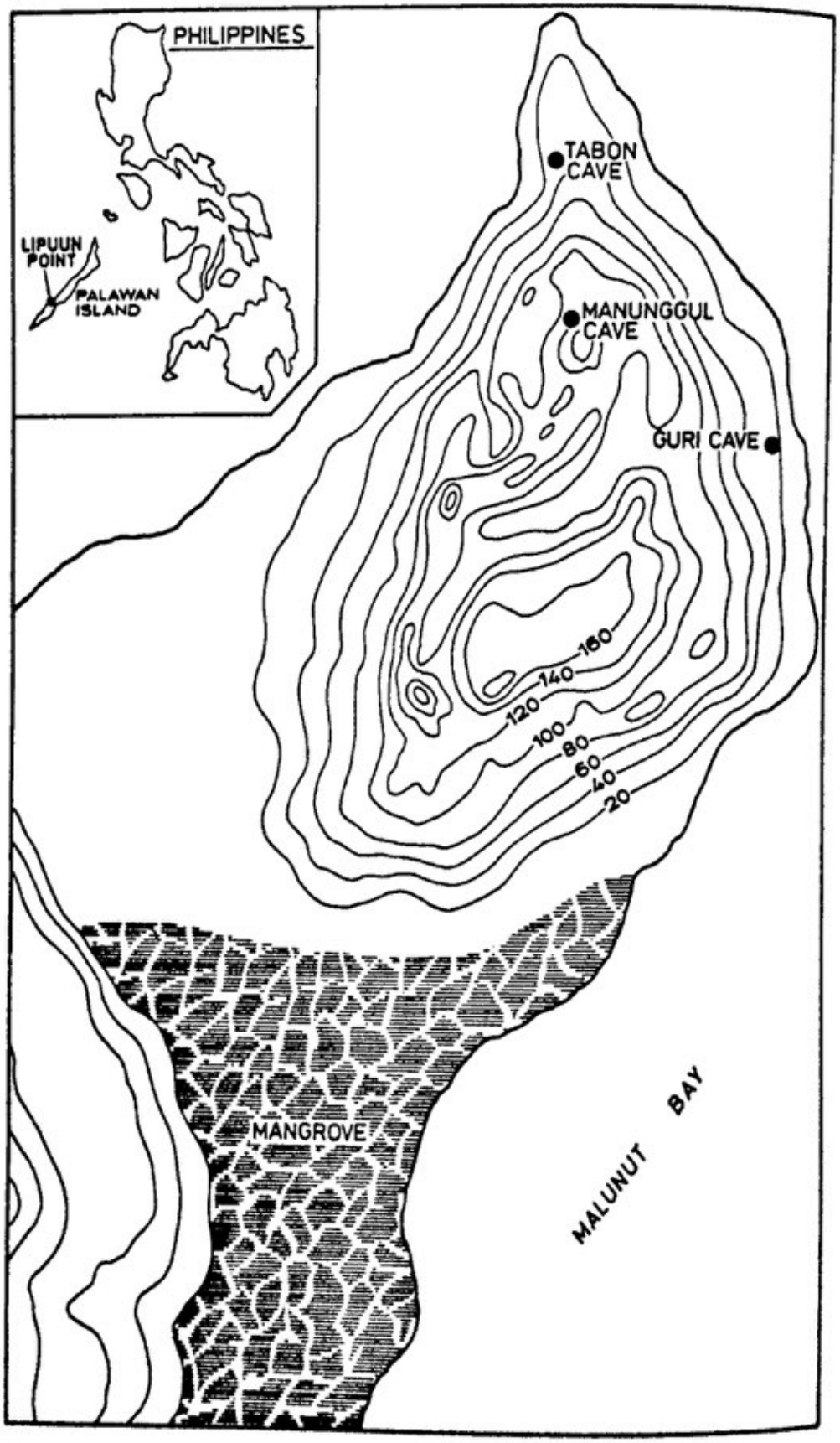

FIG. 1. LIPUUN POINT SHOWING THE LOCATIONS OF THE GURI, TABON AND MANUNGGUL CAVES

EXCAVATION AT CHAMBER A, GURI CAVE ON PALAWAN ISLAND, THE PHILIPPINES: SOME PRELIMINARY OBSERVATIONS

by

Leong Sau Heng

Introduction

Guri Cave is one of the larger caves found in the limestone massif at Lipuun Point on the south-west coast of Palawan island. Since the early sixties archaeological investigations by the Philippine National Museum in the area have yielded a wealth of pre-historic materials ranging from remains of Upper Palaeolithic cultures to those of the Late Metal Age.[1] At Chamber A of the Guri Cave a large collection of flake tools[2] rather like those from the late Pleistocene site at the nearby Tabon Cave[3] was excavated from fairly shallow depths suggesting that they were of considerably later date than the Tabon Cave flake assemblages. Also recovered at Chamber A were thousands of marine mollusc shells and animal bones and teeth. No such extensive midden deposits are known from the other caves at Lipuun Point. At the Tabon Cave itself only small quantities of mollusc shells were recorded from the uppermost levels associated with Flake assemblage I-A, and even these do not include a single marine shell.[4] Bones of large animals like those of deers and

[1]See Robert B. Fox, *The Tabon Caves: Archaeological explorations and Excavations on Palawan Island, Philippines*, National Museum Monograph I, Manila, 1970.

[2]The National Museum's initial excavations at Chamber A, Guri Cave, is briefly reported in Fox, *Tabon Caves*, pp.45-51, and R.B. Fox, "The Philippine Paleolithic" in *Early Paleolithic in South and East Asia*, Fumiko-Ikawa-Smith (ed.), The Hague, Mouton, 1978, pp.67-69.

[3]Archaeological remains, especially flake tools, most of them with little retouch, some utilised cores and a few pebble tools were encountered in the upper 160 cm levels of the Tabon Cave deposits. Five flake assemblages were distinguished by Robert Fox. Of these, Flake Assemblage IV recovered from 120 cm below the present surface was radiocarbon dated 30500 + 1100 b.p. Radiocarbon dates have also been obtained for Flake Assemblages III and I-B. See Fox (1970), *op.cit.*, p.24.

[4]Fox, Tabon Caves, p.25.

the wild pigs were also scarce at the latter site,[5] again contrasting sharply with the midden deposits of Guri Cave.

These findings of the Philippine National Museum, particularly its chief excavator Dr. Robert B. Fox have provided valuable information concerning the extent to which archaeologists can actually infer economic systems of prehistoric communities from their lithic evidences alone. The faunal and molluscan remains from the Tabon and Guri Caves clearly indicate that there were some differences in the hunting-collecting life of the flake-tool using communities of the Lipuun Point area. During the Late Pleistocene the hunting-gathering economy of the Tabon Cave occupants appeared to have focussed on terrestrial food resources only. Their subsistence strategies were based on the gathering of wild plant foods and hunting or trapping of small game.

By the Holocene times, as reflected in the Guri Cave remains, a hunting-gathering economy still prevailed, but not without some adaptive changes. There were apparently greater emphasis on the hunting of the larger animals. At the same time exploitation of shell-fish, especially marine molluscs assumed, for the first time, an important place in their subsistence life. Yet despite these new features in their subsistence strategies, their lithic tool-kit appears to have differed little from the Upper Pleistocene flake industry of the Tabon Cave. This persistence of a flake took tradition into the mid-Holocene times is highly interesting. Until recently most of the flake tool assemblages discovered in Island Southeast Asia were those belonging to lithic industries of the Pleistocene period. The Guri Cave evidence is, therefore, among one of the few instances where the survival of flake tool tradition well into the later prehistoric times have been archaeologically documented.[6]

In 1980 a small excavation was conducted at Chamber A of Guri Cave by a three-man team participating in a SEAMEO

[5]Fox, "The Philippine Paleolithic", p.66.
[6]Other examples have been reported from Flores and Portuguese Timor. See I.C. Glover, "Late Stone-Age traditions in South-East Asia" in *South Asian Archaeology*, papers from the First Inter-national Conference of South Asian archaeologists held at the University of Cambridge, Norman Hammond (ed.), London, Duckworth, 1973, pp.60-61.

Project in Archaeology and Fine Arts (SPAFA) prehistoric archaeology program.[7] The month-long excavation was essentially a stratigraphic sampling of the Guri Cave shell middens from a limited area, a 2 x 2 metre square, in the north-west sector of the cave. Among the main objectives of this systematic and carefully controlled small-scale excavation was an attempt at providing a more detailed archaeological record for this important cave site which would include, besides the stratigraphic data, statistical data on the food debris and other archaeological remains recovered from the midden deposits. This paper presents the field data so obtained and a discussion of their significance in the interpretation of the site's prehistory.[8]

SQUARE NW 23: EXCAVATION AND STRATIGRAPHY

The area selected for excavation was located immediately adjacent to the left wall[9] of Chamber A, at 14.8 metres from the mouth of the cave, and well away from the excavation trenches of the earlier excavations. This square is designated NW 23 on the National Museum's grid map for Chamber A (see figure 2). As with most cave sites, the cave floor is seldom level. The present cave floor at square NW 23 was found to slope downwards towards the cave's mouth. The highest ground at this square was recorded in the south-west corner of quadrant D. The latter was 48cm above the main datum previously established by the National Museum team for their 1962 excavations.[10]

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[7]The programme was for advanced training in archaeology organised by the National Museum of the Philippines on behalf of the South-east Asian Ministers of Education (SEAMEO) Project in Archaeology and Fine Arts (SPAFA). Nine Southeast Asian archaeologists (three from Thailand, three from Malaysia, two from Indonesia and one from the Philippines), participated in this training programme. The participants were grouped into three teams and each team carried out a full month's excavation at a selected cave site in the Lipuun Point area in Palawan. The sites were the Guri, Tadyaw and Bubulungun caves. The excavation at the Guri Cave (Chamber A) was conducted by Team A whose members were Leong Sau Heng of the University of Malaya, Malaysia (as leader of the team and writer of the excavation report), Mr. Somchai Na Nakornpanom of the National Museum Bangkok, Thailand, and Mr. Jaime C. Reyes of the National Museum of the Philippines.

[8]This is an extensively revised paper of my earlier excavation report (submitted to SPAFA), written in the field and during my short stay in Manila and the Cagayan valley.

[9]This is looking from inside the cave towards the cave's mouth.

[10] The datum was marked by a large iron loop driven into the right wall of Chamber A.

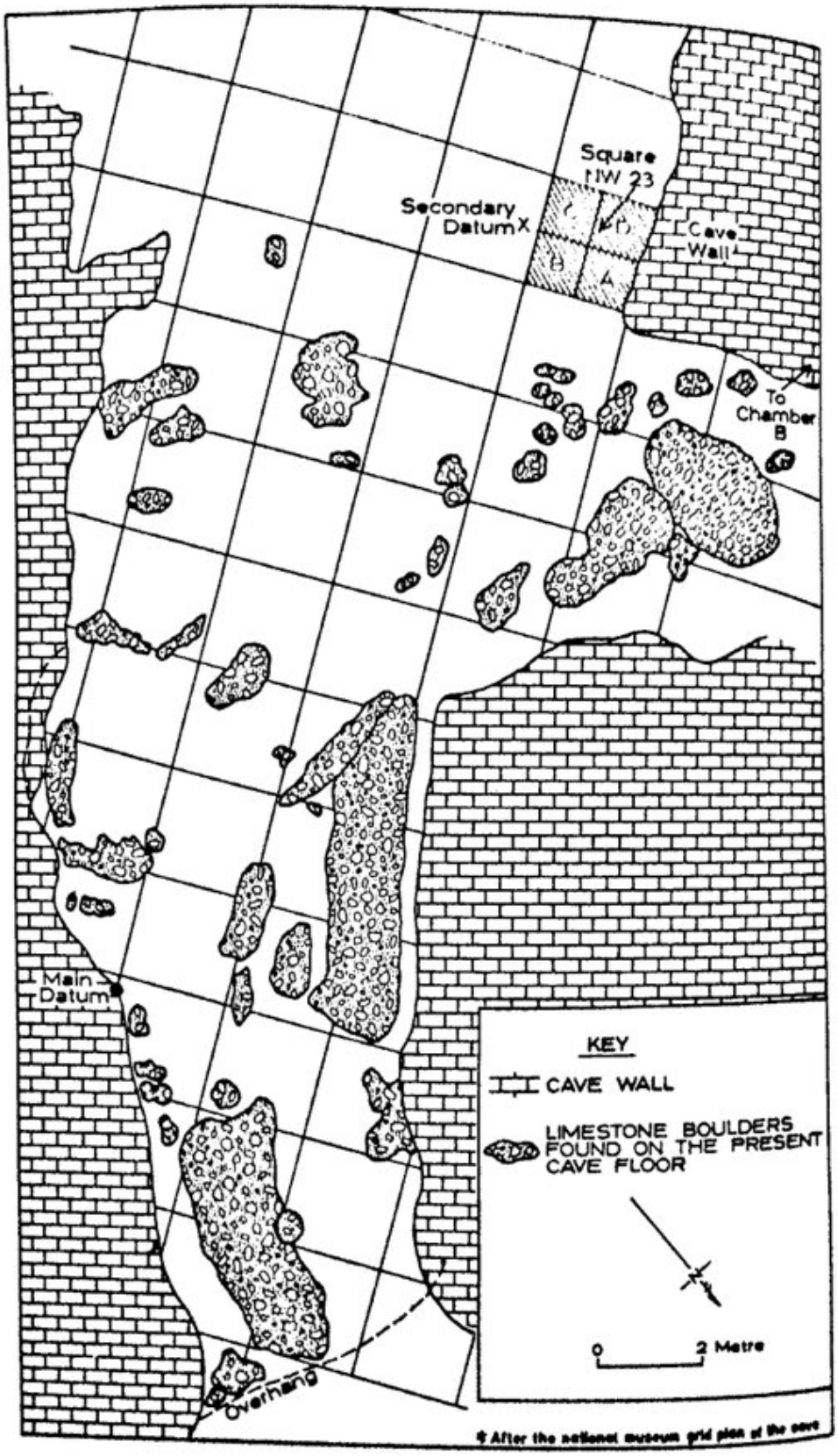

FIG. 2. GRID PLAN* OF CHAMBER A, GURI CAVE SHOWING THE LOCATION OF THE EXCAVATED TRENCH AT SQUARE NW 23

The lowest ground, recorded at quadrant B, measured only 25cm above the main datum.

Excavation of the square was conducted at arbitrary levels of 5cm. This arbitrary unit level was adopted for purposes of a better vertical control in view of the fairly poor lighting in this part of the cave.[11] A secondary datum was established near the southern end of the square where the cave floor was more level.[12] The height of the ground here measured only 30cm above the main datum. Excavation of spit 1 was essentially an initial levelling of the present cave floor. Since the ground was lowest in quadrant B only quadrants A, C and D was dug. Excavation of the subsequent spits were kept as far as possible at 5cm per level. Each basketful of excavated soil was sieved twice, first through a 1/2 inch mesh screen, and then through a 1/16 inch mesh screen.

The space available for excavation was found to decrease as our work progressed. This was due to the encroachment of the spreading base of the cave wall into quadrants A and D as the lower levels were reached. At quadrant D it was no longer possible to excavate after spit 8 as the cave wall was found to fill the entire quadrant. On the completion of spit 9 almost 90% of quadrant A was occupied by the cave wall. Limestone rubble (many were of boulder size), found below spit 3 in the centre of the trench, and travertine layers occurring at the southern end of the trench, also took up much of the space in quadrants B and C. After spit 11 the deposit was found to be culturally sterile, except for a single bat bone in spit 13. The excavation was suspended at the end of spit 15 at 75cm depth below the surface. At that level the excavatable space in between the limestone boulders was much too small to permit further work. To reach the deeper levels would require extension of the present excavation square as well as the removal of the larger boulders. It was not possible to carry out such operations owing to the limited time the excavation team had on Palawan island.

[11]Although the natural lighting in Chamber A is good for the most parts, areas more distant from the mouth of the cave are less well lit. Artificial lighting had to be employed throughout our excavation to ensure good visibility required for detailed and careful field studies.

[12]All measurements of depths below the surface were taken from this level at the southern end of the excavated trench.

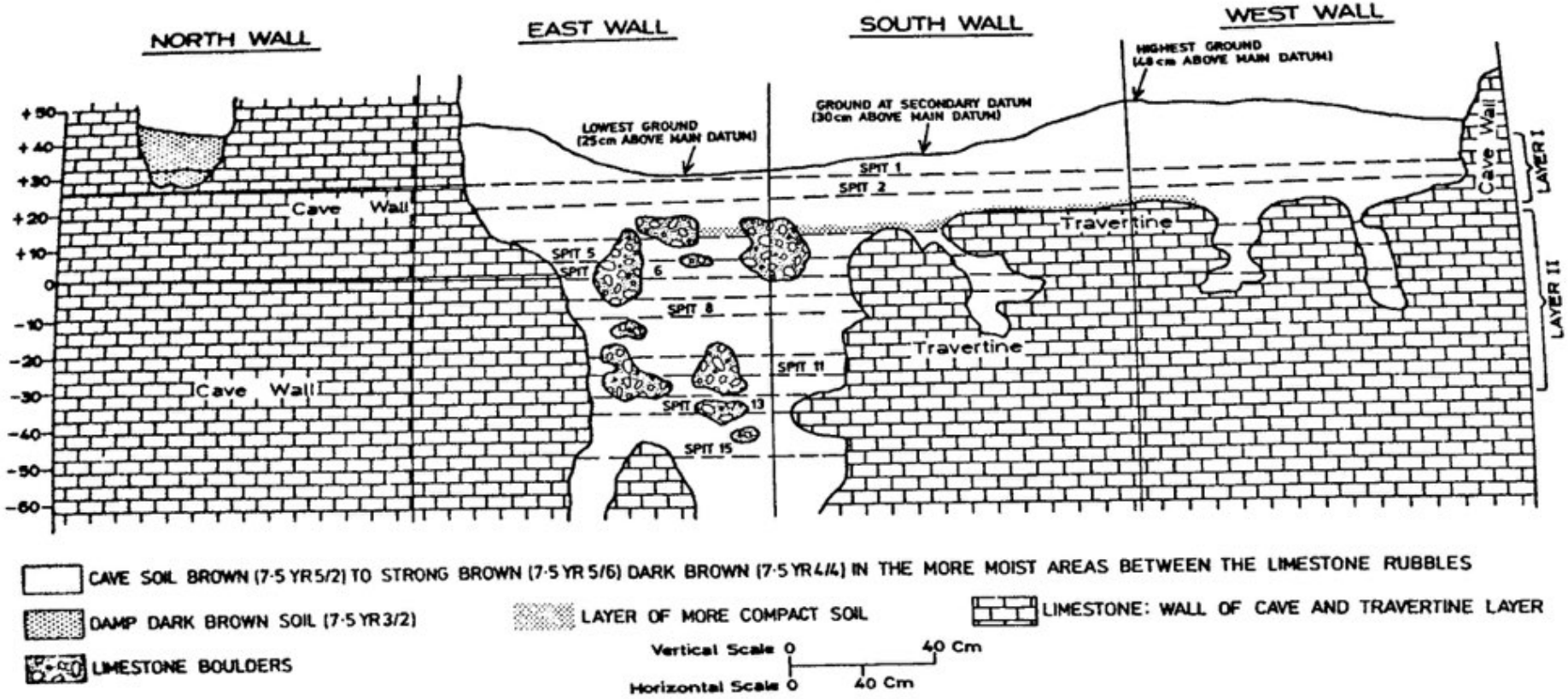

FIG. 3. VERTICAL SECTIONS OF THE NORTH, EAST, SOUTH & WEST WALL AT SQUARE NW 23 CHAMBER A, GUA CAVE.

For the most part the cave soil was fine to medium-fine in texture and was fairly dry except for those areas in direct contact with the cave wall in quadrants A and D. The soil colour in general ranged from brown (7.5 YR 5/2)[13] and strong brown (7.5 YR 5/6), to dark brown (7.5 YR 4/4) in the more moist areas. Apart from the dark brown soil (7.5 YR 3/2) trapped in the shallow pockets found on the uneven surfaces of the limestone wall in the northern part of quadrants A and D, no distinct soil layers differentiated on the basis of soil colour alone could be detected in the small excavation trench. Nonetheless, the presence of a flatish layer of hardened soil was observed at several places in quadrants B and C about 20cm below the surface. This compact soil layer was probably an ancient cave floor. The compact soil layer was underlain by a 15 to 20cm thick travertine layer in the south-west portion of quadrant B and the southern end of quadrant C. The travertine layer was found to extend from lower spit 4 to spit 6, in some places even reaching spit 7. At spit 8, in the southern part of quadrant C, this travertine layer was underlain by a second travertine layer approximately 15cm thick (reaching spit 11). The travertine layer encountered in quadrant B, however, was not succeeded by a second travertine layer but by a layer of limestone rubble. In the other parts of the excavated trench where there was no travertine layers, soil mixed with small lumps of limestone and hardened soil were found beneath the compact soil layer right down to spit 11, about 55cm below the surface. Fairly compact soil was again encountered in spit 14 and 15, 70 to 75cm below the surface, in the centre of quadrant C. This patch of compact soil, however, appeared to be rather localised.

EXCAVATED FINDS

The Flake Assemblage

Several flakes constituting 2.7% of the total excavated finds were recovered. Of these, 21 were tools while the remainder 41 specimens were waste flakes and waste cores. The flake materials were excavated from spit 1 through spit 2 to spit 6. The largest amount of flakes was recorded in the upper levels (see figure 4). Of the total excavated flake materials, 27% was obtained

[13]All colour notations cited in this report are based on the Munsell soil colour charts.

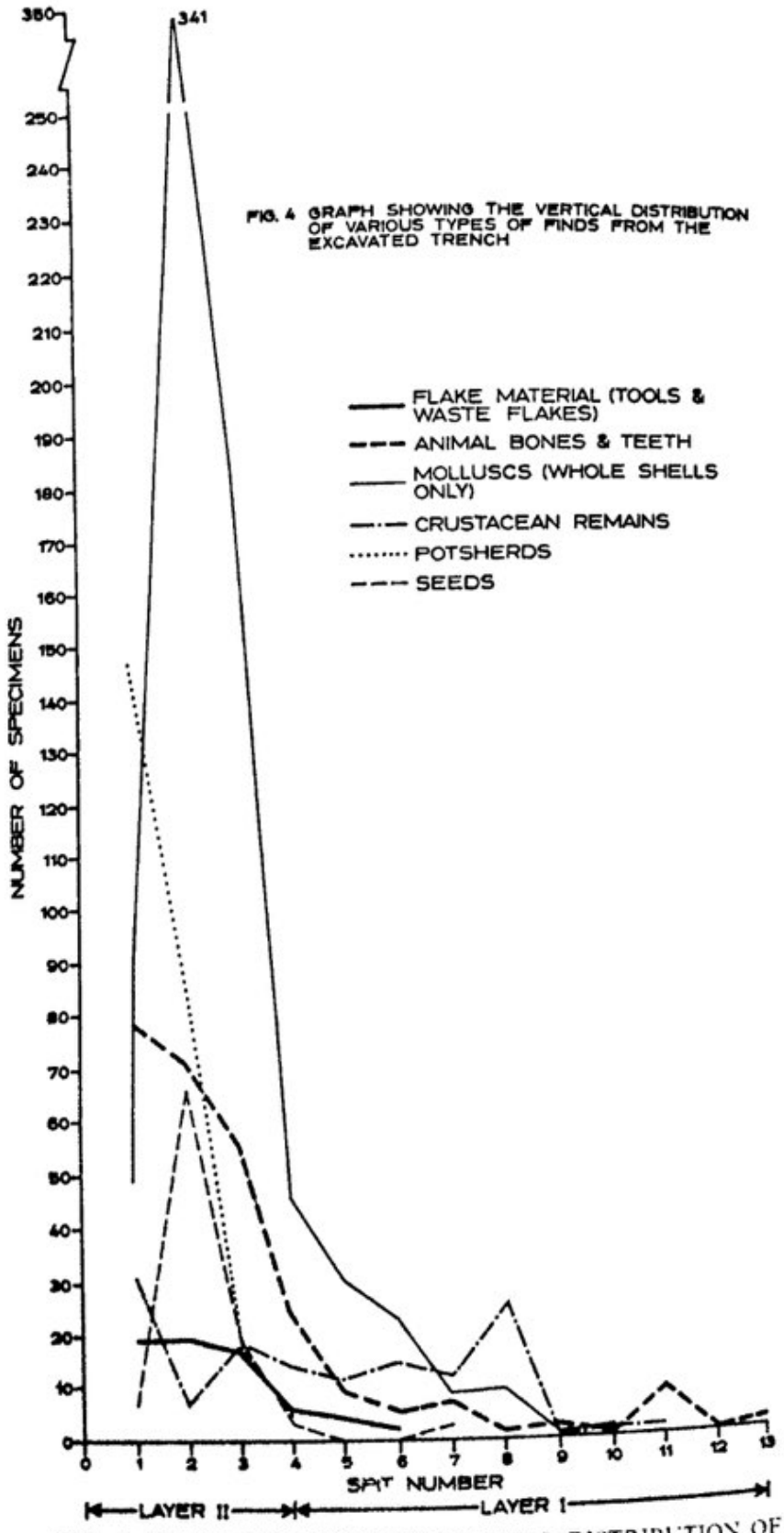

FIG. 4 GRAPH SHOWING THE VERTICAL DISTRIBUTION OF VARIOUS TYPES OF FINDS FROM THE EXCAVATED TRENCH

from spit 1. An equally large amount was also recovered from spit 2, and 26% was recovered from spit 3. The lower levels, spits 4, 5 and 6 yielded only 8%, 7% and 5% of the total excavated flake materials respectively.

Almost all the excavated flakes are of cryptocrystalline quartz material, namely chert. The only exception was a green nephrite tool, excavated from spit 2 (specimen IV 80 G 84). The most common chert material represented were those of the brown to dark brown colour. A few speciments of reddish brown chert were also obtained from spits 1, 2 and 6. Also found were three speciments of black chert. These include two scrapers excavated from spits 1 and 2, and a waste flake from spit 6.

High-angled Scrapers

As the name suggests, 'high-angled scrapers' are tools with high angled working edges. Those found at the excavation had edge angles ranging from 4° to 90°, with the majority being between 58° to 70°. Because of their high-angled working edges, these tools are ridged, particularly those specimens with elongated forms, or humped on the dorsal surfaces. The maximum thickness of the humped back is normally found near the butt portion of the tool (thus allowing for a better grip of the tool). The base of these tools are always flat. Examination of the edges of these high-angled scrapers found that these tools had either straight, concave or convex working edges. Retouching is usually present along the working edge. Neither wear-polish nor very obvious strations could be discerned on the working edges of these scrapers (the tools having been examined as hand specimens only, with no microscopic analysis). The majority of the tools were, however, found to have tiny chipped edges. These were discerned by holding the specimens against the light and viewing the profiles of the edges. Small wear flakes or scars were also noted on the dorsal and ventral sides of some of the tools, especially along the working edges. Presence of wear scars of these high-angled scrapers suggest that the tools were probably used to work relatively tough or dense wood. The high-angled working edges of these scrapers would have been particularly suitable for woodworking jobs, especially for operations like planing wood.

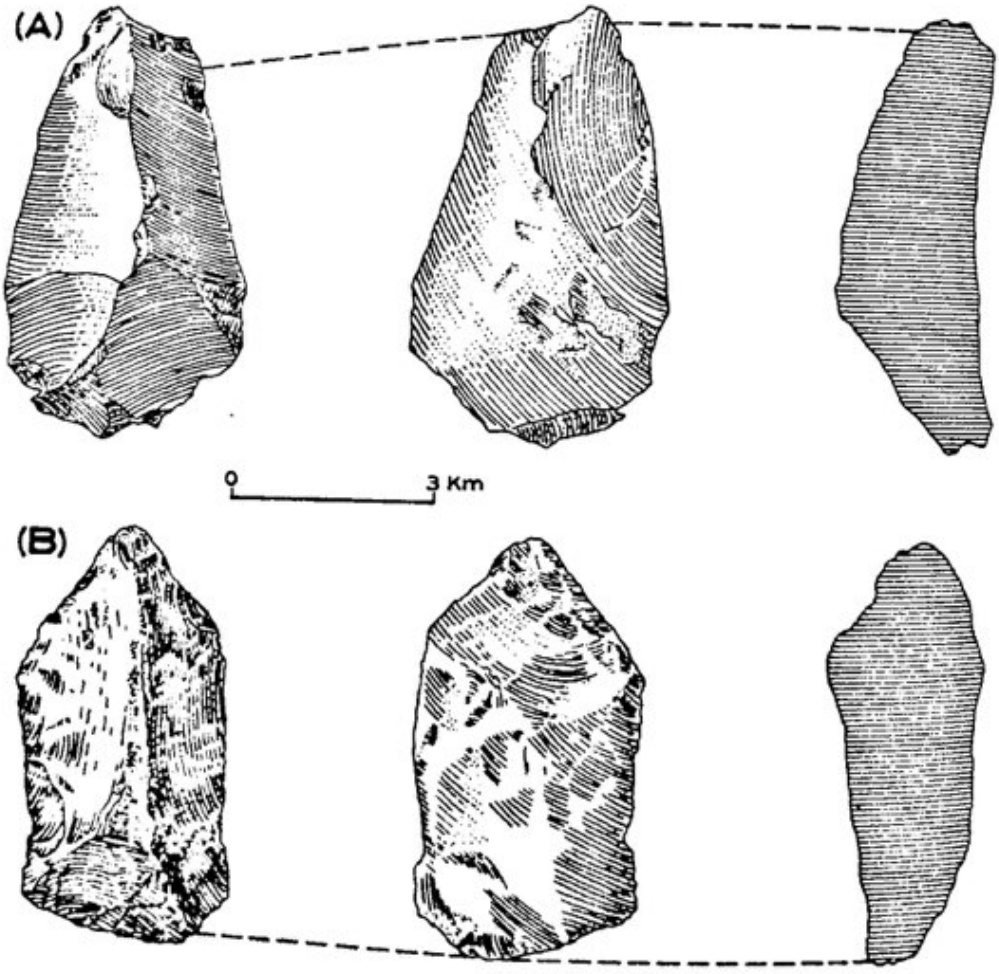

FIG 5 TWO EXAMPLES OF FLAKE TOOLS EXCAVATED FROM SQUARE NW 23

(A) Nephrite high-angled scraper (specimen IV-80-G-84) from spit 2
(B) Brown chert high-angled scraper (specimen IV-80-G-114) from spit 1

The largest of the high-angled scrapers recovered from the excavation have a maximum length between 31mm to 43mm. These are from the upper deposits, from spits 1 (specimens IV 80 G 11 and IV 80 G 114) and 2 (specimen IV 80 G 84). A high-angled scraper from spit 6 is particularly worthy of note. The flat base of this specimen is roundish in shape, unlike the elongated shapes of those of the other large high-angled specimens found in spits 1 and 2. Such high-angled scrapers with roundish base have been known to occur among the Tabon Cave flake assemblages. They have also been reported by Dr. Fox from his 1962 excavations at the Guri Cave. These were referred to as "kuba" flake core scrapers by Fox. Another high-angled scraper of rather uncharacteristic shape is a specimen (IV 80 G 137) from spit 1. The tool is small compared to the other high-angled scrapers, and has only a single short working edge at the primary end.

Low-angled Scrapers

Low-angled scrapers are also found among the excavated flake took assemblages. The angle of the working edges of this group of implements are mostly below 40°. Some are as low as 25°, but the majority range between 30° to 38°. Most of the tools are of medium size. The larger specimens have a maximum length between 18mm (specimen IV 80 G 169 from spit 2) to 20mm (specimen IV 80 G 204 from spit 3). Small specimens were also encountered. These came from spit 2 (specimens IV 80 G 74, IV 80 G 98, IV 80 G 99 and IV 80 G 80).

Unlike the high-angled scrapers (one of which is a flake core tool), all the long-angled scrapers are true flakes struck from chert cores. Both convex and concave working edges are found on these low-angled scrapers. Tests conducted on these scrapers showed that they could be employed for scraping as well as light cutting tasks. Some could also be used for whittling small wood shafts. In general, the relatively small size of these scrapers suggests that they were fashioned for light easy handling.

Primary and Waste Flakes

No flake knives or true blade forms are represented in the flake assemblage. A single flake from spit 1 (specimen IV

80 G 136), however, appears to have a blade like form with a point at one end. The flake measures 35mm long and 9mm wide. The profile view of the flake is gently curved rather than straight. No secondary retouching can be seen on this flake and no wear scars were obtained along the sharp and fairly parallel sides of the flake.

There is another specimen from this assemblage which can also be regarded as a potential tool. This specimen (IV 80 G 291) is a flat trapezoidal shaped flake with a sharp cutting edge along its longest edge. This flake could have been used as a cutting tool. No wear scars, however, were detected along its cutting edges.

Other waste flakes recovered from the excavation are small chips of chert measuring less than 33mm at their maximum dimensions. A few waste cores with irregular shapes displaying no suitable working edges were also found.

POTTERY

A total of 245 earthenware sherds were excavated from the upper levels. Of these 50% were recovered from spit 1, 33% from spit 2, 7% from spit 3 and 2% from spit 4. No potsherds were found in the levels below spit 4.

The potsherds are from coarse tempered and low fired wares. These bore a colour range from light reddish brown (5 YR 4/4) and light brown (7.5 YR 6/4) to brown (7.5 YR 5 4). A few specimens were burnt to a reddish grey colour (5 YR 5 2) sometimes with a tinge of red on their surfaces. A few sherds with charred surfaces were also found. These were probably sherds from cooking vessels. The majority of the sherds were of an average thickness of 5.5mm.

Most of the sherds were small. Larger pieces accounted for not more than 8% of the total excavated potsherds. The maximum measurement of these larger sherds ranged from 30mm to 80mm only. Many of these larger sherds displayed uneven depressions on their inside surfaces. The latter suggest that these were sherds from vessels which were made with the aid of an anvil. Owing to the small size of the sherds the actual shapes

of the vessels remain unclear. Among the potsherds, however, is a single simple out-turned rim sherd and one sherd displaying a sharp carination. Both specimens, however, were too small to permit a reconstruction of their circumference measurements.

Of the earthenware finds, 98% were plain sherds. Only 2% (5 sherds) were decorated with carved paddle impressions on the outside surfaces. The surfaces of these carved paddle impressed wares were of a light reddish brown colour (5 YR 4/4 and 5 YR 5/2). One of these sherds was also charred on its outside surfaces. All these carved paddle impressed sherds were excavated from the upper levels. Four were excavated from spit 1 and one from spit 2.

Potsherds were last encountered in spit 4 about 20mm below the surface. These are small and plain sherds. Except for their surface colours, which are a yellowish red (5 YR 5/6) and grey (7.5 YR 5N 5/), it is not possible to differentiate these sherds from those recovered from the upper spits before laboratory analysis on these pottery samples are carried out.

MOLLUSCAN REMAINS

Mollusc shells account for 64% of the total excavated finds. These include 682 whole shells and 756 shell fragments. They were recovered from spits 1 to 11. The highest shell count was recorded from spit 2. The latter spit yielded 51% of the total shell finds. After spit 2 the number of shells was found to decline steadily as the lower depts were reached (see figure 4). The last spit from which shells were recovered featured only two specimens.

More than five varieties of marine molluscs were represented in the deposits. the majority were gastropods, the most common being those of the *Neritina, Littorina* and *Turbunidae*. It is interesting to note that among the gastropod finds were several very small marine shells with maximum dimension of less than 5mm. These molluscs were apparently too tiny to be of any importance as food for any shellfish eating animals. Their shells too would have been of no use to the hermit crabs seeking a new home. Their occurence in the shell deposits at Chamber A can therefore be attributed to human agency. These tiny gastro-

pods were probably scooped up by the shellfish collectors along with the other molluscs and brought to the cave.

While gastropod shells were found in most of the excavated spits down to spit 11, bivalves, which include shells of the *Arca granosa,* were found only in the upper three spits. Such bivalves finds were, however, relatively few and accounted for only 4%, 1.2% and 4% of the total shell finds from spits 1, 2 and 3 respectively.

CRUSTACEAN REMAINS

A total of 138 fragments of the external shelly coverings of hermit crabs were sifted from deposits excavated from spits 1 to 8 and from spits 10 and 11. It is unlikely that the hermit crabs were included as part of the diet of the Guri Cave occupants. They were probably accidentally scooped up along with the marine molluscs by the shellfish collectors. Back at the cave these hermit crabs were subsequently discarded together with the tiny marine gastropods. There is, however, also a possibility that the occurrence of hermit crabs remains in the cave deposits was due to natural rather than human factors since hermit crabs are notorious for their ability to journey fairly far from the beach.

ANIMAL BONES AND TEETH

Of the total excavated finds, 11% are animal bones and teeth. These include 20 teech and 215 bones. Fragments of bones of larger animals were recovered from spit 1 right down to spit 9. Bones of small animals were excavated from spit 1 to spit 5, spits 7 to 9 and spit 13. Animal teeth were obtained from spit 1 to 4 and also in spit 8. The largest amount of animal bone and teeth finds was recorded from the top 15cm of the deposit; 30% came from spit 1, 26.5% from spit 2 and 21% from spit 3.

Remains of large mammals accounts for 76% of the total faunal finds. Some of these have been identified by specialists at the National Museum Manila as remains of deers. These include two premolars (specimens IV 80 G 54 and IV 80 G 96) and one molar (specimen IV 80 G 158) obtained from spit

2, and another two molars (specimen IV 80 G 183 and IV 80 G 284) from spits 3 and 4. Our preliminary studies of the excavated faunal material have yet to identify remains of wild pigs said to be rather common among the Guri Cave midden debris.[14]

Bones of small animals constituted only 24% of the total excavated faunal remains. No fish bones were found despite our very careful sifting of the excavated deposits. Bones of small animals recovered from the excavation were mainly those of bats, and possibly other small mammals and birds. It is, however, difficult to determine whether these bones, especially those of bats and other small mammals were actually part of the natural deposits in the cave, or whether they were food debris left behind by the Guri Cave occupants. The present analysis has grouped these finds with those of the larger mammals as animal food bone remains of the Guri Cave dwellers since remains of small animals are also known to have been excavated from various habitation levels at the nearby Tabon Cave. In the latter cave these faunal remains were associated with flake assemblages, and in the case of Flake Assemblage III and IV, the associated faunal remains were predominantly those of bats, small animals and birds.[15]

HUMAN TEETH

The team's preliminary studies of the excavated finds have tentatively identified 15 specimens of human teeth. The majority of these were again obtained from the upper deposits. Ten specimens were recovered from spit 1, four from spit 2 and only one from spit 8. Further analysis by specialists is required to confirm the identification.

The very fact that the majority of the finds tentatively identified as human teeth came from the sub-surface deposits raises the question as to whether the teeth were, in fact, from later periods which, through downward displacement, got mingled with the midden deposits under study.[16]

[14]See Fox, *Tabon Caves*, p.47.

[15]See Fox, *Tabon Caves*, p.38. Ethnographic reports on a recently discovered primitive community, the Taot Bato people, have shown that bats are exploited as a source of food by this group. See *Further Studies on the Tasaday*, D.E. Yen and John Nance (ed.), Makati, Philippines: Panamin Foundation, 1976.

[16]See section on Discussions and Conclusions in the present report.

MACRO PLANT REMAINS

Fruit seeds recovered from careful sifting of the excavated soil mainly constituted the macro plant remains. Ninety-two seeds, constituting only 4% of the total excavated finds were obtained. The highest seed counts were recorded from the upper deposit, from spits 1 to 4. Two seeds were also recovered from spit 7. Since the seeds are yet to be identified by botanists any interpretation of their possible economic value as a food source of the Guri Cave occupants would be premature. Moreover, it is also rather uncertain whether the seeds were deposited by humans or by bats and birds. The identification of these seeds, nonetheless, may provide useful environmental information regarding the habitat from which these seeds originated[17] and whether they related to sesonality. At the present moment, however, the value of these seeds will be limited strictly to the stratigraphic interpretation of the cave sediments from which they have been retrieved.

DISCUSSIONS AND CONCLUSIONS

The 1980 SPAFA excavation of Sq. NW 23 of Chamber A, at the Guri Cave obtained much archaeological material. Excavation of a single 2 x 2 metre square in this cave yielded well over two thousand finds. The recovery of flake tools and waste flakes from what is undoubtedly a midden debris containing innumerous mollusc shells (64% of the total excavated finds), and fairly large quantities of animal food bones (11% of the total excavated finds) have proved beyond doubt that the cave was much frequented by man during the late prehistoric times.

This Chamber A itself is extremely habitable, being dry and fairly well lighted through at least two-thirds of the cave. Extensive shell middens found in this cave suggest that perhaps the major attraction of this habitable cave for the prehistoric communities who frequented it was its proximity to the sea shore

[17] It is interesting, for instance, to know whether any of the excavated fruit seeds belonged to those of the mangrove species. This is because the area south of the Lipuun Point limestone massif is presently under mangrove. Since the latter area was probably colonised by mangrove from fairly recent times the presence of any mangrove fruit seeds in the cave deposits may be chronologically significant. Soil samples have been collected from various levels from the excavation. These are yet to be processed for pollen analysis

and, more particularly, its relatively easy access from the shore, involving a 15 minute climb by modern urban human standard. This would have certainly made any shellfish collecting operations an easier task. Supplies of marine molluscs must have been particularly rich along this stretch of the shores flanking the Malunut Bay, compared to the other more exposed shore on the other side of the Lipuun Point, such as where the Tabon Cave is located (see figure 1). The local topography (post-Pleistocene times) also suggests that access to the shores near the Tabon Cave from the Malunut Bay area involves climbing over very difficult and steep terrain of the limestone massif. This is because the more sandy shores below the Tabon Cave are separated from those of the Guri Cave-Malunut Bay by a rocky promontory. In the absence of boats, access to the Tabon Cave area from the Malunut Bay area would have been decidedly difficult. Moreover, access to the Tabon Cave itself would have involved a steeper and higher climb from the beach than would have been the case for the Guri Cave. All these factors may explain the absence of marine shells in the topmost 25cm level of the Tabon Cave deposits.[18] Chamber A of the Guri Cave, on the other hand, is more favourably located for marine mollusc exploitation; the relatively easy access to this site made it the most natural choice as a base for such operations.

Quantitative analysis of the faunal remains excavated from Square NW 23 showed that marine mollusc gathering was a major feature of the economic activities carried out in the area by the prehistoric flake tool using communities. This is evidenced by the high count of marine shells compared to the relatively low counts of shells of land snails as well as bone and teeth of other land animals. Absence of fish bones in the deposits suggest that exploitation of marine resources at that time was limited to shellfish collecting. The occurrence of flake tools and waste flakes among the food debris also suggests that Chamber A was probably more than just a refuse dumping place of the

[18] At the Tabon Cave, only fresh water mollusc shells were recorded. These came from the upper levels. They were found associated with Flake Assemblages I-A and large number of animal bones and teeth. No radiocarbon dates have been obtained from the Tabon Cave Flake Assemblage I-A. The upper age of this assemblage was estimated by Fox to date from about 8500 to 9500 years ago or possibly more recent. Fox, *Tabon Caves*, pp.24-25.

prehistoric shellfish eaters. The cave was apparently not used merely as a temporary day shelter. Based on the large quantities of mollusc shells (our 2 x 2 metre square alone yielding some 1438 shell fragments and whole shells) and their extensive occurrence in the cave (as evidenced by the earlier excavations of the Philippines National Museum) it can be surmised that the cave was probably an important camp site of prehistoric hunter-gatherer groups. The cave appears to have been repeatedly frequented for relatively short periods, probably during the rainy spells when more adequate shelters would have been required and when hunting would be difficult and game animals scarce, causing greater reliance on molluscan food.

There is no doubt that wild plant foods were also exploited. Apart from the few fruit seed finds, however, the present excavation has not been able to provide further information on their utilisation of plant foods. It may be interesting to note that the site on the whole has also not produced a single grinding stone or stone pounder which might suggest that plant food processing activities might have been carried out in the cave. All the excavated lithic tools are of small size weighing well below 100g. Apparently, these tools were not meant for heavy wood-cutting jobs. There is therefore some reason to believe that heavy-duty woodworking, like felling trees, was not an important feature of their subsistence strategy.

The archaeological finds were all uncovered at fairly shallow depths. Despite their rather extensive occurrences in the cave the archaeological deposits were found to be only slightly over half a metre thick in most places. In the present excavated trench, flake materials comprising tools and waste flakes were recorded from the sub-surface levels (+ 5cm depth below the present cave floor) down to only the 30cm level, and shell and crustacean remains were found right down to the 55cm level (spit 11). Bones of larger animals were traced from the sub-surface levels right down to spit 9 at 45cm below surface, while those of small animals were last encountered at spit 13 at 65cm below surface.

Preliminary stratigraphic study indicated that two archaeological layers were probably present in the excavated trench. Although no sharply defined soil layers marked by distinct soil colour differentiation were observed in the profiles of the trench,

the presence of features like a layer of relatively more compact soil denoting an ancient cave floor and layers of travertine and limestone rubble suggest that the archaeological finds recovered from above the ancient cave floor and those retrieved from below this floor were probably deposited during two separate periods of time. The interval between these two phases of occupation was probably of some duration. In view of this, we can tentatively designate the lower deposits excavated from below this ancient cave floor as Layer I, while the upper 20cm deposits lying above the ancient floor is designated Layer II. The interpretation will, of course, have to be further confirmed by more extensive excavations, particularly, since travertine layers are normally localised features in limestone caves. Special attention should also be given to the study of the finds from Layer I to determine whether the finds had intruded into these lower levels from the upper levels in Layer II. Meanwhile, preliminary study of the vertical distribution of the archaeological finds from this trench do seem to support the presence of the two archaeological layers. The study revealed two depositional peaks for many of the finds. The first peak is observed in Layer I, occurring in a more diffused manner between spits 6 and 9. A second peak, of a far greater magnitude than the preceding peak, is found in Layer II in spits 1 to 3 (see graph in figure 4).

The highest frequency of finds from the excavated trench was recorded in Layer II. The top 10cm of this layer in particular was rich in both artifactual finds and food refuse remains. These levels, spits 1 and 2, had yielded the largest number of bones and teeth of the larger animals, as well as remains of molluscs shells. A total of 55% of the excavated flake materials from this trench and 91% of the total potsherds recovered were all excavated from these levels. Such high concentration of finds initially suggest that the top 10cm of the deposit alone might represent a single cultural layer. Closer study, however, revealed that due to the sloping cave floor the layer in question probably extended into spit 3 and the upper parts of spit 4 in quadrants B and C. This observation is further confirmed by the presence of an ancient cave floor at basal spit 4, 20cm below the surface of the present cave floor. The soil at this level was much more compact. Relatively large amounts of waste flakes found in basal spit 3 and upper Spit 4, overlying this compact soil layer, again indicate that the latter was an ancient working floor. In parts

of quadrant B this ancient floor was underlain by a travertine layer and limestone rubble.

A marked decrease in the frequency of finds was recorded in Layer I. No potsherds were encountered. Flake materials recovered from this layer comprised only a single kuba type high-angled scraper (from spit 6, at 30cm depth) and four fragments of waste flakes and two pieces of waste cores recovered from spits 5 and 6. These flake materials were all found directly associated with mollusc shells. Mollusc shells continued to be found in the lower levels of Layer I. The last shell find was recovered from spit 11, 55cm below the surface. Almost all the mollusc finds from Layer I are of marine species. Only one tiny shell of a land snail was recovered from Layer I. The shell was excavated from spit 6 at 30cm depth below surface and was probably an intrusion from the levels above. this is in sharp contrast to the assemblage excavated from Layer II where a fair amount of land snail remains have been recorded. This observation may be significant as it may well reflect changes in the local climatic or ecological conditions; Layer I, in contrast to Layer II, might have been deposited during a relatively drier period. Another interesting data which may also have some bearing on the interpretation of the palaeoenvironment around the Guri Cave-Malunut Bay area is the absence of bivalves, especially those of *Arca granosa* in Layer I. *Arca granosa* and other bivalves, on the other hand, were present in the upper deposits in Layer II. Their complete absence in Layer I may again provide some clue on the type of marine habitat available at that time for molluscs exploitation. No significant changes, however, have been noted in the animal food bone remains in Layer I, except for a marked decrease in the number of bones and teeth of the larger animals. These faunal remains were found in spit 5 (25cm depth below surface) right down to spit 9 (45cm depth below surface). Bones of small animals were found in spits 5, 7, 11 and 13. As noted before, it is not possible to determine whether the latter represent midden debris deposited by man, or whether they were remains of the natural cave fauna which frequented the area.

Layer I probably represents a period of relatively less intensive use of Chamber A at Guri Cave. There is, however, a possibility that the lower density of finds recorded from this layer was

due to sampling factors. This is because a large portion of the excavation trench at these lower levels were occupied by limestone rubble and travertine layers. At these levels, too, much of quadrants A and D were occupied by the spreading basal cave wall. Marine shell-fish gathering was clearly an important economic activity of the cave occupants. The type of flake tools used during this period (represented in the present excavated trench by only a kuba type high-angled chert scraper) were not unlike the flake tools excavated from the Tabon Cave. Kuba scrapers are also known among the small category of retouched tools excavated from the Tabon Cave. The kuba scraper is regarded as the diagnostic tool of the Tabonian Industry.[19] Fox has also reported on finds of these scrapers in the Guri Cave flake assemblages. These kuba scrapers were, in fact, the most common form of retouched tools excavated from the cave.[20] The early reports, however, gave no stratigraphic information on the occurrences of this particular tool type. It would be interesting to know whether the kuba scraper were present throughout the Guri Cave deposits, or were only found in the lower deposits, as was in the case of the specimen recovered in the present excavation.

The absence of potsherds in Layer I indicates that the layer is preceramic. At the same time the presence of marine moluscs and crustacean remains, both last traced in the excavation to spit 11 at the 55cm depth below surface, suggest that the layer was formed during post-Pleistocene times when the sea had risen to more or less its present level and Guri Cave was already a coastal site. A few radio-carbon dates for Guri Cave had been published by Fox. These dates range from about 8000 to 4000 years ago.[21] The first date obtained was from a shell sample excavated from a hard floor at 60cm depth in the cave. This was dated 4070 + 80 bp.[22] This date was later found to match rather closely another radiocarbon date of 4220 + 140 bp obtained from a charcoal sample.[23] The other dates 8130 + 180 bp and 7890 + 90 bp, obtained from an outer and inner portions

[19]Fox, *Philippine Palcolithic*, p.65.
[20]*Ibid.*, p.68.
[21]*Ibid.*, p.67.
[22]Fox, *Tabon Caves*, p.47.
[23]Fox, *Philippine Palcolithic*, p.67.

of a shell sample are very much older. Although the stratigraphic position of this shell sample is not mentioned, it is likely that the sample was obtained from levels not deeper than 60cm below the surface, this being the greatest depth reached in the National Museum excavations in the cave.[24]

In Layer II the overwhelming majority of the finds are again those of mollusc shells. Some changes, however, are noted in the composition of these molluscan finds. Bivalves are for the first time represented, although marine gastropods still predominated in the molluscan remains excavated from this Layer. These bivalve finds include a few shells of the *Arca granosa*. Land snails, extremely scarce in Layer I below, now form about 15% of the total molluscan remains recovered from Layer II. Although all these changes on the whole appear to be relatively minor, they do raise some rather interesting questions. Could the presence of bivalves and land snails be related to possible minor environmental changes affecting the molluscan resources available in the catchment area exploited by the prehistoric shellfish collectors?[25] Or, were these merely a reflection of modifications in the cultural (food) habits of these shellfish collectors? These are, perhaps, lines of investigations which may be worth while to include in future archaeological work in the area.

Based on the abundant finds of shell and animal food bone remains recorded from Layer II, it may be surmised that the layer in question represents a period of more intensive occupation of the cave. A much wider variety of the molluscan fauna was exploited. Hunting of the larger animals, especially deers, was also more intensive during this period. A much larger amount

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[24] Fox, *Tabon Caves*, p.47

[25] The *Arca granosa* is normally found in the muddy or brackish environment, while land snails are known to favour fairly wet habitats. The occurrence of the *Arca granosa* in the deposits of Layer II on the one hand, and their complete absence in Layer I on the other, may suggest that the development of more muddy shores in the local littoral zone near Guri Cave had probably commenced during this later time (when the deposits of Layer II were being formed). It is also noteworthy to mention in connection with this question that it would be interesting to find out whether any of the fruit seeds excavated from this trench belonged to those of the mangrove species. Palynological data from the soil samples from the excavation would also be useful. The more common occurrence of land snails (all specimens recovered were edible species) in Layer II, compared to that of Layer I, likewise may suggest that slight changes in the local climate had probably taken place during this period.

of flake tools and waste flakes, about 88% of the excavated flake materials, were recovered from this layer. In general, these finds show no sharp break in the tool making tradition from those of Layer I below. The tools were fashioned by flaking with no signs of core preparation. Except for a nephrite high angled scraper the lithic material used was still predominantly chert. The majority of the tools were scrapers, featuring both low-angled and high-angled forms. Retouching is commonly noted on these implements. Only one blade-like flake was found. The latter confirms Fox's earlier observation that such finds were confined to the upper levels of the cave.[26] Apart from these blade-like flakes the rest of the Guri Cave flake tools are found to be, as had also been observed by Fox, very much in the Tabonian flake tradition.

The present excavation likewise confirms the association of this flake industry with the midden deposits at Chamber A of Guri Cave, as had been earlier reported by Fox. Of special interest here is the fact that the Tabonian flake industry at the Tabon cave itself was never associated with marine molluscs. Only shells of the fresh water snails have been excavated from the Tabon Cave, and these too were strictly limited to the upper (top 25cm) of the Tabon Cave deposits. They were found associated with the youngest Tabon Cave flake assemblage (Flake Assemblage I-A).[27] This absence of marine molluscs had led Fox to argue that deposits in question were formed during the late Pleistocene times when the sea level was well below that of the present level and, consequently, the shores were probably some 30km to 35km distant from the Tabon Cave.[28] Radiocarbon dates obtained for the Tabon Cave Flake Assemblages, except for Flake Assemblage I, apparently support the late Pleistocene date ascribed to the deposits. The Guri Cave flake assemblages, on the other hand, are very much younger[29] and their association with extensive shell middens in the cave suggest that gathering of marine shellfish had by then become a major subsistence activity of these flake tool using communities. Hunting of larger animals was also more prevalent during that time

[26] *Ibid.*, p.47.
[27] *Ibid.*, p.25.
[28] *Ibid.*, pp.25-26 and 38.
[29] See discussion below on chronology.

than among earlier flake tool using communities (Flake Assemblage I-A) of the Tabon Cave. All these, no doubt, reflect man's adjustments to the post-Pleistocene food resources then available for exploitation in the Lipuun Point area. Yet modifications in the patterns of food procurement of these prehistoric food-gatherers and hunters apparently did not bring about much change in their lithic tool kits. Similar situations have been noted elsewhere in Island Southeast Asia where studies have shown that modifications, or even total shifts in their subsistence economy, were often not paralleled by changes in the lithic tool industry. In Timor, for example, the use of flake tools have been reported to have persisted "for several thousand years beyond the date for which there is indication of the introduction of agriculture".[30] Many scholars have now argued that flake tools were in most cases wood-working implements and were essentially maintenance tools rather than extractive tools.[31] Flake tools, therefore, were not directly associated with the food procurement activities of their users. The present study of the Guri Cave materials lends support to this view. The intensification of hunting and food gathering activities (with some emphasis now placed on marine shellfish collecting) was not at all reflected in the flake tool assemblages recovered from the site. Most of the tools recovered are scrapers. Tests carried out on these tools found that they were light and easily handled implements suitable for light wood-working tasks. They were tested on freshly cut bamboos and were found to be highly effective for shaping small shafted wooden implements.

The data obtained from the present excavation does not permit firm conclusions on the chronology of Layer II. There is, however, little doubt that these upper deposits in question were of some antiquity. This is because numerous remains of

[30]See K.L. Hutterer, "Reinterpreting the Southeast Asian Paleolithic", in J. Allen, J. Golson and R. Jones (ed.), *Sunda and Sahul: Prehistoric Studies in Southeast Asia, Melanesia and Australia*, London, 1977, pp.56-57.

[31]Ibid., p.51. For evidences suggesting that flake tools were used for wood-working, see Chester Gorman "The Hoabinhian and After: Subsistence patterns in Southeast Asia during the late Pleistocene and early recent periods", *World Archaeology*, Vol.2, No.3, 1971, p.312 and R.B. Fox, "Notes on the stone tools of the Tasaday, Gathering economies in the Philippines, and the archaeological record" in D.E. Yen and John Nance (ed.), *Further Studies on the Tasaday*, Panamin Foundation Research Series, No.2, Makati, 1976, pp.4-10.

the deer, an animal which has become extinct for some time in the recent past of the island's faunal history,[32] were still found in these upper deposits. On evidence of the earthenware sherds found only in the upper deposits, Layer II may be dated to the relatively late prehistoric times. The earliest dates for pottery in the Lipuun Point area include two radiocarbon dates from a late Neolithic jar burial site at Chamber A of Manunggul Cave located south of the Tabon Cave. The dates are 710 and 890 B.C.[33] Chamber A of the Manunggul Cave has yielded among other things carved-paddle impressed pottery, rather similar to the few specimens recovered from Layer II of the present excavation. There is, therefore, reason to believe that Layer II of the present excavation might well be related in time to the late Neolithic jar burial phase represented at Chamber A of the Manunggul Cave.

The association of pottery with flake tools and midden debris in Layer II of the present excavation, however, should be examined more closely before the layer can be ascribed to this late Neolithic date. Previous excavations at Chamber A showed no records on the occurrence of potsherds in the midden deposits. There are also no reports from the other cave sites at Lipuun Point of association of potsherds with flake tools, except for a single case at the Uyaw Cave near Guri Cave.[34] According to the report the floor of the Uyaw Cave had been disturbed and the earthenware sherds were apparently objects from a much later period than that of the flake assemblage found at the site. In our present excavation too there are indications that the potsherds are most probably secondary deposit representing objects from a later period which had subsequently intruded into Layer II. This is because Layer II is essentially the uppermost 20cm deposit of the excavation, and 91% of the excavated earthenware sherds were recovered from the upper half of Layer II (58% from spit 1 and 33% from spit 2). Almost all the finds tentatively identified as human teeth were also obtained from these levels. It is very likely that both the teeth and potsherds excavated

[32]Fox, *Tabon Caves*, p.39.
[33]*Ibid.*, pp.68 and 117.
[34]At the Uyaw Cave flake tools and pieces of chert, mixed with materials from the jar burial assemblage, have been recorded from the surface and subsurface levels. See Fox, *ibid.*, p.119.

from Layer II are objects belonging to the jar burial assemblage of Chamber B in the same cave. The latter is a shelf-like chamber located on a slightly higher elevation to the west of Chamber A not very far from the present excavated trench. If these observations are correct, Layer II would appear to predate the Early Metal Age jar burial assemblage of the nearby Chamber B. The jar burial assemblage at the latter site is believed to date about 500-300 B.C.[35] At the same time Layer II would not be older than Layer I below which has been estimated to date back to at least about 4000 years ago.[36]

A further clue to the archaeological dating of Layer II is provided by a nephrite tool excavated from spit 2. This is a high-angled scraper fashioned by the same flaking technique used to manufacture the rest of the chert flake tools found in the cave. There is, therefore, little question on the stratigraphic relationship of the nephrite scraper with the other chert flake tools and midden deposits recovered from this layer. Since nephrite is a non-local rock material at Palawan its occurrence among the Guri Cave flake assemblage suggests that there was contact with areas outside the island during that time. The nearest source for nephrite was probably the Batangas province in central-west Luzon. At the latter place nephrite is believed to have been extensively worked during the Late Neolithic times.[37]

On Palawan Island itself the archaeological record so far has shown that nephrite objects, namely beads, bracelets and small quadrangular adzes, first appeared during the Late Neolithic period.[38] The Late Neolithic jar burial site at Chamber A of the Manunggul Cave, for example, yielded 83 jade beads said to be rather similar to those of the Late Neolithic of the Batangas province.[39] No nephrite flake tool, however, has been reported from any of the Late Neolithic sites. In view of this the presence of the nephrite tool at Guri Cave may well indicate that prior to this Late Neolithic period some form of intermittent

[35] *Ibid.*, p.51.
[36] This date for Layer I is extrapolated from Fox's radiocarbon date for a shell sample from the 65 cm depth below surface. See the present writer's discussion on the dating of Layer I.
[37] Fox, *ibid.*, pp.126 and 131.
[38] *Ibid.*, p.131.
[39] *Ibid.*, p.116.

contact with regions outside Palawan Island was already in existence. It is very likely that nephrite was brought in as raw material rather than in the form of manufactured products as was the case during the later period. The nephrite was probably brought in from the Batangas region during the late phase of the Early Neolithic (in the Batangas) before nephrite was extensively worked in that region. The argument that there were already contacts with Early Neolithic groups outside Palawan may be further supported by a cone shell ornament earlier excavated by Fox from the Guri Cave middens. According to Fox the shell ornament is typical of the Early Neolithic sites in the Philippines.[40] Based on all these evidences a tentative date from sometime after 2000 B.C. to shortly before the mid-second millennium B.C. may be assigned to Layer II.

The 1980 SPAFA excavation at Guri Cave has been able to provide some data on the stratigraphic context of many of the cultural remains from the site. The relatively smaller sample size of the deposits investigated compared to those retrieved by earlier excavations, however, would necessarily mean that some of the interpretations are subject to modification as more data become available from subsequent excavations in the cave. The present excavation has, in many ways, reinforced much of the observations of Robert Fox, particularly, on the persistence into fairly recent times of the flake tool tradition in the Lipuun Point area. At Chamber A of the Guri Cave all the flake materials recovered so far dates from post-Pleistocene times.[41] The flake tools and waste flakes were all excavated from deposits found containing shell remains of marine molluscs. This flake tool tradition at the Guri Cave probably lasted until shortly before the mid-second millennium B.C.

The present study recognises a two phase sequence in the archaeological record pertaining to the flake-tool communities of Guri Cave revealed in the excavated trench at Square NW 23. Both phases are pre-ceramic. The early phase is represented by the deposits in Layer I which featured among other materials

[40]Fox, *Philippine Paleolithic*, p.67.

[41]No attempts were made by the SPAFA team to reach the deeper levels owing to time constraints. Whether the cave was utilised by still earlier (i.e. late Pleistocene) hunter-gatherer groups remains a question to be solved by future excavators.

a kuba-type high-angled scraper made of brown chert. The midden deposits found in this layer contained mostly remains of marine gastropods and a small amount of animal bone remains of larger animals. The later phase is represented by the deposits in Layer II. During this phase chert was still the main raw material used to manufacture the flake tools, but new rock material such as imported nephrite was, in rare instances, also used. Blade-like chert flakes also makes its appearance in this later phase. A relatively wider range of molluscan fauna was exploited and hunting of larger animals appears to have become more intensive.

Detailed stratigraphic study of the midden deposits from the excavation has demonstrated that the deposits were not just a dump of discarded molluscan shells. Presence of flake tools, waste flakes and other food debris suggest that the cave was occupied from time to time. Judging from the cave's fairly extensive yet relatively thin midden deposits it would appear that these were remains accumulated over a long period of time of intermittent occupation of the site. Chamber A, therefore, owing to its favourable geographic location, must have been an important work camp[42] of the prehistoric shellfish collectors operating in the Guri Cave-Malunut Bay area. These were flake-tool using hunter-gatherer communities who occupied the cave for short periods of time during their shellfish collecting excursions. The latter were executed probably during the rainy spells when their inland wild food resources were scarce, requiring them to intensify their food gathering activities in the littoral zone.

We must, therefore, not be misled by the great abundance of molluscan shell remains at Chamber A to conclude that shellfish exploitation was, on the whole, the major food procurement strategy of these post-Pleistocene hunter-gatherer groups. As has alreayd been pointed out by several recent researchers elsewhere,[43] shellfish gathering in general requires intensive out-

[42]The term "work camp" in the context of hunting-gathering societies according to the definition by Sally R. and Lewis R. Binford is "a site occupied while smaller social units were carrying out extractive tasks.... The work camps would be occupied for a shorter time (than the base camps) and the activities conducted there would be more specifically related to the resources being exploited". See Sally R. and Lewis R Binford. "Stone tools and human behaviour", *Scientific American*. Vol.220 (2). 1969

[43]See L.G. Straus, "Mesolithic adaptations along the coast of Northern Spain". *Quaternaria*. Vol.XXI, 1979, pp.305-327.

put for low yields; at the same time, such marine shellfish are only "second-rate-resource"[44] because of their low protein value. Consequently, shellfish exploitation was very often resorted to only as a measure to tide the hunter-gatherers over resource scarce periods.[45] The present study supports these observations. Moreover, considering the rich floral and faunal life found in the tropical rain forests of Palawan Island, the major focus of the food procurement strategies of its prehistoric hunter-gatherer communities must have always been centred on the broad-spectrum gathering of wild plant foods, the hunting and trapping of game animals, and, where available, shellfish collecting.

[44] *Ibid.*, p. 310.

[45] The concept of resource scarce periods in the tropical rain forest environment requires some qualification here. By comparison with those in the temperate regions, resource scarce periods in the tropical rain forest are, without doubt, of a far less critical nature. In fact, whether resource scarce periods actually did occur at all in the tropical rain forest - i.e. in the lives of its prehistoric food foragers is a question that certainly merits more research. Dr Jesus Peralta commenting on this paper has voiced a cautionary note against this concept. In his opinion food foragers due to their broad spectrum diet do not have resource scarce periods so long as they remain below the carrying capacity of the area.

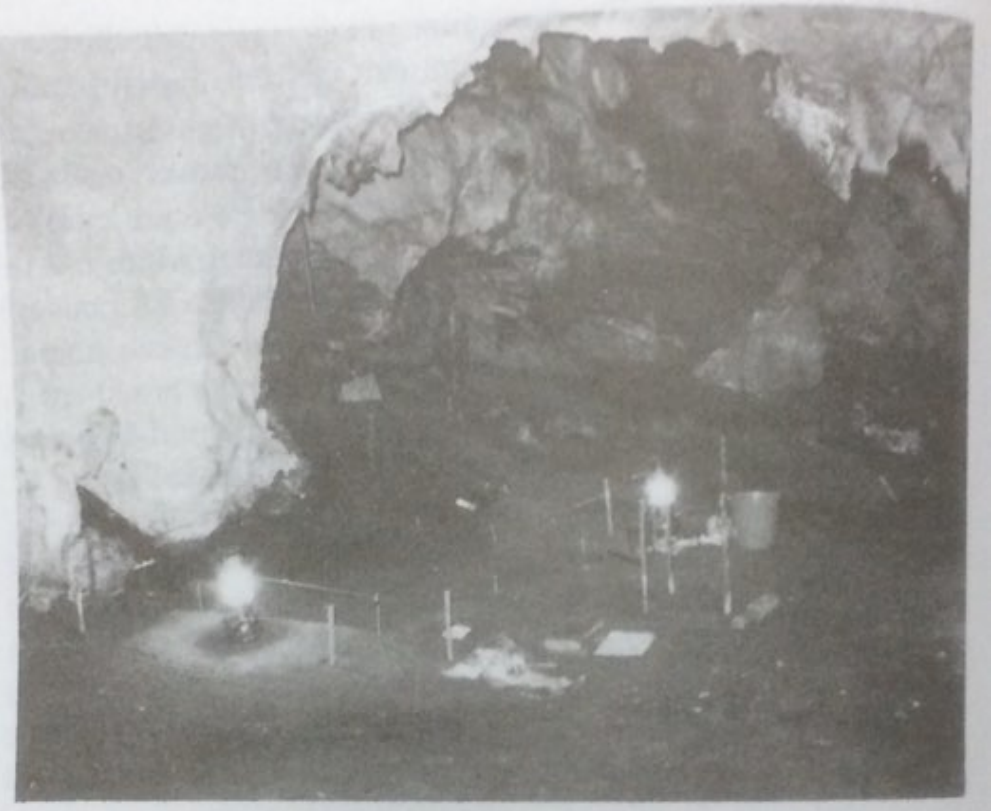

Plate I: Square NW 23 at Chamber A, Guri Cave

Plate II: Some specimens of cherts flake excavated from Square NQ 23. The specimen on the far left is a large high-angled scraper from spit 1; on the far right is a blade-like flake excavated from spit 1.

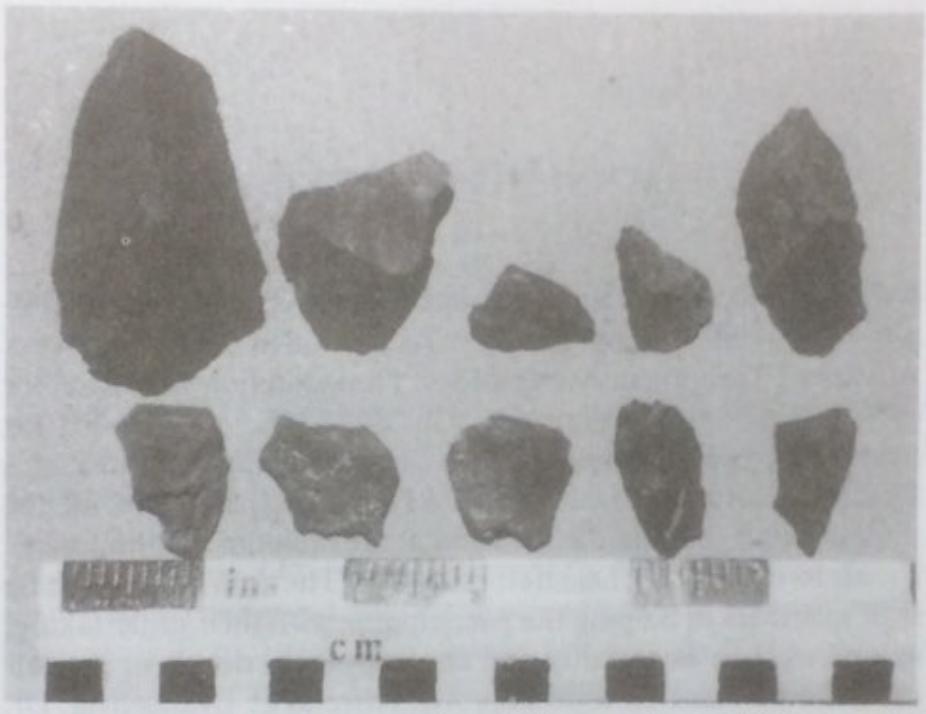

Plate III: Flake tools from the excavated trench. The majority are of chert, except for the nephrite high-angled scraper excavated from spit 2 (top row far left).

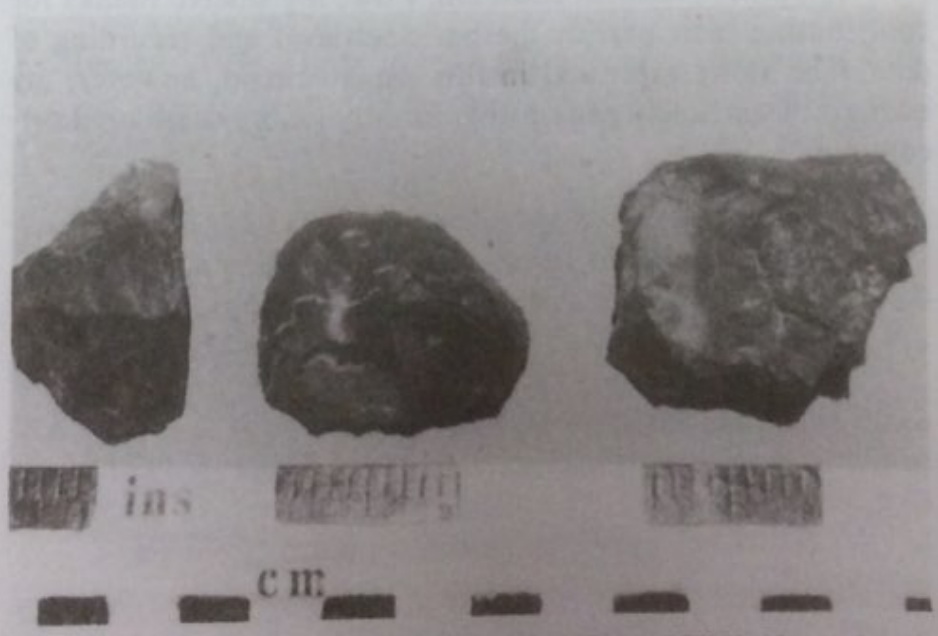

Plate IV: Chert flakes and core-tool excavated from Square NW 23. The specimen in the middle is a "Kuba"-type high-angled scraper from spit 6.

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