are of the swollen-neck shape (Fig. 12b-g, i, j). There is only one of each of those in Fig. 12h, j, m, the latter two not having been found by us in the excavations, but during plowing and in treasure-hunting excavations within seventy-five meters of the mound.

Five bowls have restricted rims (Fig. 12n, o, v), the two not illustrated being large fragments. The smallest (Fig. 12o) has a straight but restricted rim; the others are curved. Six large plain bowls (Fig. 12r, s, w, x) are characteristically warped. Of six small bowls, two are illustrated in Fig. 12t, u. A vessel unique in shape is that shown in Fig. 12z. It is very curious in that it has a hole in the side, 1.2 centimeters in diameter, which was punched in when the vessel was made. The surface is slipped and finished up to the constriction of the neck but above that it is rough and unfinished and broken off. The inside of the rim portion is rough, like the interior of the jar. I am able to make no suggestion as to the possible use of such a vessel.

One large fragment is of a medium-sized globular vessel with a short sharply recurved rim.

The two gadrooned vessels in Fig. 5d, e were both found with Skeleton 29. The larger one is especially well made and of esthetically pleasing form. These, and the one tripod vessel, show the result of influence from the southern tradition, the gadrooning being like that in the tall white jar (Fig. 5b).

One sherd (Fig. 17ff) appears to be from the mouth of a three-tubed stirrup mouth vessel. I know of nothing similar to this from Mexico, although several jars in our purchased El Dorado collection consist of a double body—one above the other, con-

nected by three tubes, a related conception. Another sherd from Guasave has a curved tube projecting from it.

Decoration. The lips of the seven large bowls are lightly and neatly nicked on the outside edge. The swollen-necked jugs have series of shallow impressions about the rim shoulder and just above the point of greatest circumference. All other decorative features are discussed under vessel shape.

Stratigraphic Position. Guasave redware was found with burials at all levels in the mound. The swollen-necked jugs were commonly found in those graves containing many vessels belonging to the typical Aztatlán complex. However, all except one of the large bowls, which are somewhat suggestive of Southwestern forms, were found with Burial 29. The decorated pottery in this burial is somewhat distinct from that of the typical Aztatlán complex pottery and may belong to a slightly earlier period.

Discussion. Technically this is the finest ware in the Guasave series. There is a certain degree of variation in quality, the smaller bowls being relatively coarse, but the larger bowls and jugs are thin, hard, and very well made.

In my opinion this Guasave redware belongs to a tradition completely distinct from that of the bulk of the decorated types at Guasave. It is one of the most important indications that at Guasave we have not found a unified culture, but one which had recently been formed by the combination of diverse elements which had not yet had sufficient time to blend into a distinctive cultural complex.

The background for the Guasave redware is undoubtedly what I have chosen to call the Huatabampo complex. The name is that of a town on the Mayo River in Sonora near which we found a number of large sites where the most typical pottery was a fine hard redware which I think is related to the redware from Guasave. A complete description of these sites will follow in another report. I will indicate here only sufficient details to substantiate my comparison of the redwares.

The sites on the Mayo River are situated

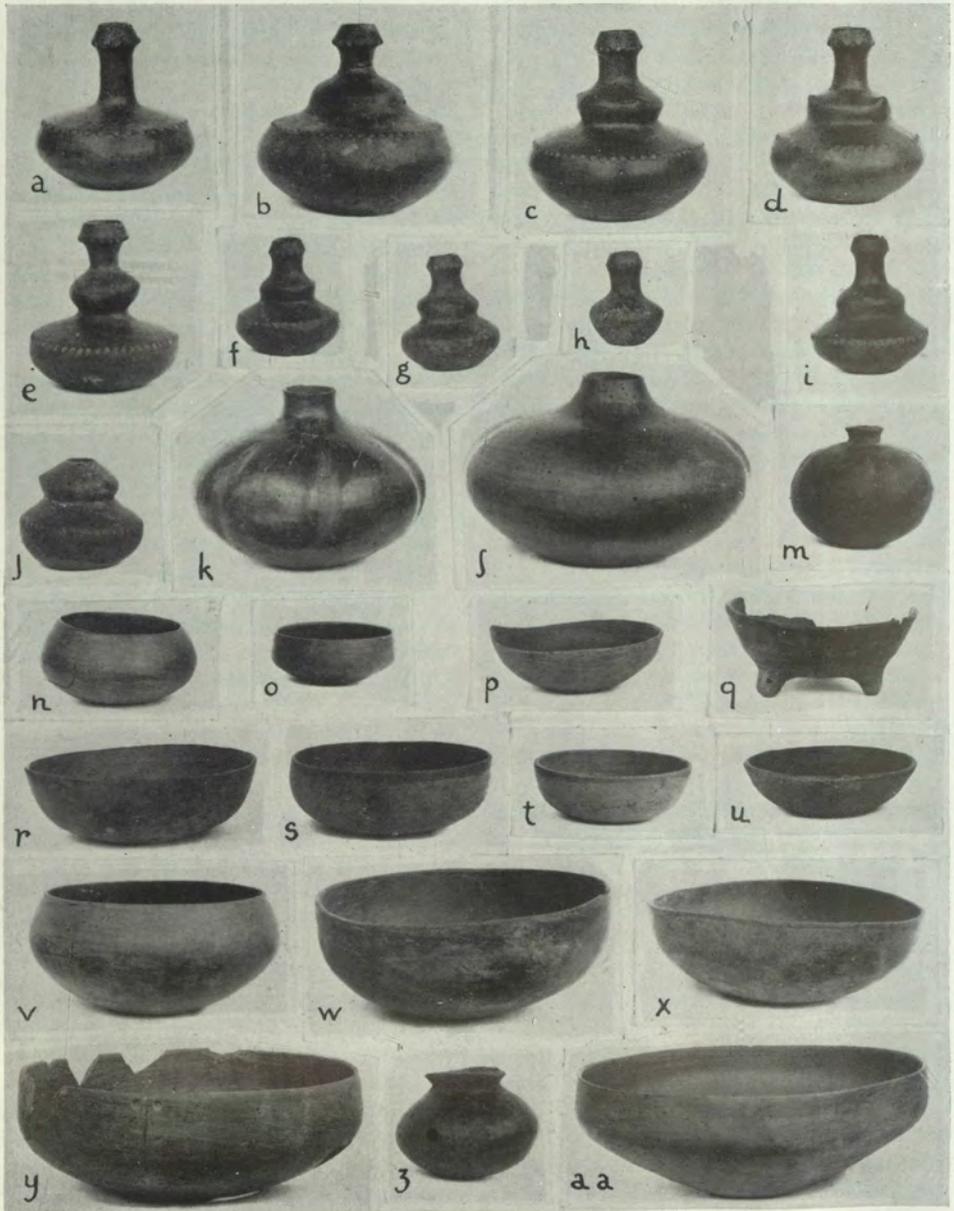


Fig. 12 (a-p, 1053M, 30.2-4884, 223M, 1055M, 30.2-4885, 4889, 220M, 219M, 30.2-4886, 367M, 30.2-4891, 1052M, 511M, 257M, 30.2-4895, 252M; q-s, 30.2-4905, 4899, 4900; t-v, 251M, 30.2-4902, 265M; w-z, 30.2-4896, 4908, 4906; aa, 1051M). Guasave Redware. (Diameter of y, 35 centimeters.)

on the flat river bottom land about four miles from the present river course, but alongside various old river channels which are now almost completely filled. The large areas covered with sherds indicate their occupation by a large population. Besides the redware mentioned above, these sites yielded a large amount of a coarser plain ware, a very small quantity of incised ware unlike any of the incised wares found in Sinaloa, and one sherd of crude painted ware of unknown affiliation. The decorated types of Sinaloa pottery and legged vessels were completely absent. We found very few artifacts other than pottery. A small bi-conical spindle whorl closely resembles those from Chametla and several fragments of pottery ear spools, all seem to indicate that the occupation was contemporary with the earlier phases of the Sinaloa cultures, as at Chametla, and earlier than the Aztatlán complex phase at Guasave.

The Huatabampo redware consists of plain hemispherical bowls, with the rims extended to form scoop-like handles and small swollen-neck jugs. The jugs are not like those with the chimney necks most common at Guasave, but very similar to the one example shown in Fig. 12j. This identity of one vessel form, plus the general similarity in the wares, makes it certain that the redware at Guasave is part of the Huatabampo complex.

The Huatabampo redware, found no farther to the north than the Mayo River, occurs on the Fuerte River, and is present in a variant form at Guasave, but with minor exceptions has been found no farther to the south. A purchased collection which was reportedly made at El Dorado on the San Lorenzo River includes one small jug exactly like the most common type found at Guasave, but none of this was found in the large excavations conducted by Kelly at Culiacán or in the surveys of central and southern Sinaloa.

I consider the above mentioned facts to indicate the following: Previous to the Aztatlán complex phase, a cultural complex existed in southern Sonora and northern Sinaloa, the chief pottery of which was an excellent redware. It later contributed to, or was mixed with, other

cultures coming from the south, a combination which formed the Aztatlán complex as we found it at Guasave.

The Huatabampo culture is not typically Middle American. We found some crude figurines and some modeled animal heads as lugs on pottery vessels, but, in general, the pottery is thin, and entirely absent are the legs and heavy use of modeled clay characteristic of Middle American ceramics. On the other hand, it is not a Southwestern complex, although the general simplicity of vessel form and certain aspects of shell carving suggest the Southwest. We cannot speculate on the origins of the culture, but suggest that it is largely a local development with certain traits taken from both the Middle American and Southwestern areas.

Although we cannot estimate its significance, it should perhaps be pointed out that the seven large red bowls, all except one of which were found with Skeleton 29 at Guasave, bear a certain resemblance to Southwestern forms. They are large, uniformly thin, with unthickened rims, and are markedly warped as is typical of bowls from many places in the Southwest, like those from Pueblo Bonito or the Mimbres Valley.

AMOLE POLYCHROME

This name is here applied to a series of seven vessels which are sufficiently alike to be considered a type. Several other pieces which, although similar, are distinct, are included here for the convenience of classification. Their common traits are decoration in broad black and red lines on a buff background, without incision.

Material. We have eight complete vessels, one partial vessel, of Amole polychrome (Fig. 13).

Three vessels (Fig. 13a-c) are ladle-shaped, being perhaps replicas of gourd ladles such as are used throughout Mexico today. One large bowl has an incurved rim and two others and the fragment are plain hemispherical bowls, those in Fig. 13f, i being large vessels, the latter found as a cover over a burial olla.

Decoration. The decoration consists of black and red paint on the buff-slipped

background. Usually the red paint forms, in part, the background for the design and covers the interiors of the vessels. A decorative motive more common on these vessels than on any other Guasave type is the stepped grecque. In the one illustrated in Fig. 13a, a large bold grecque completely covers the exterior, in a manner suggestive of gourd decoration. In Fig. 13b the same grecque is on the interior, while on the exterior is a band design, some of the elements of which are unique in the Guasave series. The stepped grecque is beautifully used in a band on the exterior of the bowl in Fig. 13d, and apparently it was the motive used in the fragmentary bowl in Fig. 13f. The large bowl (Fig. 13i) and the ladle (Fig. 13c) and the incurved-rim bowl (Fig. 13e) have, in the main, unique styles of decoration. In the latter bowl approximately the same element is repeated four times and the interior is all red.

Two bowls (Fig. 13g, h) are both unlike anything else from Guasave. The first is crudely made, unpolished, with a light buff slip and a rather vague painting in black and red on the interior. The second is better finished, with a buff slip on the exterior and the interior all painted red. The exterior design, shown in Fig. 13h, resembles other types in its arrangement. The knot design is like that in the Cerro Isabel incised bowls.

Discussion. A characteristic feature of Amole polychrome is that the red paint which partially forms the design usually covers large portions of the vessels, like the interiors of bowls. The vessels are thin and well made and the shapes are all those found in Guasave redware. It seems then that they are genetically related to it. The technique of manufacture is that of the redware to which designs from other sources have been added. Amole polychrome does not occur at Culiacán or to the south.

Scoops or ladles of the shape of those illustrated in Fig. 13a, b occur rarely in the Middle American cultures and have not been found at Culiacán or in southern Sinaloa. However, they are a very common form in Huatabampo redware and oc-

cur quite commonly in Hohokam and other Southwestern pottery. We can conclude nothing from the presence of these forms at Guasave.

It is indeed curious that the stepped grecque (Fig. 13d) is used so commonly and nearly exclusively in Amole polychrome, as it is an element of decoration which was undoubtedly an import from the region of Central Mexico. It is precisely the same motive which in Mexico is commonly known by the Aztec name *Xicalcolihqui*, and which was common throughout Middle America¹ and even in Peru. In Mexico it appears to have been used only in the later periods. It occurs as a stamped decoration on some black Teotihuacán sherds,² and also on some large red-on-buff jars, both of which, according to Doctor Vaillant, belong to Late Teotihuacán V, but otherwise it is restricted entirely to Aztec times.³ If, therefore, the inspiration for the Guasave grecques came from Central Mexico, it is quite certain that it could not have been previous to 1100 A.D.

The origin and chronology of the stepped-grecque motive should be thoroughly studied. According to Beyer⁴ its earliest appearance in the Maya area is at Yaxchilan, which, according to the Spinden correlation, is dated at about 500 A.D. The grecque occurs in the Southwestern area,⁵ but never in quite the classic form of Middle America. Its occurrence in the Southwest may be interpreted as a result of diffusion, but it seems more likely to me that its presence there is accidental, a result of the great preoccupation in the Southwest with such design elements as the scroll and the serrated figure.

POLISHED RED-ON-BUFF WARE

Only fifteen sherds of this category were found at Guasave, three of the most elabo-

¹ Beyer, 1927.

² Boas, 1911-1912, Plate 60.

³ Too late to make changes in the manuscript I have learned that the stepped grecque motive had a longer history in Mexico than is apparent in the published sources. Doctor Caso has found the "classic" stepped grecque to occur on Monte Alban II pottery from Monte Alban. My conclusion that the stepped grecque is only of late occurrence in Mexico is therefore incorrect.

⁴ Beyer, 1927, 87.

⁵ See, for example, Martin and Willis, 1940, Plate 32, 4.

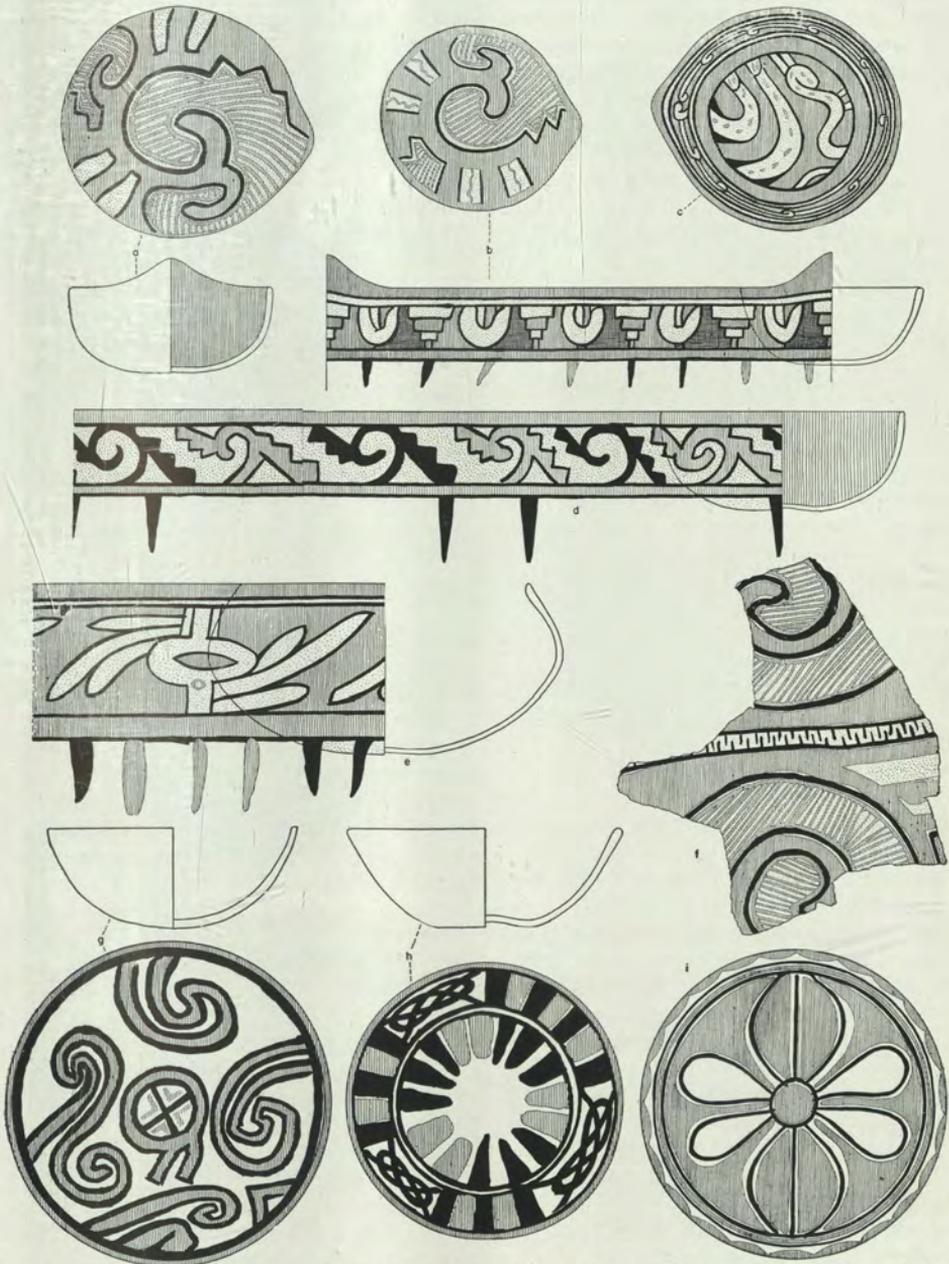


Fig. 13 (a, 30.2-4866; b, 523M; c-h, 30.2-4870, 4869, 4868, 4867, 4871, 4872; i, 658M). Amole Polychrome. (i, 1/12, all others, 1/6 nat. size.)

rate being shown in Fig. 10h, i, j. Two (Fig. 10h, j) have very highly polished surfaces and very neat painting. According to Doctor Kelly the sherd in Fig. 10i comes close to being her red-on-buff of the Aztatlán complex at Culiacán.

RED INCISED WARE

Two sherds (Fig. 11g, h) of red incised ware were found. The incisions are shallow and were made after the vessel had been slipped red and dried. They are therefore of a light color and make a good contrast with the red slip. One of the smoking pipes (Fig. 15d) is decorated in the same manner.

RED GROOVED WARE

Only one sherd (Fig. 11f) represented the red grooved ware. The decoration consists of broad rounded channels which were made before the application of the red slip. The one sherd is unique at Guasave; it is unlike any known type of Mexican pottery.

AGUARUTO POLYCHROME

One sherd from Guasave was identified by Doctor Kelly as Aguaruto polychrome.

TAMAZULA POLYCHROME

These two vessels (Fig. 11i, j) were purchased in Tamazula, the next large town down the river from Guasave. They came from a mound located on one of the terraces on the east side of the river, across from the town. The ware is thin and hard, and, of our types, they most closely resemble Amole polychrome. The designs, however, are unlike anything found at Guasave.

From the same site we also obtained several redware vessels, one, a small jug identical with those from Guasave, and, as they were found with burials in a mound, it seems probable that they belong to the Guasave culture. Despite the great variety of pottery types found at Guasave, it is apparent that there are still others not represented in our collections from the site.

HEAVY RED AND PLAIN WARES

Treatment. The paste is coarse. The temper is abundant, of sand, varying con-

siderably in size and including some large pebbles. The size of the tempering material varies somewhat according to the size of the vessel. Quite uniformly a broad black core changes to red near the surfaces. It is a strong hard ware (Fig. 14). Of the large vessels some are red-slipped, some not, the ware and forms being the same in both cases. In the sherd collections of this ware eighty to ninety per cent are red-slipped, the remainder plain.

Burial Ollas. The only slight variation in shape of burial ollas (Fig. 14k, m, n) is mainly in regard to the angle of the rim. The two ollas in Fig. 14k, n illustrate the extremes in this difference. Rims are usually thickened. Burial ollas vary in size from approximately forty-nine to seventy-seven centimeters in diameter. The exteriors are well smoothed and usually red-slipped. Firing clouds are abundant.

Cover Bowls. These vary in shape as illustrated in Fig. 14i, j, l. The conical form (Fig. 14j) is perhaps most common. The incurved-rim bowls are usually more evenly formed than in the one illustrated. The rims are rounded and thickened and are commonly nicked. Cover bowls range in size up to fifty centimeters in diameter. They are always smoothed on both sides, and when slipped, it is on both sides.

Miscellaneous Vessels. The vessels illustrated in Fig. 14a-h do not represent a single type. Those in Fig. 14a-c are miniatures and their paste is the same as in the decorated types. Fig. 14e is of a coarse paste, but the rim is decorated with gouging. All of these small vessels are unslipped.

Discussion. Sherds of this heavy slipped or unslipped ware are the most frequent on the living sites and it is probable that it was the common utility pottery. By far the most usual shapes are the large bowls, mainly those with the incurved rims, and ollas perhaps somewhat smaller than those ordinarily used for burial. Very few sherds represent jars with recurved rims.

Burial ollas in all phases of the Sinaloa cultures appear to be generally of the type found at Guasave, with only minor variations in shape. Those at Chametla are

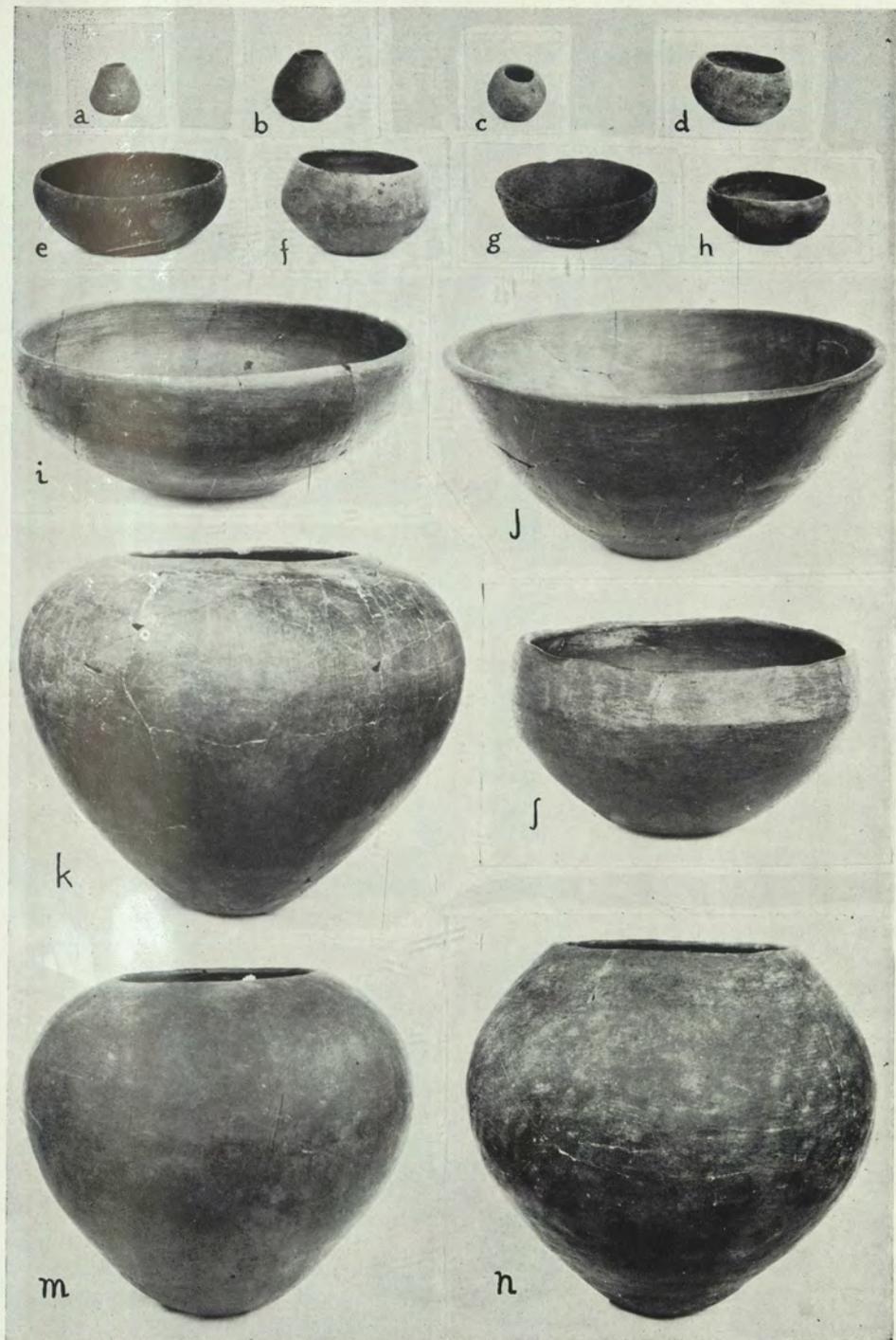


Fig. 14 (a-f, 30.2-4910, 711M, 1083M, 30.2-4911, 175M, 713M; g-i, 30.2-4913, 4912, 4917; j, 566M; k, 292M; l-n, 30.2-4921, 4923, 4922). Heavy Red and Plain Wares. (Diameter of k, 77 centimeters.)

rounder, with less pointed bottoms, and more horizontal rims. This form of utility jar, without a recurved neck, was common throughout the West Coast area, and is the shape used there today. It has no apparent relationships in the highland region.

CLAY OBJECTS OTHER THAN POTTERY VESSELS

SMOKING PIPES

Eight complete smoking pipes, and forty-one fragments (Fig. 15, Fig. 17v-x) were found.

Shape. All pipes are of the so-called elbow variety, the bowl extending upward at approximately a right angle to the stem. The tapered bowls are smaller at the base than at the rim and the latter portion is either plain and rounded or has a slight flare. The stems taper to a dull point at the mouthpiece and are perforated by a hole made in the wet clay three to five millimeters in diameter.

In all except one specimen the front end of the stem is flattened horizontally to make a platform, the bowl extending upward out of the center of this platform. The method of manufacture is indicated in several pieces where fractures have occurred, the bowl and the stem having been made separately, and the bowl then inserted in a hollow in the platform.

As far as form is concerned, the only important typological distinctions to be made are in the shape of the platform as follows:—

1. The platform round, serrated, or notched. Only one pipe (Fig. 15b, Fig. 17x) has five rounded notches. Most common are platforms with three notches, giving them a four-lobed or petalled effect (Fig. 15d-f).

2. The platform round, unnotched (Fig. 15c, g).

3. The platform flange-shaped, unnotched (Fig. 15a, h, Fig. 17w). One specimen is unique in having two small rounded feet instead of a platform (Fig. 17v).

One other variation in shape to be noted is the bowl fragment in Fig. 17u. It is thin walled and has an abrupt shoulder near the rim, the mouth being constricted. The interior is not burned and possibly its identification as a pipe fragment is erroneous.

Decoration. Smoking pipes have a variety of surface treatments from plain, unslipped, to elaborate painting and incising. There does not appear to be any strict correlation between shape and type of decoration, except perhaps that more

often the plain unslipped and red-slipped pipes have the unnotched round and flange-shaped platforms.

One complete pipe (Fig. 15e) and several fragments have a painted red-on-buff decoration. It is not what we have called Guasave red-on-buff, but rather the finer polished red-on-buff. Only one pipe has a highly polished red-slipped surface and fine incision (Fig. 15d) and may be classed with the red incised sherds. The central decorative band consists of three typical stepped grecques. The fragment in Fig. 17u is brown, but has a similar type of incision.

The most common style of decoration is the same as that of the Cerro Isabel engraved pottery, painting and incision in complex elaborate designs. The two pipes in Fig. 15a, b are exceptionally well made and beautifully finished, the paint in the first being light brown and in the second a deep maroon. The designs are drawn extended in Fig. 17w, x. It will be seen that many of the motives are similar to those used on the pottery vessels. In Fig. 17x, in the center at the front of the bowl, is the "flint knife" with its characteristic arc at one side and the sinuous line near the point which, according to "Mexican" symbolism is the "blood line." To the left of this is the decorated arc which may also mean "blood" and at the right is another occurrence of the three-petalled flower. The design on the larger pipe is difficult to reproduce as it is continuous from the stem to the bowl and also around the bowl. The designs are drawn extended in Fig. 17w, that above being from the front of the bowl and that below from the stem and its continuation up the back of the bowl. We have previously described the various elements occurring here, which are undoubtedly of a symbolic nature.

The pipe in Fig. 15e is red-slipped, with a band about the rim, and the mouthpiece half of the stem painted black. Fig. 15f is unslipped brown, has a similar black mouthpiece and rim, and a crude uneven painting on the top of the platform and stem.

Some of the pipes found at Guasave had never been smoked and were undoubt-

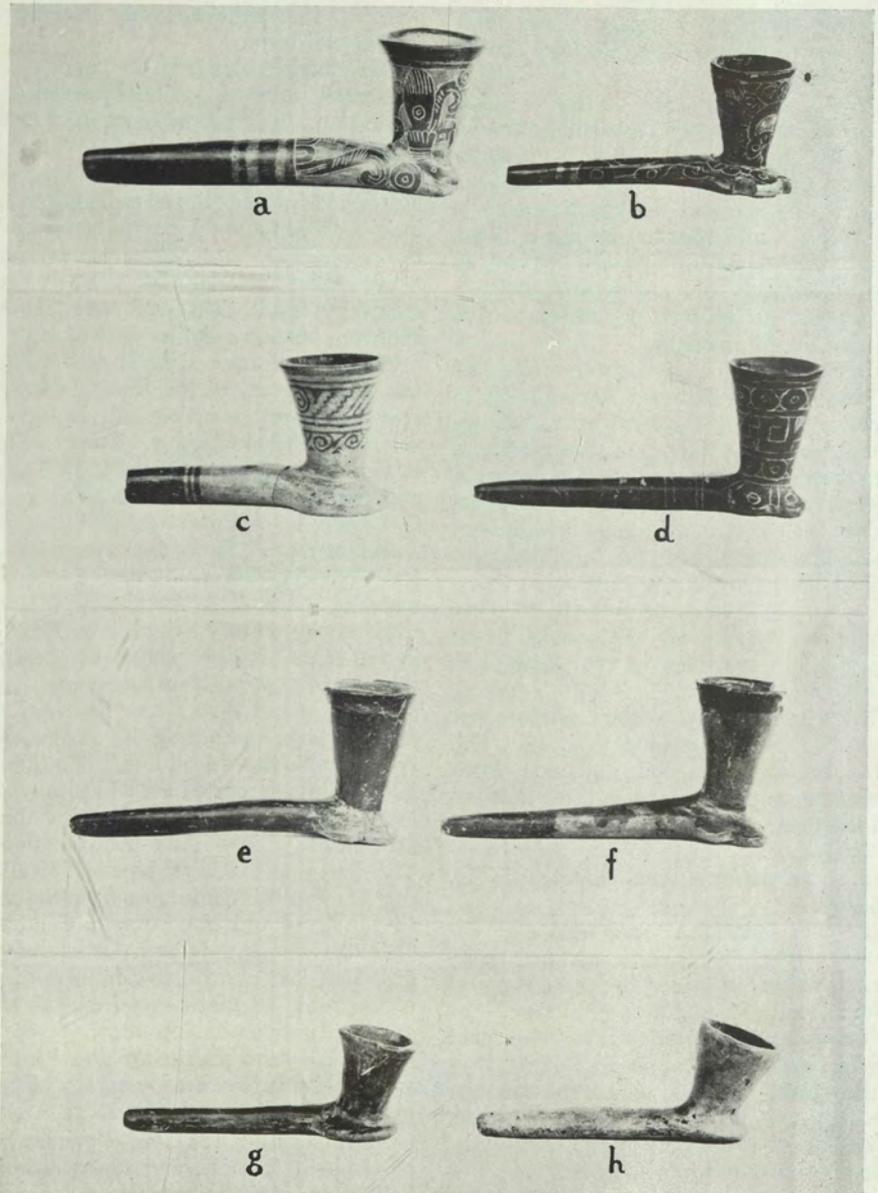


Fig. 15 (a-h, 690M, 181M, 691M, 30.2-4928, 246M, 30.2-4930, 680M, 30.2-4931). Smoking Pipes, Site 117, Guasave. (Length of d, 13 centimeters.)

edly ritual objects made especially to be put into the graves. However, several (Fig. 15c, h) contain a fairly respectable caking, which shows that they were really used for smoking. In the first the cake is approximately two millimeters thick, and the stem has obviously been cut down, perhaps to eliminate a worn portion and make it presentable for burial.

Discussion. At Culiacán Doctor Kelly found a large number of pipe fragments; all those which she could attribute to the Aztatlán complex were of the type found at Guasave. Those from the later periods, Early to Late Culiacán, were all, I believe, of the two-footed variety such as the one unique specimen found at Guasave (Fig. 17v). Also, in these later periods the Culiacán pipes ran into various effigy forms, a trait lacking at Guasave.

Kelly's flanged pipe, Type b, from Chametla,¹ appears to be identical with the unnotched flanged form from Guasave. Kelly did not report any stratification of the flanged and Cocoyolitos type pipes, but it appears that the flanged variety is to be ascribed to the Aztatlán complex horizon and that the Cocoyolitos type is later. The latter type did not occur at Guasave.

Considering the strong influence from the cultures of highland Mexico which we have found in the Aztatlán complex of Sinaloa, it seems reasonable to assume that the custom of making pottery elbow pipes is to be traced to that region as well. They are found in various parts of Middle America, but seem to be restricted entirely to Aztec times. Few illustrations can be found in the literature, but clearly they are more common in Western Mexico, especially Michoacán and Colima, than elsewhere.²

The pipes of Michoacán are usually quite massive, "half elbow" in form, and have a great deal of modeled or sculptured ornament. They very often have two short legs like those from the later Culiacán periods. The only highland examples which closely resemble these from Guasave are two small pipes from Tequisquiapan, Queretero,

which are in this Museum. They have the same notched platform, but very short stems to which wooden extensions were probably attached.

In that smoking pipes were not found in the deepest levels at Chametla, it seems most logical to assume that the trait was introduced with the movements from central Mexico which formed the Aztatlán complex. Pipes do not seem to have been a trait common to the Mixteca-Puebla cultures and possibly were picked up in Western Mexico in a manner similar to the red-on-buff pottery. In Sinaloa a new style of pipe was produced, the painted decoration being adapted from pottery styles.

POTTERY MASKS

The two pottery masks shown in Fig. 16a, b were found lying on their circular bases at the right side of and slightly above Skeleton 164. A human-faced mask (Fig. 16c) was previously found by the owners of the land at a point about fifty meters to the east of the excavation. Only photographs of this mask were obtained.

The two masks found in the excavation are quite similar; the only difference is that one is somewhat more symmetrical and more skilfully made, and has a longer, more rounded beak. The face portions are hemispherical, bowl-shaped, and both are round at the rim and about fifteen centimeters in diameter. They are very skilfully made; the long beaks are hollow to near the ends and the eye holes and the hollows surrounding them are quite perfectly round. The paste is indistinguishable from that of the decorated pottery, except that it is slightly more grayish at the surfaces. The exterior surfaces are completely covered with a thick chalky white slip which rubs off easily and was probably applied after firing. Neither the slip nor the surfaces of the clay were well polished, but the exterior surfaces had been well smoothed, the interiors to a lesser extent.

The human-faced mask (Fig. 16c) undoubtedly belongs to the same cultural horizon as the other two, as several typical Aztatlán vessels were found with it. Since

¹ Kelly, 1938, 52.

² See West, 1934, Plate 228.

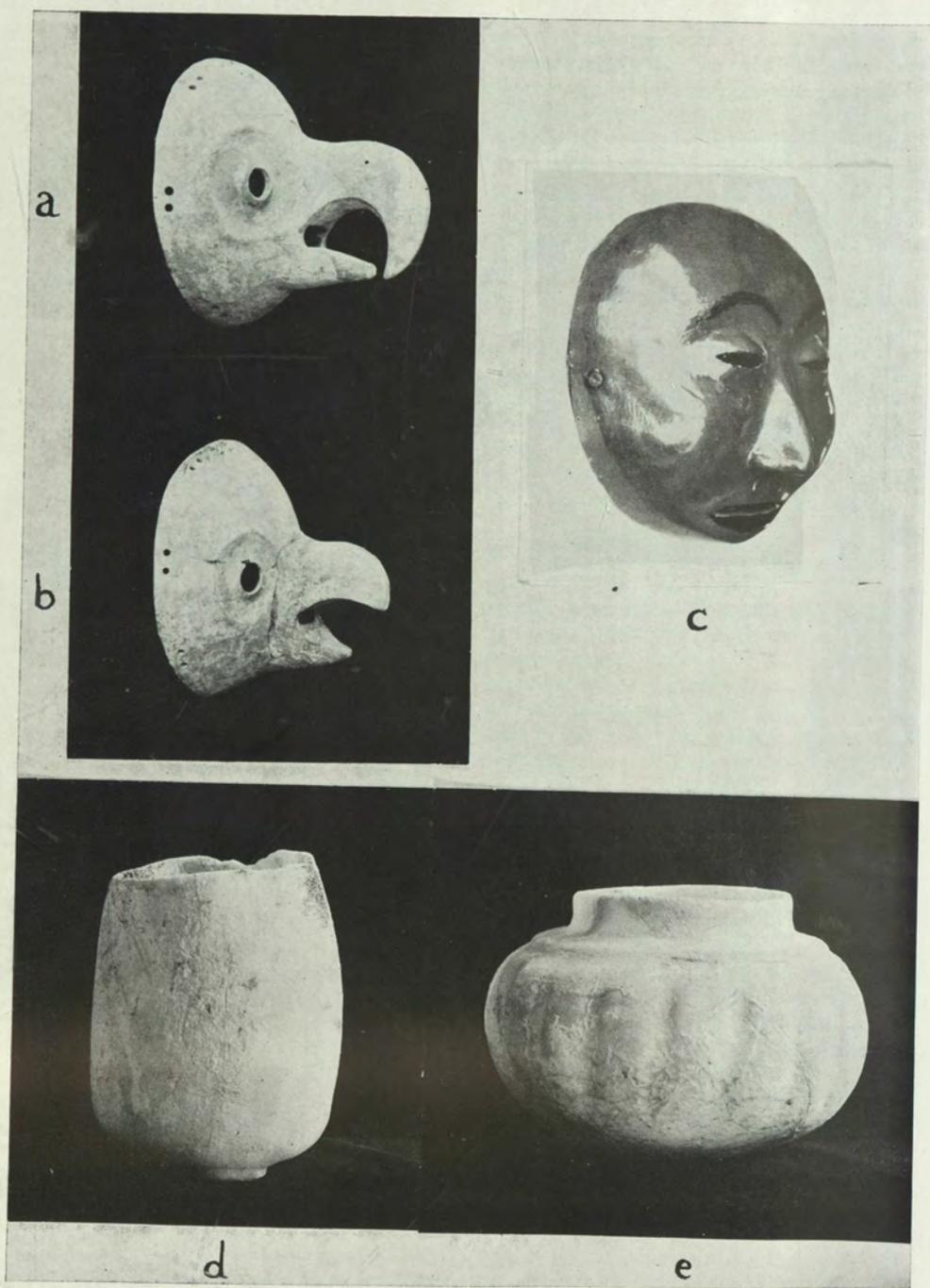


Fig. 16 (a, 699M; b, 30.2-4973; d, 573M; e, 674M). a-c, Pottery Masks (diameter of base in a, b, 15 centimeters, in c, approximately 17 centimeters); d, e, Alabaster Jars (height of d, 19.5 centimeters; height of e, 11 centimeters).

it was found it has been altered with a coat of shiny gray paint and the eyebrows and lips are painted black. This mask has a local reputation as being Chinese, and it does have high and prominent cheeks and heavy-lidded eyes which give it a Mongoloid appearance.

It is assumed that these objects were meant to be masks, as the eye holes are approximately the correct distance apart to fit the face, and the large openings between the beaks would serve for ventilation. However, when thus worn, the lower edge of the mask comes to just about the line of the teeth and supposedly the series of paired holes around the periphery were used for attachment to a fabric or leather hood which would cover the head. It seems to me most likely that they were meant to represent parrots, considering the weight and curvature of the beak in the better one, but there are no definite diagnostic features which make this identification certain.

Doctor Kelly also found pottery masks to be a feature of the Aztatlán complex at Culiacán. Masks of various kinds and materials were commonly used in many parts of the Americas for ceremonial purposes, but rarely, if at all, were made of pottery in this manner. The only other pottery mask I have seen, of a size such as could be worn, is a Teotihuacán mask in this Museum. It also has tie holes at the sides, which may of course have been used to fasten it to the figure of an idol or effigy, which, too, may have been the purpose of our masks.

Stylistically, the Guasave masks are unlike anything in other parts of Middle America, and until contradictory finds are made we must consider them a peculiar development of the Aztatlán culture of Sinaloa.

SPINDLE WHORLS

Thirty-six spindle whorls (Fig. 17a-t) were found, usually lying along the arms or legs of the skeletons. Some were found with the deepest of the "head to south" burials, but are not typologically distinct from those excavated at higher levels.

Spindle whorls are made of fine-grained

untempered clay. The surfaces are usually well polished, unslipped, and vary in color from buff-brown to nearly black. One whorl (Fig. 17n) is slipped red. It is also unique in shape, having four holes extending inward from the lower side. They are relatively uniform in size and with a single exception, are, generally speaking, conical. The most common shape is that of Fig. 17e. Seven whorls are somewhat larger in diameter and the upper sides are slightly concave (Fig. 17a). The whorls shown in Fig. 17n-t are each unique in shape. The perforations are quite uniform in size, always slightly smaller at the top than at the bottom.

Decoration consists mainly of finely engraved designs, but four whorls (Fig. 17q-t), those which are also atypical in shape, have a rougher deep incising. The edges are often notched, and deeply scalloped in several examples (Fig. 17b, m). One whorl (Fig. 17f) has a modeled human face in low relief on one side, as well as the usual incision. The deep incised lines on the whorl illustrated in Fig. 17t are filled with a white chalky substance.

The incised designs are geometric in large part but some consist of curvilinear figures similar to certain pottery designs, and are possibly of symbolic significance. The design on Fig. 17a seems to include a feather headdress, and that in Fig. 17d apparently represents a bird. Apparently there is no correlation between the type of the incised design and the minor variations in shape.

Discussion. I have at hand no data on the spindle whorls found at Culiacán, and these would be necessary for a complete discussion of this trait in Sinaloa. None of the types found at Guasave is like those reported from Chametla.¹

The West Coast spindle whorls are unlike any from the Valley of Mexico, except the one Chametla-like specimen found at Teotihuacán and noted by Doctor Kelly.² There are also some resemblances to whorls from Western Mexico. In the Lumholtz collection in this Museum are two whorls from Zacapu, Michoacán, one of which is

¹ Kelly, 1938, 54.

² Kelly, 1938, 53.

identical in size and shape and has a design similar to the small incised bi-conical whorls from Chametla. Also in this Museum, some whorls from Totoate, collected by Hrdlička, resemble the Chametla plain-surface whorls.

Brand reports "semi-hemispherical" and bi-conical whorls from the Zape area of Zacatecas and notes their identity in size, shape, and decoration with many seen in Sinaloa and Nayarit.¹ A whorl collected by Sayles in Chihuahua is conical, incised, and not unlike those from Guasave.² We found no spindle whorls in our survey of Sonora, except one at Huatabampo which is very similar to the small bi-conical examples from Chametla, but Sauer and Brand report several from the Altar district,³ and refer to one collected there by Lumboltz. It seems likely that the conical whorl found by Kidder at Pecos⁴ may have come from somewhere in this region of north-western Mexico rather than from Central Mexico.

With the data available at present, particularly scanty for the western highlands, it is impossible to formulate even a general plan of the distribution of spindle whorls. Most likely spindle whorls were used on the West Coast in pre-Aztatlán times and were not an element introduced with the Mexican complex at that time, but at an earlier horizon. There may prove to be a certain general type for all of western Mexico, both coast and highlands.

ANNULAR SUPPORT

Presumably this fragment is the bottom of an annular-based vessel (Fig. 17gg), the only example of its kind found at Guasave. The bottom is closed, flat. The paste is gray and does not appear to be foreign to Guasave, although the surface is mottled brown and black, unslipped, and is unlike any other pottery vessels from the site. Open annular supports are common in central Mexico and occur at Chametla. However, those closed at the bottom, usually containing rattles, appear to be

limited to Central America and adjoining parts of Mexico, such as at the Isla de Sacrificios and in Oaxaca. It is, of course, not absolutely certain that this fragment is part of a closed annular supported vessel, but this is the most likely identification, and we must assume that the trait was brought in from southern Mexico.

EARPLUGS

Three tubular earplugs (Fig. 17ee) were found with Skeleton 164, and one fragment on the surface. They vary in size from 1.8 to 2.4 centimeters in length and correspondingly in diameter. They are exceedingly thin and well made. The surface color varies from brown to black, the black being smudging. Interior and exterior surfaces are well polished, slight facets being left by the polishing tool. The paste is evenly fine-grained, apparently containing no tempering particles. There is nothing to indicate whether or not they were imported.

Earplugs of this type are widespread in Middle America, but they have not been found in the United States. Their northern limit of distribution is in the Huatabampo culture on the Mayo River, where we found several fragments on the surface. At Guasave these plugs have no apparent chronological significance, as very similar ones are found in the Archaic and all later cultures in the Valley of Mexico,⁵ as well as in other regions. Doctor Kelly reports five specimens from Chametla,⁶ none from the lower cuts.

CYLINDER STAMP

Only one stamp (Fig. 17dd) was found at Guasave, with Skeleton 42, deep in the excavation. It forms a simple geometric pattern unlike any other decorative motive from Guasave. Incrusted in the grooves was a black substance which was probably that used as an ink in the use of the stamp.

Cylinder stamps are found throughout the higher cultures of Middle America and this find at Guasave is probably the northernmost limit of their known range.⁷ It is,

¹ Brand, 1939, 97.

² Sayles, 1936, 58.

³ Sauer and Brand, 1931, 111.

⁴ Kidder, 1932, 143.

⁵ Vaillant, 1931, 399.

⁶ Kelly, 1938, 52.

⁷ Linné, 1929, 49-51.

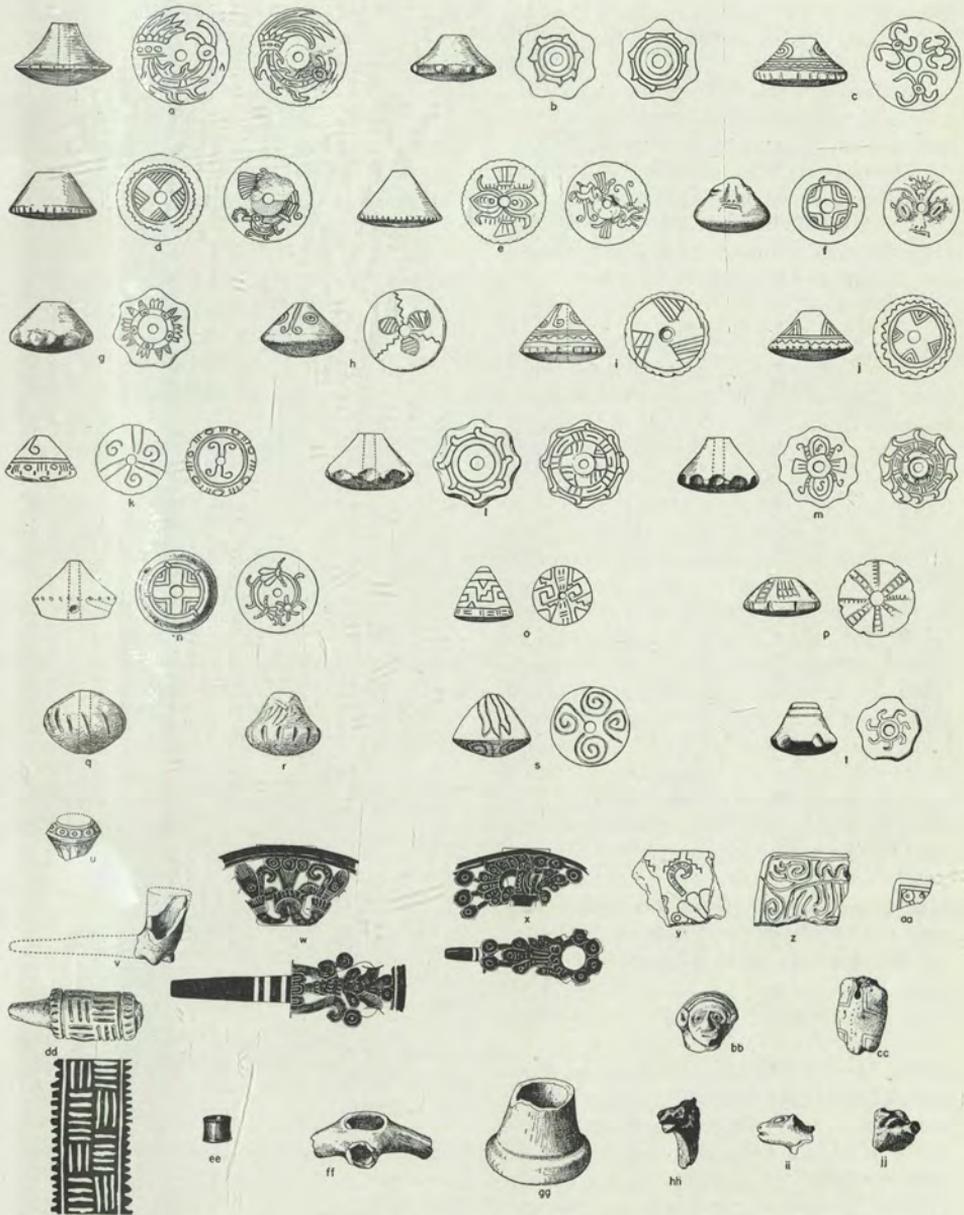


Fig. 17 (a-h, 30.2-4955, 4946, 4951, 4966, 4964, 4968, 4965, 4962; i-o, 610M, 557M, 228M, 247M, 248M, 605M, 624M; p-r, 30.2-4971, 4969, 4970; s-x, 723M, 1065M, 30.2-4942, 4935, 690M, 181M; y-aa, 30.2-4944, 4945, 4943; bb-ee, 1001M, 30.2-4985, 509M, 700-3M; ff-jj, 30.2-4986, 4974, 4980, 4984, 4979). Objects of Baked Clay other than Pottery Vessels. a-t, Spindle whorls; u-x, Smoking pipes; y-aa, Clay plaques; bb, Human figurine; cc, Whistle; dd, Cylinder stamp; ee, Earplug; ff-gg, Vessel fragments; hh-jj, Animal figurines. (a-t, $\frac{1}{2}$, u-jj, $\frac{1}{6}$ nat. size.)

of course, a cultural element which is definitely related to the south, as none has ever been found within the area of the United States.

The Guasave stamp is, as far as I know, unique in having conical handles extending outward on both ends, one being broken off. Commonly the ends are flat and the stamp is pierced end-to-end. Cylinder stamps were found by Doctor Kelly at Culiacán and Chametla,¹ and also by Sauer and Brand at Culiacán and El Recodo.²

CLAY PLAQUES

Three fragments of clay plaques were found, two on the surface and one loose in the excavation (Fig. 17y, z, aa). Their size and shape cannot be determined, except that they probably were square or rectangular. That shown in Fig. 17aa has a perforation at one edge, possibly indicating that it was worn as an ornament. The paste is the Guasave type. The plaques in Fig. 17y, z are nearly one centimeter thick. Fig. 17aa is split so that its thickness cannot be determined. All are decorated by incision. Fig. 17y is mottled brown and black from firing and is lightly incised or engraved. Fig. 17z is roughly smoothed, unslipped, and decorated with a coarsely grooved curvilinear design. Fig. 17aa is highly polished, black smudged like Aguaruto incised ware, and is very lightly engraved. Another fragment indicates a rectangular plaque six centimeters wide, unsmoothed, and undecorated.

I know of no other plaques similar to these.

HUMAN FIGURINE

One human figurine was found at Guasave (Fig. 17bb) on the surface of the plowed field to the east of the mound. It is made of coarse gray clay with abundant sand temper. It appears to have been made as a head only and is thick, rounded. The features are in part modeled, in part roughly incised.

The type of head is unlike any other found on the West Coast. Perhaps it has

some resemblance to Aztec figurines from the Valley of Mexico; certainly it resembles them more closely than any figurines from either Culiacán or Chametla which appear to be local West Coast types.

Considering the abundant evidence we have at Guasave for a close affiliation of this culture with those of Central Mexico, it is indeed surprising that figurines are not more common. It is particularly strange when we consider that the Central Mexican complex at Guasave is composed mainly of religious-ceremonial traits and that figurines in the Aztec period, at least, were fundamentally religious objects. It seems merely that, for some unknowable reason, this trait was dropped during the movements to northern Sinaloa.

ANIMAL FIGURINES

The first two of the three specimens (Fig. 17hh, ii, jj) are ornamental vessel lugs or handles, the first having been apparently part of a spout. They are well polished, brown and black in color. That in Fig. 17cc may have formed a part of a vessel, being hollow like the other two, but not definitely including the vessel walls. It seems to be a caricature of a peccary.

WHISTLE

This fragmentary whistle (Fig. 17cc) was found in one of the test trenches on a living site. It is square, hollow, rounded on the two sides, and has a small projection at the end. The mouthpiece is broken away. It has a row of small round punch marks around the edge and one down the center of each side and two holes on the upper side, as shown in the drawing. The corners of both sides are decorated with lightly incised lines separated by a fugitive white paint. Perhaps it was a bird or human effigy.

BEADS

A few small disc beads of baked clay were found with Skeleton 100, forming a necklace in combination with shell and turquoise beads and copper bells. They are somewhat irregular in size and shape, but approximately 3.5 millimeters in diameter and two millimeters thick.

¹ Kelly, 1938, 49.

² Sauer and Brand, 1932, 36.

PAINTE CLOISONNÉ

With thirty-four of the Guasave burials, including those in the deepest levels of the mound, some remains of painted gourds were found (Fig. 18). These consisted usually of two layers of paint, being the decoration from both surfaces of open bowl-shaped vessels, the entire substance of the vessels themselves having completely disappeared. In most cases, it was impossible to preserve or to clear the paint layers so that their nature could be observed, but we succeeded in saving samples from some, the paint being either thicker or less broken. Six of these are large enough so that not only some parts of the designs can be observed, but, in several cases, the size and shape of the vessel. Various smaller fragments have been particularly valuable for the study of the technique involved.

Remains of this kind are, of course, rarely preserved, and they are exceedingly difficult to observe or salvage. Our success in saving any samples is undoubtedly due to the homogeneously fine texture of the soil in which they were buried. In gravelly soil they would probably have been to a large extent broken by a more uneven pressure, and the stones would also have interfered greatly with cleaning them.

These remains represent a paint cloisonné decoration on containers which were apparently made of gourds or calabashes. One specimen illustrated elsewhere¹ has on the inner surface below the rim a waviness closely resembling that on the inside of gourd bowls such as are used commonly in Mexico today. Also, in most of the specimens both the interior and exterior surfaces were decorated and it is obvious that the substance of the vessels was usually no more than about four millimeters thick, too thin to have been carved from wood but approximately the thickness of a dried gourd.² This may not, of course, be a completely accurate measurement of thickness since, as had obviously happened in some

cases, the two layers of paint representing the interior and exterior decorations have been forced together by the pressure of the earth when the vessel itself decayed. However, in the majority of specimens the distance between the two layers of paint was so uniformly about four millimeters that it appears that mere replacement occurred, and this then represents the actual thickness of the vessels.

In most instances it was impossible to determine the shapes of the vessels, but it seems likely that low or hemispherical bowls were most common. This is apparent in the two examples illustrated elsewhere,³ in which portions of the rim remain. These also give some indication of the size of the vessels which appear to range up to at least thirty centimeters in diameter. The fragment shown in Fig. 18c is different from all other samples and may have been a wooden vessel. Only one surface is decorated, and it is too flat to have been a portion of a gourd. The lips of the vessels were rounded, the paint being continuous from one surface to the other. In all the large specimens saved the interior surface is exposed, and because of their fragility and the fact that they lie on a hardened block of earth, it is unlikely that we shall ever see the decoration on the other side.

The paint layers⁴ are fairly thick, in some

¹ Ekholm, 1940b.

² Mr. Volney H. Jones of the Ethnobotanical Laboratory of the University of Michigan has examined samples of these paint layers, and with his permission we are including here his valuable report, No. 178 of the Ethnobotanical Laboratory.

As Mr. Jones had thought it possible that certain organic substances might still be recognizable in the paint, we also submitted to him a sample of *oje* such as is used by the modern lacquer workers of Michoacán and which was purchased in Uruapan, Michoacán.

Mr. Jones's report follows:—

Mineral: The main body of these paints is a mineral material. It is soft and smears between the fingers almost as smoothly as talc. A small bit of each sample was treated with hydrochloric acid at room temperature. The reaction was immediate and the inorganic material consumed, with the exception of a few quartz crystals. This suggests that the material is calcite with a few grains of sand included. The pigment remains unconsumed.

Doctor Frederick R. Matson, Assistant Curator of Ceramics of this Museum, examined the mineral under a polarizing microscope. Under polarization it appears as calcite with quartz inclusions. There is also some non-polarizing material which is apparently the pigment.

These tests indicate rather conclusively that the mineral is calcite. In a letter dated January 15, Ekholm states that the modern lacquer workers of

(Footnote continued on p. 95.)

¹ Ekholm, 1940b. This consists of a brief preliminary discussion of the paint cloisonné from Guasave and a color plate of two of the samples which are not again reproduced here.

² The size of some of the vessels would seem to indicate that the cultivated bottle-gourd (*Lagenaria vulgaris*) was used. Also available in Sinaloa was the tree gourd (*Crescentia alata*).

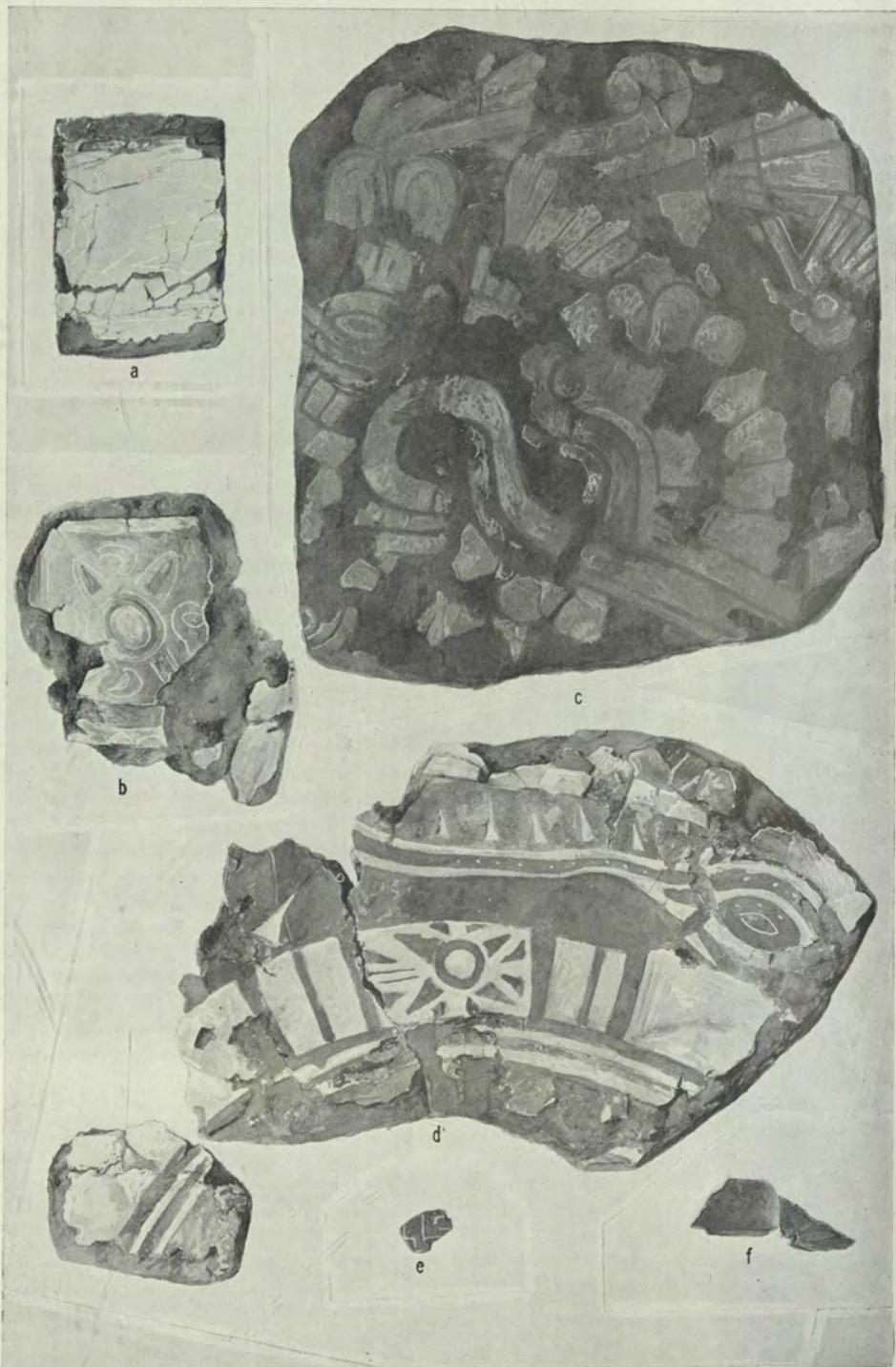


Fig. 18 (a, b, 30.2-5118, 5117; c, 1068M; d-f, 30.2-5116, 5126, 5125). Paint Cloisonné Decoration from Gourd Vessels. (All $1\frac{1}{2}$ nat. size.) [Photograph of water color reproductions.]

cases as much as 1.0 millimeter, but usually somewhere between 0.5 and 1.0 millimeter. The paint is brittle, but slightly chalky in appearance. The surface is rather highly polished in only one instance, commonly being slightly rough and dull, possibly due in part to poor preservation. Only six colors were noted in all of the examples discovered: gray, orange, red, turquoise-blue, yellow, and white. All colors are clear and vivid; only the blue seems to have a tendency to fade, as it was much brighter when first excavated than later when the specimens had dried.

The method by which the decorative paint was applied is quite evident in a number of the specimens preserved and is identical with what has been called the pseudo-cloisonné technique and the modern "lacquer" technique of the Tarascan Indians of Michoacán. A layer of paint was

(Footnote continued from p. 91)

Michoacán use "what has been described as dolomite, ground very fine." We do not consider that the material in the present specimens could be dolomite, as it does react with HCl at room temperature and has a different appearance under polarization.

Pigments: We are able to ascertain very little about the pigments. They do not dissolve in HCl, remaining as a residue along with the sand. Under the microscope they appear as irregular shaped masses, rather highly colored. Under the polarizing microscope they are dark, non-polarizing areas.

The white paint leaves no colored residue on treatment with HCl, indicating that it is unpigmented, the calcareous mineral being used in its natural color.

The orange and yellow pigments probably are inorganic materials and may possibly be iron derivatives. With a sufficient quantity of material in the hands of skilled chemists and petrographers this might be identified.

Note: The pigments do not burn out of the paint on heating to red heat in a crucible, seeming to confirm their inorganic nature.

Organic adhesive and dryer: In the application of mineral substances and pigments to a surface organic media such as oils and adhesives are of value in facilitating the spreading, adhesion, and durability of the paint. Organic solvents and quick drying oils are generally used for this purpose. It would be expected that some such substance was originally present in the specimens from Guasave.

The similarity of the technique of the Guasave material to the modern "lacquer" work of the Tarascan Indians of Michoacán might suggest that the materials of the archaeological art might be the same as the modern work (Ekholm, letter January 8). The materials said to be used by the Tarascan Indians as organic media are oil from the *chia* seed and a fatty substance from insects. This latter substance, known as *aje*, has been discussed by us at some length (Rept. 177, lab. no. 2715). We assume that *chia* seeds are the seeds of sage (*Salvia* sp.) which contain considerable oil.

Should traces of oil be found in the specimens it would seem safe to assume that some oily substance such as the above had been used in the paints.

Our efforts so far to demonstrate the presence of oil in the specimens have failed. Whether this is due to the fact that any oil which may have been present has leached out, or whether our techniques have been inadequate in revealing any oil which may be present, we are uncertain.

first applied over the entire surface of the vessel. The design was then cut into this, all of the paint within the design area scraped away, and paint of another color put into the hollows and smoothed off to the level of the original layer. Other cuts were then made and other colors inserted, either in the basic layer or within the areas of color applied in the first operation. In observing the paint layers in cross-section it can readily be seen that the cuts were always made at an angle, that is, a narrow cut would be v-shaped, and a broader channel would have sloping sides in the same manner. In several cases, where the decoration consists merely of narrow incisions as in Fig. 18a, or where there are merely small spots of color (Fig. 18f), the cuts may not extend entirely through the basic paint layer.

In only five specimens are the preserved fragments large enough so that the nature of the designs can be seen. There are simple geometrics as in Fig. 18b; two specimens, one in Fig. 18d, have curious freely geometric motives with some suggestion of their being conventionalized animal figures. These designs are unlike any of those on the pottery from the same excavation or, as far as I know, the designs common to any other region. The treatment on one fragment (Fig. 18c) is entirely distinct from any of the others in having the color areas separated by narrow lines of gray paint, all that is left of the original layer. It is also unique in having a more sophisticated design, apparently a stylized feather ornament, which may represent a conventionalized feathered serpent. It is in the class of the more elaborate designs which occur on the pottery vessels from the site.

The decorative technique we have described here is not common or well known and there is still some question as to what name should be applied to it. Spinden's term, cloisonné,¹ has often been used, but the term pseudo-cloisonné is most commonly employed, in spite of the fact that it is generally recognized as awkward and not sufficiently descriptive of the technique. We have attempted to find a more ade-

¹ Spinden, 1928, 183.

quate term, but, as the technique differs in its details from any well-known form of decoration, none seems to be entirely suitable. It is most clearly analogous to cloisonné. I would therefore suggest that we discard the meaningless *pseudo*, but retain the word cloisonné, and always qualify it with a descriptive prefix. Vaillant has recently done this, referring to the ware found by Charnay at Tenenapango as plaster cloisonné. The Uruapan "lacquer" would in the same manner be called lacquer cloisonné, but in this paper where I refer to the technique in general, and as the actual materials used are in most cases unknown, I am using the more inclusive term paint cloisonné.

Included in the material dredged from the sacred cenote at Chichen Itza are fragments of both pottery and gourd vessels elaborately decorated with paint cloisonné. Those gourd fragments and these pieces from Guasave are the only known occurrences of gourds with this form of decoration in archaeological deposits. They indicate that the craft still practised by the Tarascan Indians of Michoacán is a sur-

vival of an art form used in prehistoric times on both pottery and perishable vessels. The one unique specimen from Guasave (Fig. 18c), with the color areas separated by narrow lines of gray base paint, is directly comparable in style as well as in technique to the paint cloisonné decoration on pottery as found at Estanzuela, Totoate, and Chalchihuites. We may say that one technique was used on either gourds or pottery.

Largely due to difficulties in terminology, the literature on paint cloisonné is greatly confused, and, in order to clarify the significance of the Guasave finds, I include here a list of all of the known occurrences of this technique. By technique is meant only the method of application—the laying on of a layer of paint, cutting out the design, and refilling with other colors. The other aspect of technique—the various materials used, which I have here, for the want of any other general term, called paint—is not discussed at the present time.

Following is a list of all the known finds of objects decorated in paint cloisonné:—

DISTRIBUTION OF PAINT CLOISONNÉ

Estanzuela, Jalisco¹

Thirty pottery vessels in this Museum. Small hemispherical bowls with high annular bases, small recurved-rim ollas, some with a modeled face on a vertical flange extending up from the rim. Gray base paint; colors: red, white, green; designs: feather-costumed figures, scrolls, stepped grecques, checkerboard steps.

Totoate, Jalisco²

Ten vessels in this Museum. Hemispherical bowls with low ring base. Base colors, green and black; colors: red, white, and green; designs: horizontal lines, complex symbolic figures. Hrdlička mentions finding sherds with similar decoration at Momax and Juchipila.

Chalchihuites, Zacatecas³

Hemispherical bowls with high annular bases. Base color, black; colors: green, red, blue, white; designs: stepped grecques, other geometric, complex figures.

La Quemada, Zacatecas⁴

There is no published description of paint cloisonné from La Quemada, but Mason and Hrdlička have mentioned seeing sherds there.

¹ Lumholtz, 1902, 460-462.

² Hrdlička, 1903, Plate 39.

³ Gamio, 1910, 485-486.

⁴ Batres, 1903, Plate 23; Mason, 1937, 130; Hrdlička, 1903, 440.

One sherd figured by Batres appears to be decorated in this manner.

Tenenepango, Slopes of Popocatepetl⁵

The vessel figured by Charnay and Peñafiel is in the Museo Nacional, Mexico. Tripod bowl with interior and exterior decoration. Base paint, dark gray; colors: white, yellow, blue, green, red; design: geometric except for a face on interior. According to Vaillant⁶ all of the pottery found at this site belongs definitely to the Chichimec period.

Atzacapotzalco, D.F.⁷

Vessel in this Museum. Base color, gray; colors: red, turquoise blue, yellow, green. Spinden is probably incorrect in suggesting that this bowl dates from Toltec times. It most likely represents the Intermediate or Chichimec period.

Culhuacan, D.F.

One sherd of typical paint cloisonné decorated pottery from this site is in The American Museum of Natural History.

Snaketown, Arizona⁸

Many fragments of mirrors. The decoration is on the beveled rims or on the backs of sand-

⁵ Charnay, 1888, 171-173; Peñafiel, 1890, Plates 62, 63.

⁶ Vaillant, 1938, 545.

⁷ Spinden, 1928, 184.

⁸ Gladwin and Associates, 1937, 131-134.

stone plaques which bear pyrites mosaic. Base color, black; colors: white, red, yellow, light blue. The technique appeared at Snaketown during the Santa Cruz phase, between 700 and 900 A.D., and was not used after 1100 A.D.

Grewe Site, Casa Grande, Arizona¹

Two complete mirrors of the type reported from Snaketown were found here. The backs are covered with paint cloisonné decoration, one having the figure of a man and the other of three birds. The designs show unmistakable affiliation with "Mexican" art.

Pueblo Bonito, New Mexico²

Two fragments of round sandstone plaques. Base color, black; colors: red, yellow, white. They are probably mirror fragments as at Snaketown.

Chichen Itza

Fragments of both pottery and gourd vessels bearing typical paint cloisonné decoration were dredged from the sacred cenote at Chichen and are in the Peabody Museum, Harvard University.

South America³

The paint cloisonné technique was used in Peru during the Inca and Colonial periods, and most large museums have some of the wooden cups, *keros*, with this form of decoration. In part the technique is not precisely the same as that used in Mexico. The design is cut into the wooden surface of the vessel and those hollows filled with paint. However, in the addition of other colors, the technique appears to be true paint cloisonné, cutting into the paint and re-filling.

Modern Mexican "Lacquer"

The two centers of the "lacquer" work in Mexico are at Uruapan and other towns in the region of Lake Patzcuaro in Michoacán, and at Olinálá in Guerrero. The decorative technique used in Michoacán is precisely that of paint cloisonné as we have described it. That of Olinálá is different, two layers of paint of contrasting colors being applied and the upper layer cut away to form the design.

This decorative technique has possibly been found at other sites, but only in those cases listed above can we be certain of the technique involved. Pepper refers to the technique as occurring in the Panuco Region of Vera Cruz⁴ and it seems likely that that is a correct observation. In a recent paper Zingg has reported "cloisonné" decoration on gourds from certain caves in southern Chihuahua, but this identification

is not certain.⁵ The range of distribution of paint cloisonné is from northern New Mexico to South America. In Middle America it seems to be at home chiefly throughout western Mexico to the Valley. The presence of the technique in South America should, it seems, be considered evidence of cultural connection.

A difficulty with some previous discussions of this technique is that little attempt has been made to distinguish between paint cloisonné and "in-fresco" decoration, the two techniques being entirely different but resulting in decorations which are similar in general appearance. In-fresco, as the name implies, is a form of painting on a prepared plaster base and does not involve the cutting out method which is the essential operation in paint cloisonné. In the specimens from Teotihuacán, at least, the work is especially reminiscent of paint cloisonné, as the design is outlined by a narrow black line as in that technique. In-fresco decorated pottery is rather widely distributed in Middle America, occurring at such sites as Teotihuacán, Holmul, Pusilhá, Guanacaste, and many others.⁶

The paint cloisonné and in-fresco techniques are quite probably related, but it seems unwise at the present time to speculate as to the probable evolutionary sequence. In general, the in-fresco work of Teotihuacán appears to be an imitation of paint cloisonné, but, as I shall point out later, none of the paint cloisonné yet found seems to be as old as the Teotihuacán period.

All of the paint cloisonné on pottery from western Mexico is so closely linked in style and technique that it may all belong to one more or less limited time horizon. Lumholtz only described several specimens from Estanzuela, and thus some writers have been unaware of the fact that in his collection in the American Museum are ten small annular-based cups of exactly the same shape as those from Chalchihuites. The technique and the gray or greenish-gray backgrounds are identical at both sites, and there is a marked similarity in design. A

¹ Woodward, 1931; also personal communication from Arthur Woodward.

² Pepper, 1920, 51-52.

³ Nordenskiöld, 1931.

⁴ Pepper, 1920, 51.

⁵ Zingg, 1940, 38, 55. These specimens are in Field Museum of Natural History. I have recently discussed these finds with Mr. Zingg and there seem to be some doubt as to their being true paint cloisonné as described in this paper.

⁶ Linné, 1934, 168-171.

very similar stepped grecque occurs at both places. At Estanzuela a number of vessels have a step design composed of small squares which is a common motive in the painted red-on-buff ware from Chalchihuites and which apparently accompanies the paint cloisonné decorated vessels. This motive is rare in Middle America, occurring elsewhere only on Cholula polychrome.

The Totoate vessels with this type of decoration consist of open hemispherical bowls with low ring bases. This shape is not found at the other two sites, but the decorative technique employed is precisely the same. In most of the eleven specimens in the American Museum designs are different, there being an emphasis on simple narrow parallel lines such as on the lower sides of the one figured by Hrdlička at the upper left.¹ However, three specimens have complex symbolic designs, the one figured by Hrdlička at the right bearing, obviously, a conventionalized serpent motive. The zigzag elements on the interior sides of this bowl are markedly similar to those on the bowl found by Charnay at Tenenepango which is now in the Museo Nacional.

As I have pointed out elsewhere, the stepped grecque, whenever it occurs in Mexico in a datable complex, is not earlier than the beginning of the Chichimec or Intermediate period, which has been dated at about 1100 A.D. What we might call "Classic" examples of this grecque, such as those found at Mitla, occur on both the Chalchihuites and Estanzuela vessels. It might be, of course, that the grecque is earlier at these sites than anywhere else, but this appears unlikely. Mason has considered the Chalchihuites paint cloisonné to be possibly on the Toltec level, as showing a similarity to the Teotihuacán frescoes, but I cannot see this resemblance. It is my conclusion therefore that none of the paint cloisonné that has so far been found in Mexico can be considered as having been made earlier than about 1100 A.D. On other evidence the Guasave culture can certainly not be given an earlier date than this. One specimen of its paint cloisonné is closely related in style to that used on pottery in the Western Highlands, but the re-

mainder is, as far as we know, a distinct stylistic development.

The earliest dated occurrence of paint cloisonné is at Snaketown, Arizona, where it appears during the Santa Cruz phase, between 700 and 900 A.D. With some reason this may be considered to be its place of origin, but to me this seems unlikely. Despite the fact that the archaeology of the Southwest is immeasurably better known than that of Mexico, examples of paint cloisonné are certainly not common in that region. Added to this is the fact that in technical details, in the use of the same colors, similarly separated by gray lines remaining from a base paint of that color, the Southwestern material is very similar to that from the Western Highlands of Mexico. Also, the two mirrors from the Grewe site bear figures which are entirely out of place in Arizona and are obviously related to "Mexican" art. The quantity of pyrites mirrors found at Snaketown makes it seem likely that they were manufactured there, and consequently that paint cloisonné was a technique known at Snaketown, but in that case the knowledge of the technique was imported. If the examples from the Grewe site were made in the Southwest, a much more pronounced influence must have come up from Mexico than we have previously thought. However, they were probably imported.

It is merely a guess on my part that, since the bases and borders of Middle American pyrites mirrors were often made of wood, they were possibly decorated with paint cloisonné—used later on a base of stone—and that both mirrors and the paint cloisonné technique were introduced into the Southwest together.

Pottery decorated with paint cloisonné was used in Mexico for ceremonial or burial purposes, supposedly because of its more brilliant colors, but like in-fresco decoration it could not be fired; consequently, it is not basically a pottery technique. It seems likely that paint cloisonné was originally and chiefly a decorative technique used on gourds or other perishable vessels; thus, sufficient examples can probably never be recovered to enable us to reconstruct the entire history of the art.

¹ Hrdlička, 1903, Plate 39.

METALS

OBJECTS OF COPPER

With the burials at Guasave were found one hundred and thirty-four separate objects of cast copper.

Bells. One hundred and eleven small round bells with rings for attachment (Fig. 19e, f) were found. The largest lot consisted of eighty-seven bells tied in a row and wound around the right ankle of Skeleton 29. The copper oxide had, in part, preserved the cord by which the bells were tied and also a folded fragment of cloth which was apparently part of a wrapping for the body. Examples of this type of bell had also been used as part of a necklace and in another burial small lots of six bells each were in such a position as to suggest they had been attached to the arms. Individual bells were found in graves with no particular relationship to the skeleton and one was found in a burial olla.

These bells vary considerably in size; the average diameter of the resonators is about 1.3 centimeters (Fig. 19e). The smallest measures about .8 centimeter in diameter and the largest two centimeters (Fig. 19f). The bells figured are somewhat more regular in shape than most, many have the two sides pressed together so that the slit is closed, except at its two ends. Nearly always present at the top of the ring is a short projection which presumably indicates the position of the duct in the mould through which the metal was run in the casting process. All have small pebbles as clappers.

Doctor W. C. Root of Bowdoin College, Maine, was kind enough to electrolyze one of these bells and thus clear away the crust of oxide. In this one specimen it can be clearly seen that the portion of the resonator above the slit is roughly banded. Supposedly the wax which formed the model of the bell had been laid down in bands, a method known as the wirework technique.

Two round bells with straight shafts (Fig. 19h) found with Skeleton 89 apparently formed part of a necklace which also included several bells of the more common type with a ring for attachment. The

resonators do not differ from those described above, but, instead of having a ring or eyelet for suspension, they have a single straight shaft. Both shafts are approximately one centimeter long and .3 centimeter in diameter. They appear to be complete and unbroken at the upper end. This form of copper bell has not previously been reported. It is of great interest, as a bell of this type would be easier to cast and does represent, typologically, a less-developed form than those having rings for attachment. At Guasave they were found with bells of the ring type in one of the burials higher in the mound and thus are actually of late occurrence. However, they may have been made at a much earlier time and may represent an earlier stage in the development of bell-making techniques. I merely suggest this possibility.

A large bell (Fig. 19g) was found with Skeleton 151. It is well made but, unlike the smaller specimens, is symmetrical and well finished. The upper section is horizontally ridged, indicating the use of a wire-technique in this portion at least. The lower part of the resonator is covered with small round warts which appear to be solid copper and are possibly part of the original surface. The clapper consists of a small pebble.

Ear Spool. This was found about fifty centimeters to the left of the skull in Burial 28. Its identification as an ear ornament is uncertain (Fig. 19b). It consists of a tapering cylinder, the larger portion being open wirework. The edge of the larger end is rolled outward, and the lateral projection at the smaller end contains openwork in the form of the spokes of a wheel. Because of the coating of copper oxide none of the details of manufacture can be determined, but it was supposedly cast in one piece.

Finger Ring. This was found in the excavated earth, so its associations are not known (Fig. 19a). The ring consists of a solid band .8 centimeter broad and two centimeters in diameter. The lateral extension obviously represents a face sur-

mounted by an ornamental headdress. That it is made in wirework technique is clear in some parts, but elsewhere the technique is hidden by an advanced state of oxidation.

Necklace. Found about the neck of Skeleton 132 was a necklace consisting of twelve tubular copper beads (Fig. 19d), five small copper buttons (Fig. 19c), and four turquoise pendants, having a total length of thirty-one centimeters. The tubular beads are badly oxidized, but were quite obviously not made by rolling a hammered sheet of

the form of moulds or furnaces that copper was cast or otherwise worked at Guasave or anywhere on the West Coast. Considering the very close ties that the Guasave culture had with other cultures in Central Mexico, it would not be difficult to claim that all these objects were imported from the south. However, we can just as well assume that the techniques of smelting and casting, as well as certain traditions of form, were brought from the south and that the work was done at Guasave. It is difficult to obtain specific information on the occur-

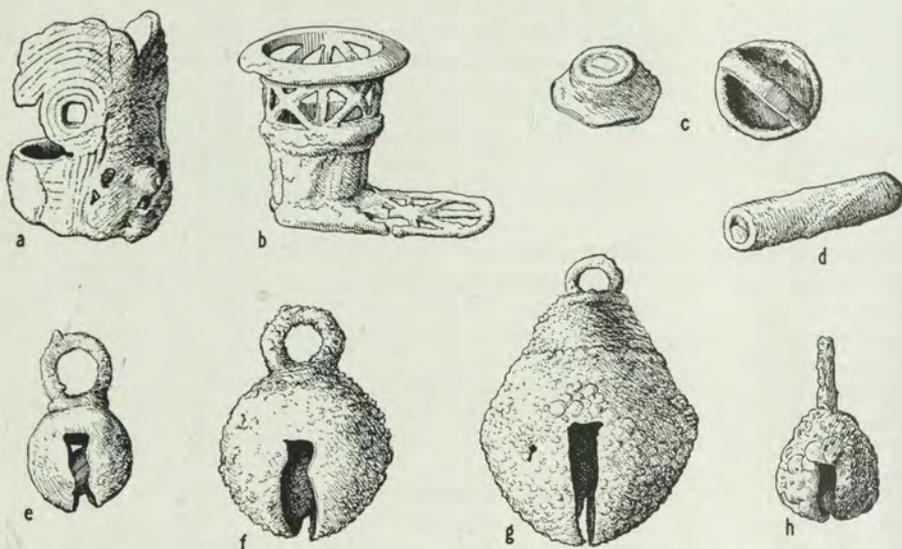


Fig. 19 (a, 502M; b, 230M; c, d, 30.2-5101; e, f, 30.2-5108; g, 675M; h, 30.2-5106). Copper Objects. (All nat. size.)

copper, and were probably cast. The small buttons are exceedingly well made. In shape each is a small truncated cone with a rounded beading about the upper and lower edges. The strap across the hollow back appears to have been soldered on, but this is probably as it was made in the wax model.

Flat Plate. A thin, flat copper rectangle 6.5 centimeters long and three centimeters wide was found with Skeleton 138. Only two corners are rounded, giving it the appearance of having been cut off a larger piece. Probably this is a hammered sheet.

Discussion. We have no indications in

rence of copper ores in this region, but I know that some have been found. Determination of whether or not suitable ores occur and whether or not the artifacts found at Guasave were made in this region must await more detailed study.

Ear spools which are very similar to the one found at Guasave have been reported from several other areas. At Hervideros, 150 kilometers northwest of Durango City,¹ Mason collected two which are identical with ours except that they do not have the lateral extension. Also, in the Museo Nacional in Mexico are two specimens from

¹ Mason, 1927, Figs. 2b, 3.

Texmelincan, Guerrero, which are almost precisely of the same design but are nearly twice as large as the Guasave examples. This widespread but rare appearance of the same rather complex form one must possibly attribute to trade from some one source.

Copper rings are of fairly common occurrence in Mexico. Our specimen resembles some from Michoacán, now in the Museo Nacional, which have a broad band and a shield on one side. However, the closest analogies I find are in those from Vera Cruz figured by Strebel.¹ Our ring is too poorly preserved for detailed examination, but the general form and the wirework structure are very similar, especially to Strebel's numbers 13 and 16, the second from Cerro Montoso. There is also a marked similarity to the gold and silver rings of wire technique found in Tomb No. 7 at Monte Alban.²

I have found no published reference either to tubular copper beads or to the small buttons which occur as a necklace. The buttons are unique, I am certain, but similar beads do occur. The collection of this Museum contains similarly shaped gold beads.

The one large bell from Guasave is of exactly the same shape as three from Atoyac, Jalisco, and others, apparently from the same general region, collected by Lumholtz. The smaller copper bells also have exact counterparts in some in the Lumholtz collection and others from Calixtlahuaca in the State of Mexico. They are also very similar to some of the bells found in the Southwestern United States.

These comparisons, I think, indicate clearly that the people at Guasave either possessed certain advanced copper-making techniques which they had obtained from the south or else received such ornaments in trade. In the copper objects found, and as indicated in many other elements of their culture, this relationship was with culturally advanced and chronologically late groups in central Mexico.

Very little attention has been paid to the copper objects found in Mexico, so without

making a detailed study of much unpublished and some poorly described material, it is impossible to make any precise analysis of the cultural affinities indicated by the Guasave artifacts. Copper objects are rarely found in the Aztec sites of the Valley of Mexico and are apparently much more common in the region of Michoacán and Jalisco, and possibly also in Oaxaca and Vera Cruz. Chronological sequences have been established only in the Valley of Mexico and Oaxaca; in both areas copper has not been known to occur in pre-Aztec time, before about 1100 A.D. It has not been reported from Toltec or Archaic sites.

This lack of any definite occurrence of copper objects in deposits referable to the Toltec or Archaic horizons does not seem to me to necessitate the conclusion that the techniques of working copper were not known in Mexico before 1100 A.D. We know too little of these earlier periods in most parts of Mexico. The use of copper was apparently never very common anywhere in Mexico, but it was most common in the western highlands, and more intensive excavations must be made in this region before any certain conclusions can be reached as to the time of its appearance in Mexico.

Of great importance in any discussion of the distribution of copper casting techniques is the occurrence of copper bells in the Southwestern United States. In the excavations at Snaketown twenty-eight copper bells were found in a house of the Sacaton phase, which according to the Snaketown chronology dates this find as some time between 900 and 1100 A.D.³ Gladwin and his associates, basing their conclusions on this relatively early occurrence of cast copper and on the analyses made by W. C. Root, have maintained that these bells were probably manufactured in the Southwest, or in those northern Mexican cultures which belong to the Southwestern complex.

This conclusion may be correct, but it seems to me that other important factors, such as the following, should be taken into consideration:—

1. In spite of the tremendous amount of

¹ Strebel, 1885-1889, Vol. 1, Plate XVI.

² Caso, 1932, Figs. 45a, 45b.

³ Gladwin and Associates, 1937, 164.

excavation which has been accomplished in Arizona and New Mexico, relatively few objects of cast copper have been found, and these have been, mainly, isolated single specimens, suggesting extreme rarity and that they were objects of trade.

2. Typologically, many of the Southwestern bells are precisely like those found in various parts of Mexico. Very few have been illustrated or described, but those, for instance, from Pueblo Bonito¹ and Chihuahua² are exactly like those from Guasave and Jalisco. A thorough typological study of much unpublished material would be necessary to substantiate this point, but it seems that, in general, no marked distinction would be found between "Southwestern" and "Mexican" bells.

3. The theory that copper bells were made in the Southwestern United States is in no manner upheld by Root's analyses as, according to his statement, the objects he examined were from the Valley of Mexico, and also

...So few objects have been analyzed from northern Mexico, that it is difficult to define the boundary between the metallurgy of the Southwest and that of Central Mexico. It may be as far south as Michoacán.³

Therefore, Southwestern metal working is not necessarily distinct from that of the cultures of Central Mexico in which Michoacán must be included.

Considering these factors, it seems to me unlikely that the smelting and casting of copper were invented or even practised in the Southwest. It may have been practised to a limited extent, but then the techniques and designs or models must have been imported from the south, as evidenced by the typological similarities in bells. The fact that sufficiently early occurrences of cast copper in Mexico have not been found to be the source of this trade must not, for the present, be considered as conclusive argument against the theory.

As pointed out in the concluding chapter of this paper, the Aztatlán culture of northern Sinaloa came too late in time to have been the source of the copper in the

Sacaton phase of Snaketown, but it could have been the source for the copper objects found in later Southwestern horizons. It seems reasonable to assume that the turquoise found at Guasave could have been obtained by trading copper bells to the north. Copper bells were common in the Casas Grandes culture of Chihuahua, and the most likely origin for these is trade up through the central region of Mexico.

GALENA

Three small pieces of galena, two about the size of grains of corn and one smaller, were found with three different skeletons. Identification of the material was made by Doctor Frederick H. Pough of the American Museum, by observation and specific gravity tests. Galena probably occurs in the mineralized rocks near Guasave. These fragments have no known significance other than that they were merely saved as an attractive material.

MOLYBDENITE

Adhering to the interior of the bowl shown in Fig. 13d are a number of specks of a soft lead-colored metallic substance. Where it is spread thinly it is dull gray, but where it is thicker it has the shiny surface of freshly cut lead. This material was analyzed both through the courtesy of Señor Ignacio Marquina and by Doctor Pough and found to be sulphide of molybdenum, commonly known as molybdenite.

The presence of the metal was not noticed until after the bowl was washed, so it is impossible to know definitely how much was originally present. However, the bottom of the bowl was kept fairly clean by a layer of insect eggs, and, if there had been a much larger quantity of molybdenite present, it would have been observed at the time of excavation. It was adhering to the inside of the bowl, was not a part of the pottery, nor does it seem to have been accidentally deposited in the bowl.

Through the courtesy of Mr. John L. Case of El Fuerte, Sinaloa, I have learned that, although molybdenite does not occur in commercial quantities in Sinaloa, there are some very good small deposits at places

¹ Pepper, 1920, 269.

² Sayles, 1936, Plate 19.

³ Root, W. C., in Gladwin and Associates, 1937, 276.

along the Fuerte River above El Fuerte. It may be considered to be a locally available material.

I know of no particular significance that this find of molybdenite might have. It occurs in nature as scales in various crystalline rocks and supposedly was collected merely as a material of unusual properties.

IRON PYRITES

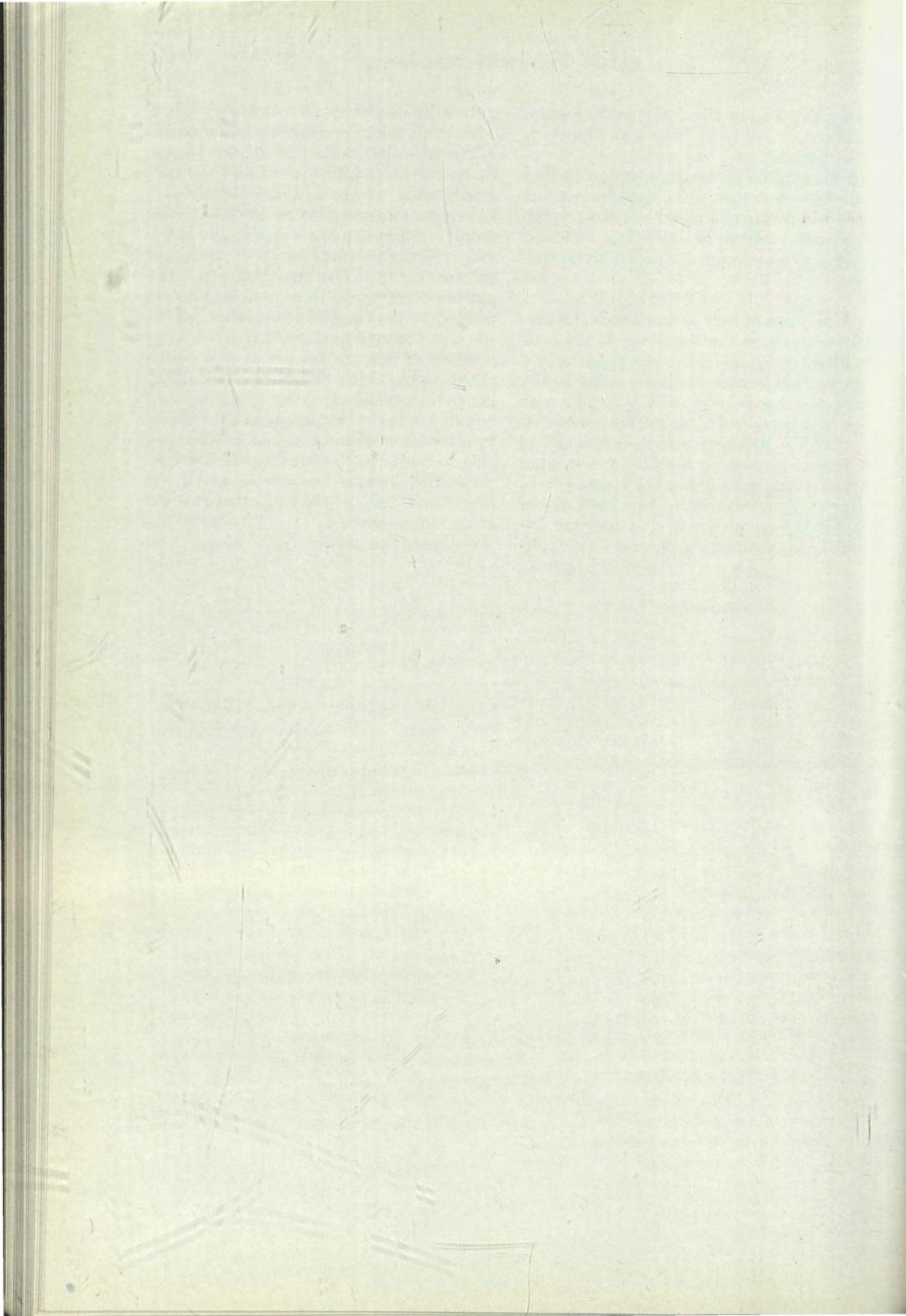
A necklace of iron pyrites beads and turquoise pendants was found about the neck of Skeleton 89, and what was apparently a similar necklace of smaller pyrites beads, turquoise beads, and shell pendants near the neck portion of Skeleton 129. The iron pyrites has, to a large extent, corroded into a yellowish crust so that the beads were found stuck together in the position in which they were lying. Their form can be seen in the corroded material: they are discoidal, approximately five or six milli-

meters in diameter, and two and a half millimeters thick, varying somewhat in size.

The material was identified by Doctor F. H. Pough as iron pyrites and the corroded crust as potassium-iron-sulphate, known to mineralogists as jarosite. The source of the potassium was probably in the soil, which was supposedly originally of volcanic origin. The preservation of iron pyrites artifacts is, therefore, largely dependent on the absence of potassium, which, when present, alters the material.

Beads of iron pyrites are of rare occurrence in America. Plancarte reports finding pyrites beads at Zamora, Michoacán,¹ but this is the only reference in the literature to beads of this material I have been able to find. In the Museum of the University of Arizona is a string of pyrites beads from Mexico, but of otherwise unknown provenience.

¹ Plancarte, 1893, 81.



STONE OBJECTS

OBJECTS OF ALABASTER AND ONYX

Globular Vase of Alabaster. Alabaster is soft and easy to cut; nevertheless, this piece indicates considerable skill in stone carving techniques. The average thickness of the vase found with Skeleton 151 (Fig. 16e) is approximately only four millimeters, the only thicker section being that at the upper corner of the globular part. Twenty-two shallow grooves or flutings decorate the sides of the vessel, above which is a thin flange coming out from the neck of the vessel, all very skilfully and regularly cut.

Barrel-Shaped Alabaster Jar. In this jar (Fig. 16d) found with Skeleton 89, the walls are five to six millimeters thick. The jar is not symmetrical. It is oval in horizontal cross-section, and the side at the right in the photograph is convex from top to bottom while the opposite side is nearly straight. The bottom is almost flat, and there are three short feet, two elongated ovals, the third square with rounded corners.

Alabaster Figurine (?). This is an oval piece (not illustrated), 6.5 centimeters long, flat on one surface but otherwise rounded. The surfaces are badly eroded and it is not possible to be certain that it was a figurine, the relief of the rounded surface merely suggesting that it had been carved into the form of a face.

Alabaster Fragment. A rounded fragment three centimeters in diameter may have been a vessel foot (not illustrated).

Vessel Fragment of Banded Onyx. This is a fragment of what was apparently a cylindrical vessel (Fig. 20c). Carved in high relief on the exterior is a curved element, larger on one end than the other. It is undoubtedly a sherd from the wall of a vessel, but all of the edges have been ground down smoothly as though it were valued as just a fragment.

Tube of Banded Onyx. The purpose of this object (Fig. 20b) is unknown. It bears no sign of burning to suggest its use as a pipe. It is extremely well made and finished. The exterior is slightly roughened due to weathering, but the bore has a very

high polish. The object was left in Mexico and no expert analysis was made of the material. It appears to have the characteristics of banded onyx, but, if so, it is an atypical piece as there are inclusions of quartz crystals, which project in places from the otherwise even surface, having been merely smoothed over in the grinding process.

In the consideration of these objects we must first point out the distinction between banded onyx and alabaster. Banded onyx, Mexican onyx, *tecali*, *tecali* marble, and Tehuacan marble are various names for one material. The principal quarries are at the town of Tecali in the state of Puebla, and are usually considered to be the chief source of the banded onyx objects found throughout Mexico. Deposits of a similar stone have been discovered in Zacatecas and Durango, but there is apparently no evidence for their having been worked in pre-historic times.¹ Banded onyx is a carbonate of lime, an aragonite,² which effervesces with acid and can be distinguished from alabaster by this test. Alabaster is a dense gypsum, calcium sulphide. It is much softer than onyx and can be scratched with the fingernail.³ It is of wide occurrence and is to be found, I believe, in western Mexico.

The two objects of banded onyx found at Guasave are well preserved and to a large extent retain their smooth polished surfaces. Those of alabaster, however, have disintegrated considerably, and the surfaces are rough and pitted. The globular vase has been entirely corroded through on the side which was uppermost as it lay in the earth.

Objects of alabaster or onyx have not previously been found on the West Coast. In the Lumholtz collection is a bottom fragment of a small alabaster jar from Tepic. As far as I know, this is the only alabaster object which has been found in Mexico in addition to the Guasave specimens. Vessels and other objects of onyx are common in Oaxaca, Vera Cruz, and

¹ Kunz, 1907, 49.

² Kunz, 1907, 49.

³ I am indebted to Doctor F. H. Pough of the American Museum for identifying these materials.

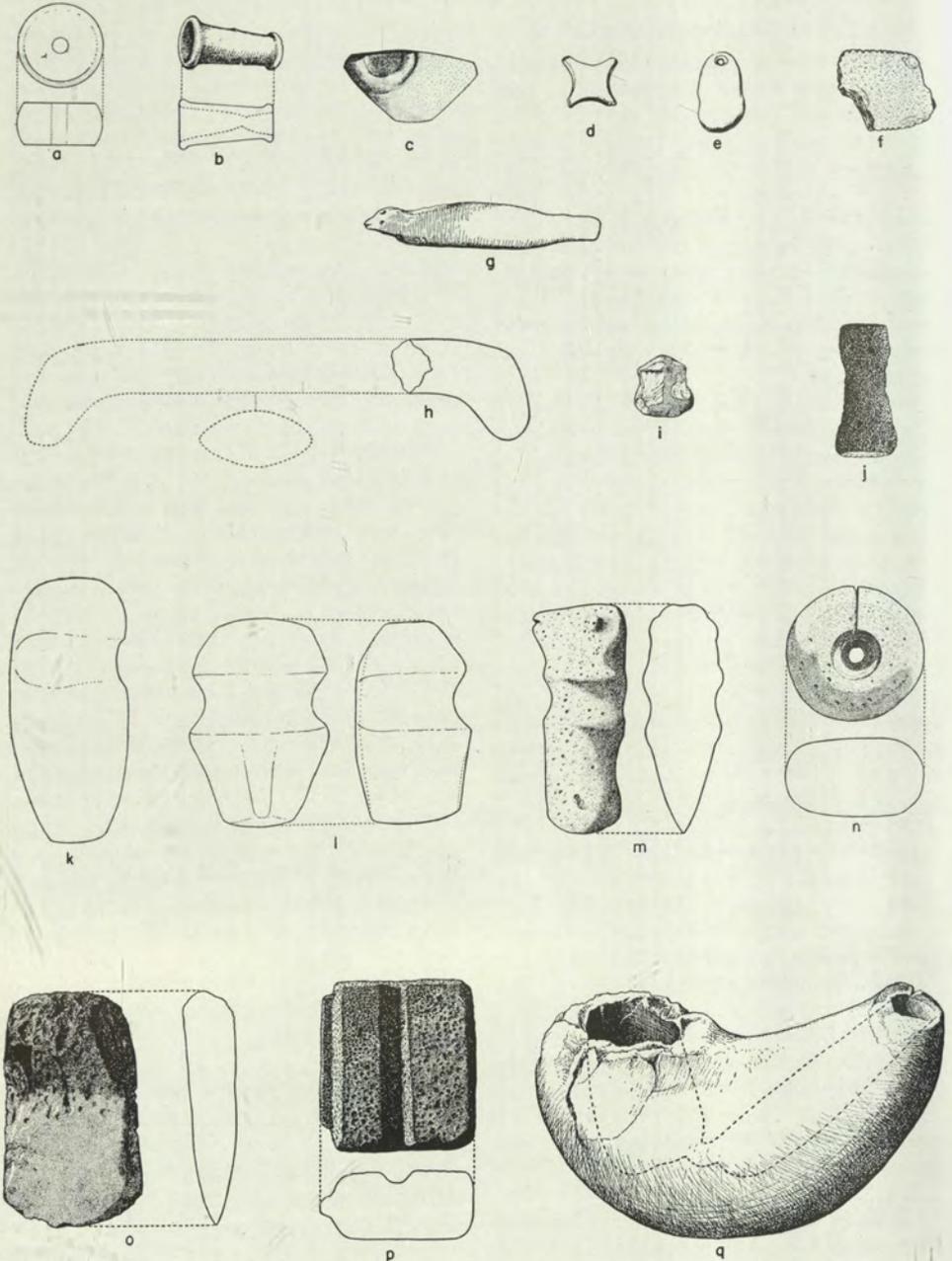


Fig. 20 (a-e, 30.2-4978, 1087M, 30.2-5090, 694M, 656M; f-p, 30.2-5074, 5068, 5050, 5081, 5073, 5057, 5058, 5061, 5079, 5064, 5075; q, 249M). Stone Objects. (a, nat. size, all others 1.4 nat. size.)

Central America and are found scattered as far west as Atoyac, Jalisco.¹ It was at first thought that the Guasave vessels were imports from the south, but, since they are made of alabaster, this now seems unlikely. It is my opinion that they were made locally of local materials. It seems likely that the idea of making vessels of white stone was introduced from Central Mexico and that the only material available on the West Coast was the soft alabaster, inferior to the banded onyx of the interior. In this regard the vessel fragment of onyx is interesting in that it was obviously a valued piece, a sample of the kind of stone not available in Sinaloa. It is apparently a fragment from one of the monkey or other effigy vases that are so widely distributed in Middle America,² the design in relief being the curved tail. It is also probable that the tall barrel-shaped jar is a simplified form of this same effigy jar. It has approximately the same shape as these vessels, and the two elongated feet are similar to those on some of the monkey jars. The globular vase (Fig. 16e) is unlike any other stone vases from Mexico, but has a fluting not unlike several of the pottery vessels from the Guasave site.

TURQUOISE ORNAMENTS

Seventeen pendants and eighty-two beads of turquoise were found. The pendants were found as ear and arm ornaments and both these and the beads as necklaces, either alone or with copper bells or stone beads.

The majority of the pendants are roughly rectangular, commonly about nine by twelve millimeters in size and two to three millimeters thick. Most of them have a bi-conical perforation near one end. Several are considerably larger; one twenty-four by twenty-two millimeters in size, one side pure matrix and the other a beautiful blue turquoise with small flecks of matrix. Another large pendant is twenty millimeters square and six and a half millimeters thick. Several small triangular pendants are perforated in one corner. One

is perforated at both ends and another, besides having a perforation at one end, has connecting perforations at one side as in a shank button. One has beveled edges and was possibly a converted mosaic fragment, and several have notched edges.

All of the beads are plain, discoidal. Most of them are small, averaging about three and a half millimeters in diameter and slightly over one millimeter in thickness. Several are very tiny. One fragment appears to be of a large bead fifteen millimeters in diameter and nine millimeters in thickness.

At the time of the Spanish conquest the Aztec and other peoples of Central Mexico were using a great deal of turquoise, mainly as material for mosaics on masks, shields, and other objects.³ It has often been suggested that all this turquoise was imported from the Southwestern United States, but Saville⁴ and Caso⁵ have reasoned that that is unlikely. The quantity of turquoise used was too great to have come so long a distance, and the Aztec tribute rolls indicate that turquoise was acquired from the south, presumably from the region of Guerrero and Oaxaca. No turquoise mines bearing evidence of prehistoric workings have been found in that region, but this again is not a valid objection to the theory, as much of the area has never been explored archaeologically. Turquoise deposits do not occur in northern or western Mexico, except for some apparently unimportant ones in Durango and Sonora,⁶ and they presumably were not worked in prehistoric times. These problems of the origin and trade of turquoise, it seems to me, might be solved by careful mineralogical analysis of Southwestern and Mexican turquoise or of its matrix, if such analysis were directed toward the specific problems of the archaeologist.

On the basis of less accurate, purely typological considerations it seems likely that the turquoise occurring at Guasave may have had its origin in the Southwest. The small beads occur commonly in both the Southwest and throughout Middle

¹ Fragmentary monkey jar in the Humboldt collection, The American Museum of Natural History.

² See Joyce, 1916.

³ Saville, 1922.

⁴ Saville, 1922, 28.

⁵ Caso, 1932, 25.

⁶ Pogue, 1915, 48.

America. The pendants, in form and general appearance, are indistinguishable from those found commonly in excavations in the Southwest but are almost entirely absent in Middle America.

Castañada reports that when Guzman was in Sinaloa he had heard of Indian traders who went on journeys of forty days to the north to exchange fine feathers for ornaments.¹ That was perhaps two hundred years later than the time of the Guasave culture, but the turquoise pendants from Guasave seem to indicate that such a trade route to the Southwest was in existence at that time. Besides feathers, perhaps copper bells were also traded northward, but as far as we know turquoise was the only commodity returned to Mexico in exchange.

CHIPPED STONE IMPLEMENTS

Chipped stone implements were entirely absent at the Guasave site. Sauer and Brand remarked on the lack of chipped stone tools in the Sinaloa sites in general,² but Kelly found chipped obsidian blades at Chametla.³ To the north, throughout Sonora, arrowheads, etc., are fairly common. While the use of chipped stone implements was certainly of minor importance, it does not seem likely that they were entirely unused in the Guasave culture, and they probably would have been found in a more thorough search of the living sites.

OBSIDIAN BLADES

Three complete blades and four fragments were found. The blades are of the type so very common in the Central Mexican area, long narrow flakes taken with a single blow from a prepared core and having very sharp unretouched edges.

Two of the complete blades were found with Skeleton 29, and the other with Skeleton 92. The four fragments were also found with skeletons, usually accompanying shell beads. It seems that even the fragments of blades were considered to be of some value.

¹ Winship, 1896, 472.

² Sauer and Brand, 1932, 32.

³ Kelly, 1938, 61.

The two large blades are of similar material and shape, 14.5 and 15.5 centimeters long, relatively broad, and excellent examples of flaking. The material is slightly frothy, not completely smooth as it is in the other blade and all of the fragments. The one blade found with Skeleton 92 is 13.5 centimeters long and rather narrow. All blades are trapezoidal in cross-section, and when held against the light the material is gray—perhaps with a slightly greenish tinge.

Several fragments of flake blades were found on the Huatabampo site in Sonora, but otherwise they are found nowhere to the north and have never been reported found in the Southwestern United States. Considering the rarity of obsidian at Guasave and the fineness of the few blades, it is likely that they had been imported from the south. They may have come from the highland region because, as far as I know, no cores from which such blades are struck have ever been found in Sinaloa. At Chametla the long flake blades of this type are late and they were probably unknown in Sinaloa before the coming of the Mixteca-Puebla peoples.

STONE PIPE

This object (Fig. 20q) was found near Guasave during road construction. It is made of soft crumbly red stone and weighs 2.5 kilograms. It is supposedly a smoking pipe and, if so, it must have been used on the ground with a tube for a mouthpiece. It does not necessarily belong to the Guasave culture.

SMALL ORNAMENTS

Pendant. A flat black pebble is perforated at one end to form a pendant (Fig. 20e).

Small Plaque. A fragment of a thin slate plaque has beveled and serrated edges (Fig. 20f).

Stone Cross. This small cross (Fig. 20d), made of a hard flint-like stone, is smooth and highly polished. It was found lying beside Skeleton 160. Its purpose is unknown. However, similar crosses have an interesting distribution and without doubt indicate trade between this region

and the Southwest area. A cross of similar shape but made of a coarse lava-like stone was found on the surface of a site near Topolobampo, Sinaloa. Other single occurrences of this small object are in northern Chihuahua,¹ Pitiquito, northern Sonora², the Gila Pueblo Site, Globe, Arizona,³ and at the Gleason Site in southeastern Arizona.⁴

Stone Beads. Thirty-three stone beads (Fig. 20a) were found with Skeleton 94. They are discoidal, rounded on the edge, and flat on the sides. They are cut from a soft clay rock.

METATES

The metates common to the Guasave culture were thin and fragile, and only small fragments of them were found. They consisted of a slab of vesicular lava which, according to the fragments, were only from 1.5 to three centimeters thick. From specimens seen in other parts of Sinaloa it would seem that they were quite large, somewhat concave from end to end, and horizontal from side to side, with no raised border. We heard of one metate found on the site which has short nubbin-like feet, supposedly like those reported from Chametla. All fragments seen by us were legless.

MANOS

The manos are long and slender and extended out over the edges of the metates. Only one complete mano was seen, having been found near Guasave, but the fragments such as that in Fig. 20h illustrate the type. They are usually well formed and made of vesicular lava as well as denser types of stone.

One round handstone with two slightly convex working surfaces was found near the site.

The form of metate and mano used in Sinaloa is, of course, entirely distinct from any Southwestern types. They are similar to the form used in Central Mexico.

PESTLE

A small pestle (Fig. 20j) of vesicular lava was found with Skeleton 127, a bundle burial.

AXES

No axes were uncovered in the excavations, but fourteen picked up in the fields in the vicinity of the site were obtained. We found a few of these, but most of them were given to us by the neighboring farmers, and their exact provenience is thus not known. However, it seems that they were largely products of the Guasave culture.

The axes fall into two distinct groups:—

1. Celts (four specimens).

One (Fig. 20o) is made from the end section of a mano, the others from thin slabs of rock or possibly large flakes. The rock was chipped into shape and then the blade ground down to a sharp edge. The thickest ax is 2.3 centimeters thick, one is as thin as 1.4 centimeters. They appear to have been hafted by means of a skin covering the butt end of the ax, as the polishing of the rough edges from use does not extend over the butt.

2. Three-quarter grooved axes (ten specimens).

Most common is the type of small rounded ax shown in Fig. 20k. It is oval in cross-section. One is round in cross-section and has a marked groove on the inside edge and on the outside edge of the blade (Fig. 20l). Several others are fairly large. There is one three-quarter grooved effigy ax (Fig. 20m).

We found this combination of celts and three-quarter grooved axes to continue into Sonora. It seems that the three-quarter grooved style probably came from the Southwestern United States, spreading down into Mexico, while the celt type, which is common to the Middle American cultures, spread to the north. On the West Coast both types are represented.

SHAFT POLISHERS

Two of these were found in the vicinity of the Guasave site. One is a rectangular granite-like stone with a single well-

¹ Sayles, 1936, Plate XVIIg.

² Lumbholtz, 1912, Plate facing 142.

³ Observed in Gila Pueblo Museum.

⁴ Fulton and Tuthill, 1940, Plate 20a.

polished groove. The other is made of vesicular lava. It is well squared, has a well-polished groove on one side, and an extension on one edge (Fig. 20p). This feature of a ridge on one edge does not seem to have been reported elsewhere.

STONE BALLS

Two stone balls of equal size, approximately five centimeters in diameter, were found near Site 117.

STONE RING

A doughnut-shaped ring (Fig. 20n) of sandstone was found near Site 117. The perforation is bi-conical, having been drilled from both sides, and a narrow groove extends from side to side.

POLISHING STONES

One is of quartz with a rocker-like surface, very highly polished; another, celt-

shaped, worked near the end. Both were found with burials.

WHETSTONES

Two are of granular slate, the end of one adapted to form an animal head (Fig. 20g).

ELONGATED STONES

Four elongated waterworn pebbles are of interest because three were found in graves. All are about the same size, eight centimeters in length.

STONE WEIGHTS

Four small flattish pebbles are notched on opposite edges so that they can be tied (Fig. 20i). Only one was found in a grave, the others on the surface and in the fill. Very likely they were net sinkers.

SHELL OBJECTS

Shell was extensively used for ornaments at Guasave. The site lies only about twenty-five kilometers from the coast, and thus shells of all types occurring on this shore were easily available. Even this far inland shellfish seem to have been used as food, for oyster and clam shells are fairly common on the living sites in the vicinity of the mound.

BEADS

Disc and Bi-Lobed Beads. These occurred in large numbers in some graves (Fig. 21ab). They are well made, those in each lot being quite uniform in size. The larger beads have obviously been cut from thick clam shells, as occasionally a part of the ribbing of the shell is visible on one edge.

In Burial 29, mainly about the head and shoulders of the skeleton, but also about the lower portions, were nearly two thousand large disc beads, the largest shown in Fig. 21a. These form a string five meters in length. Another large lot of slightly smaller beads was found, in combination with bi-lobed beads, with Skeleton 89. They were lying in parallel rows along the arms, usually one bi-lobed bead between every three round ones. There are several lots of medium-sized disc beads, and three lots of very small ones, the smallest disc beads always being accompanied by some of the bi-lobed beads of the same size. A lot of the smallest beads was found at the ankles of Skeleton 68, lying in parallel rows and forming a solid layer. These form a string 3.7 meters in length, approximately thirty-six hundred beads. One in every six is of the bi-lobed variety.

The bi-lobed beads vary somewhat in shape, from those which are distinctly bi-lobed to others which are merely elongated (Fig. 21b).

Tooth-Shaped Beads. Only one small lot of beads of this shape (Fig. 21f) was found about the left ankle of Skeleton 29. They are cut from pinkish-white shell, apparently the column of a conch.

Carved Beads. These are the most elaborately worked of the shell beads, showing none of the original surface of the shell

(Fig. 21g). This form has not previously been reported.

Small Globular Bead. Only one specimen of this type was found, and that poorly preserved (Fig. 21, l). It is interesting in that it is shaped somewhat like the copper bells.

Tubular Beads. One type (Fig. 21c) has been carved from the column of a conch. The other two consist of sections of *Vermetus*.

PENDANTS

The two large circular pendants (Fig. 21u, v) were found with Skeleton 29.

Fig. 21j is one of two pendants found within the burial olla, No. 46. They are apparently made from large bivalve shells with broad high ridges, one ridge being in the center of the pendant and pierced transversely.

Fig. 21s is one of two long ear pendants found in position in Burial 181.

Those in Fig. 21i, k are simple pendants, only one of each being represented in the collection.

BRACELETS

On the left humerus of both Skeletons 29 and 39 was a row of nineteen shell bracelets. In one group they are thin and delicate and very well made (Fig. 21t). In the other lot they are relatively broad and flat, but they are all similarly ornamented with a simple engraved design (Fig. 21r). The bracelet in Fig. 21q was found several miles to the south of Site 117.

PARTIALLY WORKED SHELL

Quite numerous are conch-like shells of various sizes which have been altered only to the extent of having a hole punched in the sides so that they could be strung. In one case eleven shells of the type shown in Fig. 21p formed a necklace tightly packed around the neck of the skeleton. Other more elongated shells (Fig. 21h) have the ends cut away to form the well-known "tinklers."

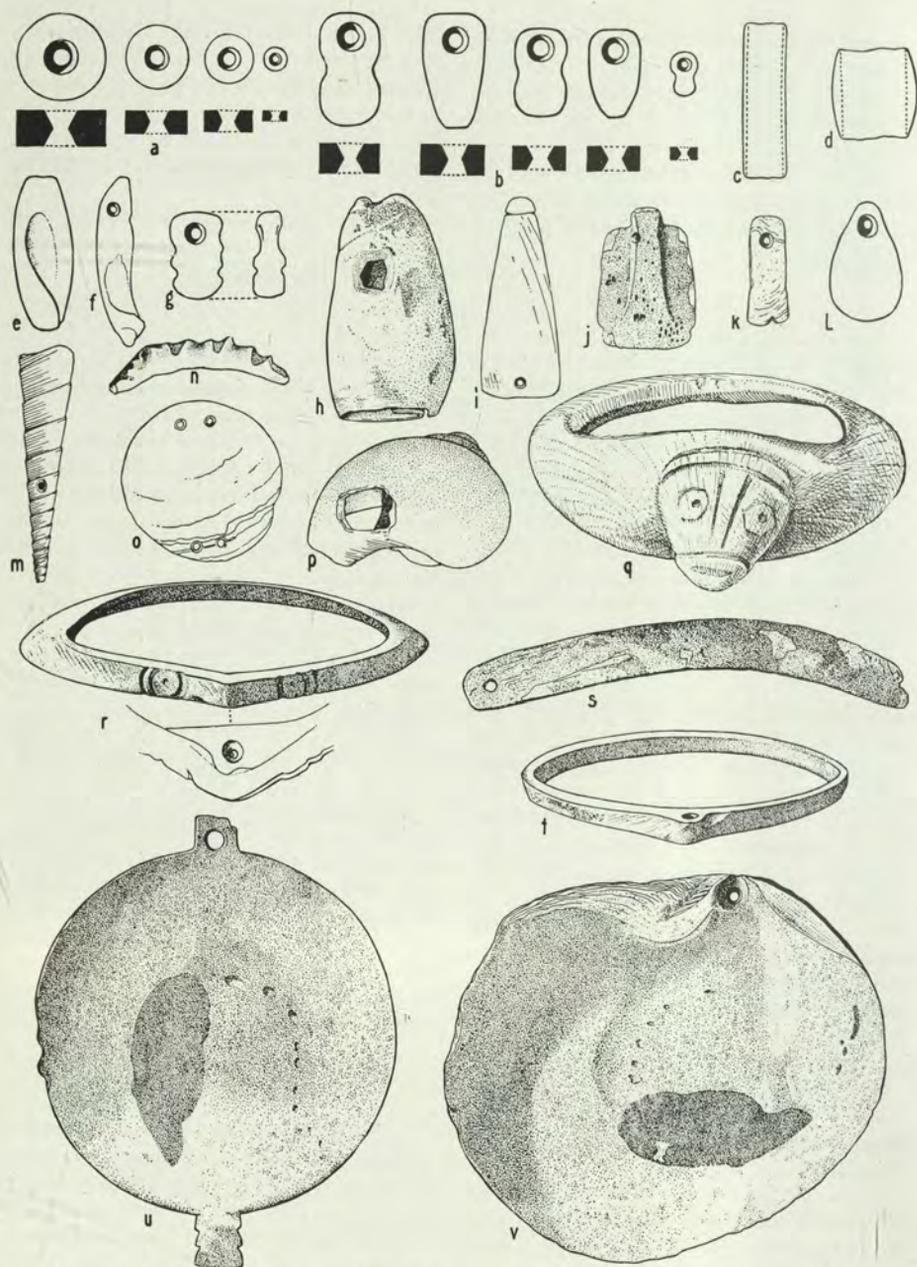


Fig. 21 (c-p, 30.2-5048, 5047, 5005, 5006, 5003, 5010, 5030, 5029, 5026, 5027, 5023, 5028, 5009, 5015; q, 1081M; r-t, 30.2-4990, 5025, 4991; u, 270M; y, 30.2-5008; samples of nearly all types were left in Mexico as well). Shell Objects. (a-g, l, q, nat. size, all others 1/2 nat. size.)

MISCELLANEOUS SHELL ARTIFACTS

Fig. 20o is one of a lot of fifty plaques, all similar, which were said to have been found in an excavation several kilometers to the north of Site 117.

Scattered about one skeleton were a number of thin irregularly shaped shell plaques which seem to have been used in mosaic work.

DISCUSSION

While shell ornaments from the Southwest have been amply described, there are few published data on objects of this kind from Central Mexico and comparisons with that area can be only suggestive. I do not know what types of shell ornaments were found at Culiacán, and there was none reported from Chametla.

In general, the amount of shell work at Guasave is more reminiscent of the Hohokam culture of southern Arizona than of the cultures of Central Mexico. Furthermore, there is one specific analogy to Hohokam shell work. The bi-lobed bead is a form abundant at Hohokam sites in southern Arizona, but, as far as I have been able to

learn, it is entirely absent from Mexico, except in Chihuahua. The bracelet with the carved face (Fig. 21q) is somewhat suggestive of Hohokam shell carving, especially since that form of carving has not been found to the south in Mexico. The other shell bracelets, especially the thinner, more delicate ones, are much more like those of the Southwest than any I have seen from Mexican sites.

Disc beads, pendants of various kinds, and partially worked shells occur practically throughout Middle America and the Southwest, and consequently they are items of little diagnostic value.

Shell carving was also a well-developed art in the Huatabampo culture of southern Sonora, and there too are to be seen resemblances to Hohokam shell carving. It seems likely that the redware cultures of southern Sonora and northern Sinaloa may have been the intermediary through which certain shell carving styles, and perhaps as well the interest in the use of shell as a medium, reached the Aztatlán peoples of Sinaloa.

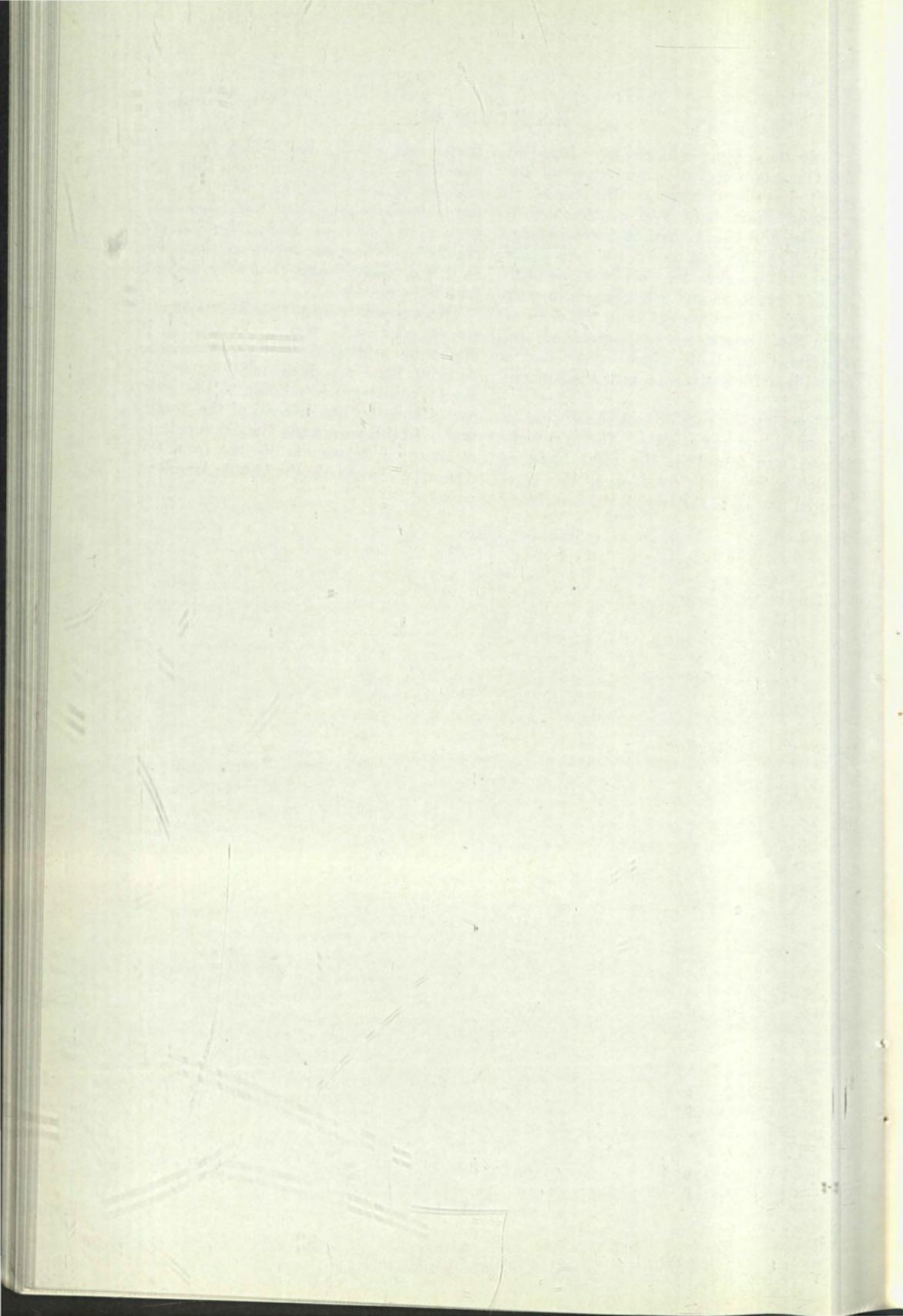
BONE OBJECTS

Only three bone artifacts were found in the Guasave excavation and they all appear to have been daggers. One consists of a round shaft bone two centimeters in diameter and twenty-two centimeters long, beveled at one side to form a long sharp point. The other two are thin delicate blades, seventeen and fourteen centimeters in length. They are cut from the sides of large shaft bones, are well smoothed and sharpened on both edges. One has a round hole for suspension near the squared butt end.

These implements do not show wear in the usual manner of awls. The first mentioned was found in the right hand of Skeleton 29, and, considering the ceremonial nature of the burial, it is not likely

that it was a utility tool. The other two, also found with burials, are too thin and delicate to have been of much practical use as implements. Bone tools may have been more commonly used in the Guasave culture than these few implements indicate, as it is ceremonial objects mainly that we find in the graves.

There appear to be no specific typological comparisons to be made. In general, it might be said that throughout Middle America bone was little used for implements, considered in relation to the great use of bone by the Anasazi of the Southwest. In this regard the Hohokam culture of southern Arizona is distinct from the Anasazi and more like the Middle American pattern.



PERISHABLE MATERIALS

TEXTILES

The only textile materials recovered were those preserved through contact with copper artifacts. The largest fragment consists of several folds of cloth found lying over the eighty-seven copper bells which were tied around the ankle of Skeleton 29. The fragment is at least eight by twenty centimeters in size, in part very well preserved. It is supposedly part of a cloth in which the body was wrapped. All surfaces of the cloth, between all the folds, are completely covered with powdered red ochre. This was obviously not a dye, as it has not penetrated to the interior of the threads and was apparently just rubbed on to the surface of the cloth. Very small patches or lenses of red ochre were found about a number of burials and it is not unlikely that these were from similarly colored cloth which has entirely disappeared.

This cloth is strong and tightly woven, resembling our heavy canvas. It is made of cotton, the threads being approximately .5 millimeter thick and twisted in a clockwise direction. It is what is known as common cloth, a single over-and-under weave. There are approximately eleven warp and seven weft threads per centimeter. The wefts were beaten tightly together so that it is mainly the warp threads that are visible on the surface. No selvage or end fragments were included.

Several small fragments of cloth totalling not more than a few square centimeters were found on the copper bells with Skeleton 107. This cloth is very similar to that described above, except that here the twist of the threads is counter-clockwise. The weave appears somewhat more open, but this may be due to poorer preservation. A small fragment of selvage shows the weft threads merely turned back.

CORD

Of the eighty-seven copper bells found with Skeleton 29, thirty-nine were still fastened in a row on the original cotton cords. The cord, approximately two millimeters in diameter, is made of four smaller strands. The bells were tied in a row by

using two cords, one passing through the rings and the other outside the rings, and between each bell, being cast into two or more half-hitches over the other cord.

BASKETRY

Coiled baskets were apparently an important item of the Aztatlán culture, as we were able to note their presence in nine burials, both deep and high in the mound. The actual fibers were not preserved in any of these, but a pitch or gum substance with which they were covered remained as a soft black carbon-like material. As were the painted gourd vessels, this was preserved in place, while the material of the basket itself was replaced by earth, and all that was to be seen were two thin black layers lying about one centimeter apart and in the shape of a container. When the first of these was found, it was assumed that it was a coiled basket, as the outer and inner surfaces of the containers were relatively smooth while the intervening surfaces were wavy, as would be expected in coiled baskets made with foundations of large splints or bundles. This was confirmed in a specimen found later, in which a section of earth from the interior of the basket split away and on which the black substance formed a mould of the interior surface. In this preserved sample it can be seen that the bundles were round, about seven millimeters in diameter, and were sewed with a flat element, two to three millimeters wide, the stitches being five millimeters apart. This sewing element appears to wrap around one bundle at a time, but supposedly it included a portion of the next lower bundle. The nature of the foundation bundle is indeterminable.

Those baskets which could be measured ranged from twenty-four to thirty-five centimeters in diameter. Shapes were indeterminable, although one was obviously globular, supposedly with a small mouth opening, while another contained the large alabaster vase and must have had a large opening.

Remains, quite certainly of twilled mats, were found with six burials. These could be seen as moulds in the earth, an over-two,

under-two, weave of narrow flat elements about three millimeters wide. The mats had apparently been used for the wrapping of bodies, as the remains were found both under and over the skeletons.

Two vessels, approximately twenty centi-

meters in diameter were composed of a soft black substance, four to five millimeters thick. The surfaces were smooth, and, unlike the baskets, there was just one layer. We do not know what the original material was.

FOODS

INSECT EGGS

The bowl illustrated in Fig. 13d has previously been given special notice because it had a number of specks of molybdenite adhering to the inside. It stood upright beside Skeleton 29. When found, it was filled to a depth of about one centimeter with a powdery-like substance, the nature of which was difficult to determine. It consists of fragments of minute shells which are at the most about one millimeter long, slightly more elongated than is a hen's egg.

Their identification as insect eggs was not established until a sample of fly eggs from Lake Texcoco was furnished by Mr. Ola Apenas of Mexico City. Doctor C. H. Curran of the Department of Entomology of The American Museum of Natural History compared these two samples and is of the opinion that the shells from Guasave are indeed insect eggs. The species of insect involved cannot, however, be identified.

The Aztec, inhabiting the eastern shores of Lake Texcoco at the present time, have various ways of utilizing the insect life in the lake, eating both the flies and their eggs, only the latter of which interests us here. Bunches of dried sticks are left in the

shallow water until they are completely covered with the minute fly eggs. These bundles are taken out and dried, the eggs shaken off, and prepared in various ways as food. The eggs are known as *Awactli*.

As far as I know, the eating of insect eggs has been reported only from Lake Texcoco in the Valley of Mexico. This food-gathering technique may have been more widely distributed than we know, or the use of insect eggs at Guasave may be just another case of a trait distributed from Central Mexico by the Mixteca-Puebla peoples.

Apparently it is only in salt water lakes that the insect life can produce a valuable food supply. In these lakes there are few species of insects, but those present are so very numerous that it is practicable to gather them as they do in Lake Texcoco. As far as I know, there are no salt basins near Guasave at the present time, but there is an enclosed salt basin within sixty or seventy kilometers near the mouth of the Fuerte River.

FISH

In five of the bowls accompanying burials a few fragmentary bones and some scales of small fish were found.

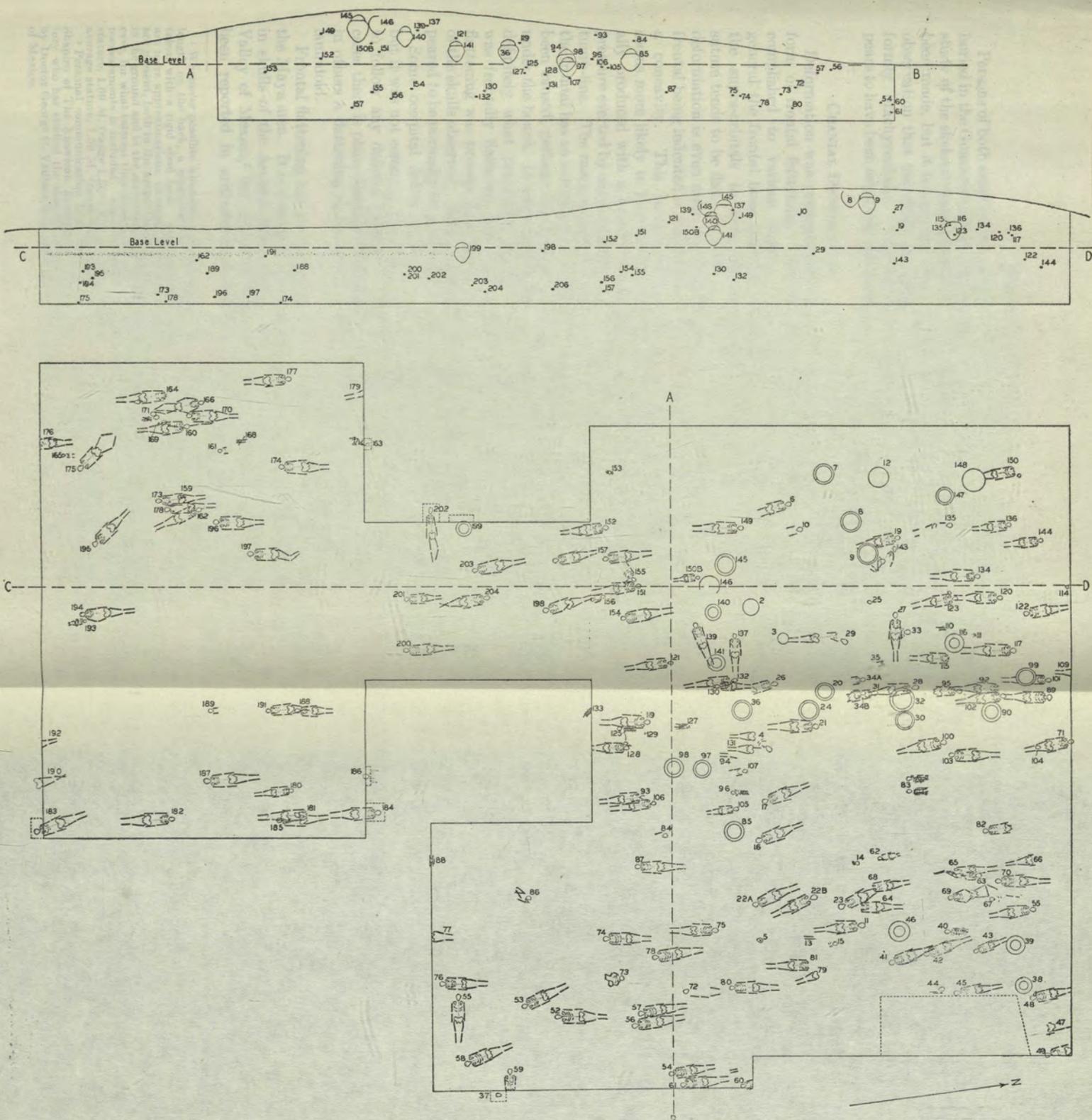
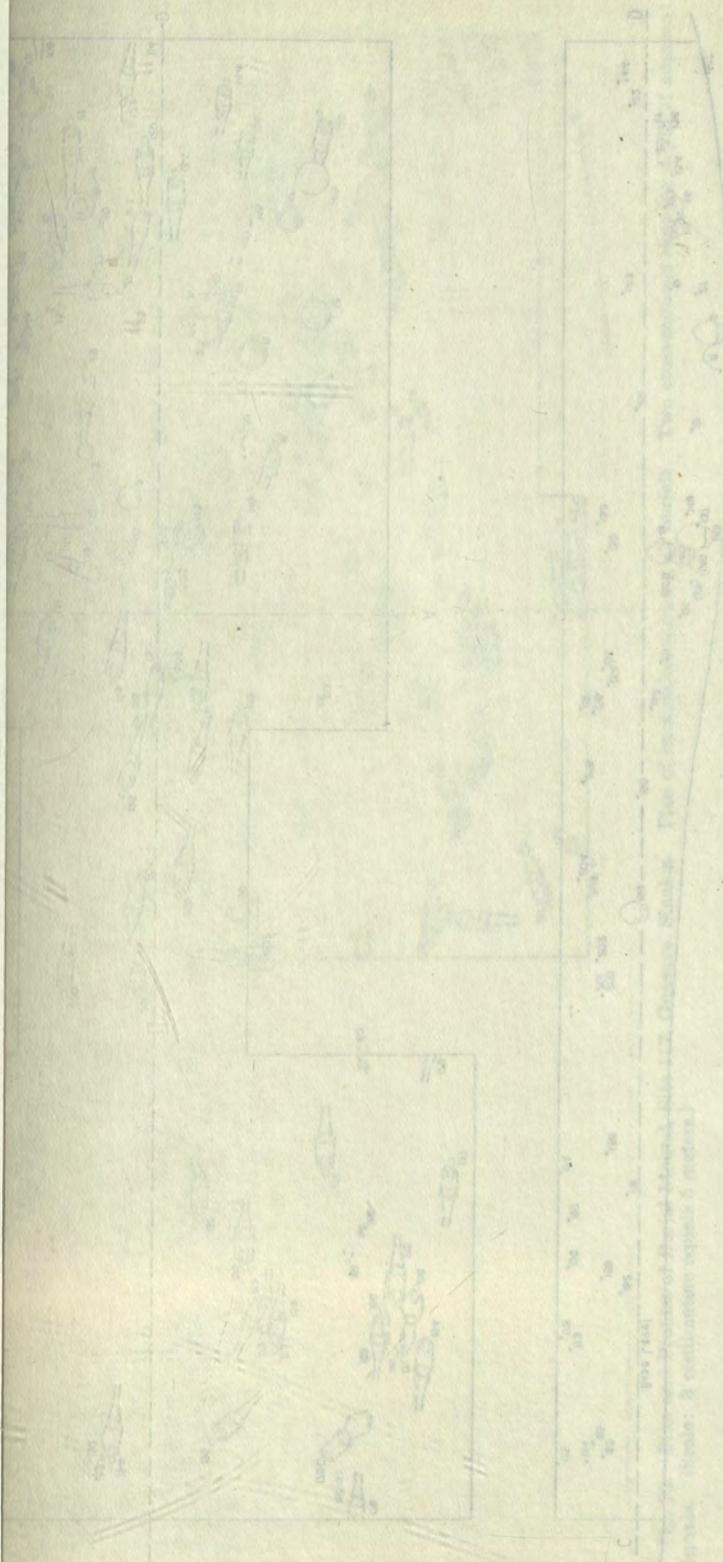


Fig. 22. Plan and Profiles of Burial Mound, Site 117, Guasave, Sinaloa. Plan of excavation showing all burials. Two cross-sections showing depth of adjacent burials. (Scale: 3 centimeters equals 5 meters.)



This diagram shows the distribution of the various species of fish in the area. The fish are arranged in a regular pattern, and the distance between them is marked as 100 and 200. The diagram is a hand-drawn sketch on aged paper.



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SKELETAL MATERIAL

Persons of both sexes and of all ages were buried in the Guasave mound. No detailed study of the skeletal material saved has yet been made, but it is apparent from casual observation that the skulls are quite uniformly brachycephalic. The group appears to have been relatively tall in stature.¹

CRANIAL DEFORMATION

Deformation was predominantly in the form of frontal flattening. This was accomplished to various degrees, but in general the frontal bone from just above the supra-orbitals to near the coronal suture tends to be flat. In some cases the deformation is even more pronounced, the frontal being indented in the center to form a concavity. This frontal deformation seems more likely to have been intentionally produced with a board than through pressure exerted by carrying burdens with a tump-line. The more extreme cases where the frontal has an actual hollow would have been caused, perhaps, by the use of a pad under the board. It is not possible to state definitely what proportion of the skulls was frontally flattened, but this type of flattening was present in a large majority of the skulls observed. Only a very few appeared to be normally formed in this region.

Some occipital deformation was noted, but it was not common, nor does it appear to follow any definite pattern. In some cases there is plain occipital flattening and in others a flattening in the region of the lambdoid.

Frontal flattening was a trait common in the Maya area. It is seen quite frequently in skulls of the Archaic culture from the Valley of Mexico,² but otherwise has not been reported in archaeological material

¹ Whenever possible when skeletons were lying full-length on the back, a measurement of stature was taken with a rigid steel tape. Such measurements are mere approximations, as many disturbing factors are present, both in the actual length of the skeleton in the ground and in the measuring technique. However, for what interest they have, a summary of these measurements is included: nineteen males, average stature, 1.69 M. (range 1.51-1.77); fourteen females, average stature, 1.59 M. (range 1.49-1.65).

² Personal communication from Doctor Harry L. Shapiro of The American Museum of Natural History who has studied the skeletal material collected by Doctor George C. Vaillant from sites in the Valley of Mexico.

from other parts of Mexico other than in the extreme south. Little skeletal material of any kind has been recovered from later sites in Central Mexico, and thus it is impossible to attach much historical significance to the presence of frontal flattening at Guasave. It would seem likely, however, that the trait may have been more common in highland Mexico than has been shown archaeologically, and that like so many cultural elements found at Guasave, its origin is to be sought in that region. Frontal flattening was also very common at Culiacán, according to Doctor Kelly.

TOOTH MUTILATION

Tooth mutilation was a fairly common practice at Guasave, being observed in at least fifteen individuals. It consists of simple filing, no examples of the inlay of other materials having been noted. The commonest type of filing is that in which a rather broad instrument was used at the point where two teeth meet. This cuts off the distal corners of the teeth, leaving a sharp point at the center of each tooth. Most commonly this was done to the upper and lower incisors and canines. When these teeth became well worn in the older individuals, a slight notch was left on either corner of each tooth. According to Borbolla's scheme of classification,³ this pointing of the teeth is his Type J. The Guasave teeth are very similar to those in his photograph, Plate 1, Figs. b, e.

Several cases of notching were found at Guasave. In one, one central upper incisor has a single notch in the center of the distal edge (Borbolla's Type A). In another instance the upper incisors each have a deep notch at one side, like Borbolla's Type L, but with the notch much deeper and more vertical.

In one individual, in addition to the pointing, a horizontal groove was cut across the surface of the left central incisor, a groove deep enough to enter the pulp cavity. The other central incisor is not grooved, but the surface of the distal half has been filed down. This horizontal

³ Rubin de la Borbolla, 1940.

grooving is a type of mutilation not noted by Borbolla.

From Borbolla's study it is clear that the mutilation of the teeth by filing was a widespread trait in Mexico. Perhaps of significance to our study is the fact that the mutilation of the teeth by pointing (Type J) is found, other than at Guasave, only at Cholula and at Ojitlán, Oaxaca. The notched type (A) is more widely distributed. We have no evidence to contradict the supposition that tooth filing was a trait introduced into Sinaloa from Central Mexico, perhaps with the Mixteca-Puebla movement.

BLACKENED TEETH

Another form of dental decoration at Guasave was the coloration of the teeth with a black substance. This appears to be pitch or bitumen and was spread on the front visible surfaces of the teeth. The best-preserved specimen is a lower mandible, in which the blacking covers the incisors and extends back to include both premolars on one side and only one premolar on the other. In another instance, it was apparently only the upper incisors that were blackened. In all, this trait was noticed in only three cases, indicating that it may have been a form of decoration not

commonly used. On the other hand, the substance may not always have been equally well preserved, and it may have been a more common custom than the number of our observations indicates. Possibly it was a mortuary custom, the black substance being applied after death.

As far as I know, this trait has not been previously reported from archaeological material.

TROPHY SKULLS

An additional cultural trait observable in the skeletal material is the preservation of skulls, possibly as trophies. Two extra skulls found with Burial 29, and one with No. 166, were entirely coated with red paint. The front half of an extra skull was found in Burial 123 which, although it was not painted, appeared to be similarly a trophy skull.

On superficial examination these skulls are physically not distinct from those of the Guasave population, and perhaps they were not actual trophies. However, they were dried and preserved, as evidenced by the red paint and by the fact that they were somewhat better preserved than the bones in the burials they accompanied. As far as I know, no similar finds have been reported from elsewhere in Mexico.

MISCELLANEOUS DATA AND RESULTS OF THE GUASAVE EXCAVATIONS

STRATIGRAPHY

We have previously shown that the stratigraphy of burials in the Guasave mound indicates that there had been changes in burial type and orientation through a certain period of time. Unfortunately, however, these changes cannot be correlated with changes in pottery styles and other artifacts because so few objects had been placed with the earlier burials. Those few objects that were found with them are not distinctly different from those with the later burials, and it seems probable that there were changes in burial customs without corresponding changes in pottery and artifact styles. We cannot be certain of this, but if it is true it is a curious situation, as burial practices seem to be usually more stable traits than, for instance, pottery styles.

The only possibility of showing changes in ceramic types through the stratigraphy of burials is in those vessels found with Skeletons 29, 46, and 166. These were not among the deepest burials in the mound, but they certainly were the earliest in that group which were oriented with their heads toward the north, and with them Guasave redware and Amole polychrome were best represented. This suggests that these were perhaps slightly earlier styles than those in the upper levels of the mound. This possibly represents a minor sequence which may ultimately be worked out at other sites.

The evidence seems to indicate that most of the Guasave material which we have described can be considered to belong to one cultural phase, which we have called the Guasave culture. Most of the pottery vessels were found with burials in the upper parts of the mound, and the various types of ware interlock, identical pieces occurring in several graves and thus indicating contemporaneity for still other types. The burials were, of course, made over a period of time within which cultural changes undoubtedly took place, but these are minor changes on which we have no data, and it is necessary to consider the entire phase as a unit. Moreover, there is the impression that this phase was of relatively short

duration at Guasave. The living sites do not show very intensive or long occupation, nor do the burials in the mound appear to have been made over a long period of time.

The following lists indicate the number of whole vessels of each type found in certain of the better furnished graves and thus show contemporaneity of types:—

	Complete Vessels
Burial 21	
Guasave Redware	4
Guasave Red-on-Buff	4
Cerro Isabel Engraved	1
Guasave Polychrome	1
Sinaloa Polychrome	1
Burial 28	
Aztatlán Polychrome	5
Cerro Isabel Engraved	1
Nio Polychrome	1
Black Jug (Aguaruto incised)	1
Burial 29	
Guasave Redware	13
Amole Polychrome	2
Burrión Polychrome	1
Aguaruto Incised (atypical, see Fig. 80)	1
Heavy Plainware	1
Burial 149	
Guasave Red-on-Buff	1
Guasave Redware	1
Small Legless Jar	1
El Dorado Incised	1
"Animal Head" Bowl	1
Burial 184	
Guasave Redware	2
Sinaloa Polychrome	2
Cerro Isabel Engraved	3
Guasave Red-on-Buff	3

An important stratigraphic problem yet to be solved is the relationship of the redware cultures to the Aztatlán complex. In one of our test trenches, at the point where the old river channel comes closest to the road to the north of the mound, no Guasave red-on-buff sherds were found, and there was a greater percentage of Guasave redware. Supposedly this represents an earlier cultural phase at the Guasave site, but we were able to find no stratified deposits to prove that this was definitely the case.

It seems likely that previous to the time of the Aztatlán complex the northern half of Sinaloa was occupied by peoples of a much simpler culture who made a redware like Guasave or Huatabampo redware and simple plain wares. Quite definitely no culture there was comparable in complexity to the Aztatlán or Early Chametla complexes.

Admittedly we have a rather one-sided picture of the Guasave culture, as most of the material in our collections represents the ceremonial-religious aspects of life, and we know little of those traits centered around everyday existence. The pottery found on the living sites consists almost entirely of the heavy plain and red wares, a small percentage of Guasave redware and Guasave red-on-buff, and a few sherds of the various polychrome and incised types. Supposedly these were the ceramic types for everyday use; thus it will be seen that there was not a strict dichotomy between sacred and profane, as red-on-buff and redware jugs and bowls were very commonly used as burial offerings. The elaborate polychrome pottery, however, appears to have been quite strictly allotted to ceremonial uses.

HOUSES

No evidence of houses was found anywhere in the excavations, and in fact, no definite house remains have been located anywhere in Sinaloa. At Culiacán, Doctor Kelly made extensive excavations in living sites and, I believe, found only a few post holes which could have been those of houses. Dwellings must have been made of highly perishable materials, but even then we might expect to find floors and post holes. Perhaps they are not easily observable because the soil in the river bottoms is so even-textured and friable. The soil does not pack hard like clay nor are there differences in texture or color which would readily mark floor levels.

SLAG AND OVENS

In the fill of the mound and in the surrounding fields irregular fragments of burnt clay are common. They are gray,

some fired approximately as hard as pottery, but more commonly having the texture of pumice or of rock slag, the latter having been completely fused. This material is found on a number of sites in this region, often restricted to one portion of a site. On one site near the mouth of the Sinaloa River several complete "turtle-backs" of clay were found, nearly round lumps about ten centimeters in diameter which were partially fused. One of the burial ollas in the mound rested upon three large lumps of burnt clay. These facts make it seem possible that all these fragments of burnt clay are parts of broken tripod pot stands. Stone is entirely absent on the silt plains and it may have been more convenient to manufacture fireplace supports from clay than to bring stones from a distance of ten miles. However, this is not a completely satisfactory explanation of this burnt clay or slag material, as it seems that excessive temperatures must have been attained to fuse the clay into what very much resembles volcanic slag.

In three of our best trenches in the living sites we came upon what seem to have been ovens formed of these broken fragments of burnt clay or slag. The only one which appeared to be complete consisted of a circular layer of fragments 1.5 meters in diameter and approximately twenty centimeters thick. The burnt clay fragments were packed together. The entire oven had been subjected to fire, as the sherds found within it were over-fired, the soil beneath had become red from the burning, and there was a small amount of ash and charcoal. It is impossible to suggest the purpose of these ovens unless we assume they had been like the mescal pits of the Southwest, where the material to be cooked was placed on heated stones, and the whole was covered with earth. They certainly were definite constructions and not just fireplace refuse. They were very numerous; the farmers near this site complained of places where the soil seemed to be in large part filled with these layers of burnt clay.

CONCLUSIONS

An outstanding feature of the Guasave culture is that there was produced such a great diversity of artifacts and pottery types. Perhaps this was because the Guasave culture, like most of the higher cultures of Middle America, consisted not

chief movements of cultures or peoples which resulted in this heterogeneous group of cultural traits at Guasave.

We must first consider the local cultural relationships and sequences within Sinaloa which are tabulated below:—

Chametla	Culiacán	Guasave
	Late Culiacán	
	Middle Culiacán	
	Early Culiacán	
El Taste-Mazatlán	Aztatlán Complex	Aztatlán Complex
Aztatlán Complex		
Middle Chametla		
Early Chametla		

only of that complex of traits which is centered around everyday existence, but of another more or less distinct complex concerned with religious ceremonial. As our excavations were in a burial mound, it is mainly this second category of traits that was recovered, although it is impossible to know, of course, just what was the division between the two categories. This is an important distinction, as it is, for instance, one of the basic differences between the more highly developed Middle American cultures and such cultures as the Anasazi of the Southwest, where most small objects are utilitarian, even though they commonly achieve ceremonial significance by being put into graves. The Hohokam complex differs from the Anasazi and approaches the Middle American pattern in that there was more emphasis on ceremonial objects.

Perhaps, however, a more significant reason for the great diversity of styles in the Guasave culture is that it does not seem to have been a unified complex of traits which was the end result of a long period of cultural evolution, but a culture formed by the recent fusion of several quite distinct traditions or cultural streams which had not had time to consolidate into such a unified complex. In the discussion of the pottery and other artifacts we have considered their relationship with all similar objects or styles wherever they occur in other areas, and it is obvious indeed that the culture at Guasave was an eclectic one. In this section we shall attempt to generalize as to the

At the Aguaruto site below Culiacán, Doctor Kelly established the presence of four successive stages of cultural change. It is to the first of these stages, the Aztatlán complex, that the Guasave culture belongs. The details of this relationship cannot be fully analyzed until Doctor Kelly's report on Culiacán has been published, but in conversations with her and through her examination of the Guasave material we have agreed that the similarity is very close. There are some pronounced local differences. The red-on-buff ware at Culiacán is more highly polished and has a different design treatment than the Guasave variety. Types of wares occurring at Guasave, but not at Culiacán, include Guasave redware, Amole polychrome, El Dorado incised, Aztatlán polychrome, etc. The greater variety of wares at Guasave indicates actual differences in the ceramic composition of this phase at the two sites, but it is certainly in large part due to the fact that at Culiacán the excavations were made in rubbish heaps and very few burials with accompanying objects were found. The Aztatlán complex was poorly represented at Culiacán, the sites yielding mainly material of the three later phases. Despite the differences, however, exact duplication of such types as Navalato polychrome and Aguaruto incised attest to the relationship and contemporaneity of the Guasave culture and the Aztatlán phase at Culiacán, and we can speak of the Guasave culture as being a part of the Aztatlán complex.

The Aztatlán complex appears to have

been more widespread throughout Sinaloa than any of the earlier or later cultural phases. In the south, it was identified at Chametla, and, according to Doctor Kelly, pottery belonging to this complex occurs throughout southern Sinaloa and coastal Nayarit. We have fixed the northern limit of the spread of the Aztatlán complex in our survey. Guasave red-on-buff and Navalato polychrome sherds were found at a number of sites on the Sinaloa and Fuerte rivers, but none to the north in Sonora, except on a northern tributary of the Fuerte just across the Sinaloa border. This widespread uniformity of culture in Sinaloa during the time of the Aztatlán complex was probably due to the movements of peoples resulting from the stimulating influences from outside sources present at that time.

The distribution of the Aztatlán culture in northern Sinaloa is highly significant in that to the north of Culiacán we have not found a single sherd of the pottery types defined by Kelly as forming the succeeding Early, Middle, and Late Culiacán phases. This seems to indicate undoubtedly that, after the end of Aztatlán complex times, Sinaloa, north of the Culiacán River, was not occupied by peoples making painted pottery. The reason for this desertion of excellent river valleys by well-established, high cultured peoples must, it seems to me, be explained as the result of alien pressure from the north. Either the peoples of Aztatlán culture on the Fuerte and Sinaloa rivers were destroyed or they were pushed southward to the Culiacán Valley. This situation corresponds well with certain historical evidence from the time of the Spanish Conquest, that the settled civilized peoples of the Culiacán Valley did not extend farther to the north. The people of the Sinaloa Valley were markedly different from those of Culiacán and farther to the south in being less numerous, in having ruder habits, and in speaking a different language.¹ It seems not unlikely that the southward regression of the Aztatlán peoples resulted from pressure from these less civilized tribes, the Cahitas, who, on the basis of other evidence, have been

thought to be more recent arrivals in the area and to have come from the north.²

Despite the great diversity of types and styles of artifacts from the Guasave excavation, it is clear that they were all made by one group of people, members of one cultural unit. Unquestionably, it had not been a burial ground used by various groups, which could have accounted for the cultural diversity. It is more likely the result of an amalgamation of three cultural strains or complexes, which, I believe, can be distinguished. These three complexes, each of which we will discuss in detail, are the following: that which comes from the earlier painted pottery cultures of Sinaloa, a strain of a simple redware culture which centered in northern Sinaloa and southern Sonora, and a strong influence in ceremonial-religious art and mythology from the highland region of Central Mexico, in the form of a migration of a group of people coming from the Mixteca-Puebla area in south-central Mexico.

THE CONTRIBUTION OF THE EARLY SINALOA CULTURES TO THE AZTATLÁN COMPLEX AT GUASAVE

If Doctor Kelly's correlation³ of her Culiacán and Chametla series is correct, definitely one and perhaps two cultural phases in southern Sinaloa preceded the Aztatlán complex phase. This seems to fit in well with our theory that the block of Mixteca-Puebla traits was introduced into the West Coast at the beginning of, and in part to form, the Aztatlán complex, as those traits are not found in Early Chametla. According to Kelly, Early Chametla is a distinct phase, definitely earlier than the Aztatlán complex, while Middle Chametla is not so well defined. Perhaps the latter continued into the period of the Mixteca-Puebla influences, as one of the sherds figured by Kelly as Middle Chametla polychrome bears a stepped grecque motive.

Early Chametla pottery consists of plain bowls without feet. There are red-rimmed buff bowls, incised bands, and polychrome decoration of red, black, and white-on-buff

¹ Sauer and Brand, 1932, 49; Beals, 1932, 149.

² Beals, 1932, 145.

³ Kelly, 1938, 41.

ground. Design motives are simple, geometric, and relatively crudely applied. The culture appears to be limited to southern Sinaloa, extending no farther north than Mazatlán. As Kelly stated, we must seek elsewhere for the place of origin of the Early Chametla culture. Her recent survey of coastal Nayarit and Jalisco has shown that the Sinaloa cultures never extended farther down the coast, and we must assume, I think, that their origin was in the western highlands. At Ixtlán, Nayarit, we found a few sherds with decoration resembling that of Early Chametla polychrome. They may, of course, be contemporary or even later than the Early Chametla phase of Sinaloa, but they indicate that there were affiliations with the highlands. When we know something of the cultural sequences in the vicinity of Guadalajara or in the intervening valleys as at Ixtlán, outside relationship and perhaps the origin of Early Chametla will become apparent. Early Chametla is perhaps contemporary with the Late Teotihuacán phases of Central Mexico.

The Early Chametla culture is in many ways distinct from that of the Aztatlán complex, as it apparently lacks entirely the elaborate ritualistic art which is such an outstanding part of the later culture. However, there is a definite continuity from one to the other, and it seems to me that certain traits in the Guasave culture had their origin in the earlier pattern of southern Sinaloa. We shall consider later how this could have come about.

The traits of the Guasave culture which appear to have had their origin in the Early Chametla pattern are as follows:—

1. White dots on a narrow black band. This is a very common element of design on a number of the polychrome types from Guasave, even those which show marked Mixteca-Puebla elements. It is an element common in Early and Middle Chametla decorative styles, but, as far as I know, occurs nowhere outside of Sinaloa, except on those sherds from Ixtlán mentioned above.

2. Engraved bands. The early engraved black-banded ware from Chametla shows a use of incising in bands which is probably ancestral to that most common of decorative elements in the Aztatlán pottery.

3. The complex of red, black, and white

paints on a buff ground. This combination of colors appears to be continuous throughout the Sinaloa sequence.

4. Simple bowl shapes, without feet.
5. Red-rimmed buffware.

The Sinaloa pattern may have contributed yet other elements to the Aztatlán complex of Guasave, but those listed are the ones most clearly of that origin.

THE NORTHERN REDWARE COMPLEX

In the discussion of the Guasave redware and Amole polychrome we have described the existence of a certain redware complex in northern Sinaloa and southern Sonora which seems to have preceded the Guasave culture as well as to have contributed to it. This is borne out by the fact that sites bearing pure redware of this sort are found only in the north and that this strain was not present in the Aztatlán complex at Culiacán or anywhere to the south. It is a pottery making technique which is distinct from that of the painted-ware cultures of Sinaloa and of highland Mexico.

In pre-Aztatlán times this redware complex undoubtedly had some contact with the early cultures of southern Sinaloa, as certain traits such as large unrecurved-rim ollas, and a similar type of metate and mano are common to both regions. Also, at Huatabampo we found one Chametla type spindle whorl (small, incised) and several fragments of ear spools and obsidian blades.

We have no evidence that this redware complex has affected the Aztatlán culture at Culiacán, but it may have been in part the reason for the greater perfection of pottery technique in the later phases at Culiacán where the various wares reach a high state of technical excellence.

THE MIXTECA-PUEBLA CONTRIBUTION

In their surface survey of Sinaloa, Sauer and Brand found no traits which showed any specific relationship with the highland cultures.¹ Doctor Kelly, after a season of excavation at Culiacán and Chametla, concluded that there were only vague suggestions of affiliations between the painted ware cultures of Sinaloa and those of the

¹ Sauer and Brand, 1932, 31.

central highlands.¹ The only possibility of outside relationships seemed to be southward along the coast, and Doctor Kelly later made an extensive survey in that area to determine whether or not there were connections in that direction. The excavations at the Guasave site, revealing numerous parallels with highland culture, were therefore surprising. The Guasave site happened to belong to that phase of West Coast history in which highland influence was strong, and the number of complete pottery vessels recovered was the important factor in showing this relationship which would not necessarily be recognizable on the basis of surface or rubbish material.

Following the description of the objects found at Guasave all apparent outside relationships have been discussed in detail, but to indicate the importance of those relationships with the cultures of Central Mexico they are listed together on the opposite page.

Considering merely the number of traits common to the Aztatlán complex culture of Guasave and to the various cultures of the central highlands of Mexico, there can be little doubt as to the cultural affiliation between the two areas. More important, of course, than the number of similar traits is the degree of similarity—factors we have discussed in regard to each class of objects. Furthermore, it seems that there can be no disagreement as to the probability that the cultural movement was from Central Mexico to the West Coast—that a large portion of the Guasave culture had its origin in the highlands of Central Mexico. The movement could not possibly have been in the other direction, as we know the archaeology of the West Coast area sufficiently well to be certain that it was not a center of development for the complex civilizations of Middle America.

It will be seen that the affiliations listed are with cultures distributed from Central America to Jalisco, and a number of the traits are apparently at home in no one locality. This is because some of the traits listed are not so specific as others or were

common to various cultural groups distributed throughout the region of higher culture. Also, because of our ignorance of the distribution of so many of these traits, their centers of dispersal have not been recognized. It is mainly the "general ceramic" and "other traits" for which we cannot find specific analogies, but the similarities to "design motives," on the other hand, are almost entirely in cultures located within a single area, that of the Mixteca-Puebla.

The term Mixteca-Puebla which we have been using in this paper is taken from Vaillant and it is used according to his definition.² It is used as a general term to designate the Cholula and Mixtec cultures of Puebla and northern Oaxaca which were closely similar and which together formed a single highly important development. Vaillant is of the opinion that after the decline of the Teotihuacán culture, when relatively simple cultures held sway in the Valley of Mexico, a progressive development of both technical and ceremonial aspects of culture was taking place in the Mixteca-Puebla area. This was apparently the source of the ceremonial elements, including the great pantheon of gods, the calendar, and picture-writing which reached the Valley of Mexico and continuing from Aztec II were so important a part of the Aztec culture.

At the time of the Spanish conquest the Aztec state was supreme in Central Mexico and through war and conquest its hegemony was being widely spread. Until the end, however, Puebla was the important center of intellectual life, of religion, and the arts.

The idea that the Mixteca-Puebla culture played such an outstanding role during the three centuries preceding the Spanish conquest is in large part pure speculation, as we have very little accurate knowledge of the archaeology of the Mixteca-Puebla area. The present work of the Mexican Institute of Anthropology and History at Cholula should fill this gap to a large extent. Certain preliminary reports have been published,³ as well as studies of ex-

¹ Kelly, 1938, 42-43.

² Vaillant, 1940, 299-300.

³ Noguera, 1937; Marquina, 1939.

CENTRAL MEXICAN AND CENTRAL AMERICAN TRAITS AT GUASAVE

CERAMIC TRAITS—GENERAL

The use of specialized ritual pottery	—"Central Mexican" cultures
Open tripod bowls	—"Central Mexican" cultures
Bulbous feet with rattles	—Jalisco, Vera Cruz
Tall jar shape	—Vera Cruz, Central America
Tall jar with gadrooned bottom	—Isla de Sacrificios, Vera Cruz
"God" bowl shape (Fig. 4a)	—Cerro Montoso, Vera Cruz, Oaxaca, Central America
Closed annular support	—Isla de Sacrificios, Mixteca, Central America
Gadrooning of bowls	—Highland cultures in general, Huasteca, Colima
Turtle effigy on side of small jar	—Central America
Combination of painting and incising	—Cholula, Cerro Montoso
Red-on-buff decoration	—Mazapan, Coyotlateco, Oaxaca, etc., etc.
Blackware, incised	—Teotihuacán and Aztec cultures
Blue paint on black incised ware	—Aztec culture, Valley of Mexico
Incised-incrusted decoration (El Dorado incised)	—Highland culture in general

CERAMIC TRAITS—DESIGN MOTIVES

Paintings of God ¹	—Mixtec codices, many separate similar details, such as teeth, feathers, ear ornaments, guard for ball game, skull face, treatment of eyes, etc.
Conventionalized feathered serpent	—Late cultures of Central Mexico, codices, pottery, stone sculpture
Solar-symbol motive	—Cholula pottery, Aztec stone carving
Stepped grecque	—Late cultures throughout Central Mexico, but mainly the Mixteca-Puebla
Downy feather ball	—Mixtec and Aztec codices, Aztec sculpture
Symbol of the Wind God	—Mixtec and Aztec codices, Aztec and Mixteca-Puebla pottery
Jaguar skin motive	—Mixtec codices
Tree motive	—Codex Vaticanus—Mixtec
Flint knife motive	—Mixtec and Aztec codices and sculpture
Three-petalled flower	—Mixtec codices
Sinuuous arms, feathers, and balls	—Mixtec codices
Blood symbols	—Mixtec codices
Heart	—Tizatlan frescoes, Mixtec and Aztec codices
Spider	—Codex Borbonicus, Aztec
Tied element	—Mixtec codex (twisted serpents), Aztec I pottery
Vertical, rectangular panel with incised design	—Cerro Montoso, Vera Cruz
Arc through circle	—Coyotlateco pottery
Circle and cross-line device	—Mixtec codices

OTHER TRAITS

Alabaster jars	—Central Mexico and Central America
Platform pipes	—Michoacán
Paint cloisonné decoration	—Valley of Mexico, through Western Highlands
Pyrites beads	—Michoacán
Copper ring	—Vera Cruz, Oaxaca, Michoacán
Copper ear spool	—Guerrero, Durango
Copper bells	—Michoacán, Jalisco
Urn burial	—Michoacán
Filed teeth—Pointed teeth	—Puebla, Oaxaca
Other filing	—Highland Mexico
Frontal deformation	—Valley of Mexico, Maya Area
Use of insect eggs	—Valley of Mexico
Pottery masks	—Central Mexico (?)

¹Toro, 1925. Brief reference is made here to some finds near Culiacán in the excavations for the Canal Rosales. A drawing of the design from a jar contains elements mainly identical with those of the

most elaborate designs from Guasave, but also included are a head and a skull which are perhaps more reminiscent of the Mixtec codices than anything found at Guasave.

cavations at several other sites by Noguera,¹ but this is not yet sufficient to achieve a general picture of cultural developments in the state of Puebla. Except at Mitla and Monte Alban the archaeology of the Mixteca is only poorly known.

The chief forms of Mixtec and Cholula pottery are known from unsystematic finds and excavation; it is without doubt the finest and most highly developed ceramic complex of Mexico. It is difficult to place the origin of the pre-conquest codices, but there is sufficient evidence for believing that the finest are from somewhere in the region of Puebla or northern Oaxaca. The number of churches in the vicinity of Cholula today reflects the fact that it was a religious center at the time of the conquest. However, its importance at a time several hundred years before the conquest is best seen in its influences on other peoples.

Vaillant has suggested that among the things notable about the Mixteca-Puebla culture was that its spread was mainly in terms of ritualistic expression and that this accompanied the movements of people.² Period V at Monte Alban, the Mixtec period, represents a complete change from the long sequence of Zapotec cultures. The Cerro Montoso culture of Vera Cruz was formed by an eastward spread of the Mixteca-Puebla pattern. Elements of the culture are found in the Mexican occupation of Chichen Itza and much farther to the south in Honduras, British Honduras, and Nicaragua. Doctor Vaillant is also of the opinion that the Mixteca-Puebla area was the place of origin for the entire complex of ritualism and religious mythology of the Aztec, different influxes producing separately the Aztec I and Aztec II cultures.

Because of the number of elements found at Guasave which can be referred directly to the Mixteca-Puebla area as a place of origin, it seems likely that it is but another example of influence from that area such as we have outlined above. Most of the traits are on the religious-ceremonial plane; they consist of objects or designs on vessels which were found with burials, usually a

focus of religious ceremonialism. As we have pointed out, the drawings of gods on the Guasave vessels are closely similar to those in the Mixtec codices, and other designs which resemble those on Cholula pottery are all of a symbolic nature. The resemblances are quite definitely with the Mixteca-Puebla style of ceremonial art rather than with that which is usually called Aztec.

By what agency did the various Mixteca-Puebla traits arrive in northern Sinaloa, which is approximately 1700 kilometers distant from their place of origin? On the basis of our present knowledge, it is not possible to be certain of how this occurred, but it seems to me most likely that it was through the actual migration of a small group of people, including a number of religious devotees. Considering the distances involved, the Mixteca-Puebla traits found at Guasave are, I think, remarkably numerous and unchanged. If their spread had been in the form of a gradual trait diffusion from group to group, there should have been a much greater blurring of the elements than there was, and one would necessarily expect them to have been found more abundantly in the intervening area. It is possible that when we know more of the archaeology of the western highlands it will be found that there did exist there various groups of people through whom the complex of traits we have found at Guasave could have passed in the manner of contact diffusion. This seems unlikely, however, as the rather extensive collections of material we do have from Michoacán and Jalisco show few traits as closely related to Central Mexican forms as there are at Guasave.

It does not seem to me unwarranted to postulate a migration of this kind. The Mexican records abound in the accounts of migrations of people over long distances and into areas occupied by entirely foreign linguistic or political groups. Presumably a trek from Central Mexico to northern Sinaloa would have taken a number of years, and it is not unlikely that converts would have been picked up along the way, as well as certain cultural traits such as smoking pipes and perhaps elements of

¹ Noguera, 1940a, 1940b.

² Vaillant, 1940, 300.

red-on-buff pottery. The group would possibly avoid any large centers of population. Having a background of sedentary agricultural life, they would be seeking new sites. In this regard it is highly significant that in the state of Sinaloa the traces of this group are by far the most prominent at the northern frontier of the more developed peoples who were already resident in Sinaloa. Migration more logically accounts for this fact than does any other theory, such as of gradual diffusion through contact from tribe to tribe. Perhaps too they were not traveling through areas occupied by groups entirely unrelated to them in culture. At that time certain of the fundamentals of Mexican civilization were probably known, even if not practised, throughout western Mexico, and we do not necessarily need to suppose that their way was contested by entirely foreign peoples.

If we are correct in believing that a certain portion of the Guasave culture originated in influences or migrations of people from the Mixteca-Puebla, it is necessary to explain why there was not a more complete transference of the culture and why certain other prominent elements of the donor culture did not accompany the others. In all of the horizons in Sinaloa there is an entire absence of stone architecture and an almost complete absence of stone sculpture. In the Guasave culture, figurines seem to have been unimportant. There are many other traits of Mixteca-Puebla culture which seem to have been entirely rejected in Sinaloa.

The lack of stone architecture could be due to the absence of stone in the bottom lands of the coastal rivers, but this would not have deterred a group of people who thought that stone buildings were essential. They could have brought the stone ten miles from the nearest mountains or else built their ceremonial centers near the supplies of stone. Certain aspects of the religious culture were accepted by the natives of Sinaloa, but they were not so fully inculcated with the dogma that they had accepted the arduous necessity of building great buildings. It is more difficult, however, to explain the absence of stone carving or clay figurines, which would have

fitted more readily into the already existent culture, and in fact, figurines were common in the Early Chametla period at Chametla. Ceramic techniques—such as the combination of painting and incising—were continued but not the ceramic complex as a whole. Such peculiar elements as zoomorphic feet on vessels or various forms common to Cholula polychrome were not retained.

Obviously there were other culture traits common to the Mixteca-Puebla culture which one might expect to find with those that were taken to Sinaloa, but their absence does not invalidate our general conclusion. Cultural contact is such a complex mechanism, so many conditions and factors are involved, that it is impossible to make any rules as to what traits will be accepted, and if there were, our information on the kind of contact that occurred here is too meager. From an entire complex of traits a certain group might reject all but one or a few traits.

It is difficult to guess just what kind of mixture of cultural elements occurred to form the Guasave culture. Somehow the incoming peoples were accepted or they subjugated the local peoples; at least they become highly influential in regard to ritualistic procedure, etc. Perhaps when we have more information we can see more clearly what happened. The situation is such that an influx of people of this kind can be more easily worked out than in other areas. There is not such a complexity of details as there would be, for instance, if the original local culture had been more closely allied to that of the intruding culture.

It is not entirely clear what the religious contribution of the Mixteca-Puebla people was. Certain fundamental concepts of Central Mexican religion may have been retained, such as that of multiple gods or of sacrifice, or on the other hand it may have been primarily an artistic contribution. It is only clear that when these people arrived in northern Sinaloa they remembered enough of their old culture to paint pictures of gods which can almost be identified from the point of view of Central Mexican religious art.

If we assume an actual migration of people, it seems likely that the route of travel was across the western plateau to about the region of Guadalajara and then down through the *barrancas*, past Ixtlán and Tepic and thus up the coastal plain—the route which is geographically most practicable. There is no evidence at the present time that this group of travelers had much influence on the cultures of southern Sinaloa, but then only one site in this entire region is adequately known. Nor have its traces been found in the western highlands, except for such chance finds as the tall jars from Lake Chapala and other objects which seem to be parts of the same complex. Perhaps the best argument for the theory that the migrants passed in this direction is that many of the Mixteca-Puebla traits at Guasave are in part amalgamated with those others which have their origin in the southern part of Sinaloa. The decoration of the tall jars, for instance, shows a combination of styles—the white-dotted black lines from Chametla and the symbolic elements which are highly reminiscent of Mixteca-Puebla art.

An alternative route for the group coming from Central Mexico is one farther north on the plateau, through Zacatecas and Durango, with a descent to the coastal plain at some other point. The expedition of Francisco de Ibarra reached Culiacán by way of Topia, Durango, indicating that this was neither an unknown nor an impossible route to travel. The southern route appears more likely, however. At the time of the first Spanish explorers it was the accepted route from the highlands to the coast and had apparently been so at a much earlier time also, when there was contact between the highland cultures and the Early Chametla culture in southern Sinaloa.

The Aztatlán complex at Culiacán obviously contained as full a complement of Mixteca-Puebla traits as it did at Guasave, but at Chametla the elements of this culture seem to be strangely absent. It is impossible to say whether this is due to the fact that the excavations were in such a site that it was missed entirely, or that it actually was less important here than farther north. At the El Taste Site several

bowls were found which bear good examples of the stepped grecque.¹ However, if the Mixteca-Puebla elements are missing here it may be because the group of migrants did not stop long enough to have exerted any influence. They passed through this country to the frontier lands in the north.

The presence of these Mixteca-Puebla traits in the Aztatlán complex of Sinaloa makes possible a more reliable estimate of the relative ages of the Sinaloa cultures than was previously possible. Vaillant believes that the spread of the Mixteca-Puebla culture began not earlier than 1100 A.D. The marked similarity between the pottery found in the Altar de Los Craneos at Cholula and the Aztec I period at Culhuacán is evidence of their contemporaneity, and, because this complex is obviously intrusive in the Valley, it supposedly came from the Cholula area. Aztec II pottery appeared in the Valley with no intermediate stages between it and Aztec I, and it, too, presumed, came from the same source in Puebla. Vaillant sees a correlation between Aztec II and that period in Puebla in which the first Cholula polychrome appeared. On the basis of the cyclical dumps and by correlation of the literary sources, he has placed the beginning of Aztec II at 1299 A.D. The migration from the Mixteca-Puebla to Sinaloa took place during the Cholula polychrome period, and, if all the above is true, this occurred not earlier than 1300 A.D. The sequence of polychrome types in the Cholula area has not been sufficiently well established so that the Guasave material can be correlated with any one phase of this polychrome development. However, as it could not have been earlier than 1300 A.D. and as in Sinaloa three cultural phases succeeded the Aztatlán phase and preceded the conquest, it might be warrantable to estimate that the Aztatlán complex culture existed in Sinaloa at about 1350 A.D.

Certain facts make it seem unlikely that anything quite as clear-cut as the series of events outlined did actually occur. Was the Guasave red-on-buff pottery a trait intro-

¹ Kelly, 1938, Plate 1b.

duced with the other elaborate elements? We have pointed out its general similarity to several red-on-buff wares from various parts of Mexico to which it seems to be related. Unlike the ceremonial traits at Guasave, it seems to have become established as a domestic ware of everyday use, and it is possible that it represents a different kind of diffusion, possibly being introduced into Sinaloa at about the same time or picked up in the western highlands.

Whatever was the nature of the influence of the Mixteca-Puebla culture on that of Sinaloa, it is certain that it did not have any very lasting effect. At Guasave at least, where the burial mound appears to have been quickly built and the living sites do not show very intensive occupation, the complex seems to have lasted for only a short period of time. At Guasave there was no continuation of the Aztatlán complex, and at Culiacán there appears to have been a rather abrupt change into the later Culiacán phases. The elaborate symbolism almost completely disappeared and there began a specialization in the making of a finer pottery with mainly geometric decorative motives. The stepped grecque continued, and there was a standardized kind of geometric face. The influence from the elaborate symbolizing cultures of Mexico was not strong enough and contacts did not continue to perpetuate it, so it was almost entirely dropped out of the culture and only vestiges of it remained. It might be worth while suggesting that the Aztatlán complex culture may have lasted for fifty years, until 1400, and the three Culiacán periods for one hundred and thirty, until the time of the conquest in 1530.

It must be understood that the attempt in this paper to outline the several patterns of culture in Sinaloa and to theorize as to the probable movements of cultures or peoples in Western Mexico is not intended to be a final solution. The reconstruction has been on the basis of quite limited information and further studies may modify our conclusions. However, we have postulated certain general theories which clarify the problems and point up certain questions to be solved by future work.

Of most value to West Coast archaeology would be excavations at certain well-chosen sites in the highlands of western Mexico, as I am certain that they would show relationship both with Central Mexico and the coast. At Ixtlán, Nayarit, for instance, we have found pottery closely resembling that of Early Chametla and also Aztatlán ware. Are these earlier horizons the result of movement out of highland Mexico such as were, in part, the later horizons? It would be most important to know what the sequences of culture were anywhere in the western highland region—western Michoacán, Jalisco, Nayarit, as well as Zacatecas and Durango. Without such information it will be impossible to understand West Coast archaeology fully.

If we have proved by this study that a migration of a group of people from Central Mexico to as distant a place as northern Sinaloa actually took place, it has a significance far beyond the immediate problems of West Coast prehistory. The facts established by archaeological research are usually so fragmentary that we are forced to be conservative in our reconstructions of history. The explanation of a phenomenon wherein a group of traits is found far outside of their supposed home is commonly sought in a process of gradual diffusion or the slow spread of a cultural entity from its center. Perhaps actual migrations among pre-literate peoples are more common than is generally believed.

In the civilizations of Central Mexico, it is now beyond doubt that actual migration of groups of people played a most important part in the prehistoric scene and must be recognized as a factor in the distribution of linguistic stocks and cultures as they were at the time of the conquest. This is, of course, apparent in the documentary sources and corroborates the finds of archaeology. The spread of Nahuatl-speaking peoples far down into Central America is probably due to the same type of movement.

During the course of this study a certain parallel has been noted between the West Coast situation and that of the Southeastern United States. Phillips in his discussion of the Middle American influences

in the Southeastern cultures concluded that some kind of direct contact between the two areas must have occurred.¹ In the Southeast those traits which show Middle American affiliations are mainly of a religious or ceremonial nature, and it would seem profitable to consider the possibility that the connections in this direction were perhaps of the same kind as those into western Mexico. It seems that this south-

ern influence was not felt by the Southeastern cultures until about 1400 A.D. Exactly as on the West Coast of Mexico, it is obviously the ceremonial-artistic traits which were taken over, and the degeneration of the symbolism has progressed to approximately the same degree as in Sinaloa. An hypothesis to be tested, therefore, is that the expansion of the Mixteca-Puebla peoples extended to the northeast and was responsible for this mixture of cultures in the Southeastern United States.

¹ Phillips, 1940, 365.

MIDDLE AMERICAN—SOUTHWESTERN RELATIONSHIPS

It has been hoped and expected that work in northern Mexico would illuminate certain important basic problems of American archaeology. Was Mexico a center of cultural origins and development out of which diffused the stimuli for the beginning of Southwestern culture and its continued development? Or, is the view as presented by Gladwin correct, that the Southwestern cultures are as old as any to the south and that the region of North America was mainly a donor which supplied the cultural basis for Middle American developments? What is the history of certain traits which appeared in later phases of Southwestern culture and which have counterparts in Middle America? We shall discuss these problems from the limited point of view of the Southwest and Mexico, applying to them what we have learned during our study of northwestern Mexico. The results of the Guasave excavations lead to no definite answers to our questions, but they do establish certain facts which must be taken into consideration in the discussion of the general problem.

It is generally believed that the cultures of the Southwest were in some way offshoots from the more highly developed cultures of Middle America. Theoretically the higher development or greater complexity of Middle American civilization necessitated a longer period of evolution, and thus its origins were more remote. The use of corn as a cultivated plant seems to have originated in Mexico or somewhere to the south, and it was therefore a contribution that the Southwest received from Mexico, possibly in combination with another important trait, pottery-making.

This theoretical construct seems to me most likely to prove correct, although at the present time there is little objective backing for it. Gladwin's criticism of the entire scheme¹ has been of the greatest value in that it has forced a more careful consideration of the facts supporting it. Gladwin was correct in saying that the belief in the above theory had become too much of a dogma, but, on the other hand, it seems to

me that his counter-theory is the result of too great a preoccupation with cultural phenomena in the Southwest. One's background and interests seem to be in large part responsible for any very definite opinion on either side of this question.

A sequence of cultures which extends back to an estimated 1 A.D.² has been established for the Valley of Mexico. In other parts of Middle America there are stages which appear to be contemporary with these earliest levels in the Valley, but no remains of cultures which are definitely older or on a more primitive level have yet been found. In the Southwest the oldest comparable culture yet discovered is the earliest phase in the Snaketown series, which Gladwin has estimated as having existed as early as 300 B.C.³ This date also is purely an estimate, the earliest certain date established by cross-dating with the tree-ring series in the northern part of the Southwest being about 700 A.D. These earliest dates in either area are certainly not to be taken too seriously, and it seems to me gratuitous to claim that either the earliest phase at Snaketown or the earliest phase in the Valley of Mexico preceded the other. At least we cannot use these estimates as the basis for further hypotheses in regard to the place of origin of American civilization.

While we have no definite proof that the origin of the agricultural, pottery-making cultures of the Southwest was the result of diffusion northward from Central Mexico, or that it was a case of diffusion in the opposite direction, there can be little doubt but that the developments in the two areas were related. To a certain extent the basic cultural patterns in the two areas were closely similar. There seems to be little possibility that the sedentary agricultural life of the Southwest was an entirely separate development unrelated to the same kind of development in Middle America. The few basic traits which served to mould the cultures in both areas into generally

² Vaillant, 1935, 259.

³ Gladwin and Associates, 1937, 247-251.

¹ Gladwin, 1937, 15.

similar patterns must have been diffused in one direction or the other.

The recent work in the Hohokam area of southern Arizona has been especially fruitful in indicating contact between Mexico and the Southwest, but these are mainly contacts which occurred at a later time than those which we have been considering. The problem is clarified if we consider the possible contacts under two headings, early contacts and later contacts.

EARLY CONTACTS

In the earliest phases of which we know in both the Southwest and Mexico many of the cultural details in the two areas were quite distinct; each had started on its own line of development which was to continue throughout all later phases. Because of these differences it does not seem to me reasonable to suppose that either one of these earliest cultures could have resulted from stimuli received from the other.

It is more likely that those movements or processes of diffusion which left both the Mexican and Southwestern peoples with basically similar culture patterns took place at a time earlier than the earliest Archaic horizon in the Valley of Mexico, or the earliest Hohokam horizon in the Southwest. At that time agricultural life was well established in both places and was in a far from primitive stage. In the Southwest there is good evidence that pottery was manufactured before the Vahki phase, and, although cultures earlier than the Archaic have not been located in Mexico, it is absurd to think that they did not exist there. As will be pointed out later, Mexico is in general very poorly known archaeologically, and in many areas there could very easily be as yet entirely unsuspected cultures which were ancestral to those of the Archaic horizon.

It seems, therefore, that the spread of cultures or the contacts which occurred to establish certain commonly held traits in both Middle America and the Southwest must have taken place at a horizon which we have not yet discovered archaeologically. We do not know where the original development occurred, but it would seem to be connected chiefly with the cultiva-

tion of maize. Most evidence seems to indicate that that was somewhere in Middle or South America, and with little likelihood in the present area of the United States. It is my opinion, therefore, that the ultimate origin of the agricultural, pottery-making elements in the culture of the Southwest was in some region to the south. It was probably not in the Valley of Mexico, but in some region which was geographically more favorable for the early stages of the development of agriculture.

The presence of human figurines in the earliest of the Hohokam phases may indicate that they were a trait associated with this early spread, as they are also an element in all of the earliest horizons in Middle America.

LATER CONTACTS

Whether or not the above theory of origins is correct, it is clear that after the general culture patterns became established in both the Southwest and in Mexico, each seems to have evolved along its own lines, and one did not have any very profound influence on the other. This segregation was due in part to the distance separating them, but probably of greater importance was the fact that the intervening areas consisted in large part of poor arid lands which were occupied by more primitive peoples. These formed a sufficient barrier between the areas. Nevertheless, there was some intercommunication between the centers of Mexican culture and those of the Southwest as seen in the common possession of certain traits which cannot be attributed to the earlier contacts we have discussed above. Some of these commonly held traits, which are seen in the archaeological material and which were due to later contacts or trade of some sort, are listed below. The dates are those of the phases during which, according to Gladwin, they appeared at Snaketown.

Ball Courts	500-700 A.D.
Mosaic Mirrors of Iron	
Pyrites	500-700 on to 1100
Paint Cloisonné	700-900 on to 1100
Tripod and Tetrapod	
Support Vessels	900-1100
Cast Copper Bells	900-1100
} Shell	700-900
Mosaics { Turquoise	Pioneer Period

Turquoise mosaics are early both in the Southwest and Mexico, and, although this would seem to be the result of the diffusion of the trait from one area to the other, there is no way of knowing in which direction it went.

Excluding the tetrapod and tripod supported vessels, all of the other traits listed above seem to have appeared earlier in the Southwest than in Mexico. This is the startling fact which, without careful consideration, might lead one to believe that the Southwest was their actual place of origin.

In my opinion, Gladwin's interpretation of the above facts was based largely on a faulty premise. He pointed to the large amount of excavation and study that has been done in Middle America to show that if those traits listed above had been present earlier in Mexico, they would certainly have been found. He erroneously concluded that just as much is known of the prehistory of Middle America as is known about that of the Southwestern United States.

I would estimate, rather, that our present knowledge of the prehistoric cultures of Mexico, their distribution, chronologies, etc., is at about a stage comparable to what we knew of the Southwest twenty years ago when Doctor Kidder was completing his excavations at Pecos. Almost no evidence of early man has been found in Mexico, and there can, of course, be no doubt that Mexico was at least partly occupied by man in "Cochise" or "Folsom" times. Mason's survey in Durango is the only special effort which has been made in recent years to find this class of remains. No very accurate chronology has been set up, and that only for certain restricted areas. Vast areas have never been systematically explored archaeologically, and in some regions only the latest, most obvious, material has been collected. Twenty years ago we knew very little indeed about the Hohokam area of southern Arizona, and our knowledge of many parts of Mexico is more rudimentary than that.

Because of this lack of knowledge of Mexican archaeology, it does not necessarily follow that just because those traits

listed above have been found to occur earlier in Arizona than anywhere in Mexico they had their origin in Arizona. I have discussed these possibilities in detail in regard to copper bells and the paint cloisonné technique in other parts of this paper, and it is my belief that mosaic mirrors had approximately the same history. All of these things are the result of highly specialized techniques, and in details they are very similar to their counterparts in Middle America. In the Southwest they are of relatively rare occurrence. They certainly had not become well established and have a meager distribution in the manner of traded-in items. If they had gone through their processes of invention and development in the Southwest, I cannot see why they would not have been more commonly used and widely spread.

The presence of ball courts in the Southwest is not so easily explained in this manner, however, and perhaps they had an entirely different history. Little can be added to Haury's discussion of ball courts¹ except to note that they do occur in the Mexican area. They were definitely an element of the Mixteca-Puebla culture, as Caso has recently partially excavated a court at a site in the Mixteca. No other courts in Mexico have been cleared, but as Blom has pointed out,² stone rings have been found at many places in Central Mexico and there can be no doubt but that elaborate ball courts were a common element of the Central Mexican cultures. It may be that they were confined to the later periods, but I think they can be expected to appear at earlier horizons as well.

At an early time the ball game was apparently widely distributed throughout Middle America, having a much wider distribution than any one form of court or playing field. Various specializations in the game and in the playing field must have developed in certain areas, and these would be quite readily diffused. This might account for the similarity between the Hohokam ball courts and those of Middle America.

¹ Haury, in Gladwin and Associates, 1937, 36.

² Blom, 1932, 487.

The Guasave excavations have not greatly aided the elucidation of these general problems. We have shown that the painted ware cultures of Sinaloa extended as far north as the southern border of Sonora, and also that at one phase at least they contained many of the advanced elements of Mexican civilization. This, however, was at a relatively late date, certainly not earlier than 1300 A.D., and the "later" contacts we have been discussing took place between 700 and 1100 A.D. At that time the Hohokam culture had already disappeared. The Pueblo invasion from the north had altered Hohokam culture into what is known as the Classic phase. At that time there probably was a certain amount of trade between Sinaloa and southern Arizona. Copper bells and feathers were probably traded to the north while turquoise and certain styles in shell carving passed to the south.

The earlier painted pottery phases of Sinaloa, Early and Middle Chametla, may possibly have been a source contributing to Hohokam culture, but they do not appear to have been advanced enough or early enough to have transmitted those traits we have considered above. In fact the work in the West Coast area has not given us any hint as to how contacts between Central Mexico and the Southwest could have occurred, except at a very late period.

Our survey of Sonora indicated quite certainly, in my opinion, that there never was any extension of sufficiently highly civilized cultures in Sonora to have been the means of the transfer of traits in the normal manner of contact diffusion. Cultures definitely referable to the Southwestern pattern are found throughout northern Sonora. The Trincheras culture is distinct from the Hohokam, but is closely affiliated. South of the Sonora River valley prehistoric sites are not numerous but what there are bear plainware pottery—some crudely incised—which, if anything, is related to general South-

western forms. The only exception to this general pattern is in the series of sites on the Mayo River in which the dominant pottery is a fine hard redware. This, I think, undoubtedly shows relationship to the general Southwestern ceramic pattern and possibly more specifically with the San Francisco redware of the Mogollon complex. Its age is unknown, but it is possibly contemporary with the Early or Middle Chametla horizons.

How then were those traits which we have considered to be of Mexican origin transferred to the Southwest? The West Coast corridor does not seem a likely route, unless we are to suppose that such traits were transferred by travelers or traders who crossed great areas inhabited by peoples of relatively low culture. Approximately the same situation seems to have prevailed in the western highlands. A tongue of high culture of Central Mexican affiliation extended up through Zacatecas and into Durango and only at a late period did it come into close contact with Southwestern cultures—the spread southward of the Casas Grandes peoples. Those "later" contacts must, then, have occurred across great areas that were occupied by relatively primitive peoples, and it seems likely that it must have been accomplished in large part by small groups of travelers.

Perhaps at the present time the problems of Mexican-Southwestern relationships could best be attacked by learning more of the cultural sequences at the northern periphery of the high cultures in the plateau, in Zacatecas and Durango or even in Jalisco and Michoacán. We must know what depths of cultures there are in that area and whether or not it could have been a jumping-off place for travelers as early as 500 or 700 A.D. This might prove more valuable than searching for missing links in Sonora or Chihuahua, as continuous occupation of intervening areas does not appear to have been necessary for the transference of traits from one area to the other.

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