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**ARCHAEOLOGICAL INVESTIGATIONS ON SANTA
ROSA ISLAND IN 1901**

BY

PHILIP MILLS JONES

Edited by R. F. Heizer and A. B. Elsasser

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ARCHAEOLOGICAL INVESTIGATIONS ON SANTA ROSA ISLAND IN 1901

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EDITORS' PREFACE

In the first decade of this century, when Mrs. Phoebe A. Hearst was a Regent of the University of California, she commissioned and financed a number of scholars to carry out through the Department of Anthropology projects in archaeological and ethnological research and collection in various parts of the world. The purpose of these investigations was to contribute to the existing store of knowledge on these places and to develop the collections at the University's newly established Museum of Anthropology.¹

The success of these ventures is demonstrated in the size and quality of the collections now in the Museum of Anthropology at Berkeley. The Reisner and Uhle collections, for example, made in these early years, have been published in part and have become well-known to scholars in the Egyptian and Peruvian fields. On the other hand, the contribution of Philip Mills Jones, appointed by Mrs. Hearst in March, 1900, to conduct field investigation, mostly in California, but in other parts of Western North America as well, has been little recognized. The lack of recognition is due in part to the comparatively short time which Jones devoted to field work and subsequent laboratory analysis. The record shows that he was active from 1900 to 1902. During this time he collected archaeological and ethnological specimens from the Chehalis and Blackfoot, of Washington and Southern Canada, respectively, and from several localities in California, including the Stockton region in the San Joaquin River delta and Santa Rosa Island in the Santa Barbara channel island group.

Material which he collected from these places was deposited in the Museum of Anthropology at Berkeley and has been studied from time to time in research projects on any of the areas concerned. His report on the mound excavations near Stockton has been published in one of the University series.² Beyond this, the work of Jones has remained practically unknown.

The present report presents the results of archaeological field work which Jones carried on in 1901 on Santa Rosa Island. The particular significance of this

work lies in the fact that the collection is the only known one of its time from the island which was in any way accompanied by data obtained by the excavator. Certainly a large amount of material has been collected on Santa Rosa Island by others, both before and after Jones excavated. Until several years ago, however, when the Santa Barbara Museum of Natural History inaugurated an excavation program, the specimens were dug haphazardly, without notes by the diggers, and much of the material excavated has subsequently been dispersed.

Of Dr. Jones himself, not much is known, although he did achieve prominence in the medical profession. He was born in 1870, and graduated from the Long Island Hospital, Brooklyn, N. Y., in 1891. After practicing in Brooklyn until 1900, he moved to California, where he became associated with the University of California. After 1902 he devoted the major part of his time to public health activities. He became editor of the California State Journal of Medicine, and in 1916 was admitted to the bar to practice as an attorney and counselor-at-law in the courts of California. He died November 27, 1916, from pneumonia.

The original records of Jones's activities on Santa Rosa Island are contained in three separate documents filed in the Museum of Anthropology archives. First is his Journal (printed here on pp. 202-212); second, a parallel account written in indelible pencil and called by us the "Notebook" (printed here on pp. 212-221); third is a two-volume report to his employer, Mrs. Hearst, consisting of photographs of Santa Rosa Island sites and of archaeological materials with descriptions (printed here on pp. 224-234 and reproduced in the plates).

A minimum number of comments and bibliographic citations have been added by the editors, and Jones's words have been faithfully preserved. All the notes to the Journal are editorial. In the Bibliography at the end of this paper the editors have listed the titles of articles dealing with the archaeology of Santa Rosa Island.

Jones uses SRI as an abbreviation for Santa Rosa Island. On page 225 will be found a synonymy of the site designations of the University of California Archaeological Survey and Jones's sites. We acknowledge the kind assistance of Mr. Phil C. Orr in identifying Jones's sites.

¹ Report to President Robert Gordon Sproul for year ending June 30, 1946. University of California, Museum of Anthropology.

² Univ. Calif. Publ. Amer. Arch. and Ethn., Vol. 20, No. 7, 1922.

JOURNAL

Sunday, February 17, 1901

Left Santa Barbara 9:45 a.m. on Schooner Restless, with Guillermo Guivara, hired in place of John,¹ Mr. McGrath, foreman, and Mr. Gardner, butcher, L. A. [Los Angeles], going over to buy sheep. Very little wind and low fog off shore. Little wind all day and night. Quite sick in evening.

Monday, February 18

Arrived Santa Rosa Island 4:20 p.m. after mean day. Captain wanted to go to San Miguel Island, saying the wind was good for there, and head for Santa Rosa. Was finally persuaded to go where we wanted to be. Really he wanted to go there to see Waters, who lives on that Island. Santa Rosa is a big ranch owned by Aleck Moore [More]—dead—now estate, Mrs. Miller, administratrix.

The coast line east of house, where wharf is built, is bluff about 40 ft. high: upper 20 ft. earth and loosely cemented gravel; lower 20 ft. strata of coarse and fine sandstone and various shales. Here the strike is N 35° E, dip, 10°. The shale is unusually tough and hard—almost slaty. One-fourth mile up the canyon to the north of house, in which house and boat house are located, the same strata are noted. Here the coarse sandstone is full of pebbles and the whole is closely cemented. Strike and dip same. One quarter mile above, strike N 200 yds. farther up, strike of shale stratum N 50° E. Crossed ridge and entered another canyon. One mile from house and due south, strike N 50° E, dip 8-10°.

Tuesday, February 19

Left house 6:30 a.m. and helped drive up sheep for Mr. Gardner's inspection. This finished, he left on schooner at 9 a.m. I then tramped till noon, examining rocks within radius of 1 to 2 mi. from house. Notes as recorded on February 18. Dinner 12 m. and then, with an old Mexican, St. Iago [Santiago], about seventy years old, been on the Island for thirty-seven years, rode out to see mounds. Just north of [Boat] House canyon is ridge between two canyons. Twelve years ago this was green and fertile: now it is bare and sand erosion is progressing rapidly. A large encampment has been located here but it has been entirely destroyed by the shepherders and shearers. About 5 mi. westerly, on the first terrace and 200 yds. from Cañada Verde, is found another encampment. Hut circles can still be made out and whale bones are in place, apparently marking graves. On the west side of Cañada Verde and distant 3/4 mi. is another large encampment. This was partially dug by St. Iago and Prof. Eisen² about three or four years ago. Many human bones scattered about—made quite a number of surface finds. The prospect is very encouraging—discovered that my aneroid is out of order and does not work.

Wednesday, February 20

Breakfast 6:30 a.m. About eight left with St. Iago for the southeast extremity, called Skunk Point. Traveled on first terrace, crossing several deep arroyos. Erosion is

quite evidently progressing. At the Point erosion by wind and water has been very marked. The original elevation of the terrace on which were the Indian camps may still be made out as high places remain, like small buttes, here and there. The northeastern 3/4 mi. of the Point seems to have been a general camp site; the deposit, mostly mussel, clam, and abalone shells, varies, but is approximately 1 ft. thick. There is no indication of many burials having been made, though a few bones, surface, and one skeleton (partly buried) were found. The low sand dunes on the eastern exposure of the point also show numerous shell heaps, though the deposit of shells is only 6 to 12 in. thick. Here are found many seal bones, the first I have noted. Four small dikes of eruptive rock were noted, their direction being N 50° E, and about parallel.

Thursday, February 21

At 7:30 a.m., started with St. Iago, old Mexican who has been on the Island most of the time since 1864 and knows it thoroughly, to ride along a ridge which is said to make a trail across the Island, not being intersected by any transverse canyons. We traveled till ten and then the fog was so thick we could not see the trail 15 ft. ahead of us, so returned to the house. At elevation of 1,000 ft. (I fixed the aneroid yesterday) the ridge is sharp and sandstone strata present: strike N 45° W. In the afternoon dug in refuse heaps near hut sites on point just north of Boat House canyon, on bluff. Found shells and bones of fish, seals, dog, fox, birds. In many cases large portions of skeletons were together, as though the flesh had been removed and then cooked; occasionally burned bones were found, showing that the meat on the bones had been cooked. Most fish bones were found with the major portion of the skeleton together. Two picks, one large and one small, were found in house site, 12 in. below surface; a few rude bone tools were also found. The refuse, shells, etc., extends to the bottom of the trench—3 ft. at least. Will sink this lower, to end of deposit.

Friday, February 22

Left ranch 9:30 a.m. Delayed by heavy fog. Could not find the horses. Went by way of second terrace—altitude, 500 to 600 ft.—to mouth of Cañada Verde, thence along coast to western end of island. Between the Cañada Verde and Cañada Soledad there are no signs of Indian camps near the coast. The coast line is abrupt and precipitous. On the west side of the Cañada Soledad we came to the region where wind and sand erosion is progressing and where encampments are encountered. These are of the sand dune variety, some have been excavated, some eroded by the wind, and some remain intact—these latter are such as are covered by vegetation. Encampments are met with at intervals, over several miles, from here to the western point. One or two camps were noted, and others will probably be found, on the flats beside the canyons, north and south, where black adobe soil occurs, rather than sand. These as a rule are about one mile from the coast line, sometimes less than that. Nothing of importance was observed on the surface of these shell heaps.

¹ John D. Cook, not able to make the trip on account of illness.

² Gustav A. Eisen, engaged in zoological research for the California Academy of Sciences at about this time.

Saturday, February 23

Worked all day on bluff point, north side of Boat House Canyon. Conditions here are peculiar and puzzling. There are five apparent hut circles, now covered with dense growth of the malva weed³—"cheese plant"—which by the way seems to grow in all places where have been Indian camps and where any vegetation is now found. I am of the opinion that some digging has been done here before, for at the extreme edge of the bluff I found the bones of one skeleton, all jumbled up and in fragments. Also found a portion of a stone ring, a piece of basket fabric, and a bit of crystallized quartz which had been used for an ornament. St. Iago says he found two similar pieces here some time ago. In digging into what are evidently the refuse heaps of these hut circles, I found a number of rudely pointed bone implements and two or three bone needles. These refuse heaps have certainly not been disturbed and while the amount of material found in them is not large, still it is worth getting—I shall work here at least one day more. Heavy westerly winds prevail—no schooner or steamer yet.

Sunday, February 24, Camps No. 1 and No. 2

Good day's work, a.m. With Billy, 4 worked on camp site east side of Boat House canyon—just across canyon from yesterday's work, and found 10 skeletons: 9 adults and one child, about twelve years old. Bodies lay irregularly, in the squat or doubled-up posture, generally east and west, with the head to the west, face down or to the north and in seven cases on the left side with the left hand under the head. First male—nothing; No. 2, female—nothing; No. 3, male, and with this body 73 shell ornaments of medium, large, and peculiar fashion, all different, and 10 or 12 shaped ornaments or pendants. Nos. 4 and 5, male and female—nothing; No. 6, a child, abalone ornaments and beads; No. 7, female—nothing; No. 8, male, long slender abalone beads; No. 9, male—nothing; No. 10, male, showing old injury to vertex of skull, 2 abalone cups or vessels. In the refuse heaps near this camp were found a few rude bone tools and arrowpoints, one pick and two knives. The graves were in shell and ash earth and over each was a number of stones—concretions and slabs of sandstone and shale (see notebook).

Monday, February 25, Camp No. 2

Worked until 11 a.m., when SS Santa Cruz came for sheep. Billy was needed so then quit work and helped load sheep. Sent mail by steamship to San Pedro.

p. m. Worked on village site on point east of Boat House canyon. On south side of this point found burial ground—in sand, shells, refuse, etc. As usual, large stones placed above bodies—some 6 in. below surface. This location is somewhat below the level of the hut rings, on the slope of the point. The first skeleton unearthed is No. 11, SRI. Male, usual posture—east-west. Head west on left side, hand under head. With the body was one stone ring, somewhat in front of the chest, and necklace of shell ornaments.

No. 12, SRI, was 15 inches north of No. 11. This was a child between fifteen and twenty years. Nothing with body. No. 13, SRI, 20 inches west of No. 12. Also a child, between ten and fifteen years. With this were shell ornaments, beads, one stone ring, one imperfect arrowpoint, and one piece quartz crystal. Most of the ornaments were cached over the chest. Both of above, Nos. 11 and 12: east-west, on left side.

³ Malva parviflora.

⁴ Guillermo Guivara, Jones's Mexican helper.

Tuesday, February 26, Camp No. 2

Worked all day on camp site No. 2. North side of Boat House canyon—same place as yesterday a.m. Conditions very curious. Found 15 to 20 skeletons in circle radius less than 5 ft.—some in proper relation, others fragmentary and evidently disturbed by subsequent burials. Large rocks above all—some of these used mealing stones. Number of small articles, ornaments, etc., secured, but could not say with any one body; often 2, 3, 4 bodies all jumbled together; heads generally to the east. This place has not been dug by any curio hunter, for strata of ashes, shells, refuse, (Olivella buplicata, etc.) were at various places intact either above or below the rocks. These about 4 to 6 in. below ground surface, which is here sloping to the south. In some places two or three layers' of bodies. Eight feet northwest started new hole and found six milling stones, weighing 75 to 200 lbs., and three shoulder-blades of whales—these latter forming sort of cover or roof to graves, with stones above. Here unearthed nine skeletons, all packed together in contact, and jumble of bones. With them were one pair of scissors, broken mortar, and one mortar and pestle, intact, small, fine workmanship. Soil same as rest of mound—ashes, shells, and refuse. Bones in this lot rather more rotten than others, in spite of their recent date, as witnessed by the scissors. Found fragment of braided textile material, like braided rope—three strands.

Wednesday, February 27

Continued work in same camp site (No. 2) as yesterday. Whale bones, pieces of redwood, and rocks and milling stones in abundance. Unearthed about 30 skeletons, but with two exceptions these were all in groups of 3 to 6, piled in and jammed together—no general orientation. Under large slab of whalebone found one (No. 15) skeleton with large number of fine beads, long shell pendants, made from columellae of shell. Strings of beads had been bound about the head—only small fragment of skull could be removed and this shows lines with binding and trace of fabric; this man was lying on a bed of clean beach sand. No. 16—various beads, ornaments, and wampum found with these collections of bodies—could not identify, in most cases, and so all is put together. No. 17 found under a very large stone with two shells full of red paint—some 200 to 300 triangular flint knives, and a number of very fine columella pendants, also lying on sand and with asphaltum on cranium. All these skeletons are very recent and the disturbance of bones has evidently been due to other subsequent burials. In one place four were evidently buried together and at one time. Nothing with them. Many skeletons of children. Numbers of glass beads. Fragments of another cranium with asphaltum found.

Thursday, February 28

Continued work on Camp No. 2. North side of Boat House canyon. Very successful day. Found general rule as already noted, i.e., skeletons in groups of 3 to 6, huddled together and frequently showing signs of having been disturbed, those on the lowest level as a rule single and not disturbed.

No. 18, Single skeleton, male, on belly, face down, head north, badly decomposed; with it many beads and wampum and fine large pestle. In all cases beads and wampum are found about forehead, face, and chest; often right hand is under head and beads, etc., found in it. Nothing peculiar about beads, etc., so placed in general box. Just west (18 in.) of No. 18 was found No. 19, at

5 ft. below surface; fragmentary skeleton; fine pipe (serpentine) with it. About 2 ft. east of No. 19, and 6.5 ft. deep, under flat whalebone, found single skeleton, No. 20, carefully laid on belly, face down, arms at sides, forearms flexed, etc. (see field notebook); unique bone and quartz implements, pipe, etc. Must have been big chief.

No. 21 was alone and 3 ft. below surface. Triangular flint knives and stone pick, red paint. North and northeast of here, in about an 8-ft.-square area, groups of bodies in hopeless mixture—beads and wampum all put together in general box. Many skeletons of children; numbers of glass beads and shell ornaments found, 2 asphalted baskets, burned, 4 fine arrowpoints, a bone "spoon," cooking stones, etc.—for details see field notes. Have almost exhausted this place.

Friday, March 1

Finished Camp No. 2, a.m. Very unsatisfactory on account of the manner in which bodies are jumbled together. Unearthed some 25 skeletons—all in groups of as high as 7 in a group. On same level as No. 20 was skeleton No. 25, on top of which five others had been piled. Mixed up with all these bones were a number of shell ornaments in no way peculiar, and bone implements, three of which got broken in untangling the mass of bones; also one stone pipe, a large stone bead, and a stone saw or similar tool.

Out of the mixed skeletons I have obtained 20 skulls, most of them without the lower jaw. This was almost always broken or entirely missing. These are in addition to such special skulls as have been numbered—5.

All shell ornaments and beads, unless beyond doubt occurring with a special single skeleton, will be put together and marked simply as coming from Camp No. 2. This also applies to skulls as above mentioned.

Afternoon—cleaned up myself and some shell ornaments—sent Billy out prospecting.

Saturday, March 2, Camp No. 3

Schooner Restless, Captain Burgess, came in early this morning from San Miguel with Captain Waters, who lives there, on board—bound for Santa Barbara. Stopped only long enough to get mail and meat. Brought no mail, so I have had no word from anyone for two weeks. Left about 8:30 and rode to south side of the Cañada de la Agua. Here is camp site No. 3, of considerable size. It is almost completely overgrown with cactus, etc., and so could not be well examined. Is on a bluff point, similar in location to Camp No. 2, but I should judge is larger. At one place at edge of cliff, we were able to determine a burial place and digging revealed 9 skeletons—buried singly and undisturbed—from which I secured 4 good skulls. With one body was found a good mortar, some ornaments, and 2 curious soapstone beads. This man had caries of the spine—the second I have noted thus far, and the specimen is to be found with the material from this grave, No. 27. In the afternoon found four more camps, one on south side of fence south of Water Canyon, one farther east on same ridge, and two on bluff coast terrace. All these are at present so overgrown with vegetation as to make prospecting practically impossible at the present season. Shall not waste time hunting in such places when there are others already marked, waiting to be excavated.

Sunday, March 3

Last night barometer fell to 29.55 and wind changed to southeast; this morning barometer 29.75, wind still south-

east. Cloudy early morning, but sun shining now: 10:30. Tried putting shell ornaments in boiling linseed oil—too much heat—spoiled two or three by flaking. Allowed oil to cool somewhat and put in another lot. Seems to toughen them, but cannot tell anything till they dry. The loneliness and the feeling of utter and complete isolation begin to make themselves felt. I must be at work all the time or I grow very restless and uncomfortable.

February 24, 1901

I think simply soaking in the oil, careful draining, and drying in a place free from dust will toughen these shell ornaments and renovate them quite satisfactorily. Cleaning them is the most difficult part of the work, and I do not know just how this can be best done—may help with a camel's-hair brush.

Monday, March 4

Started 7:15 a.m., rode to southeast coast, Rancho Viejo, and along coast west of there. The end of the Island is lower than the average and the southern coast is, here, less abrupt and more sandy. A mile or two farther west, however, this changes and the southern coast becomes exceedingly precipitous, more so than the northern. From Skunk Point for 4 to 5 mi. west, numbers of camp sites and refuse heaps occur. Some of these are being covered by drifting sand; others are being rapidly destroyed by erosion; a few remain practically intact. The larger camp sites have burial places of regulation variety, with the whalebone markers, and one or two of these which I saw had been at least partially dug out. I secured, as surface finds, 5 very good stone rings, a number of good picks, and a dozen or more very good worked flints—arrowpoints, some of quite unusual form, and the effigy flints peculiar to these Channel Islands. Some prospecting will be required to find unrifled graves here, but that there are such I am quite confident. Careful search will reveal, I have no doubt, a good collection of surface finds—flints, etc.

Tuesday, March 5, Camp No. 4

East side of mouth of Cañada Verde on first terrace—bluff coast line. On this, and the west side of a small canyon or gorge, have been large camps, originally marked with whale bones and stones. I had thought, until commenced work here, that this burial place was undisturbed. Learned today, however, that Coast Survey party camped in the Cañada Verde for six months, in 1875-76,⁵ and then, before commencing work, surmised that they dug this place at that time; digging showed this to be true, but their excavations were very imperfect as several good finds were made today, and only a small area covered. There have been about ten hut circles here and as many more on the east side of the gorge. No. 28 was an old male, [with] some lesion of the knee, found wrapped in seaweed. He was found in extreme southern portion of burial ground, head southwest, and, as are all, doubled up. No. 29, found about 4 ft. deep, under a flat rock above which were mixed bones, evidently dug as above. With it was cache of triangular flints, with red paint (note also No. 21), long shell beads, stone ring, 2 shells with asphaltum inside, and large mortar; all but mortar lying near head—mortar near feet. No. 30, 18 in. west of No. 29, also under mixed bones and flat stone; with this were four good cooking stones of Catalina magnesian mica. A large number of

⁵ Reference probably to the Wheeler Survey party.

glass and shell beads and ornaments were found which could not be identified with any one body.

Wednesday, March 6. Camp No. 4 (continued)

Continued work on old and excavated burial place, and found many things of interest and value. In the loose soil that has been dug over are many good shell ornaments and shell and glass beads; these cannot be identified and are placed in general lot. Below three feet are occasional skeletons that have not been turned out by the previous explorers. They are, however, often so mixed with turned-out bones that orientation, or indeed determination of how many individuals are represented, cannot be made out. There is no rule in regard to orientation, but the posture is always the same, squat, with, as a rule, one hand or the other, generally the right, under the head or face. No. 31, child, many beads, fragments of skull with hair attached, stained green; nearby are fragments of redwood (?) [plank canoe] with holes and asphaltum. No. 32, male, head south, a few triangular flints, blanks for making wampum, and 4 paint or asphalt shells. In the loose dirt near here was found good arrowpoint with asphaltum and fragment of wood. No. 33, male, head south, face up, small mortar over head. No. 34, male, face down and head north, two very fine and unique ornaments made of asphaltum in which are set shell beads, forming pattern: these seemed to be under forehead. Four magnesian mica cooking stones, with holes, found cached in dirt about one foot from nearest bones. Not identified.

Thursday, March 7

Camp No. 4—finished. Continued working north in this place. About center, 3 children's skeletons and with them—could not say which individual—were beads, shell pendants, and large slabs of Olivella shell, drilled as if for beads. Similar slabs or ornaments were also later found in a cache near 2 adult skeletons. No. 35, at north extremity of burial place, was a small child, apparently buried in a large basket and with it a copper cup or vessel. Directly under this was an adult skeleton, No. 37, and one foot to east another skeleton of a child, No. 36, with a lot of wampum and rather unusual shell beads made of Cerithidea shells, bored for stringing but not otherwise fashioned. With this were also found 3 brass chains, 3 in. long, fastened to fragments of decayed wood at each end. No. 37, adult, head to the northeast; one cooking stone over hair, back of head, and others arched over chest. A goodly amount of fine brown hair is with this one; it is so recent that the stench from the skull is most marked and most annoying. A few other bodies were found—seven in all, no general orientation, but nothing was with them.

Friday, March 8. Camp No. 5

One-quarter mile from mouth of Cañada Verde, on bluff to the west; sand dunes can be plainly seen from Camp No. 4. Here all signs of hut circles, etc., have been obliterated by erosion; only in one or two places can the approximate original elevation be made out; the general level—it is all eroded into dunes and hollows—is from 3 to 15 ft. lower than at the time of occupancy. Shells and general camp refuse are distributed over a considerable area—much greater, probably, than was originally the case—and human bones are in considerable evidence. In some places these have come to the surface naturally while in others they have evidently been dug out. It was almost impossible to do any work, as the wind was blowing about 30 miles per hour and the sand was simply blinding. We scoured a portion of the surface, securing a

large number of shell beads, made from Olivella bipectata, stone beads, wampum, arrowpoints, etc., and also a number of pestles and a couple of good mortars. Bone implements, single- and double-pointed, some very small and fine, are found in fairly considerable numbers; they have served a variety of purposes. Working in this weather and place is very trying.

Saturday, March 9. Camp No. 5 (concluded)

At this place shells and camp refuse cover the ground for probably five hundred yards; it is impossible to say how many huts there have been, but I think not over 12 to 15, distributed at irregular intervals. Graves have been in some cases marked with whale bones, but these graves have been excavated. I covered the site with pot holes 10 to 20 ft. apart and located 6 bodies; 5 were on the right side, head west or northwest, and covered with large abalone shells. The sixth was squatting, feet down and head up, with a number of large stones over the head. These were all found on the sea, or northern, slope of the sandhill. Nothing with any of them. At place where most of the burials have been, near the eastern end of ridge, and where bleached bones show that excavation has been done, found a lot more Olivella and Trivia shell beads, some very fine. These were on surface, and must have been left by previous explorers. No beads of this sort, with both ends of the Olivella shell ground away, found anywhere else as yet. Found a number of arrowpoints—surface finds. The refuse is thinly spread over the surface and is nowhere more than 1 ft. thick—a contrast to Camps 1, 2, 3, 4, where refuse piles were from 2 to 6 ft. deep. I do not think there were over 50 burials at this place; certainly none remains now. An infected sore on my right wrist makes writing very slow and painful; the weather is vile.

Sunday, March 10

Sent Billy to collect large stones used as mealing stones, and others simply pecked, all of which had been placed over or under the bodies of the dead in Camps 2, 3, 4. Most of these are from Camp No. 2. I am staying quietly at the house nursing the sore on my wrist. General notes are made as follows. Arrowpoints, except such as are buried with the dead, or specially noted, do not seem to be found in or near such camps as Nos. 1, 2, 3, 4, but are found in the shell heaps (eroded temporary camps?) like No. 5, and those on Skunk Point and west of there (3/4/01). These wind-swept sand dune camps do not show the same large amount of accumulated refuse as do those more genially located (Nos. 1, 2, 3, 4). Certain forms or special objects seem to be confined to certain localities; in only one place have I yet found Olivella beads, i.e., No. 5. In No. 2, were 2 finely wrought stone picks of peculiar form. On south coast, about 1/2 mi. from second Coast Survey Mark, found 2 stone picks, also carefully wrought, but of different design entirely; at second C. S. Mark, west of point, found large number of stone picks, some fine and some rude—here was temporary camp, and manufactory of picks. The coast is here rocky and the formation is a pebbly sandstone formation, the pebbles being large volcanic pebbles and suitable for making picks. Cripples are not uncommon—at No. 4 found 2 or three specimens in mixed bones already disinterred showing pathological conditions.

Monday, March 11

Left about 7:15 and rode along ridge southeast of house, across the Island to South Point. Reached altitude

1,350 feet.—Dos Pechos—and just south of there saw outcropping of light-colored shale with many fossil oysters in it; some of these are disintegrated and make a mixed shale-limestone. Inspected the southern side of the Island and find it strangely like San Nicolas—no terrace formation can be noted here and the erosion has been and is such as to leave deep, precipitous, rocky barrancas, or gorges, with but little vegetation and very poor, rough trails. As nearly as could be estimated, the strike of the strata was N 30°-40° E, and the dip 8-12°. At Cañada San Augustine, 300 ft. altitude, one mile from coast, in stratum of pebbles lying under shale and over sandstone, found fossil shells of spiral univalve—unknown to me. In La Cueva de la Vieja, some one or two miles from the coast, is a large rancheria of great interest; another is located on the point near wreck of S. S. Crown of England, another up the San Augustine, another at La Cueva (?), and another, location unknown, on the way from La Cueva (?) to the House. For further data see field notes and subsequent entries when these are reached. My wrist is extremely painful; the weather today was very cold and windy, and most trying to my wrist.

Tuesday, March 12

Skunk Point, surface finds. Almost impossible to write—stayed in house all day poulticing sore on wrist.

Sent man with pack horse to gather surface finds on shell heaps on Skunk Point. He has just returned with a good load of rings, pestles, mortars, picks, and arrowpoints, a good day's haul.

Noted yesterday, at about 600 ft. altitude, near Cerro Negro, a sandstone formation full of round concretions. Very much like the lower formations, also full of concretions, on San Nicolas. Here, the outcropping being much exposed and weathered, the concretions have accumulated on the surface to a great extent. I have secured specimens of mortars fashioned from this material, and also concretions that are naturally half- or two-thirds-made mortars. Cannot write more—too painful—my whole arm is swollen and sore.

Wednesday, March 13

Skunk Point, surface finds. Sent Billy with a pack horse to gather surface material from the shell refuse and camp site mounds on Skunk Point. Brought back 2 or 3 pretty good mortars, some 20 pestles, a number of picks and worked flints, and 15 very fine arrowpoints. I have done little or nothing except sort over arrowpoints and miscellaneous surface finds as well as I could with one hand; my right wrist seems to be somewhat better, and I think I will be able to go out tomorrow morning. No schooner appears as yet. Have been looking over stone rings; they seem to be of several classes: (1) rough heavy ones, certainly for work—probably hammers or dig-stick weights; (2) small rough ones—for hammers; (3) fine worked heavy ones, and fine worked lighter ones, possibly for mallets in making shell work; (4) purely ornamental or significant rings (see note for 2/25/01). The third type (above) may have been hafted with a short handle, which would account for the wearing by hand on the side where the conical hole has the smaller diameter. The holes seem to be of three varieties, double-taper (biconical), straight, and simple taper. Upper surfaces of types 1 and 3 are polished—have not yet seen one of type 2 so polished.

Thursday, March 14

Skunk Point, surface. Left 7 a.m. with Billy and pack horse for Skunk Point, to gather surface finds. The

southern and northern coasts and the valleys running across this Point are all more or less great refuse piles—camps have been dotted here and there but the wind erosion has practically destroyed all landmarks, leaving nothing but a bare, eroded, and uneven surface of sand, stones, and shells. Made a goodly number of finds—arrowpoints, flints, 3 good mortars, large number of picks and pestles, also some of the small, hand mealing stones, of various materials. The sands are shifting continually, on this portion of the south coast, and covering one part while they uncover another part of the shell heaps. The appearance presented is very singular. I note a great variety in styles as well as materials of arrowpoints; the personal equation must have been a considerable item in their manufacture, though I have reason to believe that the Indian maker followed, somewhat, chance and the form of the natural fracture, especially in curved or odd-shaped points.

Friday, March 15

Left about 7 a.m., rode over the "cuchillo," past Dos Pechos, and reached the south coast at Piedragosa—very rough and rocky hill, a little (1-2 mi.) west of the Point on which was wrecked the S. S. Crown of England. This Piedragosa must be a little west of the South Point. From here west to the West Point⁶ are seven camp sites, covered with vegetation and apparently undisturbed, the hut circles being well-marked and ranging from 3 or 4 to a dozen or more. These are seemingly old and permanent village sites. They are quite inaccessible, as the trails, both over Piedragosa and from there via the Bolsa⁷ are very bad. But little water is found on this side of the island (though there has been a good supply) and it is not very good. There are also three large eroded camps, in the sand, from which I think a good deal of "surface" material may be secured. Also, saw two camp sites on north side of main divide, one west of C. Soledad and one east of there. These are on the broad ridges, some 500 ft. altitude, and have not been dug, I believe.

Saturday, March 16

Schooner was sighted off north point at sunrise, but as no wind was blowing, it was nine a.m. before boat reached wharf. Brought mail, some boxes of stuff from Shaw and Hunt, a lot of cardboard boxes for packing, and 30 boards (1 x 16 in. x 14 ft.) for making boxes. John Cook came: is feeling better but not fully strong as yet. As my trunk came, I indulged in the luxury of a bath—in places—and clean clothes. In the afternoon I sorted and packed a good deal of the stuff, small things, thus far collected. Will get them all into shape tomorrow for final packing. I want to get all this stuff packed up before any more comes in and before the men come over to do the shearing. I think the best way to work the camp on the south side of the island will be to charter a small schooner to land men where possible near the camps, carry fuel and water, and remove the material when gathered and boxed to the wharf here, for future shipment. Have written for Moran⁸ to come down here as soon as he can, so as to take charge of the work when I leave, about April first.

Sunday, March 17

Sent Billy to Rancho Viejo⁹ for surface finds; brought in some very good arrowpoints, a fine mortar, and some

⁶ Sandy Point (see map, pl. 86).

⁷ La Bolsa is the region just east of Sandy Point.

⁸ Not identified.

⁹ At extreme eastern end of the island.

miscellaneous stuff. John, McGrath, and I made up boxes out of the lumber that came yesterday—they sawed and I nailed; made 13 boxes out of 11 boards and quit because we ran out of nails. In p.m. packed one of these—the first to be ready for shipment; it weighs about 300 lbs. and contains almost all the fine stuff, stone rings, etc., and material thus far gathered in. I should judge that there remain at least 5 or 6 more cases, not including the skulls—2 to 3 cases more. I wish to get all this material packed up and out of the way before the work of gathering more begins. Will probably finish this packing up tomorrow.

Monday, March 18

Finished packing up material thus far collected. Cases made up yesterday are just right in size and strength, for when packed they weigh from 300 to 500 lbs. All the fine material is packed in Nos. 1 and 2, but some mortars, etc., from the camps thus far dug were put in the other cases. All material not otherwise marked is "surface." All shell ornaments and beads that were not in any way distinctive or in which the definite position and relations could not be determined were packed together. In all, I have, all packed and ready for marking and shipment, 12 cases: Nos. 1 to 9 inclusive are of archaeological material; Nos. 10, 11, 12 are skulls and bones, and should be shipped to S. F. [San Francisco], while the balance will go to Berkeley. In the afternoon reexamined No. 1 and No. 2, but am now convinced that no more finds are to be made in either of these camps.

Tuesday, March 19. Camp No. 6

Cañada de la Cueva de la Vieja, south of the island, about one mile from the coast (see 3/11/01). Camp is on flat in bottom of canyon and has been eroded by alterations in the channel of the two streams that here come together. Eroded vertical bank shows, at point, 2 to 3 and 4 strata. Top is covered with from a mere trace to a 6-ft. deposit of shells, ashes, etc., 6 ft. at point, then 2.5 ft. wash soil and gravel, below which is 6 in. of refuse followed by 18 in. of gravel, with another layer of refuse below this. In one place the fragments of a skeleton were found in the bottom stratum, protruding from the bank. The soil seems to be black adobe and is almost as hard as rock—only a couple of imperfect [skull] fragments could be obtained. At the point, on top, found 2 skeletons, heads to west, face north, on left side. About the center of the triangular flat some graves were, after much searching, located under large stones, of which but the tops protruded. Two, Nos. 38 and 39, were located at the same time about 25 ft. apart. Nothing with either. No. 38: head northeast. No. 39: head south (with 39, basket mortar—see field notes). Midway between found another and several buried near by. Here the upper bodies have been disturbed in order to make more recent burials, as Camp No. 2. Located 21 bodies; no orientation; many of them in groups of 3 to 5. No. 40, a youth, had many shell ornaments and beads (see field notes). No. 41 is a stone ring, unidentified, which seems to show its former use as a short-handled hammer, such as used for fine work.

Wednesday, March 20. Camp No. 6 (continued)

Continued work. The bodies at first were found running to the north of center, but later swung to the northwest. Stones, many flat and showing evidence of having been used as mealing stones, others of irregular forms, and merely sandstone chunks, are found very profusely lying over the bodies, or rather groups of bones, for in no

instance today, save one (No. 42) was a single body found not in actual contact with at least one or two more, and in many cases a number of skeletons would be lying together, with the bones practically interlaced. Shell ornaments, beads, arrowpoints, quartz crystals, and one stone pendant were found but could not be identified as coming from any particular body. No. 42 was a male, found at west extremity of hole, head east, and under occiput was a stone ring of good workmanship and showing evidence of having been used as a hammer. Inextricable confusion reigns amongst the skeletons (see field notebook) and the exact number found cannot be given on this account, it was about 21 yesterday and 28 today. The amount of material found is not large, but the quality is very fine. It is not in any way dissimilar from material found in previous graves.

Thursday, March 21. Camp No. 6 (concluded)

Continued work, following lead of skeletons, which trended to the west, toward the hill. Between 15 and 20 skeletons were turned out, but only 2 of these were isolated so that posture, etc., could be determined; both of these had heads to north, lying on left side, with left hand under head. With one of them were 32 columellae beads, interspersed with small white beads, strung around the neck; the other had nothing with it. A goodly number of shell ornaments were found here and there, not identified, some of them very fine workmanship. Found 2 obsidian arrowpoints with holes drilled through, near base, and showing a good deal of wear, as of having been rubbed. In one place, near 3 skulls and fragments of bodies, was a cache of triangular flints with red paint—the occurrence of these two things together has been previously noted. Another stone ring, also showing use as a hammer, was found in loose dirt, not with any particular body. Over a group of four, heads all to the southeast, was found a large and fine slab of fine sandstone, showing use on both edges, as a "saw." It is to be noted that no glass beads, pestles, or mortars have been found in this cemetery, and only two fragments of mortars; this with the exception of the basket mortar already noted. (No. 39—see field notebook). Rusty knife found in looking over dirt turned out of No. 38.

Friday, March 22. Camp No. 7

On top of first main ridge east of Water Canyon, on east side of fence. Many shells, etc., but no sign of hut circles—may have been obliterated by cattle and sheep. Dug 25 holes 10 to 15 ft. apart, found nothing.

Camp No. 8. One-half mile farther south, on spur of small ridge, east-west, running down into valley. Largely overgrown with prickly pear cactus, and chili-cothe vine, on which account no hut circles can be made out. Should judge from other signs—amount of refuse, etc., that some half-dozen huts have been located here. Bedrock crops out and is very close to surface on north side of this small ridge—south side, there is more soil and more refuse. Bodies lie very irregularly and without any general orientation, save as noted in field notebook. Dug out 25, today, commencing at west end and following up the hill and from south to north—those on outskirts, as usual, seem to be paupers; very little found. No. 43, a youth, head northeast, 3 stone beads in hand; No. 44, male adult, 3 arrowpoints; No. 45, shell beads—flat, abalone shell, fine work—not near body. One stone ring, and fragments of one, both showing hammer marks; one fine pick; 2 mortars; broken, one having been mended with asphaltum; some miscellaneous ornaments. Over the bodies and below level of

soil, many good flat stones, showing evidence of having been worked. Bodies here are in a single layer and are 2 to 4 ft. deep. Seem to be running up on the hill and more stuff occurring with them as they go up. It is killing work, account of the high wind—it fills one's eyes, nose, ears, and hair with dirt. No. 46, child—shell ornaments—see field notes.

Saturday, March 23

Camp No. 8. Removed balance of No. 46 and sieved the dirt to get shell beads. About 2 ft. west of here found another child, lying, apparently in a cavity cut into the bedrock. With this—No. 47, which was lying on back, head southwest, legs drawn up—were a considerable number of shell ornaments, one or two unusual shell beads, and in the left hand some quartz ornaments with asphalt adhering, showing method of suspension. These may have been attached to the string of beads and ornaments which was around the neck and probably pendent, for loose beads and an occasional ornament were found in the dirt all about this skeleton. In all, 9 skeletons were unearthed today, making a total of 34 for this camp. The last 8 had nothing with them; the heads were towards the north and west and they were all within 4 ft. of No. 47, lying on the bedrock, which is here 3 to 4 ft. below the surface. I note a deposit of ashes and refuse directly above the bodies, and in places on the bedrock (shale).

Camp No. 9. One mile southeast Camp 8 at place called "Jack's Old Camp." Nothing but temporary camping-place. No hut circles, no burials.

Camp No. 10. One mile east of No. 9; 4 or 5 skeletons have been dug out of here, one of which I found on surface. Shows old injury and Inca bone, so is preserved. No other graves could be found.

Sunday, March 24

No work today—heavy west wind continues and we are all tired from the past week's work in the wind. It is to be hoped that this wind will not continue very much longer; it makes work very difficult and unpleasantly dirty. Note that in the two inland camps from which material has been secured (Nos. 6 and 8), no glass beads have been found, while at Nos. 2 and 4 these beads were found in large quantities and considerable variety. The workmanship of material found in Nos. 6 and 8 is better than that of other material. These facts may indicate older camps, or groups of Indians that did not care for commercial intercourse with white traders in early days. From the fact that material from the mainland and other islands is highly prized (Catalina serpentine and soapstone, obsidian, quartz crystal, deer bones, etc.) I judge that there was no very great intercourse with these places, though communication was undoubtedly maintained, probably by boats of some sort. I have seen nothing that would prove occupancy at a time so remote as to preclude the possibility of boats being modeled after those seen in the possession of early navigators; 250 years would suffice to create the archaeological remains here as well as on San Nicolas. Steady diet of shellfish will result in piling up a large heap of shells—and these are all loosely packed.

Monday, March 25, Camp No. 11

At La Cruz, near the head of Water Canyon, where this and another small stream join. A flat between the two, backed by a hill which rises to the divide, was used as a camping-place. Traces of several hut circles remain, faintly. The ground is covered with Malva (?) and I consider it good work to locate the burial place here at the fourth attempt. It is about the center of the

flat, and is in no way marked. No marking stones or flat stones over bodies are found here. But one layer of skeletons and these fairly well separated, so that orientation and posture may be determined. Disinterred 12 skeletons, all but one lying on left side; heads in all directions, no prevalent direction.

No. 48, youth, 12 to 15 years old, head southwest, cache of shell ornaments over abdomen and some around neck; one fine arrowpoint, so judge child to be a male. No. 49 is 2 ft. east of here; male, adult, head south, left side, legs drawn up but not cramped. Swathed about head, neck, and chest with a large number of very fine shell ornaments, 4 whistles, bone tools, triangular flints. No. 50; 4 ft. east of No. 49; male, same posture, stone ring at knees and bone implement in right hand. No. 51; 3 ft. northeast of No. 50, right side, many small shell ornaments, 2 abalone shells under face and stone ring under occiput; 3 whistles and 2 small bone tools. No. 52; male, head west, left side—shell ornaments around neck. No. 53; head northwest, left side, shell ornaments around neck. These shell ornaments (48 to 53) are very fine and numerous designs represented.

Tuesday, March 26, Camp 11 (continued)

Cleaned out hole already dug here (8 x 12 ft.) and looked for more bodies by extending the excavation in all directions from this as a center. In this way from 6 to 10 ft. more on all sides was examined, but no other bodies were found. I then reexamined the entire situation, and note that the amount of shell refuse is not great and that it is strictly limited to a comparatively small area. It is possible that others are buried near here—at this camp—but it is extremely improbable. Left here and went to Rancho Viejo and Skunk Point, finding a few fine arrowpoints. I was very glad to observe the process of wind and sand erosion: the high west wind continues and while such observations are hard on one's eyes, this one paid for the pain. It is almost beyond belief, the rapidity with which the soil is cut away and the sand shifted—one can actually see the soil melt, and the land is carried out over the ocean in a dense cloud that almost conceals Santa Cruz Island, about 7 miles away. In p.m. packed up box of skulls and bones—No. 13.

Wednesday, March 27.

Sent Billy with John to look over the southern part of the island, near Piedragosa and the shore from there west. An exceedingly windy day—worst of this blow. In morning packed another box (No. 14) with fine stuff from Camps 6-8-11—and all material collected since last packing. There is about half a case over, remaining unpacked—mortars, etc. In afternoon made up five more boxes, as those made up before are now all packed. Washed some clothes and took a bath. Looked over some of the shell ornaments collected and am more than ever impressed with their great delicacy and beautiful work. I am astonished that I was able to get out many of them, they are so frail, yet so far as I know very few have been broken in digging out. I have noted numerous collections of round pebbles coated with asphaltum, as mentioned by Schumacher, in the sand-and shell heaps—have not yet seen any with dead or in graves, hence I conclude they served some purely useful and very humble purpose in the Indian economy. I note that Schumacher (same pamphlet) expressed the opinion that the islands were populated in sixteenth and seventeenth centuries: I agree. Since then specialized types, as the stone rings, must have developed. Why?

Thursday, March 28, Camp No. 12

In Cañada La Jolla, about 2 mi. from south coast. Here are two large, and one small, caves, on the southwest side of the canyon and some 50 ft. from the water to the first; the second is about 100 ft. higher. The stream has cut a narrow irregular channel through the soil to bedrock, leaving perpendicular walls on either side which rise in various places to from 20 to 50 ft. No. 54 is a mortar found 8 ft. below the surface in cliff; No. 55, another mortar, 25 ft. from surface; No. 56, a flat grave stone, 12 ft. from surface. For further data see field notes. Cave No. 1, the smaller of the two larger caves, is almost completely filled with sand and sandstone boulders, fallen from roof of cave. Fragments of bones can be seen sticking out from loose soil filling. Work of clearing out the filling, etc., down to the original floor of the cave, was commenced and about half finished, today. In all, 29 bodies removed: probably more, but all are comminuted and fragments of burned and unburned bones lie together. A number of articles of rude workmanship were found. See field notes. The large number of abalone shell dishes is a noticeable factor. This is the oldest camp I have yet seen on the Island.

Friday, March 29, Camp No. 12 (continued)

Cave 1, continued. I did not go out today owing to an injury to my left foot yesterday. It did not prove so serious as I thought it would. I will be out OK tomorrow. Sent John and Billy out to continue work. Kept on cleaning out the upper soil in cave and removed 26 skeletons. Conditions same as yesterday; bones very much mixed up, broken and crushed, largely by heavy stones falling down and mixed up. Fragments of whale bone which show fire mixed with bones that do not. Number of abalone shell cups or vessels found. Also 2 lots of rude, large beads, globular and tubular, made of some material which on casual examination looks like Catlinite. No. 57 is a cache of 4 such objects, not nearer than 2 ft. from any skull. No. 58 is a lot of some 40 such beads and ornaments and 2 boat-shaped vessels—one soapstone and one redstone, the latter broken in removal. No. 59 is a shallow mortar which has been broken and mended with asphaltum. Sundry bone implements and other minor objects. This stuff is mostly crude but is of exceptional interest, owing to its material and the peculiar, rough character of the work. It will reward careful study in the future.

Saturday, March 30, Camp 12 (continued)

Cave 1, concluded. My foot OK again, so went out to the work. Continued in Cave 1, upper layer, cleaned it out and removed 6 more skeletons—fragmentary, like those already removed. A number of abalone shell dishes and Olivella beads secured. Nothing else. Cleaned out lower soil, which is composed of dark dirt mixed with charcoal, ashes, shells, refuse, etc. Found three bodies in fragmentary condition. Under the crushed skulls of last two of upper stratum removed were found bones of left hand, so judge the generally prevalent posture—hand under head—was observed here. In sand stratum, not far from No. 58, was found the bottom of an asphalt-covered basket, in which are numerous small pebbles embedded in asphalt (packed in Box 15). About 100 yards below Cave 1, and same side of canyon, is an arched rock, in front of which is very large deposit of shells and refuse: 3 skeletons are seen protruding from the bank; nothing with any of them. Cannot work this place today for the wind drives the fine dust up into one's eyes. About one-quarter

mile farther down canyon, on opposite side, is another considerable encampment, with burial site marked by stones and whale bones. The sides of the canyon are well dotted with camps, large and small, which is doubtless due to the excellent water found here. For data in regard to conditions, at greater length, see field notes. No remarkable results of today's work.

Sunday, March 31

In the morning sent Billy out to fill up the pot holes dug at Camps 9 and 10 and then to ride over some of the Rancho Viejo shell heaps and gather in any surface finds he might chance upon. He brought in 2 stone rings and a number of partly worked and some finished flints, though nothing very good.

Packed two more cases—Nos. 15 and 16. In No. 15, in a small wooden box, are the small finds from Cave 1, Camp 12, and also a number of abalone shell dishes, Cave 1, Camp 12. These are very frail, owing to rotting, and may not travel well. Also 4 stone rings and 4 pestles in this box, together with sundry chunks of red paint from Cave 1, Camp 12. In Box 16 are the mortars and grave stone (54-55-56) (notes 3/28/01), No. 59 (3/29/01), two flat gravestones, Camp 8, a surface mortar, Rancho Viejo, another from near C-12 [Camp 12], and a peculiar worked sinker, or anchor weight, also surface, Rancho Viejo.

Monday, April 1

John and Billy went to Camp 12 and worked Cave 2 and Cave 3 (that below Cave 1 where a large shell deposit is found in front of the cave and forming the cliff embankment of the canyon). I went to Skunk Point for surface finds, as I did not care to be out of sight of the house and bay, in case the schooner should come for me during the day—it did not come! No remains of any sort were found in the excavations in and in front of Cave No. 2. Three skeletons, miscellaneous placed, were found in breaking away the cliff in front of Cave 3. This is just what I expected would be the case. Cave No. 1, while at first used as a dwelling-place, later became the burying-place for the "better families" of this small community and was abandoned as a dwelling-place. Camp No. 13. About a quarter to a half mile below Camp No. 12, on the opposite side of the canyon, and on a considerable promontory, left by the erosion of the stream, is a large flat, well-covered with shells. At one place a portion of a skeleton is seen protruding from the bank, about 5 ft. below surface, and at another place a mortar is sticking out from the bank, 4 to 5 ft. below the surface. Prospect holes were sunk at various places, but nothing yet found. No hut circles are noted on the surface.

Tuesday, April 2

Skunk Point and Rancho Viejo, surface finds. Went to section named for surface finds uncovered by the recent high wind. As the sheep shearers will be here very soon it is desirable to gather in all the material of this sort possible before they come. Found a number (25-30) good arrowpoints, 2 or 3 good mortars, one mended with asphaltum, and numerous picks, rub stones, pestles, etc. At one camp on south side, near beach, found a number of fine small arrowpoints and many triangular flints, which show that they have been used as drill points and been discarded. This is what I have been looking for for some time but hardly expected to find at all. Naturally these delicate tools, when used and discarded, would not be buried with a body but would

only be found under some such circumstance as this. They are of various sizes and their evident use as drills or reamers is beyond question. I have divided the find and take a portion with me as samples to show the men who I know are interested. The triangular flints themselves are similar to Wilcomb's¹⁰ found near Stockton, and thought by McGee¹¹ to be "lancets" or "ceremonial knives"—rot! No schooner today.

Wednesday, April 3

Skunk Point and Rancho Viejo, surface finds. I did not go there, but went to inspect the camps on the Bolsita field, which is situated on the northeast point, being the upper boundary of Beecher's Bay. John and Billy went to R. V. [Rancho Viejo] and returned with a load of stuff and some dozen good arrowpoints. As the boat may come for me at any time, I do not care to go very far from the house. The Bolsita is a peninsula, corresponding to that of Skunk Point; the latter was originally of the same elevation as the Bolsita is now, but erosion has cut it away very greatly. This process of wind and sand erosion is now going on on the Bolsita and in a number of places the result gives the same appearance as is to be noted on Skunk Point or the Rancho Viejo; great cuts are made in the soil, leaving occasional small buttes or rises, from which the original level can, in some cases, be determined. Enormous quantities of sand are shifted during every heavy wind storm. Packed another case, No. 17, with surface finds, mostly from the Rancho Viejo, but one or two gathered around the house and from the Bolsita. These are of no significance however. We are running short of grub—entirely out of tea and potatoes—look anxiously for the schooner.

Thursday, April 4

Skunk Point and Rancho Viejo surface finds—John and Billy. As no boat appeared this morning, I was afraid to go far away, so stayed in the house, wrote up some things and got my trunk into shape so as to have everything ready when the boat does come—if it ever does. The men brought in a number of excellent finds and some particularly good arrowpoints and stone picks. I recorded in my field notes today the theory that some of these rough stone picks may have been used to gather abalones and mussels from the rocks. Something of this sort is almost an absolute essential in gathering these shellfish, and the roughly made stone picks would answer very well the same purpose for which the steel or iron is used by abalone hunters of today. Packed box No. 18 with a sack full of miscellaneous bones from Cave 1, Camp 12; (these are just as they were removed, some burned, others not, all fragmentary) and surface material from Skunk Point and Rancho Viejo. The cold west wind continues and it, together with the waiting, wear on my nerves very much.

Friday, April 5

Skunk Point and Rancho Viejo. Same program as yesterday and same results. Fairly good lot of finds, but I think the place is now pretty well gleaned over until another storm comes and removes some more sand. I am growing horribly nervous from the inaction of waiting for a boat to turn up and doing nothing to speak of; last night could not sleep and feel pretty rocky tonight.

Saturday, April 6

John and Billy to Camp 13, La Jolla.

9 a. m. schooner came in, bringing shearers.

¹⁰ Probably a local collection, not identifiable.

¹¹ W. J. McGee, then attached to the Bureau of American Ethnology.

1 p. m. Left SRI [Santa Rosa Island]. 2 p. m. anchored Forney's Cove, Santa Cruz, on account of high seas and wind.

SRI—J. D. C.¹² Prospected at various places at Camp 13, in front of other caves, on banks below Cave 1, where shell deposits occur, etc., but without result. Occasional single skeletons located but in no case anything with them.

Sunday, April 7

All day at anchor—high sea and wind.

SRI—J. D. C. No work done.

Monday, April 8

Left Forney's Cove 3 a. m., arrived Santa Barbara 2 p. m.

SRI—J. D. C. Camp 14, in Cueva de la Vieja, about 3/4 mi. below C-13. Here considerable shell deposits, etc. were noted and one skeleton was seen protruding from bank. Careful prospecting failed to reveal any burial place; it seems probable that the burial place has been in that portion of the river terrace which has been washed away.

Tuesday, April 9

SRI—J. D. C. Explored the Bolsa (east end of island) and gathered some surface material. Some good shell beads and bone ornaments or implements, a few arrowpoints, and one large, good mealing stone, (J's No. 58), also a few mortars and pestles. There have been large camps, as indicated by the shells on surface, etc., along the coast from Cañada Verde to east end; these have for the most part been dug, as have those at Skunk Point and Rancho Viejo. But at the latter place arrowpoints are found in numbers and flakes are profuse, while in the former vicinity (Bolsa) arrowpoints are not common and flakes are scarce. This is not due to their having been gathered, for the flakes would remain, and further, the Bolsa is much more inaccessible than Skunk Point and Rancho Viejo. I think the latter location was an arrowmaking one, largely owing to the presence of a stratum of sandstone full of volcanic pebbles of various quartzite materials, all very suitable for arrows; this formation is not found at all at the east end, and only at the Rancho Viejo does it crop out in the water-washed ledges. Skunk Point and Rancho Viejo have been hunted for flints for many years and have yielded large numbers, gathered by men who come to work on the island—shearers, herders, etc.

Wednesday, April 10.

SRI—J. D. C. Billy quit about noon. Camp 15, on the 500-ft. terrace, on a ridge between Cañada Seca and Cañada Verde, near Soledad trail. Four bodies were found, lying on left side, head to west, face to north, left hand under head—customary posture. With these, around necks, etc., were beads and shell ornaments; apparently about the neck of one were a number of small bone beads—from 1/2 in. to 1-1/2 in. long. Some of them with engraved ornamentation. One stone ring found near pelvis of one body. A good mortar (J's No. 59, packed in box No. 19), hollow down, beside neck; a few triangular flints and pieces of red paint under mortar. Over bodies, probably on surface originally, were rough stone slabs—showed no sign of usage.

¹² Refers to John D. Cook, Jones's assistant. Jones's notes from April 6 to May 1 were apparently written from records kept by Cook, who remained on the island.

Thursday, April 11

J. D. C. No outside work done.

Friday, April 12

SRI-J. D. C. Camp 15, continued. Took out 5 bodies but nothing with any of them.

Camp 16. Small, near 15, nothing found—prospecting shows no sign of burial place.

Camp 17. Ditto 16, save found one stone ring on surface.

Saturday, April 13 to Monday, April 15

SRI-J. D. C. Moving and making camp at Soledad House.

Tuesday, April 16

SRI-J. D. C. Camp 18, north side Soledad on ridge, 500-ft. terrace. Found one body, lying on face with head to the west. Small lot of shell ornaments about neck. Not very fine work.

Wednesday, April 17

SRI-J. D. C. Camp 18 continued. Careful search with many prospect holes failed to disclose any more bodies. Seems to have been a temporary camp and this burial (4/16/01) merely a casual one.

Thursday, April 18

SRI-J. D. C. Camp 19. Ridge north of Soledad House 1/4 mi. Very many flat stones used in burials, being placed around and over bodies. Skeletons of 3 adults and one child found here. No. 1, C. 19; large flat stone overlying, on right side, head west, face south; No. 2, nothing; No. 3, child; many good beads, mouth filled with some large ones; fine shell ornaments around neck. Some material found with Nos. 1-2-4 and boxes marked but no note made. Nos 2-3-4 on left side, head west, face north.

Friday, April 19

SRI-J. D. C. Camp 20. Nothing found.
Camp 21. Ridge north of Soledad, below house; 4 skeletons, one infant, very near surface. With infant were some beads, many in mouth. All on left side, head west.

Saturday, April 20

SRI-J. D. C. Camp 21-1/2—ridge 1/2 mi. below Soledad House. Bodies all mixed up, buried very close together; many flat rocks; bones much mixed and could not determine anything—heads to all points of the compass. Three small infants: No. 12, Camp 21-1/2, large number of beads and fine shell ornaments; No. 15, a nice lot of shell ornaments; No. 8, adult—stone ring apparently of polished, hard sandstone at hips, shell ornaments near neck, few flints, near arm. No. 14 had apparently been disturbed after burial; with it were some arrowpoints, shell ornaments, and pieces of quartz crystal. Near by were 2 abalone shell dishes, one seemed to have been used for mixing asphalt while the other had been broken and mended (packed in Box 23).

Sunday, April 21

SRI-J. D. C. No work; went to ranch.

Monday, April 22

SRI-J. D. C. Camp 21-1/2 continued. Finished here, having taken out twenty-five skeletons altogether; very few of these so buried that bones not mixed with bones of some others. Found several abalone shell dishes and

over one skull a shallow basket mortar (J's No. 60).

Tuesday, April 23

SRI-J. D. C. Camp 22, north of Soledad House; small camp—one body found, nothing with it. Some rough stone work on surface.

Wednesday, April 24

SRI-J. D. C. Went to ranch for grub; returned and prospected one camp—nothing found (Camp 23).

Thursday, April 25

SRI-J. D. C. Camp 24. Beach near mouth Soledad—
one body found, usual position, nothing with it.

Friday, April 26

SRI-J. D. C. Camp 25. Coast, near mouth of the Soledad—west, nothing found.

Saturday, April 27

SRI-J. D. C. Hunted through Bolsa and above Bolsa fence looking for camps. Located one in Bolsa and one cave above Bolsa fence, in which human bones could be seen—no digging.

Sunday, April 28

SRI-J. D. C. Went to ranch and stayed night.

Monday, April 29

SRI-J. D. C. Rain, no work.

Tuesday, April 30

SRI-J. D. C. Rainy—prospect Camp 26—nothing found.

Wednesday, May 1

SRI-J. D. C. Camp 21-1/2 (J's Cave 2).

Thursday, May 2, to Saturday, June 1

[No entries about Santa Rosa Island.]

Saturday, June 1

Left Santa Barbara 9 a.m., arrived SRI 2 p.m. John came in at 3:30 with load from Soledad, where he has been in camp.

Sunday, June 2

Phil and I made 14 boxes and packed No. 20 with mortars, rings, etc. Surface from north side of island between Soledad and Bolsa. John and Frank with four pack horses went to bring in stuff from Soledad.

Monday, June 3

John and Frank to Soledad in the morning. Brought in all camp stuff and all finds, including some very fine stone rings, whalebone mortar, fine stone mortar (bbl. No. 26) etc. All packed: boxes 21, 22, 23, 24, 25, and Bbl. 26. In the afternoon baked and cooked and got ready to leave for south coast tomorrow.

Tuesday, June 4

Left house 8 a.m. and steamed around Skunk Point, landing on Johnson's Lee, one mile east South Point, or Piedragosa (Camp 33). Here has been a large camp on the bluff, or first terrace, which is to be seen all around the island. About twelve hut circles were noticed, and between them and the water were several flat stones, marked and worn as though used for mealing stones. Digging here showed at once that the stones had been

removed and placed here and in all probability this burial ground has been excavated. Much prospecting was fruitless. Embarked and went to west side of first canyon west of south point of Piedragosa, where is Camp No. 34. This is where I found skull when I came over this ground, with Billy, on March 15, 1901. Further digging only showed that the major portion of this burial ground has been washed away, leaving only three bodies, which we unearthed; with one was a fine stone ring, at hips, some red paint. Another had stone ring, some unusual shell ornaments, and some red paint cached at hips; another had large number of Olivella shell beads around neck. A few small objects were found, unidentified. Camped here overnight; did not sleep at all on account of combined heat and mosquitoes—these quite the worst I ever saw.

Wednesday, June 5

Up at 3 a.m., called men, breakfast at 4:30 a.m. Eight a.m. moved to Camp 35, about 3 mi. west of No. 34 and also on a bluff point. No. 35, like No. 34, largely wasted away. Here disinterred eight bodies. Some very choice material found with one of these, and some seaweed fabric and rope found in kitchen refuse heaps. For

data see notes. At 2 p.m. embarked and returned to ranch house by way of West Point, thus having completed the circle of the Island. Rock formations, strike, and pitch seem to be the same on the south as on the north side of the Island. Got to ranch house 7 p.m., very tired.

Thursday, June 6

Hauled all material to wharf, got all outfit together, cleaned and packed, ready for shipment; and got everything ready for departure early tomorrow morning. All camp and personal equipment packed in three boxes to be shipped to L. A. [Los Angeles]. All material found on south coast, June 4-5, 1901, is packed in one of these boxes, for further examination this fall. Gathered samples of pine, oak, and another tree for Jepson;¹³ also a few plants; though most vegetation, except ice plant, is now drying up.

Friday, June 7

Left SRI 6:30 a.m. Fog—calm. Arrived Santa Barbara 11:30 a.m.

¹³ Willis Linn Jepson, the well known California botanist.

NOTEBOOK

Point 3 to 4 mi. from house west near (3/4 mi. from) sandy point. Shell deposit covered 1 ft. with dirt—no shells in [it]. Shells, ashes, stones, and bones firmly cemented together and older than any yet seen.

I think the shell heaps of San Nicolas are the most recent I have yet seen, and those on the southeast end of Santa Rosa next older—then the mounds and shell heaps on the northern and western part of Santa Rosa—this for the following reasons. On San Nicolas the shells extend to no great depth beneath the surface, except where has evidently been a dumping place or where a natural and an artificial shell deposit occur on the same terrace and near together. Also the shells in the lowermost layers show comparatively little disintegration and are not in any case seen cemented together, as is so frequently the case in the bottom strata of the older shell heaps—as, for instance, that near Avila. This applies not alone to those shell heaps on the sandy and exposed western end of the Island, but also to all those seen, even such as were somewhat protected and in which below a thin layer of sand the charcoal-blackened soil and shells could be found.

On Santa Rosa—at the east end, or what is known as Skunk Point, the erosion has been such as to almost entirely remove the terrace on which the camps were originally located, leaving the north side of the point in a ribbed condition, the higher, less eroded portions having the appearance of dunes or ribs. On examination these "dunes" are seen to be the remnants of the original terrace, and on a few of them can be found the original fireplace and dump pile of the camp. In no case could I find a deposit of shells more than one foot thick, and cementation in the bottom of the shell stratum, as well as disintegration, was almost nil. On the north side of the point the shells forming the deposit are almost entirely mussels, clams, and abalones, with a few bones of the dog or fox. On the east side of the point are large numbers of land shells—common snail—and also bones of seals, in addition to the shells already noted. Here too may be seen an enormous number of shells of the *Olivella biplicata*. Passing along the northern coast line, the mound, or rather deposit, just west of the house, shows more disintegration of the shells than in the place just mentioned—Skunk Point. This may possibly be due to the fact that here the shells lie in a mass of soil apparently similar to black adobe. Still farther west, three or four miles, is found the deposit noted above—and then, about six or seven miles west, just east of Canada Verde, is the small village site mentioned in my journal under date February 19, 1901. Here the deposits seem to be more extensive and more disintegrated than elsewhere that I have seen. This statement is based on a merely casual examination, however, for at the present writing I have done no excavating at this place.

As at San Nicolas, the western end of the Island (terraces, snails, sand erosions, lowering of shell heaps and distribution, stone picks) seems to have been more extensively occupied than the other portions. While it is a large island, a great deal of the territory may be at once excluded from the question of Indian camping, for obvious reasons, i.e., no water, no food nearby, too far from shore, rough, and inaccessible. These people lived,

primarily, on sea food and consequently dwelt near their base of supplies. So far as I can judge at present, there were not more Indians living here than on San Nicolas, if indeed as many. Some of the camp sites are undoubtedly older than any I saw on San Nicolas.

Here one can see the process of erosion going on and not nearly so far advanced as on S. N. [San Nicolas]. At the west end of the island the "sand dunes" are still imperfect—the soil in many places has not become completely devoid of vegetation and eroded. When the vegetation dies the wind sweeps away the particles of sand; these cut away the alluvial soil; this is washed and blown away. So the process goes on till the terrace takes on the form of "dunes" and but little save sand, shells, bones, stones, and snail shells is left behind. The large number of land snail shells seen in some places is thus easily explained. These snails are to be found in numbers in localities where the moist ice plant thrives; when this dies and is blown away, the heavier shells remain and strew the ground for acres. This end of the island, called La Bolsa,¹⁴ was for years the part of the island on which the sheep were herded and fattened. It is a living illustration of the destructiveness of sheep. This is now an absolute waste, though at the time the Indians lived here it was undoubtedly covered with vegetation. This is evident from the few small places which now remain at the original elevation and sparsely covered with vegetation.

Three terraces can be roughly determined; one about 50 ft., one 500 to 600 ft. and one, I should say, about 750 ft., though I have not been upon this terrace. From the 500-ft. terrace, with the sighting level, the terrace at the northwest end of Santa Cruz Island can be seen and is at the same apparent elevation.

The appearance of large and spread-out camp sites is at least partly due to the action of erosion, already mentioned. As the erosion proceeds the shell heaps are for a time left as the soil is held together by the shells, etc. These slight elevations finally cave in or break over onto the lowered areas around them, the soil is blown and washed away, and the shells become distributed over the surface for a considerable distance from the original location. Thus we find, over large areas, a mere surface deposit of shells, etc. This is not found to be the case in places where erosion has not occurred at all—as for instance, on the bluff point near the house and the northwest side of the Boat House canyon. Probably the same conditions maintained on San Nicolas Island before erosion commenced and while the soil was tied down by vegetation. At the time when this latter island was first explored—by Schumacher—it had for years been heavily stocked with sheep, and it would not require many years for a large number of sheep to cut out entirely all vegetation, especially where the soil is very sandy, as is the case on S. N. I. [San Nicolas Island].

I note many picks of roughly flaked stone and no flint or quartzite picks. This is probably due to the fact that but little flint or quartzite is found on the island [Santa Rosa], and that little only in the form of a few pebbles in the strata of cemented pebbles and sandstone which

¹⁴ At western end of Santa Rosa Island. See p. 41, Jones MS, Vol. I.

occur at the east end of the island. The scarcity of flint would lead to its being economized and used only for small weapon points, knives, etc. For rough pecking, etc., a large pebble of very tough sandstone, concretion, or volcanic pebble could be as well used and would as well suffice in the pecking out of mortars from the softer grades of sandstone.

[No notebook record by Jones for the period February 17, 1901 through February 22, 1901—Eds.]

Saturday, February 23, 1901. Camp No. 1

Have been digging all day in heaps at point west of Boat House canyon and note a few matters of interest. Found a few rude, pointed bone tools or implements—all found in beds of mussel shells—which may have been used in opening the shells or removing the mussels. I find very many seal bones of various sizes. The refuse occurs in strata, with one very marked. Evidently the food supply varied but of course was largely mussels. The mussel shells are, however, separated in at least one place by a thick layer of ashes and charcoal, the ashes being of different colors and from a large number of fires. The appearance would lead one to believe that the dumping ground was occasionally changed and that, when the ashes were being dumped here, the shells and other refuse were got rid of in some other place.

The fragment of textile material mentioned in my Journal under this date I have just examined again. It is a peculiar weave and one with which I am not acquainted. It does not seem to be a basket weave, but more like a thick fabric or matting in appearance.

Dug into two of the hut circle depressions but found nothing, except noted that shells—finer than those in refuse heaps—and ashes extend to a depth of three feet from the surface. The surface soil is full of fine vegetable stains (?) and particles. (Query: Are these portions of the disintegrated material of the hut?)

Sunday, February 24, 1901

It is difficult to determine whether the interments were made in the hut circles or to one side, in the refuse heaps. Many of the stones which in every case were found over the body showed firing, and in one or two cases beds of ashes were in proximity to the skeleton. In all cases a large number of *Olivella* shells were found near the body, mostly near the head, orientation was not markedly uniform, though in all cases the head was toward the west, with the face generally down or to the north—in one case the body was on the right side with the face to the south. All were doubled up in the very common posture, and were less than two feet from the surface. Nos. 7 and 8 were covered, near the head, each with a fragment of the primitive metate or mealing stone, which had been broken in two pieces. This was the only used stone which was found above the bodies, though a well-worn pestle was found about 8 in. from, and behind, No. 7. As nearly as I can determine there were four hut circles in this camp, though it is now almost impossible to determine the exact conditions, owing to the fact that the camp was not at the top of the bluff, but on a bench, some 12 to 15 ft. below the terrace—hence the washing of the water coming from above has tended to even over the ground.

Monday, February 25, 1901. Camp No. 2

North side of Boat House canyon.

No. 11: canyon side of point—east and west—head west, on left side, hand under head, male; stone ring and

necklace of shell ornaments.

No. 12: 15 in. north of No. 11; child, fifteen to twenty, nothing.

No. 13: 20 in. west of No. 12; child, ten to fifteen; shell ornaments, beads, one stone ring, one arrowpoint (imperfect) one piece quartz crystal.

Tuesday, February 26, 1901

Ten feet south of No. 13, found two skeletons much mixed up, as though had been disturbed in interring others. Several small articles found in trench—could not say near what bodies (No. 14—2 ft. west of No. 13—woman's) and No. 15—all together in a bunch, nothing with [them]. About twelve bodies hereabouts, some all together and some in fragments.

The condition of affairs revealed today was curious. In a space less than 10 ft. in diameter were found upwards of twenty skeletons, all jumbled together in bunches of two to five. Practically nothing was found with them, though a few shell ornaments, a single obsidian arrowpoint, and numerous hammerstones were found in various places in the digging. It is evident from the nature of the strata above and from the regular occurrence of large rocks, some evidently used as mealing stones, above the bodies, that these have not been dug by the curio hunters. The disturbance has been caused by the later Indians in process of burying their dead. The ground is a mixture of soil, sand, ashes, and every sort of kitchen refuse. There is no reason for burials being made here, for less than one hundred yards from this point, west, is plenty of soft, easily dug soil. It was not uncommon to find seal bones in the immediate vicinity of a skeleton and all sorts of shells, fish bones, etc., were always found. A little to the north-west digging revealed, six inches below the surface, a layer of huge mealing stones, from 100 to 200 lbs. weight, and beneath these three whale shoulder blades. Under the whale bones were three caches of human bones, about fifteen all told, of which at least five were children. In this small hole was found a very fine small mortar and pestle, the pestle being in the mortar, which was resting on its base, and a very rusty pair of scissors. It is noticeable that the bones found in these caches were about the most rotten and friable of any thus far located, though they are comparatively recent, as witnessed by the presence of the scissors. Nothing except these two articles was found in this place, under the whale bones; more may be found tomorrow, for the place is not entirely cleared out. Two skulls were removed from here and are numbered 14 and 15. They may fall to pieces before they reach S. F. [San Francisco], however, for they are very rotten. Some of the rocks placed above the bodies are curiously marked with a pick—in lines and rings—do not show any signs of use, while others have evidently been much used.

Wednesday, February 27, 1901

Continued work on Camp No. 2, north side of Boat House Creek. In the course of the day I unearthed about twenty-five skeletons, most of them jumbled up together in bunches of from two to six. In some cases the bones were in proper relations, though the various bodies were packed in—no orientation—promiscuously; in other cases the bones had been disturbed for other burials. They were in three layers, in some places, but in every event a stone was above each layer or group of bodies. In several instances there was a mass of ashes and asphalt (burned) beneath the head and in others, especially those which had valuables buried with them, the

body was lying on and protected from the shells and refuse by a bed of clean beach sand. In two cases it was found that asphalt had been used to plaster over the head before burial, and in one (No. 16), the head was covered with textile fabric and bound about with string (samples found) and strings of beads. This section of the camp site, the southwest aspect of the high point on which it is situated, is a mass of bones; no less than sixty or seventy have thus far been turned out by me. Today, at the greatest depth at which a body has been found, 6 ft., I encountered two or three, jumbled together though bearing proper relations in skeletons, and with these were glass beads, a brass ring, and a metal piece, probably from a ship's lamp. That this whole camp site is very recent, there can be no doubt. The absence of mortars may be accounted for by the presence of large numbers of mealing stones which show evidence of wear. These were probably used by this group of families instead of mortars. The peckings on some of the larger rocks which are placed above the body or bodies are very curious, for frequently the stones show no wear or usage, other than these peckings.

Thursday, February 28, 1901

No. 18. Just north of where we stopped work yesterday, unearthed a skeleton, lying on belly, face down, head north; with it large numbers of beads and wampum and fine large pestle.

No. 19. Just west of No. 18—a fine pipe with it. We are working 5 ft. below surface and on top of whale bones. Wish to clear the space over these bones before going down—ought to be a good find below the bones.

No. 20. Under whale bone: man, belly, face, down, head east-west. Three bone articles with quartz crystal set in ends lying beside head, two on right and one on left. Stone pipe on left side of head. Left forearm crossed on chest to right side. Arm (upper) lying straight by side. Right forearm flexed on (upper) arm and large crystal in hand. Nothing else with body (lower). Legs flexed on thighs, and thighs on body. Six feet below surface.

No. 21. Three feet below surface, 2-1/2 ft. south of No. 20—could not determine orientation—number of flint knives, one fine stone pick, one stone ring, fragments of cloth; with this one, red paint.

No. 22. Three feet north of No. 21, and on same level. With beads, ornaments, and remains of basket lined with asphalt and burned. A group of five adults and two children, one not over one year old. All mixed together.

Working north, cleared a space 12 by 8 ft. and dug down from top, all over this area; first level, 12 in. from top, two groups, five and eight, huddled together, evidently turned out to bury deeper and then replaced, bones mixed—few ornaments with each group, skulls all broken or rotten. [At] 2 ft., found two bodies, badly rotten, nothing with [them].

No. 23. At three feet found: boy, twelve to fifteen [yrs.]. Beads, shell, and glass, and bone spoon. Four feet: five mixed-up bodies, nothing with [them]. Two feet farther north, found skeleton, in bad shape, four fine arrowpoints under head, asphalt on base of all, as though set into something—latter not found.

No. 24. Five feet below surface, head west, on face, beads, shark teeth, and shell beads.

No. 25. Same level as No. 20, 3 ft. north, under large, fine mealing stone—badly decomposed skeleton, lying in bed of sand and ashes—could not determine [sex] but probably male. With it three flat cooking stones, one fine pick, and a small asphalt basket, almost perfect—a great find.

Friday, March 1, 1901

Continued in same hole, on level with No. 20 and for 18 in. above, found, 3 ft. north of No. 20, a group of about fourteen skeletons—a hopeless mixture. (No. 26.) Mixed with them and underneath were numerous beads and shell ornaments, one pipe, and some bone implements similar to those found with No. 20. These latter were unfortunately broken in removing the bones about them. The confused mixture of bones, in every direction, makes it exceedingly difficult to work with any satisfaction—one never knows when to expect anything as the bodies that are alone are in unexpected places and without orientation.

Some of the skulls that have evidently [been] disinterred and reburied are filled with a mass of olivella shells. Have seen more of these shells made up into beads—probably because they are so common.

Camp No. 2—General Remarks.—Occupancy of this camp has been quite recent, as witnessed by the large numbers of glass beads and manufactured metal objects already noted. The deeper burials are not the older ones, for the bodies above, in almost all cases, show very marked evidence of having been disturbed in order to make the deeper burials. This practice of burying a large number of persons in a small space—fully 150 have been found in a space 25 by 15 ft.—is peculiar; it is also peculiar that the burials should be made in the heap of kitchen refuse—ashes, shells, etc. These facts cannot be due to the reason alleged by Schumacher—lack of soil and shifting sand—for there is ample soil on the point, back of the hut circles (west) and the ground is not sand, but is largely made up of silt and humus and is covered with vegetation. Any great respect for the dead must be short-lived or they would not have so badly disturbed numbers of bodies in order to make a fresh burial. The graves were probably marked with whale bones and manzanita sticks, as fragments of these are encountered 6 to 12 in. below the present surface. The occurrence of enormous numbers of olivella shells near the bodies must be noted, as well as the fact already mentioned, that many of the skulls which have been disinterred and reburied are found to be quite filled with these shells. What the significance, if any, may be, I am at a loss to say, but the fact remains.

Placing a layer of clean beach sand on the flooring on which the body rested, in some cases, seems to show a recognition of the uncleanly method of burial in the refuse heap, and the desire to provide a less repulsive couch for the dead.

In this as in other places I note the fact that the bodies found at the center of the burial place are the ones with which things are buried, and that the poor, i.e., those who evidently were not possessed of much property, are buried on the outskirts. Evidently there was an aristocracy and a plutocracy then, as now—and a division into classes of rich and poor. Judging by the teeth, very few of the individuals were very old. Most, I should say, under the age of fifty years.

Saturday, March 2, 1901. Camp No. 3

On bluff point south side Cañada de la Agua, overgrown with cactus and arrowroot, so could not determine much about camp. On north side of this point and camp site found graves in bluff at edge. First four skeletons lying nearly east-west, head west, face down and to north. Nothing with [them] save flat rocks and one used pick. One skeleton showed caries of the vertebrae: specimen saved. Graves marked, as usual, by large stones 6 to 12 in. below surface. Here I find a good many

thin flat stones, nearly round, evidently used: probably used in cooking. Round cooking stones and fire ashes are also found here. The bodies are placed very close together, as in Camp No. 2—but show no signs of having been disturbed. I write these notes as the man is digging. The surface soil is silt, humus, etc. Underneath is found the usual mass of shells, dirt, etc. Out of a large pocket of such refuse a broken mortar has just been turned—an old break. Some of the flat stones found over bodies are marked with a pick, in lines, as in Camp No. 2, but otherwise show no sign of usage. I shall take a smaller one or two from here—it is too difficult of access to take anything heavy unless it is a good specimen. Two more bodies—this time lying north-south, head north—are uncovered. Careful search fails to reveal anything buried with them.

Note: all bodies thus far uncovered are found in a circle of 5 ft. diameter. A seventh body comes to light, with a fairly good mortar, mouth down, over the head, which points to the northeast. With beads and shell ornaments at feet. Peculiar beads of soapstone, well wrought. Three more found, one east-west, one north-south, one west-east. Nothing with [them].

No. 27. This is evidently only a small burial ground—probably a few families only. The main village—it was quite considerable—and burial places are well concealed by the rank growth of grass and malva and prickly pear cactus.

Rode up along fence south of Water Canyon and saw village site on top of first main ridge. This also is too thickly covered to determine anything definite. About 3/4 mi. east, nearly at end of this ridge, is another camp site; ditto in regard to herbage, etc.

Tuesday, March 5, 1901. Camp No. 4

Mouth Cañada Verde. Circle 25 ft. diameter cleared of weeds. Marked by stone and whale bones. East side mouth of Canada Verde—trench at south end of circle, east-west—has been dug.

No. 28. One skeleton wrapped in seaweed, nothing with [it].

No. 29. Under mixed bones, dug by previous man—under flat stone 3 ft. deep. With it, cache of triangular flints, red paint, long shell beads, stone ring, two shells with black in them (asphalt?), and one mortar. Male, head northeast.

No. 30. Just west of No. 29, also under a layer of bones already dug. No orientation determinable. With it were four cooking stones of fragmented magnesian mica, Catalina.

Those who have previously dug here—probably Coast Survey party, '75-'76¹⁵—evidently did not suspect more than one layer of bodies and did not go below any large flat stones which they found 2 to 3 ft. below surface. Their work was very crude.

Wednesday, March 6, 1901

Same place, continued working south. Beads are found in soil and under vertical (?) rock.

No. 31. A child with many beads—fragments of skull with hair, and near by fragments of wood with asphalt.

No. 32. A few triangular flints and a number of blanks for wampum and four paint shells. Note good arrow with fragment of wood and asphalt found in soil. Also four cook stones not identified.

No. 33. Small mortar over head, to south, face up, 3 ft. deep.

No. 34. Two very fine ornaments of asphaltum in

which are set beads and wampum. Head to east, face down, ornaments under forehead. A large number of beads—glass and shell, long and short, and shell ornaments, are found in the soil that has evidently been already dug over. These are in no way distinctive and are put in the general collection of beads and shell ornaments. All things in any way unique or peculiar are noted as coming from this rancheria.

The fragments of wood noted with No. 31 may be portions of a boat. Captain Burgess says he once found considerable of a boat made of slabs or rough planks of red wood fastened together with hide and covered with asphaltum. I do not know that this wood belongs with No. 31, but place it there as it was in close proximity. Portions of semirodden pieces of wood, like stakes, etc., are found quite frequently and may have marked special graves or may have had no significance.

Thursday, March 7, 1901

Continued same place. A little to east of center, 4 ft. deep, three small children and with them beads and shell pendants and a number of slabs of *Olivella* shell, roughly finished but drilled and evidently strung with the tubular blue shell beads so commonly found. Nothing special—head of all three kids were to the southwest. Several (7) skeletons unearthed as we move north, but nothing with any of them. Heads generally in northerly (NE-N-NW) direction.

No. 35. Small child buried in large basket. Basket quite decayed, powdered; with it many beads and wampum and copper cup.

No. 36. Also a kid—1 ft. away—beads made of whole shells (drawing of spiral).

No. 37. With No. 36. Hair on head. So recent it still stinks—four cooking stones.

Monday, March 11, 1901. Camp No. 6

Saw a number of camp sites today, the most interesting being in La Cueva de la Vieja. This has been quite large and the erosion of the stream which passes through has left cliffs, some 20 ft. high. Here the strata can be plainly seen and I noted, about 10 ft. from the surface (dirt and shells) a stratum of shells and refuse, over which was a layer of gravel, several feet thick, and through the top layer of shells, charcoal, etc. This place I shall carefully investigate as soon as John comes and we can camp there.¹⁶

March 19, 1901

Cueva Vieja—top stratum of shells and refuse, 6 ft. thick at point—then 2 ft. 4 in. of soil, and shell stratum, 6 in. thick, then 18 in. soil and stratum of shells.

Fragments of one body, 13 ft. from top in very hard stratum of shells and adobe. One skeleton on point, 3 ft. deep, nothing with it. Female. Head west, face north, doubled up on left side. Midway between hill and creek, under large stones, four (?) bodies—twenty-five south another (these located at same time).

Billy's, No. 38, under large pointed rock with end sticking out, has head to northeast, face down, nothing with it. Apparently a woman. John's, No. 39, head to south, face down, and arms at sides, not under face. Legs spread apart about 18 in.; over pelvis is an oval-shaped rock that has been a basket mortar, bottom side

¹⁶ Camp No. 6 is on the south side of the island, while No. 5, not mentioned here, is on the north side and was not considered of great importance, since there were only undisturbed skeletons there. The time between March 7 and March 11 presumably could have been spent largely in surveying or traveling.

¹⁵ See n. 5.

up. Nothing else with [it]. These two burials seem to have been made haphazardly as there is no indication of a burial ground—further digging may reveal other bodies hereabouts, however. Midway between these two stones is another, under which was a woman and child—badly crushed. Nothing with [them]—under them five mixed up bodies and then No. 40, a youth, with which many fine small ornaments and beads. This has not been excavated but has been dug by the Indians for subsequent burials. In No. 40 the ornaments and beads were strung around the neck—a few beads and then a group of four to twelve ornaments. Head was to the west, face down. In going through the above bodies a few miscellaneous ornaments were found. No. 41 is a stone ring, numbered because it shows so well the use to which it was put—a short-handled hammer. This was found with a mass of bones of three skeletons, 2 ft. from top and 2 ft. north of center.

This camp is peculiar in various ways. After trying in all the most likely places, i.e., around the edges of the flat, and finding nothing, I tried the most unlikely, at the center of the triangular flat on which was the camp. Here noted a sharp pointed stone sticking up out of the ground and on digging located body. Twenty-five feet east was another bunch of stones with a body under it. Nothing with either of these and no bodies nearby. Tried midway between and found a bunch—[have] taken out twenty-one so far and others in sight. In places they are two and three deep, the upper ones being, in most cases, disturbed more or less in order to bury the lower ones. Heads point in all directions; in one group of five, the heads were all together, within 6 in. of each other, with the bodies radiating in all directions. Most of the skulls are so badly rotted that they crumble at a touch. The soil is dark and loamy and there are occasional deposits of ashes and fine shells. The ground is, however, remarkably free from refuse. I am at a loss to say why they crammed their dead together so, when there was such an ample supply of soil all around.

March 20, 1901

No. 42, 4 in. below surface, to the west of center, man, with stone ring just below occiput. Head south, face down. Worked along in this place following the lead of the bodies and in all unearthed some 28, as nearly as could be reckoned. They were crowded and packed in more closely and tightly than in Camp 2 and were frequently 2 or 3 deep. Several times bones of 3 or 4 were found, all the bones matted together in actual contact. In two cases skulls were found quite filled with *Olivella* shells and in one instance a body seemed to have been surrounded with these shells, some whole, others broken. I imagine the skulls in which the shells were found had been disinterred and filled with the shells before reburial. It is impossible to imagine that these shells could have got into the crania in any natural manner. At various places shell ornaments and beads and stone ornaments, arrowpoints, etc., were found, but in no instance could the identity of these be determined. In one instance it seemed as though a lot of very fine shell ornaments had been buried with a child; but here were found, in addition to the fragments of a child's skeleton, the bones of two adults. These ornaments were not distributed, as though in a necklace, but were all in one cache. Of the total number found today, 8 were infants, or individuals less than ten years of age. Two bones were found which show evidence of having been burned: these were not together, but were found at least 2 ft. apart, and in each instance with skeletons which were apparently entire and which showed no evidence of fire. One of these bones is a small fibula and the other is the

head of a femur. I am totally at a loss as to any explanation of this curious fact. A large number of flat stones, most showing some indication of having been used, are found in this cemetery, as in previous cases, lying above the group of dead. It is useless to attempt to give any orientation or to record each individual as found, for the reason that there is no general orientation and almost no case of a single skeleton by itself. A few triangular flints were found, and some unusual beads, one of a flake of obsidian. These are all put together as "Miscellaneous finds."

March 21, 1901

Triangular flints and red paint—knife in dirt thrown out of first grave opened—no glass beads.

March 22, 1901. Camp No. 7

On ridge at side of fence, about 2 mi. southeast of house, on east side of Cañada Agua. No sign of hut circles, but the ground for a considerable area is well covered with shells. Profuse growth of malva (?) makes it difficult to see anything, but it can be readily ascertained that there are no hut circles now visible. Dug 25 holes through top soil, every 10 to 15 ft. apart, over entire ground—no result. Think this must be a temporary camping-place for a long time, but not a permanent camp site. About 1/2 mi. farther south on the point of a rather steep ridge, running east-west into a valley and somewhat protected from high wind is Camp No. 8.

It is pretty well covered with cactus and chilicota (?) plants, but evidently there has been quite a large camp site here—probably six to eight hut circles. The crown of the ridge is north of the center, and from here it slopes abruptly to the north and more gradually to the south. The southern slope seems to be the dumping place, and digging shows that here have been the burials. The bedrock is from 2 to 5 ft. below the surface and the "soil" above is almost entirely shells, ashes, and refuse, mixed with a small amount of dirt. The first two skeletons were lying with the heads to the southwest; the third west; fourth, east; fifth (No. 43), head northeast, lying on left hand in which were three unusual stone beads showing evidence of having been painted red. The sixth head was to southeast, the seventh to the east, the balance, 18, were lying in an equally miscellaneous manner, though the general trend of the heads was to the northward. No. 44 is 3 arrowpoints, found with a skeleton of an adult male, not together, but at different places, mixed in with the bones of the legs.

No. 45. Some shell beads of very unusual form, were found, cached, not very near any one body. Four of the 25 bodies dug out today were children, and apparently they all had something, if nothing more than a few shell beads, with them.

No. 46 was found around the neck of a child and consists of fine shell ornaments, strung with fine shell beads; as the latter are in no way unusual they are put in common stock. Found good stone ring, 2 picks, 3 pestles, and 2 broken mortars, unidentified. Some very good flat stones were found over the skeletons, in some cases, and one or two of these will be retained. I note here, also, the occurrence of *Olivella* shells in the dirt near to bodies—especially near the heads; these are not found anywhere else in this place.

March 23, 1901

Camp No. 8, No. 47. About at crest of ridge—a little south of highest part, grave of child about one to two years old, head southwest, lying prone on back, large

number of shell ornaments around neck and trunk, pendants from chain of shell beads. In left hand number of quartz crystal pendants, some with asphalt cement by which they were fastened. He is lying on bedrock and there seems to have been a depression sunk into the rock in which the body was placed. This body is 2 ft. south of No. 46. About 18 in. west of here is the body of an adult male, head north, and 1 ft. north is another, head west. Six more skeletons were found here, within 4 ft. of this place, making nine today. Considerable digging failed to reveal any more bodies, so we moved to Camp No. 9.

Camp No. 9. Southeast of Camp 8, on a slight rise from two creeks that here come together—the place is known here as "the old Jack camp" where a fence builder once had his camp. The ground is covered with a profuse growth of Malva (?) and can be with difficulty seen. It is full of shells, however, and has evidently been an Indian camp at some time or other though no hut circles can be made out. Men are now digging prospect holes but thus far nothing has been located. About one mile east along same fence as 9, is Camp No. 10.

Camp No. 10. Here a few skeletons have been dug out, and the ground is dotted with shells. Considerable digging failed to show any other graves. One skull, turned out sometime ago and today found by me on the surface, is noteworthy for the fact that it shows an old lesion of the left parietal, and also has the Inca bone. It is preserved and numbered 10.

March 25, 1901. Camp No. 11

At a place called La Cruz, in the Water Canyon. Here two streams join and between their junction is a small flat, 100 yds.—backed by a spur rising to the divide in which they have their origin. One of them is the Water Canyon. The deposit of shells is not very great, but the growth of Malva (?) is great! The shells are finely comminuted, however, and I believe this camp, though small, is an old one. Cattle have tramped here a good deal and the bulls pawing the ground have obliterated the hut circles and dug sundry holes. A prospect hole strikes portion of a skull. I carefully dig this body out and find it is a child, No. 48, perhaps twelve to thirteen years old, lying on left side, head southwest, left hand under face, facing to left. Just over abdomen is cache of fine shell ornaments and portions of shell for making same, but unfinished—also one fine arrowpoint. The soil here is a black adobe, very moist, and in consequence, while the small bones of the kid have rotted soft, the shells are in fine condition. No. 49, 2 ft. east of here, male, adult, head south, left side, legs drawn up, but not jammed together, left hand under head. Swathed about neck and chest with large numbers of fine shell ornaments; just in front of chest 3 bone whistles, several quartz crystals, a fine obsidian drill, and a cache of triangular flints, ornaments strung with shell or bone beads, which have nothing unusual about them. No flat or other stones mark these graves or are over the bodies and only by persistent digging were they found. No. 50: 4 ft. east of No. 49, another male, same posture, has fine stone ring at knees and bone implement in right hand. Over him is bed of ashes 18 in. thick; this one and No. 49 are 3 ft. below surface.

No. 51: 3 ft. northeast of No. 50, lying on right side, head to the west. Many small shell ornaments around neck, very fine; two abalone shells under cheek and stone ring under back of head; both hands under head, legs drawn up. Whistle and bone tools (small). Five other skeletons (adults and 2 children) removed from this hole, thus far, all within 2 to 3 ft. of each other. No general

orientation. No. 52, head to west, left side, same posture, shell ornaments around neck. No. 53, head northwest, left side, shell ornaments around neck, nothing else.

Gathering the small stuff here is very difficult indeed, on account of the hard black soil. I spent two hours in the hole, getting out material with No. 49, and was simply covered with dirt on account of the high wind now blowing. Again I note the absence of any glass beads, thus far, and the shell and bone beads found are very fine indeed. The shell ornaments are very numerous and the profusion of different types and styles is wonderful. It is to be noted that almost no large stones and no large stone work at all (mortars, pestles, etc.) have thus far been found here, but that the general character of the work is small and finely finished. Burials are from 2 to 4 ft. below the surface. The only thing that seems to be general, in regard to these burials, is the placing of the body on one side, generally the left, with the hand of that side under the head or face. When the body is face down, one or both hands are under the face, generally the left [hand].

Tuesday, March 26, 1901. Camp No. 11 (continued)

Cleared away hole, 12 ft. diameter, where yesterday's bodies found and broke away soil in all directions therefrom, as it is impossible to say in what direction the bodies are lying. Dug around hole to a distance of 6 to 10 ft. in all directions, but same result, no more bodies could be located. Put down six more prospect holes, no result. Careful examination of the ground shows that the deposit of shell fragments is very limited in area and that in all probability these bodies are all that are here buried. It is certain that there can be no considerable number remaining interred at this place, for I have thoroughly covered the ground.

March 28, 1901. Camp No. 12

Canada La Jolla. Sandy soil, coarse, bones all mixed, whole bones with burnt human bones underneath. Whole mass seems to be washed from back in the cave, and in part roof caved in. This cave may be considered, so far as its contents are concerned, in two parts: one composed of yellow sand and rocks, in which many bodies are found; and one of dark soil, dirt, ashes, shells, refuse, etc., in which other burials seem to have been made. Quite a number of the bones removed from the upper, clean sand show the action of fire. Some are entirely burned while others are but partially burned; some are whole while others are very fragmentary. In some cases a few of the bones of a skeleton are in proper relation—as for instance a skull with a few vertebrae in contact, or both bones of the forearm or leg will be together. All are, however, so rotted and brittle, due to the continuous moist condition of the sand, that hardly one can be removed and no single skull can be obtained intact. Rocks weighing several hundred pounds have fallen from the roof and mashed things up pretty well. Three good arrowpoints, about fifteen abalone shells with the holes closed by asphalt, some rough wampum and olivella beads and bone implements were obtained. Also found three double-tapering articles of stone, slaty, may be dark shale—which had been decorated with a band of asphalt in which two rows of wampum had been fixed. These may have been used as labrets (?). The stone was so badly decomposed in all cases that the specimens fell apart as soon as removed from the sandy envelope surrounding them. The cave is an erosion in the prevalent coarse sandstone forma-

tion, and the rocks that have fallen in are chunks of the same sandstone and concretions. In size it is about 15 ft. wide and as many deep. Probably it was originally 6 ft. high at the opening, increasing to 10 ft. at the center. As yet have not touched the lower, dark, layer. Am cleaning out the drift, debris, and upper skeletons first. Thus far have removed twenty-nine certainly, and probably more, but the skeletons are so comminuted that it is impossible to say. Four stone rings were found in the sand near the mouth of the cave. The manner in which the wampum is found leads me to believe that it was in strings about the necks of the skeleton. Fragments of two asphalted baskets were found, and two or three very rough and crude abalone shell ornaments, and a perforated and polished stone, probably some fetish or ornament. Everything about this place is rough and coarse and there is an air and atmosphere of antiquity that is lacking in all the other camps I have seen. Directly across the canyon from the cave, which is located on the southwest side, was found a mortar 12 ft. 6 in. from the surface, protruding from the perpendicular cliff which rises to a height of 30 to 40 ft. and forms the sides of the stream bed. This is No. 54. About 100 yds. farther down the canyon, and also on the opposite side, was found another mortar, No. 50, of quite different size and shape, protruding from the cliff about 15 ft. from the surface. In the south side of a deep barranca, which joins the main canyon about 75 yds. below the cave, was found, 12 ft. below the surface, a flat rock, shaped like those used in graves over and under the dead (No. 56). On the opposite side of the barranca and some 10 ft. nearer the main canyon is seen a skull, protruding from the wall, about 12 ft. from the surface. There is no indication of shells, ashes, charcoal, or refuse in the vicinity of any of these articles—mortars, skull, and flat stone—and it is probable that they were removed and washed here and the soil above deposited then or at some time later during a heavy wash or cloudburst. Another cave is found about 125 yds. farther up the canyon and about 100 ft. higher in altitude than the first mentioned. The cave worked today will be called No. 1, Camp 12, and the last mentioned No. 2, Camp 12. Both caves are on the same side of the canyon, and about two miles from the south side of the island. On the same side of the canyon as that on which the caves are located and 75 yds. below them, the face of a large boulder is seen protruding from the cliff. It is marked with sundry cuttings and with holes drilled into it. I did not examine it closely today, for a large stone fell on my foot, making walking very painful. Will make a careful examination of this tomorrow. The conditions here will readily compare with those in the Cueva de la Vieja, where certain signs of Indian occupancy are to be seen in the canyon walls, several feet below the surface; the distances in the two cases, 8 to 15 ft., might readily occur by natural means—inequalities in the old surface—and the period of occupancy be the same in both cases. The subsequent accumulation of soil, if occurring at the same time at both places—which must have been the case owing to their proximity—would have parallel conditions: and this is precisely what we find, except that where the mortars and skull are found in La Jolla Canyon, there are no further evidences in the banks. Such deposits of shells, refuse, etc., as are to be seen in the cliffs at La Vieja may exist in La Jolla but are not visible for the reason that subsequent wearing away of the deposits by the stream has not been in the places where the deposits lie. It is also quite possible, if not probable, that the objects found at La Jolla may have been washed from their original resting place

by the sudden inrush of water and dirt and deposited where we find them. The chief evidence of greater age in the settlements at La Jolla is in the general crudeness of the art products and in the careless manner of burial in Cave 1, where bodies were deposited so near to the surface of the floor of the cave that they were burned by fires which must have been used for general camp fires. So far as a cursory examination of the burned bone fragments is concerned, they show no evidences of cannibalism nor do they seem to have been broken, save accidentally and subsequently and by the violent disturbing of the soil in which they lie, by the falling of rocks, shifting of the sand, etc.

March 29, 1901. Camp No. 12

Cave 1. I was not present, being laid up with a sore foot, smashed by a rock which fell on it yesterday; this is written up from John's notes. Work continued in Cave 1, on upper level—loose, clean sand and rocks, and twenty-six skeletons removed. These were in the same general condition as those removed yesterday, all mixed up, skulls cracked and crumbling, broken up by stones, etc., and are mixed with burned bones and fragments of burned bones. A few arrowpoints—one very small, of obsidian—a number of abalone shell cups or vessels, miscellaneous beads, wampum, etc., a couple of very nice shell ornaments, one partly decomposed pestle which seems to have been painted red, and sundry bone implements, some broken, were found in the sand, in addition to:

No. 57. Four rude red stone or baked clay beads or ornaments very much larger than any found thus far or even seen by me before. They seem to be made of a substance that looks very much like Catlinite, but as to this I cannot say until they are carefully cleaned and compared with specimens.

No. 58. Some thirty similar red stone beads, some larger and some smaller, six or eight variously shaped serpentine beads, one plummet-shaped piece of red stone, beautifully fashioned—one boat-shaped vessel of red stone (broken) and one rude boat-shaped vessel of Catalina soapstone, and one flat red stone ornament.

Both Nos. 57 and 58 were found cached, but not nearer than 2 ft. from any skeleton or lot of bones. Fragments of 2 or 3 baskets, covered and lined with asphaltum and apparently burned, were also found in the debris.

No. 59. One shallow, broken, and mended mortar. This had been broken and mended by the Indians with asphaltum, but came apart in getting it out. The broken boat-shaped vessel of No. 58 was broken by the bank's caving when it was partly removed.

Saturday, March 30, 1901. Camp No. 12

Continued cleaning out Cave 1, upper level, and finished it up in the afternoon. Found three more bodies, fragmentary, in the upper sand: a number of beads (*Olivella biplicata*) shell, and some wampum; also part of a broken stone ring. Then examined lower layer, which is made up of dark soil, ashes, shells, and refuse. At south end and 1 ft. within line of front of cave, found two skeletons, both women, lying face down, arms at sides, head to the north, legs drawn up. Nothing with them and no more bodies in the floor layer. From two of the three, found in upper stratum today, I should judge that posture was the common one—hand under head—for the reason that in these two cases the finger bones of the left hand were found under the skulls,

which were broken all to pieces. We then moved to a place 100 yds. below Cave 1, where at the level of the cliff is an arched rock and in front of it a very large deposit of shells and refuse with three skeletons protruding from the bank. Nothing was found with these. Work here is very unsatisfactory as the high wind which now prevails blows clouds of fine dust up into the air, obscuring one's vision by filling his eyes with dirt. I am of the opinion that this Cave 1 was at first used as a dwelling place and that a few burials were made in the floor, that later, as more Indians came to live here, this cave was abandoned as a living place, in favor of the two caves, one above and one below, and that Cave 1 was then used solely for mortuary purposes, the bodies being covered with sand brought in, and with rocks. Subsequently other rocks caved in and mashed things up pretty well. I am at a loss to explain the presence of charred bones and wampum which has evidently been exposed to fire except on the supposition that partial cremation was resorted to. This may have been the case, owing to the small amount of available soil and the fact that it had to be brought in to cover the bodies. It is possible the Indians settling here in the earlier days of occupancy may have come from some region where cremation was a recognized method of disposing of the dead in cases of emergency or where circumstances made it necessary. In any event, one would expect sundry burials at various places around here, in the vicinity but not in the cave, and it is probable that such bodies, if found, will not have much, if anything, with them. The rich are always found in the more central places, and such were those in Cave 1, as shown by the finds, by the number of baskets (fragments only found) and the goodly number of abalone-shell dishes or vessels. The stream flowing in this canyon is never known to run dry and the water is by far the best I have found on the Island—it is most excellent. I shall not be surprised if further search reveals other encampments in this canyon. On the trail between Cave 1 and the lower camping place, found one stone ring. Both sides of this canyon are dotted, here and there in favorable places, with camps of various sizes. About 1/4 mi. below Camp 12, on opposite side of canyon is a fairly considerable camp site. Three or four skeletons are seen protruding from the bank, and on the level are flat stones and whale bones, used in marking burial places. I rather expect to find this, or another place, rather rich.

Undoubtedly a goodly number of Indians have lived along here, taking advantage of the excellent water. In Cave 1, yesterday, fragments of four water baskets—baskets covered with asphaltum—were found, and one of these is the bottom and inside—it is a mass of asphalt about one inch thick in which are numerous small pebbles embedded! This is certainly startlingly direct evidence in support of my theory that the round pebbles coated with asphalt and commonly found in camp sites hereabouts, were used in the process of coating the inside of the baskets with asphalt. In this case, they probably got cold, for some reason or other, and hardened in the bottom before they could be removed. I am very glad indeed to have secured this specimen.

Have taken many photographs of this region [Cañada La Jolla] and hope some of them will show more clearly the actual conditions. In places, where deep barrancas have been washed by drainage from the side hills into the canyon, there are very considerable deposits of finely comminuted shells to be seen, often extending down to a depth of fifteen or more feet. These, in at least one or two instances, I am inclined to believe, are wash deposits and have no special significance.

Monday, April 1, 1901

Did not go to La Jolla, as I am hourly looking for the schooner to take me off. Sent John and Billy there, and I went to shell heaps on Skunk Point for surface finds. Notes on La Jolla are written up from John's statement of the work done. The embankment in front of and in Cave 3 (that below Cave 1 in the La Jolla Canyon) was pretty thoroughly dug out with the result that three skeletons were found at various places, laid promiscuously in the shells and refuse, and with nothing with them. Excavations in and in front of Cave No. 2 were entirely without results—no skeletons being found. Midway between Caves 1 and 2 a lot of broken bones were unearthed and fragments of one skull. This entirely confirms my opinion in regard to these caves: No. 1, while used at first as a living place, subsequently became the burial place and the other two caves were used as dwellings. It is quite probable that a number of bodies may be buried here and there in this vicinity, but they are of little consequence. The people of any standing—the plutocracy—of this Indian settlement, were buried in the cave (No. 1).

In the matter of stone rings, I wish to record some thoughts of today. There is no evidence from the skulls and bones found by me or by others, so far as I am aware, that injuries were observed—showing the people to have been a quarrelsome or warlike people. On the contrary, everything found and all recorded information, so far as I am aware, goes to show that they were peaceable and friendly, if comparatively low in development. Such being the case it is not conceivable that those who settled on these islands would develop war implements when they had no use for them—"stone maces," "stone war clubs," etc., as so often called by the "crossroads archaeologists." Were the parent stocks—those found on the mainland—at all savage or warlike, they would have developed war implements and we would still find them both on the mainland and here on the islands. These stone rings do not occur on the mainland—or at least are very rarely found—while they are exceedingly common on all the islands. Consequently they must have developed through causes and influences which acted here in marked degree but were not appreciable on the mainland. What can they have been? Consider the problematic use as weights for digging sticks. There is but little to dig for, here, save for graves. Cultivation of the soil was unknown, roots are few and, so far as I know, not edible; the wild onion is common, but it does not require a specially weighted digging stick to obtain it. Furthermore the various forms of stone picks which are found in great abundance are very much more useful, durable, and convenient than a stick with a clumsy weight on it could be. In regard to their use as weights or sinkers for fishing nets, I believe Major Rust¹⁷ has a dozen which he purchased from an Indian who was using them at the time for this purpose. This, if I am correct as above, proves nothing, for we have no evidence that the Indians, used or knew anything of nets, and these, originally made for some other purpose, may have been found and made use of by the Indian from whom Rust purchased them. Furthermore, were they intended for such a minor purpose they would not be so well finished and would not show the evident wearing and polishing action of the hand, which many of them do show. There is unmistakable evidence that some of them have been used as hammers, but that all have been so used may be a matter of doubt. Nothing so influences specialized types in development as habitat and food supply; now the food supply here

¹⁷ Horatio N. Rust, an amateur archaeologist and collector living in California.

was almost entirely shell fish and the art products were largely made from shells. It seems to me probable that these stone rings have some direct connection with these two things, but what that connection may be, and how these rings were used and for what are questions difficult to answer. The reason why so many of them have the hole double tapering is, I think, obvious; it was the natural shape when the hole was bored in the easiest manner, as illustrated in many specimens thus far collected by me. To make a straight uniform hole, or one tapering clear through, would require an unusual amount of skill on the part of the artisan, and a considerably longer time. It would be easy enough to mount a ring with a double tapering hole on a handle for use as a hammer, with the aid of asphalt and cord, and both of these articles were at hand and largely used. Certainly a very large percentage of them, even those that are finely finished and polished by the action of the hand on one side, show indentations and pittings on the other side, as though used as hammers.

Thursday, April 4, 1901

Waiting for the schooner or boat that is hourly expected to take me away from the island, so cannot go far away from the house. John and Billy busy for three days gathering up the surface finds from Skunk Point and vicinity.

I have been greatly puzzled at the very large number of stone "picks" which have been found by me. Some are remarkably well worked, some are but roughly wrought into a more or less well defined implement, but all preserve to a greater or less degree the same constant form of a triangle tapering to a point which may be quite sharp or blunt; many of these show a good deal of use while others do not appear to be at all worn. They occur in a large variety of sizes, materials, and degrees of finish, and undoubtedly served as tools for the accomplishment of more than a single object. Doubtless many of the smaller and very tapering ones were used as reamers or

drills, of which class I have several specimens; others may have been used somewhat in the nature of cold chisels, for breaking or chipping away material—stone, shell, etc., in the production of a designed object. Some seem to have been used in digging or pecking into the soil, others must have been used for pecking out mortars, rubbing stones, pestles, and [some may be] the flat, pecked, and sometimes used stones that are found in graves and marking burial places in some cases. Yet all these various uses do not seem to account for the very great numbers of these picks, nor for the occurrence of used picks fashioned from comparatively soft material—material not at all suited for pecking stones. It has just occurred to me as probable that some of the cruder forms, and those not well adapted to the purpose of pecking out stones, mortars, pestles, mealing stones, etc., may have been used in gathering the shellfish which was almost the only article of food—it was certainly the one great staple, and fish, seals, etc., were secondary and unreliable food stuffs. Just as the present-day abalone fisher uses a pointed or wedge-shaped iron bar in gathering his abalones, so may the Indian have used a great many of these stone picks. A quick thrust of the pointed end under the slightly raised abalone shell, followed instantly by an outward or upward pressure, using the point as the fulcrum of the lever, and the abalone is easily detached. Without some such tool the gathering of abalones and mussels is an exceedingly slow and difficult process and one, in the case of abalones, not unattended with danger; with such a tool, on the contrary, the work may be as well and almost as quickly done as with the iron abalone bar now used. This I know from personal experimentation. This supposition would help to account for the great number of rough picks which I found, principally along the south side of Skunk Point, and along the coast from there westward; in the immediate vicinity of all the places rocky reefs run out from the shore and shellfish abound on such rocks.

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PLATES

DESCRIPTION OF PLATES

The photographs of material—from Santa Rosa Island except for plates 90 and 91—are arranged by camp sites (see pl. 86) and separate graves, in the order of their excavation. Often a number of bodies were grouped so closely together that it could not be determined to which particular individual the specimens found really belonged. Sometimes the upper layer or layers of bodies had been disinterred for the purpose of making a burial at a lower level; in this event the bones seem to have been replaced in the proper relations, as nearly as could be done, and all the material originally buried with those disturbed was replaced in the common grave. There is consequently a considerable amount of material marked "miscellaneous," or "unidentified."¹ Orientation was often difficult or impossible to determine, owing to the confused mixture of skeletons and to the fragmentary condition of many remains.

It is to be noted that objects of glass, metal, etc., of extraneous origin and obviously derived within the historic period from Caucasians, were found only in the camp sites on the northern coast; camp sites in the interior or on the southern coast yielded only objects of aboriginal manufacture.

It is further worthy of note that, except at SRI-147 (Camp 6), skeleton 39, in no instance when the sex could be determined with any degree of certainty (by the size of the head and shape of the pelvis), were any articles of use or ornament found with a female. Often, however, large quantities of ornaments, beads, etc., were found with skeletons of children too young to permit of any determination of the sex.

The few published comments on the mode of burial of the Indians of the Santa Barbara coast and the Channel Islands all state that no regular method seems to have been employed and that the only constant feature is the doubled-up or squatting posture of the body. This is not true of Santa Rosa Island or of some other sections of the territory mentioned. While it is a fact that no special orientation seems to have been preferred, still the posture and general arrangement were fairly constant. The majority of the bodies found on Santa Rosa Island (749 skeletons were excavated) were lying upon the left side with the left hand under the head; a lesser number were found lying upon the right side with the right hand under the head; very few, and these were obviously exceptional, were found in any other posture.

Three very different sorts of material were occasionally used to wrap or surround the body; shells of the *Olivella biplicata*, clean beach sand, and sea grass.

Two skulls that had been disinterred for the purpose of making a lower subsequent burial were found to have been filled with shells of the *Olivella*.

On the map (pl. 86) are indicated the local names of canyons and places, names that are in common use by the men who either work upon the island from time to time or have lived upon and are thoroughly acquainted with its topography; these names are generally accepted by everyone included in this category. The locations of camp sites are also indicated on the chart by numbers

corresponding to those used in the following pages, in which the collections are described.

The requirement that all holes or trenches be filled as the work progressed, not allowed to remain open as a hazard to grazing sheep, made the work of excavation in many places somewhat difficult.

All bodies, when located, were disinterred by the slow but satisfactory method of removing the dirt with a trowel. When it was found that ornaments, beads, etc., had been placed with the body, the use of the trowel was suspended and the dirt was removed with the hands, assisted by the blade of a knife. It is undoubtedly owing to the care taken that such a large and varied assortment of shell ornaments is represented in the collection.

All the dirt removed in excavating a burial place was passed through a moderately fine screen, thus saving many hundreds of fine specimens. When a great number of small shell, serpentine, or glass beads encountered in a grave showed no distinctive characteristics, the dirt was thus screened and the whole mass boxed to be sorted subsequently.

In the excavation of a skeleton every possible care and precaution was taken to remove the articles buried with it intact; in spite of all effort, however, many specimens were broken while being removed. A large number of specimens, especially articles of bone, were found crushed or rotted to the point of partial destruction.

Everything of an unusual nature found in the immediate vicinity of a skeleton was preserved. As will be seen from the accompanying photographs, oddly shaped pebbles were treasured by many of these Indians and buried with them. The finding of a single oddly shaped pebble would mean little or nothing; when everything from each grave is saved and it is found that such pebbles are a matter of frequent occurrence, it is at once apparent that such finds are not purely fortuitous. I know of no other collection of material from this section of California that has been made with even approximately the same degree of attention to these minor details, absolutely essential for any satisfactory study of grave contents.

Shell determinations have been attempted by myself and may not be free from error.

The scale used in all plates is a two-inch scale, with markings in tenths of an inch.

Following is a list of camp sites² where the burial place was found and of any skeletons excavated, together with the number of skeletons excavated at each camp, as nearly as it was possible to make such an estimate.

² The prefix "SRI" is used in the system of site designation of the University of California Archaeological Survey. For Santa Rosa Island, the site numbers are generally based on those assigned by the Santa Barbara Museum of Natural History, from a survey conducted in 1947-1950. (See P. C. Orr, Ancient population centers of Santa Rosa Island, *Amer. Antiquity*, 16:221-226, 1951). This survey included 142 village sites. P. M. Jones in 1901 had assigned numbers to only 35 "camps," although he had circled the island in search of sites. It is therefore apparent that he did not find many of the sites later noted by the Santa Barbara Museum survey, or that sometimes he assigned one number to an extensive camp, for example, to which the Santa Barbara Museum assigned several numbers. In any case, most of the locations are approximate only, the exceptions being the coastal sites located at the mouths of named streams. At Camp 32 [SRI-114], not listed in tabulation, at least 4 skeletons were found.

¹ In modern parlance, dissociated.

| <u>Camps</u> | <u>Skeletons</u> | <u>Camps</u> | <u>Skeletons</u> |
|------------------|------------------|-----------------------|------------------|
| Camp 1 [SRI-60] | 10 | Camp 20 [SRI-33] | 3 |
| Camp 2 [SRI-60] | 150 | Camp 21 [SRI-34] | 25 |
| Camp 3 [SRI-78] | 10 | Camp 22 [SRI-23] | 1 |
| Camp 4 [SRI-40] | 100 | Camp 24 [SRI-19] | 1 |
| Camp 6 [SRI-147] | 70 | Camp 26-1/2* [SRI-18] | 27 |
| Camp 8 [SRI-76] | 34 | Camp 29 [SRI-125] | 3 |
| Camp 11 [SRI-20] | 12 | Camp 30 [SRI-6] | 221 |
| Camp 12 [SRI-4] | 55 | Camp 34 [SRI-156] | 3 |
| Camp 15 [SRI-50] | 9 | Camp 35 [SRI-31] | 8 |
| Camp 18 [SRI-35] | 1 | | |
| Camp 19 [SRI-24] | 6 | | |

*Called also Camp 27 or Cave 2; see Journal for April 1, 1901.

EXPLANATION OF PLATES

PLATE 86

Map of Santa Rosa Island, photographed from Coast Survey Chart No. 5200.³ Shows location of 35 "camps" (i.e., archaeological village sites; see n. 4).

PLATE 87

a. From 750-ft. elevation, looking west toward Dos Pechos. Typical topography of north side of island's higher elevations. b. From 550-ft. bench on Cerro Negro, looking east about 20° north, toward Skunk Point. Shows extensive erosion across Skunk Point. c. Near head of Boat House canyon. Shows character of strata and old erosions. d. Boat House canyon, near mouth. Shows stratification, dip of strata, old erosions, etc.

PLATE 88

a. Recent wind erosion. Taken near east end of the extensive erosion shown in b of plate 87. b. East Point, north side. Recent wind erosions, rapidly progressing. Near here many finely worked flints were found. Hut circles on flat to south. No burial place could be located; camp entirely eroded. (For surface flints and arrow points, see pl. 122, b-f.) c. Same location as in b of this plate, a little farther east. Note camp site debris on surface. d. Skunk Point, eastern extremity. Shells show location of many temporary camps. Santa Cruz Island in the distance. e. Between Skunk and East Point, about 1-1/2 mi. north of the latter. Portions of two dunes, with partly covered camp site between them. f. Same as in 88, e. These dunes moved nearly 20 ft. during my stay, uncovering and covering portions of two camp sites. g. Near summit of main ridge. Shows denudation of heads of canyons and of large areas on watershed resulting from overgrazing by sheep. h. Trail near summit, altitude 1,250 ft.; south side Dos Pechos. Shows complete denudation of watershed.

PLATE 89

a. Main north-south ridge, south of summit. Recent gullying has followed denudation of watershed. b. Recent water erosion, following denudation of watershed by sheep; near head of canyon, on the south side of the island. c. Eastern extremity of extensive erosion shown in plate 87, b. d. East Point before rounding the extremity of the cape. e. South coast, looking east from SRI-31 (Camp 35). Piedragosa in the distance. Note the character of the long, low reefs, offering excellent habitat for easily gathered shellfish. Old camps near every such reef. f. South coast. Very recent water erosion. g. South coast. Site of SRI-63 (Camp 33); flat gravestones on surface, thrown out by previous excavators.

³Small capital letters on map refer to locations mentioned in illustration captions, as follows: A, Dos Pechos; B, Cerro Negro; C, Boat House canyon (referred to in later years as "Ranch House canyon"); D, Piedragosa.

PLATE 90

Catalina Island. These plates, compared with photographs showing the coast line of San Nicolas and Santa Rosa islands, illustrate the difference in coast-line topography which directly influenced the numbers of inhabitants and manner of life. On Catalina there are no long, low reefs covered with easily gathered shellfish. The points and headlands here are all abrupt and descend into the water at a sharp angle; the shore falls off abruptly into deep water. Conditions exactly the reverse are noted in the coast-line topography of both San Nicolas and Santa Rosa islands, and on both of these islands the Indian population was many times that of Catalina Island. The trip to Catalina was made for the double purpose of examining this matter and of studying the aboriginal soapstone and serpentine quarries.

a. From Pots Valley, looking west. b. From top of grade east of the isthmus, looking west. Shows seven drowned valleys, sharp angular headlands, etc. c. North coast east of Pots Valley, looking east. Shows sharp headland and large landslide of 1898; receding coast line. d. From hill east of Avalon, looking east. Sharp, angular point; no shellfish obtainable in such spots. e. From hill east of Avalon, looking west into Avalon Bay. Drowned valley and sharp headland.

PLATE 91

Catalina Island. Pots Valley and aboriginal quarries. Here all the soapstone and probably all the serpentine used by the Indians of the islands and the neighboring mainland was obtained. These rocks as observed in Pots Valley correspond exactly with the materials used by the Indians; there is no other accessible source of soapstone or serpentine known to us that in any way corresponds to the worked articles found hereabouts. Other volcanic rocks, more or less of the nature of serpentine, are found here and seem to be similar to the material in certain manufactured products found in the burial places of the islands and mainland. Careful determination of these specimens would be very desirable.

a. Camp site at Pots Valley Landing (about 4 mi. east of isthmus, on north coast). Steatite outcropping, 1/4 mi. east of Landing. b. Taken from same place as a., but looking up Pots Valley. Large mass of serpentine and steatite in middle distance, center of valley. c. Rock seen at center of b. Many grooves made in sharpening implements. d. Steatite quarrying in outcrop. e. Detached portion of steatite from outcrop. f. Large aboriginal quarry, about center of Pots Valley. Taken looking up steep incline. Great quantity of chips and debris at bottom of mass; many pot-forms remaining as ringlike depressions in the rock.

PLATE 92

a-g. Types of the large flat stones found in almost all burial places, over and under and sometimes around the skeletons. All of these stones show pecking; some

have obviously been used for mealing stones, either for grinding seeds or for grinding down and polishing shell and softer stone ornaments or implements.

PLATE 93

a. Mouth of Boat House canyon. Burial place of SRI-60 (Camp 1) in the foreground. Ten skeletons excavated at this burial place, with four of which material was found; no historic materials found at this camp. Camp 2 burial place beyond, on other side of canyon. [Note that both camps, 1 and 2, are here referred to collectively as SRI-60. Ed.]. b. From SRI-60 (Camp 2) looking up Boat House canyon. Hut circles to the right, not shown. Shows character of soil in which burials were made; largely soft camp refuse. c. SRI-60 (Camp 2). Excavations difficult owing to the required filling of all holes as the work progressed. Only small areas could be excavated at a time. d. SRI-60 (Camp 1), 86 ornaments of Haliotis rufescens. Found about neck and in front of chest of skeleton. Skeleton 3; male; left side; head south; 18 in. deep.

PLATE 94

a. SRI-60 (Camp 1). Top: 84 ornaments of Haliotis shell. Bottom: beads of shell and bone, very small and fine; some engraved on edge. Beads about neck; ornaments about neck and body. Skeleton 6; infant; left side; head south. b. SRI-60 (Camp 1). Remarkably fine flat Haliotis shell ornaments in poor state of preservation. Extra long curved tubular beads or ornaments made from rim of Haliotis shell, bored longitudinally; edges very finely engraved; one at bottom of plate, second from left shows remarkably high degree of skill in boring. Found about neck and at chest. Skeleton 8; male (?); right side; head east. c. SRI-60 (Camp 1). Two whole Haliotis shells, siphon holes plugged with asphaltum, found near head. Skeleton 10; male; left side; head south. d. SRI-60 (Camp 2). Articles of bone from refuse heap. Refuse heap 3 ft. from hut circle; 7-1/2 ft. thick; composed of shells (mostly fragments) of Modiolus, Mytilus, and Haliotis, though specimens of numerous other species are encountered; bones of fish, sea otter, seals, etc., very common. No true stratification, though beds of ashes, sand, etc., are found to interrupt the continuity of refuse; refuse at bottom similar in all respects to that at top. Five hut circles at this camp. Burial place between hut circles and edge of cliff, to the east. About 150 bodies excavated here. e. Left: SRI-60 (Camp 2). Ornaments of Haliotis shell about neck, some very fine. Stone ring (not shown) in front of chest. Skeleton 11; male; left side; head west. Right: SRI-78 (Camp 3). Two grooved stone (serpentine ?) beads (shown third from right, lower row) in left hand, under head; ornaments of Haliotis shell, some very fine, about neck; mortar (not shown) near head. Skeleton 27; male; left side; head north. Had three pathological spinal vertebrae. f. SRI-60 (Camp 2). Fine and unusual ornaments of Haliotis shell, found together in front of chest; beads, small and fine, about neck; stone ring (not shown); obsidian arrowpoint and fragment of quartz crystal (shown on right), found near knees. The ringlike shell ornaments at top of plate are particularly fine and delicate. Skeleton 13; infant; posture and orientation undetermined.

PLATE 95

a. Left: SRI-60 (Camp 2). Glass beads and sea-grass string bound about head; long beads of Pachydesma, Mytilus californianus, and columellae of Thais lamellosa or Kellettia kellettii about neck. Skeleton 15; adult male (?); orientation undetermined. Right: SRI-60 (Camp 2). Ornaments of columellae of shell, probably Astraea undosus and Haliotis, about neck and at chest. Skeleton 17; male; left side; head east. b. Enlarged view of four shell ornaments shown in a. c. SRI-60 (Camp 2). Paint shells (one Pecten, the other Lottia gigantea), containing red paint, and flint flakes were found with skeleton 17. About 400 of these slender flakes were found cached about the knees. They were undoubtedly used for drill points, graving tools, etc., numerous authorities to the contrary notwithstanding. See plate 123, d, showing used implements of this type. The majority of all specimens of this type are original, unworked flakes; some show evidence of having been worked down to the present form, triangular in cross section, from a larger flake or chip, after the method described by Yates, Wilson, et al. Not a flaker's scrap, as stated by Yarrow;⁴ not "ceremonial lancets," as claimed by several writers. d. SRI-60 (Camp 2). Stone club at right side; probably a club, not a pestle; glass and shell beads (not shown), about neck. Skeleton 18; male (?); usual posture, but face down; head north. e. SRI-60 (Camp 2). Stone pipe near right hand. Very fine specimen; either serpentine or black limestone. Skeleton 19; male (?); skeleton fragmentary; probably on left side, head east. f, g. SRI-60 (Camp 2). Objects found with group of about nine bodies disinterred for lower burial and reburied, in ashes, under scapula of whale. Mortar and pestle (f) found as shown, with pestle in mortar. Shown in g: scissors, ring, neck of bottle, and metal object, probably lamp bracket from some ship, found together and near mortar. Note portion of sea-grass string tied to ring, showing that it may have been suspended as an ornament and not worn on the finger.

PLATE 96

a. SRI-60 (Camp 2). Two bone implements with quartz crystal tips in right hand and one in left hand; loose crystals (shown at center of plate) near right hand; no red paint on crystals; pipe, with mouthpiece of bird bone set in asphaltum, near right side of chest. Skeleton 20; male; 6 ft. deep, under scapula of whale; face down, arms at sides, forearms flexed so that hands are near and at sides of head. The stone pick, or drill, does not belong with this skeleton, but with skeleton 25 (SRI-60). It was inadvertently placed with the material from this grave and error was not detected till after the photograph was made. b-e. SRI-60 (Camp 2). Ornaments found with a group of approximately fourteen bodies, 3 ft. north of skeleton 20. Those shown in b and c have been treated by being placed in hot linseed oil, which restores the coloring. These bodies had been disinterred to make way for graves at lower levels. All ornaments here shown, of which many are particularly fine specimens, are of Haliotis shell, with the exception of two in d. One of these, the second from right, second row from top, is an oblong plate of calcium or magnesium sulphate; the other, immediately beneath it in the photograph,

⁴ Actually, by C. C. Abbott. Chipped Stone Implements. In U. S. Geographical Surveys West of the 100th Meridian, 7:69, 1879.

is a pendant of Pachydesma shell, f. SRI-60 (Camp 2). Stone ring, fine pick or drill, wrapped in twined fabric of sea grass (upper right corner), and the flint flakes, with which were small masses of red paint (upper left corner), found cached in front of chest, near right hand. Stone ring shows bruising owing to use as a hammer. Several hundred flint flakes [drills?], only a few of which are here shown as samples. Skeleton 21; male; left side; head west.

PLATE 97

a. SRI-60 (Camp 2). Very fine ornaments of Haliotis shell, near neck and chest; ornaments of columellae of Kellettia kellettii and Mytilus californianus (shown lying horizontally in upper right and left corners), bored longitudinally, many of them bushed with small shell beads at the ends of the hole; in front of chest. Skeleton 22; sex and orientation undetermined; youth; skeleton fragmentary. b. SRI-60 (Camp 2). Implement of bone (top); unmodified shells in pairs with small holes bored near edge contain red paint and asphaltum—4 Pecten; 1 Haliotis; 2 Lottia gigantea (lower right and left corners). Skeleton 23; probably youth; mixed with bones of five other skeletons. c. SRI-60 (Camp 2). Two shark teeth (center of plate) bored for suspension; beads or ornaments of Mytilus californianus and either Hinnites giganteus or Pecten aequisulcatus, the hinge having been the portion used. Many are bushed with minute shell beads at the ends of the hole. Skeleton 24; male; face down; head west. d-g. SRI-60 (Camp 2). Soapstone plates (g)⁵ arched over chest; small twined basket (d) coated and filled with asphaltum (exceedingly rare);⁶ stone pick or drill (f, see also pl. 96, a), four views of same object taken on same plate; stone pipe (e), and bone implements, to the right of chest between elbow and hand. Bead, serpentine (?) and quartz crystal (lower left corner, e), near right hand; blanks for making fishhooks or shell ornaments (Haliotis), together with three flat pieces of sandstone for use as saws or files, near pelvis. Complete shells, one Lottia (left) and one Pecten (right, e) containing traces of red paint, mouth to mouth near head. Skeleton 25; badly decomposed skeleton; probably male; on face; head north; lying in bed of sand and ashes.

PLATE 98

a. SRI-78 (Camp 3). Four flat stones; three sandstone and one soapstone (upper left); not with any one skeleton, but in dirt over graves. The soapstone specimen is of the sort referred to by Putnam (Wheeler Survey, 7:100), used both as cooking stone (?) and arrow straightener (?). Skeleton 27; male; left side; head north (cf. pl. 94, e). At this camp ten bodies excavated. Almost the entire camp site was overgrown with cactus. b. SRI-40 (Camp 4). View of site at mouth of Cañada Verde. This camp is of considerable size; two areas have been used at different times; but only one burial place could be located. The top layer of skeletons in the burial place had been dug out; probably by the members of the Coast Survey party who camped in this canyon in 1875-1876.⁷ The soil here, as in all burial

⁵ Usually called "comales"; used for baking.

⁶ This specimen is actually a pseudomorph after the basket.

⁷ The reference is probably to the collecting party led by the Reverend Stephen Bowers. Bowers' brief report appears in the Ann. Rept. Smithsonian Inst. for 1877.

places, is largely filled with refuse and shells, shell fragments, etc. About 100 skeletons were excavated here. Fragments of whale bones mark place of burial; top stratum of bodies in this burial place had been excavated; lower stratum of bodies undisturbed. c. SRI-40 (Camp 4). Head of skeleton wrapped in sea grass; 5 ft. below surface, extreme northwest edge of burial place; body flexed; left side; head southeast. No artifacts with body. Two specimens of Lottia gigantea, together with numerous fragments of shells, are plainly seen. d. SRI-40 (Camp 4). Ornaments about neck, columellae of Kellettia kellettii and bored specimens of Mytilus californianus or Hinnites giganteus; shells, one of Haliotis and one of Lottia gigantea (upper left corner), the latter drilled at edge, filled with asphaltum and two small bones for applying same, found mouth to mouth, near chest; stone ring and flint flakes with red paint, at knees; mortar (e below, pl. 99, a) near head. Stone ring shows bruising and chipping owing to use as hammer. Skeleton 29; male; about 4 ft. deep; head northeast; left side; under mixed bones thrown back by previous excavator. e. SRI-40 (Camp 4). Mortar found near head, two views. Cf. pl. 99, a. Skeleton 29.

PLATE 99

a. SRI-40 (Camp 4). Mortar found near head, two views. Cf. pl. 98, e. Skeleton 29. b. SRI-40 (Camp 4). Flat soapstone cooking-stones, one of unusual curved shape, found near feet. Skeleton 30; sex and orientation undetermined. c. SRI-40 (Camp 4). Top: fragments of wood [canoe planks?], broken and mended with asphalt, and showing holes plugged with asphalt, found near body. Bottom: skull fragments with hair still attached. Skeleton 31; child, left side, head east; many glass beads (not shown) about neck and in mouth. d. SRI-40 (Camp 4). Shells, in order (top, l. to r.): Pecten containing red paint; Lottia gigantea, red paint; two Haliotis, containing asphaltum; found in pairs as given, mouth to mouth, near chest. Flint flakes, only a few here shown, and (lower left) unfinished shell beads of Olivella biplicata, found near knees. Skeleton 32; male; left side; head north. e. SRI-40 (Camp 4). Ornaments, of very remarkable nature, under forehead. Ornaments made of fine shell beads (Olivella biplicata ?) set in asphaltum. Slightly concavo-convex, with convex side up; markings on back as though attached, at one time, to smooth wood or hide. Nothing else with body. Skeleton 34; male; head east; face down. (SRI-40 [Camp 4], copper cup with skeleton 35. See pl. 120, e). f. SRI-40 (Camp 4). Large quantity of glass and Olivella biplicata shell beads about neck. Fragments of wood with brass chains attached, near hand (?). Other shell ornaments of Cerithidea californica, pendent from strings of glass beads, and Trivia californica (lower two rows), strung. Also Trivia solandri (two shells in upper left corner) (rare); and Littorina planaxis (?), shown below Trivia shells. Skeleton 36; child; most bones gone. g. SRI-40 (Camp 4). Plates of soapstone (from Catalina Island ?) arranged about head; almost all hair still remaining on the skull at the time of excavation; nothing else with body. Skeleton 37; male; left side; head northeast.

PLATE 100

a, b. SRI-40 (Camp 4). Miscellaneous material from upper layer of bodies, previously excavated and left by

former workers. Arrowpoints (b) have asphaltum still adhering, showing method of hafting. Large bone implement (b) with one end of bone plugged with asphalt, may have been knife handle. c, d. SRI-40 (Camp 5). Excavated previous to my visit and much eroded by wind. No undisturbed bodies found here. All these ornaments left in sand at place where five or six bodies had been removed. c. Two upper rows, beads of *Olivella biplicata*; third row and first three on left of fourth row, beads or ornaments of most unusual shape, from *Olivella* and *Haliotis*; fourth from left of fourth row, pebble; fifth, bone tube; balance of this row, beads of serpentine; fifth row, ornaments of bone; two lower rows, massive beads of *Pachydesma*, precisely identical with "money" of Central California Indians, in use at present time. The rectangular shell beads in third row are the only ones of this shape known to me. d. Shows part of an agglomeration of beads of *Olivella*, samples being shown in top rows of c. (There were also a few hundred ornaments of *Trivia* shells, not shown.) e. SRI-147 (Camp 6). One of very few bodies found separate from others. Shows the typical posture, on left side and with left hand under head; head south. Nothing found with body; 3 ft. below surface.

PLATE 101

a. SRI-147 (Camp 6). Burial place, unmarked and found with great difficulty, lies near center of flat, to right of which in picture is seen a small tree, the only one in the picture. This photograph taken from mouth of cave shown in c and d. About seventy bodies excavated here. Burial place unusual in that it was not located between the hut circles and the water, as is almost invariably the practice. b. SRI-147 (Camp 6). Face of cliff in river bottom, at point of junction of two streams, shown in a. Crosses (extreme right of plate) indicate strata in which are ash beds, deposits of shells, camp refuse, etc. Measurements taken at place under man, as follows, from top down: shells and refuse, 6 ft.; wash soil and gravel, 28 in.; shells and ashes, 6 in.; wash soil and gravel, 18 in.; refuse soil to a depth of 13 ft., where the bottom or lowest shell and refuse deposit is noted. In this bottom stratum, in what appeared to be very hard black adobe, were found two fragments of human bones, protruding from cliff. c, d. Cave across canyon from SRI-147 (Camp 6). Has been used for dwelling purposes only; no burials near by. d. shows markings on wall of cave, somewhat like markings shown on stone, plate 120, f.

PLATE 102

a. Cañada Cueva la Vieja. Cave from which photograph, plate 101, a, was taken, shown in plate 101, c. Markings are on opposite side of cave entrance to those shown in plate 101, d. Largest cup-shape mark is 3/4 in. in diameter. b. SRI-147 (Camp 6). Note the confusion of bones; four skulls in contact, near center; two of them fragmentary. Miscellaneous bones above; flat stone, under which are other bodies, just to left of group of skulls. Typical of many burial places. c. SRI-147 (Camp 6). Basket mortar (two views), face down, over pelvis; nothing else with skeleton. Skeleton 39; female; head south; face down; arms at sides and not under face. d. SRI-147 (Camp 6). Ornaments of *Haliotis* shell strung, with beads (upper right), around neck. Alternately, a

few ornaments and then a few beads. Skeleton 40; youth, age ca. fifteen to twenty; head to west; face down; hands under face. e. SRI-147 (Camp 6). Ornaments of *Haliotis* shell, very fine and fragile; too delicate to be cleaned until treated with preservative. Skeletal association undetermined; possibly with a child, under five years. Fragments of three skeletons, two adult and one infant, found together; ornaments found near fragments of cranium of child.

PLATE 103

a. SRI-147 (Camp 6). Shell ornaments. Skeletal association undetermined (see legend, pl. 102, e). b, c. SRI-147 (Camp 6). Miscellaneous material, found with groups of bodies so jammed together as to make identification impossible. Ornaments of *Haliotis* shell, many of them unusually fine and delicate, especially the ringlike ornaments shown in b, d. SRI-76 (Camp 8) (see pl. 104, a-c). Top, right: three stone beads, painted red, in left hand, under head. Skeleton 43; male; head northeast; left side. Top, left: three arrowpoints at knees; arrows probably placed in front of body tips down. Skeleton 44; male; left side; head northeast; left hand under head. Bottom: ornaments of *Haliotis* and other shell beads. The rings of *Haliotis* are particularly fine and delicate, many of them being engraved at the edges. Skeleton 45. e, f. Miscellaneous material, most of it from SRI-147 (Camp 6), found under same conditions as specimens shown in b and c. Ornaments and pendants are particularly fine. The two round pebbles (f, center) are red stone. Five pieces of asphaltum (f, upper left), evidently have been plugs in piece of wood.⁸ e. Detail of certain objects. Four specimens in upper row, left, are from SRI-147 (Camp 6); balance from SRI-40 (Camp 4). The three specimens in the upper row, left, are especially interesting; obsidian arrowpoints and flake, drilled; stone ornaments (two in upper right, one in lower right), very fine; large glass bead (center), bushed with small shell bead; serpentine bead (lower left corner), also bushed with shell bead; arrowpoint (lower row, center) with asphalt and cast of wrapping; bone tube, lower right.

PLATE 104

a-c. Objects from SRI-76 (Camp 8); see also plate 103, d. Camp on top of rocky ridge; small amount of soil covering rocks; overgrown with dense cactus; only three hut circles could be made out. About 34 bodies excavated here; all from 6 to 18 in. below surface and many of them resting on bedrock. d-f. Objects from SRI-20 (Camp 11). Small camp, far in the interior; only three hut circles discernible. Twelve skeletons excavated here. Bodies not jumbled together, and all material found here is very fine.

a. SRI-76 (Camp 8). Beads and shell ornaments strung about neck, alternating, a few beads and a few ornaments. Ornaments of *Haliotis* shell particularly fine; ring at center of plate is bored horizontally through shank, so engraved surface would be outward when suspended. Edges of most of the ornaments incised, as shown. Other shells (right) used as ornaments are, *Trivia californica*, *Trivia solandri*, *Pseudomelatomia torosa*; some are in too poor condition to be positively identified.

⁸ Probably in one of the Chumash plank canoes. (See R. F. Heizer, The Plank Canoe of the Santa Barbara Region, California. *Etnologiska Studier*, 7:193-229, 1938.)

but are probably Nassarius mendica and possibly Cerithidea californica. Skeleton 46; child, probably not over ten years; lying on left side; head east. b, c. Ornaments of Haliotis, Acmaea patina, Megathura crenulata, and Mytilus californianus, (b) about neck and trunk; large quantity of small shell beads (not shown) about neck; crystal pendants (c, lower two rows) probably at ends of strings of beads, with asphalt mounting, in left hand; whistles, obsidian implement and pebble (c, top), at right side of body. Skeleton 47; child about two years old; lying on back; legs drawn up; resting in a pocket in the rock, covered with ashes, camp refuse, and small amount of dirt. Note the hook-like ornament in b. All objects of this character have been pronounced "fishhooks" by Rau, Holmes, Putnam, et al. Many, if not all, were not fishhooks but ornaments.⁹ Note also the peculiar marking on large whistle (c, upper right); this is apparently illustrative of arrow feathering. d. SRI-20 (Camp 11). Ornaments and blanks for making ornaments, and arrowpoint (left, center) cached at abdomen; not strung. Ornaments of Haliotis shell, particularly fine and delicate, though in good condition; two at left (upper and lower), bored longitudinally and edges engraved. Skeleton 48; child; probably male; left side; head south. e, f. SRI-20 (Camp 11). Ornaments of Haliotis, very fine, about head, neck, and chest, with considerable quantities of shell and bone beads (not shown); one ornament of dark red stone (center of f); cached in front of chest were quartz crystals, whistle and small bone implements, two pieces of obsidian and one obsidian drill, eight pieces of some calcareous seaweed (?) (pl. 105, a, top), and a large number of the flint flakes with triangular cross section (pl. 105, a), only a few of which are here shown. Note the particularly fine workmanship of shell ornaments and the manner in which several of them are bored for suspension. Skeleton 49; male; left side; head south; legs drawn up but not jammed against trunk.

PLATE 105

a. SRI-20 (Camp 11). Top: eight pieces of some calcareous seaweed (?). Right: flint flakes with triangular cross section. Skeleton 49 (see pl. 104, e). b. SRI-20 (Camp 11). Stone ring at knees and bone implement in right hand. Stone ring shows evidence of having been used as a hammer. Skeleton 50; male; left side; hand under head; head south; buried 3 ft. deep; 18 in. of ashes above body. c, d. SRI-20 (Camp 11). Ornaments of Haliotis shell about neck and a few on chest; very fine and delicate; stone ring (d), showing use as hammer, found at back of head; two Haliotis shells, siphon holes plugged with asphaltum, under cheek; whistles, crystals, and fine bone implements (d, bottom) about a foot in front of chest. Skeleton 51; male; right side; both hands under head. e. SRI-20 (Camp 11). Ornaments of Haliotis shell about neck. Excellent workmanship on ornaments, three of which (lower left) are decorated with incised lines simulating the markings of the Megathura crenulata. Some of these ornaments are quite massive. Skeleton 52; male; left side; head west; left hand under head. f. SRI-20 (Camp 11). Ornaments of Haliotis shell about neck. Skeleton 53; male (?); head northwest; left side.

⁹ Cf. R. F. Heizer, Curved Single-piece Fishhooks of Shell and Bone in California. Amer. Antiquity, 15:2, 1949.

PLATE 106

a, b. SRI-4 (Camp 12). Cañada La Jolla. Two caves, of which No. 1 was first used as a dwelling place and subsequently as a burial place; this is shown by the character of the sand and dirt with which it is nearly entirely filled. Upper stratum is clean yellow sand and large masses of sandstone from ceiling; contained fifty-five skeletons. Lower stratum, original floor level of cave, is burned sand, ashes, charcoal, and camp refuse. Cave No. 2 shows smoke-blackened walls, large amount of refuse in front, but no burials.

Skeletons all comminuted and most show signs of partial cremation; in one or two instances, the bones of the hand were found under the head, as though burial had been made after the customary manner. In no instance could the articles found in the cave be identified as being with any particular skeleton, owing to the great confusion which prevailed. This condition was due to the crushing effect of large masses of sandstone which have fallen from the ceiling. These were too large to move (some of them weighing probably from 750 to 1,000 lbs.) and had to be broken up before removal.

Excavation here was very carefully performed. All the top stratum, of clean sand in which many burials had been made, was first removed; the original floor was then excavated.

a. Cañada La Jolla. Looking down into canyon; cave shown in b at extreme right, center. Cave shown in c just beyond left extremity of this photograph. b. Cañada La Jolla. Two cavelike erosions, the upper one of considerable size and used as living place. Large amount of refuse in front of upper cave; no burials here. c. Cañada La Jolla. Cave No. 1. Rock shown in plate 108, c, is 100 yds. below and to left of this cave. In this cave some fifty persons buried. d. Cave No. 1. Note the miscellaneous distribution of fragments of bone; skulls and most bones comminuted, probably due to pressure of fallen masses of rock from cave roof. e. Artifacts from SRI-4 (Camp 12), Cave 1. On the lower right, group of four massive beads from soft, red stone; probably shale that has been fired by contact with an eruptive. On the left, forty such beads and ornaments, together with five of serpentine (four of latter shown second row from top; one tubular bead, perforation not showing, is at bottom, center). These were found in caches, the four massive beads by themselves, and the other beads together and by themselves.

PLATE 107

a. Cañada La Jolla. River terrace cliff opposite cave; X indicates place where mortar (pl. 108, a) was found, 12-1/2 ft. below surface, protruding from cliff wall. Note numerous strata above mortar. b. Cañada La Jolla. Shows mortar (pl. 108, b, d) in situ in the cliff wall, 15 ft. below surface of old river terrace. Again note numerous strata above. The soil with which the mortar was filled was not removed since it is a fair sample of the stratum in which the mortar was found.

PLATE 108

a. Shallow mortar found in cliff wall at the place marked in plate 21, a, by cross. b. Top view of same mortar shown in situ in plate 107, b. c. Cañada La Jolla. Rock bearing cup-shaped sculptures (right center);

100 yds. below Cave No. 1. Rock is 3 to 4 ft. below surface. Note old river terrace and numerous strata shown in distance. d. Mortar shown in a, b; side view.

PLATE 109

a. SRI-4 (Camp 12), Cave 1. Two boat-shaped dishes, one of serpentine and the other (upper) of soft, red stone, same as large beads; piece of serpentine, smoothed and bored; portion of fine stone ring (to left of serpentine dish); arrowpoints, etc. b. SRI-4 (Camp 12), Cave 1. Objects of bone. c. SRI-4 (Camp 12), Cave 1. Samples of dishes made by smoothing shells of Haliotis rufescens and plugging siphon holes with asphaltum. One (lower left) contains sample of red paint with which it was filled, and the other contains sand, as found, being a good sample of the character of the sand filling the cave. There are sixteen of these dishes from the cave. d. SRI-4 (Camp 12), Cave 1. Ornaments of Haliotis, Olivella, Megathura crenulata, Trivia californica, Calliostoma annulatum (?), and Dentalium hexagonum (upper right corner). At the top, center, below two rows of small beads, are shown three specimens of stone, tapered, decorated with shell beads set in asphaltum; in fragmentary condition when found; probably nose ornaments, though possible tools. e-g. SRI-4 (Camp 12), Cave 1. Mortar of sandstone; painted red; has been broken and well mended with asphaltum; pestle belonging with it shown in plate 126, f. Pestle also painted red.

PLATE 110

a-d. a and b, specimens found in Cave 1, SRI-4 (Camp 12). Other specimens are from surface, west end of island, and from refuse heap, SRI-31 (Camp 35). Row of pebbles, c. found on surface, west end, at eroded camp site; a typical heap of asphaltum-covered pebbles, as mentioned by Schumacher. Use heretofore unknown. Specimens herewith demonstrate their use in coating the inside of baskets with asphaltum, for the purpose of making water bottles. Pebbles were probably heated and then dropped into the basket to be thus coated, together with fragments of asphaltum; rapid movement of the basket would then have the desired result, the hot pebbles melting the asphaltum and coating the basket. e. SRI-50 (Camp 15). Ornaments of Haliotis shell in front of chest. Skeleton 1; male; left side; head west. Nine skeletons excavated at this camp. f. SRI-50 (Camp 15). Beads, bone tubes, fishhook parts (lower center), pieces of obsidian, crystals, two obsidian points embedded in asphaltum (top, center), bone needles (to right of fishhooks), about neck and at chest. Beads in upper part of box on left are of serpentine. Quartz crystals have been worked to point for use as drills. Of the two slender pieces (lying perpendicular to the other specimens, near center of plate), one is of Haliotis shell and the other of bone. They have been fastened together with string or sinew and asphaltum; probably the two together represent a fishhook. Skeleton 2; male; left side; head west. g. SRI-50 (Camp 15). Many fragments of Olivella biplicata and Haliotis rufescens, probably for manufacture into beads and ornaments. Stone ring (right) at knees. Skeleton 3; male; left side.

PLATE 111

a. SRI-24 (Camp 19). Ornaments of Haliotis shell around neck; bone tubes, large and small; two "fishhook" ornaments; two pieces quartz crystal (center) with asphaltum mounting in which Haliotis shell plaques are set; piece of fossil (?) (below ornamented quartz crystal), drilled; one pebble painted red (below right-hand "fishhook" ornament); fine bone knife or other implement (bottom). Skeleton 1; male; right side. b. SRI-24 (Camp 19). Beads and ornaments, of Haliotis, Pachydesma, Mytilus californianus, many of them finely engraved on edges, around neck; larger beads in mouth. Skeleton 3; infant; left side; head west. c. SRI-34 (Camp 21). Left: ornaments of Haliotis. Skeleton 1. Right: stone ring of dark, hard, highly polished stone, evidently used as a hammer; one ornament of Haliotis with unusual method of boring, indicated by bristles passed through the holes. Skeleton 2. d. SRI-34 (Camp 21). Left: specimens found with skeleton 8. Also had a stone ring (not shown here). Skeleton 8; male; left side. Right: specimens found with skeleton 14 (see also e). One arrowpoint painted red. e. Haliotis shell dish, broken at bottom and mended with asphaltum. Skeleton 14. f. SRI-34 (Camp 21). Ornaments of Haliotis shell and beads completely surrounded body; only a few here shown; 182 others were found, not shown. Of the four dark objects at center of f the first, at left, is a red pebble with asphaltum attached for suspension; the next two are of soft red stone, same as beads from Cave No. 1 (pl. 105, e); the last, at the right, is a piece of hard red stone. One very large and fine ornament of Haliotis shell (right, center), perforated longitudinally, as shown by bristle. Skeleton 12; infant. g. SRI-26 (Camp 21). Fine ornaments of Haliotis shell around neck; remarkably fine workmanship. Skeleton 15; infant.

PLATE 112

a, b. Artifacts from SRI-18 (Camp 26-1/2, also called Camp 27, or Cave No. 2). Conditions about the same as in Cave 1 (SRI-14), save that here there is no lower stratum showing fire; has been used only for burial purposes. About twenty-seven skeletons excavated. c. SRI-6 (Camp 30). Ornaments of Haliotis and Megathura with asphaltum adhering, seem to have been fastened to something like wood. Other ornaments of Megathura and Trivia mixed with red paint. Top: ornaments found with skeleton 1; adult; sex (?); head north; right side. Bottom: ornaments found with skeleton 3; adult; sex (?); head north; right side. d. SRI-6 (Camp 30). Fragments of ornaments of Haliotis rufescens, and two fine bone knives.¹⁰ Skeleton 2; male; face down; head to west; body wrapped in sea grass, some of it twisted into string. e. SRI-6 (Camp 30). Left: dish of serpentine, broken and mended with asphaltum. Right: dish of Haliotis shell, also broken and mended with asphaltum. Skeleton 3; male; face down; head west; body wrapped in sea grass. f. SRI-6 (Camp 30). Arrowpoints near knees; shell ornaments and beads at neck; bone tubes near chest. Skeleton 4; male; face down; head west.

¹⁰ Probably "sweat scrapers."

PLATE 113

a, b. SRI-6 (Camp 30). Upper left corner; four serpentine beads; crystal, with asphaltum mounting; small dish of serpentine (shown best in b, which gives four views of the specimen on one negative) has a hole drilled through bottom for some unknown reason; slightly ornamented with beads of Olivella shell set in asphaltum.¹¹ Skeleton 5; infant. c. SRI-6 (Camp 30). Top: bone implement, in right hand; body swathed in ornaments of Haliotis and Megathura; 76 of the latter and 416 of the former, all very fragile. Skeleton 6; male; on face; head north. d-f. SRI-6 (Camp 30). Objects found in large mortar shown in e and f. Skeleton 7. One skull showed trace of burning; some grass wrapping found with fragmentary skeletons.

PLATE 114

a. SRI-6 (Camp 30). Objects found with skeleton 8; male; 5 ft. deep; face down; head to south. b. SRI-6 (Camp 30). Very fine bone pins; two tubes of Catalina serpentine (?). Skeleton 9. Bodies much mixed; this lot found with three or four, packed closely together. c. SRI-6 (Camp 30). Unusual ornaments of shell of Pachydesma, small bone tubes, and Trivia shells (lower left corner), found at chest; paint mortar (upper left corner) and piece of yellow paint (upper right corner) at side. The latter was the only piece of yellow paint found on the island. Skeleton 10; male; face down; head south. d, e. SRI-6 (Camp 30). About neck and chest 139 pieces of Haliotis shell ornaments and bone beads; obsidian knife (e) in front of chest. Skeleton 11; male; face down; head south. f. SRI-6 (Camp 30). Top: bone netting needle (?)¹² and two other large bone implements. (See also pl. 115, a.) Bottom center: fish-hooks. Skeleton 12; male; face down; head south. All material found near knees and pelvis.

PLATE 115

a. SRI-6 (Camp 30). Two views of mortar made from vertebra of whale. Skeleton 12. b. SRI-6 (Camp 30). Two implements (?) on left, bottom, are of stone and have been decorated with asphaltum and shell beads; just above them is tooth of sea lion (?), showing asphaltum and string or sinew wrapping at one end. Skeleton 13; male; left side; head west. c. SRI-6 (Camp 30). Five bone implements (on left of plate); seven odd pebbles, all red; one whistle; two pointed, flattened, stone implements (right, center), which have been decorated about equator with shell beads in asphaltum; possibly stone files (right). Skeleton 14; male; head west; right side. d. Five pieces of skull of some animal (left) with holes bored in them; also rude ornaments of Haliotis shell, 32 more of which were with body but not here shown as they are merely rings identical with those photographed. Skeleton 14. e. SRI-6 (Camp 30). Three pointed bone tools (upper left); cylindrical stone implement (second specimen from bottom); whistles (center), in pairs, fastened with asphaltum and wrapped; bone pins (above whistles), set in asphaltum, fanwise, somewhat like the fans or combs of the South Sea Islanders.

¹¹ This specimen is almost identical to ones from San Francisco Bay sites, e.g., type X3b1 in E. W. Gifford, *Californian Shell Artifacts*, *Anthro. Rec.*, 9:34, 1947.

¹² Probably a shaft wrench or polisher.

Stone implement (top, center) or nose ornament (?) with groove at equator. Skeleton 15; male (?); left side; head west. f. SRI-6 (Camp 30). Stone ring and file (?) (top) of coarse sandstone. Skeleton 16; infant. g. SRI-6 (Camp 30). Very fine stone ring, of volcanic rock, highly polished and showing use as a hammer; found at knees. Skeleton 17; male; left side; head west.

PLATE 116

a. SRI-6 (Camp 30). The specimens in the small box, and the seven specimens below it with skeleton 18. All the other specimens with skeleton 19. b. SRI-6 (Camp 30). Thirty-four small bone tubes; unusual shell ornaments made from shell of the Pachydesma, holes bushed with small disks of Haliotis. Skeleton 20; male (?). c-e. SRI-6 (Camp 30). Mortars, unidentified, found in burial place. f. SRI-114 (Camp 32). Bone implement (upper right), and stone tube or bead (lower right); other ornaments of Haliotis shell. Skeleton 1; male; right side; head west.

PLATE 117

a. SRI-114 (Camp 32). Some fibers of material (lower left) of sea grass (?) matted about head. Shell ornaments, some very fine, about neck and on chest. Skeleton 2; male; head west. b. SRI-114 (Camp 32). Unusually fine ornaments of Haliotis shell; massive and remarkably well made. Two rows of ringlike ornaments at top are all bored transversely; in several specimens the portion of the shank bearing the hole has been broken off and a second hole bored. At bottom center is a large quartz crystal with asphaltum covering one end. Skeleton 3; male; left side; head west. c. Objects probably from SRI-114 (Camp 32). Skeleton 4. d. SRI-114 (Camp 32). Miscellaneous material, unidentified, from burial place. e. SRI-156 (Camp 34). Beads of Olivella biplicata around neck; one stone ring (not shown), some red paint, ornaments of Cypraea spadicea (lower row), Haliotis rufescens, etc., together with two red pebbles, one arrowpoint painted red, one large broken bone implement (upper) and some fragments of bone implements, at hips. The long bone implement extended from hips to chest, in front of body. Skeleton 1; male (?); head washed away; left side. Eight or more hut circles may be well outlined at this camp, and the camp has been extensive. The burial place in the customary location—between the hut circles and the water's edge of the cliff—has been almost entirely washed away. Three bodies excavated.

PLATE 118

a. SRI-156. (Camp 34). Two stone rings, four pieces of red paint, and flint scraper (upper right corner), at pelvis. The small stone ring has been bored by one of the numerous boring shellfish common to the coast waters; the larger ring (lower center) is of hard volcanic rock, beautifully polished on both sides, and shows some bruising of the periphery. Skeleton 2; male; head east; left side. b. Burial place at SRI-31 (Camp 35). Most of this burial place has been washed away by the waves. Camp 35 has been a large camp. Burial place almost entirely washed away, as indicated here. Eight skeletons excavated. From the refuse heaps, near hut circles and just west of burial place, some excellent

material was obtained. c. South coast; SRI-31 (Camp 35). Skeleton of female with traces of very small bones of foetus (?) near and within pelvis. Nothing with body; customary flexed posture; head to the west. d. SRI-31 (Camp 35). Stone rings (right); flints (left center); blanks of Haliotis shell (left) for making into ornaments, at pelvis; fishhooklike ornaments near head, nested. Skeleton 1; male; left side; head east.

PLATE 119

a. SRI-31 (Camp 35). Arrowpoint at left side of pelvis; bone tubes at right side of pelvis; the two pebbles shown (below projectile point) are black. Skeleton 2; male; on back; head west. b-d. Beads of Olivella and ornaments of Haliotis, Megathura, etc. Only a few of those found are shown; 186 pieces, not well made or very fine, not photographed. On the right of the pelvis were cached one stone and 32 bone tubular objects, many of them originally finely ornamented with small beads set in asphaltum; traces still remain on some of these (see b). Skeleton 6; male; face down; head north-west; arms under chest; hands together and under chest; legs drawn up and spread on either side of trunk. Body wrapped in mantle of sea grass decorated with beads of Olivella and ornaments of Haliotis, Megathura, etc. The arms and legs seem to have been separately wrapped with sea grass. e. SRI-31 (Camp 35). Refuse heap. Samples of string and rope. f. Articles from refuse heap, SRI-31 (Camp 35). The large bone whistle (lower) has been broken and mended with asphaltum and string or sinew, then presumably broken again and thrown away.

PLATE 120

a. Pestle found with large mortar from SRI-6 (Camp 30), shown in plate 113, e. Copper cup from SRI-40 (Camp 4). Skeleton 35; very small child buried in a large basket, traces of which could be detected in the surrounding soil. b. The matting shown here was beneath a skeleton of the type which has been called "wild dog," which is said to have been plentiful on the Channel Islands. It may be found to be some other animal, as yet not identified. c, d. Objects of bone from surface of various eroded camp sites. (See also pl. 121, a, b.) e-g. Views of sandstone slab that has been used for mealing or grinding stone, bearing on one side incised design. Stone found on the surface of an eroded camp site near the Rancho Viejo.¹³

PLATE 121

a, b. Objects of bone from surface of various eroded camp sites. (See also pl. 120, c, d.) c. Two views of the only flaked and worked shell implement known by writer to have been found on this coast; of Pachydesma shell. d. Two views each, on one plate, of two objects of Haliotis shell. The upper is evidently a fishhook (from refuse heap, SRI-60 [Camp 2]); the lower is probably an ornament but is of the type generally classed as "fishhooks" (from SRI-31 [Camp 35]). e. Objects of

¹³ It seems possible that this piece, while not a deliberate fake, may have been altered by some Caucasian or missionized Indian. At one end can be seen a cross and in the center the letters JR.

stone and bone (two bone objects shown in lower right corner) from the surface of various sites. Classed as "spindle whorls," etc. f. Three implements of hard, fine sandstone. Specimen at left found in soil over heads of four skeletons, SRI-147 (Camp 6). The other two are surface finds. Evidently used for cutting by grinding after the fashion of a saw or file.

PLATE 122

a. Eight sinkers (5 on lower row, left, and 3 in center) or "charm stones," and sundry other miscellaneous stones. All found on surface of eroded camp sites at the eastern end of the island. b, c, e. Arrowpoints, knives, scrapers, etc. Surface finds, mostly found at eastern end of the island, near eroded camp sites. Materials, mostly Franciscan jaspers and silicified shales. (See also pl. 123, b, c, e.) d, f. Worked flints of unusual shapes and fineness of manufacture. Animal-shaped flints, somewhat similar to those recently found in Egypt by Flinders-Petrie. Materials mostly of the Franciscan jaspers and silicified shales, most of them probably from the mainland.¹⁴

PLATE 123

a. Two views of each of four picks or drill points, shown also in f of this plate. b, c, e. Arrowpoints, knives, scrapers, etc. Surface finds, mostly from eastern end of the island, near eroded camp sites. Materials mostly Franciscan jaspers and silicified shales. (See also pl. 122, b, c, e.) d. Flint flakes, triangular in section, similar to those shown in plates 95, c, 96, f, 99, d, and 104, g, save that these have been broken or made shorter by use, and that all of these specimens show clearly that they have been used for drill points. Some of them are particularly fine and delicate. All found at one place, an eroded hut circle near the beach at Rancho Viejo. With them, in the sand and refuse, were found numerous pieces, finished and unfinished, of Olivella shell beads or "wampum." f. Small picks, drill points, or reamers. From surface of sites.

PLATE 124

a. Two views of each of four picks or drill points shown in plate 123, f. b. Pointed stone implements, probably used for different purposes where a heavy pecking implement was needed. All are well made and show use. Some implements of this type may have been used for removing mussels and abalones from the reefs. I was led to this belief by finding large numbers of roughly worked implements, more or less of this sort, near many of the reefs on which large numbers of shellfish are found. c, d. Pointed stone implements shown in b; four views of each. e. Two stone objects shown in b; two views. f. Ruder stone implements of the sort already illustrated. Many of these types found near shellfish-bearing reefs. (See also pl. 125, a, b.)

¹⁴ Compare the pieces in pl. 122, f with those shown by H. N. Wardle, Stone Implements of Surgery (?) from San Miguel Island, California, Amer. Anthro., 15:656-660, 1913. See also M. J. Rogers, The Stone Art of the San Dieguito Plateau, *ibid.*, 31:3, 1929.

PLATE 125

a, b. Ruder stone implements of the sort already illustrated. Many of these types found near shellfish-bearing reefs. (See also, pl. 124, f.) c-e. Unfinished and finished stone rings of various types. (See also, pl. 126, a-c.) Had various uses. Some were undoubtedly used as hammers and probably supplied with a short handle, much after the style of the stone-cutter's wooden hammer; thus the portion in contact with the hand receives a high polish. Specimen shown in plate 126, b, c, center, top row, has a small amount of asphaltum still adhering to hole and has unmistakably been used in this manner, or some other, as a hammer. Most of the specimens here shown have been used as hammers, whether with or without handles, as evidenced by the bruised peripheries. The holes through all, except those shown in d, are larger at one end than at the other, and the larger end is invariably that opposite to the side having the high polish.¹⁵ e. Shows two views of the same rings as plate 126, a.

PLATE 126

a-c. Unfinished and finished stone rings of various types. See legend for plate 125, c-e. a. Same rings as plate 125, e; two views. b, c. Two views of the same rings. d. Two views of peculiarly shaped fragments of stone for use in grinding or mealing. e. Soapstone specimen—was probably used as an anchor. f. Types of pestles, well finished, poorly finished, and unfinished. There are several hundred of these, of all sorts and sizes, from the island. (See pl. 109, e, f, g.)

¹⁵ The specimens in pl. 125, c may be pitted hammerstones rather than unfinished rings.

PLATE 127

a-e, g, h. Types of concretions and boulders used as mortars, or partly made up into mortars. Some of volcanic rock but most of sandstone concretions. f. Mortar of sandstone concretions, showing only a small amount of work to complete the mortar.

PLATE 128

a-e. Mortars of sandstone concretions, showing only a small amount of work to complete mortar. f, g. Mortars of different types, showing varying amounts of work.

PLATE 129

a, b. Mortars of different types, showing various amounts of work. c, d. Two views of same mortar, showing that one side had been broken and the rough edges trimmed down, whereas the other side had been more recently broken and the edges had not yet been trimmed. e. Mortar of unusual shape. f. Mortars that have been broken and mended with asphaltum.

PLATE 130

a-f. Mortars broken and mended with asphaltum. a-c. Three views of the same mortar, showing a hole made by some species of the boring shellfish and now plugged with asphaltum.

PLATE 131

a-e. Mortars that have had a basket hopper fastened with asphaltum to the top.

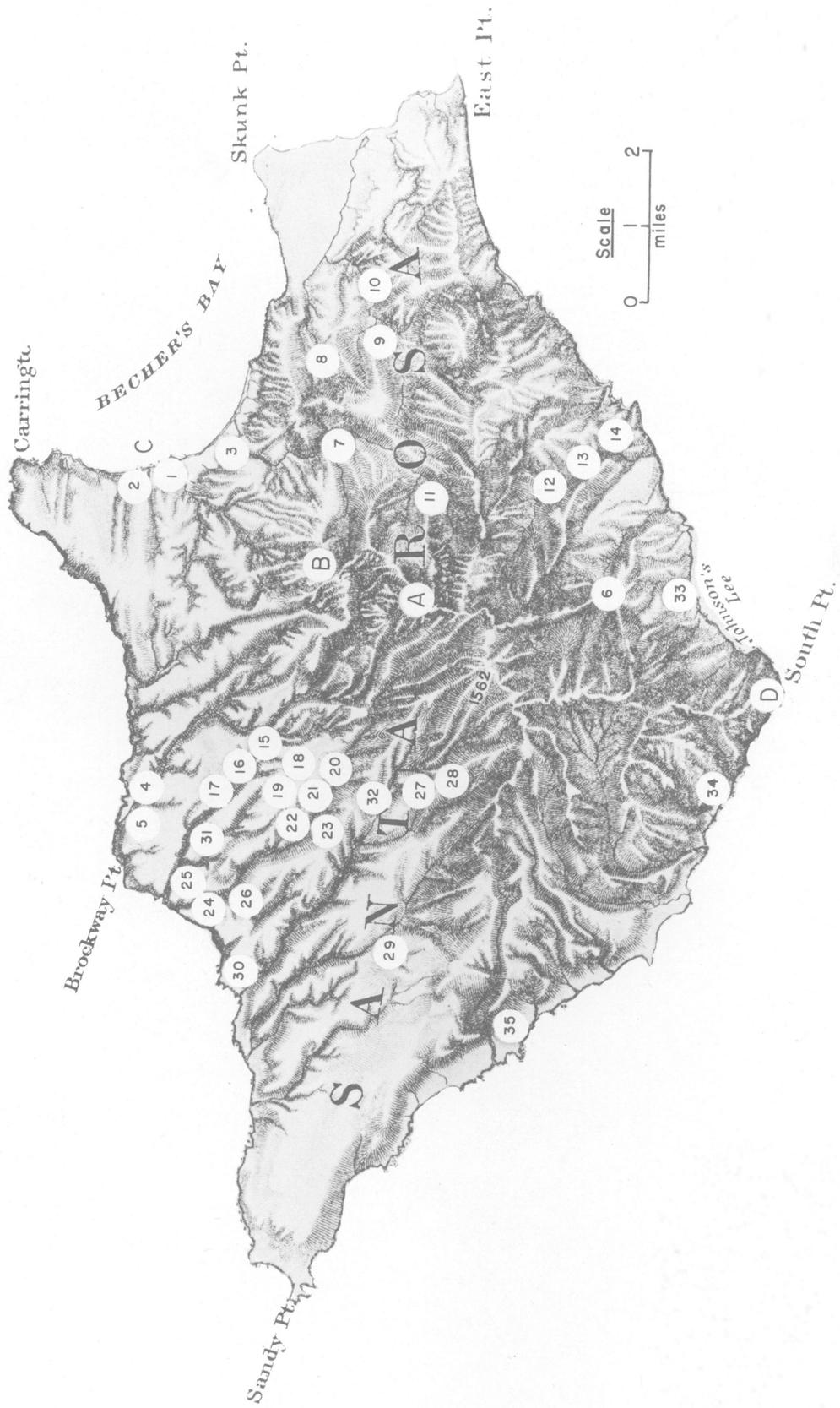


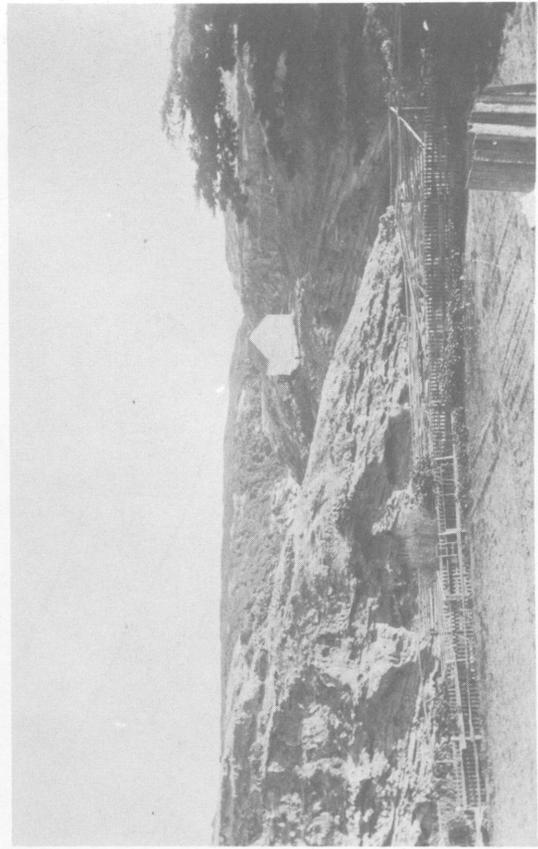
Plate 86



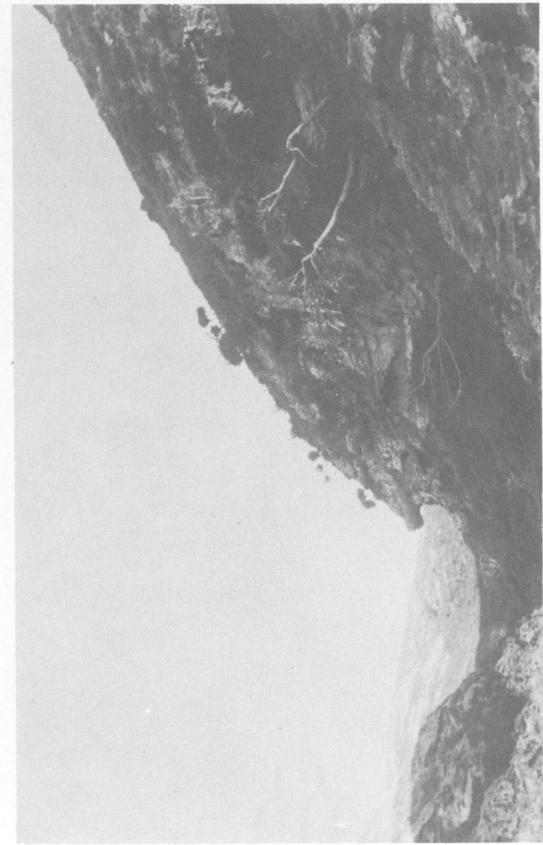
b



d



d



c

Plate 87



a



b



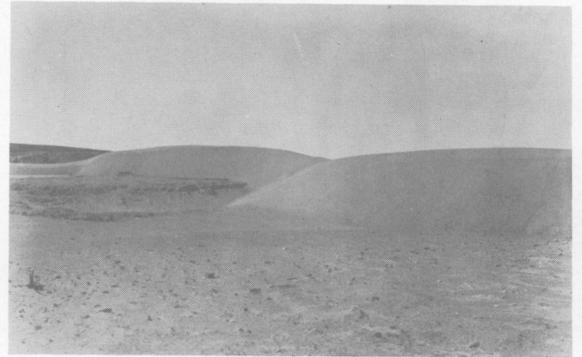
c



d



e



f



g



h



a



b



c



d



e



f



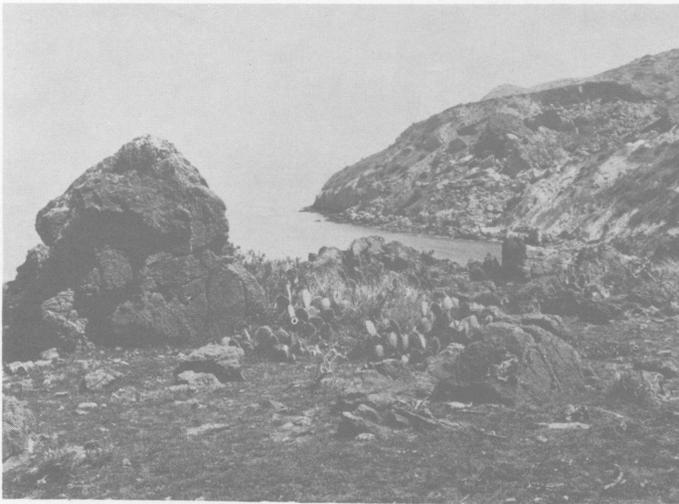
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a



b



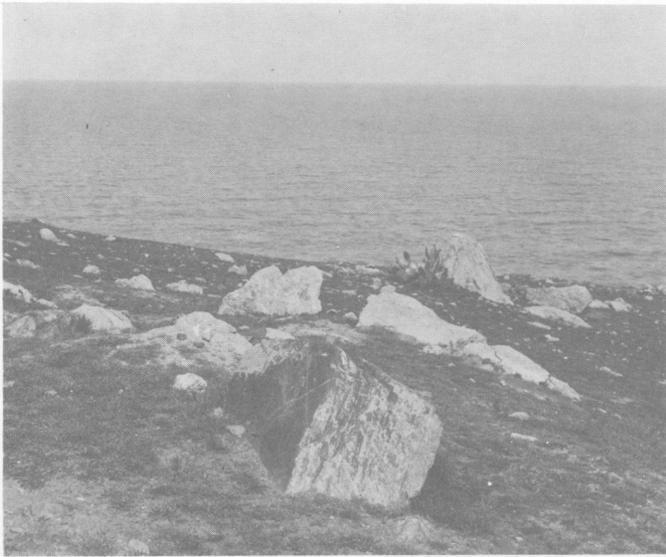
c



d



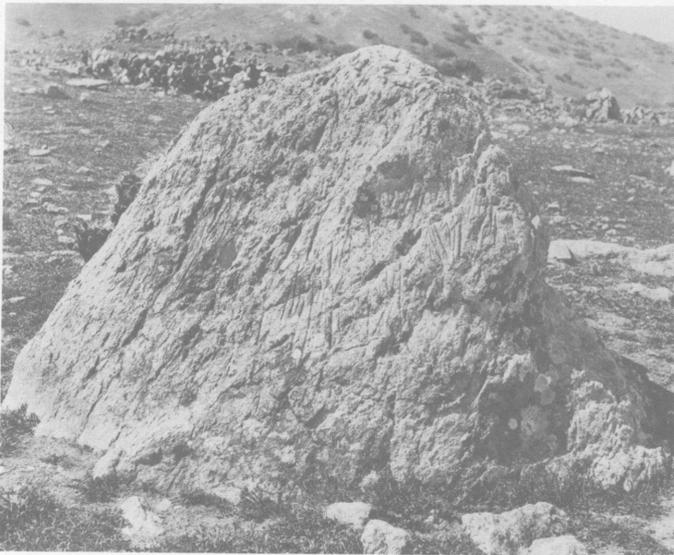
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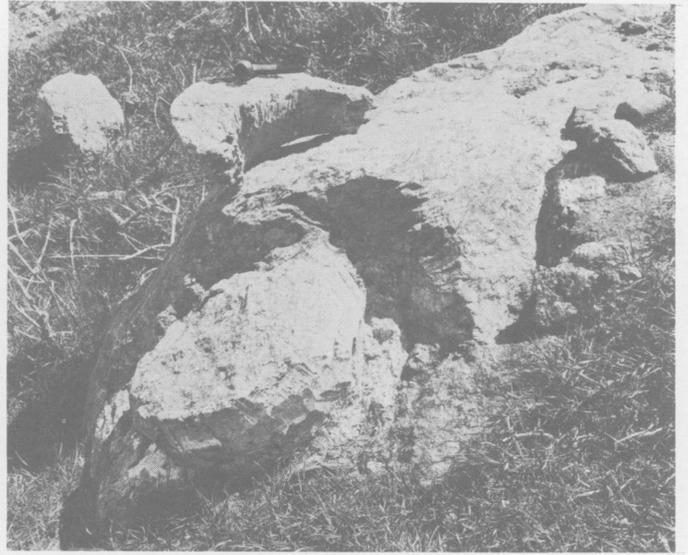
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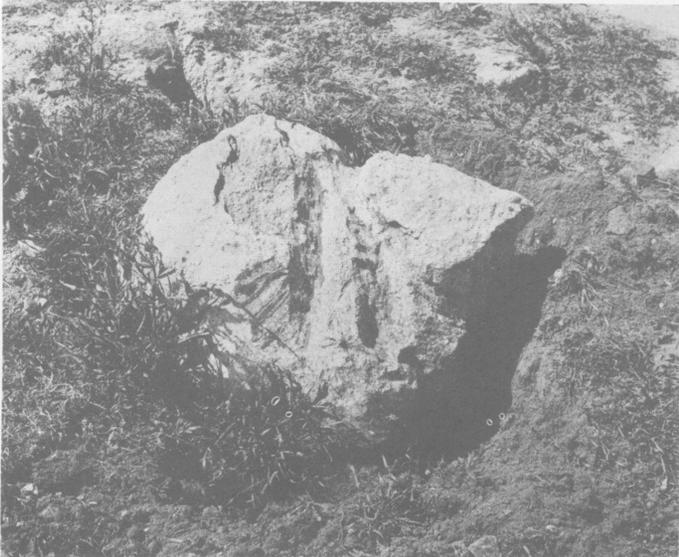
b



c



d



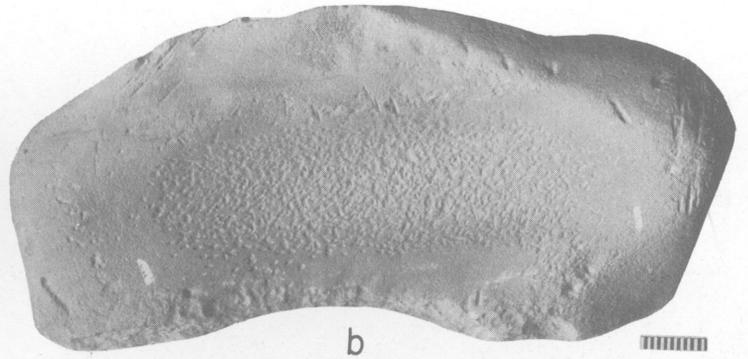
e



f



a



b



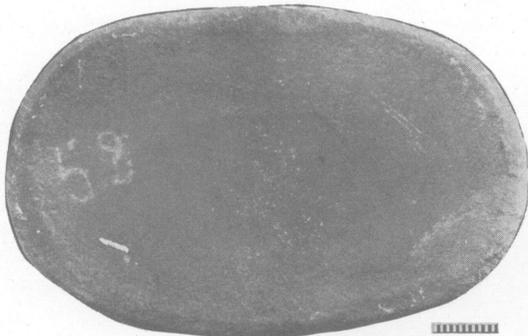
c



d



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g



Plate 92



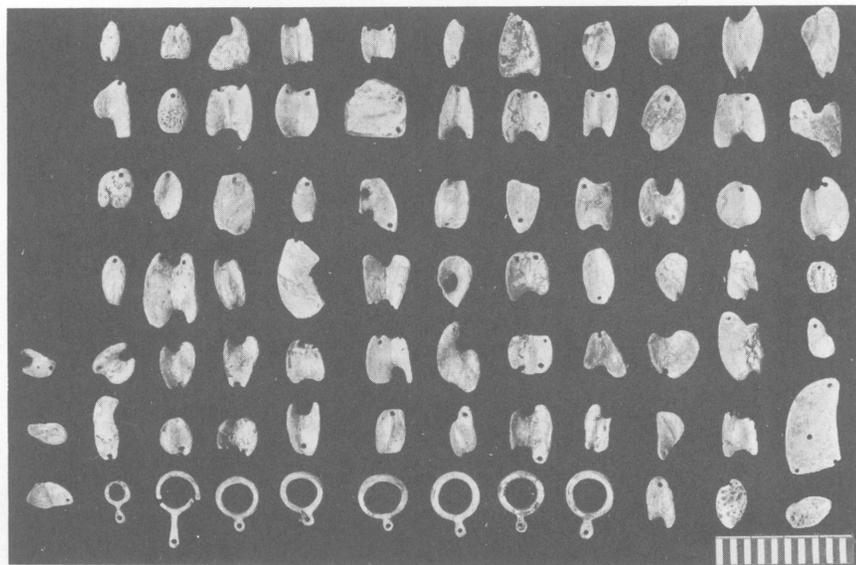
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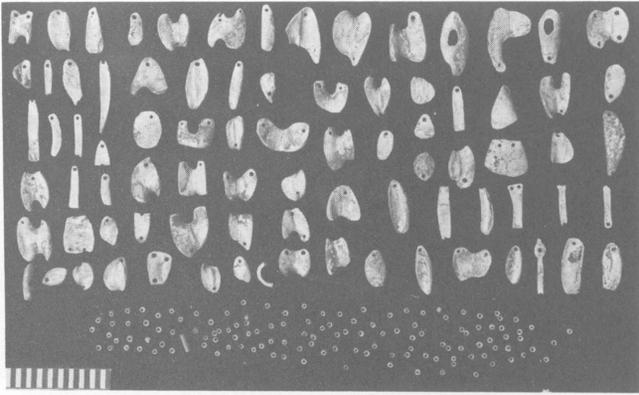


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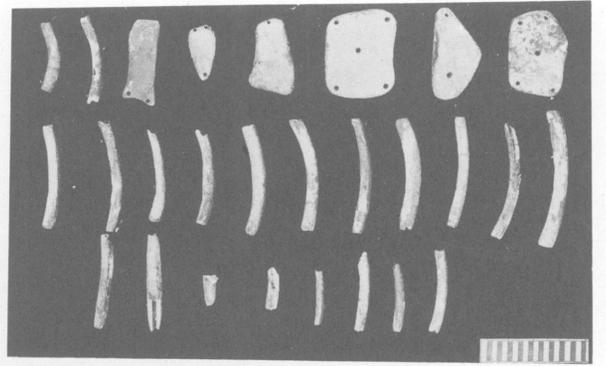


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Plate 93



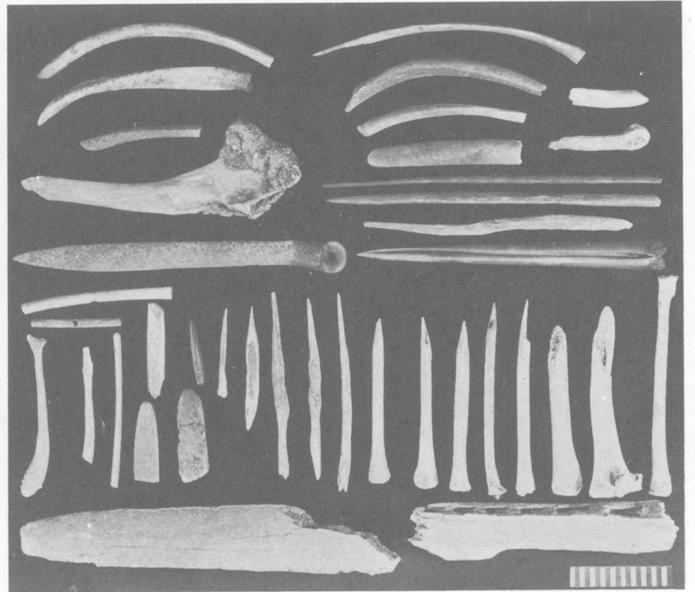
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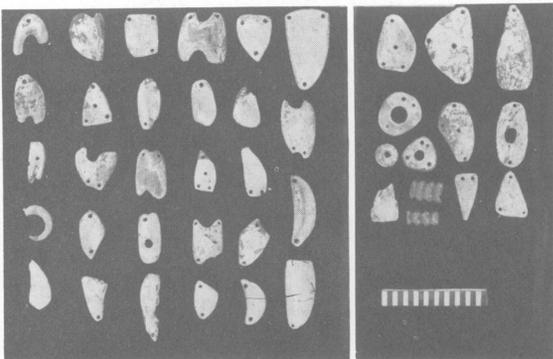
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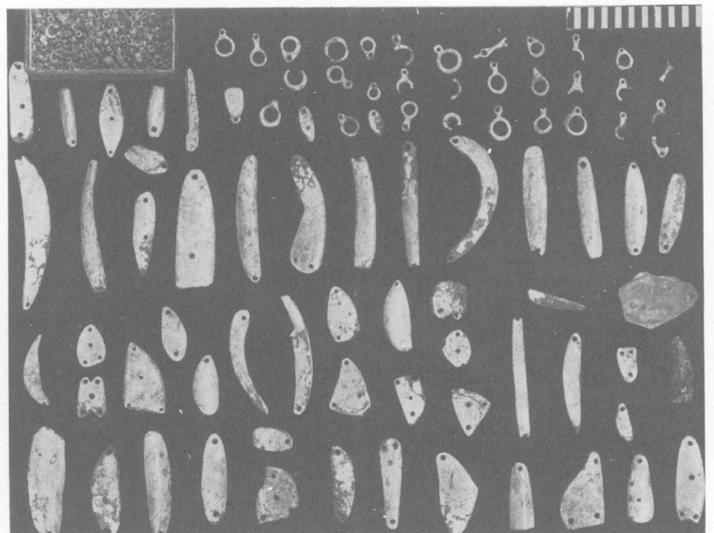
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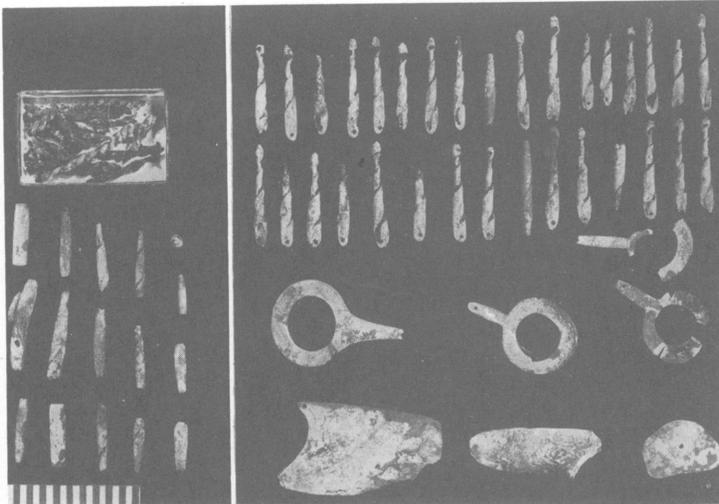
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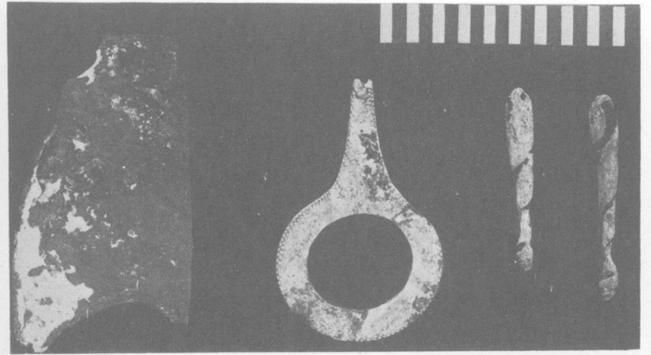
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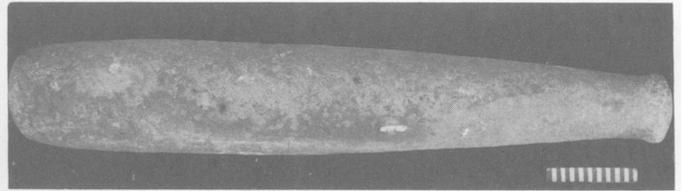
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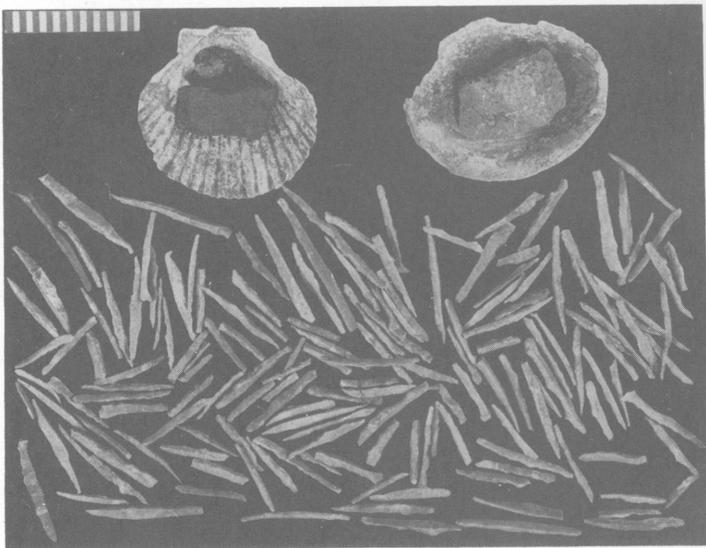
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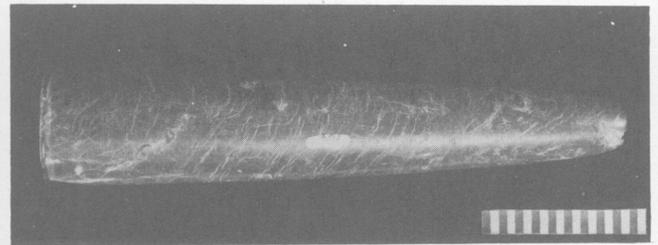
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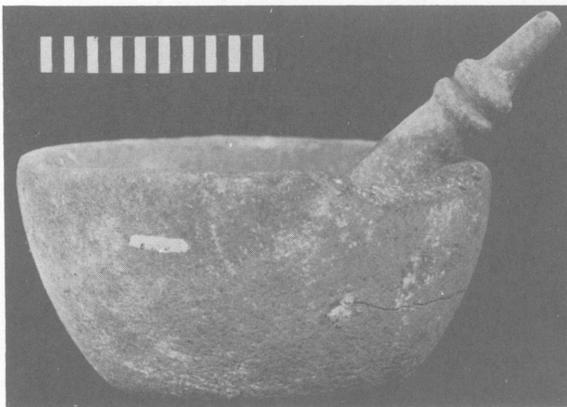
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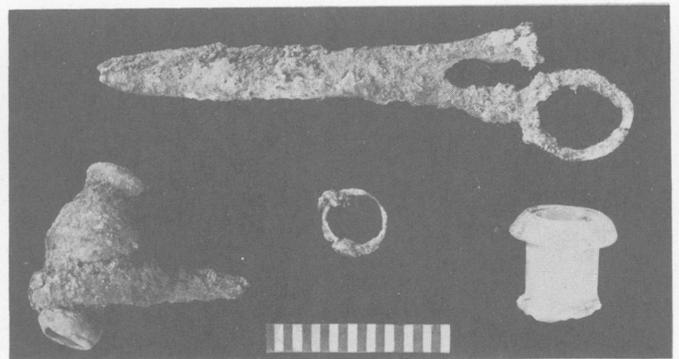
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e

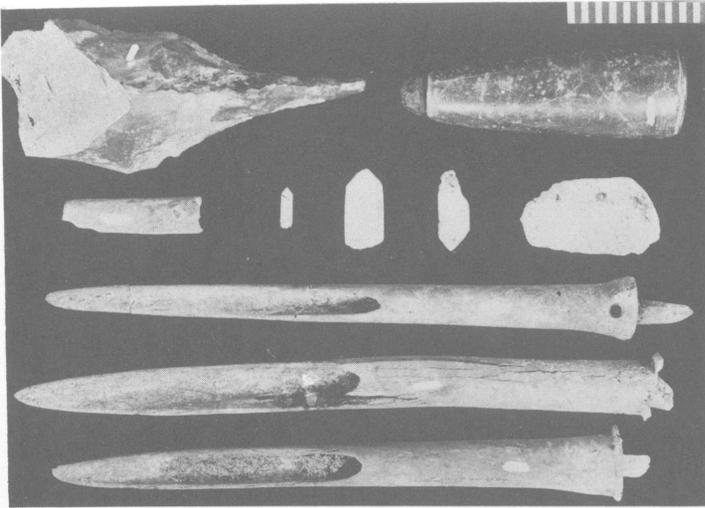


f



g

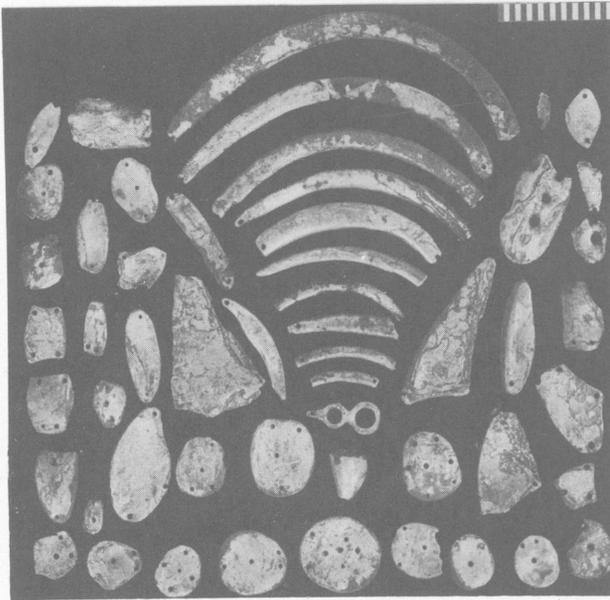
Plate 95



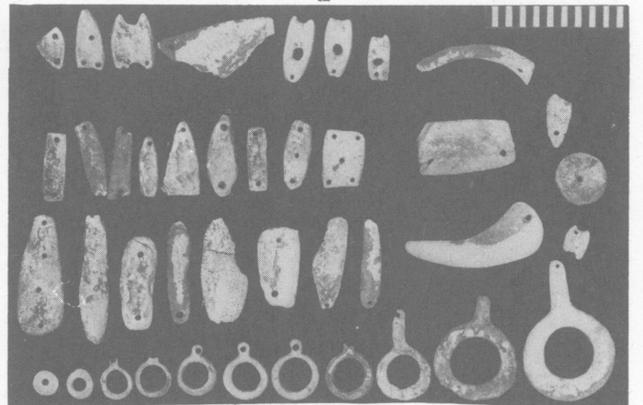
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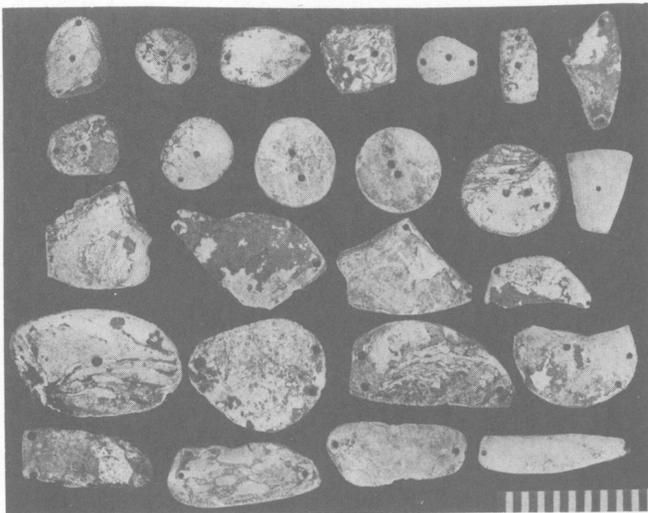
b



c



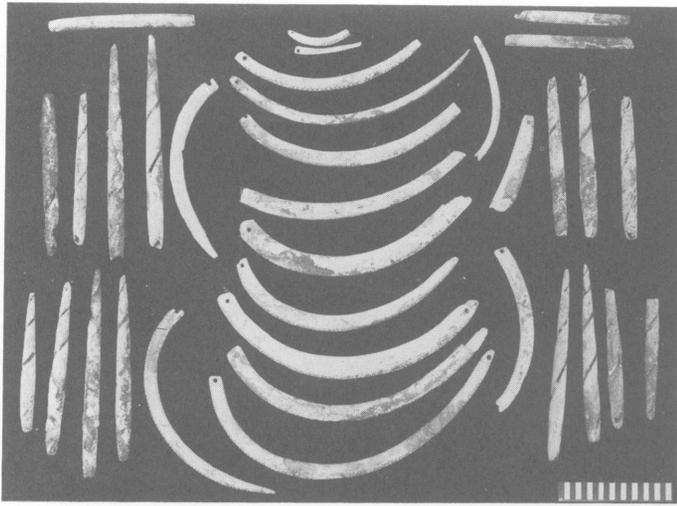
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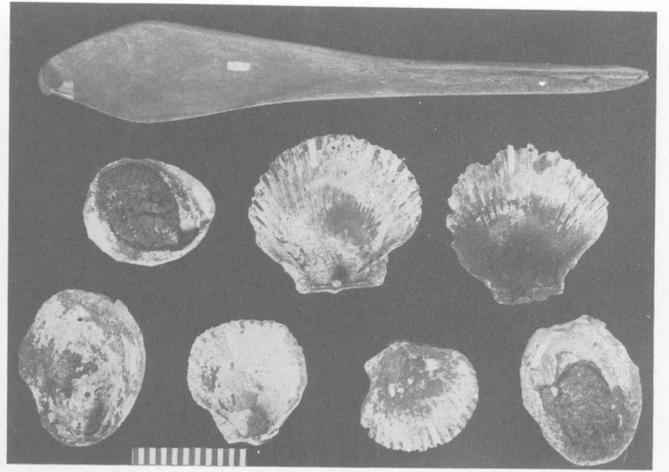
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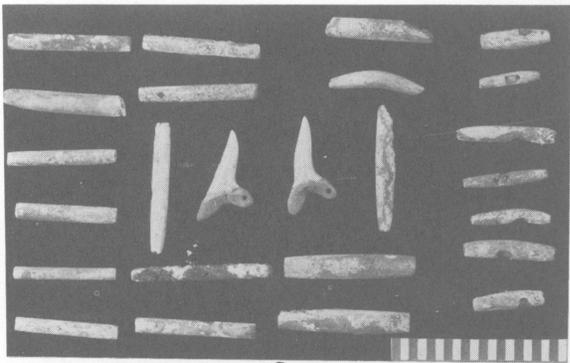
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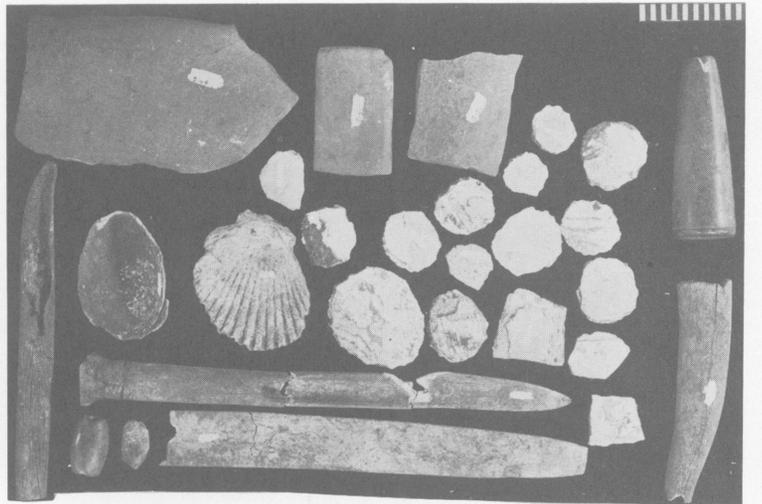
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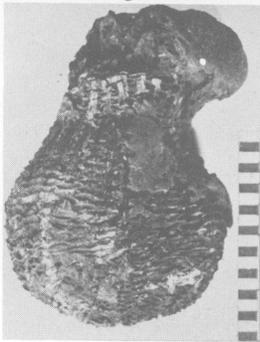
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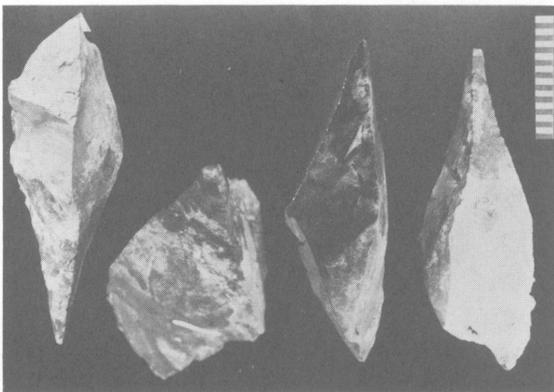
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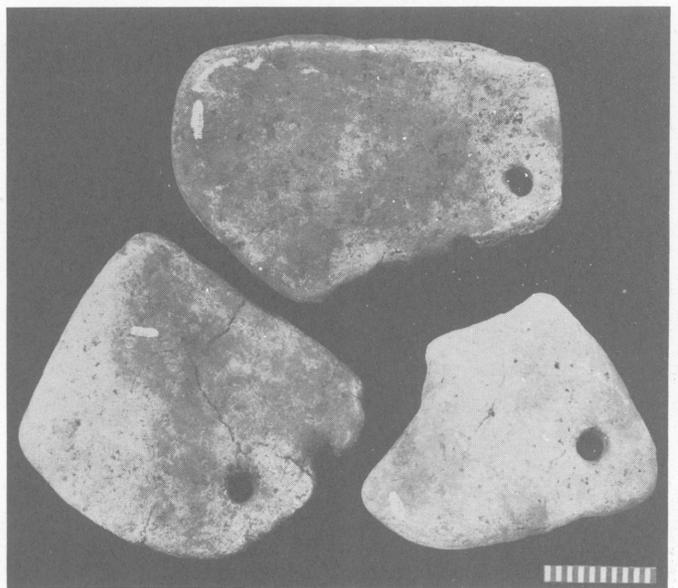
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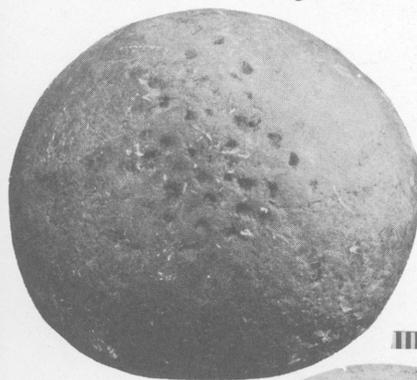
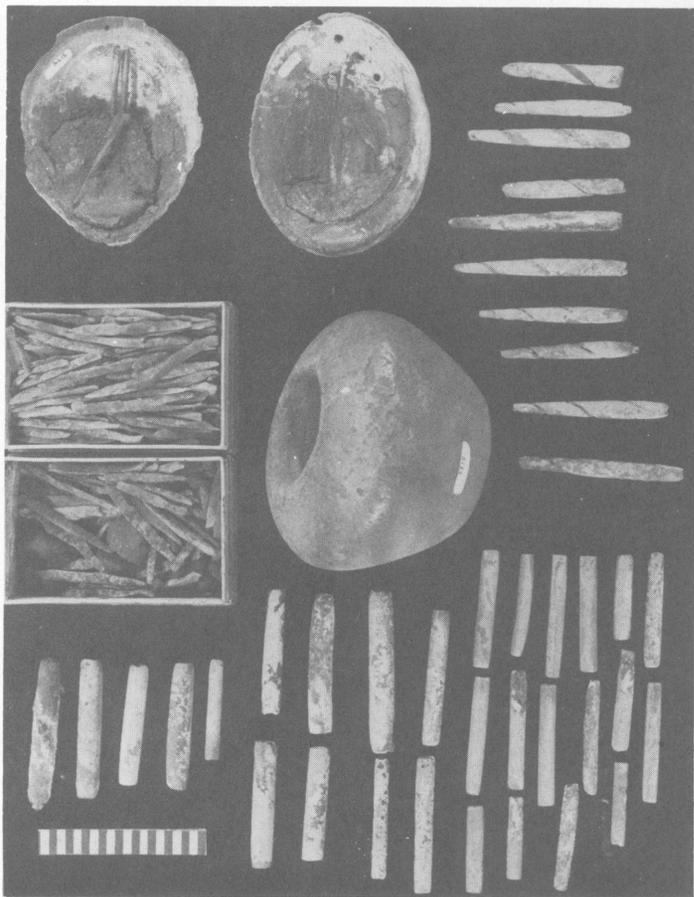
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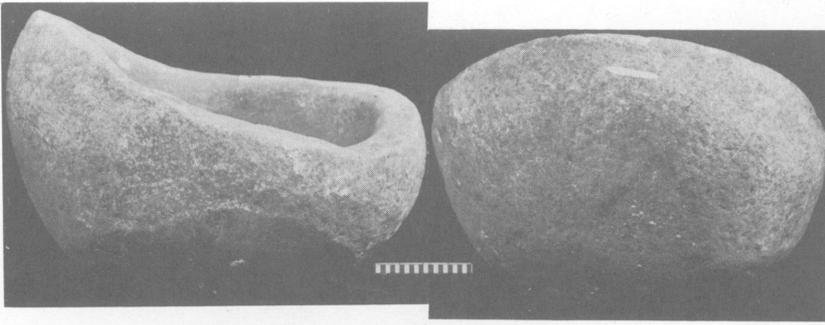


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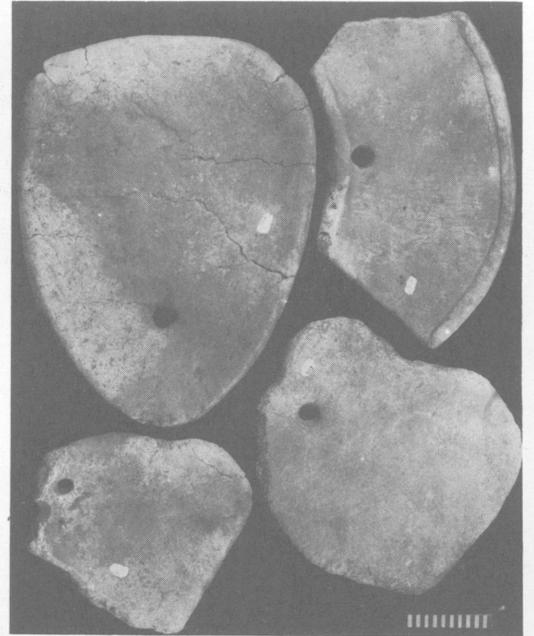


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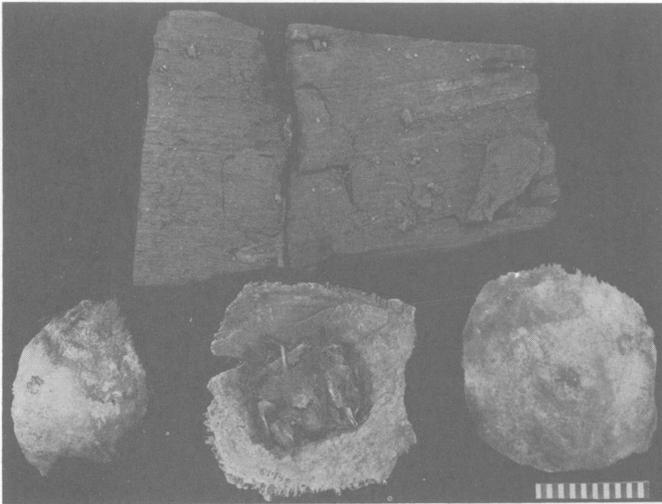
Plate 98



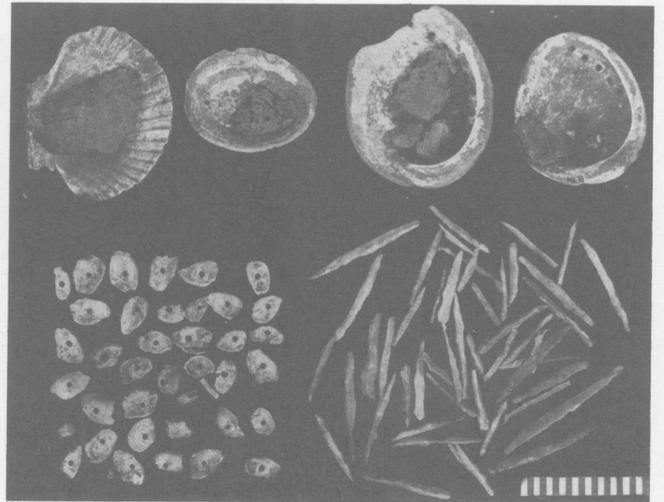
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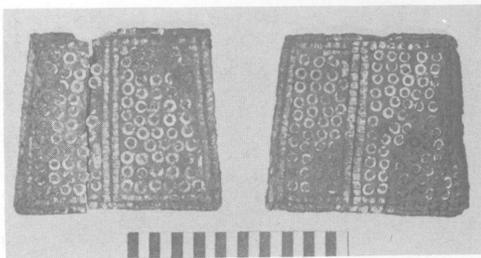
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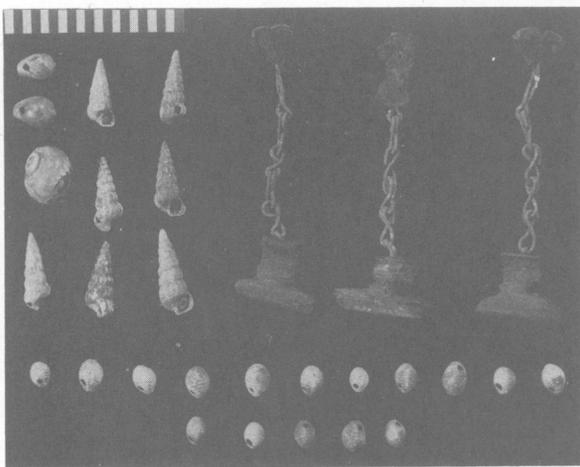
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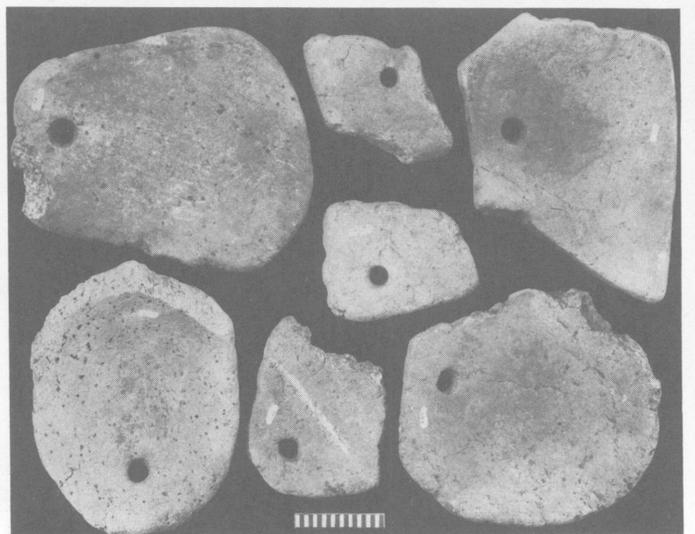
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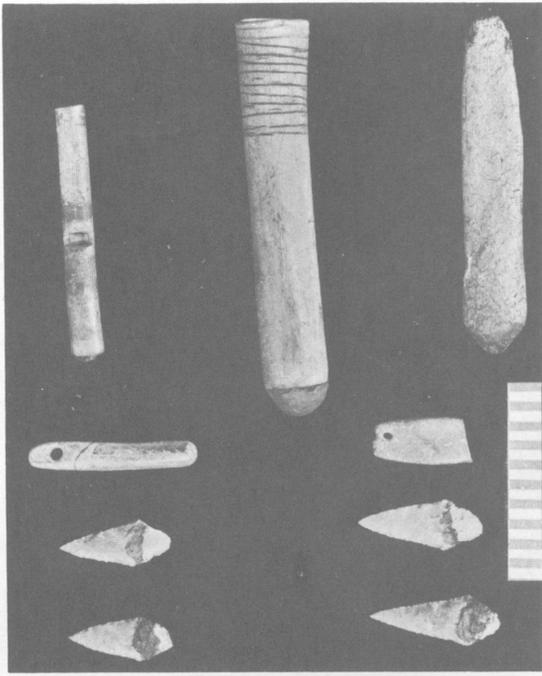
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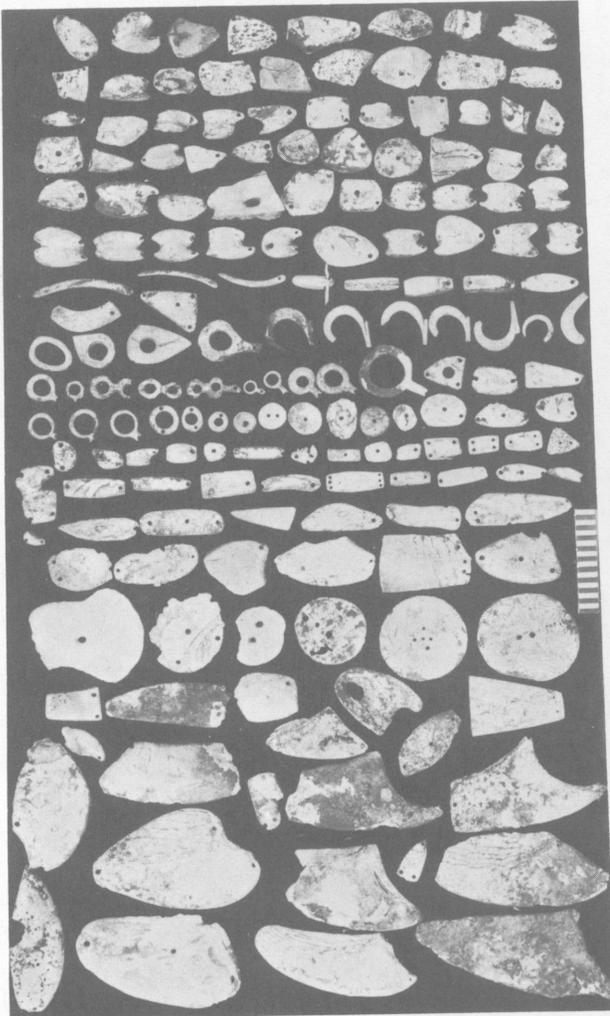
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g



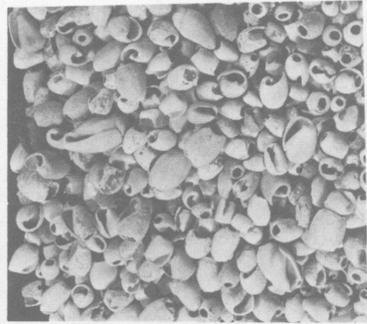
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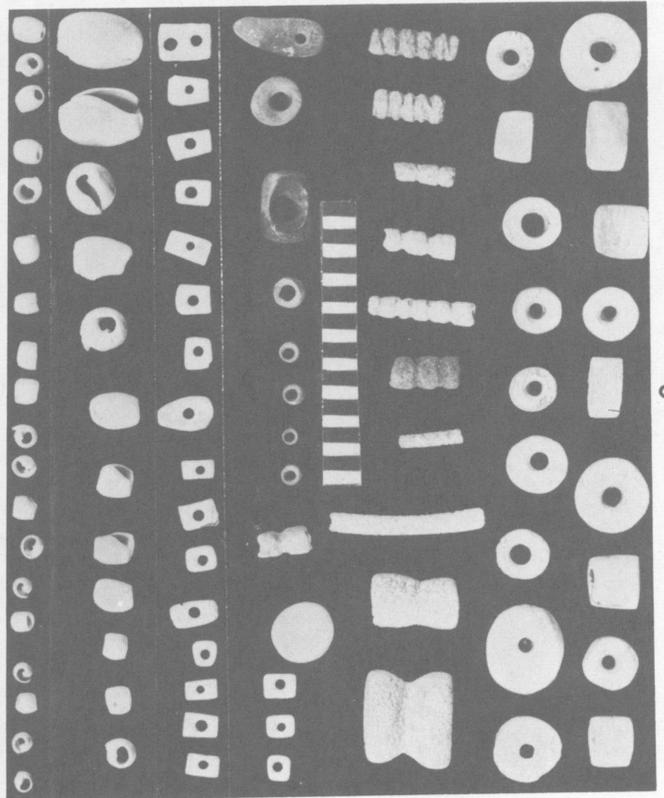
d



e



d



c



d



b



c



d



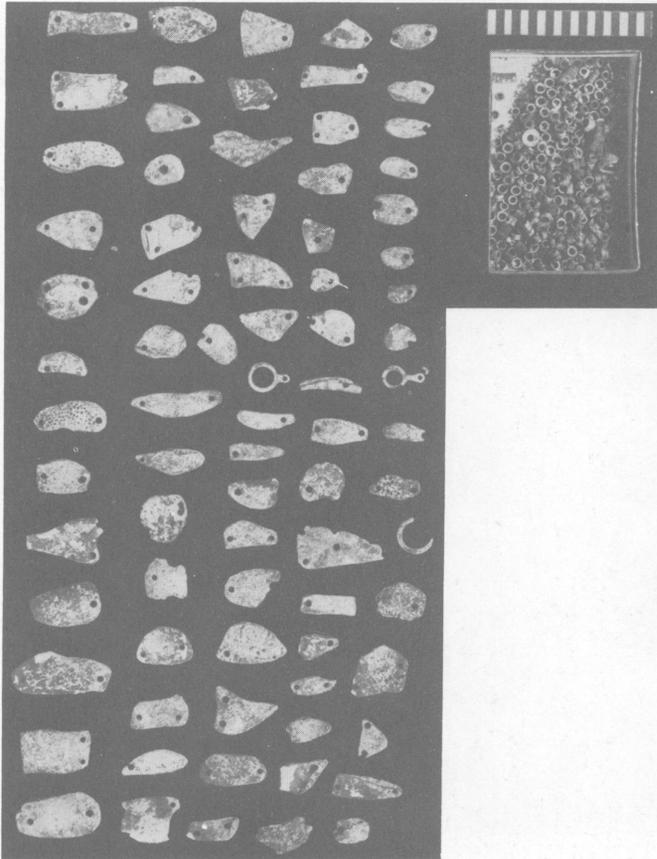
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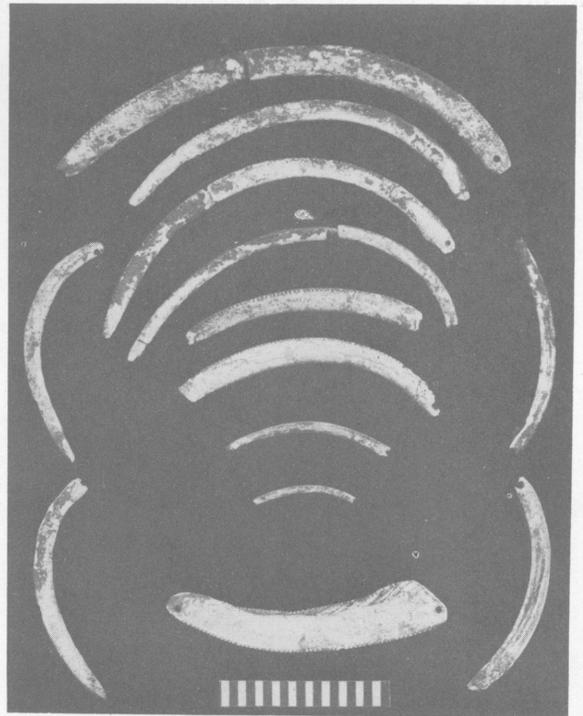
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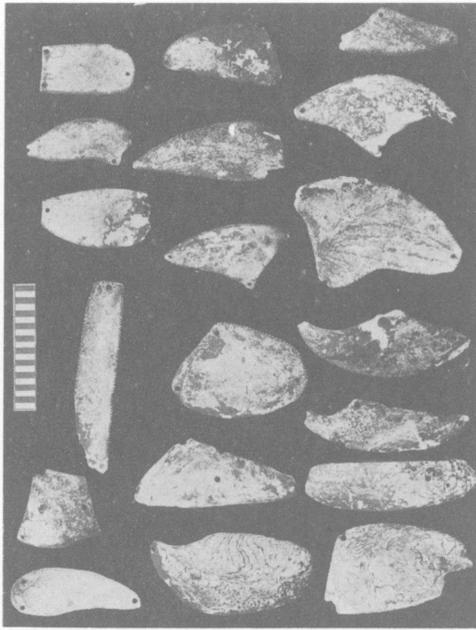
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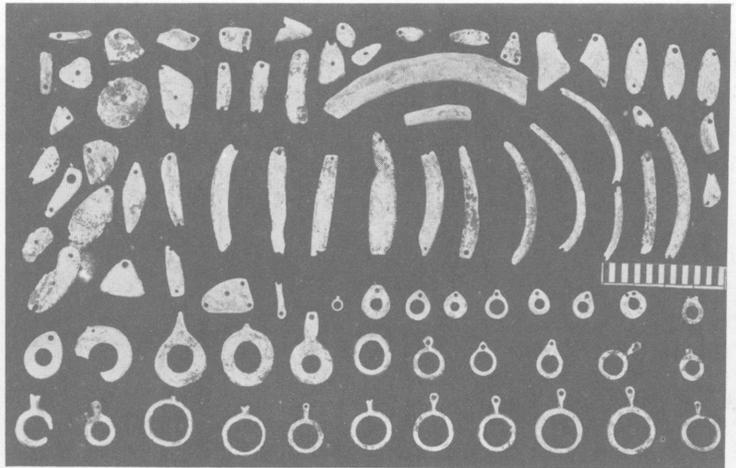
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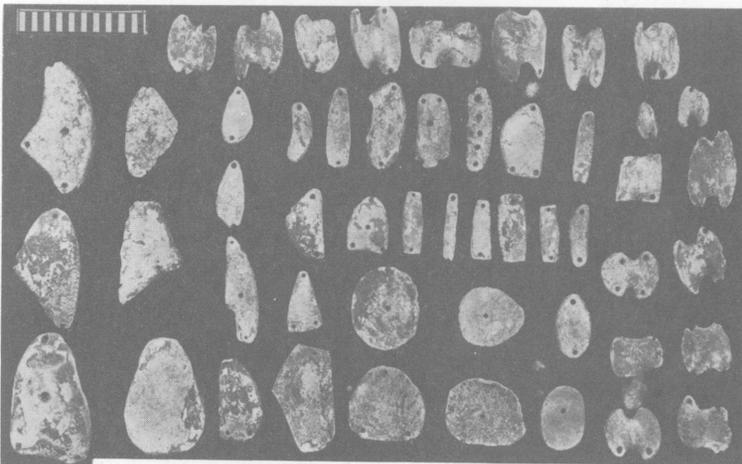
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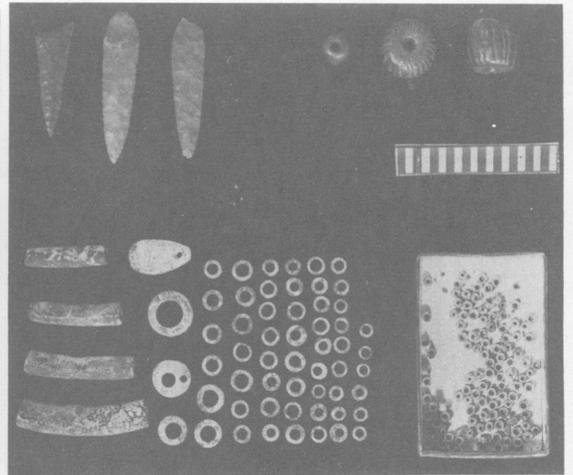
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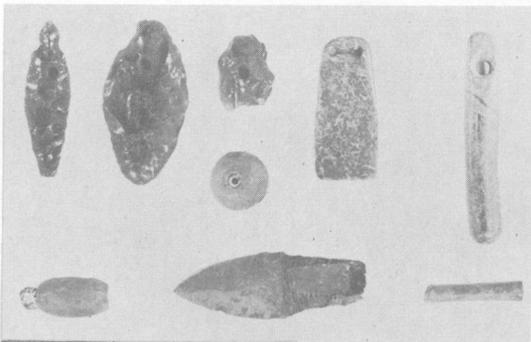
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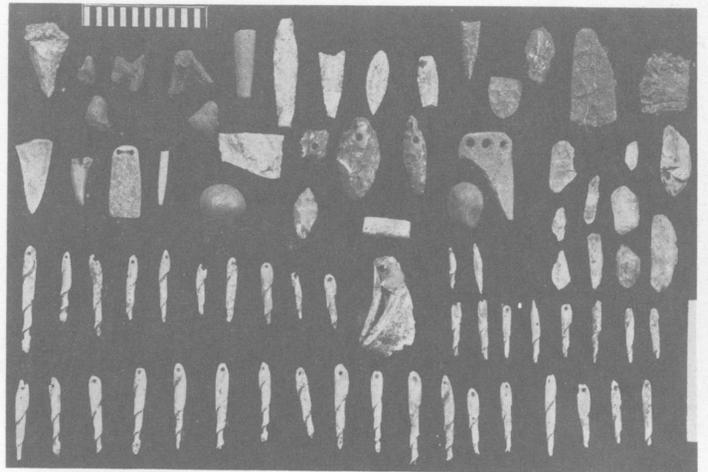
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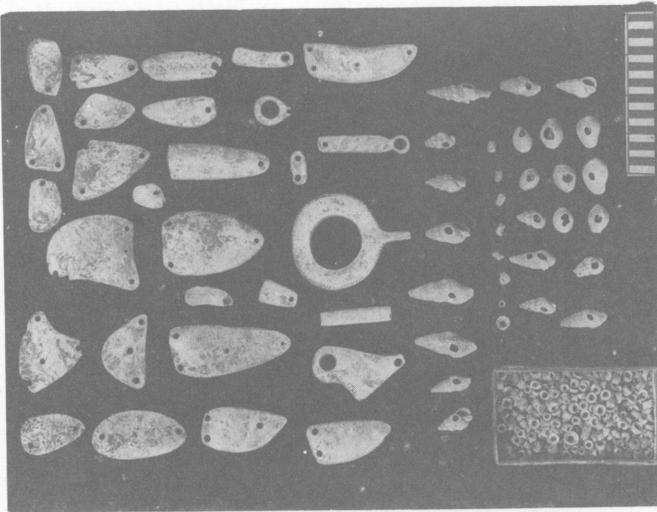
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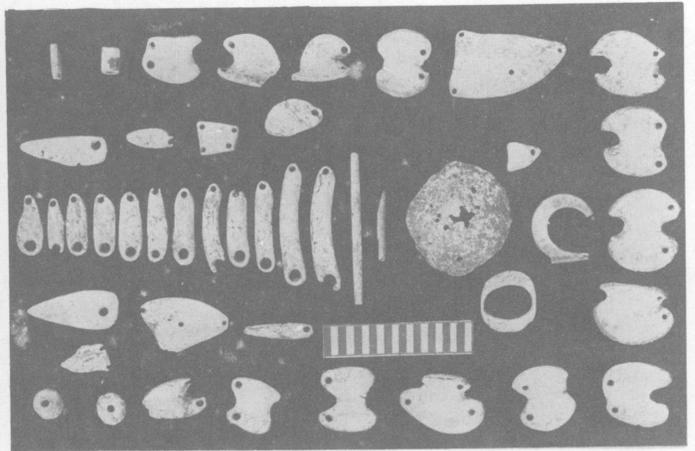
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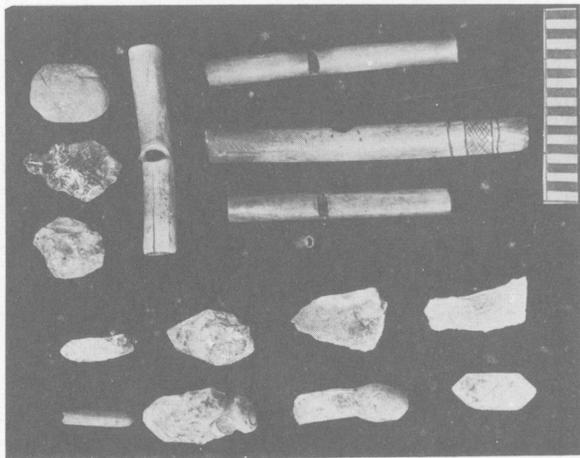
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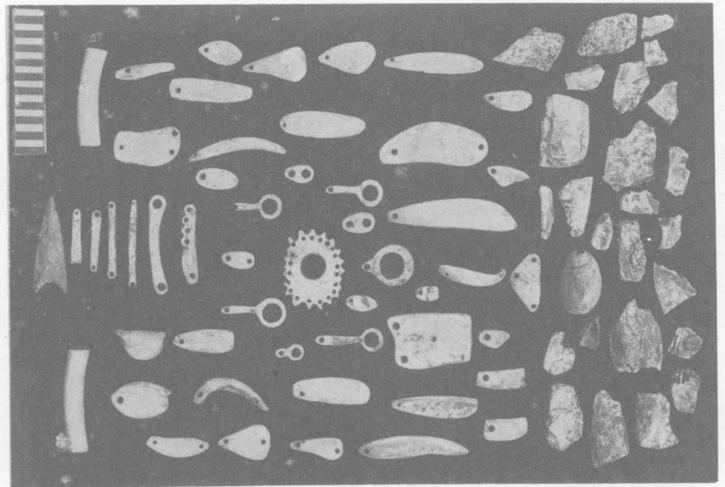
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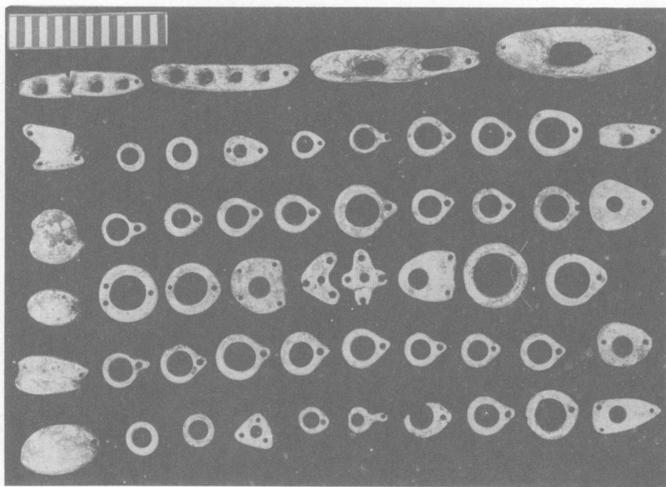
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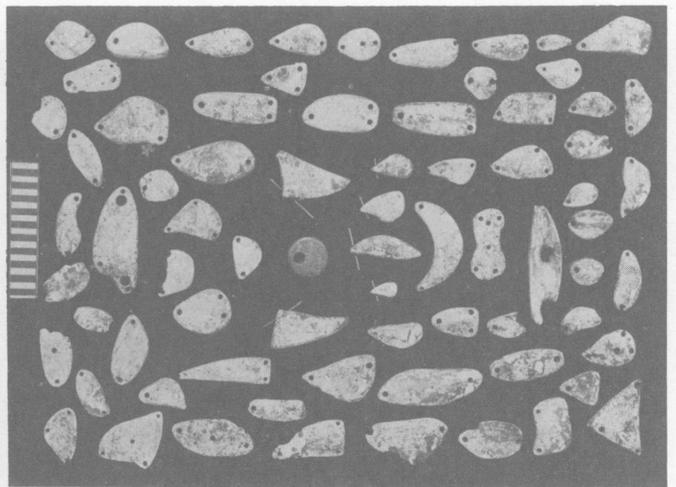
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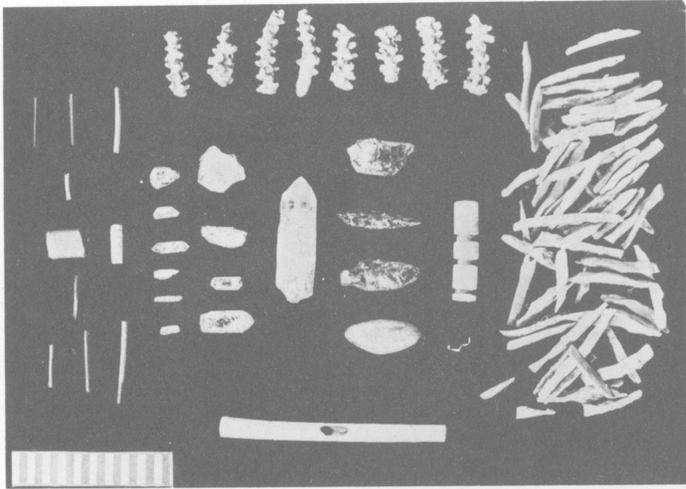
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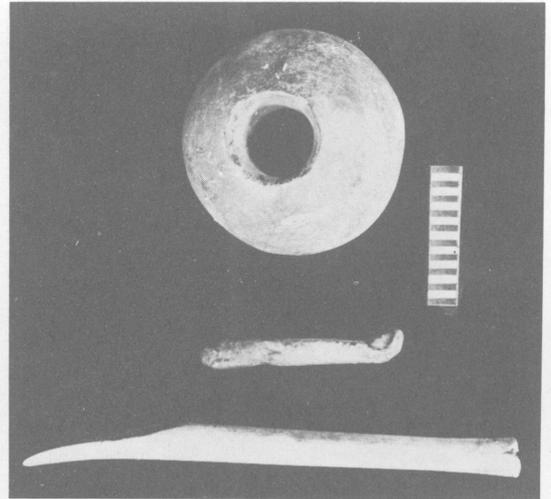
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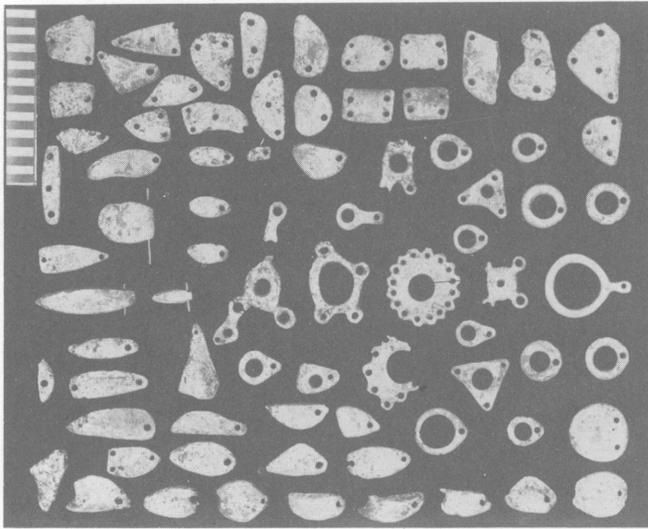
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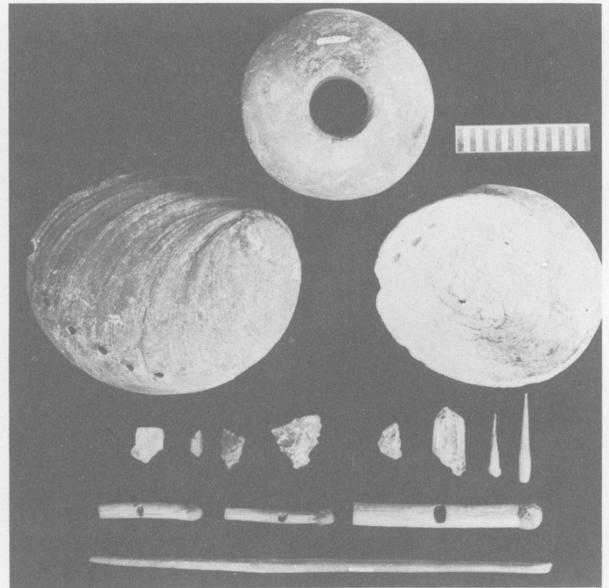
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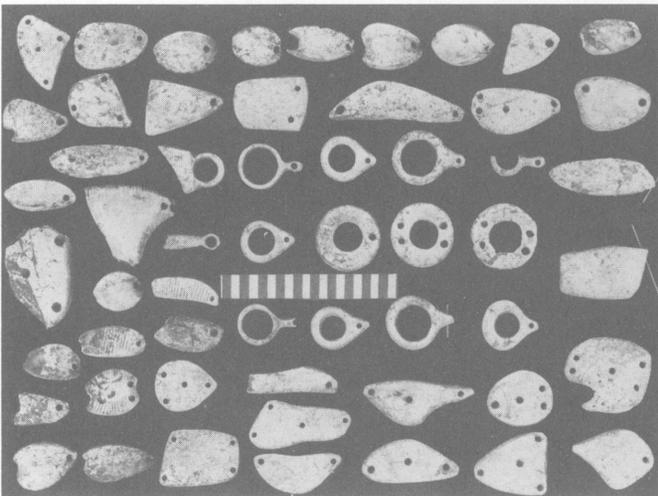
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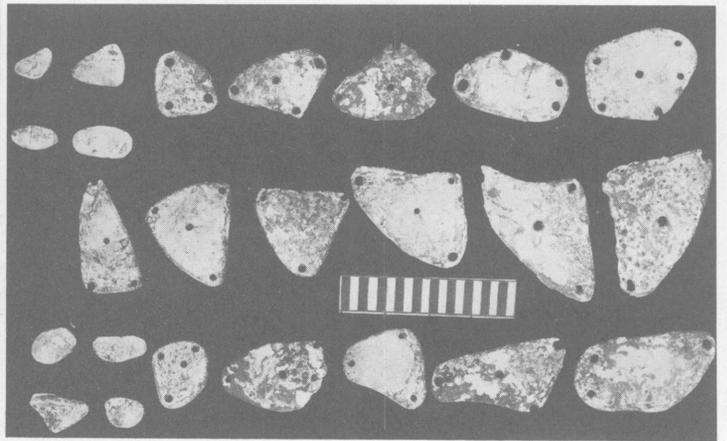
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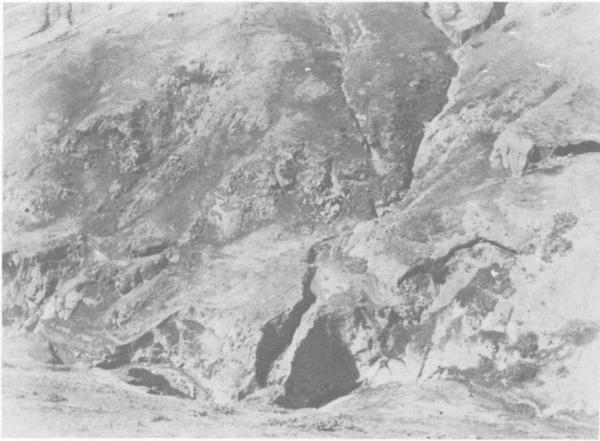
d



e



f



a



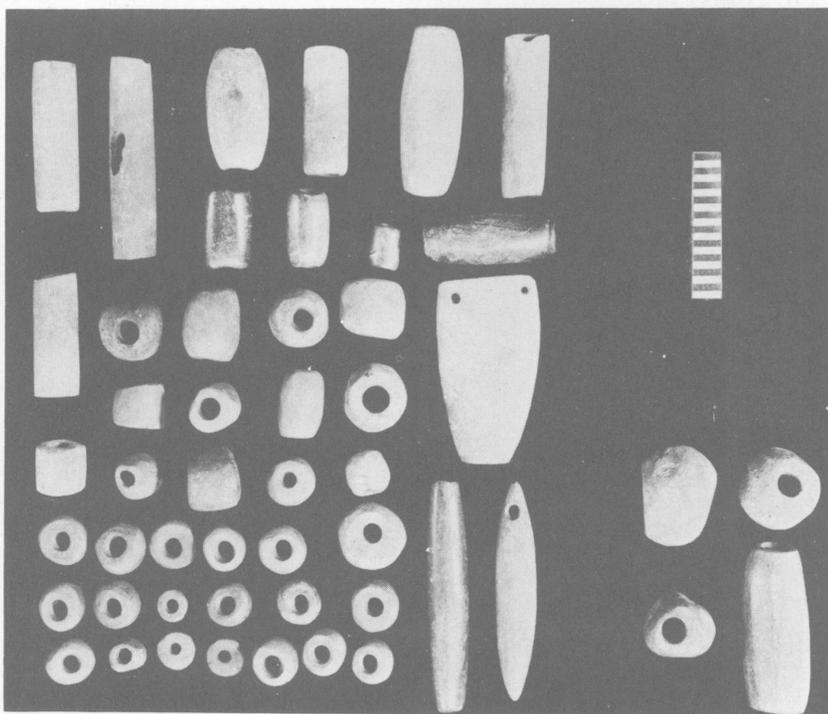
b



c



d



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a



b

Plate 107

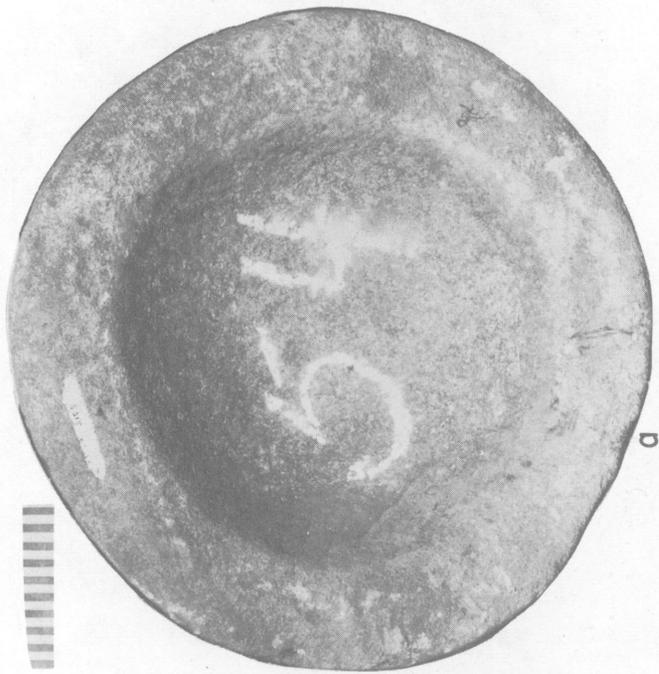
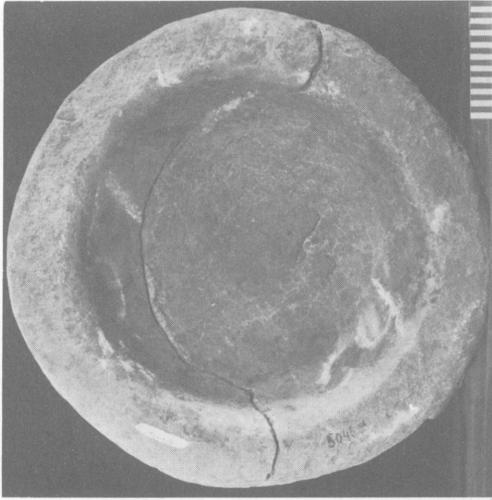
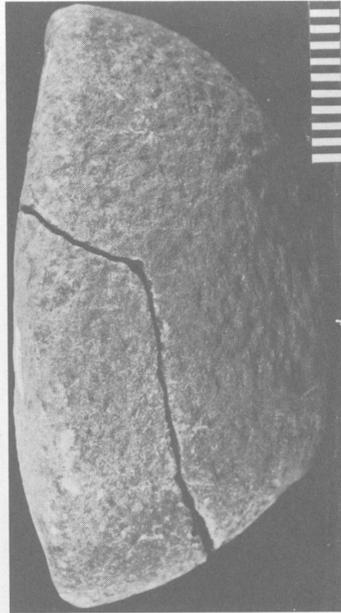


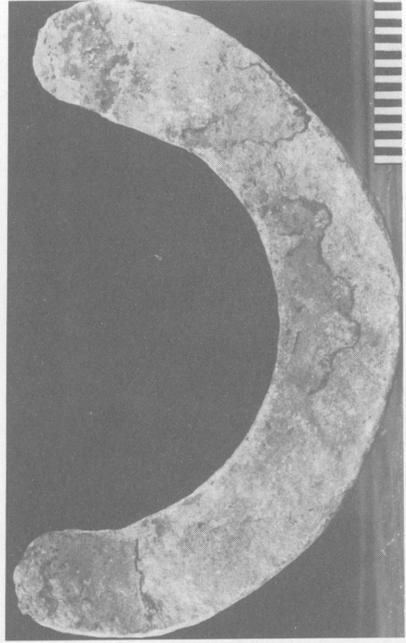
Plate 108



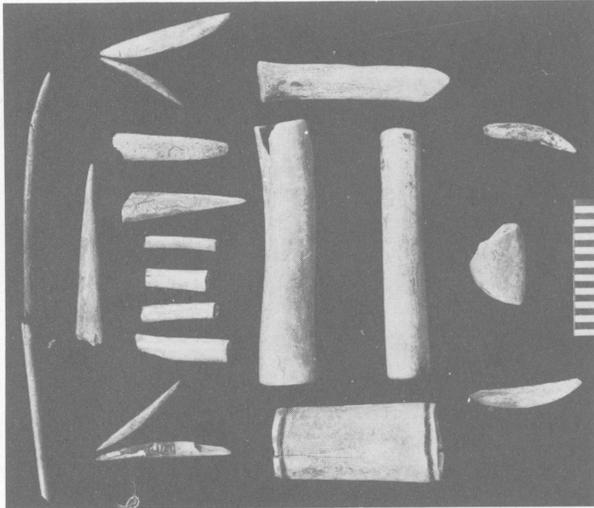
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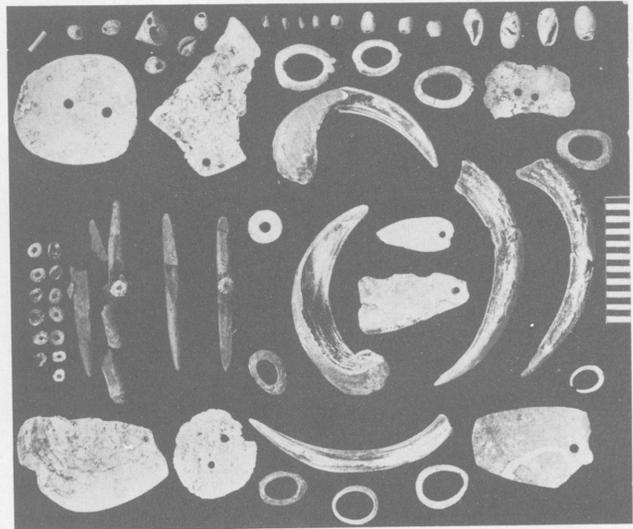
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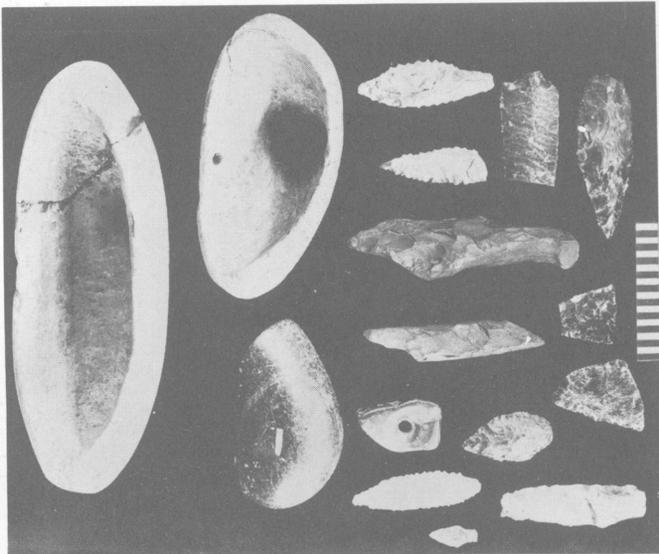
g



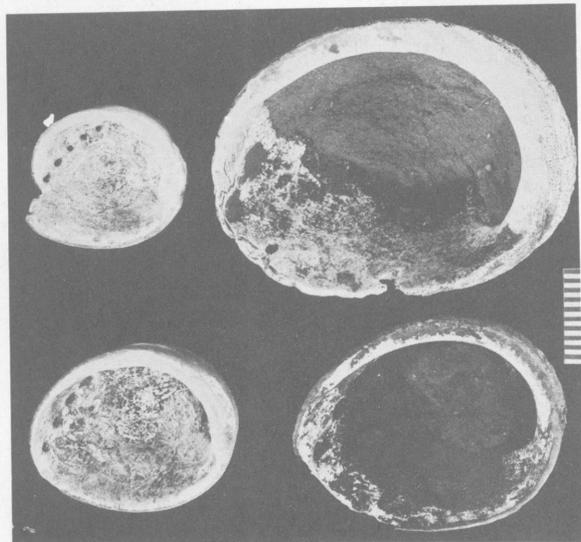
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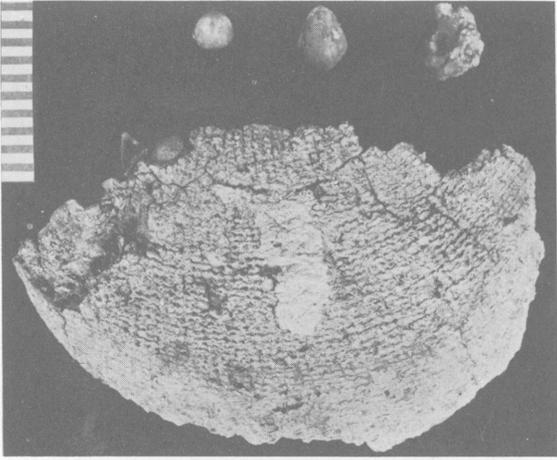
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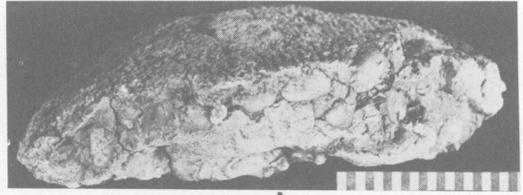
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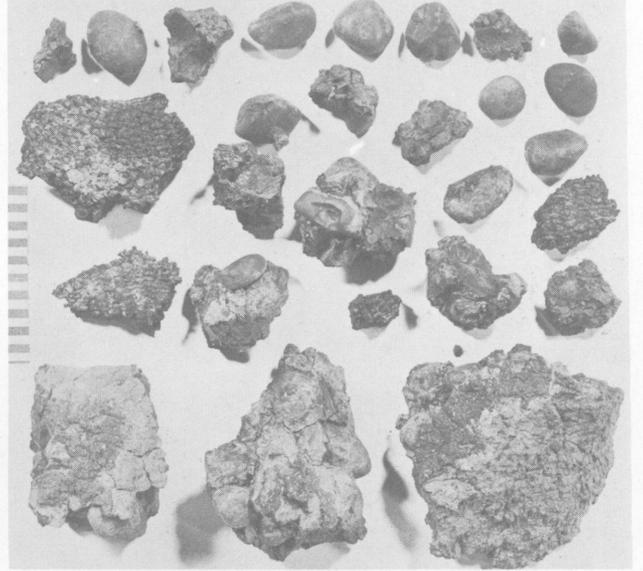
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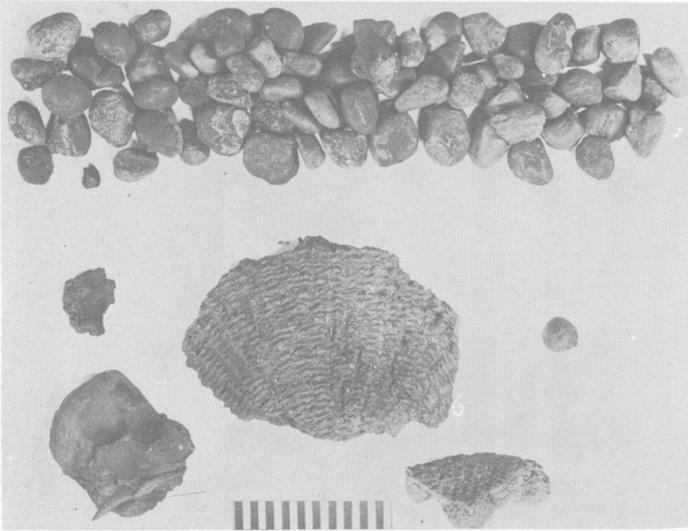
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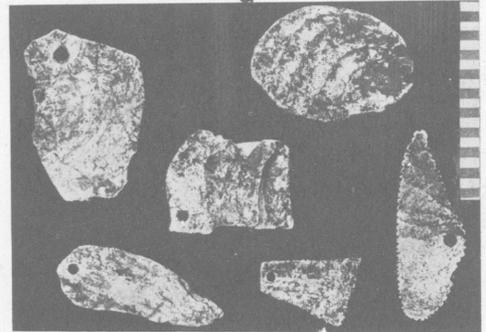
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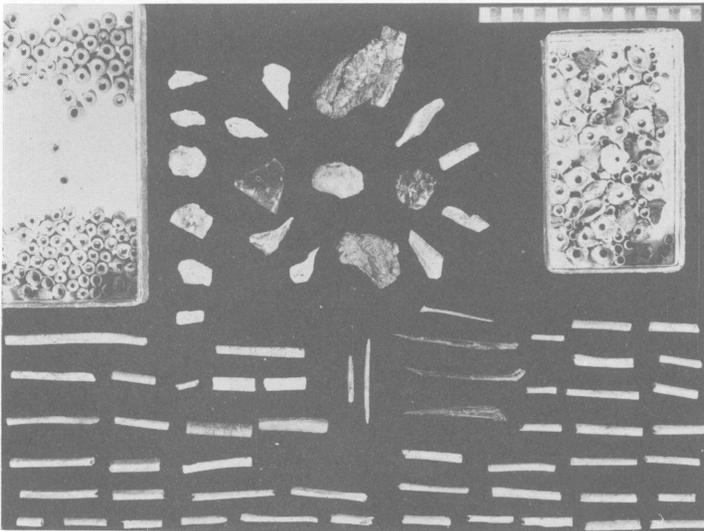
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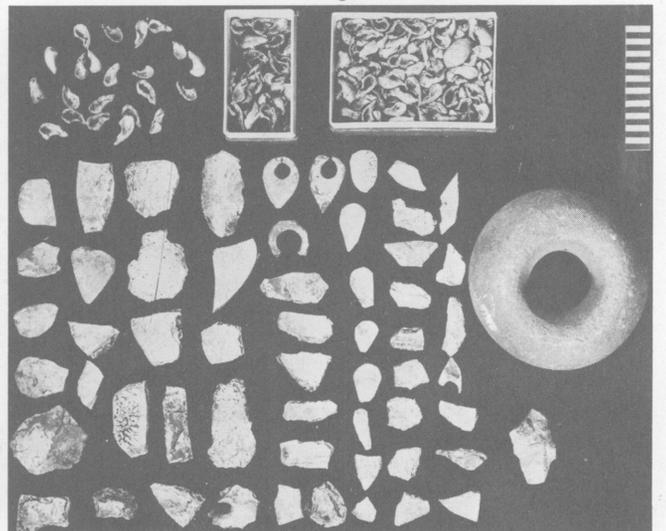
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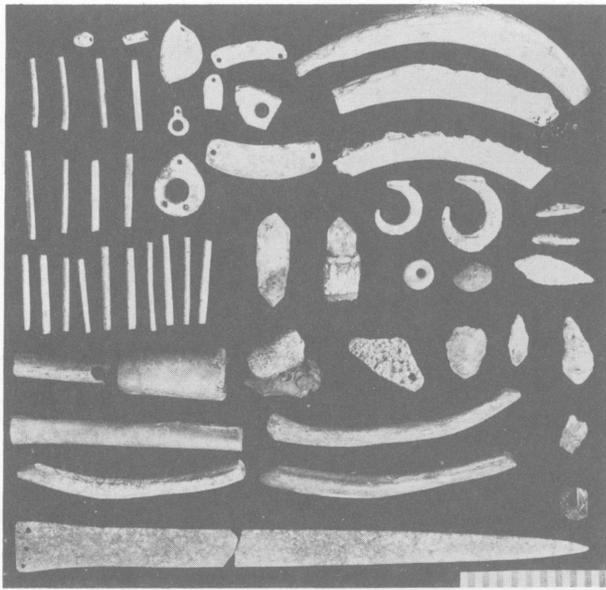
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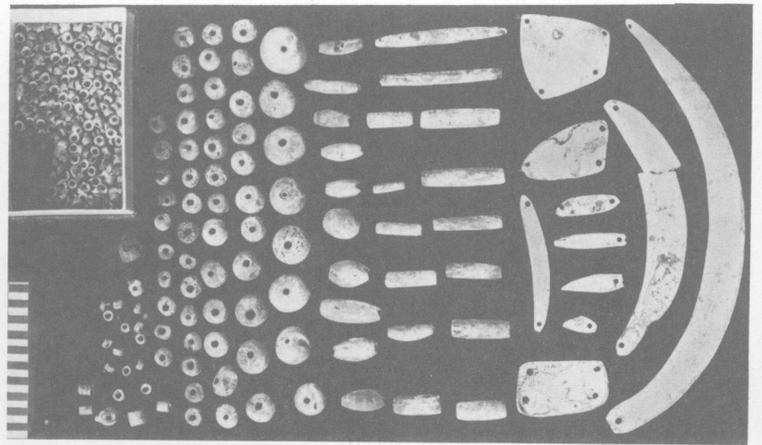
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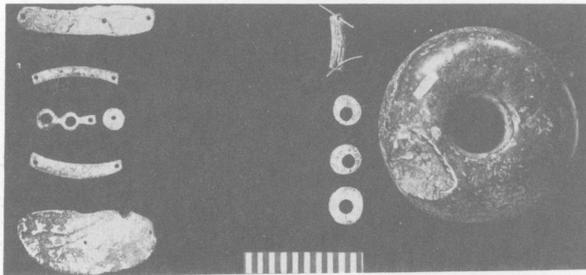
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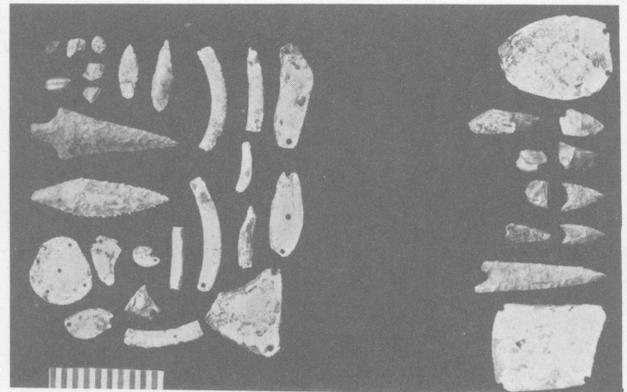
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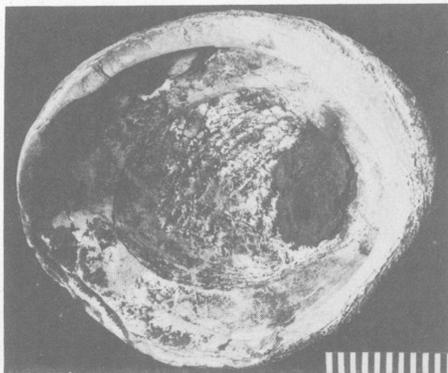
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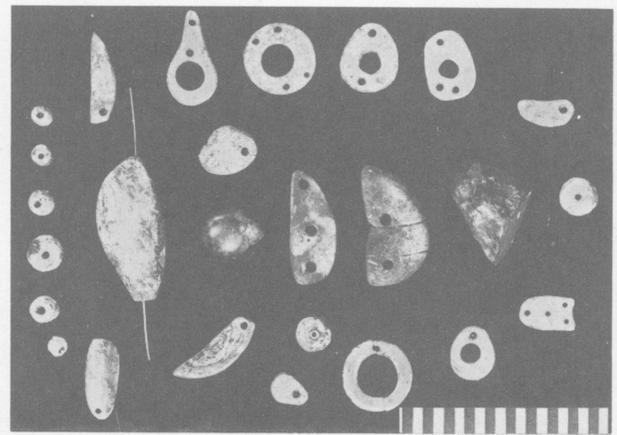
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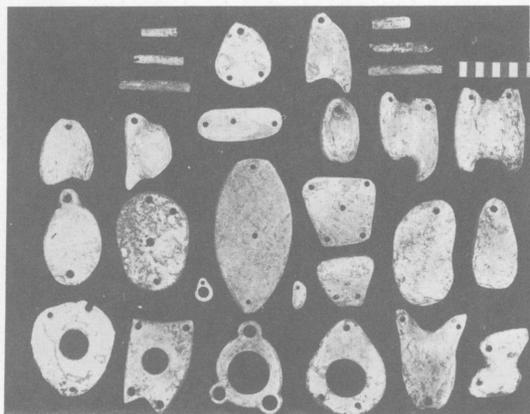
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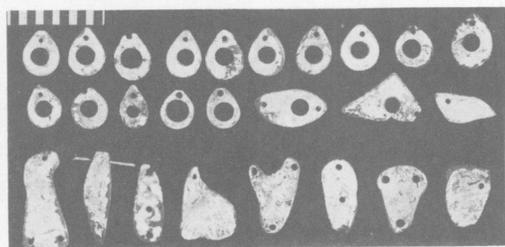
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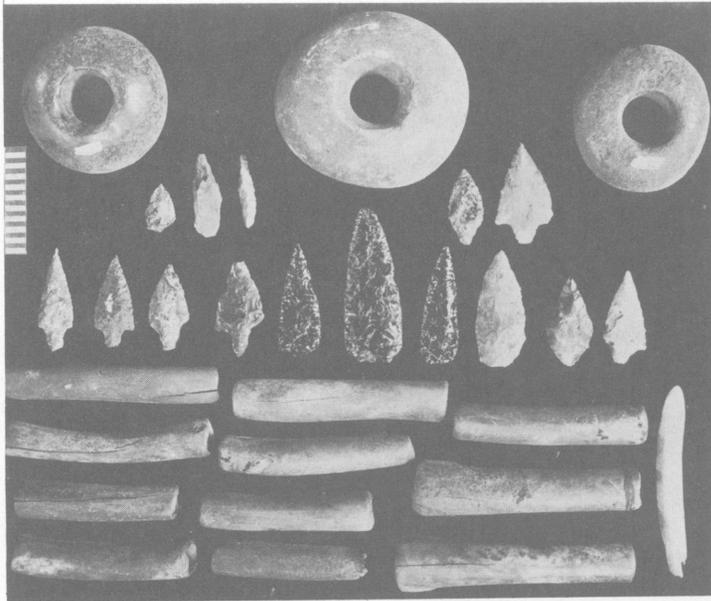
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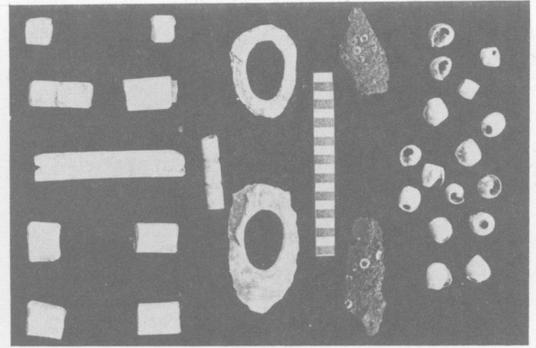
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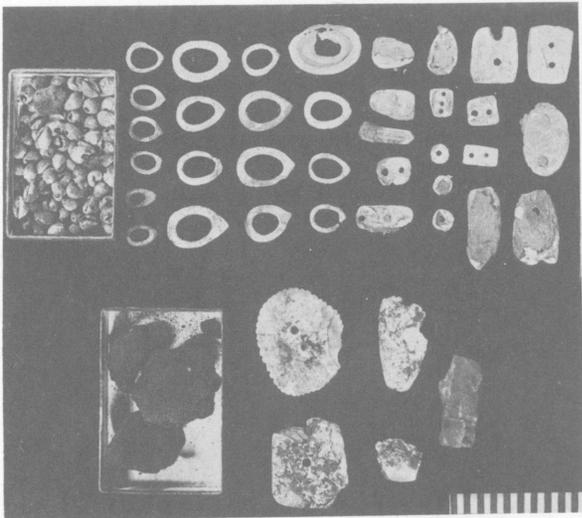
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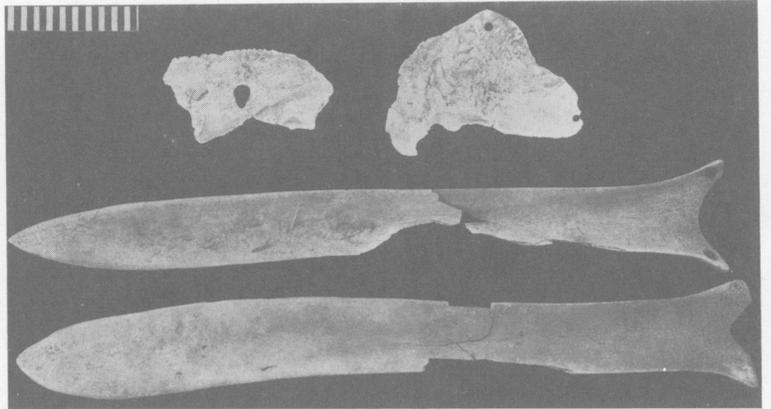
a



b



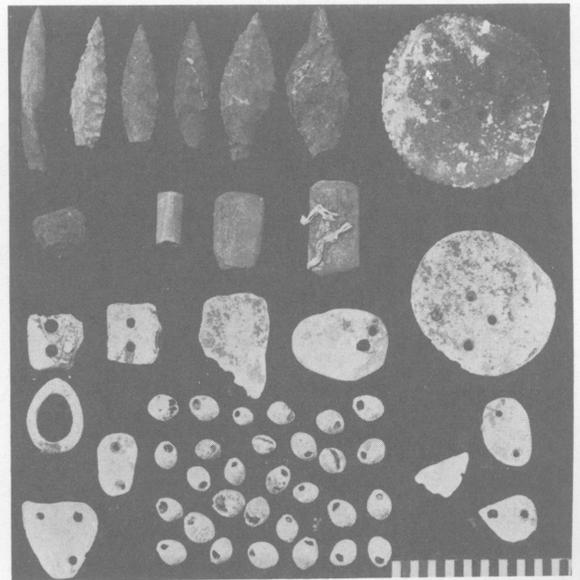
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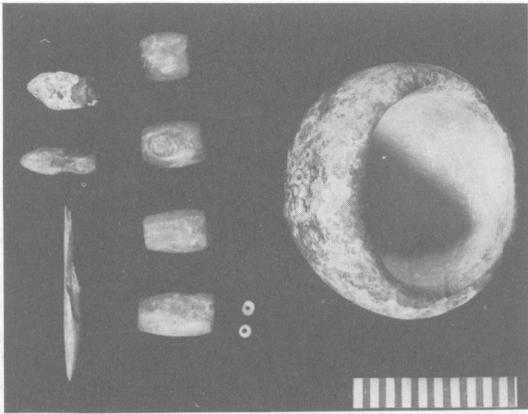
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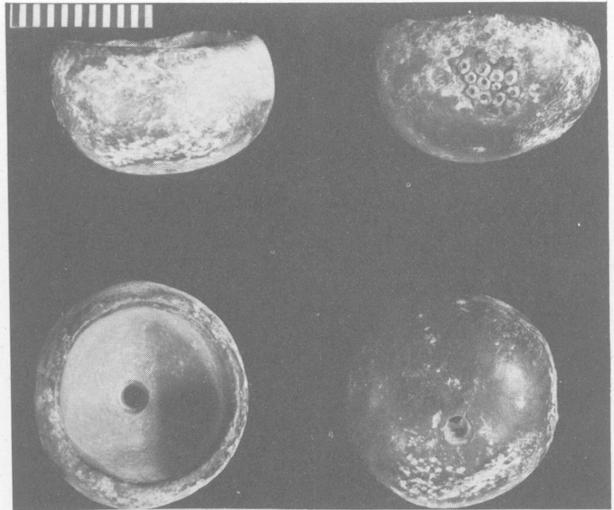
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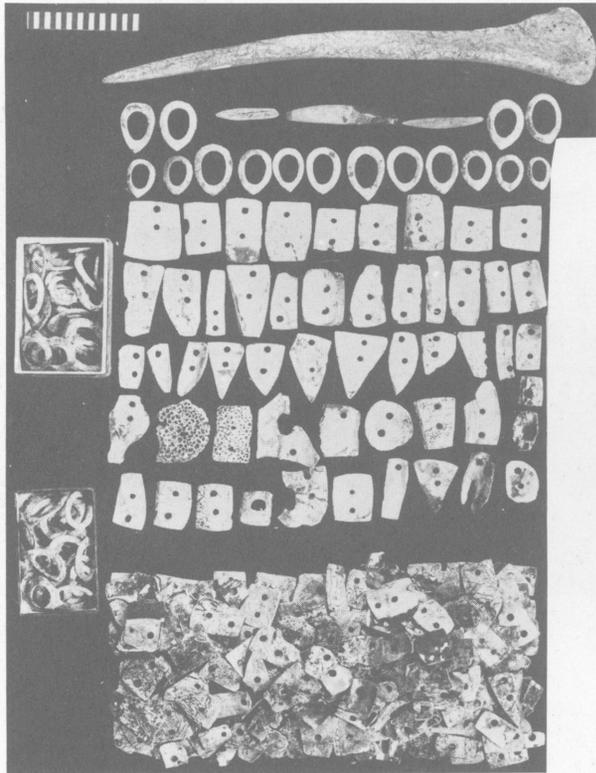
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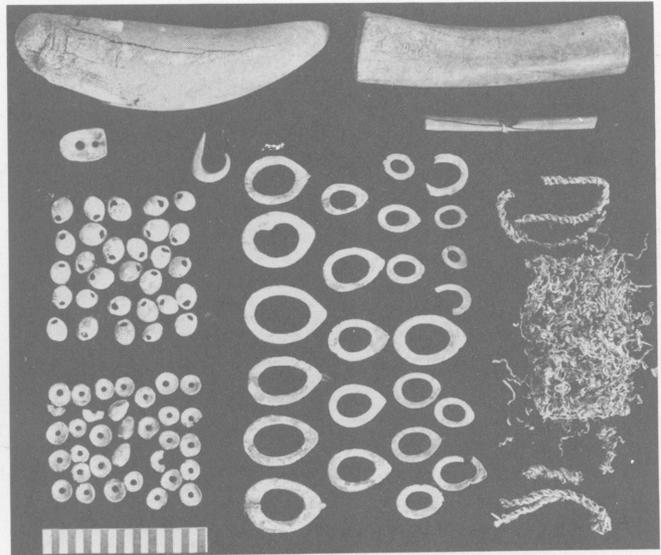
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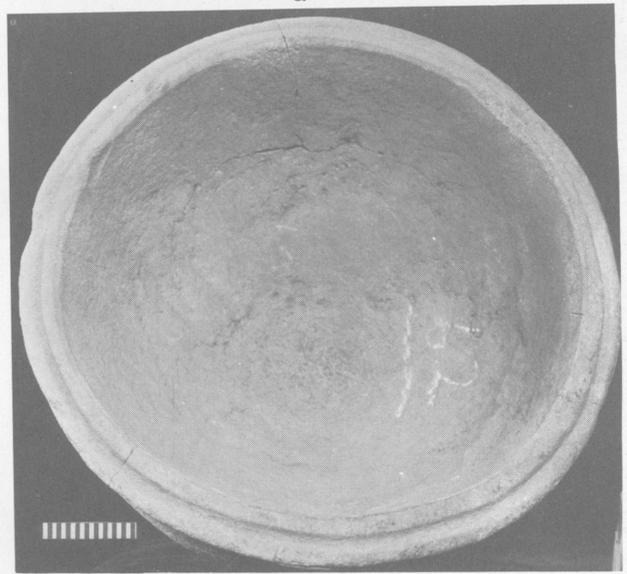
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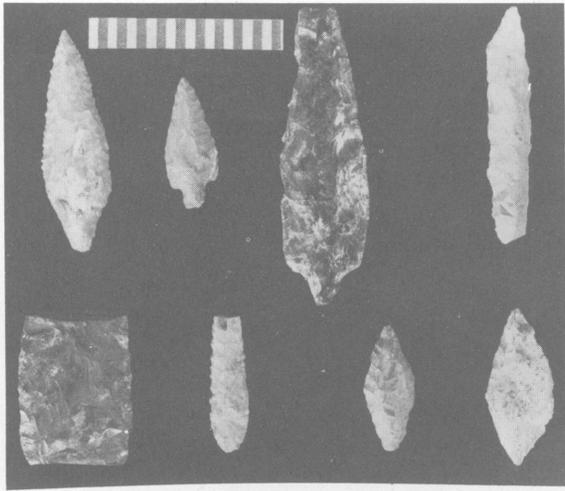
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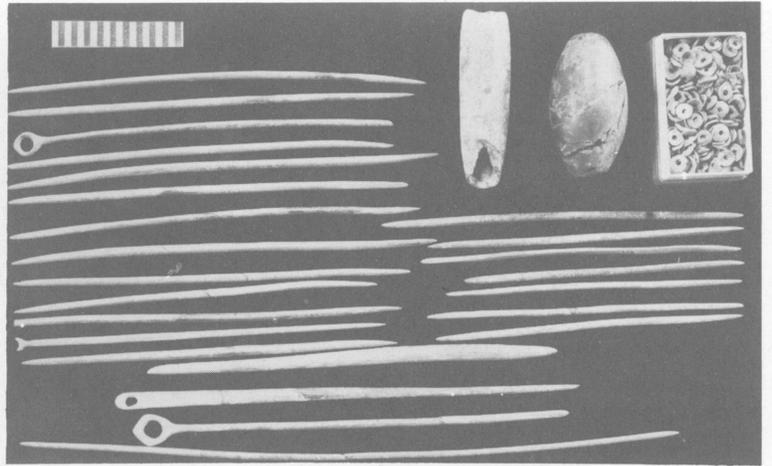
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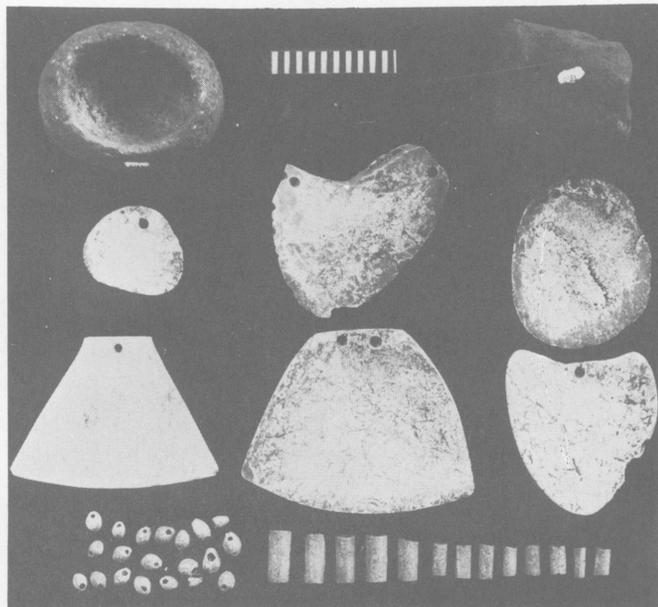
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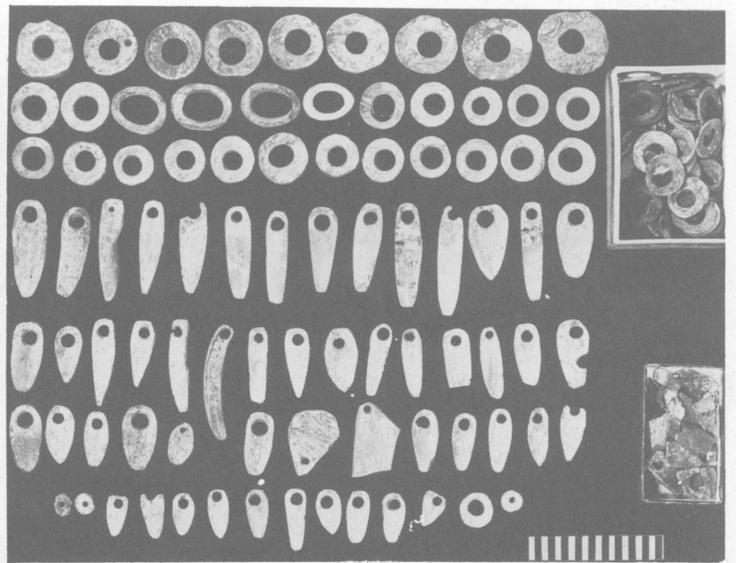
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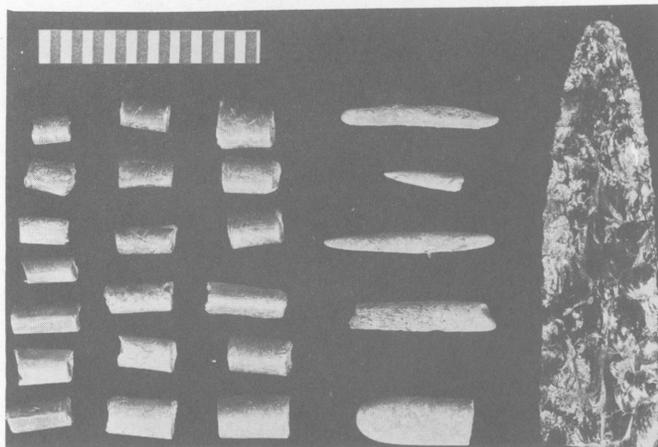
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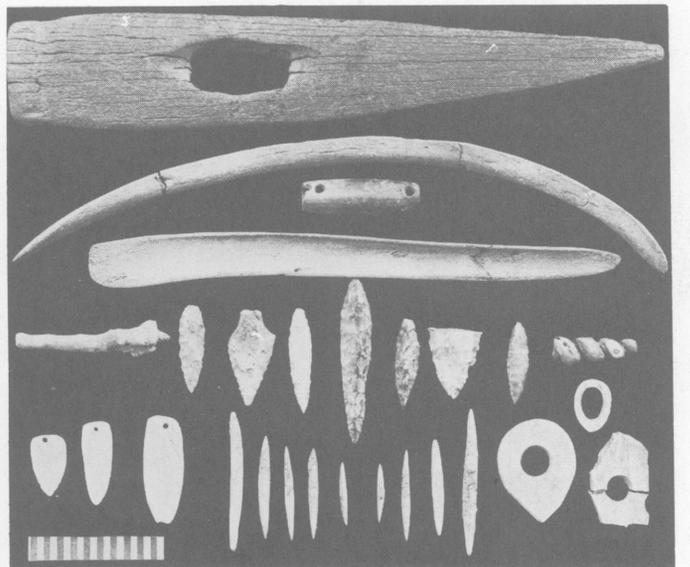
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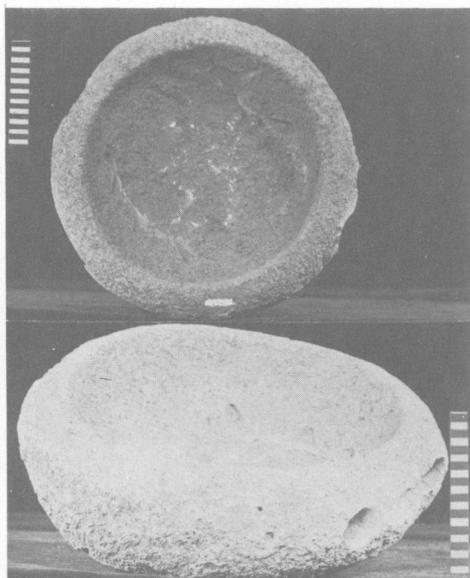
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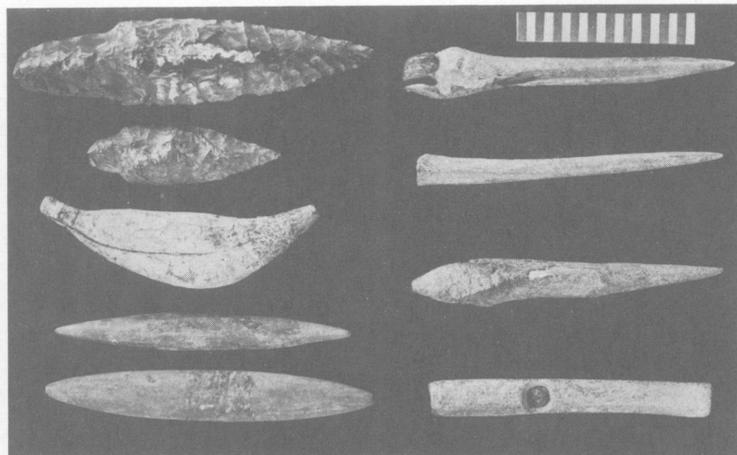
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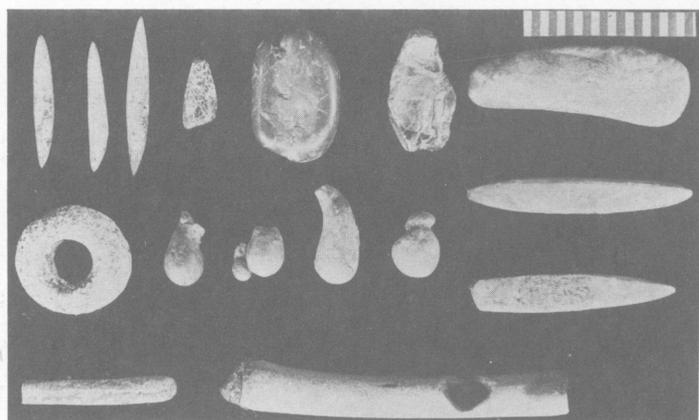
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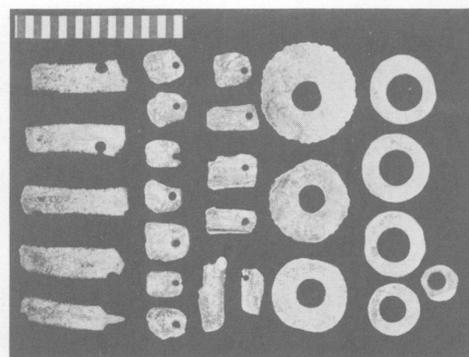
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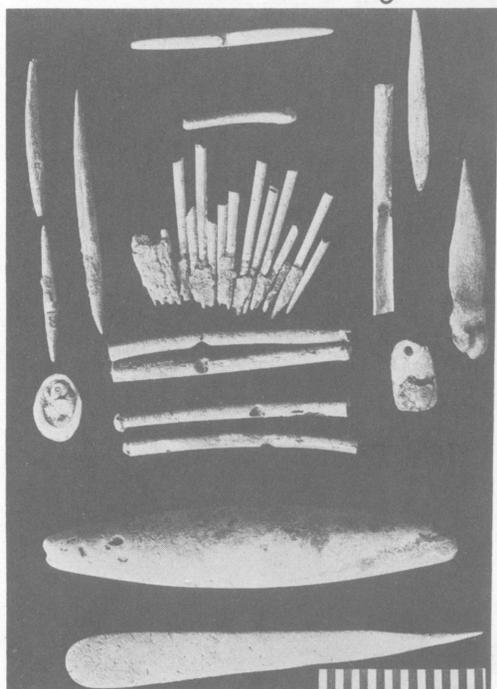
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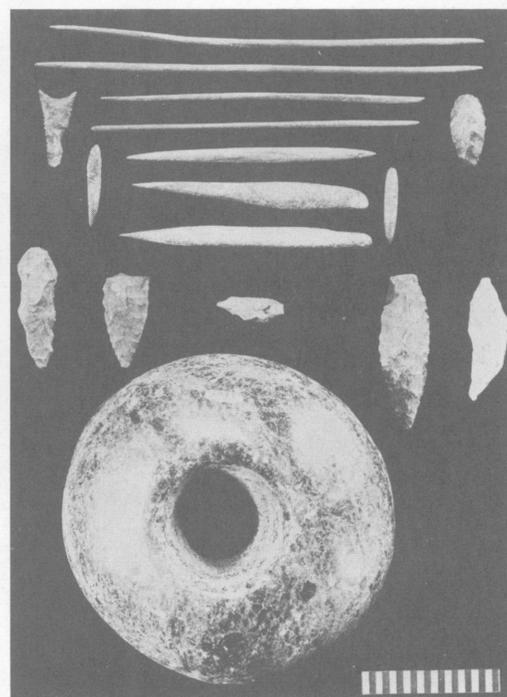
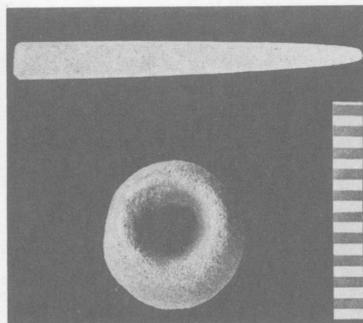
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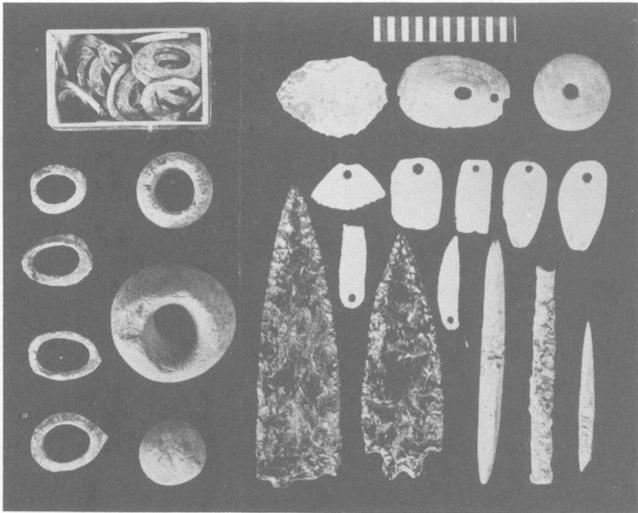
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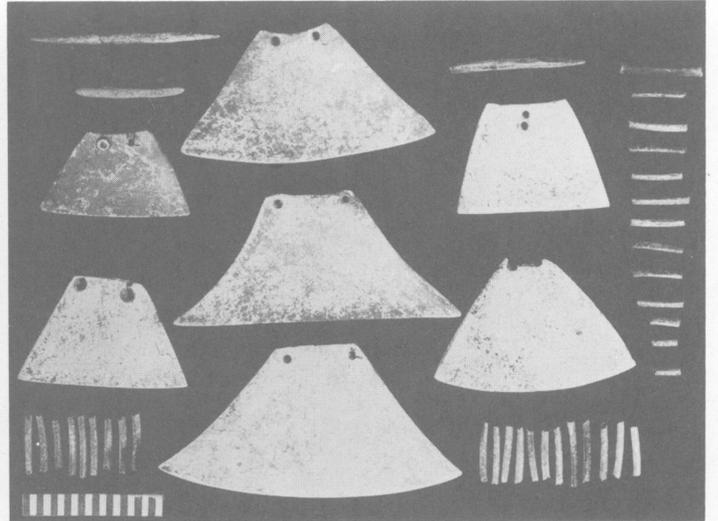
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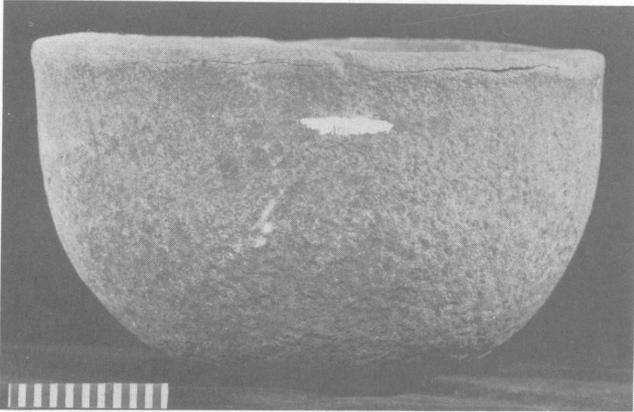
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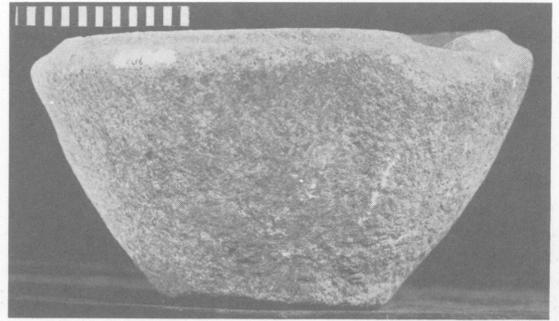
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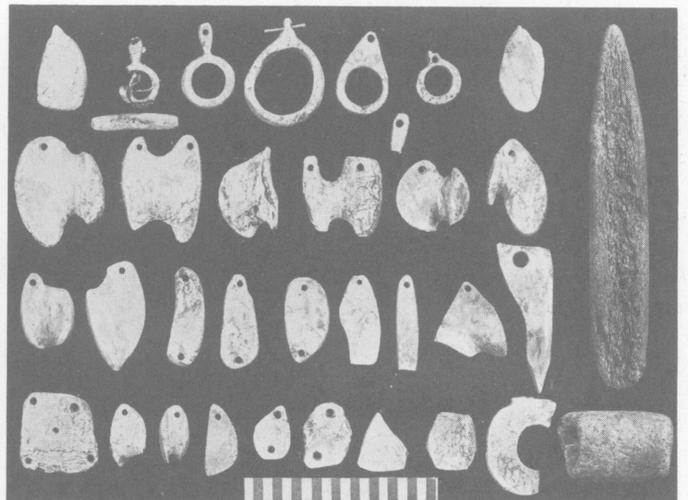
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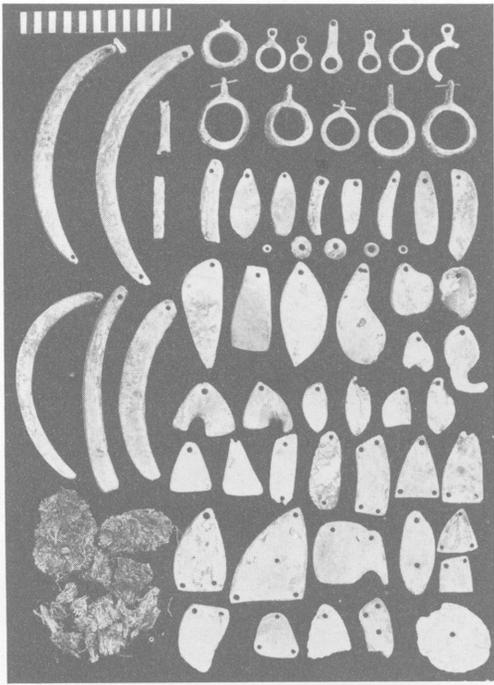


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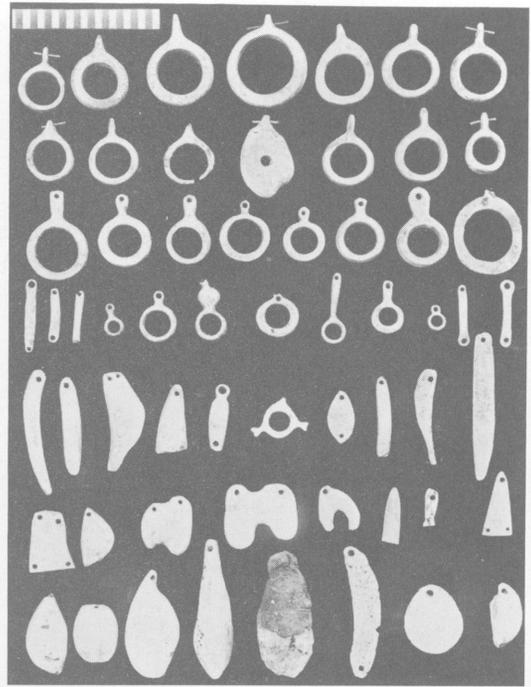


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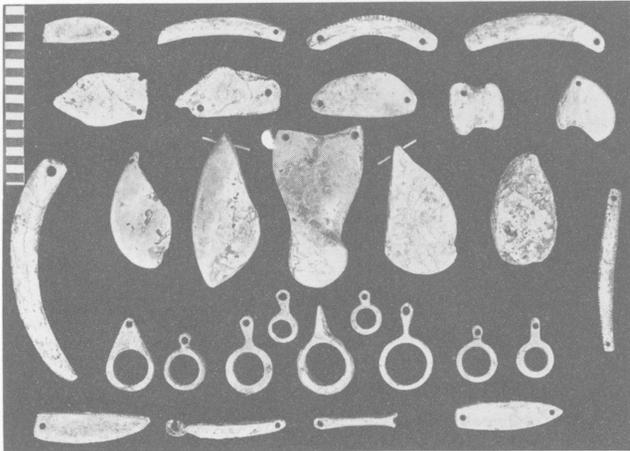
Plate 116



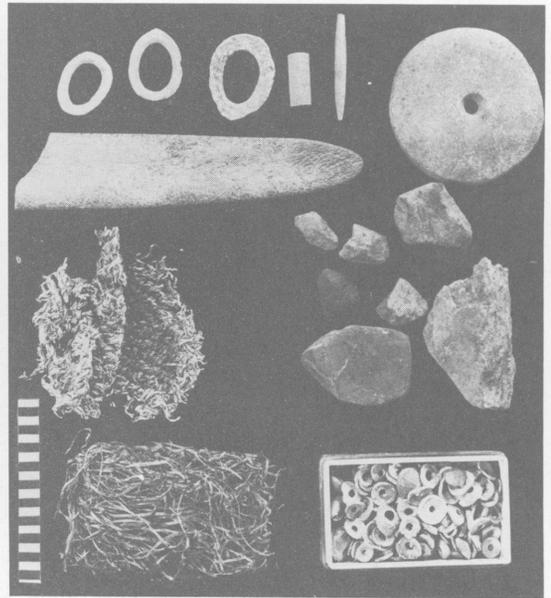
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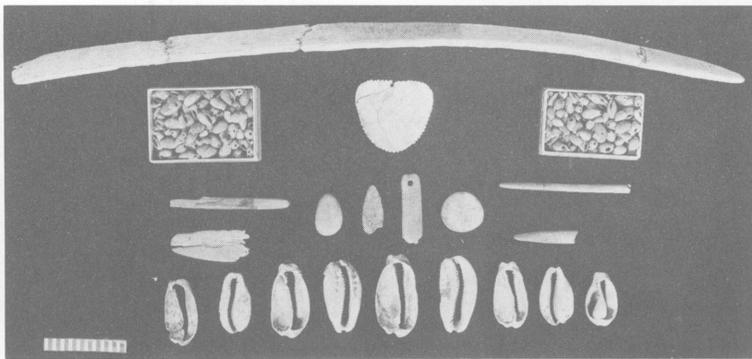
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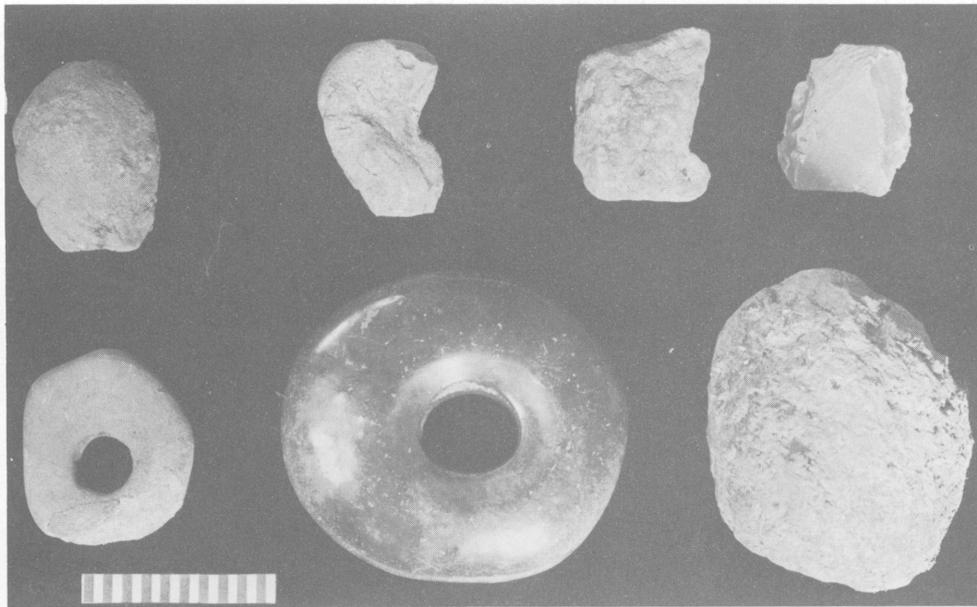
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d



e



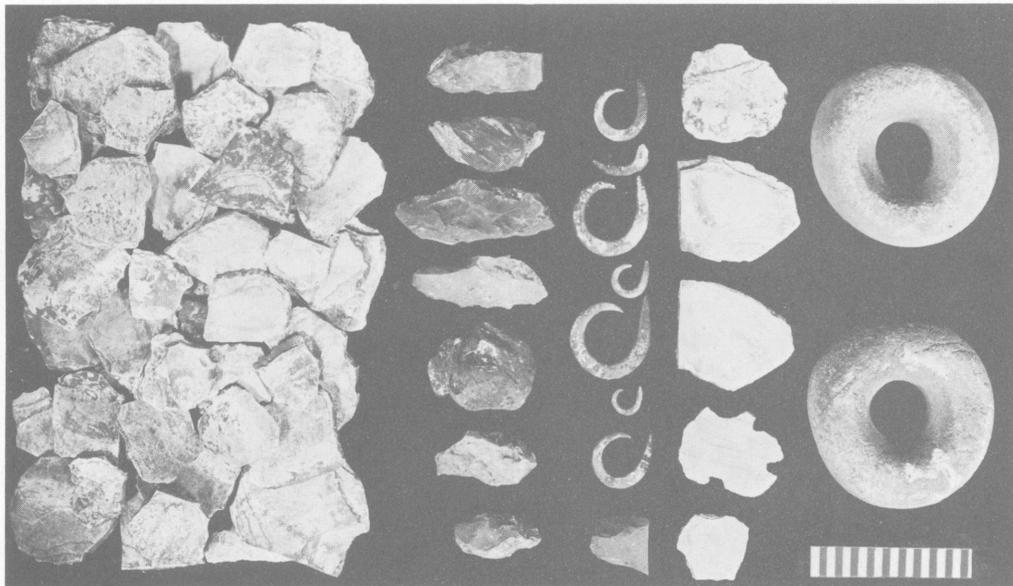
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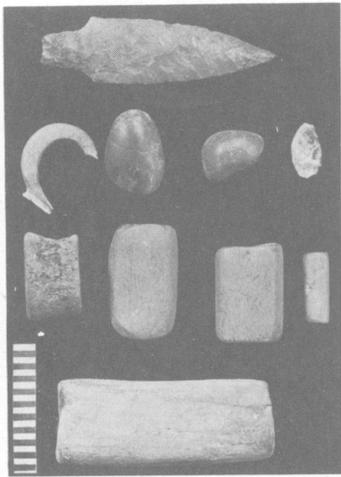


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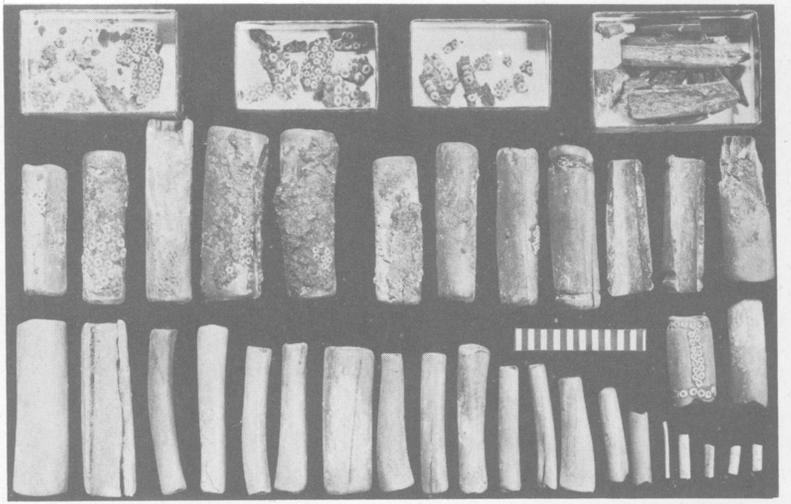


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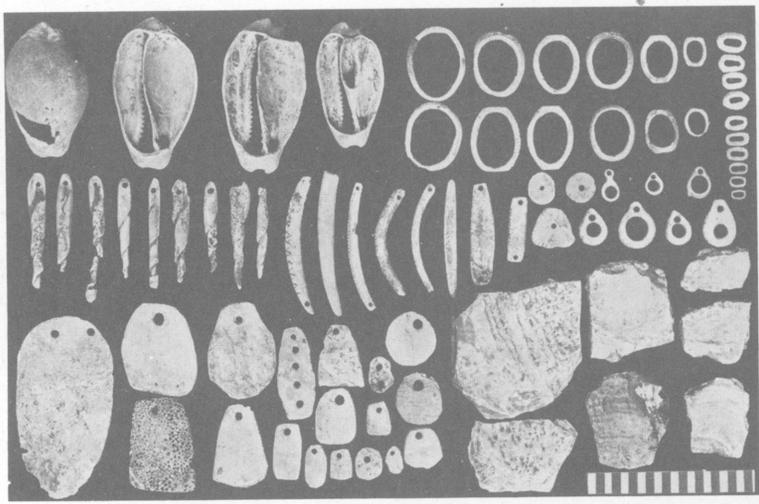
Plate 118



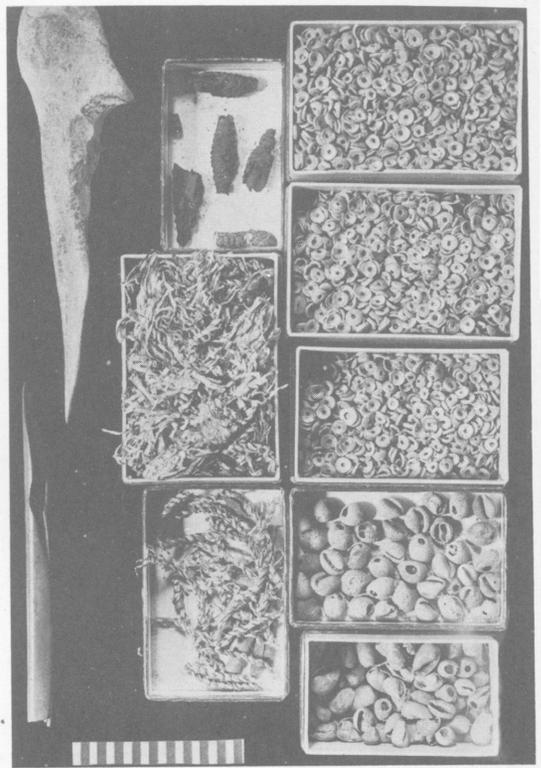
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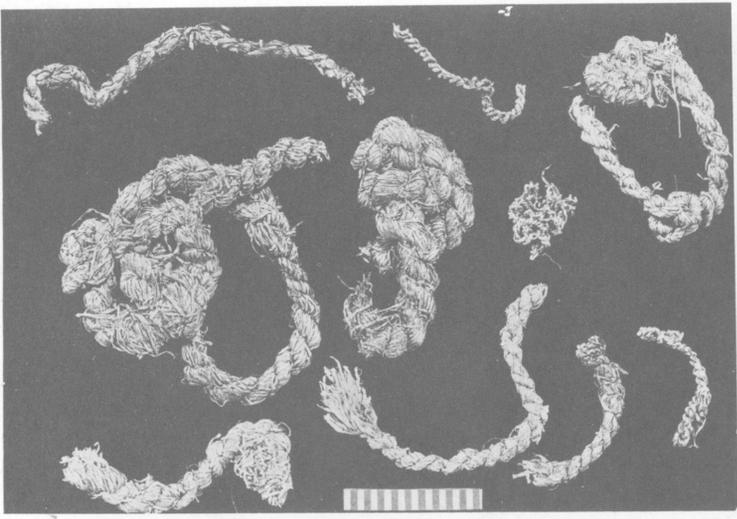
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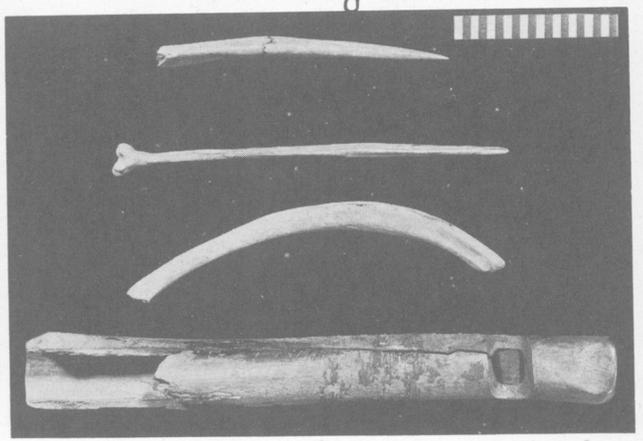
c



d



e



f

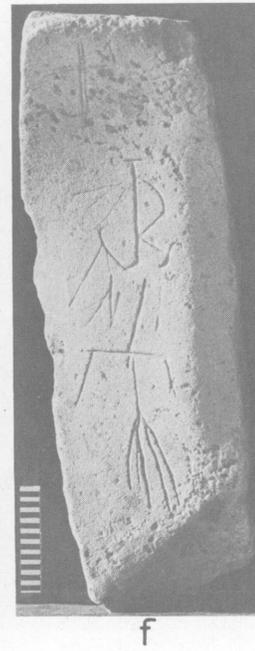
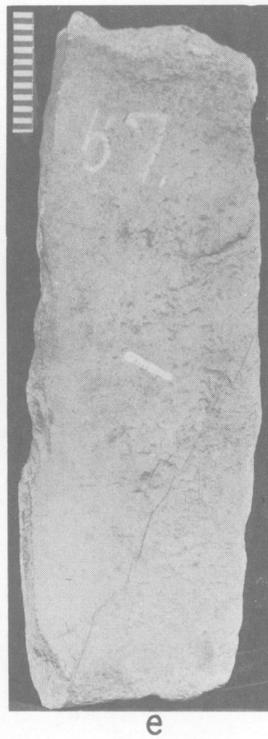
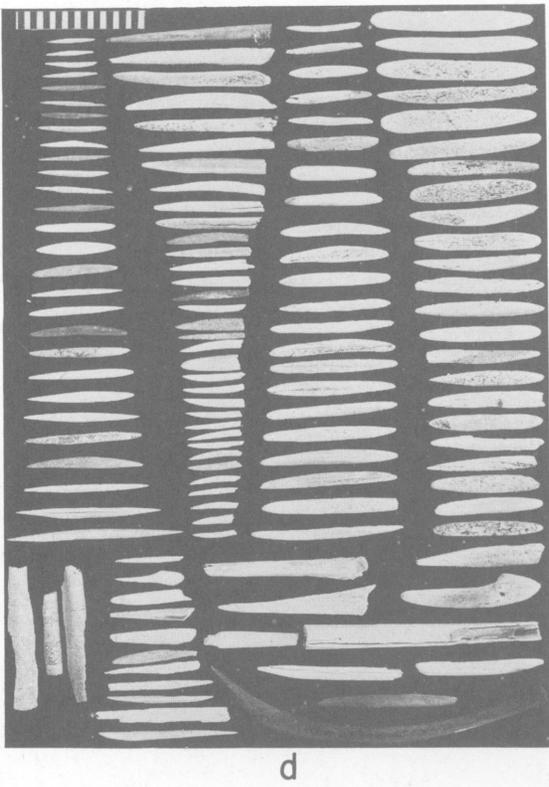
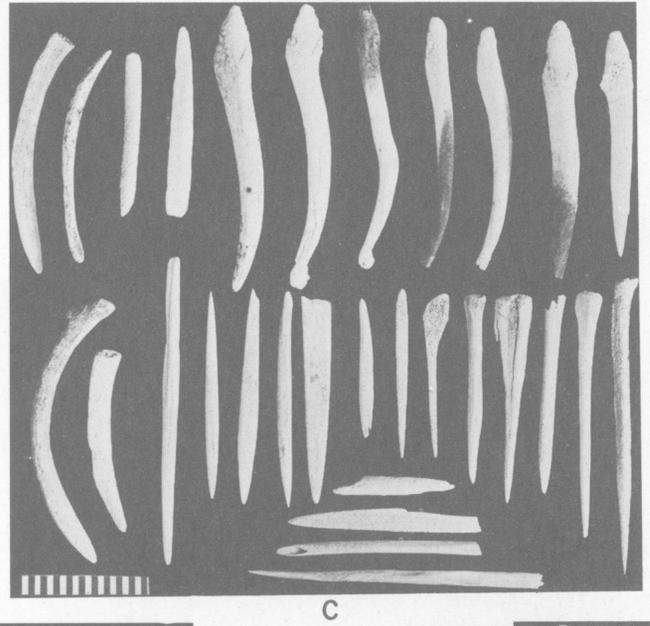
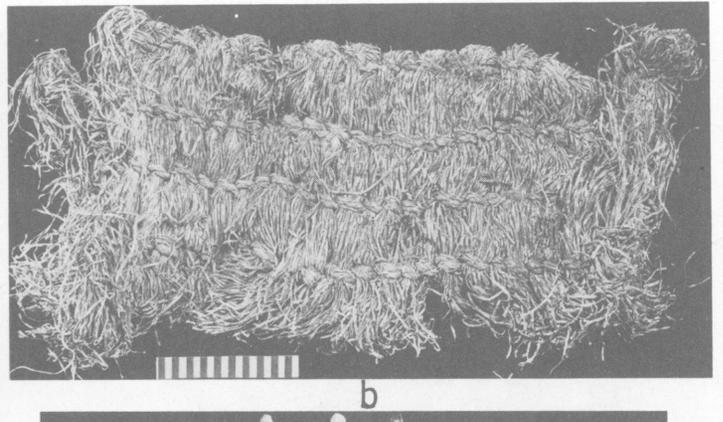
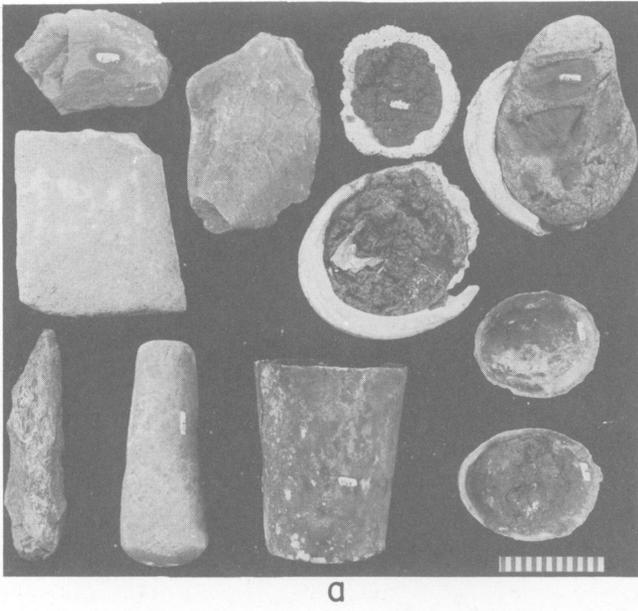
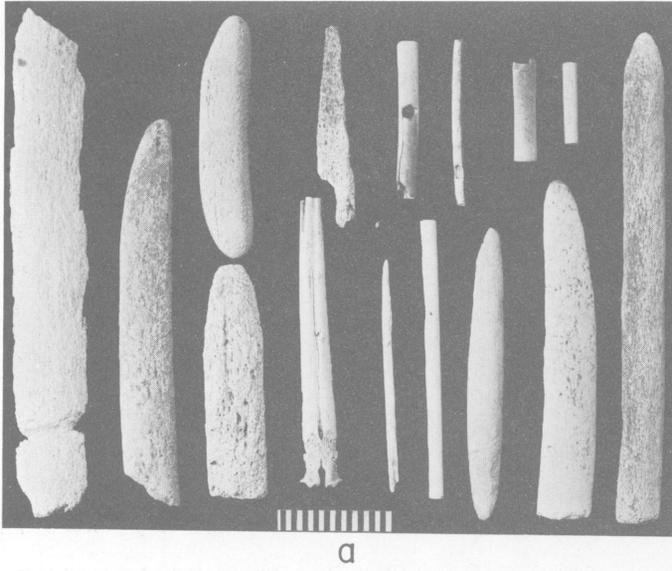
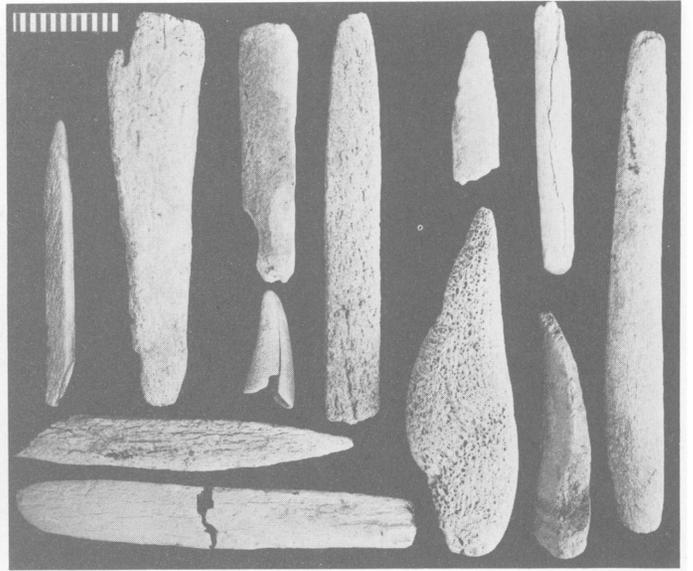


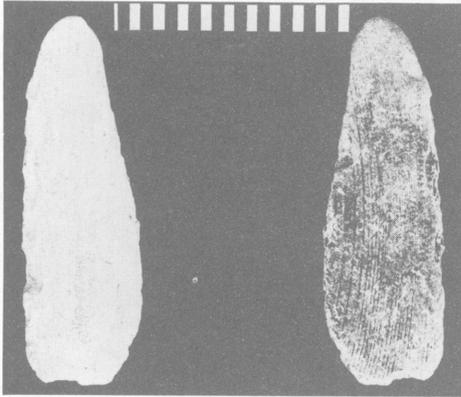
Plate 120



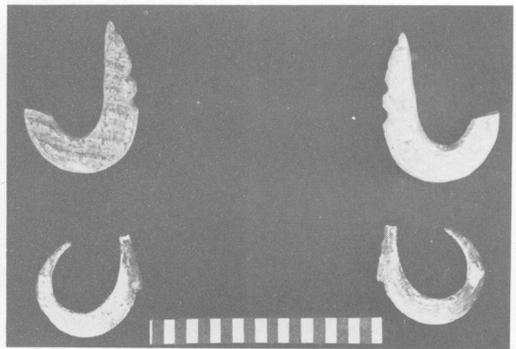
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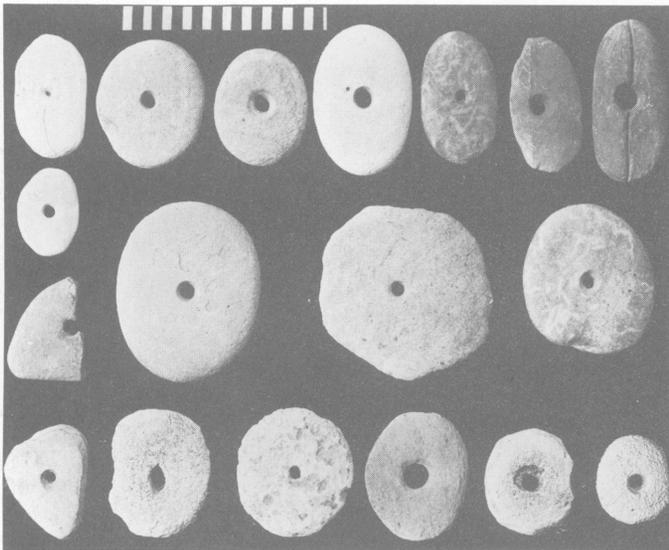
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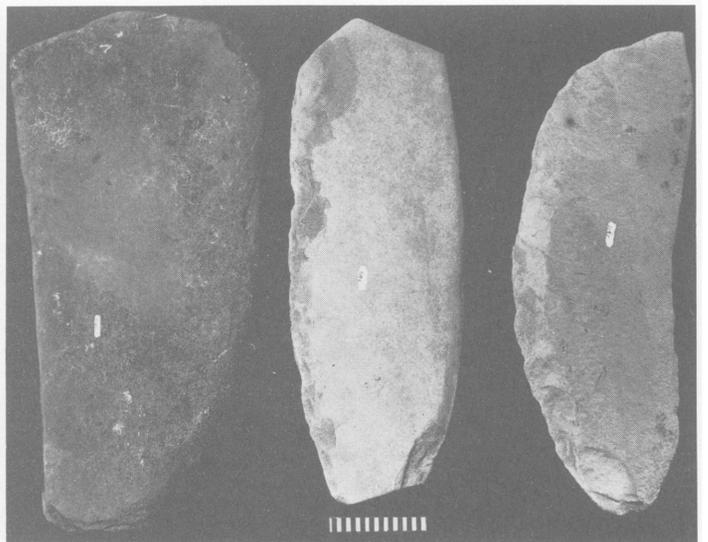
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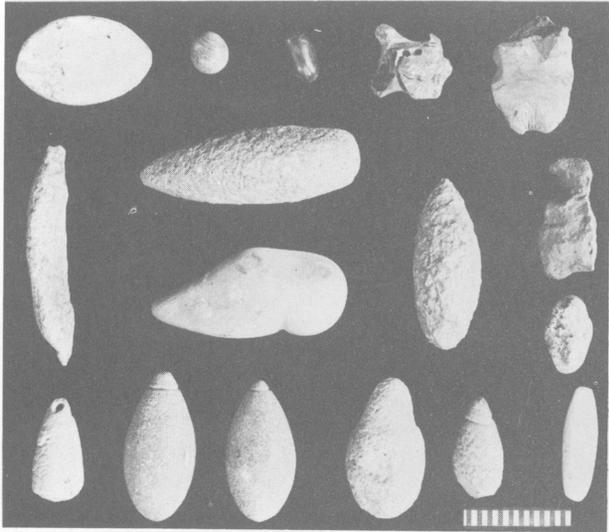
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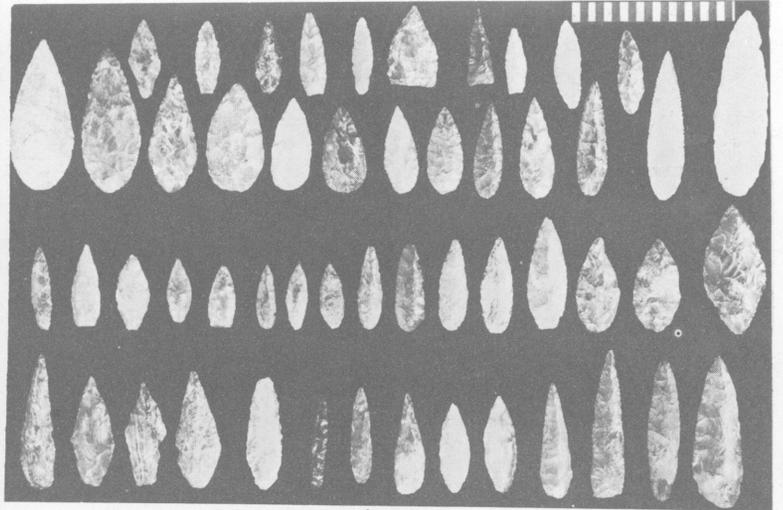
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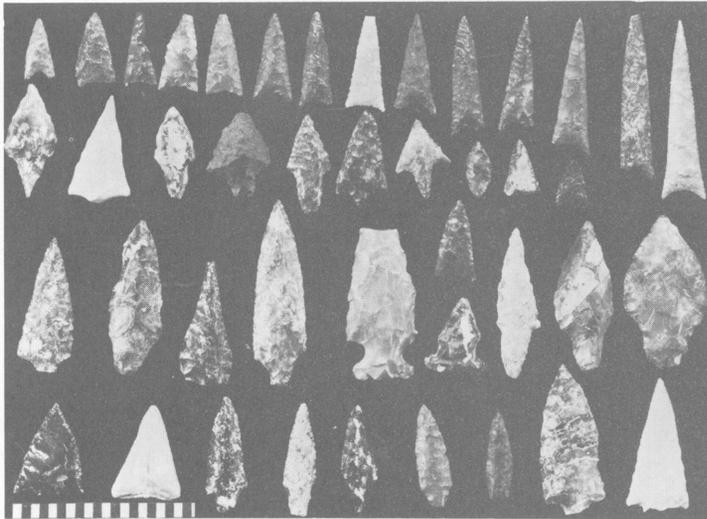
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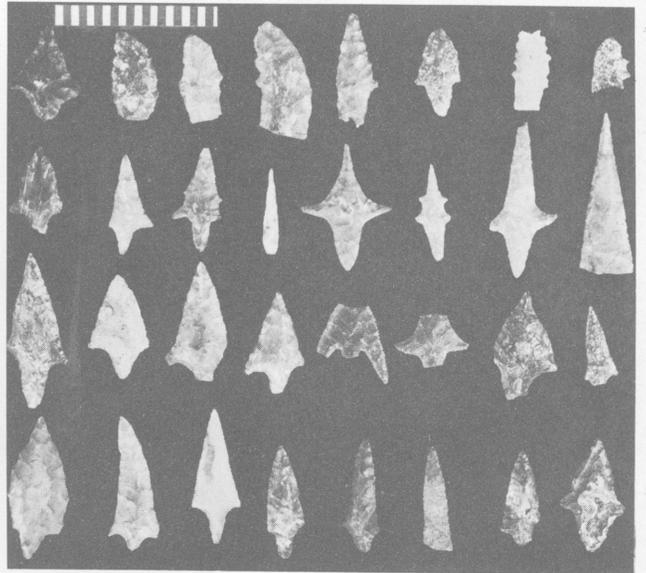
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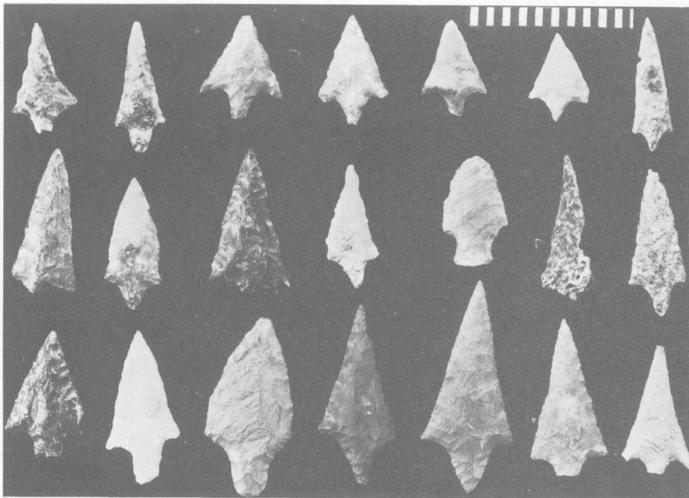
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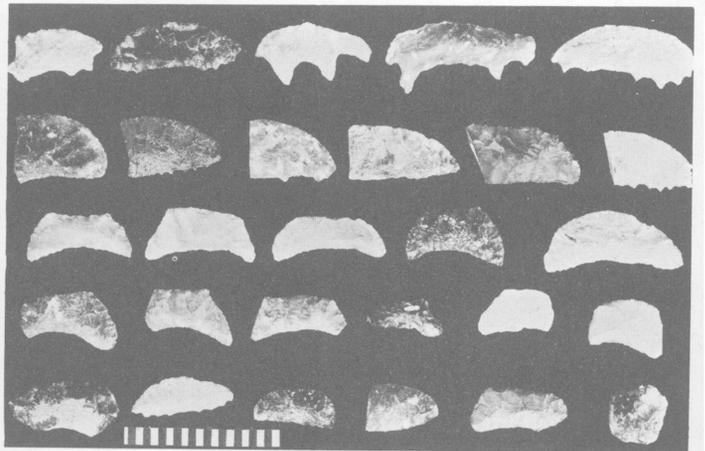
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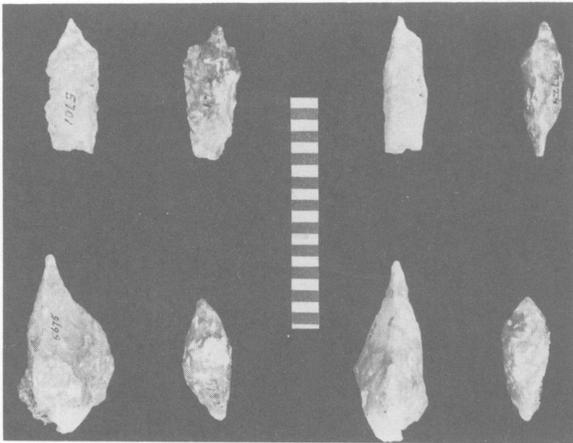
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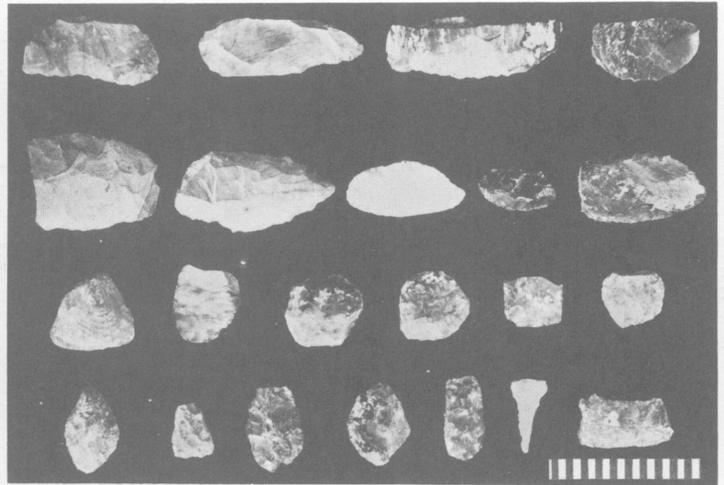
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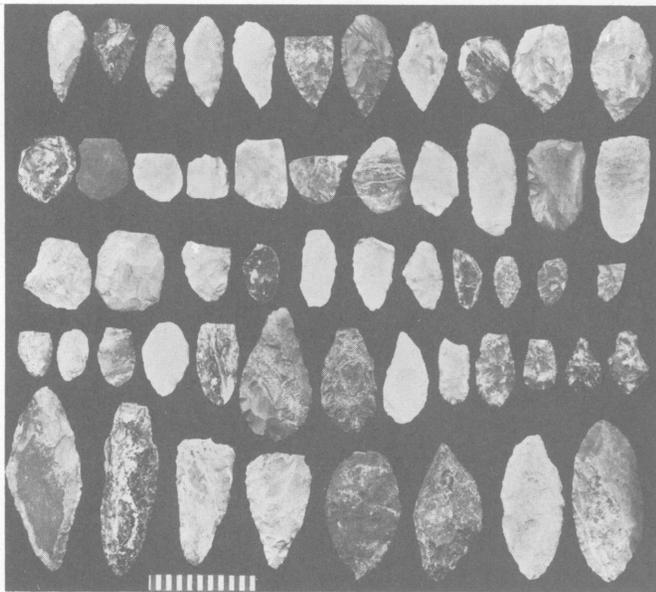
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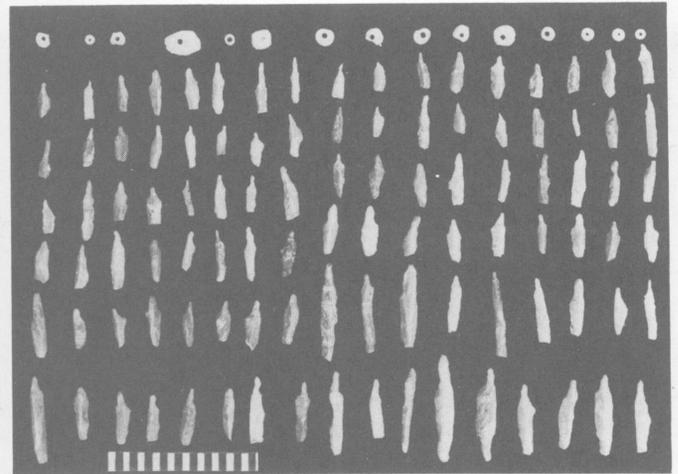
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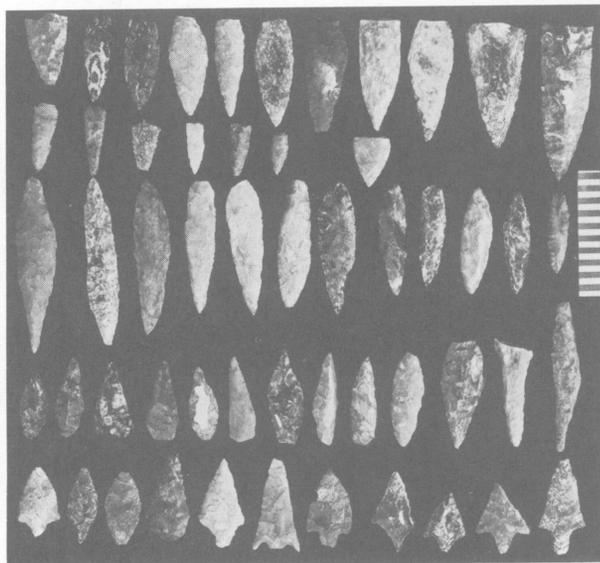
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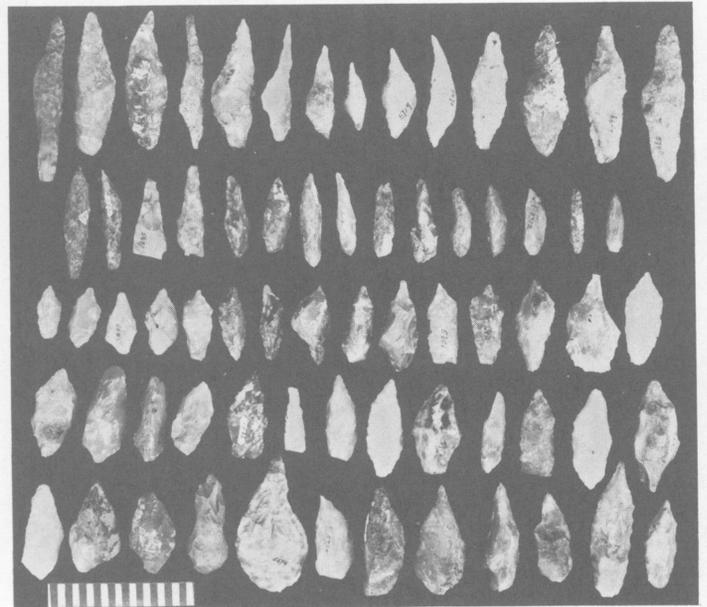
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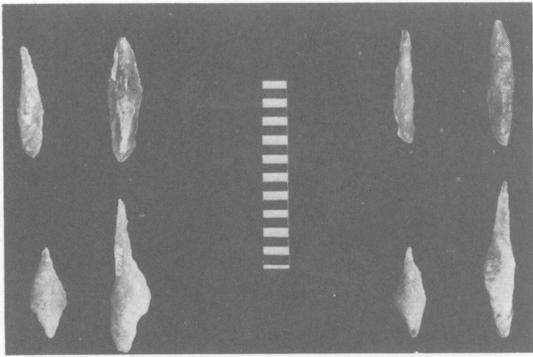
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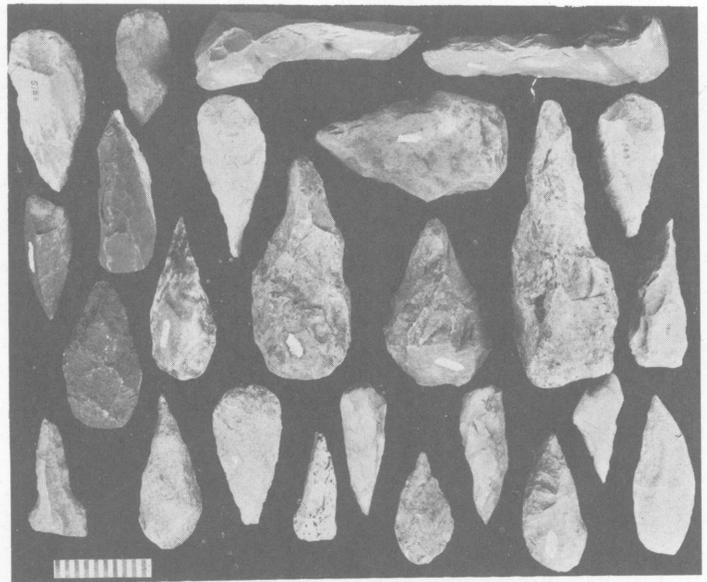
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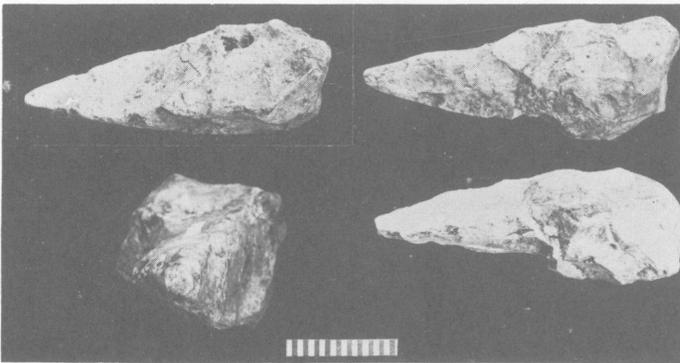
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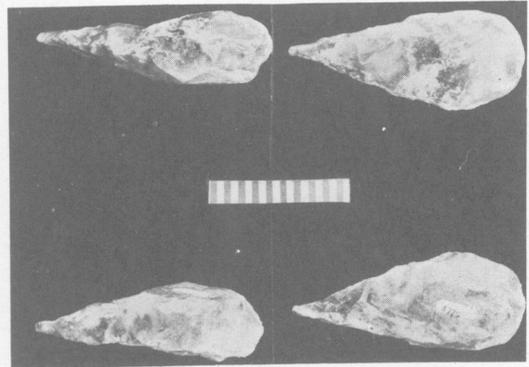
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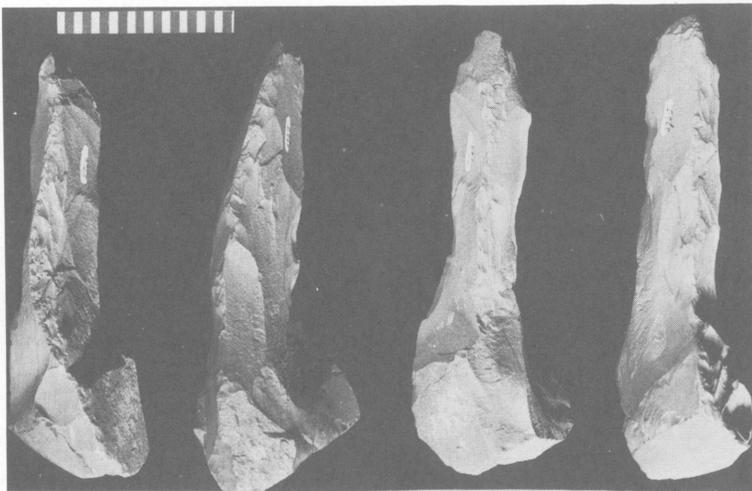
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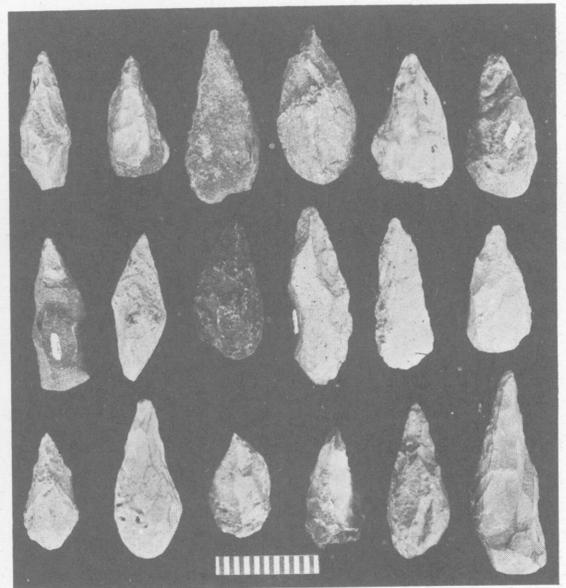
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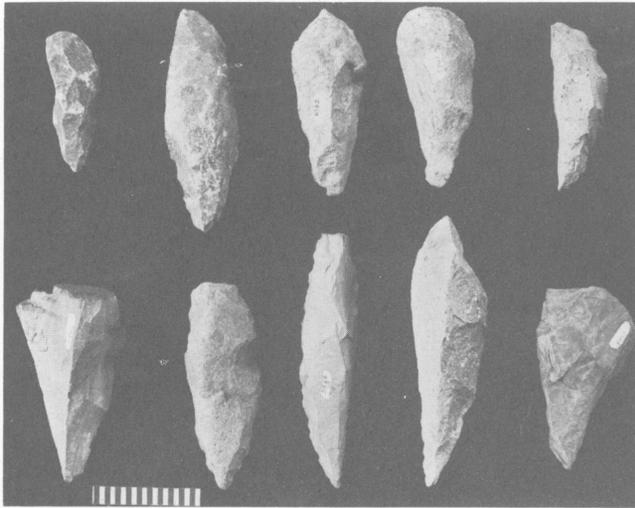
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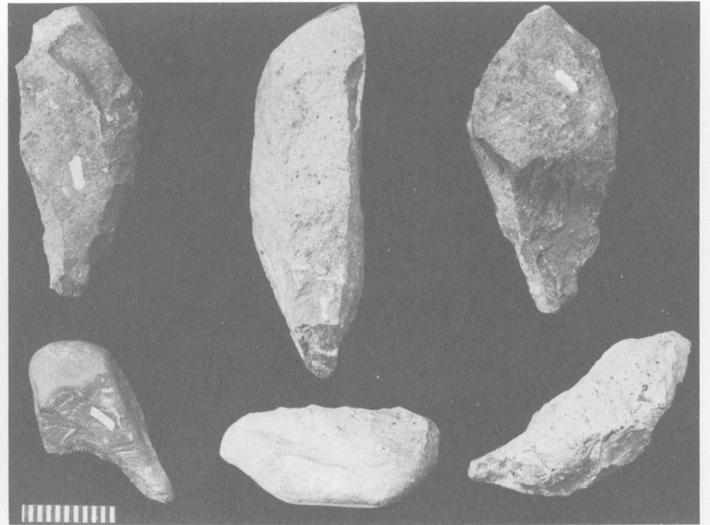
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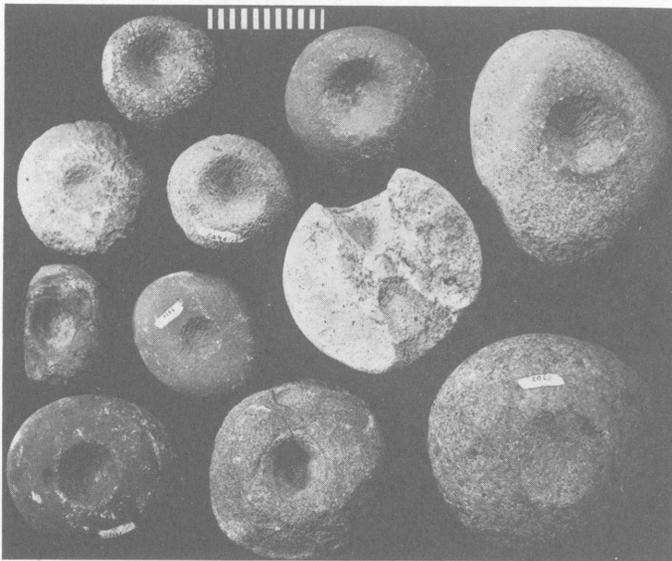
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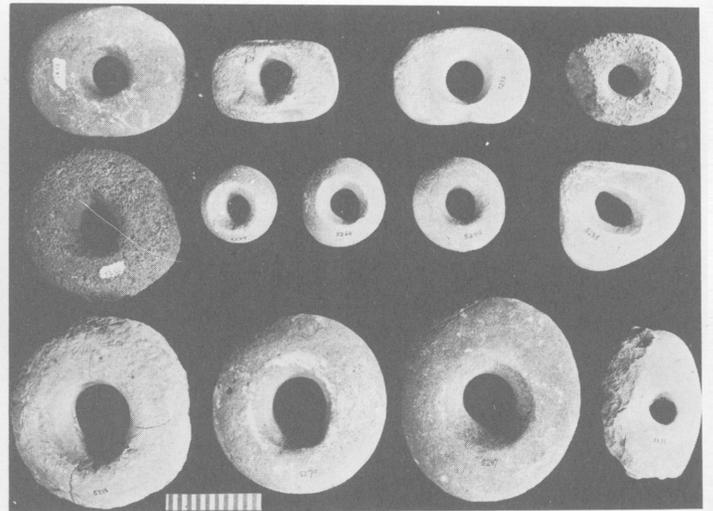
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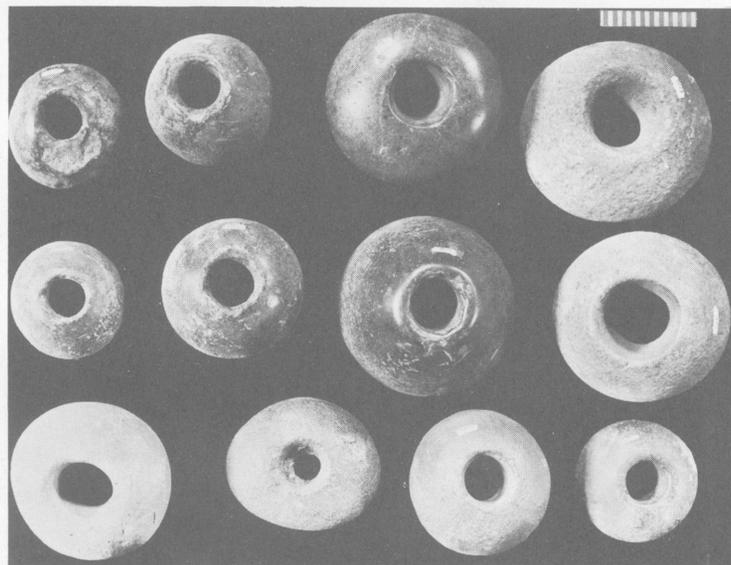
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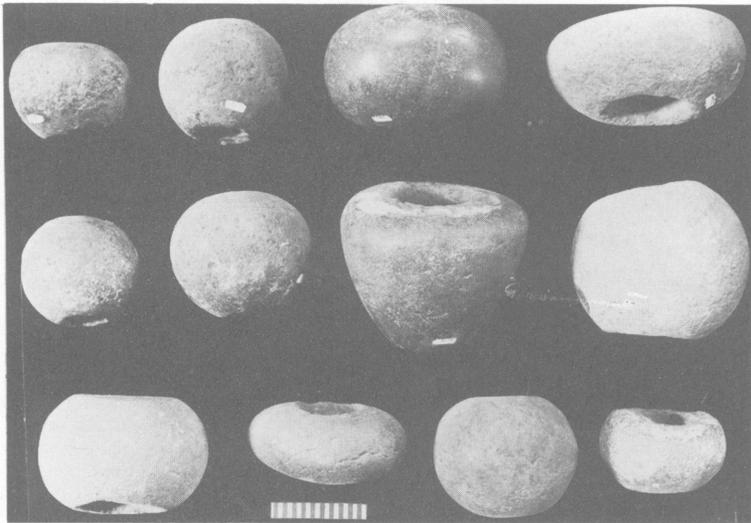
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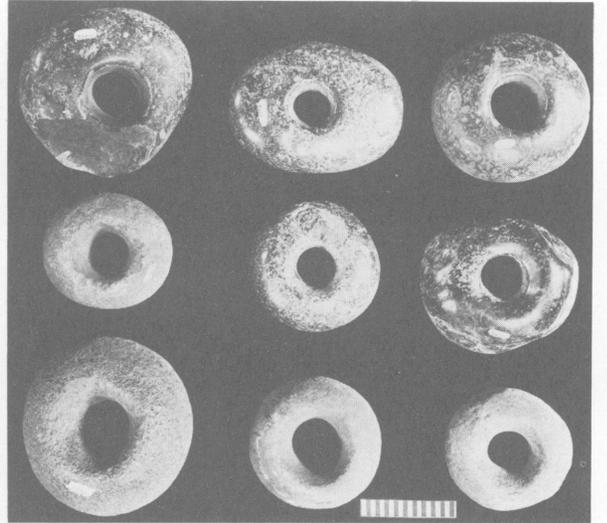
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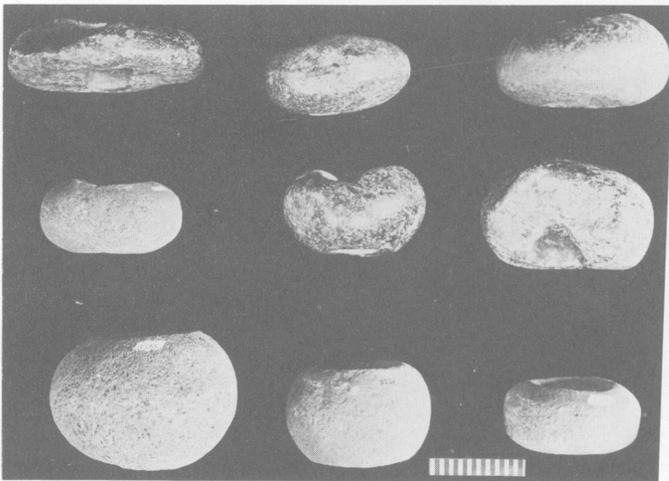
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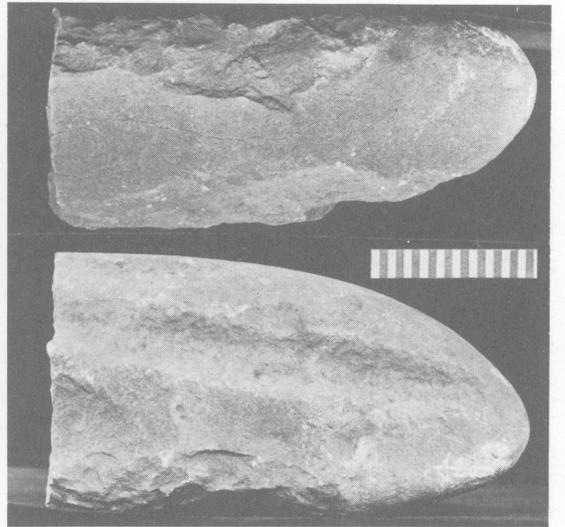
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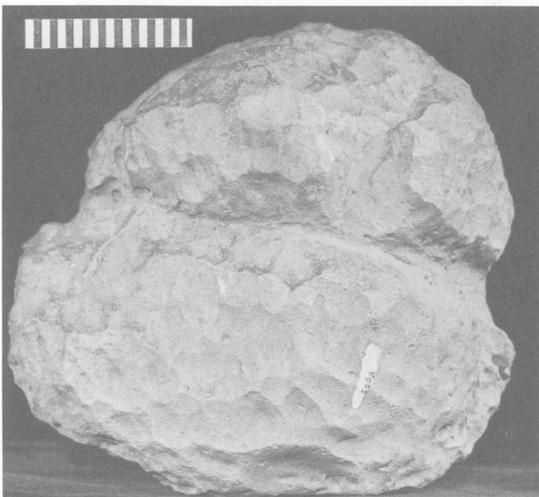
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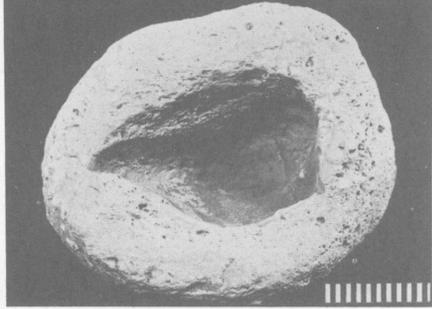
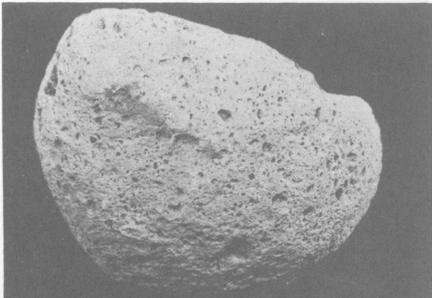
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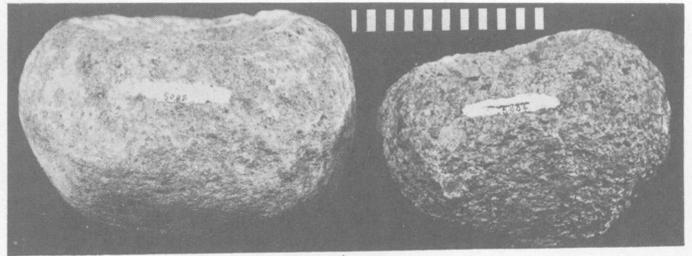
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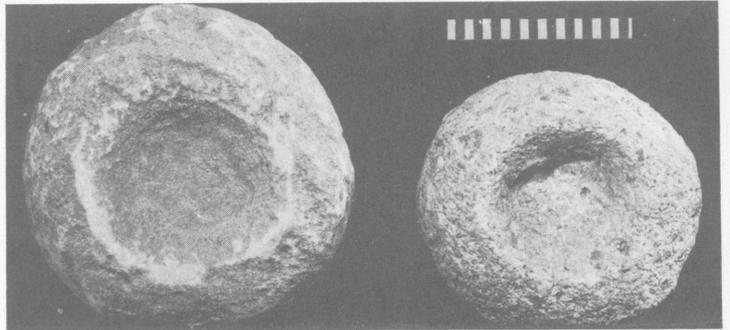
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a



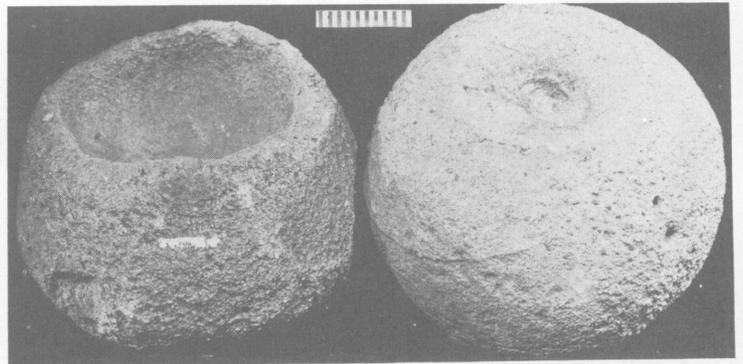
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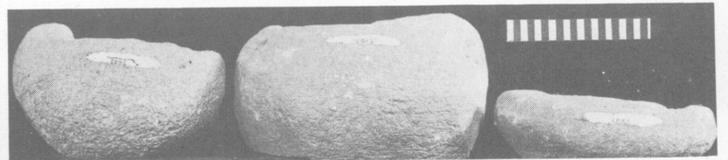
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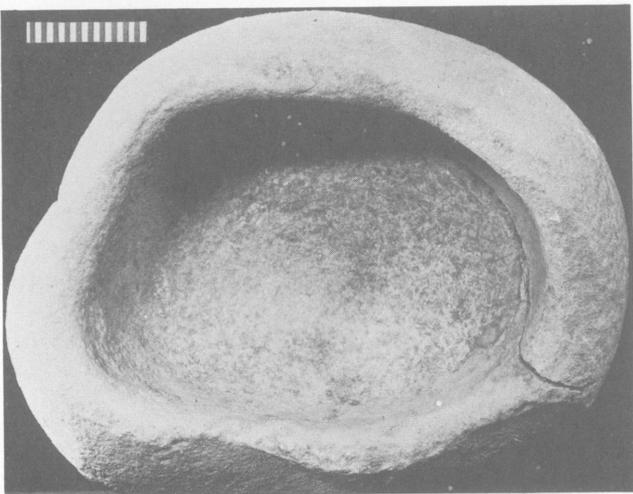
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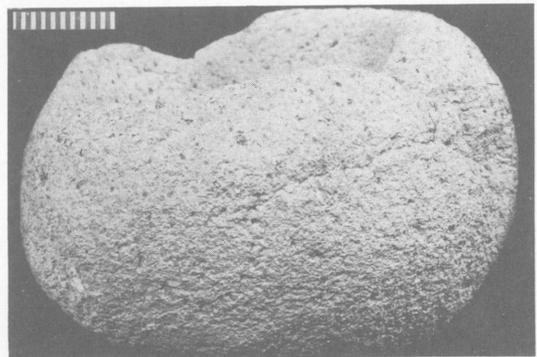
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g

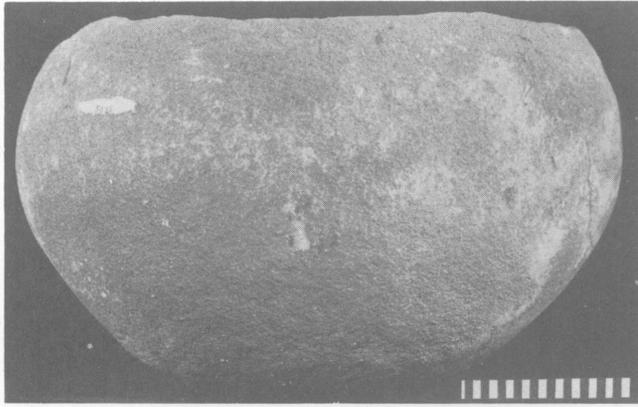


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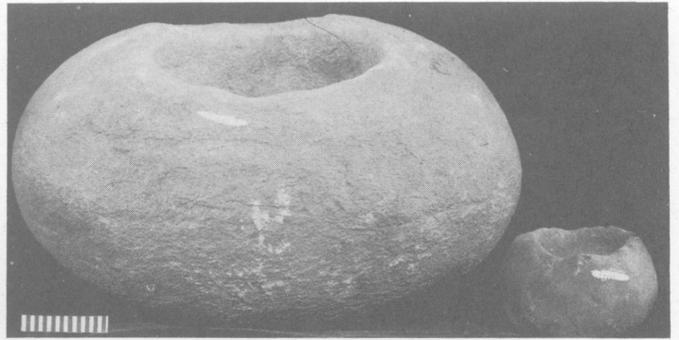


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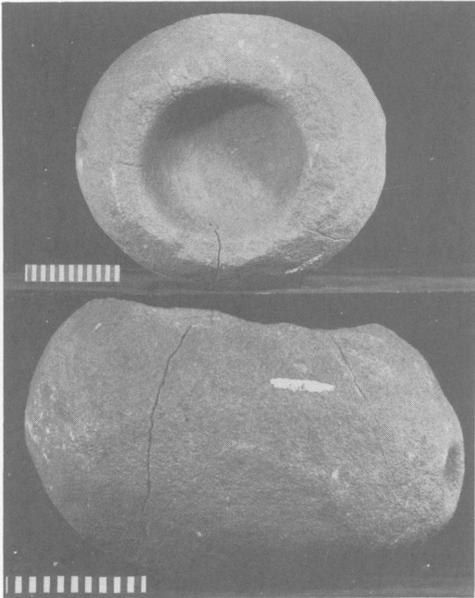
Plate 127



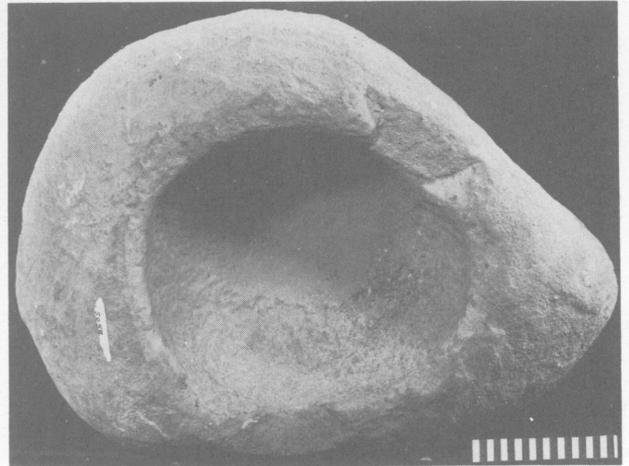
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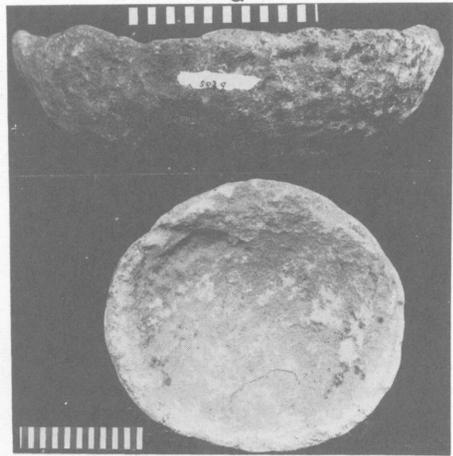
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c



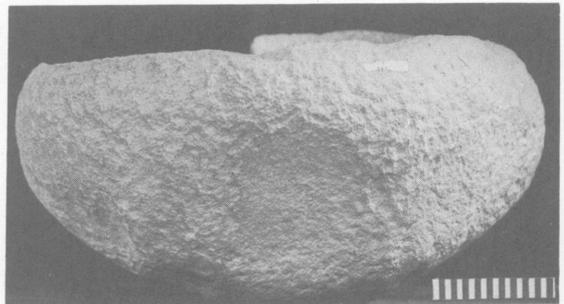
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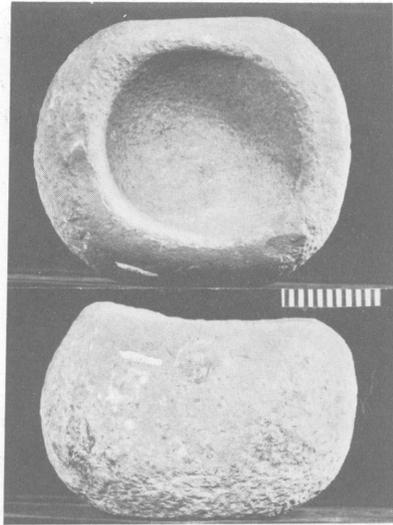
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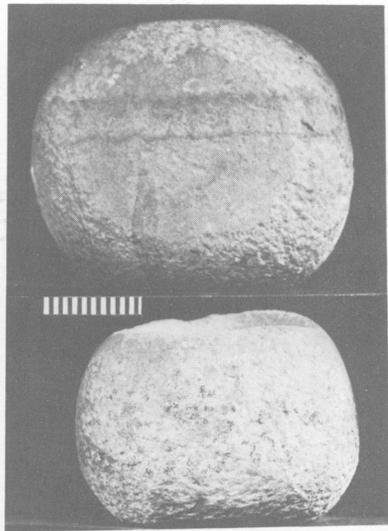
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g



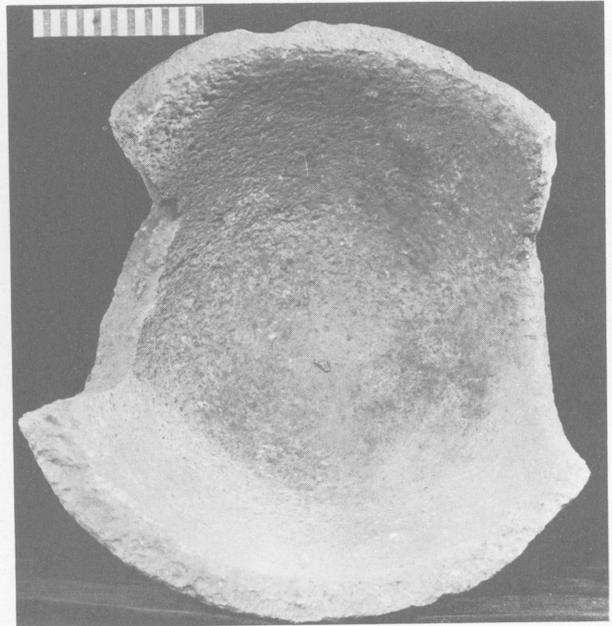
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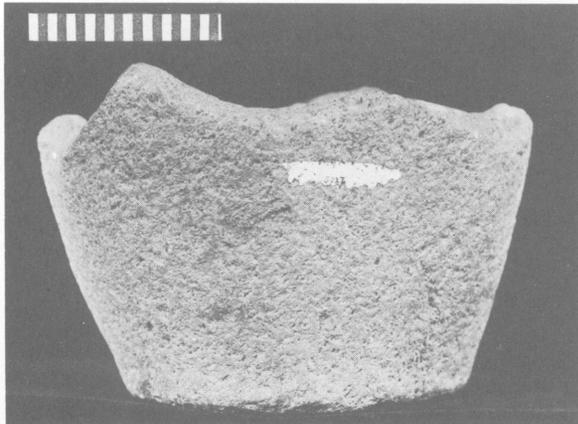
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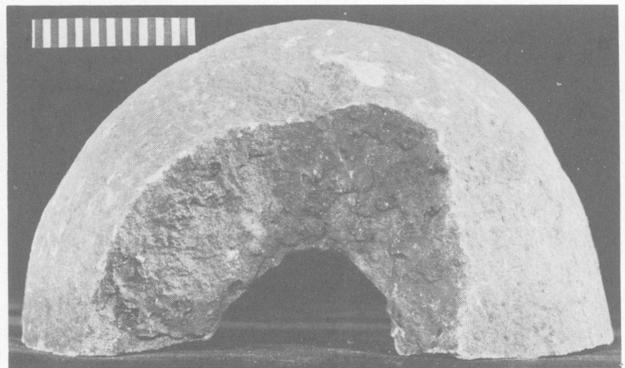
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d

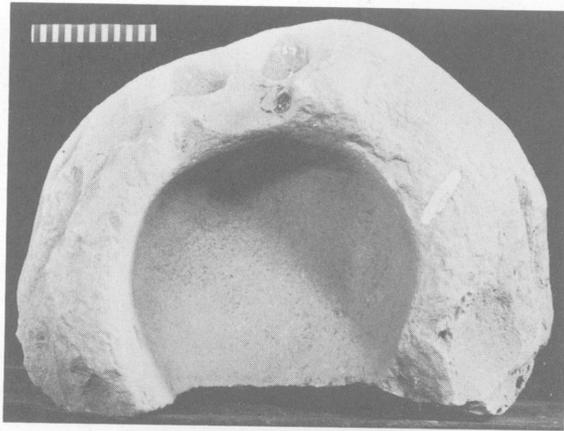


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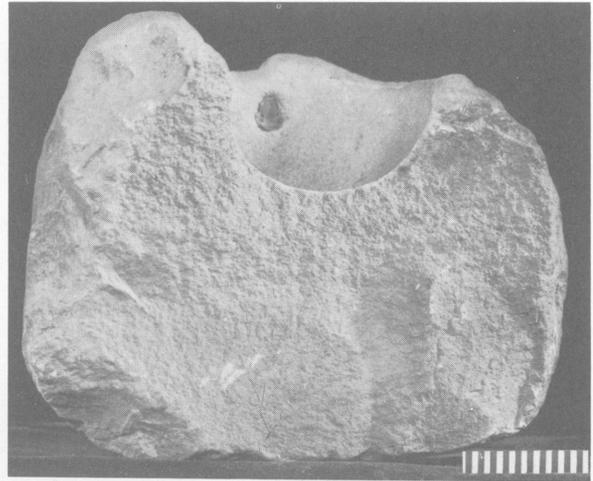


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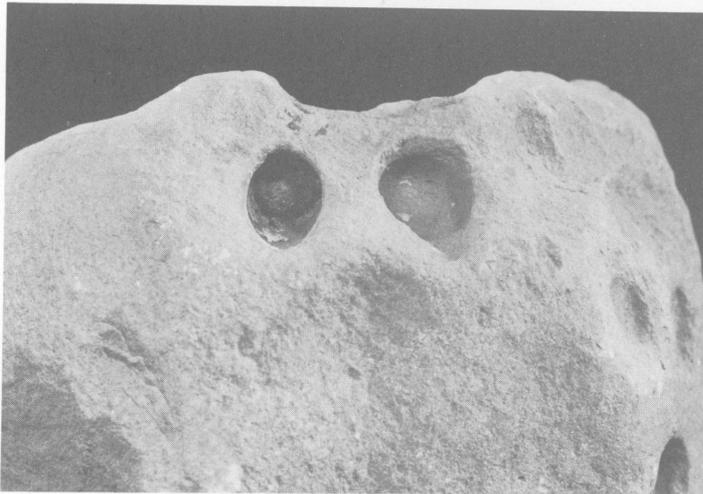
Plate 129



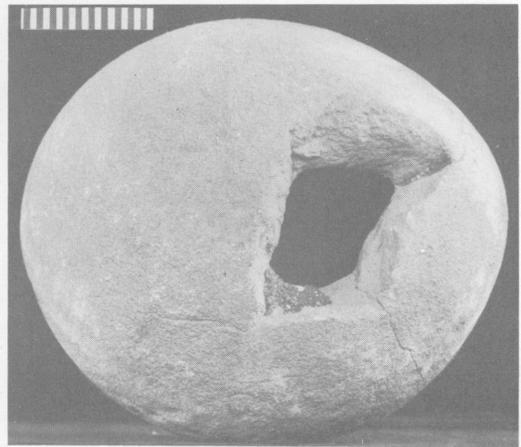
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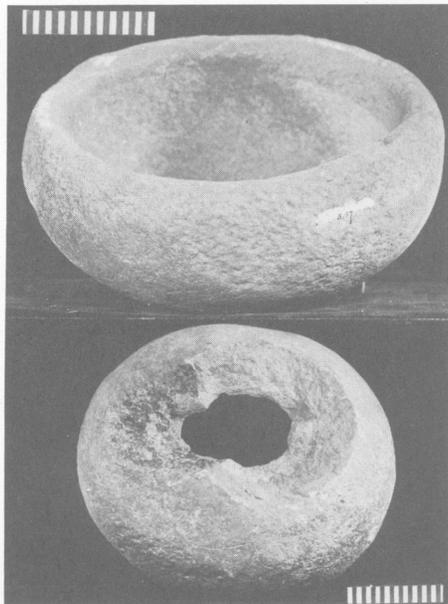
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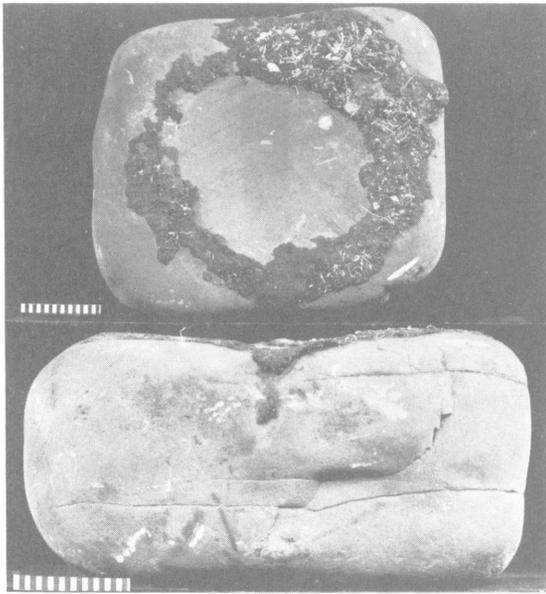
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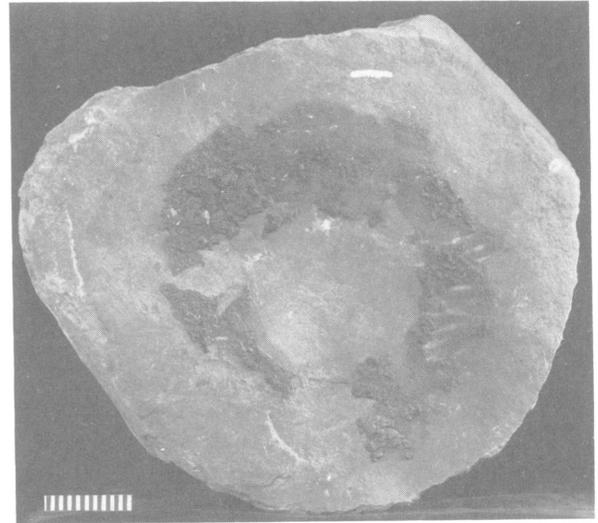
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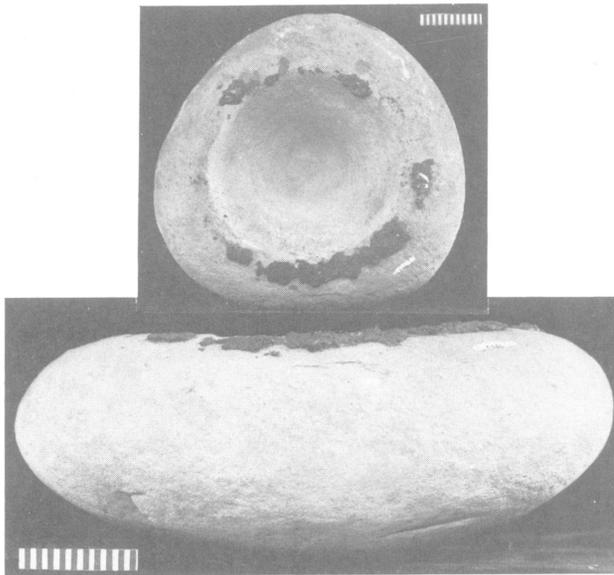
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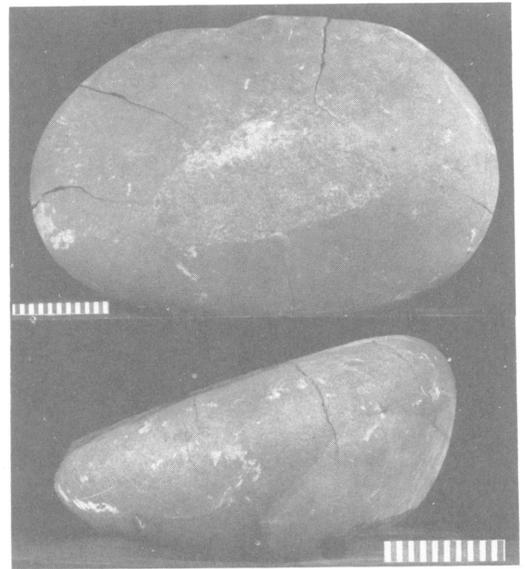
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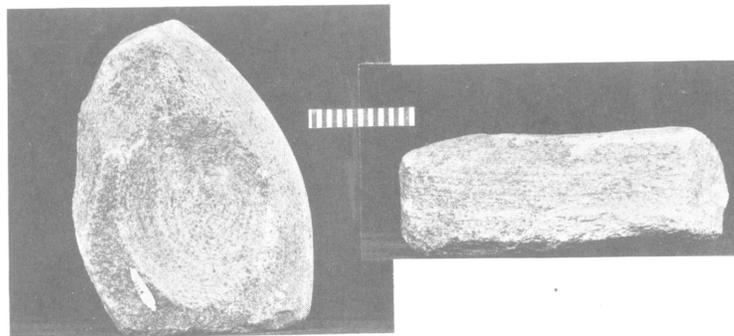
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c



d



e