

THE HERITAGE OF TWO SUBSISTENCE
STRATEGIES: PRELIMINARY REPORT ON
THE EXCAVATIONS AT GROTTA SCALORIA,
SOUTHEASTERN ITALY, 1978

SHAN M. M. WINN
DANIEL M. SHIMABUKU

OCCASIONAL PAPERS IN ANTHROPOLOGY

No. 9

Department of Anthropology
Saint Mary's University
Halifax, Nova Scotia
Canada

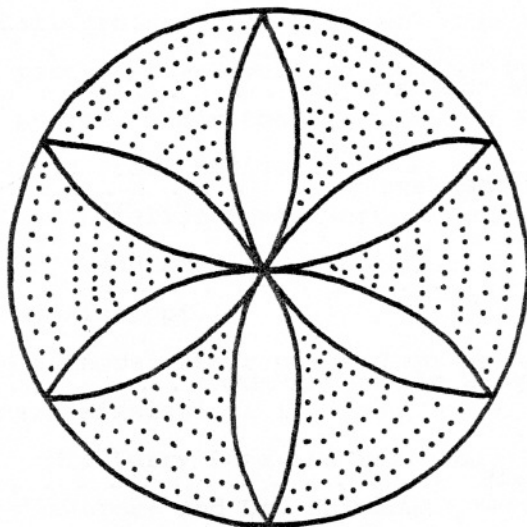
STATEMENT OF INTENT

The Occasional Papers in Anthropology Series is intended to provide a means for the rapid dissemination of data from current research in all sub-fields of anthropology. Secondly, the series is a means of circulating pre-publication versions of reports and monographs to solicit comment from readers. Copyright is reserved by the authors and permission to cite or quote should be obtained directly from the authors. The responsibility for content also rests with the authors and does not necessarily reflect the opinion of the Department or the University.

THE SERIES LOGO

The design on the next page represents a die, altestaan, used in the Micmac gambling game, waltes. The patterns used on the dice for this game generally include "petal" or semi-circular motifs, said to represent beaver tails, a choice food in the traditional culture. The particular design we have used comes from a die found in an archaeological site along the Fundy coast. The waltes game, which is played as avidly today as it was in the past, represents a long and rich tradition. We think this six tailed die an appropriate symbol for the intended subject matter of the series: research reports in the fields of archaeology, ethnology, folklore, linguistics, social anthropology, and physical anthropology.

OCCASIONAL PAPERS IN ANTHROPOLOGY No. 9



Published by the Department of Anthropology
Saint Mary's University
Halifax, Nova Scotia
B3H 3C3, Canada

Editorial Board:

Harold Franklin McGee, Jr., Editor
Susan Demille-Walter, Member
Paul A. Erickson, Member
James R. Jaquith, Member
Daniel M. Shimabuku, Member

1980

TABLE OF CONTENTS

Preface	v
Introduction	1
Excavation Outside the Cave	5
Excavation Inside the Cave	8
Pottery Typology	13
Quantitative Analysis of the Pottery	17
Nonceramic Materials	25
Summary and Conclusions	28
Appendix: Preliminary Report on the Skeletal Material Found at Grotta Scaloria, Italy by Robert I. Gilbert, Jr.	30
References to Text	33
Additional Bibliography	34
Description of Plates	37
Plates	39

PREFACE

Excavations at Grotta Scaloria near Manfredonia in Southeastern Italy were conducted during the summer of 1978 by a joint Italian and American team from the University of Genoa, the University of Southern Mississippi, and the University of California at Los Angeles. The excavations at Grotta Scaloria constituted a part of the Tavoliere Expedition, which was initiated in 1977 as a bilateral project under the direction of Prof. Santo Tinè of the University of Genoa and Prof. Marija Gimbutas of the University of California at Los Angeles. Italian funds were contributed by the CNR (Foreign Relations Office), and American funding in 1978 was provided by the University of Southern Mississippi.

In addition to the authors, other members of the excavation team from the University of Southern Mississippi included Dr. R. I. Gilbert, Jr., physical anthropologist; Mr. Larry Pete and Mrs. Judy Strimel, students. Dr. Winn was the field director; and Dr. Shimabuku served as research advisor. At the time of the 1978 expedition to Grotta Scaloria, Dr. Shimabuku was a faculty member of the University of Southern Mississippi; he is now with Saint Mary's University.

Since the 1978 expedition, there have been two more seasons - summer of 1979 and 1980. The 1979 excavations at Grotta Scaloria were exceptionally productive. During the 1980 season, there was a group representing Saint Mary's University. A complete report on all three season's work at Grotta Scaloria is presently being prepared and should be available through the University of California at Los Angeles.

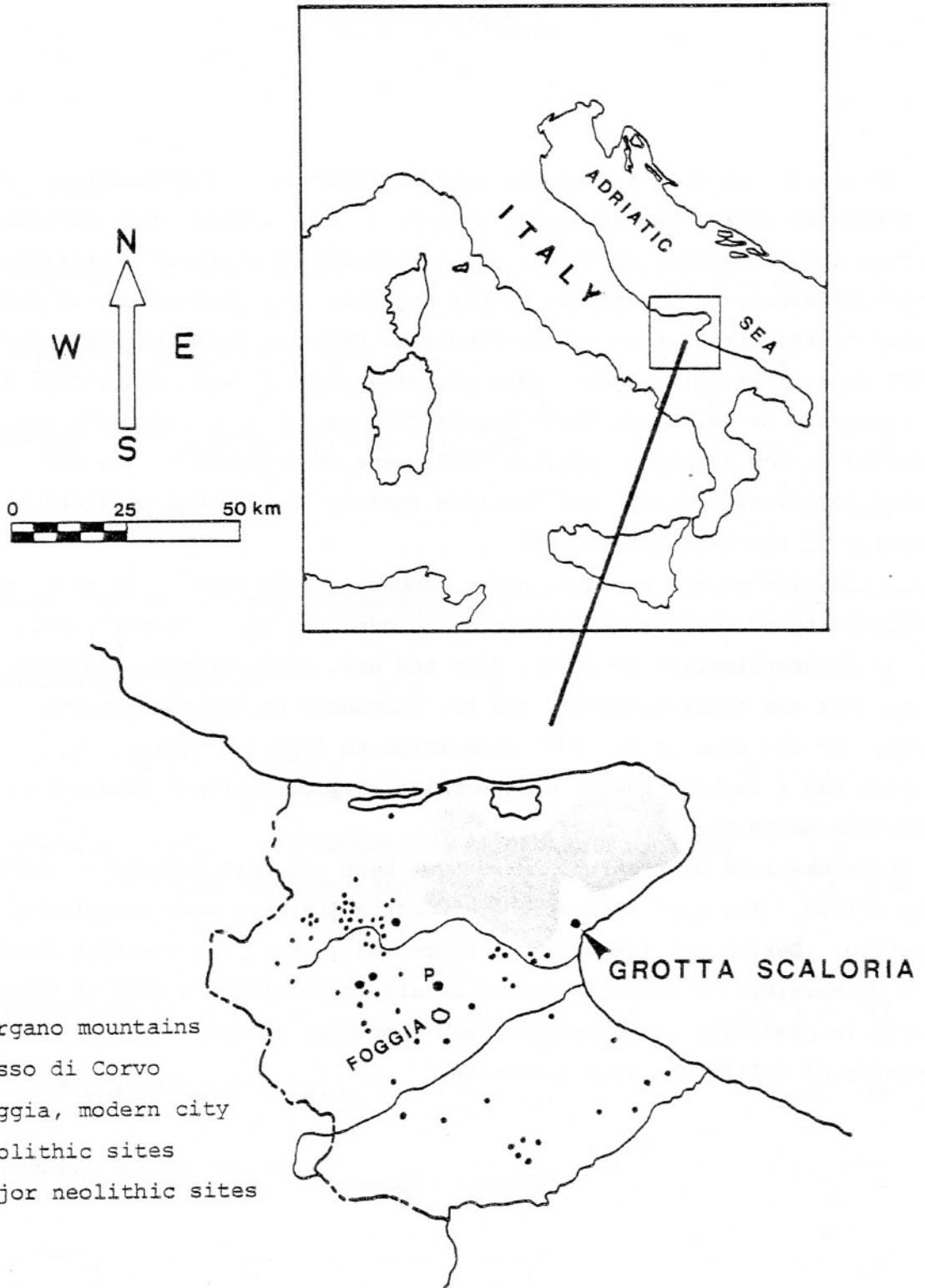


Figure 1

Map of Tavoliere Province and the Distribution of Neolithic Sites

INTRODUCTION

Grotta Scaloria is located on the outskirts of Manfredonia, Southeastern Italy, at approximately 2 kilometers from the Adriatic Sea. The location of this cave site is belied by the physical environment; that is, upon reaching the site, one views only a gently sloping field bordered by a few industrial projects and a sports palace. The mountains of the Gargano Peninsula rise sharply from the plain on the north. No neolithic potsherds or stone tools are found on the present surface to aid in the demarcation of the site. Indeed, the discovery of this site was due to construction of an aqueduct (pipe) to convey water from the Gargano to the city of Manfredonia in 1930. During the construction a small orifice leading to subterranean chambers was uncovered. Subsequent exploration by Quaglati (1936) revealed the presence of a neolithic cemetery in a large underground cavern. Material at this site represented a sequence of human activity extending from the Early Neolithic (7th millennium B.C.) to the Late Neolithic (ca. 3500 B.C.).

To date, surprisingly little is known about Grotta Scaloria. The limited excavations of Quaglati were published in an extremely brief summary, including only a few sketches of the material, by Rellini (1934). The excavated material is deposited in the Taranto museum. In 1967, a group supervised by Prof. Tinè recovered several large "cultic" vessels from the lower cave passages.

The decision to initiate thorough investigations of Scaloria cave was based on several factors:

1. Pottery sherds spanning several chronological horizons from the Early Neolithic (Impresso phase) to the Late Neolithic (Diana phase) are present on the site; thus the cave offers possibilities for obtaining a good stratigraphic sequence for the entire Neolithic period in Southeastern Italy.

2. Study of the burials in the cave cemetery may yield important information for physical anthropological studies of diet and disease. The grave goods, which are generally whole and intact, not only will provide a good inventory of at least certain categories of artifacts, but furthermore may aid in the reconstruction of certain aspects of social structure.

3. Additional caverns accessible only by difficult passageways extending into the lower regions of the cave may well be ceremonial in nature and thus may afford insights into "cultic" practices of the neolithic period (See Figure 2 and Plates XV and XVI). Large painted vessels placed on or near stalagmites hewn into pedestals have been discovered in these caverns. Tinè has interpreted this extraordinary complex of pottery and passages into the lower cave as a sanctuary for a water cult (Tinè 1972a).

Excavations at Scaloria in 1978 began at the surface, outside the cave, rather than in the cave. This was partially due to the difficulties of starting excavations inside the cave. That is, access to the cemetery is through a low narrow passage which one enters with much difficulty in a prone position, adding greatly to the problems of transporting tools and artifacts to and from the caverns. Secondly, an adequate lighting system required to permit excavations is costly. Finally, since a primary purpose of the 1978 excavations was to obtain good stratigraphy, it was felt better results would be obtained outside the cave. If indeed the cave had served as a cemetery and religious shrine, then stratified habitation levels most probably would be found outside the cave or near the original entrance. Discovery and excavation of the original entrance would yield the additional advantage of providing easier access for work inside the cave.

Various methods were utilized to aid in locating the neolithic entrance:

1. Crop marks were observed. This was done in early July, before the fields were burned following the harvest. The field under which the cave lies contained yellow-brown vegetation, but a patch of greener vegetation was noted in what seemed to be a very slight depression when observed from a distance or from higher ground. Since bedrock is believed to lie generally close to the surface of the field, the green vegetation seemed to identify an area where greater soil depth allowed deeper water and plant root penetration.

2. Magnetometer studies were contributed by the Lerici Foundation. Readings revealed a pronounced anomaly about 10 meters wide and 20 meters long that was centered precisely in the area of greener vegetation. Although the anomaly displayed a longer southward extension than the observed green area, it disappeared rapidly as one exceeded the boundaries of that area.

3. A probe was used to test the depth of the bedrock, which would indicate the roof of the cave. The bedrock was found to lie increasingly deeper as one entered the greener area, until finally the probe penetrated

to its full length without reaching bedrock. Elsewhere bedrock was encountered very near the surface.

4. The interior surface of the cave slopes sharply upward to the north, so that the passage between roof and surface becomes very restricted. Geological studies indicate that the cave was formed by separation of strata rather than by erosion. A massive rock and earth slide was discovered that contained habitation debris; significantly, no stalactites were found here. The debris included boulders and an accumulation of soil to a depth that, together with evidence of plant roots, suggested a point not far below the exterior field surface. Calculations regarding the location of this mound of debris indicated that it was located approximately underneath the green patch demarcated as an anomaly by the magnetometer study.

The above observations were sufficient to warrant excavation in the area where green vegetation, anomaly and deepest probings coincided. As systematic testing of the surface layers produced no significant artifacts, and since it appeared to consist of deposited soil washed down from higher elevations, we decided to remove the top soil mechanically. No evidences of habitation debris were recovered until approximately 60 cm. of soil had been removed. Once a large area was cleared of this surface wash, a 4 by 6 meter trench was surveyed and marked for excavation. Careful excavation proceeded with hand trowels and brushes. Twenty-four consecutive levels were designated.

Excavations within the cave could now be correlated with what was found outside the cave. Much of the material found in the cave is unstratified. The difficulties of interpreting materials found in the cave is explained below.

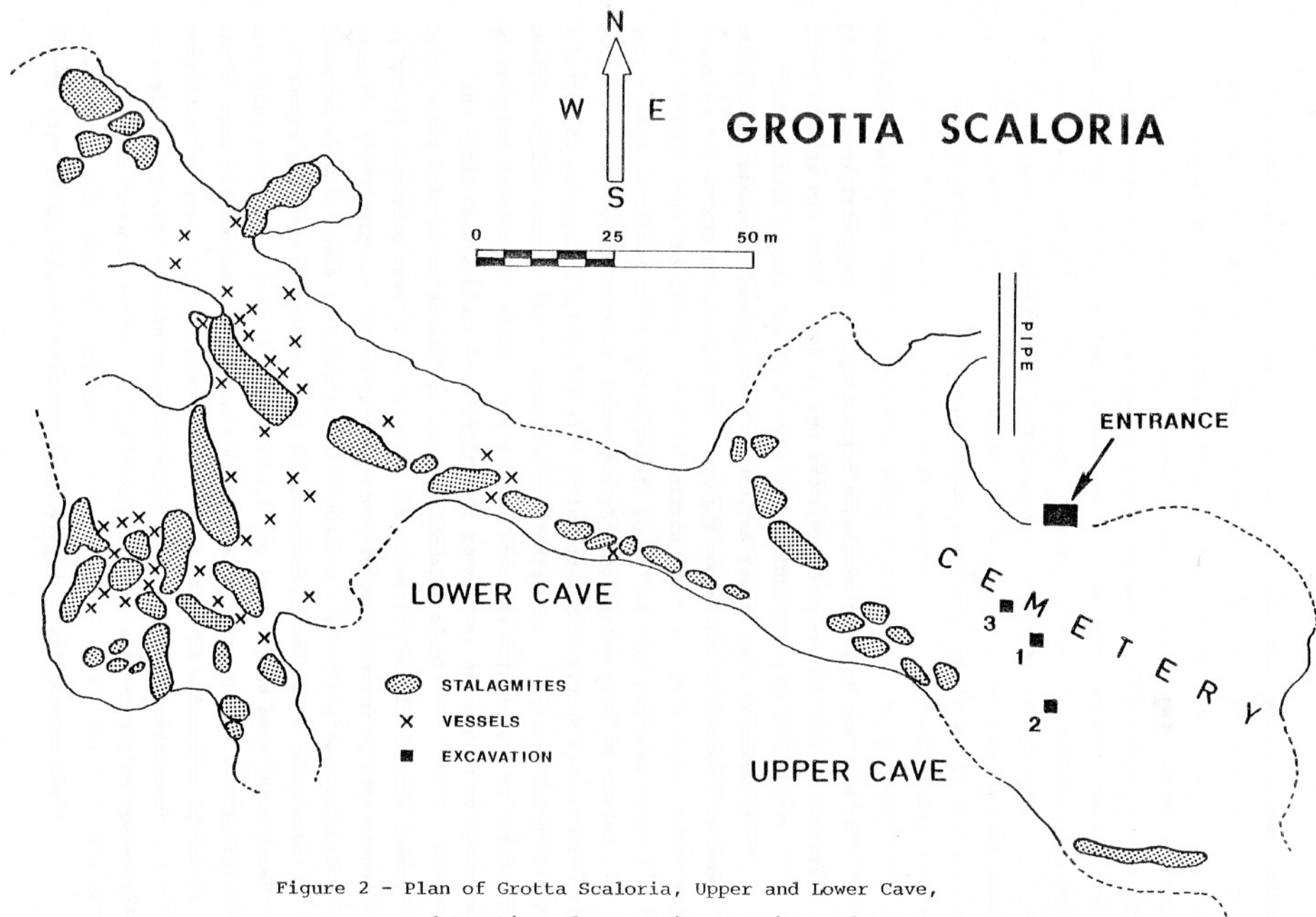


Figure 2 - Plan of Grotta Scaloria, Upper and Lower Cave,
and Location of Excavation Trenches and Areas

EXCAVATION OUTSIDE THE CAVE

The 4 by 6 meter area prepared for excavation was divided into contiguous 2 meter squares. (See Figure 2) After excavating only 10 cm. in the southern half of the area, numerous small stones appeared, immediately below which bedrock was reached. Thus the excavated area became confined to approximately 2 by 6 meters. Excavation of an additional 20 cm. exposed the level of small stones in much of the remaining area. This indicated that the cave roof was sloping downward gradually toward the north, and as expected, bedrock was encountered below the stones. Eventually only areas labelled 2 and 4 could be continued. A stratigraphic section was maintained in Area 4, but Area 2 was dug to the edge of the cave overhang in order to clearly expose the cave wall. (See Plate XVa)

It was hoped that we would be able to dig underneath the cave wall and thereby directly enter into Scaloria cave. However, after excavating a deposit of 2.4 meters, very large boulders greatly impeded further work, and it was decided to leave them in place at this time (to forestall further penetrations by clandestine diggers). At this point we were excavating very near the rock and earth slide noted inside the cave, and those team members working outside could easily communicate with others positioned inside, near this interior mound of debris.

The overhang and cave wall were cracked deeply from the upper surface of the rock wall downward. This may indicate a collapse of the cave roof. Based on shallow deposits overlying the bedrock elsewhere, one would not expect deep deposits (2.4 meters) to be overlying the roof. Rather, it seems more feasible that a portion of the overhang collapsed, thus mixing stones and earth with habitation debris while perhaps partially blocking the cave entrance. The loose, unpacked rubble of stones together with large sherds and bones, is suggestive of a collapse. It is possible, however, that a hollow created by a collapse was used as a place to deposit rubbish. This can only be resolved when excavations are continued to determine whether further deposits underlie the deepest level thus far reached.

The stratigraphic sequence, based on excavated stratigraphy, and supported by quantitative analysis of the finds, can be outlined as follows:

Stratigraphic Level	Excavated Levels (10 cm. arbitrary levels)	Deposit Depth
	sterile surface soil	50-60 cm.
III	1-6	60 cm.
	7-10	40 cm.
II	11-15	50 cm.
I	16-19	40 cm.
	20-24	50 cm.
		Total = 290 cm.

Levels 1-6 contained debris that was clearly washed in. Although much ceramic material was found, the sherds were small, rolled and heavily encrusted, suggesting they had been lying on the surface for a lengthy period and had been washed into the hollow. Lithics were equally encrusted, and many were small broken fragments. Not a single fragment of bone material was found. The soil was very hard and packed throughout.

Levels 7-10 contained looser soil with numerous pebbles that may also represent wash deposits, but this is not so apparent as in the upper levels. Quantitative analysis of the finds shows similar distributions as levels 1-6. The upper one meter of accumulated deposit has been labelled stratigraphic Level III.

Levels 11-15 contained a change to dark soil, and included ash and stones. The first appearance of bone is also registered. Sherds and lithics become very numerous. The loose consistency of the dark soil suggests intentionally deposited material, as in a pit. This may represent a period when the hollow was used as a dump, i.e., either shortly after a collapse of the cave wall or after diminished use of the cave. The debris appears

to reflect one horizon, but there is an admixture of material representing other phases. This deposit is designated Level II.

Levels 16-19 revealed very loose earth containing air spaces and large bones and sherds as well as small stones, giving the appearance of an earth fill. The presence of quern stones and pounders are indicative of habitation debris. Sherds are very large and pottery features such as knobs and a large quantity of dark burnished sherds become noteworthy. Complete long blades and other stone tools are found. The loose accumulation may indicate an abrupt, rapid deposit of material from a collapse or an associated cleaning-up process.

Levels 20-24 are basically the same as levels 16-19, except for the presence of huge boulders and large stones that suggest the actual rubble from a cave entrance collapse. Wattle and daub house rubble was found, as well as quern stones and pounders. Boulders prevented further excavation, and their removal is required before resumption of work to uncover any deeper levels is possible. The material from levels 20-24 does not differ from that found in levels 16-19.

Stratigraphic Level I thus includes levels 16-24. The rock and earth filled occupation debris found in the interior of the cave should be correlated with these levels.

In summary then, Level III is most probably the result of deposited material accumulated through wash from intermittent occupation or abandonment of habitation on the site, at least in the vicinity of the cave entrance. Level II may be transitional in character, including debris from the latest habitation horizon, some of which may have been water deposited. Clear habitation debris is found in Level I.

EXCAVATION INSIDE THE CAVE

Apart from the technical problem of access and adequate lighting for excavation inside the cave, the major archaeological problem was to locate undisturbed areas. Unfortunately, grave robbers have dug indiscriminately throughout much of the cemetery area in the cave. Piles of potsherds and bones mark disturbed burials, as do mounds of backdirt from their scavenging. Thus, it is a major task to ascertain areas which are still undisturbed.

Presumably, soil underlying the backdirt should be undisturbed. Thus, a long-range plan was made to clean the entire cave by mapping and collecting from the disturbed areas and then removing the backdirt. However, this project necessarily remained for future seasons. It was felt that more immediate attention should be devoted to gaining some understanding of the contents of the cemetery so that more specific objectives and research designs could be formulated.

Only limited excavations were undertaken inside the cave during 1978. These consisted of three small 2 by 2 meter trenches. The decision about where to excavate was based on surface indications and location in the cemetery area. (See Figure 2) Each trench produced at least one burial as well as numerous artifacts and some evidence of stratigraphy.

Trench 1: The discovery of an exposed human skull (Plate XIVc,d) was the immediate reason for excavating this trench. The skull had been exposed by water action; after periods of heavy rains, seeping water accumulates in channels that are observable at several locations inside the cave. Thin layers of mud encountered in Trench 1 probably are due to occasional stream action that transports earth deposits. These mud layers provided tidy stratigraphic divisions that aided in demonstrating that no intrusion had taken place in this trench. An unpierced calcareous deposit also neatly sealed off the lower levels.

Analysis of the pottery from this trench verified some stratigraphic accumulation. Late Scaloria pottery was found in the uppermost layers, while Passo di Corvo and Masseria la Quercia types were found in the lower levels. The deepest level produced a preponderance of Impresso sherds (See Figure 3 for an outline of the neolithic pottery sequence in Southeastern

Italy).

However, the stratigraphic context of the skull is uncertain, since no pottery was found associated with it. The skull was in a strange position at one end of a rectangular tomblike trench in the bedrock. Although probably a natural formation, this tomblike trench could have intentionally been selected as a suitable burial place; curiously, no other bones were found in it. An alternative explanation is that the skull is all that remains of a burial placed in a pit which has been washed away by the adjacent channel. This also raises the possibility that the skull might have been washed out of some burial on the upper slope (the cemetery area is located on a notable incline).

Fortunately, excavation gave evidence that the skull was undisturbed. The proof lies in the fact that the skull was covered with countless elongated tubular shells with glossy and fragile qualities. Such shells can be found buried in the sandy bottom of the Adriatic Sea and require considerable effort to locate (according to native informants). Many of the shells lying immediately on the skull displayed evidence of burning, suggesting funerary rites. Carbon was collected around the skull and also from the immediate vicinity. C14 analyses have yielded dates which are calibrated to the second half of the sixth millennium B.C. (LJ 4650, carbon on skull, yielded a date of 6490 ± 140 B.P.; LJ 4651, vicinity of skull, gave a date of 6330 ± 90 B.P.).

Over the right temporal bone was placed a dark-colored flint blade, a well-made type commonly found at neolithic village sites of the Tavoliere (Plate XIVd). The skull, tentatively determined to be that of a female, was cradled by stones (Plate XIVc). Flat shaped "lastra" (or tomb bricks) lay nearby (Plate XIIa,b). Such bricks are characteristic of the Serra d'Alto phase or perhaps of the late Scaloria phase (according to the evidence in Trench 2, see below).

Hundreds of tubular shells of the type described above also were found in a circular pit near the skull, but in a level sealed by mud deposits, and thus excluding any direct association with the skull. These tubular shells were associated with figulina ware. It is interesting to note that not a single shell of this type was found in Trenches 2 or 3.

Scattered human mandibles were found in Trench 1 (and also Trench 2).

Occasionally, splintered shafts of long bones without epiphyses were discovered nearby. Secondary burial may be indicated by these finds, or perhaps earlier unmarked graves have been unearthed and shoved aside during a later horizon by individuals randomly digging burial pits for their dead.

Curious caches of animal bones and artifacts were discovered in Trench 1. A small cavity bordered by flat stones contained three animal vertebrae together with an axe of dark stone and a well-shaped Campignian tool. Campignian tools are considered distinctive tools of hunting cultures (Paleolithic and Early Neolithic) of the Gargano Peninsula. Another cavity holding three animal vertebrae also contained tools typical of Campignian technology (Plate XIj). These deposits may represent cultic rites practiced by a society with strong hunting traditions or relying increasingly on wild animals for subsistence. Similar discoveries made in Trench 2 are described below.

Trench 2: The location of Trench 2 was chosen because a section of deep, artifact-laden, accumulation of soil already was visible; the abundance of potsherds, stone tools and bones constituted a rich sample. Excavation of Trench 2 revealed rich deposits of over 1 meter. After an initial 30 cm. of water-borne material, important discoveries were made of undisturbed burial and cultic deposits at various levels, providing some evidence of stratigraphy.

Many examples of late Scaloria pottery, including frequent meander motifs, were found in Trench 2. While numerous cardium shells were found, no tubular shells were discovered.

Evidences of possible cultic practices, virtually identical to those in Trench 1, were found on three separate occasions. In one case, small, flat slablike stones were found bordering a cavity in which had been placed three animal vertebrae and Campignian tools, including a pick-axe, a broad blade, and a polished stone axe. A bone awl also was associated with this group (Plate XIVb). In another cavity were located Campignian tools, including a spearhead and a tranchet, and two animal vertebrae. Contrasting with these finds were evidences of human burials with an entirely different set of tools. In one burial, the distal end of a humerus was found in association with an obsidian blade. And, near the lowest level, a human mandible lay near long flint blades. A long one-edged knife was found near another

human bone.

In summary, it seems that the hunter's tool kit accompanies animal vertebrae, while blades and knives of the farming villager's tool kit are associated with human remains. It is possible that two subsistence strategies are represented, or alternatively, an increase in hunting tools in the late Scaloria period may indicate a change in subsistence strategy, correlating with an hypothesized desiccation of the Tavoliere and subsequent abandonment of sites (more discussion follows).

The major discovery of Trench 2, however, was the unearthing of a complete, tightly flexed burial (Plate XIVa). The skeleton lay on the right side, with the hands placed in the praying position under the jaw. The head was bent forward. A narrow flint blade lay below the left temporal bone, and behind the head was placed an antler. Adjacent to the pelvis had been laid a large bovine vertebra. Large flattish stones, found near the knees and in front of the head, could not be definitely determined to be associated with the burial. Some fragments of tomb bricks ("lastra") were also found. The skeleton was that of a young man, probably about 20 years of age (see report by R. Gilbert, Jr. below). No shells were found with this burial, nor was any associated pottery uncovered. Pottery that overlay this burial contained many typical late Scaloria (or Upper Scaloria) types.

Trench 3: The location of Trench 3 was chosen because it provided an opportunity to explore a flattened area, protected by some backdirt left behind by grave robbers. Trench 3 proved to contain only a shallow deposit, but finds included a beautiful bone ornament, perforated at both ends for hanging around the neck or wrist (Plate Xg). The practice of burying vertebrae together with tools was also noted.

The upper levels contained considerable carbon intermixed with the earth, overlying sterile yellow, loamy soil. Of considerable importance was the outline of an intrusive circular pit cut into the sterile yellow soil. Excavation of this pit, about 1 meter in diameter, showed it had been dug for burial purposes. Evidences of multiple burials, proved by the discovery of two left mandibles, were found in the pit. Numerous fragments of broken and splintered bones were also unearthed; no bones were unfragmented.

These shattered bones may represent secondary burials or some other

funerary practices such as ritual cannibalism. Evidence of fire and burning were found in the burial pit. Pottery from the pit was not characteristic of the late Scaloria phase, as represented by Trench 2. Some sherds could be chronologically from a phase synchronous with Level I, but no sherds verifiable to the so-called Lower Scaloria phase were found in this pit. It is tentatively concluded that the pottery from the burial pit and, indeed, from all of Trench 3 is somewhat earlier than that found in Trenches 1 and 2. This chronological inference is also suggested by a C14 date obtained from carbon collected near a mandible in the burial trench: 6720 ± 100 B.P. (LJ 4649), calibrated to approximately the middle of the 6th millennium B.C. Impressed pottery was found in the lowest levels of Trenches 1 and 2, but no burials can be linked with these levels. At present, the evidence is too tenuous to state whether these varying human burial practices represent different phases, and, in the case of animal vertebrae burials with Campignian tools, whether different subsistence patterns provide an explanation for these unique and curious practices.

POTTERY TYPOLOGY

The great majority of the pottery recovered during the 1978 excavations at Grotta Scaloria was comprised of figulina ware, which is characteristic of the Middle Neolithic. However, all periods of the neolithic pottery in Southeastern Italy are represented at Scaloria. On the basis of our limited excavations, the chronological periods are most easily outlined as follows:

LATE NEOLITHIC --- SERRA D'ALTO PHASE --- Late 5th Millennium - 3500 B.C.

MIDDLE NEOLITHIC - SCALORIA PHASE ----- 6th-5th Millennia B.C.

EARLY NEOLITHIC -- IMPRESSO PHASE ----- 7th Millennium B.C.

Tinè (1975) has divided the neolithic sequence of Southeastern Italy into seven cultural phases, based on pottery types and decorative motifs. (See Figure 3) However, only a small percentage of the pottery at Scaloria can be definitely assigned to these ceramic phases. Division of the Scaloria material into three neolithic phases, on the other hand, allows a more explicable distribution.

Early Neolithic

Impresso: Various methods of impressing Early Neolithic ceramics have been observed, particularly including wavy decoration, made by cardium shell, stabbing or incising with bone or stick instruments, fingernail impressions and pinching with the fingers (Plate I). Simple shapes and a light buff fabric with a rough surface characterize this phase.

A rather high proportion (28%) of the feature sherds in Level I are impressed. This indicates that the Scaloria phase stratigraphically follows the Impresso phase (hence a mixture occurs in the hollow at the lowest level), or impressed pottery continued to be produced in the Middle Neolithic.

Guadone: A later variation of Impresso, this pottery generally possesses a smooth brown burnished surface, impressed with wedges or other designs in

Figure 3
Chronological Chart of the Neolithic Period in Southeastern Italy

Neolithic Phases	Sites Features of Pottery	Radiocarbon Dates B.P.	Approximate True Age B.C.
VII	DIANA long tubular handles		4000
VI	SERRA D'ALTO bichrome painted designs; decorative handles, appliqué		4500
V	UPPER SCALORIA bichrome painting introduced		5000
IV	LOWER SCALORIA	6440 ± 140 B.P. (LJ 4650)	5500
	PASSO DI CORVO (UPPER) red band painted; variety of shapes; carinated and square-mouth vases appear	6330 ± 90 B.P. (LJ 4651)	
III	MASSERIA LA QUERCIA PASSO DI CORVO (LOWER) red on buff painted pottery; figulina ware introduced	7000 ± 100 B.P. (Scaramella, Rome)	6000
II	GUADONE	7110 ± 140 B.P. (LJ 4548)	
	RENDINA impressed, incised, rocker stamped; red and white encrusted pottery; conceptual design introduced	6900 ± 150 B.P. (LJ 4551)	
I	PRATO DON MICHELE cardium and fingernail impressed pottery		6500

an organized manner (Plate IIa); that is, the vessel is not haphazardly covered with designs but motifs are arranged in rows and are restricted to certain portions of the vessel in what appears to be an organized attempt at decoration. Scratched ware with diagonal hatching (Plate IIb) may belong to this or the succeeding pottery type/phase. Only 3% of the feature sherds manifest the most distinctive characteristics of the Guadone phase ceramics, but a good number recall more general Guadone techniques.

Masseria la Quercia: This transitional phase between the Early Neolithic and the Middle Neolithic introduces painted figulina ware in combination with impressed designs. Simple dark painted parallel lines (Plate IIc) and linear geometric designs, including hatched bands and triangles, are typical. Very few sherds could be positively assigned to this phase.

Middle Neolithic (or Scaloria Phase)

75% of the total feature sherds analyzed is figulina ware or dark burnished ware. This represents the typical pottery of the Scaloria phase. Simple painted bands constitute the predominant motif. Interesting variations (Plates V and VI) were introduced later in the Scaloria phase. The evidence of pottery alone indicates that the most important and extensive habitation at the cave occurred during the Scaloria phase.

Passo di Corvo/Lower Scaloria: Middle Neolithic pottery is typically manufactured of buff burnished figulina ware and is frequently decorated with simple red or brown painted curved or chevron bands (Plates III and IV). Figulina pottery and red-banded motifs are extremely common at Scaloria; similar ceramics found at the large open air site of Passo di Corvo (Figure 1) appear to be a separate variation contemporaneous with Lower Scaloria. Dark burnished gritty ware also comprises an important portion of the pottery at Passo di Corvo (Tinè 1972), as it does in Level I at Scaloria.

One distinguishing trait of Lower Scaloria material includes the technique of cancelled or reserve painting; portions of the black painted bands are removed at closely spaced intervals, creating a discontinuous motif. These discontinuous bands or lines occasionally border a wider red-painted band. Examples of these techniques are rare, and thus far they have been discovered almost exclusively in the lower passages. The technique of bordering bands with painted lines of another color foreshadows the bichrome designs of

the late Scaloria phase.

Upper Scaloria (or late Scaloria): Striking innovations, including meanders and other motifs (Plate VIIIa-d) occurred at the end of the Scaloria phase (or perhaps these motifs may introduce the Late Neolithic). An important trait of late Scaloria (and of the Late Neolithic) is bichrome pottery (red and black) in which a band is margined with a parallel band or lines of contrasting color (Plate VII). These new motifs appear on possible imports, or special vessels, deposited with burials. Thus far, this innovative pottery style has been encountered only in the vicinity of graves. Excavations outside the cave (Area 2) produced no characteristic meander motifs or any of these late Scaloria designs.

Late Neolithic

Serra d'Alto: No examples of this phase were located in the excavations outside the cave, but a very fine carinated bowl found in the cave (probably representing a disturbed grave) may belong to this phase (or late Scaloria). This bowl was decorated with applied rope design on the shoulder and incised crossed chevrons on a flat, wide rim (Plate VIIIe). The absence of Serra d'Alto material suggests abandonment of the cave or an approximate contemporaneity of late Scaloria and Serra d'Alto. Bichrome pottery with meander and other motifs may introduce the Late Neolithic.

Diana: A limited number of long tubular handles (Plate VIII f,g) of the Diana phase were found inside the cave. One nearly complete vessel (Plate VIII f) with a slender unpierced trumpet lug was found in the vicinity of a disturbed burial. It had a flat base and the ware was a coarse dark burnished type. Diana fragments were not found in the stratified levels of Area 2.

QUANTITATIVE ANALYSIS OF THE POTTERY

The sherds selected for intensive analysis were collected from the excavation of Area 2 (described previously), adjacent to the rock wall of the neolithic entrance. This area was chosen because it provided the most complete stratigraphic sequence (24 levels) of the 1978 excavation. The ceramic material from Area 2 included approximately 6,000 body sherds and 1,155 feature sherds, i.e., rims, bases, accessories, such as knobs, lugs, handles, etc., and decorated pottery (impressed and painted). Most of the material possesses characteristics of the Middle Neolithic/Scaloria phase.

Plain Body Sherds:

The body sherds (84% of the total ceramic material from Area 2) were analyzed for ware, thickness and surface finish. Distributions by total inventory are presented below.

Ware: Three types are predominant; there are extremely rare examples of additional types. The three common wares distinguished by temper are:

1. figulina = a fine, compact, well-levigated buff clay (71%)
2. gritty = usually small white or dark grits; occasionally includes a small amount of shell; moderately well-fired fabric (12%)
3. shell = bits of shell with occasional gritty inclusions; results in porous fabric (17%)

Thickness: Based on partial sample measurements; arbitrary assignments were made as follows:

1. thin = less than 3 mm. (3%)
2. medium = 3 mm. to 7 mm. (59%)
3. thick = 7 mm. to 10 mm. (20%)
4. very thick = more than 10 mm. (18%)

Surface finish: Exterior and interior finishes included:

1. burnished, buff (31%) or dark (5%)
2. white slipped, polished (18%) or unpolished (7%)
3. red slipped (2%)
4. plain, buff (34%) or dark (3%)

Quantitative analyses of the attributes of temper, thickness and surface finish suggest certain technological templates in the minds of the Scaloria pottery manufacturers. Patterns of surface finish, color and thickness of the three principal wares are revealed below:

WARE	SURFACE FINISH			THICKNESS					SURFACE FINISH			THICKNESS				
	Burnished	White slipped	Red slipped	Plain	Thin	Medium	Thick	Very Thick	Burnished	White slipped	Red slipped	Plain	Thin	Medium	Thick	Very Thick
Figulina	47%	35%	2%	16%	X	X										
Gritty				53%			X		31%			16%		X	X	
Shell				85%				X	6%			9%			X	
				Buff					COLOR			Dark				

Feature Sherds

The pottery attributes that were computerized and analyzed for the feature sherds include:

1. ware
2. thickness
3. exterior surface finish
4. interior surface finish
5. vessel shape
6. rim/lip shape
7. body wall changes
8. base
9. accessories (handles, lugs, knobs, etc.)
10. painted decoration
11. paint color
12. orientation of painted design
13. impressed decoration
14. method of impressed design

Cluster analysis and other techniques of analysis, which hopefully will aid in determining stratigraphic phases as well as establishing cultural sequences, have not yet been completed. However, some preliminary quantitative results may be useful in directing future research.

Analyses of vessel shape (open 57%, closed 11%, vertical 15%, incurvate 14%), of rim/lip shape and of accessories showed the following correlations.

Associations with figulina ware:

1. incurvate shapes
2. lips with tapered interior and exterior form
3. flared rims
4. carinated body shape
5. handles and pierced lugs
6. painted decoration
7. necks with white slip

Associations with gritty ware:

1. buff: knobs and unpierced lugs
2. dark: flat lips

Associations with shell-tempered ware: virtually all impressed designs.

In addition, there appear to be stratigraphic correlations with trends in the manufacture of the three main wares. Based on analyses of both body and feature sherds from Area 2, a distinct cleavage is suggested between Level I and Level II. (See Figure 4)

The larger percentages of thick-walled, shell-tempered ware and dark gritty or thick buff wares in Level I outside the cave contrast with the findings of Trenches 1-3 in the cemetery, where there was a consistently high proportion of figulina ware and a minority (20%) of dark burnished gritty ware, and where scarcely any shell-tempered ware, characteristic of impressed pottery, was found (except at the lowest levels of Trenches 1 and 2). The burials, thus far studied (including those disturbed by illicit digging), are clearly datable to the Scaloria phase. It would appear then that the cave was not used as a cemetery during the Early Neolithic or Impresso phase. And, if impressed pottery was indeed still being produced during the Scaloria phase, it perhaps was relegated to use in cooking, or some other solely utilitarian purpose, and was not placed in graves as a

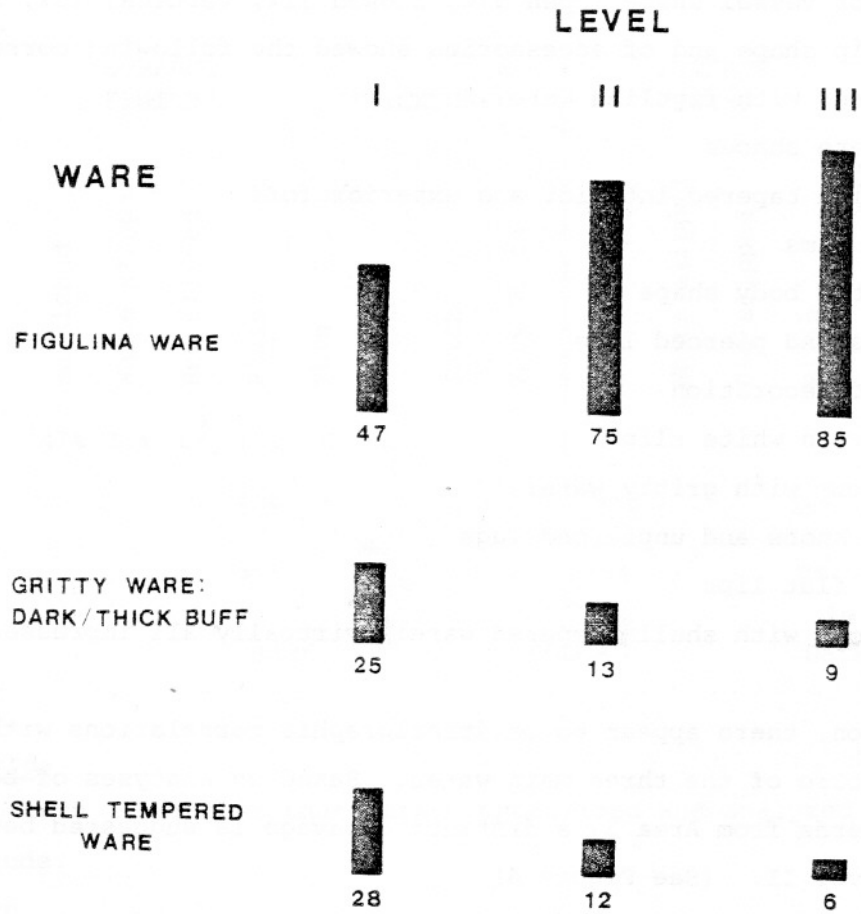


Figure 4

Percentages of Three Principal Wares by Level

ceremonial item.

Impressed Pottery

Impressed sherds were found stratigraphically in Area 2 as follows:

LEVEL	I	II	III
	69%	27%	4%

The high percentage of impressed sherds in Level I (a Scaloria horizon which gives the best evidence for habitation) and the presence of impressed designs on dark burnished ware (Plate XIIIb) may indicate their continued production in at least the early Scaloria phase (unless, of course, mixing of an earlier Impresso habitation level with Scaloria material has occurred). Therefore, although impressed pottery is typical of the earliest phase of the neolithic period in Southeastern Italy, at least some of the impressed motifs may have continued in popularity into the Middle Neolithic.

Impressions are made on the vessel surface before firing by using a cardium shell (Plate Ia), bone, stick or fingernail. The most frequent impressed decorations found in Area 2 were nail (Plate Ib), pinched (Plate Ih) and cardium impressed, as well as incised lines (Plate Ie). Less frequent, but notable, motifs include wedges (Plate Ic), dots (Plate Id), stabs (Plate Ig), double stabs and rows of teeth (Plate IIa). Other types, including rocker (produced by rocking a cardium shell back and forth across the surface of the vessel) checkmarks and combinations of motifs, are infrequent.

Three-fourths of all examples are impressed randomly (Plate Ie in particular), with no attempt at organization. The remaining 25% of impressed examples demonstrate orderly impressions (especially Plate If; photograph of same, Plate XIIIb), a technique which is typical of Guadone phase (but associated attributes of fabric and surface finish do not always typify this phase).

In reference to stratigraphy, it may be significant that most of the organized impressed designs, generally thought to be later Impresso types, occur in Level I in the habitation debris of the Scaloria phases. Level II has very few impressed examples (almost certainly washed in); these resemble

the impressed wares of the Early Neolithic in general. Level III contains most of the simple cardium designs and a few examples of cardium rocker impressed, both of which are Early Neolithic impressed motifs. Level I, however, contained dots and rows of teeth as well as elaborate impressed designs that are combinations of motifs, often including nail impressed with an additional motif of wedges or scissorlike designs. Very abbreviated apostrophe-like impressions arranged in rows also occur in Level I. These elaborate designs suggest some development or at least a later chronological period. Perhaps Level I represents a more accurate inventory of impressed designs for a particular phase, while the representation in Level III is mixed and may indicate a partial reverse stratigraphy, based on gradual deposition of washed-in materials from earlier times. A greater sample of these motifs is needed before any conclusive deductions can be made.

Painted Pottery

The bulk of painted pottery displays motifs composed of bands (Plate IVc,d) and lines (Plate IIc), generally in red paint (78%). Dark paint (15%) is often used for rendering lined motifs. Bichrome red and black painting, consisting of lines margined by a narrow band of contrasting color, was a later development.

While painted pottery from only Area 2 has been quantitatively analyzed, observations have been made regarding pottery recovered during excavations of the burials. A difference has been noted in the distribution of painted motifs: pottery associated with burials, or at least found in the cemetery area, has a wider range of motifs than pottery found outside the cave. Distinctive meandering of flamelike patterns (Plate VIIIId) are introduced in the late Scaloria phase (or later). Other elaborate designs from the same period include crescent moons (Plate XIIIe), checkerboards, and linear motifs with dots (Plate VIIIIa,b), which are comparable to Ripoli painted decoration. Examples of bichrome painting, including overlapping chevrons in thin black-painted lines bordered by red bands (Plate VIIc), also are found in the cemetery.

The painted pottery found in Area 2 was comprised almost entirely of bands and lines. Five-sixths of these examples from outside the cave are painted on the exterior only, while the remainder are equally divided between

1) painting on the interior of the vessel only and 2) painting on both the exterior and the interior. No significance seems to be attached to this distribution, since identical motifs occur irrespective of the exterior or interior location.

The most frequent painted motifs by basic components are:

1. straight bands (45%)
2. curved bands (12%)
3. multiple lines, closely-separated (12%)
4. single, widely-separated lines (6%)
5. chevrons, line or banded (7%)
6. bands on exterior with lines on interior (3%)

The remaining 15% is composed of minor variations of the above. (For examples of painted motif variations see Figure 5, below.)

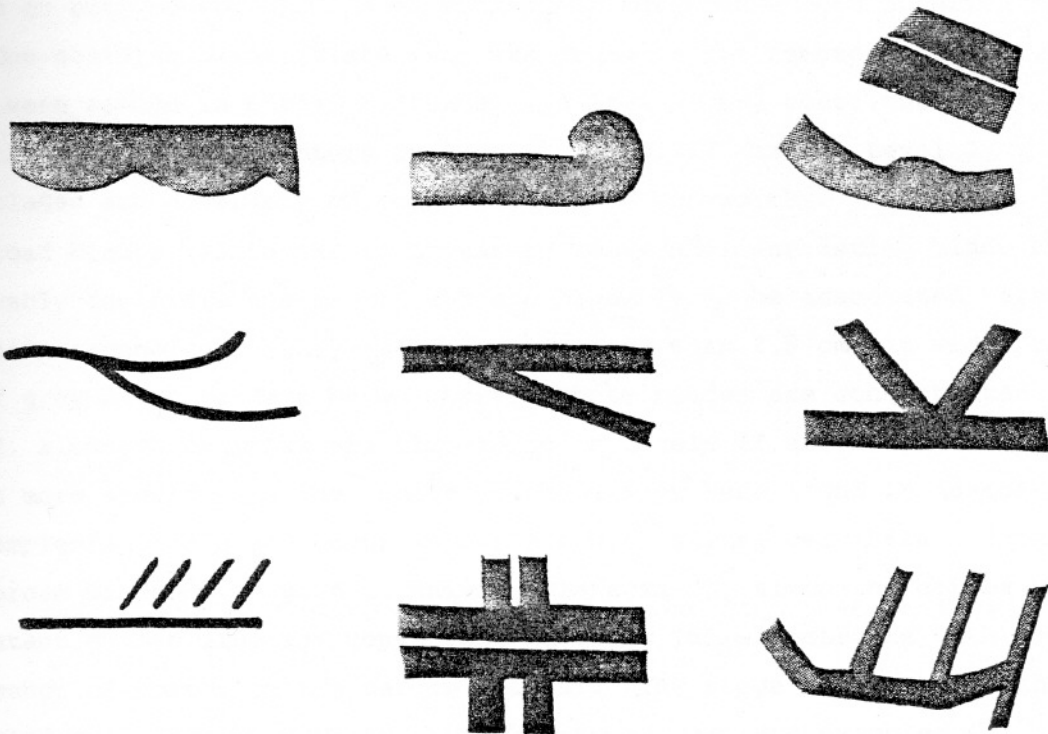


Figure 5

A Selection of Painted Band/Line Motifs of the Scaloria Phase

Some tenuous observations can be made about stratigraphic occurrences of some painted types. Straight bands are found throughout the sequence in Area 2, as well as in excavated areas of the cemetery, but curved bands and chevrons are more frequent in Area 2. Elaborate combinations of exterior bands with interior lines are limited to Level I. Dark paint is more prevalent in Levels II-III than in the occupation debris of Level I. Additional excavation is necessary before inferences can be made from this data and a more complete painted pottery sequence developed.

NONCERAMIC MATERIALS

Lithic Industry

The chipped stone tools have not been thoroughly studied at yet. A grab sample was made from Levels I, II and III, and observations were regularly recorded regarding the lithics found inside the cave in Trenches 1, 2 and 3.

A clear dichotomy in lithic technology is noted. The most common finds are narrow, parallel-sided blades of grey chert. A small number are made of dark chert, and more rare finds consisted of honey-colored or pinkish chert blades. These blades (Plate IXj-n) have a general maximum width of 1.5 cm., and the majority are considerably narrower than 1.5 cm. Approximately 10% have varying light to heavy retouch, applied dorsally. A few examples have retouch on both edges. No blades with plant sheen have been observed thus far. One obsidian blade (Plate IXo) was found in the cemetery. Narrow blades were common in burial contexts. In Area 2 they constitute a greater percentage of lithic inventory in Levels II and III than in Level I, where broad blades and a variety of other tools were noteworthy.

Broad blades (Plate IXe-i) appear to represent contrasting blade type, conceivably for different usage, and are probably to be associated with Campignian technology. They are generally more than 2.5 cm. in width and made of grey-brown or dark brown chert. These blades are concentrated in Level I, although examples are also found in Levels II and III. Their context is more specific in the cemetery, where they were found in association with Campignian tools and occur in burials with animal vertebrae. Some of these broad blades were used as knives (Plate Xa-c), since the cortex was left intact on one side for convenient handling (this contrasts with the total absence of cortex on the narrow blades). The range in length of these broad blades is unknown, due to the scarcity of complete examples.

Campignian tools, including axes, pickaxes, tranchets or chisels, and perhaps points, were found in Level I (Plate IXa-d). Many examples of Campignian tools were found in the cemetery, generally in a "cultic" arrangement (Plate Xd-i). These tools are crudely made of greyish-brown stone.

Larger scrapers and broad blades, along with Campignian tools, were recovered principally in the habitation debris of Level I, but the same tool

associations are made in the cemetery. A few graters and smaller scrapers complete the lithic inventory.

Some cores were found, indicating tool manufacture at the site, but a relatively small amount of waste flake material occurs in the deposit, even in the excavations at the entrance of the cave, where most of the removed earth was systematically screened. The surprisingly low count of waste flakes at Grotta Scaloria demands explanation.

The differing technologies of blades and the distinctive Campignian tools found together in close contexts suggest some sort of interrelationship between a hunting tradition with large, rather crudely, made tools and a farming tradition with well-made blades (and fine pottery).

Polished Stone Tools

Polished stone tools were scarce; the only examples were found in Level I (living debris) and in the cemetery. The fine examples, unearthed in the cemetery, showed no trace of use, but those found in Level I revealed battered edges. Polished stone axes or celts (Plate XIIId) vary in size and are similar to those from other neolithic sites.

Ground Stone Tools

Grinding stones were encountered only in the occupation layers of Level I, with the exception of one example. This example was a double-hollowed mortar (Plate XIIIE) found at the uppermost excavated surface of Area 2; it is tentatively assigned to the neolithic period, until proven otherwise. The hollows are small and perhaps were used for grinding pigment or other items used in small quantities. Querns (Plate XIIIC) and pestles/pounders (Plate XIIIF) were the usual types of ground stone tools.

Bone Tools

Well-polished awls and needles were made of bone (Plate XIa-c). Spatulas also were found, as well as some bone tools of unidentified use. Butchering scratches are noted on some bones (Plate XIId-f).

Ornaments

An ornament of bone, pierced on both ends, was deposited in the cemetery

and may have been used as part of a necklace (Plate XIg). Large incisors also were perforated at one end for use as pendants or necklace pieces (Plate XIh,i). A stone bracelet fragment was found. Elongated, tubular shells were determined to be unmodified, but found in contexts suggestive of the ornamental nature of these delicate shells (See description of Trench 1).

Faunal Remains

The analysis of faunal remains is being undertaken by Dr. Sandor Bökönyi, Institute of Archaeology, Budapest. He is comparing the Scaloria material with animal bones recovered from other neolithic sites in the area - Passo di Corvo, Lagnano and Rendina.

Paleobotanical Material

Reconstruction of the floral history will be based on charred grains recovered by flotation methods and a pollen column from Area 2. The palynological (soil) and grain samples have been sent to Dr. M. Follieri, University of Rome.

SUMMARY AND CONCLUSIONS

In view of the many uncertainties already expressed in the foregoing, it is evident that more work is required before the reconstruction and explanation of cultural development at Grotta Scaloria will emerge. Nevertheless, some consideration should be made of the following observations.

Outside the Cave

1. The presence of figulina ware with typical Scaloria phase pottery in the habitation horizon of Level I.
2. The absence of typical late Scaloria motifs in Level I.

Inside the Cave

1. The presence of burials beginning in or just preceding the late Scaloria phase.
2. The presence of earlier Scaloria pottery and absence of late Scaloria pottery in the less accessible lower cave passages.

Lower Cave Passages

Occupation debris in Level I contains pottery of the type that is also found in the lower cave passages, which possibly were used as a ritual sanctuary. Although this pottery is typical of the Scaloria phase, it does not include characteristic late Scaloria motifs; hence, pottery found in Level I and in the lower cave passages is approximately contemporaneous. The unusual motifs of the late Scaloria phase are virtually restricted to the cemetery. This indicates that use of the cave exclusively as a burial place began later than the habitation horizon of Level I and later than the usage of the lower passages for ceremonial purposes. Impressed ware is scattered throughout the upper cave floor, but it is not associated with burials nor is it found in "cultic" deposits.

The virtually inaccessible lower passages may have been the scene for elaborate cultic ceremonies developed by an agricultural society. Large vessels were found in beautiful chambers formed by clusters of stalagmites.

(See Plates XVb,c and XVIa) If a water cult (see above for reference to Tinè) explains the function of vessels in these caverns (Plate XVIa), it is tempting to link the water cult with increasing desiccation of the Tavoliere. The resulting difficulties in agricultural conditions might have forced a broader subsistence base which may be inferred by the hunter's tool kit and "cultic" deposits of vertebrae of wild animals. Thus, abandonment of the cave may have been linked with changes in subsistence activities - a devolution from food production to food collection. Thereafter, the cave was used as a cemetery, but not permanently lived at.

It is also possible that, after the collapse of the cave entrance, settlement in the vicinity became more intermittent until perhaps the site eventually became a sacred spot for ritual observances, presumably directed to the dead in the cave cemetery, or an ancestral site, periodically visited for sentimental or shamanistic purposes. Washed materials would continue to accumulate in the hollow along with material left behind in temporary encampments. Mixing of the early material together with later Scaloria material would account for the findings of Level III.

Grotta Scaloria offers many tantalizing challenges for future excavations. Important contributions may be made by multidisciplinary investigations of this heritage of two subsistence strategies - hunting and farming - and their interrelationships at Grotta Scaloria. By shedding light on social, religious and economic developments, by contributing to important studies of nutrition and pathology, and by furthering the recovery of well-preserved artifacts for studies in art history and comparative archaeology, continued work at Scaloria will result in manifold rewards.

APPENDIX

Preliminary Report on the Skeletal Material Found at Grotta Scaloria, Italy

by Robert I. Gilbert, Jr.

The skeletal material recovered from the cemetery in the Scaloria cave was relatively abundant with regard to the number of individuals represented. The most common bone recovered was the mandible, followed in descending order of frequency by the femur, tibia, maxilla and partial frontal bone. Because of the scattered nature of the burials, both in original internment and further scattered by subsequent disturbance by local amateurs in their search for grave goods, it is impossible to be certain of the exact number of individuals represented by the recovered material. As none of the mandibles or fragments thereof appear to belong together, the minimum number of individuals appears to be fourteen. This number is probably much larger when other bones are added, but there is no way to be certain that some (perhaps all) of the post cranial remains do not belong in association with the mandibles.

Age and Sex Determinations

With the exception of one complete burial, no intact long bones were recovered, preventing any reliable estimation of stature. The portions of long bones present, however, suggest that the population was rather robust as judged from femoral diameters, distal ends of humeri and anterior-posterior diameters of the tibiae. Age estimations were based upon dental eruption, epiphyseal union, dental attrition and wear patterns and osteological condition (degree of cortical and trabecular resorption). The ages ranged from twelve to approximately the fifth decade. The most common age represented was that of the mid-twenties. Determination of sex is quite problematical, but general appearance of the various mandibles and other bones suggest that the sex ratio (of adults or older adolescents) is approximately 1.5 assuming equal distribution of those from which no sex indications were

present.

Teeth

The dental condition of most teeth was quite good. There were few cavities present, and pre-mortem tooth loss was not excessive. Microscopic examination of the occlusal surfaces did not reveal extensive pitting or scratches (usually induced by gritty particles in the food).

Pathology

Pathological markings were rare, with the exception of cribra orbitalia which occurred in four of the individuals (a total sample of eight). One individual displayed a severe infectious lesion (approximately 25-by 10 mm. extending from the nasion upward into the frontal bone). No evidence of spongy hyperostosis was present on the two parietal fragments recovered. No traumatic or developmental pathologies were present although this may be an artifact of the extremely small number of post-cranial bones found.

Two complete, but broken crania were recovered. One was that of a young female, approximately eighteen years of age (Plate XIVc,d). This cranium displayed moderate cribra orbitalia in both orbits, but no other pathological lesions were noted. The cranium was lacking a mandible; but it may be inferred that this was not a result of burial disturbance, inasmuch as the cranium appeared to have been deliberately interred. The second cranium was part of a complete flexed burial (Plate XIVa). The individual was a male, approximately twenty years of age. No pathologies were observed, and all teeth were present. Statural estimate of living height employing combined femur and tibia length according to Trotter yields a height of 165 cms. (See the previous section of this report for complete description of the burials.)

Cribra orbitalia is a bilateral lesion of the anterior upper orbital surfaces creating small apertures through the bony table. The lesion usually exposes the underlying trabecular bone resulting in a lacelike appearance. The presence of cribra orbitalia may be suggestive of hypovitaminic and/or hypoproteinemic nutritional conditions existing in the population. Iron deficiency anemia has also been suggested as a possible cause of this pathological condition. It is possible that this group may also have thalassemia (a condition which some attribute as a possible cause of cribra orbitalia).

Most contemporary research leans toward iron deficiency anemia as the principal origin of cribra orbitalia. Certainly, if the population were initiating agricultural subsistence, and if they employed a crop which was not nutritionally balanced, such a deficiency could well result. Alternatively, if the agricultural strategies began to fail, there may have been similar deficiencies in diet.

Although there is no means by which to accurately estimate the total number of burials at Scaloria, it is abundantly clear that the cemetery contains a considerable amount of osteological material. Analyses of these skeletal remains offers an unusual opportunity to learn more of the nutritional, social and bio-physical experiences of an early neolithic population. Due to the extremely good preservation of this material (a relatively unusual condition for many neolithic sites in Europe) such analyses could be executed with benefits accruing to many disciplines.

REFERENCES TO TEXT

Quaglioni, Q.

1936 La Puglia preistorica. Dep. Di Storia Patria, mem. 20.

Radmilli, Antonia M., ed.

1975 Guida della Preistoria Italiana. Firenze.

Rellini, U.

1934 La piu antica ceramica dipinta in Italia. Roma.

Tinè, Santo

1972a "Un culto neolitico nelle acque nella grotta Scaloria," Symposium sulla Religioni della Preistoria, Valcamonia.

1972b "Gli Scavi del villaggio neolitico di Passo di Corvo," Atti della XIV Riunione Scientifica dell' Istituto Italiano de Preistoria e Protostoria, 313 ff.

1975 "La civiltà neolitica nel Tavoliere (Daunia)," Preistoriche e protostoriche della Daunia (Atti del colloquio internazionale di preistoria e protostoria), 99-111; Table 20.

Trump, David H.

1965 Central and Southern Italy. New York.

Whitehouse, R. D.

1968 "The Early Neolithic in Southern Italy," Antiquity, LII, 188 ff.

ADDITIONAL BIBLIOGRAPHY

- Bernabò-Brea, L.
1946-1956 Gli Scavi nella caverna della Arene Candide. Bordighera.
- Bernabò-Brea, L. and M. Cavalier
1956 "Culture preistoriche delle isole Eolie e del Territorio di Milazzo," Bollettino di Paleontologia Italiana.
- Bradford, J.
1949 "Buried Landscapes in Southern Italy," Antiquity, XXIII.
1947 "Ancient Landscapes, Studies in Field," Archaeology, London.
- Cipolloni, M.
1975 "nouvi dati dello scavo del villaggio di Rendina presso Melfi," Civiltà Preistoriche e Protostoriche della Daunia.
- Delano Smith, C.
1974 "Tipi di insediamento nella zona costiera di Foggia," Civiltà Preistoriche e Protostoriche della Daunia. Atti del Colloquio Internazionale di Preistoria e Protostoria della Daunia, Foggia 1973: 5-22.
1975 "Tipi di insediamento nella zona costiera di Foggia," Civiltà Preistoriche e Protostoriche della Daunia: 5-16.
1976 "The Tavoliere of Foggia: An Aggrading Coastland and Its Early Settlement Patterns," in Davidson, D. A. and M. L. Shackley, eds., Geoarchaeology: Earth Science and the Past, pp. 197-212.
- Evet, Daniel and Jane Renfrew
1971 "L'agricoltura neolitica italiana: una nota sui cereali," Revista di Scienze Preistoriche, XXVI, 2: 403-9.
- Follieri, M.
1973 "Cereali del villaggio neolitico di Passo di Corvo (Foggia)," Annali di Botanica, 32: 49-59.
- Gambassini, A. and A. Amtri
1967 "Resti di villaggi neolitici a ceramica impressa a Trinitapoli," Revista di Scienza Preistoriche.
- Geniola, A.
1975 "Il villaggio neolitico di Monte di Salpi presso Trinitapoli," Civiltà Preistoriche e Protostoriche della Daunia.

- Jarman, R. and D. Webley
 1975 "Settlement and Land Use in Capitaneta Italy," Paleoeconomy, E. S. Higgs, ed., Cambridge University Press, 177-221.
- Linnington, R. E.
 1970a "A Brief Test Survey at Passo di Corvo near Foggia," Prospezioni Archeologiche: 85-87.
 1970b "A First Use of Linear Filtering Techniques on Archaeological Prospecting Results," Prospezioni Archeologiche: 43-54.
- Manfredini, A.
 1975 "Il villaggio trincerato di Monte Aquilone, " Civiltà Preistoriche e Protostoriche della Daunia.
- Mayer, M.
 1904 Le Stazioni Preistoriche di Molfetta. Bari.
 1924 Molfetta und Matera. Leipzig.
- Mosso, A.
 1910 "La necropoli neolitica di Molfetta," Monumenti Antichi, XX, col. 237.
- Odetti, G.
 1975 "Foto aerea e villaggi neolitici del Tavoliere," Civiltà Preistoriche e Protostoriche della Daunia.
- Palma di Cesnola, A.
 1967 "Il neolitico medio e superiore di S. Domino," (Archipelago delle Tremiti), Revista di Scienze Preistoriche.
- Peroni, R.
 1967 Archeologia della Pugila preistorica.
- Puglisi, S. M.
 1955 "Industria microlitica nei livelli a ceramica impressa di Coppa Nevigata," Revista di Scienze Preistoriche, p. 19 ff.
 1975 "Lo strato neolitico di Coppa Nevigata," Civiltà Preistoriche e Protostoriche della Daunia.
- Radmilli, A.
 1974 Popoli e civiltà dell'Italia antica. Sansoni.
- Ridola, D.
 1924 "Le grande trincee preistoriche di Matera," Bullettino di Paletnologia Italiana, XLIV: 97.
 1925 ibid., XLV: 85.
 1926 ibid., XLVI: 134

Tinè, Santo

- 1967a "Alcuni dati circa il sistema di raccolta idrica nei villaggi neolitici del Foggiano," Atti XI-XII Riunione Scientifica Dell'Istituto Italiano di Preistoria e Protostoria.
- 1967b "Lo scavo di una capanna nel villaggio neolitico di Passo di Corvo," Atti XI-XII Riunione Scientifica Dell'Istituto Italiano di Preistoria e Protostoria.
- 1967c "nuovi scavi in località Guadone," Not. St. Arch. del Centro Studi Sanseveresi.

DESCRIPTION OF PLATES

(Diameters are given in centimeters.)

- I - Impressed pottery. (Scale: a-h 1:1)
- II - Pottery: a - brown burnished, impressed; b - scratched, Guadone type; c - dark painted, Masseria la Quercia type; d-f - figulina ware. (Scale: a-c 1:1; d-e 4:5; f 2:5)
- III - Middle Neolithic (Scaloria phase) figulina ware. (Scale: a,c 4:5; b 1:2)
- IV - Middle Neolithic (Scaloria phase) figulina ware. (Scale: a-d 4:5)
- V - Pottery from the cemetery, Scaloria phase. (Scale: a-d 4:5)
- VI - Pottery from trenches in the cemetery, Scaloria phase. (Scale: a-e 4:5)
- VII - Bichrome pottery: broad red-painted bands margined by black lines, Scaloria phase. (Scale: a,c 1:1; b 1:2)
- VIII - Pottery: a-d - late Scaloria phase; e - Serra d'Alto phase; f-g - Diana phase. (Scale: a,c 1:1; b 3:5; d-g 1:2)
- IX - Lithics excavated in habitation levels outside the cave (Area 2). (Scale: a-o 1:1)
- X - Lithics: a-c - knives found in burial trenches; d-i - Campignian tools found in the cemetery.
- XI - Bones: a-c - bone tools; d-f - incised bones found in cemetery;

g - bone ornament; h,i - perforated incisors; j - animal vertebrae and Campignian tools from cache in Trench 1.

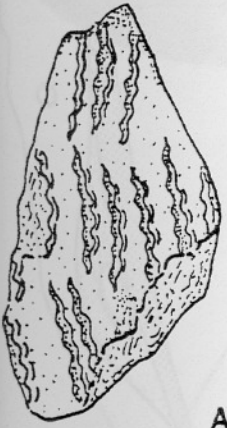
XII - Stones: a-b - tomb bricks ("lastra"); c - quern; d - polished stone axe; e - mortar stone; f - pestle/pounder.

XIII - Pottery: a - impressed sherd with repair hole; b - dark burnished ware with cardium impressions, from burial in Trench 2 (same sherd as in Plate If); c-d - examples of painting showing uneven brush strokes (d is same as in Plate VIIIc); e - late Scaloria sherds from cemetery.

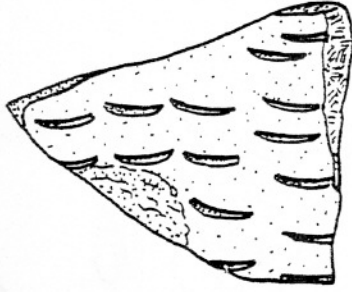
XIV - a - burial in Trench 2 inside the cave; b - cache of Campignian tools and bone awl from cavity containing animal vertebrae in Trench 2; c - human skull, probably of a female, bordered by stones; d - close up of "c," showing flint blade (on right temporal bone), shells and ash around skull.

XV - a - Area 2 stratigraphic section at left, rock wall of cave at right; b-c - Scaloria phase pottery in lower passages of cave.

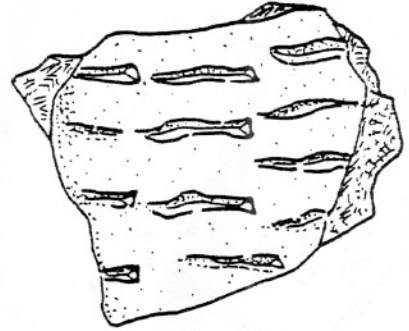
XVI - a - this Scaloria vessel may have caught water dripping from the cave ceiling of the lower passages; b - human mandible and teeth partially encased in calcium carbonate deposits on cave floor.



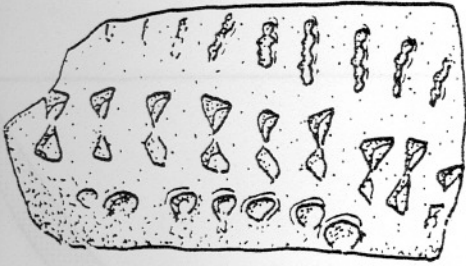
A



B



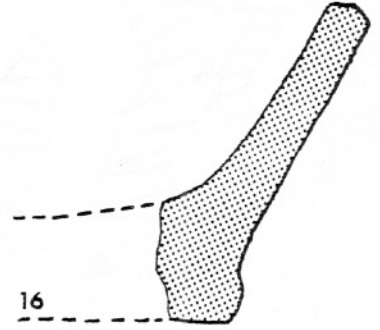
C



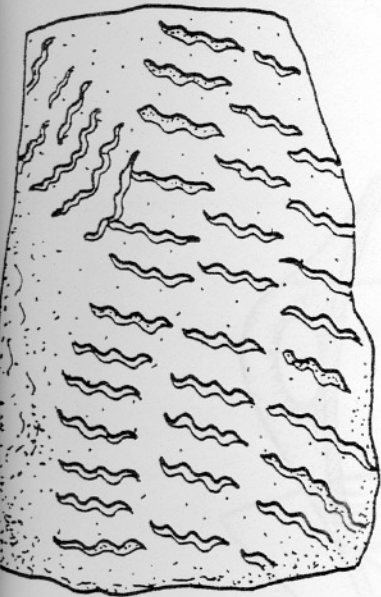
D



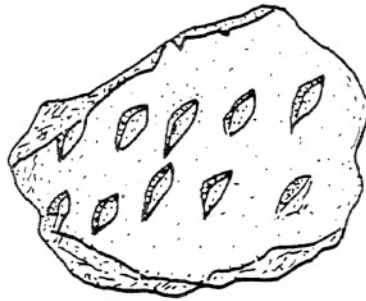
16



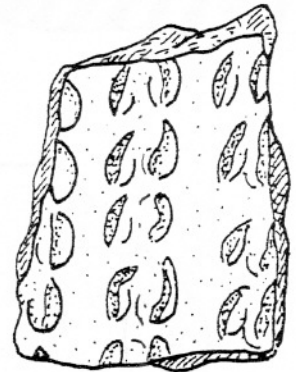
E



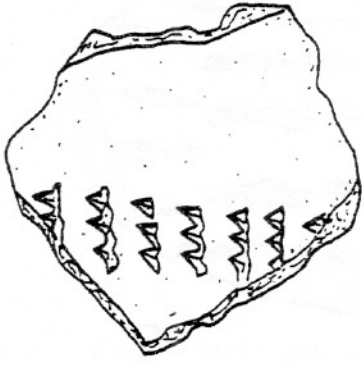
F



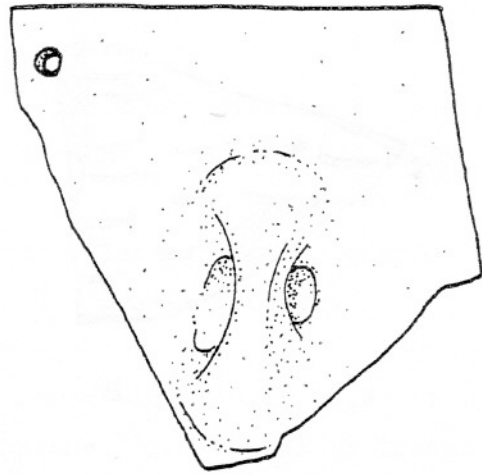
G



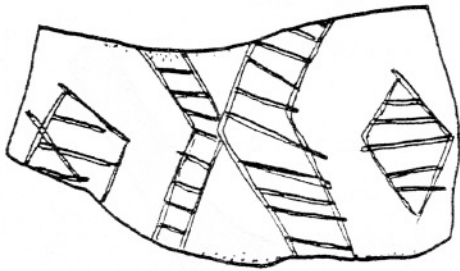
H



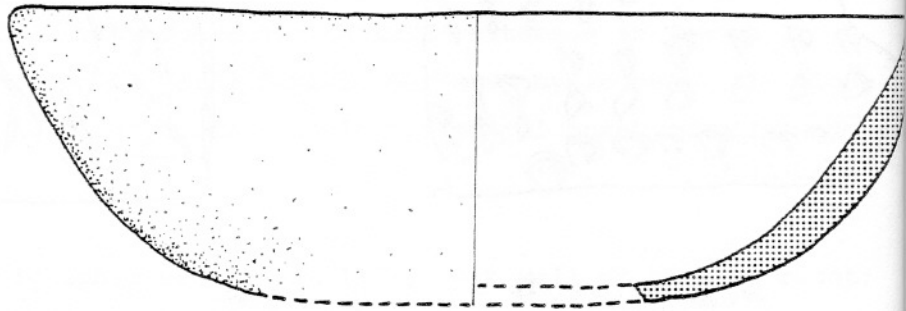
A



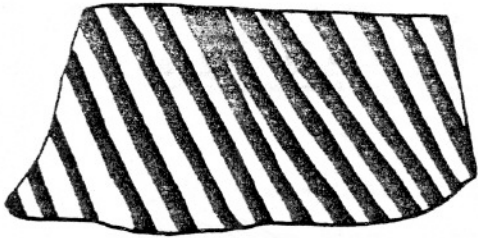
D



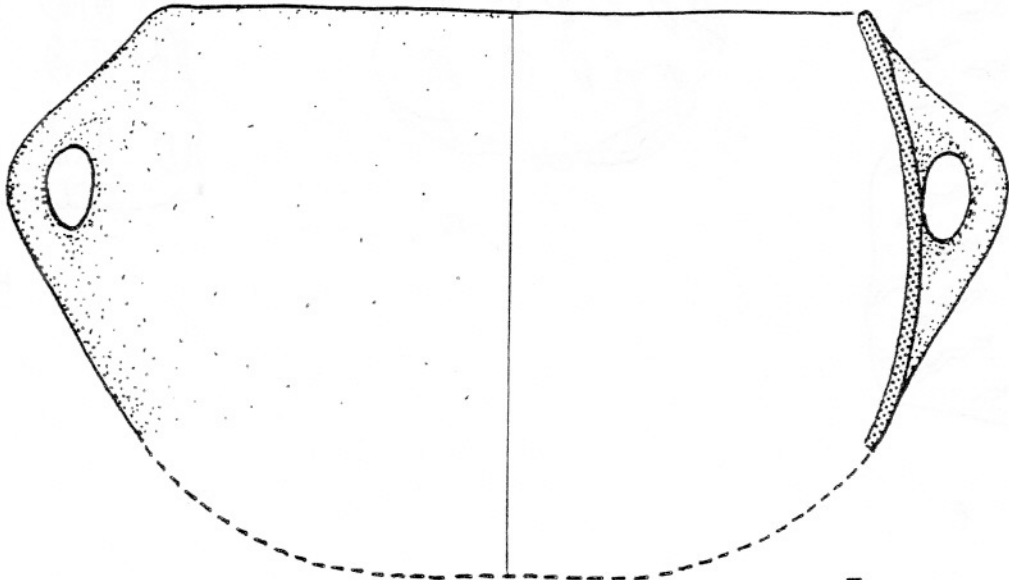
B



E

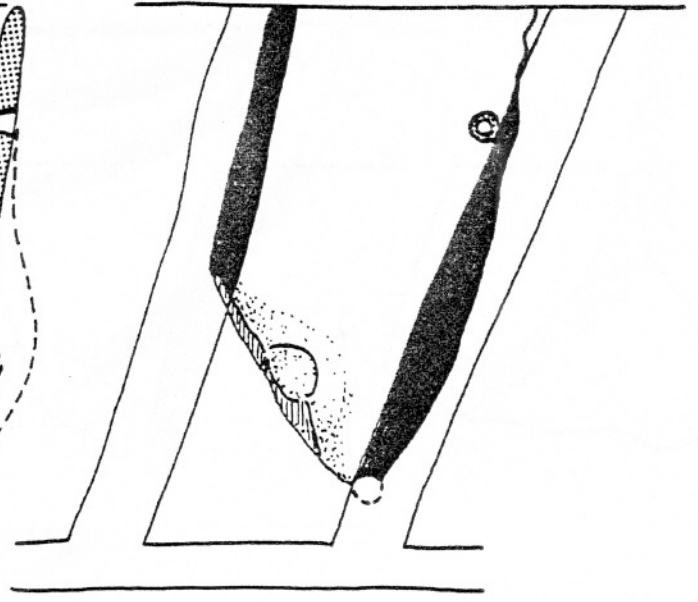
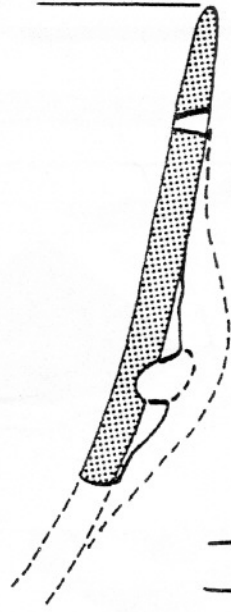
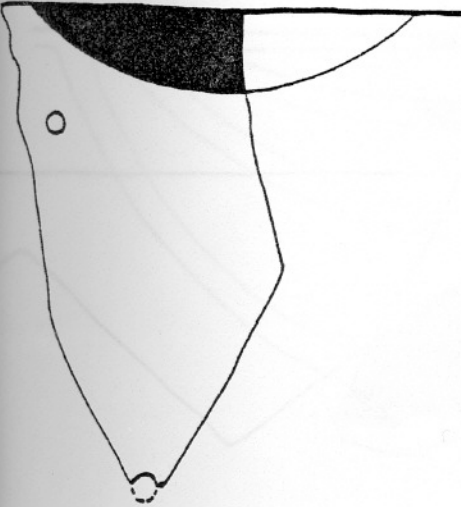


C

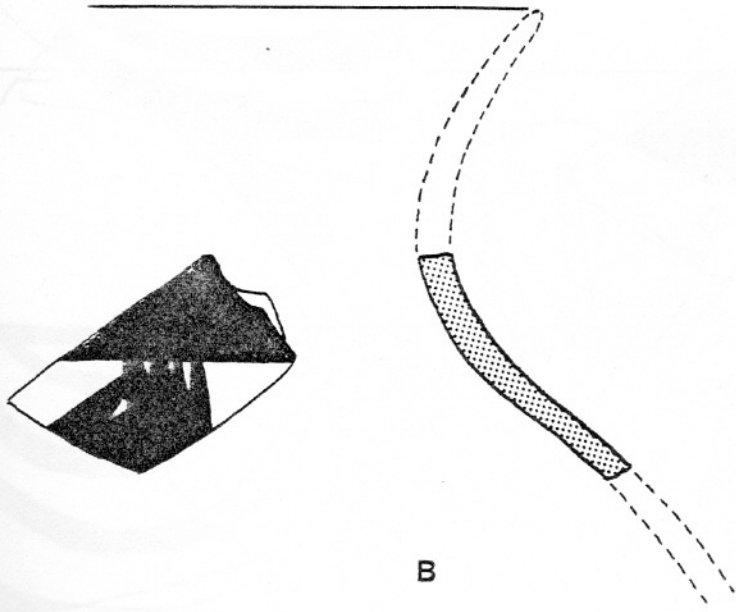


F

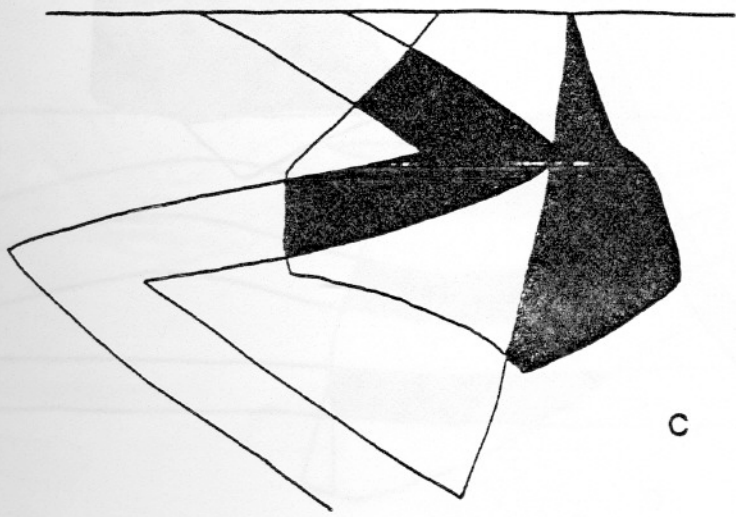
28



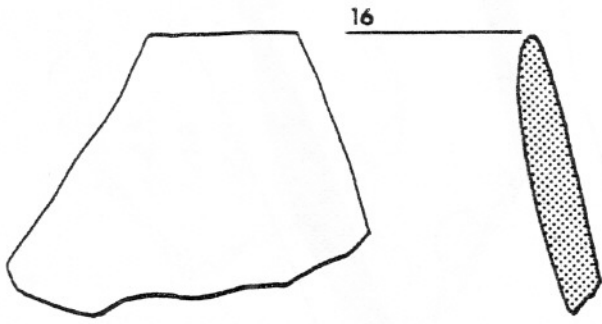
A



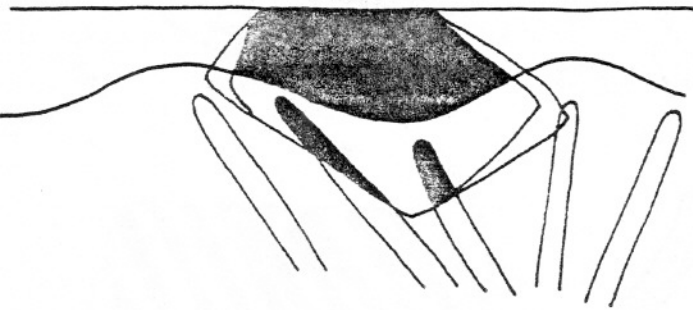
B



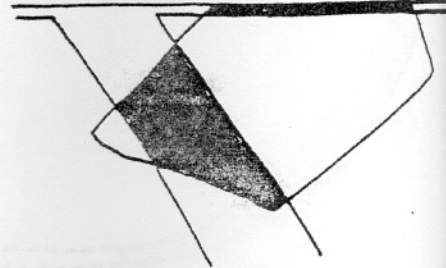
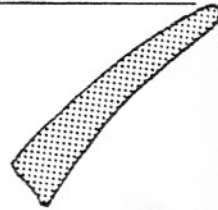
C



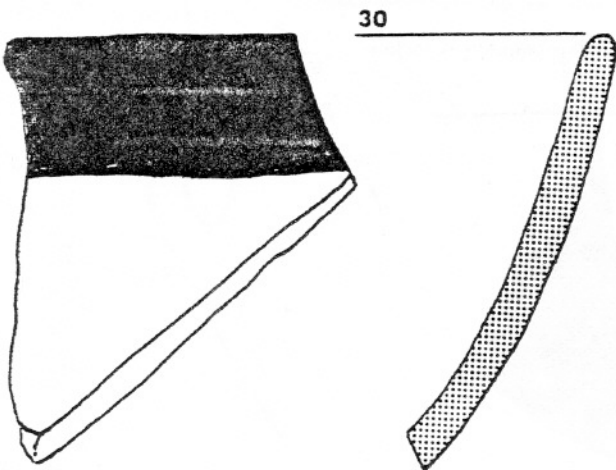
A



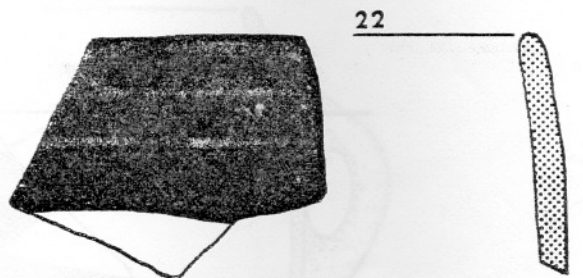
34



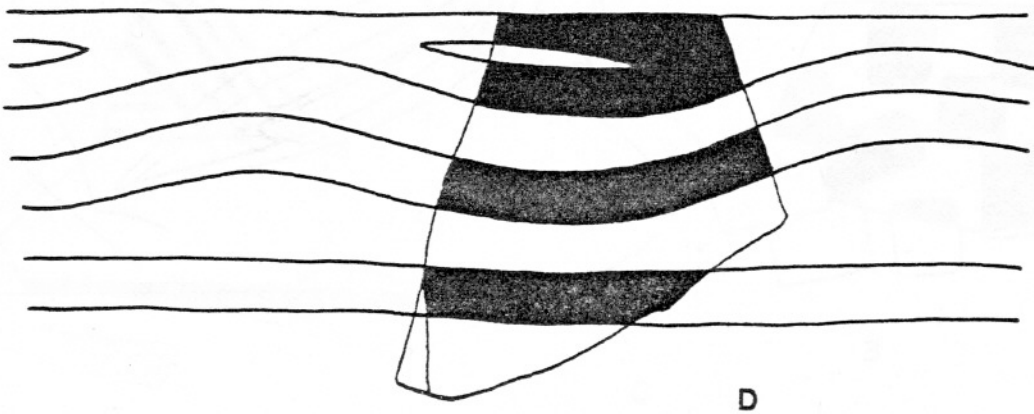
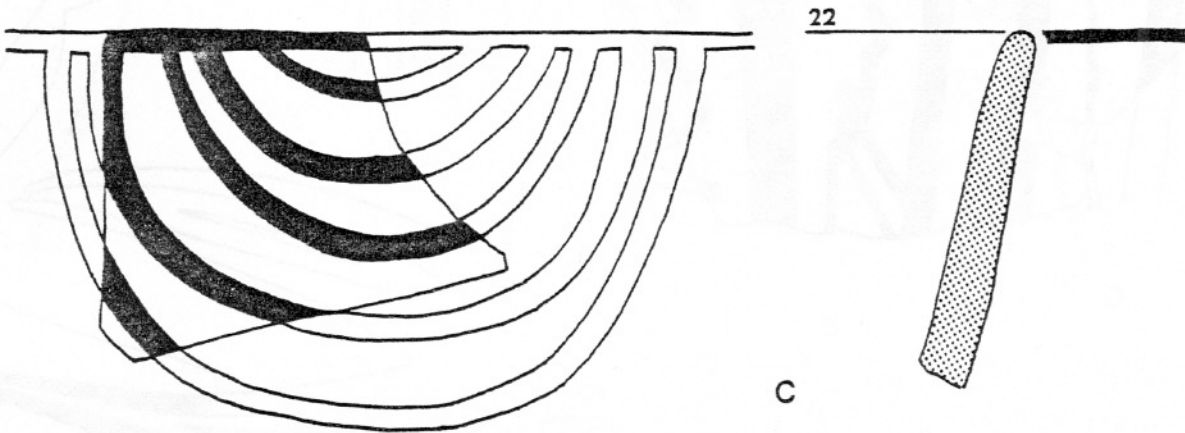
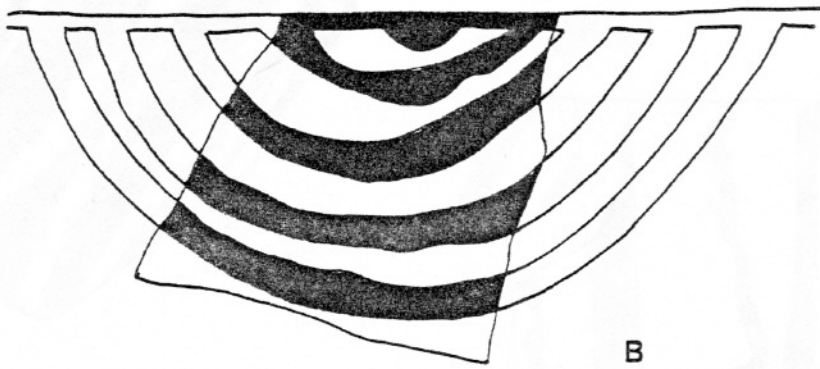
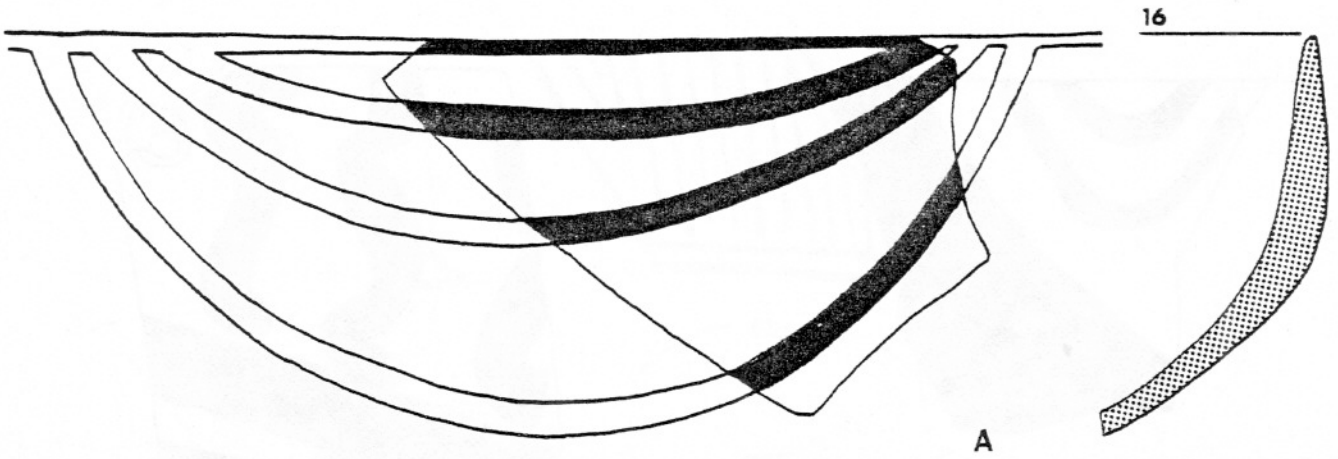
B

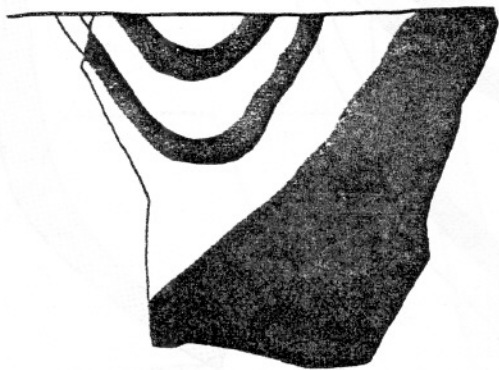


C

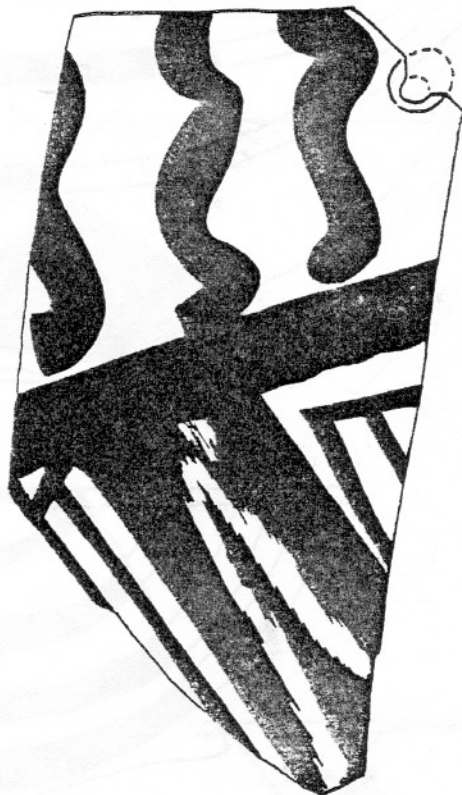


D

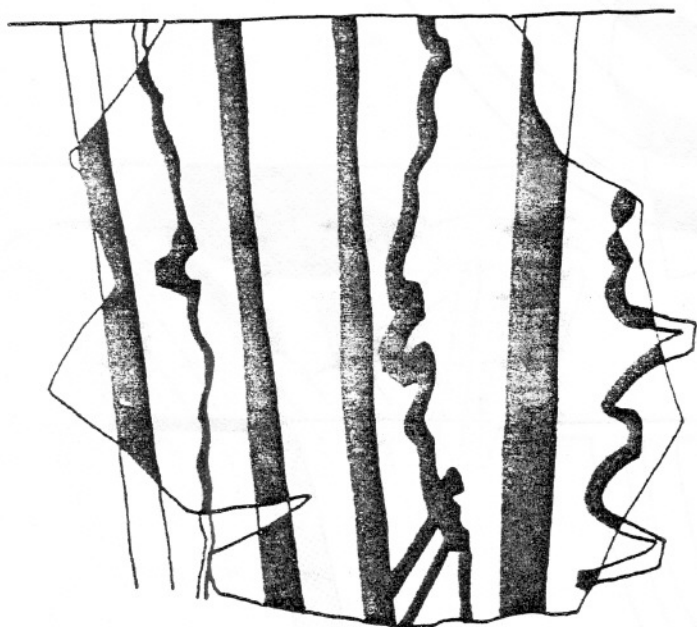




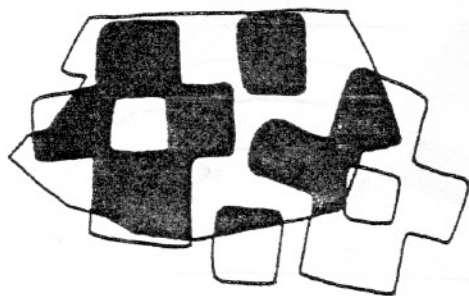
A



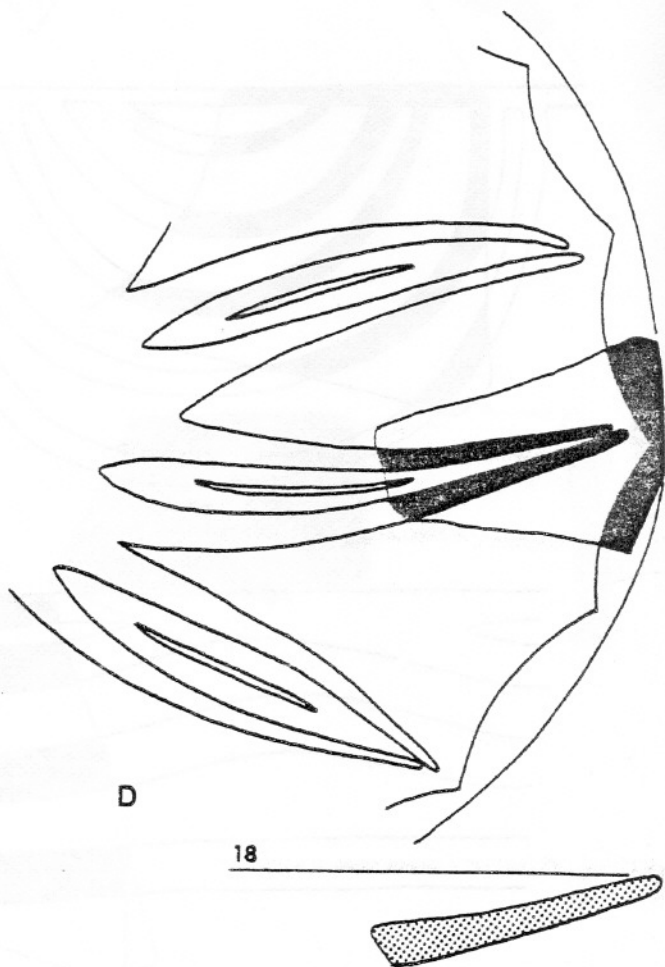
B



C

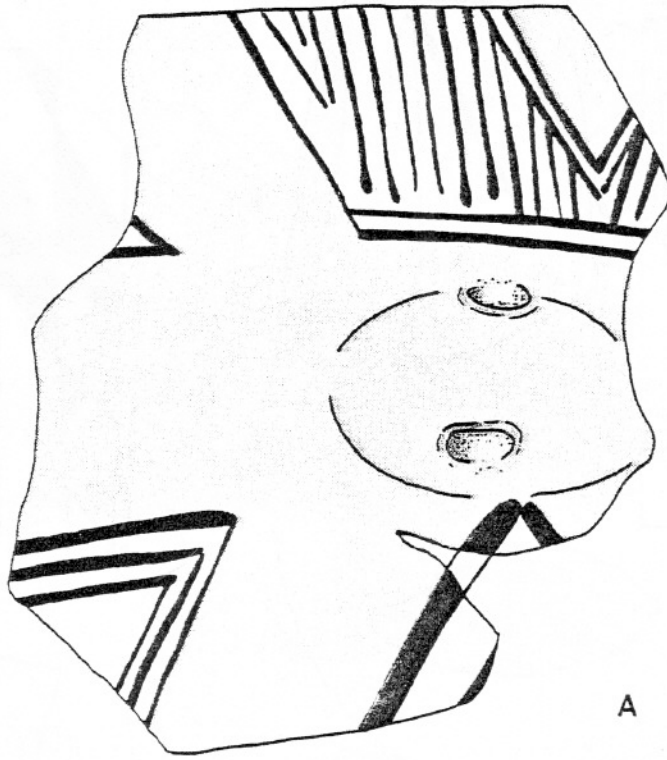


E

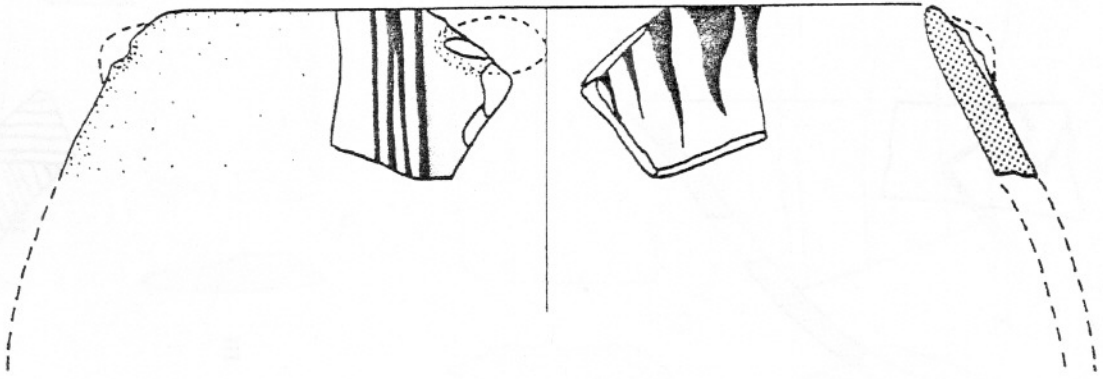


D

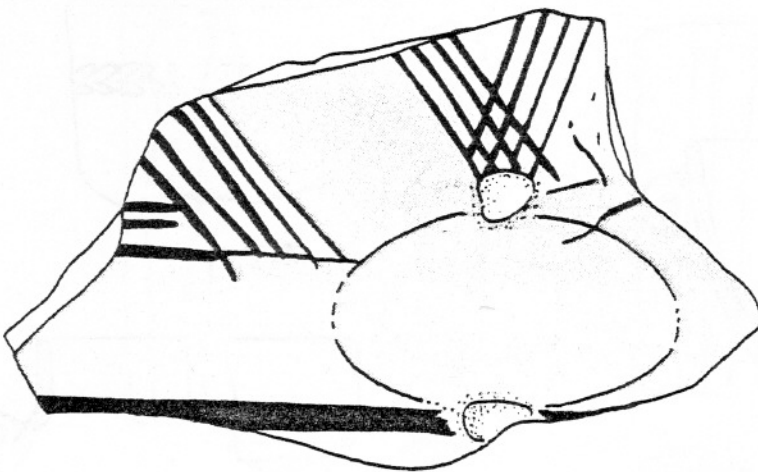
18



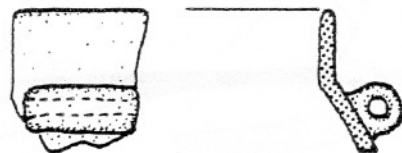
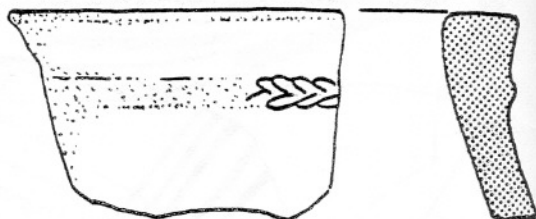
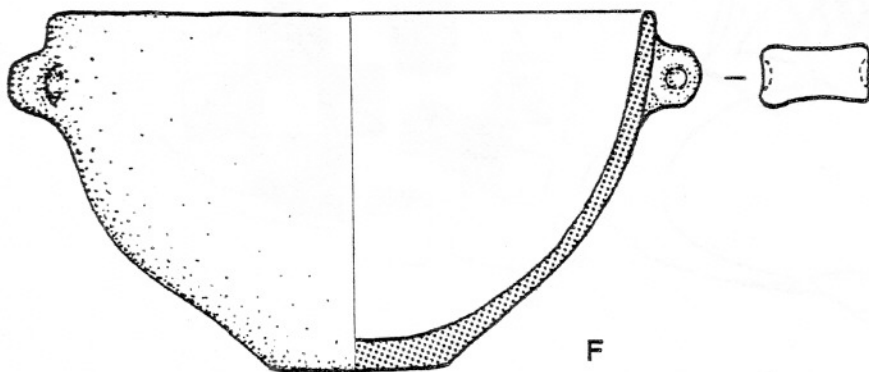
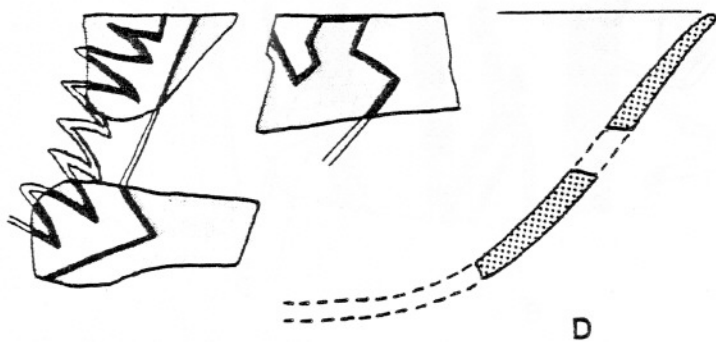
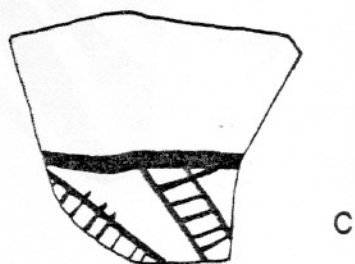
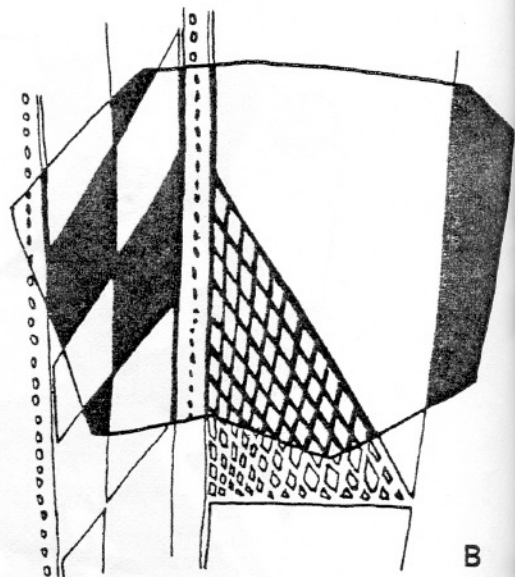
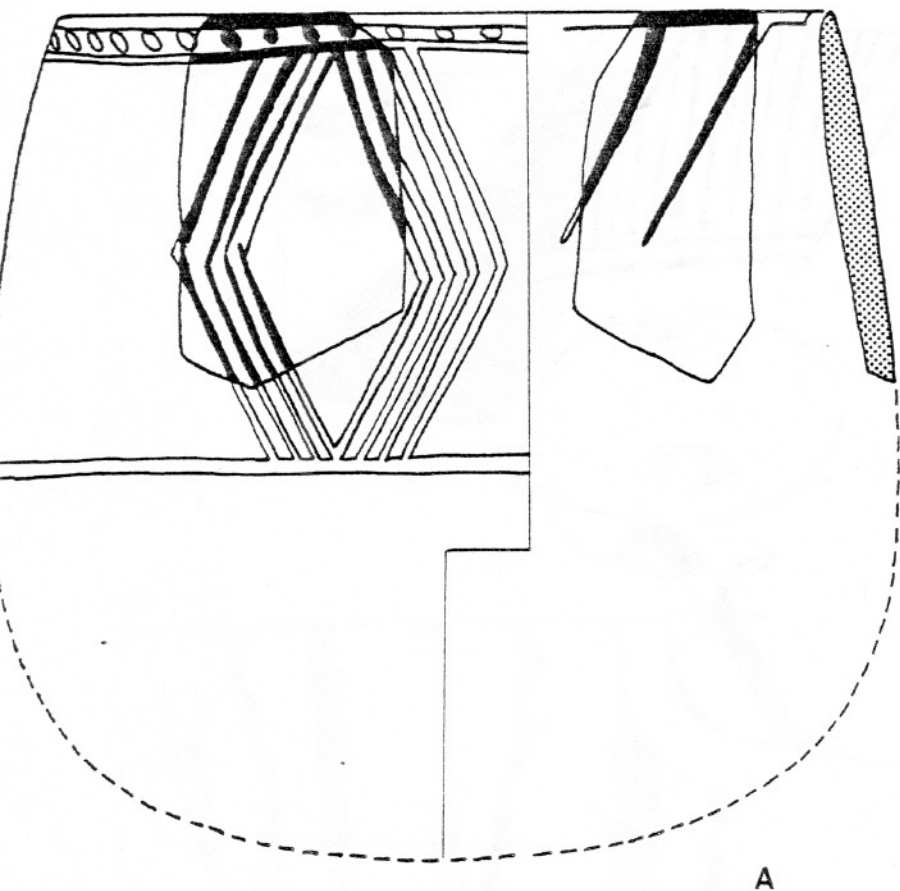
A

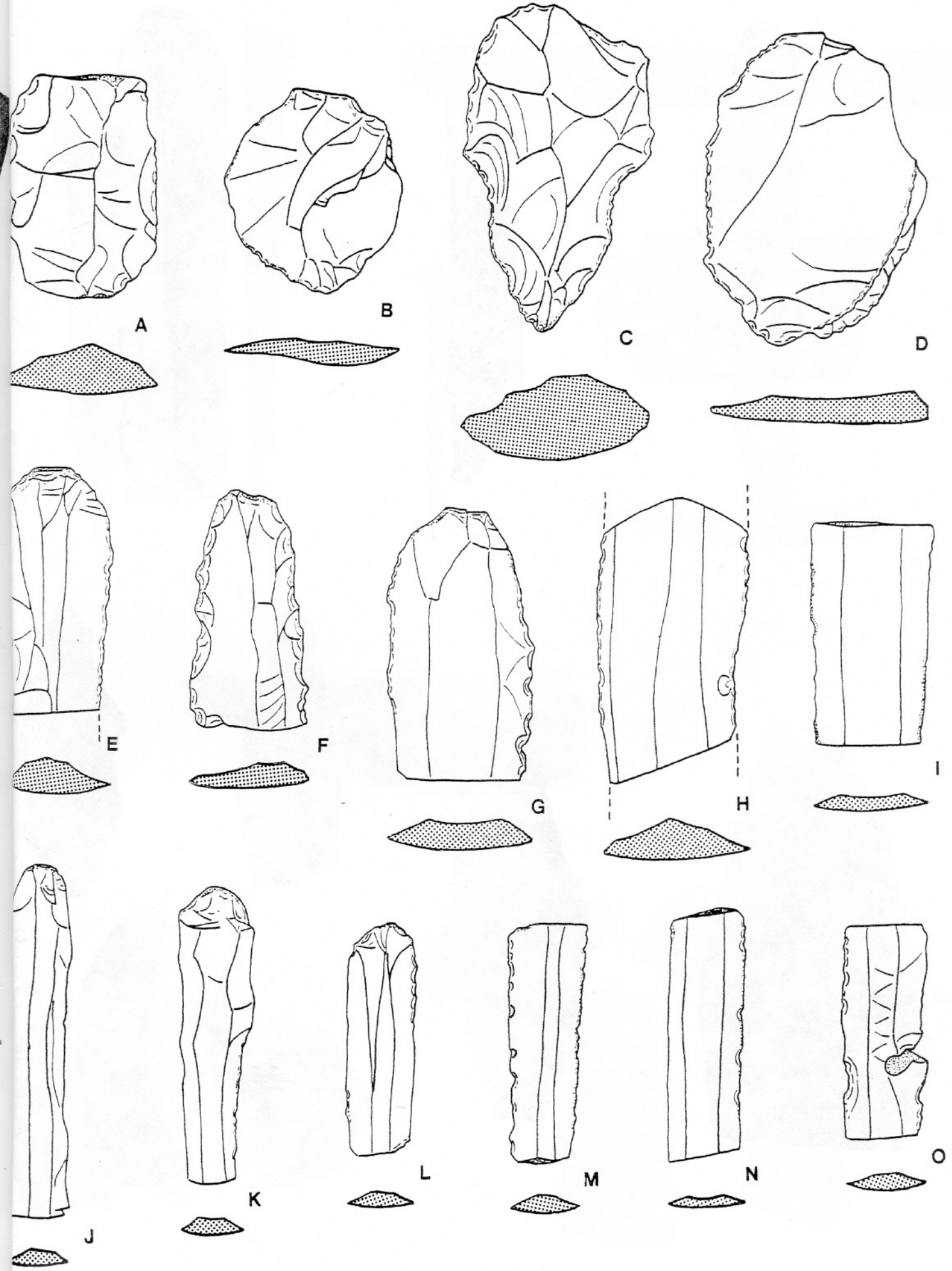


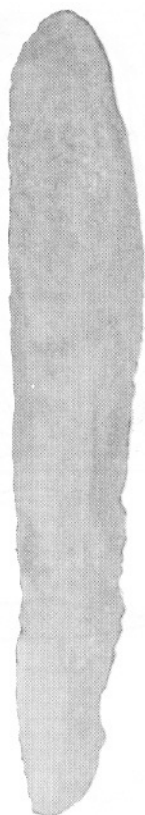
B



C



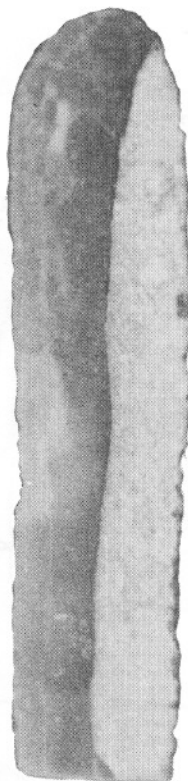




A



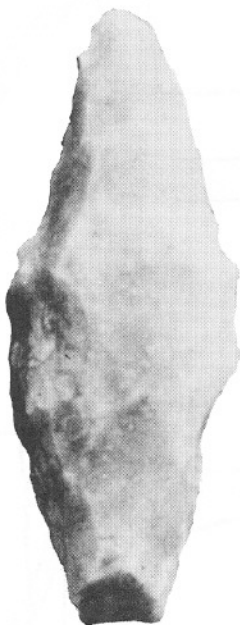
B



C



D



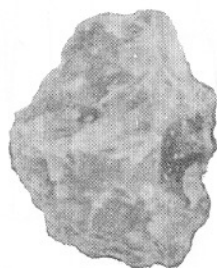
E



F



G

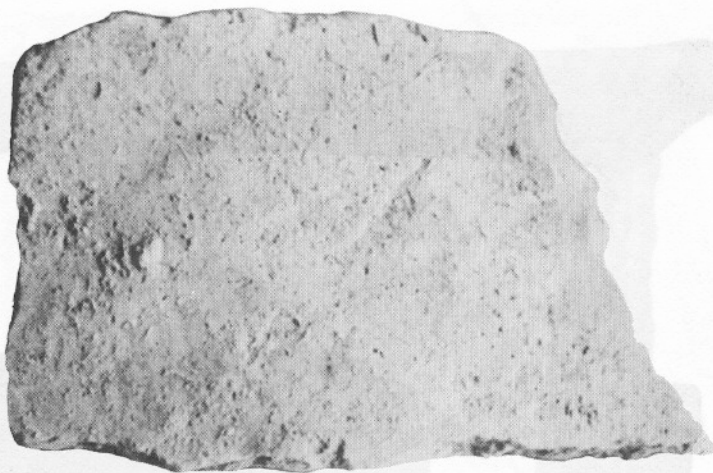


H

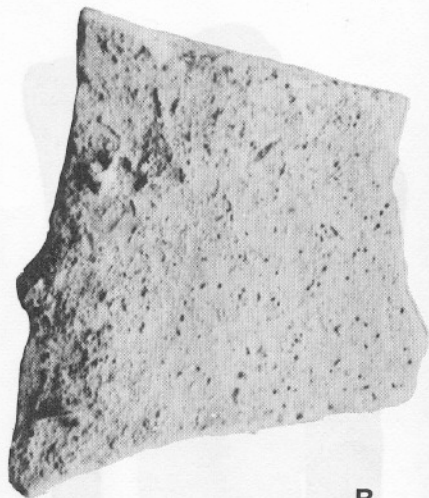


I

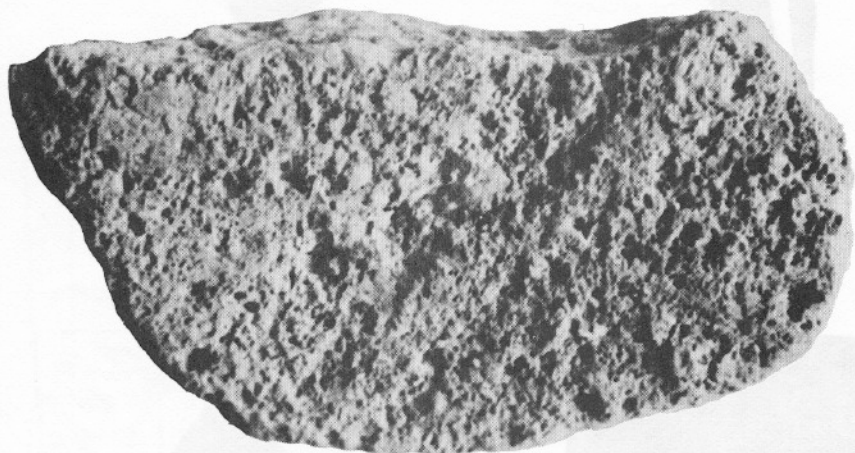




A



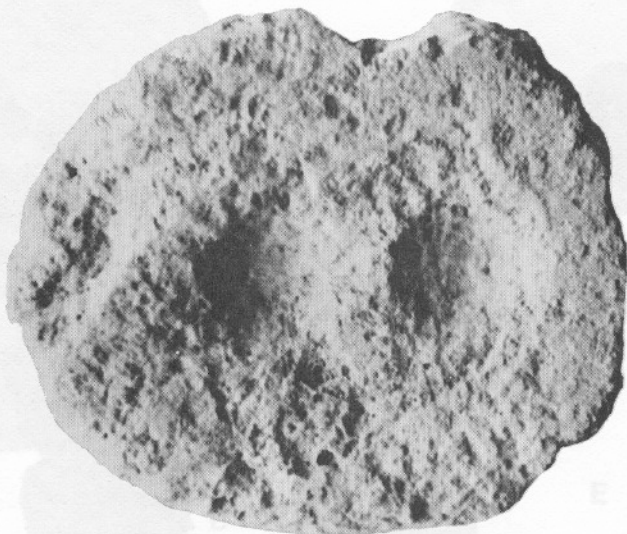
B



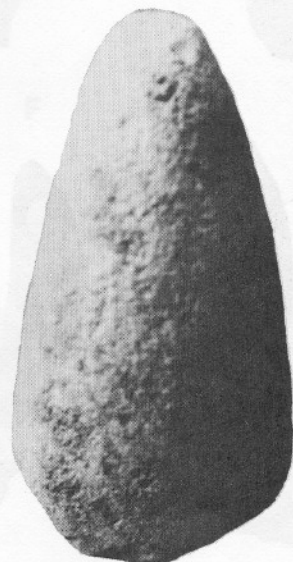
C



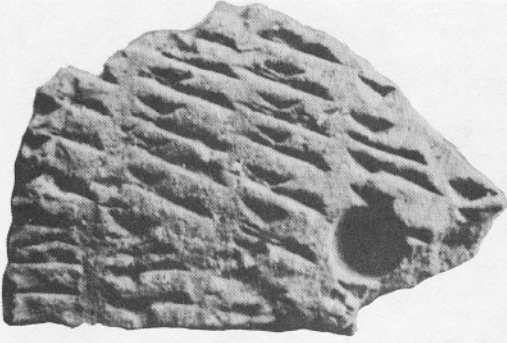
D



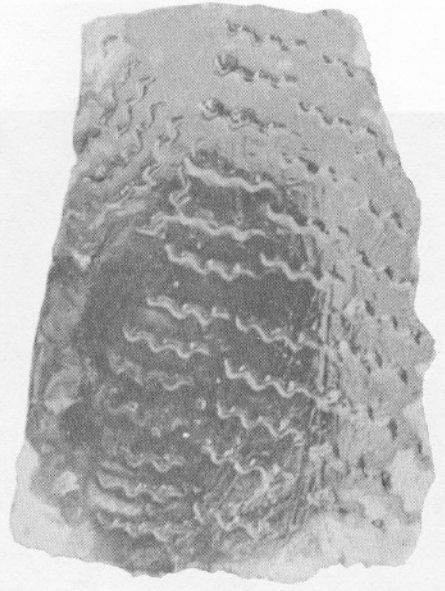
E



F



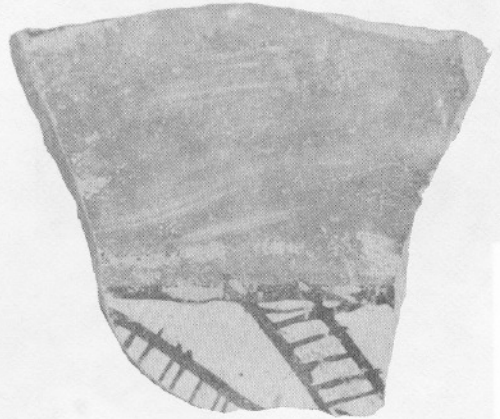
A



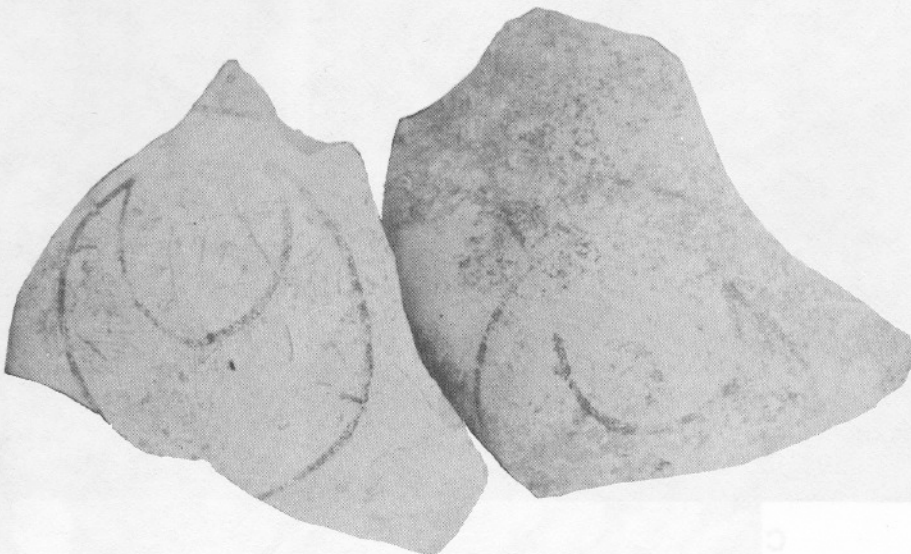
B



C



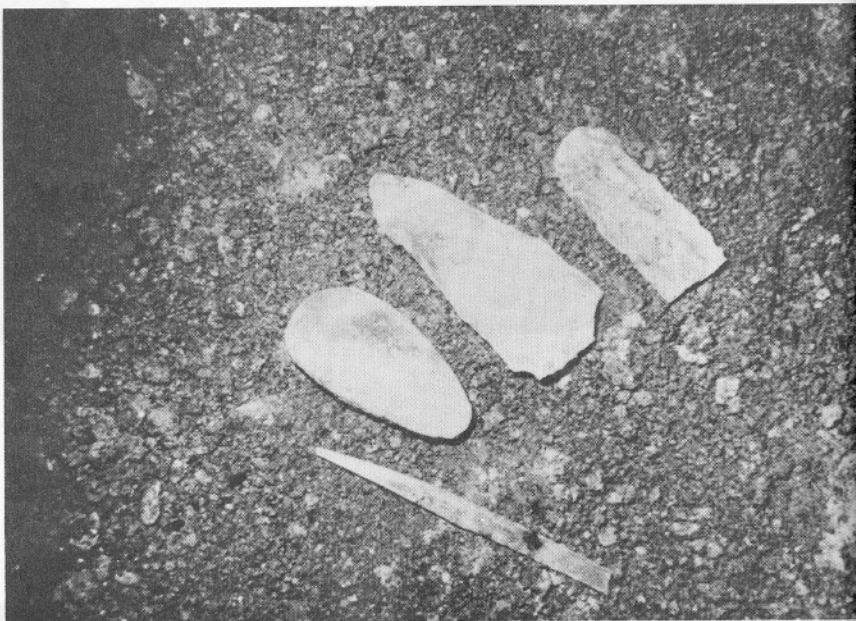
D



E



A



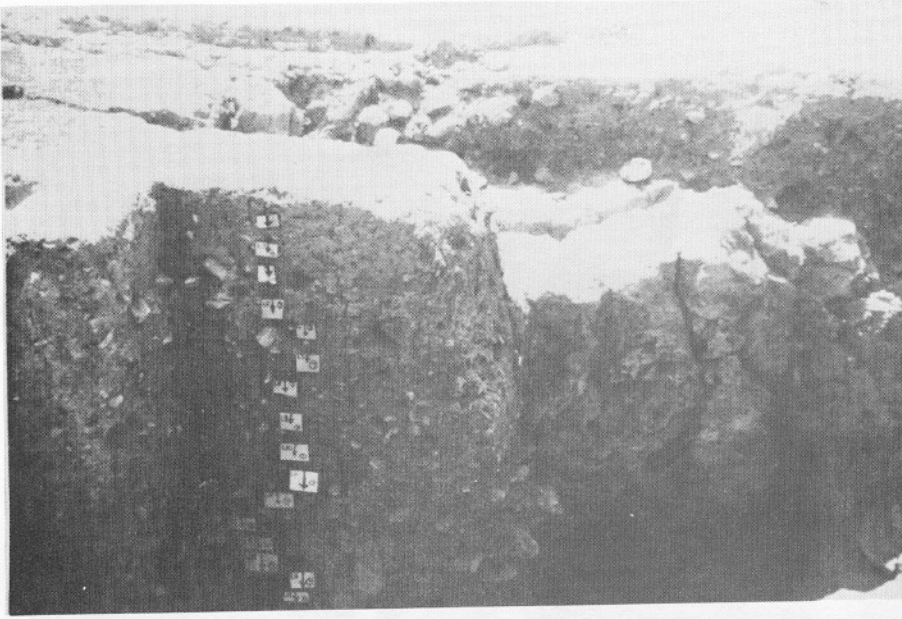
B



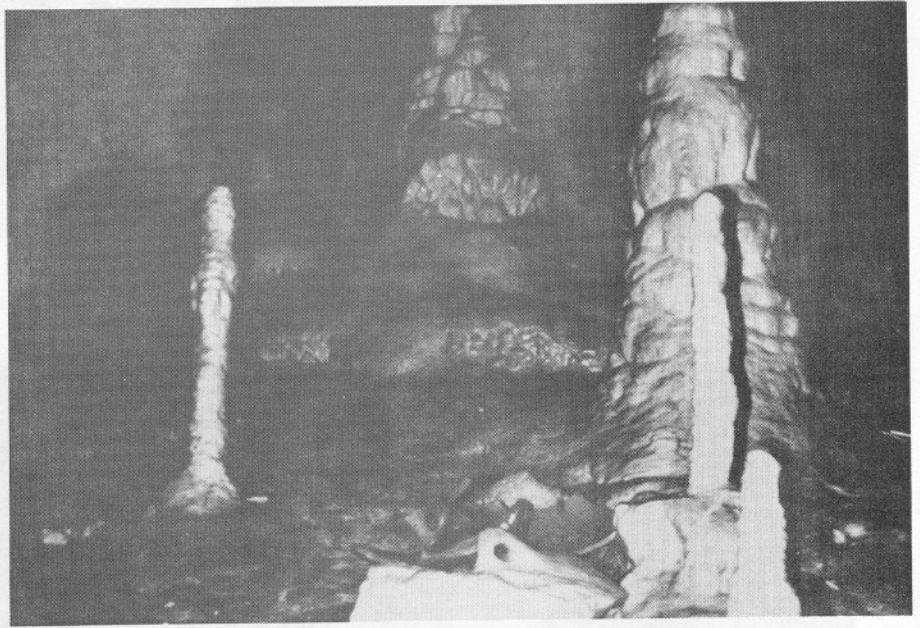
C



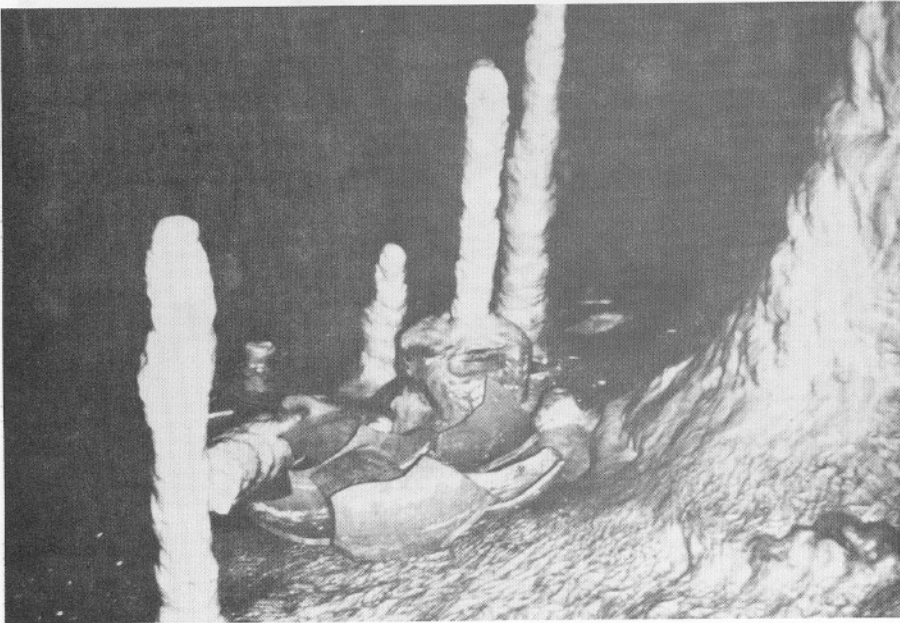
D



A

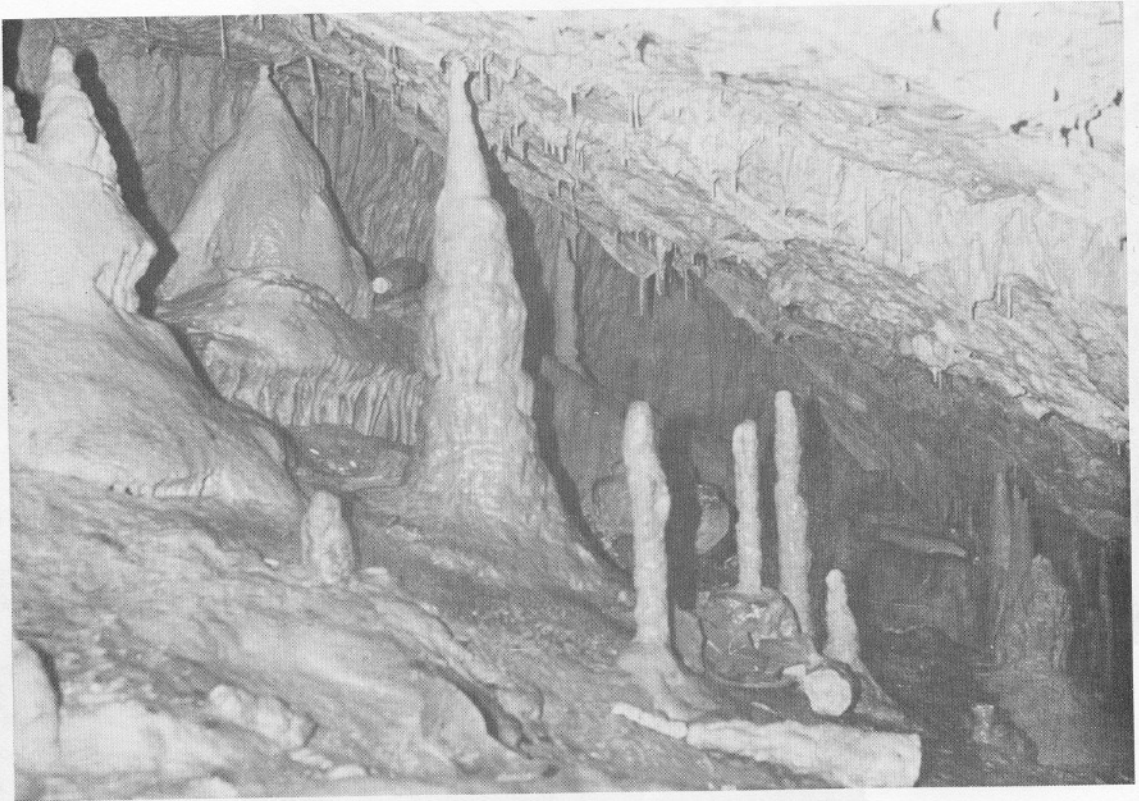


B



C

A



B

