

The Australian-Indonesian Archaeological Expedition to Sulawesi

Received 9 January 1970

D. J. MULVANEY AND R. P. SOEJONO

INTRODUCTION

IN July and August 1969 we led an archaeological expedition to the Makassar region of Sulawesi Selatan (South Celebes) to investigate sites of the so-called Toalean culture (see Fig. 1). The expedition consisted of three members of the National Archaeological Institute of Indonesia—R. P. Soejono, Basuki, and Teguh Asmar—and three from the Department of Prehistory, Australian National University, Canberra—D. J. Mulvaney, C. C. Macknight, and I. C. Glover; Emily Glover also accompanied the party.

The expedition was planned as a reconnaissance to visit areas in which previous archaeologists had worked until 1950. We wished to test the practicability of renewed research on a larger scale. In addition, we hoped to make trial excavations in search of stratified collections of ceramics, stone artifacts, and faunal remains and to obtain radiocarbon samples with which to date them. Most of the relevant previous work dated from before World War II, and much of the data was unpublished, or left in the form of generalized description. It was necessary, therefore, to revisit some of the key sites already investigated to improve the documentation and, if possible, to date the occupation thereof. To ensure as complete a sample as possible, we used sieves to screen all excavated deposits, and everything of extraneous origin was retained.

An additional goal, however, was to provide information, and to stimulate interest in the work. We wished to familiarize officials and scholars with the methods and requirements of modern archaeology and to emphasize the unique evidence available in Sulawesi. We held informal discussions with numerous officials, both senior administrators and local agents; students from the Faculty of Letters, Hasanuddin University, assisted on some excavations to teach them something of practical archaeology; groups of teacher trainees were able to

D. J. Mulvaney is a member of the Department of Prehistory, Australian National University, Canberra.
R. P. Soejono is Chairman, Department of Prehistory, National Archaeological Institute, Indonesia.

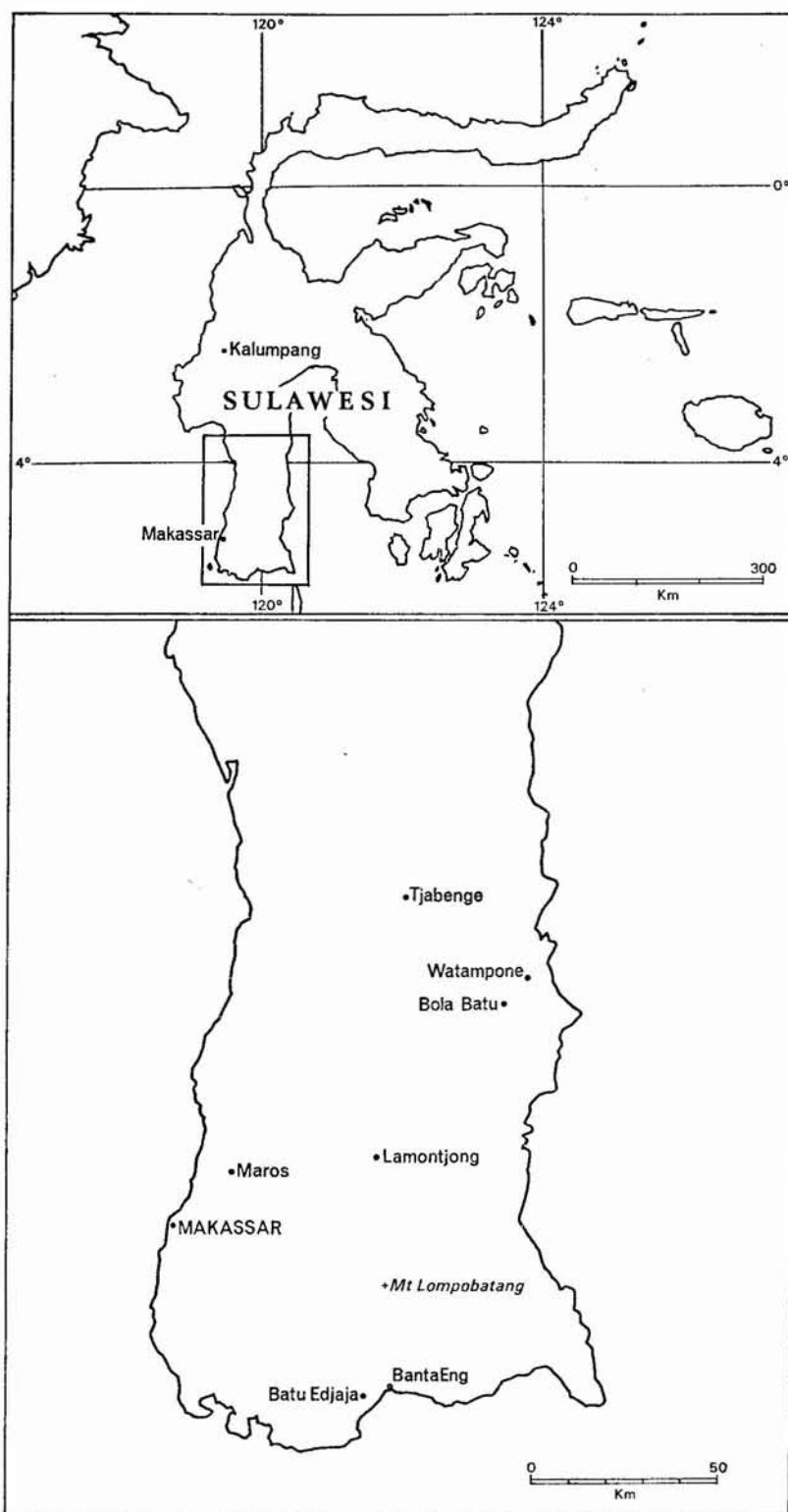


Fig. 1 Map of Sulawesi Selatan.

look over the excavations; Soejono, Mulvaney, and Macknight all lectured publicly at Hasanuddin University. (Mulvaney also lectured at Gadjah Mada University, Jogjakarta, The University of Indonesia, Djakarta, and the National Archaeological Institute, Djakarta; Glover lectured at Udayana University, Den Pasar, Bali.) Soejono discussed the establishment of a branch of the National Archaeological Institute with authorities in Makassar.

At the time of writing (December 1969), it has been impossible to analyze the finds because they are still in transit by sea. With the full cooperation of the Indonesian authorities, the material is on loan to the Australian National University where it will be processed and analyzed before our final report is written.

However, some selected finds that we thought were of particular significance, including radiocarbon samples, were brought by air to Australia. The following notes are based on a preliminary examination of this material. Radiocarbon samples have been submitted to the Australian National University laboratory. We have published elsewhere a historical review of research in Sulawesi and some comments on our finds (Mulvaney and Soejono 1970).

Reference to the faunal evidence must be omitted until it is unpacked and identified. It must be emphasized that no figures are final and all conclusions are provisional, as the material discussed was selected from a large sample (well over one ton of pottery and stone) under arduous field conditions. As our field time was limited, we are grateful to expedition members for working so hard and effectively during the season.

In 1968, Soejono went to Australian National University as a Visiting Fellow, and the expedition was planned at that time. It would have been impossible to visit all sites where excavations had been conducted by earlier workers, so that a priority list was compiled. We benefited greatly in preparing this list from Soejono's earlier visit in 1968 to sites in the Maros area while on fieldwork with H. R. van Heekeren. We decided that our first area of concern should be around BantaEng (see Fig. 1), where in 1937 P. V. van Stein Callenfels (1938) spent two months excavating the apparently deep deposits of the adjacent sites, Panganreang Tudea and Batu Edjaja. H. R. van Heekeren (1957: 91-93) attempted to systematize the scrappy data left by Callenfels. From van Heekeren's account it was apparent that the ceramic evidence at Batu Edjaja was crucial, while the stone sequence at Panganreang Tudea, which he divided schematically into Lower, Middle, and Upper Toalean, has become the classic type sequence of the Toalean. We planned to follow research in this area by a visit to the limestone mountains east of Maros, where van Heekeren (1950) and other investigators located many sites. On this trip, in order to minimize time lost through travel and dispersal of effort, we ruled out the possibility of visiting more distant sites, such as those near Watampone, where comparable finds had been made. However, the Indonesian team members visited the Soppeng region in order to record the interesting megalithic remains there.

Perhaps surprisingly, for a program arranged at such a distance, our expedition went according to plan, and the results justify further research. The disappointments of fieldwork in this area are considerable, however, and merit comment.

During our field season we visited almost every locality within our area that had been mentioned by earlier writers, and in addition, we located many new caves and rock-shelters. In so doing we also located a number of unrecorded rock-painting sites. Almost every cave or shelter floor had been seriously disturbed. At many, local people had removed the soil to fertilize their paddy fields; at Leang Burung, a depth of possibly 2 m had been removed from the extensive cave floor. Some limestone caves are serving as quarries for the source of wall

plaster and other building materials, and much disturbance to deposits has resulted from this industrial exploitation.

Burial caves in Sulawesi are a source of Chinese export porcelain wares on the antique market, and few have escaped probing and subsequent potholing by local dealers. Two important burial caves, Ulu Wae and Ulu Leang 2, had shallow deposits that had been so churned over that any stratigraphic study was impossible. Human bones and decorated potsherds were scattered in fragments, completely out of context.

The depredations of other archaeologists also had to be faced, and the activities of van Stein Callenfels frustrated us in our first project. Whatever the merits might be of working Panganreang Tudea, Callenfels ensured that no later worker would profit by excavating this site. Erecting his house nearby, Callenfels and his laborers persisted until the entire deposit was removed. Today, erosion of the soil from his 1937 excavation reveals numerous artifacts that Callenfels missed; but now they are unstratified. Even so, it is doubtful whether this shelter could have held a deposit 3 m thick, as might be inferred from van Heekeren's account (1957: 91). Batu Edjaja was little more than 1 m thick, as the present surface lies at about the same level as it stood in 1937, to judge from a photograph published by Callenfels's biographer (Swanenburg 1951: Pl. 23).

The Batu Edjaja excavation was never reported, and the finds are apparently lost without trace. We were assisted in locating the excavated area by a man of Kampong TjampagaloE who participated in the 1937 dig. Unfortunately, we only discovered the photograph referred to above after we had left the area, but it confirmed this informant's account. Evidently, the entire deposit inside the basalt cave was dug away; we believe that the lower levels outside the cave were left intact. Ironically, some of our best decorated sherds come from the fill of Callenfels's trench. We must conclude that despite verbal testimony concerning his field techniques and his own description of his methods, every care was not taken. Callenfels and H. D. Noone (1940: 120) state with reference to a Malayan excavation that "in accordance with our usual method . . . the exact depth and position of every important object found during the excavation was determined with reference to a fixed zero-point with the aid of a theodolite and a tape-measure, and from these readings were plotted the horizontal plan and vertical section. . . ." It is relevant to note that the Panganreang Tudea finds are in the Museum Pusat, Djakarta. From their minimal labelling, it may be inferred that four layers were represented in the deposit. Yet, the layer indications are given on so few items that they are of little value in allowing an objective assessment of the collection; basically, it is little better in these respects than any surface collection.

BATU EDJAJA

The cave is situated on a basaltic peak facing west at an altitude of approximately 275 m above sea level; Panganreang Tudea shelter is a few hundred meters distant and about 50 m lower on the southern slope of the same peak (Pl. I). The floor of Batu Edjaja cave measures about 10 m × 8 m, although much of it is covered with rock fall. Massive rocks beyond the line of overhang have prevented erosion of the deposit, which has built up to an excavated depth of almost 1.5 m in places. Our 6 m × 1 m trench was enlarged to 2 m width in the two outermost squares; the first three squares inside the cave were undoubtedly dug into the fill of Callenfels's excavation. The uppermost 25 cm or so over the whole trench was interpreted as post-1937 fill, but those squares outside the overhang and below this depth were assumed

to be undisturbed. Unfortunately, few stratigraphic indications were apparent since the deposit was an even, red brown, sticky clay, coming down upon a mass of boulders over the entire trench (Pl. II).

Van Stein Callenfels (1938) claimed the discovery of polished stone axes and bronze objects. A summary list of finds is provided by van Heekeren (1949: 93-94). Field sorting of our finds produced no axes and only one fragment of a ground-stone bracelet; no metal came from the undisturbed deposit. Stone tools include points and flakes with fine serrations, but none resembles the hollow-based points common on sites in the Maros region. There are a few backed blades with unidirectional blunting, and one is bidirectionally backed. Most of them are asymmetrically or obliquely trimmed, some being made on basalt flakes.

Associated with these tools is a large quantity of incised and impressed decorated pottery. Examples are illustrated in Plates III and IV. That Callenfels recovered identical ware is suggested by his description (van Stein Callenfels 1938) and a photograph of five sherds from his excavation (Swanenburg 1951: Pl. 28). It is not our purpose here to analyze the material, but the affiliations between this ware and the finds at Kalumpang are evident. Both collections use simple geometric designs—triangles, curvilinear patterns including lines drawn by compasses, and interlocking semispirals that are normally filled in with punctations (cf. Solheim 1964: Pl. iii*b*; van Heekeren 1957: Pl. 38). There are also differences of emphasis: at Batu Edjaja, interlocking key patterns are absent and so are the common half-circle impressions arranged as series of running scrolls (cf. van Heekeren 1957: Pl. 38). Here, the punctated semispiral or curvilinear scroll design is most popular. The vessels are often exceptionally thick, some being slab-built, square-faced and massive (Pl. III). This shape has not been illustrated in the Kalumpang sites, although Solheim (1959: Pl. V*b*) presents an interesting parallel, complete with similar decoration, from Tres Reyes, Marinduque, in the Philippines. Indeed, Solheim's illustrations and discussion (1959: Pls. 1-3; 158-159; 1964) of the Philippines Kalanay complex are relevant to any consideration of Batu Edjaja wares. A C-14 age of 920 ± 275 B.P. (ANU-392) was obtained for charcoal fragments associated with sherds from a large undecorated bowl-like vessel with a fingernail impressed rim. The relationship of this date to the Kalumpang-type ware must await detailed analysis of the finds.

BATU EDJAJA II

Ten meters south of the cave is a small overhang with a level floor (Pl. V). It seemed to be a promising site, but excavation produced only a few, though interesting, finds and more problems. The deposit was shallow—less than 40 cm in most areas—and there had been considerable burrowing and ant-nest construction. It was excavated in four spits, with the following results. The air-freighted collection includes ten geometric microliths from all spits, but no other form of backed blade, so that comparison with the adjacent site is difficult; similarly, serrated pieces number only two. Two interesting decorated pots are represented (Pl. VI*a, b*). Two fragments of one vessel bearing an impressed wavy-line design occur in the top layer, probably produced by the edge of an *arca* shell. Spits 1, 2, and 3 all produced small fragments of another pot decorated with impressed circles and linear grooves. Van Heekeren (1957: Pl. 37, bottom) includes a similar example from the Kalumpang area. To find microliths associated with such pottery is stimulating enough, but expectations are dashed

by the additional fact that spits 1-3 contained three coins which dated, inconveniently, 179?6, 180?2, and 1816, in order of increasing depth! The C-14 age for charcoal collected near the bottom of the deposit, in spit 4, was "modern" (ANU-393).

OTHER SITES NEAR BATU EDJAJA

Other shelter sites around the peak that were investigated by trial trenches include Leang Bundu, 1 and 2, but they contained no occupation material.

Leang Pa Endrek, 1 and 2, also produced nothing of significance in their shallow deposits.

Leang Batu Tuda faced east about two hundred meters from the main Batu Edjaja cave. It had a maximum depth of 40 cm, and no organic material was preserved. However, Leang Batu Tuda contained a number of geometric microliths, whose stratigraphic position could not be claimed with assurance.

A large surface collection, which included backed blades, was made in a cultivated field near a cemetery, northeast of Kampong TjampagaloE, but no stratigraphy was evident.

Taniallo is a small shelter on a prominent basalt hill about 2 km northeast of Batu Edjaja at an altitude of approximately 400 m. Like Batu Edjaja, it still features in local ritual, and buffalo and goat are said to be sacrificed there. Trial excavation to a depth of 60 cm, surprisingly, proved that the deposit was virtually sterile.

Investigations of shelters at Gojang, over an hour's walk to the southwest of Batu Edjaja, also proved fruitless.

The expedition grudgingly admitted, and deeply regretted, that van Stein Callenfels apparently located the only two good archaeological deposits in the immediate area and that Panganreang Tudea was gone beyond recall.

PANGANREANG TUDEA

This superbly situated shelter faced the sea, must have stretched some 10 m along the cliff, and was 4 or 5 m wide. As a habitation, it must have offered better conditions than any other site.

The Museum Pusat collection was examined briefly by Mulvaney, Macknight, and Glover, time not permitting greater observation. A rough count was made, which served to show its importance. Unfortunately, conclusions are negative, as there is no way of ascertaining whether Callenfels deposited the entire collection here. In any case, the artifacts eroding around the shelter today prove that his methods were selective.

Primary flakes number about 5,500. Except for fragments of three polished stone arm-bands, no ground stone tools are present, and there are only a few metal objects in the collection. Only three plain potsherds and one decorated piece are present. The decorated piece has linear grooving and a running band of impressed half circles. It seems improbable that these finds were the only pottery found, as we recovered pottery in all sites excavated in Sulawesi, including those levels containing backed blades. Van Heekeren (1949: 93) lists thirteen potsherds as coming from this site.

Pointed flakes, some with unifacial and others with bifacial trimming, and a few with serrations, number about three hundred and fifty, while there are about fifty other serrated flakes. Geometric microliths number twenty-four, while there are about one hundred and twenty-five other types of backed blade with blunting retouch.



Plate I View of Batu Edjaja peak and cave.



Plate II Detail of trench at Batu Edjaja.

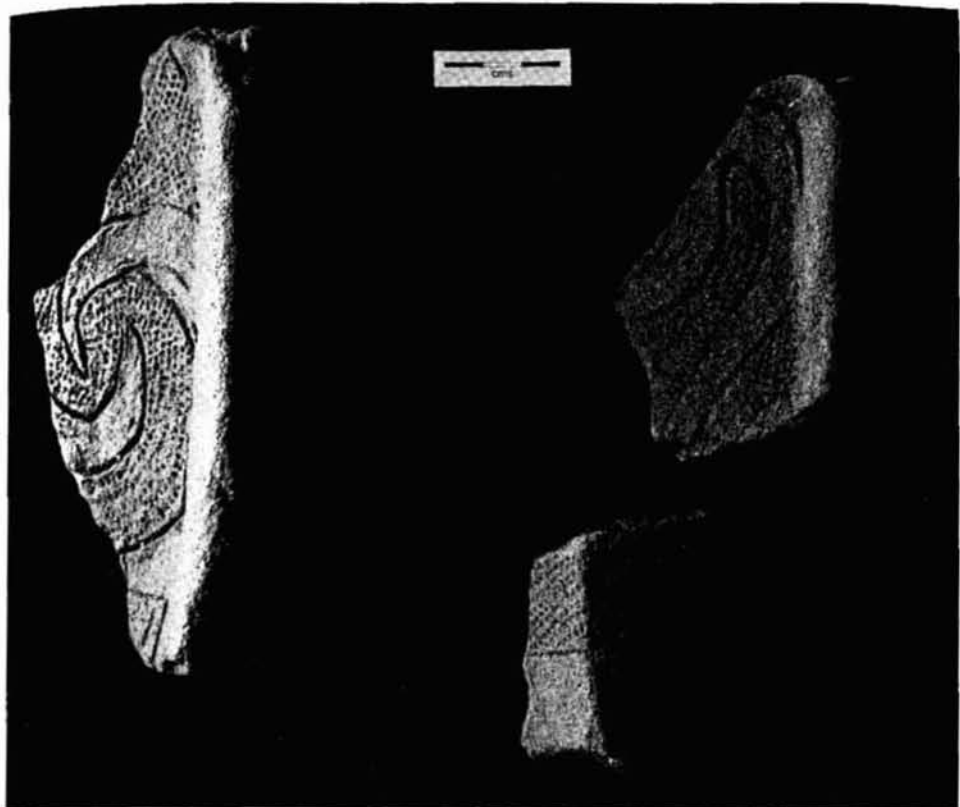


Plate III Incised and impressed ware from Batu Edjaja.

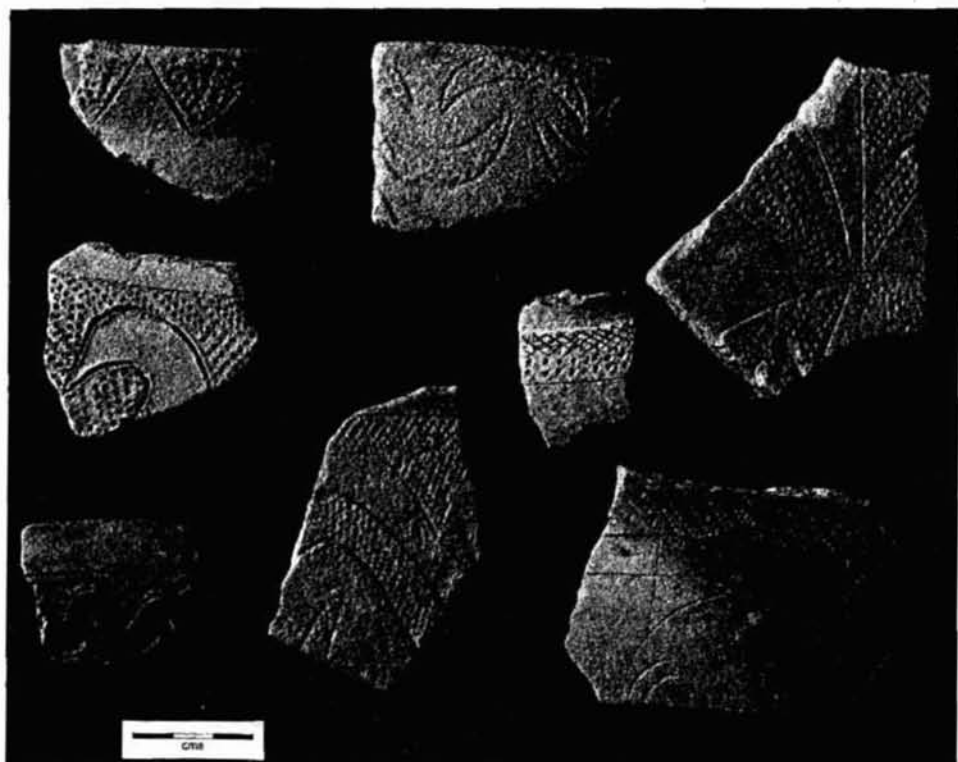


Plate IVa Incised and impressed ware from Batu Edjaja.



Plate IVb Incised and impressed ware from Batu Edjaja.

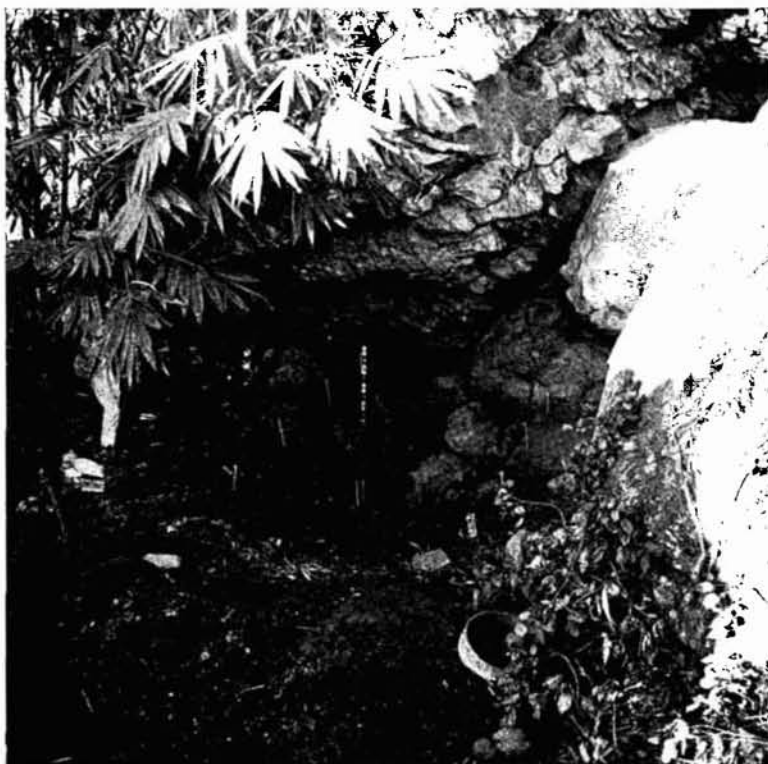


Plate V Batu Edjaja II shelter.

Only ten specimens of the hollow-based point, a type common in the Maros district, are present. Bone tools number about one hundred, of which around thirty are bipoints and the remainder are unipointed.

We hope to pursue work on this collection and, in our final report, to correlate it with our excavated finds. Because of the inferred stratigraphic and cultural sequence presented by van Heekeren (1957: 93), who attempted to reinterpret Callenfels's results, we feel that it is necessary to question the validity of some of his inferences. We are aware, however, that van Heekeren had access to some records apparently no longer available.

As we emphasized previously, the numbering on these implements rarely permits the observer to assign them to a relative depth within the deposit. The artifacts are apparently roughly sorted into "types," and the numbers reflect this preliminary subjective classification, rather than their stratigraphic associations, or their relative depth, or date of their discovery. We find that one of the actual serrated specimens (No. 3562) figured by van Heekeren (1957: 93) in the Upper Toalean bears the same number as several artifacts assigned to the Middle Toalean.

We also stress that almost all those specimens illustrated in van Heekeren's Figure 17 as examples of the Lower Toalean should be classified as primary flakes. Of the eighteen specimens concerned, we would classify two as possessing retouch and one as a small core, but the remainder are untrimmed primary flakes. These latter include the crucial "pedunculated" artifacts (van Heekeren 1957: 92), which Callenfels (1938) termed "tanged, non-toothed, arrowheads" (translation), and cited as type tools of his Proto-Toalean culture.

We believe these "type tools" to be primary flakes and lacking in diagnostic significance. A total of five or six specimens out of an approximate total of 5,500 flakes may be explained, in any case, as the result of chance factors. Further, few of them seem likely to be projectile tips. It must be remembered that Callenfels went into the field knowing that Bühler (Sarasin 1936) had excavated tanged or shouldered points in Timor. It is not surprising, therefore, that he looked for them in Sulawesi in the year following Bühler's publication.

It is now an open question whether the Proto-Toalean or Lower Toalean is a viable cultural entity. Given our experience of the vagaries of typological distribution at the sites around Batu Edjaja, we also doubt the wisdom of erecting a culture sequence on the basis of a single site. We note that van Heekeren (1949: 94) voiced doubts relevant to this issue. Further experience in the Maros region, where other Toalean "type specimens" occur in unexpected distribution and assemblages, makes us urge caution in the use of the present concept of the Toalean culture, particularly regarding its stadial differentiation.

SITES IN THE MAROS REGION

We were based in Kampong Pakalu, about 2 km north of the main road from Maros, 10 km to the west. This picturesque region of precipitous, yet vegetated, limestone cliffs is rich in caves and shelters. We lived opposite Leang Burung, a very extensive cave adjacent to permanent water. An impressive cliff rose over 50 m above the site (see Fig. 2).

Leang Burung is next to the painted site of the same name reported by van Heekeren (1950: 30), and its potential was too great to leave uninvestigated. We stress that our cave is not the site discussed by van Heekeren. Unfortunately, the removal of soil for cultivation and rock for building materials has devastated the deposit over recent years; "several hundred sacks" of soil are said to have been taken away in trucks at one period.

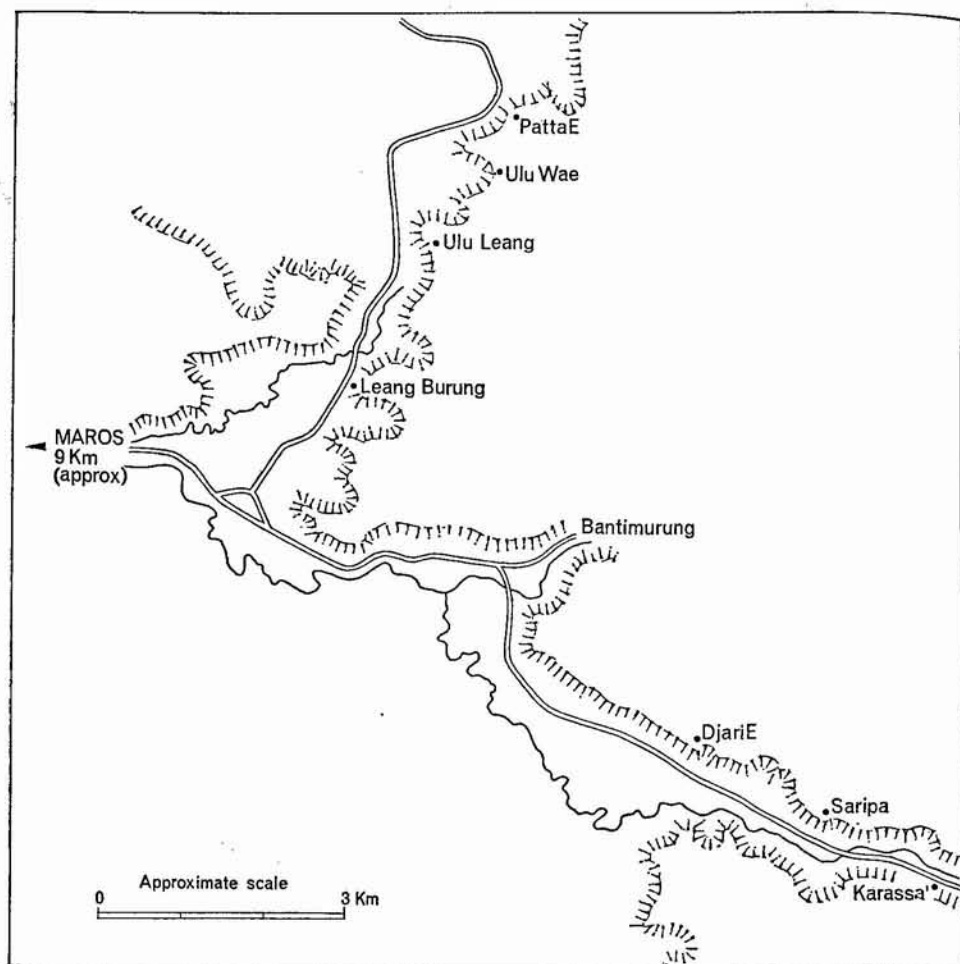


Fig. 2 Sketch map of Maros region.

In order to ascertain any areas of undisturbed deposit, two trenches, each 1 m wide, were dug; they were widened to 2 m in places. Trench A stretched 9 m from well inside the cave to beyond the line of overhang, while Trench B was situated outside the cave in an area that was proved to be largely a remnant of the original midden-like deposit (Pl. VII). Most of Trench A cut through recent limestone rubble that reached to bedrock. Just inside the line of overhang, however, bedrock dipped vertically, and excavation showed that beneath the rubble lay a zone of disturbed occupation material, and underneath, undisturbed deposit. The depth reached in our test trench was 4 m, at which depth excavation became impossible because of massive fallen rocks. (See Mulvaney and Soejono 1970: Pl. IX.)

There are important differences in the number and stratigraphic distribution of artifact types between these trenches, and in order to test their stratigraphic relationship, we dug a trench to connect them at their upper levels. Even so, because of the extent of disturbance over the site, it is rash to draw conclusions before all the finds are analyzed and radiocarbon dates are available. It is possible most of the Trench B deposit is older than all but the lowest

levels of Trench A. If this is so, it has significant implications for the relative antiquity of the hollow-based point, an item hitherto assumed to be a late intrusion in Sulawesi (van Stein Callenfels 1938; van Heekeren 1957: 92). We propose to term this distinctive type the Maros point; there is no basis in fact for calling it an arrowhead.

Insofar as two radiocarbon dates may be said to possess chronological validity, they do confirm the stratigraphic interpretation that Trench B levels are relatively older than most of those from uphill in Trench A. Charcoal from approximately 270 cm depth in Trench A was dated 2820 ± 210 B.P. (ANU-391), while charcoal from almost 150 cm down in Trench B was 3420 ± 400 B.P. (ANU-390).

The figures listed in Table 1 should not be taken as final, as detailed study has yet to be made of the bulk of the excavated material. As most of the finds in Trench A came from the disturbed zone, their stratigraphic provenance is uncertain (see Figs. 3 and 4).

TABLE 1
MATERIAL FROM LEANG BURUNG

IDENTIFICATION	TRENCH A	TRENCH B
Geometric microliths	104	4
Other backed blades	66	0
Obliquely trimmed points	16	3
Serrated flakes and points	13	25
Hollow-based (Maros) points	13	32
Bone unipoints	9	45
Bone bipoints	0	2

Sporadic finds of undecorated potsherds were made throughout both trenches, so that the contemporaneity of pottery and a microlithic industry cannot be doubted. Only two decorated sherds were excavated, and they fitted together, despite the archaeologically embarrassing fact that the pieces were separated horizontally by over 2 m and vertically by at least 70 cm. The stamped circle decoration on this fine-textured and well-fired vessel (Pl. VIc) has parallels at Kalumpang and on more distant sites of the Kalanay tradition (e.g., Solheim 1959: Pl. Ic and opp. p. 188, j; van Heekeren 1957: Pl. 37-38).

Despite the depth reached in these excavations—4 m in Trench A and over 2 m in Trench B—the assemblage remained microlithic in character. There was no suggestion of a "proto-Toalean" stage in lower levels. As already stated, we found backed microlithic blade tools and potsherds in apparent association here, at Batu Edjaja, and at Ulu Leang. We cannot agree, therefore, with van Heekeren (1949: 93) that pots were an extraneous, borrowed item of Toalean material culture.

ULU LEANG 1

Ulu Leang is a large cave facing paddy fields some 2 km north of Leang Burung; the cave has an extensive level floor potentially suitable for occupation. I. C. Glover directed the excavation and is preparing a report on the work. The depth of occupation approached 1.5 m. The site proved to be relatively rich in bone and stone artifacts, but the proportions of different implement types and their stratigraphic sequence did not conform with the evidence

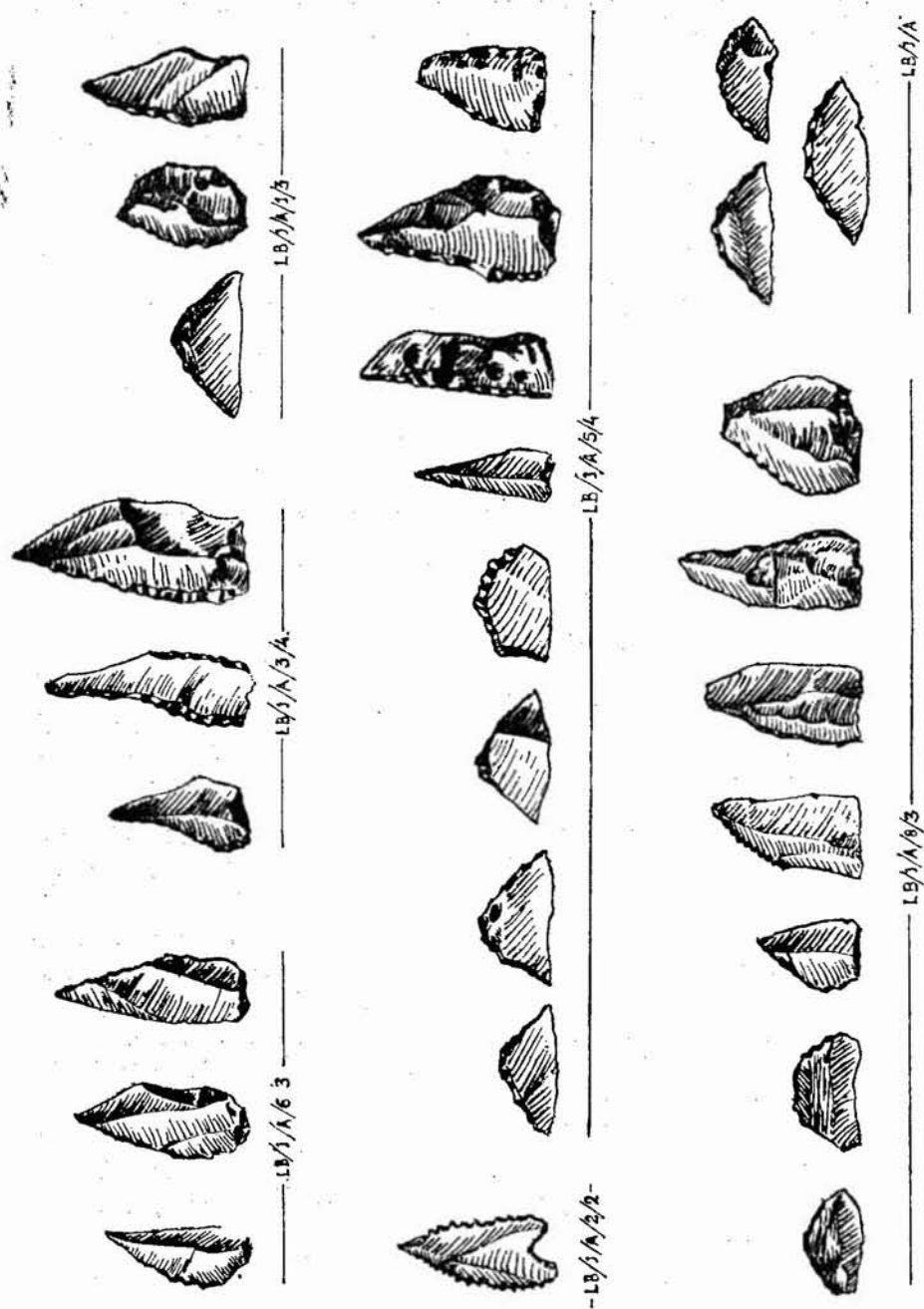


Fig. 3 Implements from Leang Burung Trench A.

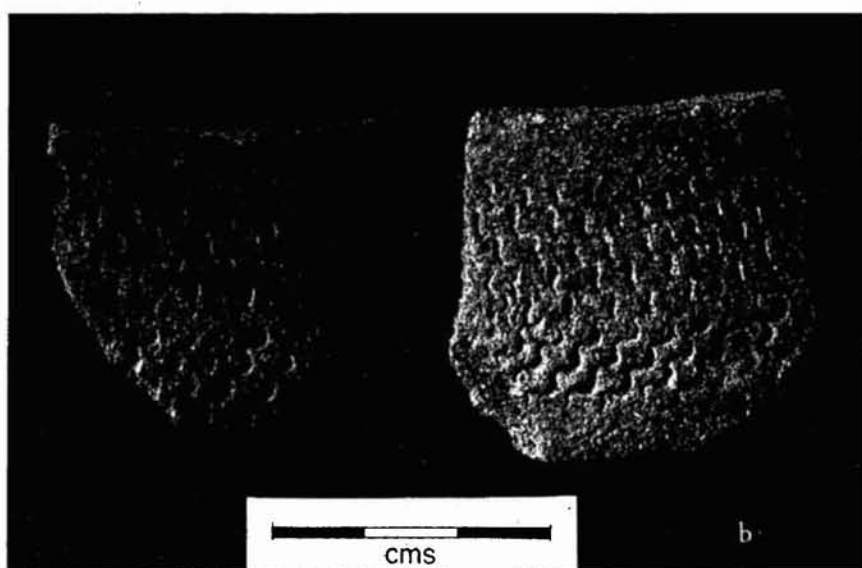
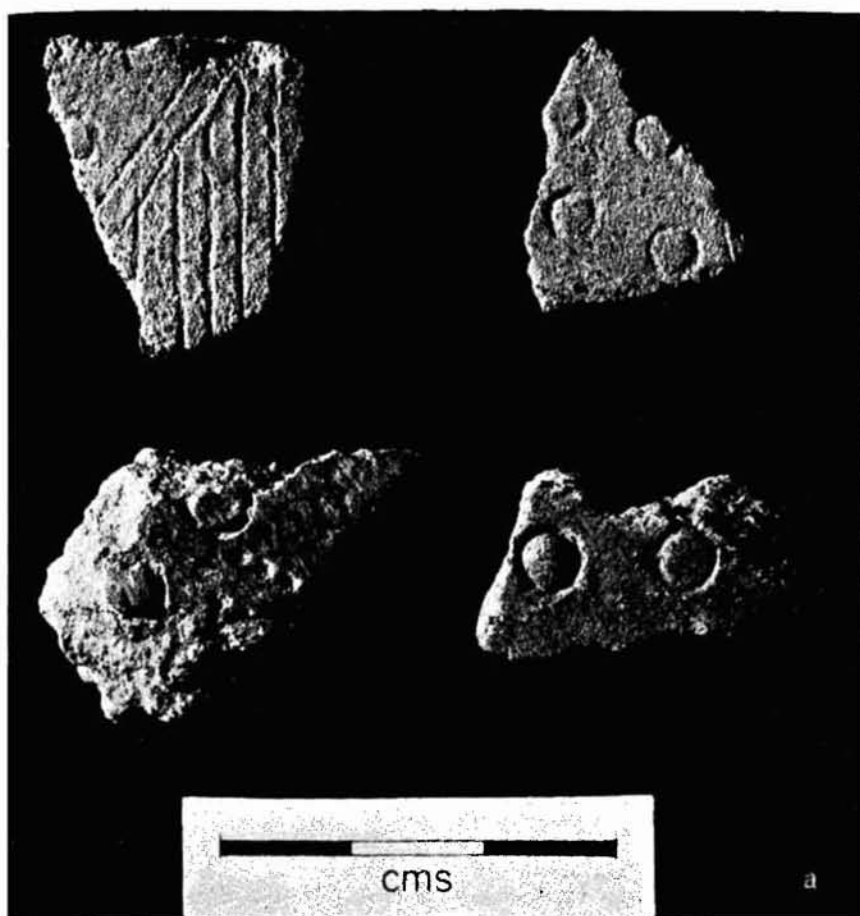


Plate VI *a*, Stamped circle design, Batu Edjaja II; *b*, *arca* impressed decoration, Batu Edjaja II.



Plate VI stamped circle design, Leang Burung, Trench A.



Plate VII Leang Burung cave, Trench A. The trench reached a depth of 4 m.



Plate XII Representative collection of designs from Ulu Wae.



Plate IX Representative designs from Ulu Leang 2 burial cave.

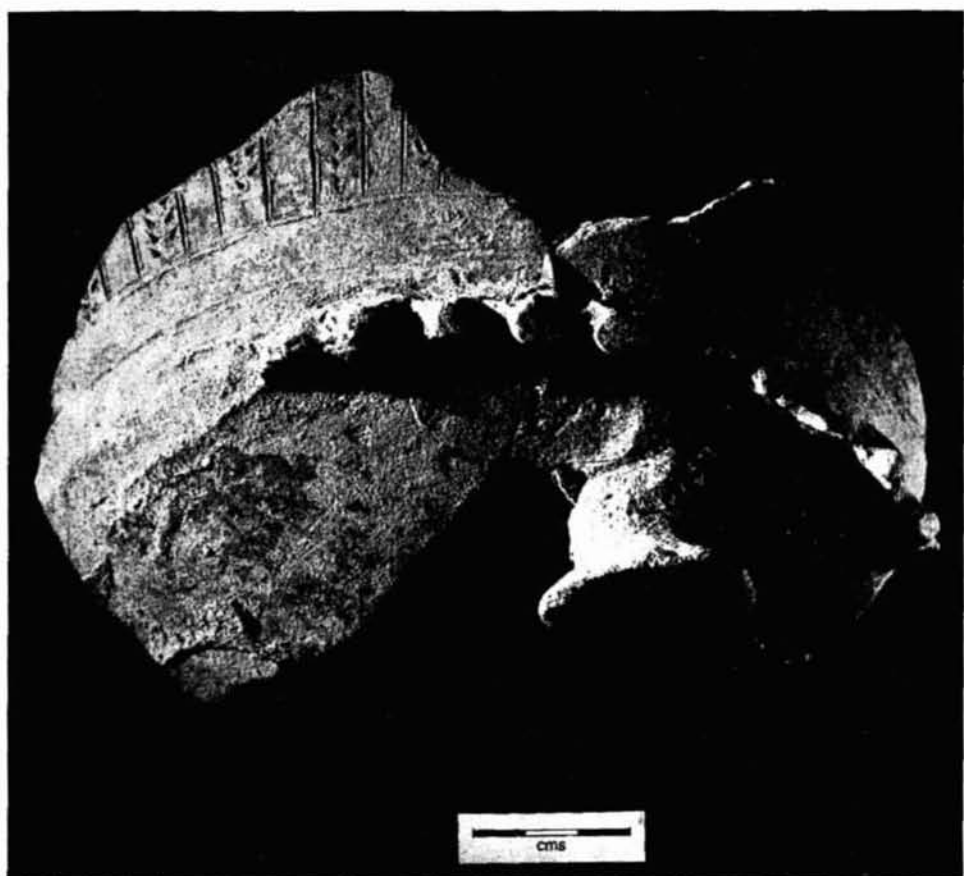


Plate X Representative designs from Ulu Leang 2 burial cave.

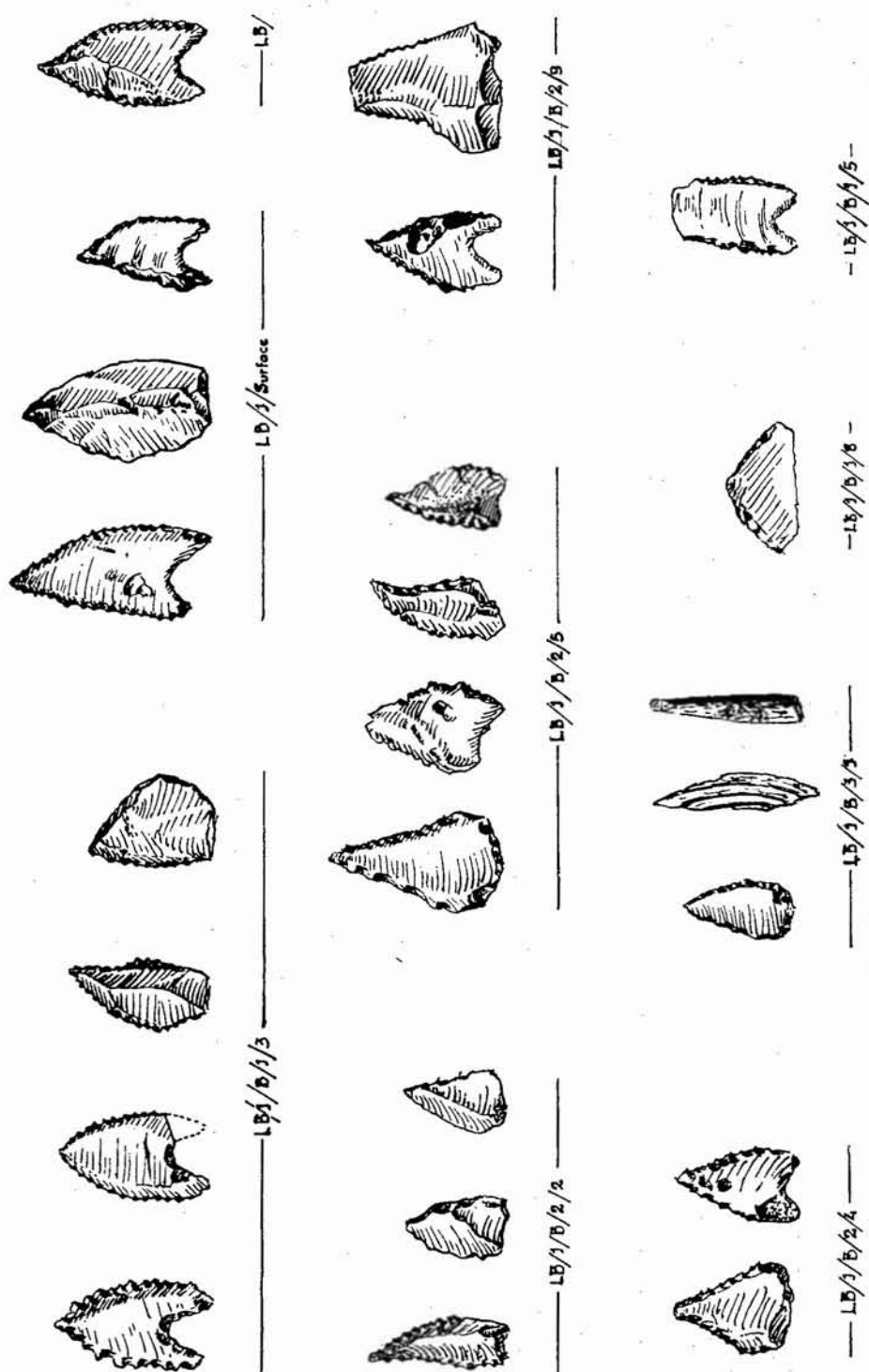


Fig. 4 Implements from Leang Burung Trench B.

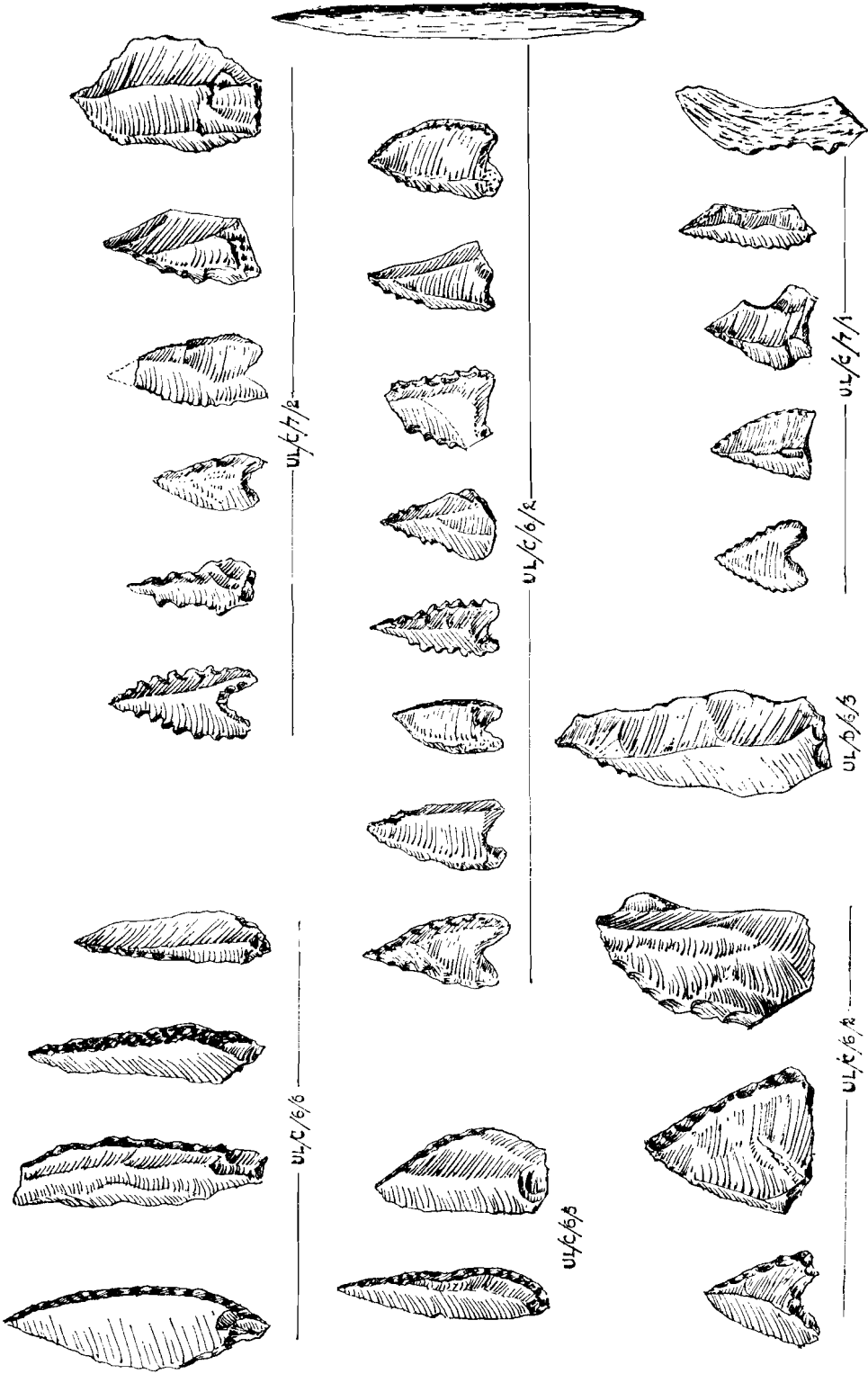


Fig. 5 Implements from Ulu Leang 1.

from nearby Leang Burung (Fig. 5). Ulu Leang served to emphasize the Batu Edjaja situation: correlations between sites are difficult and it is rash to use any one site as the yardstick of culture-sequence.

In this deposit geometric microliths were few, while other forms of backed blade, serrated flakes and points, and hollow-based Maros points were relatively numerous. Pottery did not extend down beyond the topmost 20–30 cm. The age of charcoal from a depth of about 50 cm was 5740 ± 230 B.P. (ANU-394). Not only did Ulu Leang contain the richest collection of faunal material, but it appears to be the oldest occupation site investigated.

OTHER SITES

During our expedition, field party members visited several other sites, including those recorded by earlier workers such as PattaE, DjariE, and Saripa. A small excavation was made at Karassa, but no report is presented here as the finds are still in transit. Soejono proposes to make a separate report on the Sopping megalithic features.

Cave paintings were discovered at several sites. We were surprised to find faint negative red ochre hand stencils in Batu Edjaja cave, although they were not mentioned by Callenfels. In the Maros limestone region there are probably many unrecorded sites. We found negative hand stencils on the roof above our excavation at Leang Burung, a site next to that in which van Heekeren (1950: 30) reported stencils. Stencils also occurred further up the valley in the PattaE area, at Leang Lambatorang, Leang Bembe, and Leang Patagere. Leang Patagere also includes a series of paintings of wild boar (*Babirusa*), two of them measuring about 1.25 m by 0.5 m. At Lambatorang there is a wild boar painted on a smaller scale. Most of these paintings are very faint and difficult to photograph clearly.

BURIAL CAVES

Collections of potsherds were made on the floors of two burial caves. Ulu Leang 2 is situated high in the cliff above Ulu Leang cave and is difficult to reach. Ulu Wae is a larger cave and is easy to reach. Both caves had shallow deposits that had been totally disturbed. The pottery was of such interest, however, that large collections were made for record purposes, although no stratigraphic excavation or carbon dating was possible.

This pottery is illustrated in Plates VIII–XII and parallels within the Sa-huynh-Kalanay tradition are readily suggested. These sites presumably were plundered by agents of antique dealers of modern times who were searching for trade porcelain. It is relevant to record that no porcelain fragments were found in either cave. This negative evidence may provide a clue to the relative antiquity of the pottery, because had porcelain actually been present, it is difficult to believe that some vessels would not have been broken, thereby leaving traces. One tiny glass bead was recovered when the floor of Ulu Leang 2 was screened.

The decoration is impressed, incised, and applied; there are both pierced holes and applied lugs for suspension; some vessels have been painted in addition. It should be noted that some designs are similar to those excavated by Glover (1969) in Portuguese Timor, at Lie Siri cave, where they are associated with radiocarbon dates of 2660 ± 110 B.P. (ANU-173), 3530 ± 90 B.P. (ANU-235) and 3545 ± 120 B.P. (ANU-172). One piece in particular (Glover 1969: Pl. 1a) has impressed running scrolls of half-circles, similar to examples from Kalumpang and virtually identical to a vessel from Ulu Wae (Pl. XII, bottom left).

Some human bones were recovered that had suffered slight damage in the grave-robbing scrimmage or by animal disturbance in immediate post-burial times. They have been given for study to T. Jacob, Department of Physical Anthropology, Gadjah Mada University, College of Medicine, Jogjakarta.

CONCLUSIONS

We are confident that further research in Sulawesi Selatan will produce significant returns and we propose further investigations on both the cultural and environmental prehistory of the region. The limestone cave deposits are likely to produce significant collections of faunal and human skeletal remains. We believe that our evidence already necessitates a reevaluation of accepted interpretations of the so-called Toalean culture. We have added considerably to the knowledge of pottery distribution in the region, and especially in the case of Batu Edjaja, we should be able to provide radiometric dates for pottery in the Kalumpang tradition.

Typological comparison of artifacts too often degenerates into diffusionist conjecture, but we hope that our final report will be based on quantitative data. Superficially, the relevance of this region to Australian prehistory looks as great today as it did to F. D. McCarthy (1940), from whom Dutch archaeologists borrowed Australian terms for their finds.

In Australia (see Mulvaney 1969), geometric microliths are widely distributed south of the tropics; the other forms of Sulawesi backed blades have their Australian analogues, particularly the Bondi point. Obliquely trimmed microlithic points are known also in southeastern Australia, especially the Woakwine point. Bone points from the two regions have been compared, although the relatively unspecialized technology required to produce such tools may render similarities more apparent than real. Detailed study of our total collection, however, may reveal many differences between Australian and Sulawesi tools.

We agree with Solheim (1964: 206) that detailed fieldwork in a region of Southeast Asia shows "that the broad smooth movements of people assumed from the early, very scattered data are neither smooth nor running in one direction. Detail will show movements in all directions, thus confusing the picture over wide areas."*

REFERENCES

GLOVER, IAN

1969 Radiocarbon dates from Portuguese Timor. *APAO* 4: 108-112.

MCCARTHY, F. D.

1940 A comparison of the prehistory of Australia with that of Indo-China, the Malay Peninsula and the Netherlands East Indies. In *Proceedings of the Third Congress of Prehistorians of the Far East*, Singapore, 1938, pp. 30-50.

* The Australian-Indonesian expedition to Sulawesi would have been impossible without the financial support of the Australian National University. In Indonesia, its success was greatly facilitated by the active cooperation and sympathetic understanding of the Director General of Culture of the Department of Education and Culture and his staff members, both in Djakarta and Makassar. The Governor of Sulawesi Selatan and members of his staff helped in many ways, and our welfare in the field was watched over by the Bupatis of Banta Eng and Maros and their respective staffs. Further assistance was provided by the Faculty of Letters of Hasanuddin University, Makassar. We also acknowledge the valuable advice given by Dr. H. R. van Heckeren.

We wish to thank Basuki for drawing Figures 3 through 5. Winifred Mumford, Department of Prehistory, Australian National University, drew the maps, and W. R. Ambrose, of the same department, photographed the pottery.

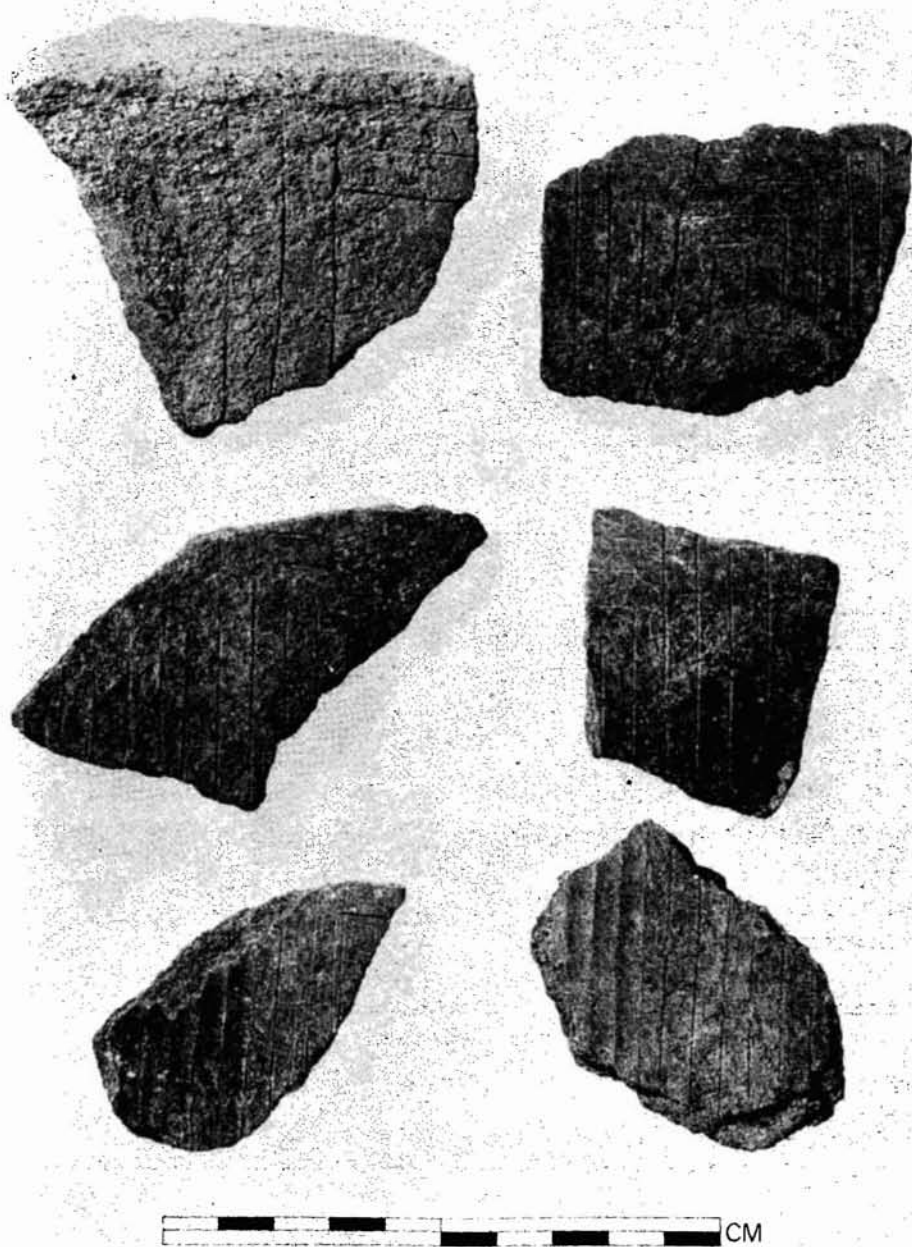


Plate XI Representative designs from Ulu Leang 2 burial cave.



Plate VIII Representative designs from Ulu Leang 2 burial cave.

- MULVANEY, D. J.
1969 *The Prehistory of Australia*. London: Thames and Hudson.
- MULVANEY, D. J., AND R. P. SOEJONO
1970 Archaeology in Sulawesi, Indonesia. *A* XLV: 26-33.
- SARASIN, F.
1936 Beiträge zur Prähistorie der Inseln Timor und Roti. *Verhandlungen der Naturforschenden Gesellschaft in Basel* 47: 1-59.
- SOLHEIM, WILHELM G. II
1959 Sa-huynh pottery relationships in Southeast Asia. *AP* 3(2): 177-188.
1964 Further relationships of the Sa-huynh-Kalanay pottery tradition. *AP* 8(1): 196-211.
- SWANENBURG, B. D.
1951 *Iwan de Verschrikkelijke*. Maastricht: Leiter-Nypels.
- VAN HEEKEREN, H. R.
1949 Rapport over de ontgraving van de Bola Batu. *Oudheidkundig Verslag*: 89-108.
1950 Rock-paintings and other prehistoric discoveries near Maros (southwest Celebes). *Laporan Tahunan*: 22-35.
1957 *The Stone Age of Indonesia*. Verhandelingen van het Koninklijk Instituut voor Taal-, Land- en Volkenkunde XXI. The Hague: Martinus Nijhoff.
- VAN STEIN CALLENFELS, P. V.
1938 Mededeelingen in Het Proto-Toalean. *Tijdschrift voor Indische Taal-, Land- en Volkenkunde* 68: 579-584.
- VAN STEIN CALLENFELS, P. V., AND H. D. NOONE
1940 Report on an excavation in a rock shelter, Gol Bait, near Sungai Siput (Perak). In *Proceedings of the Third Congress of Prehistorians of the Far East*, Singapore, 1938, pp. 119-125.