NAVIGATION IN THE SRIVIJAYA PERIOD

by A.B. Lapian, LEKNAS-LIPI

The kingdom of Srivijaya still poses many questions to researchers, but one thing is certain - it was a maritime power in Southeast Asia.

The main problem faced by students of the Srivijaya period is the lack of historical sources. Only a restricted number of sources helpful in the study of this period have been found. They come in the form of inscriptions in Old-Malay or Tamil and Chinese, and Arab records. Moreover, a wide knowledge of archaic languages and ancient history is needed for the interpretation of events and messages carried in the edicts and manuscripts, and the identification of toponyms and names of persons.

This paper does not give new data nor new theories on the Srivijaya period. It is meant only to focus on shipping and navigation in the times of Srivijaya. Therefore, interpretations and identifications made by scholars who are more versed in the research of sources are included here. However, anything suggested in these pages need to be revised when new research will prove that previous theories from experts are no longer tenable.

Srivijaya: A Naval Power

Among the hypotheses and attempts at historical reconstruction of the period, the only thesis acceptable to all is that the kingdom of Srivijaya was a maritime power in the Southeast Asian region. The location of its capital can be disputed, but its naval strength cannot be denied.

The controversy whether the capital was at Palembang, Jambi, or Riau, or even in the Malay peninsula (Malaysia or Thailand) does not mar our assumption that Srivijaya must have possessed a sufficiently big naval force in order to maintain its power in an area consisting of islands and a peninsula. The inscriptions uncovered indicate that the domestic traffic consisted of maritime or riverine means of transportation. In the Kedukan Bukit inscription of 683 A.D., it was explicitly stated that the king used a vessel for his siddhayatra journey. The Kota Kapur inscription mentioned that in 686 A.D. a sea expedition was prepared to cross over to and attack "Bhumi Jawa'.

A knowledge of the geography of the area at that time is also necessary for a better understanding of the period. Obdeyn hypothesized that the Straits of Malacca started from the islands of Bangka and Belitung (Biliton). The extension of the geomorphological research done on the east coast of Sumatra (Soekmono 1963) to the off-shore area is necessary to test that hypothesis and to determine the real shipping lanes of that period.

Indicators of Maritime Activities

Navigation in the Archipelago had begun centuries before. Most probably, it was closely connected with the spice trade. Rouffaer (Rouffaer 1900) saw in the chain of archaeological sites (starting from mainland Southeast Asia along a curve passing through Sumatra, Java, Bali, the Lesser Sunda islands further to the Kei islands in the southeastern Moluccas), where bronze kettledrums were uncovered, an evidence that a traffic in spices did exist in the so-called Bronze-Iron Age. In another article, Rouffaer (Rouffaer 1905) cited few European sources who had written about Indonesian spices (particularly cloves and nutmegs) as early as the first century A.D. It suggests that trade and navigation between the Indonesian archipelago and foreign lands could be, at least, as old as these sources. Besides export commodities, imported ware may also be used as indication of the existence of navigation and trade. For example, Chinese ceramics (S. Suleiman 1978) may help determine the period of sea trade with China.

Early Indonesian commerce and navigation, especially in the western part of the Archipelago, had

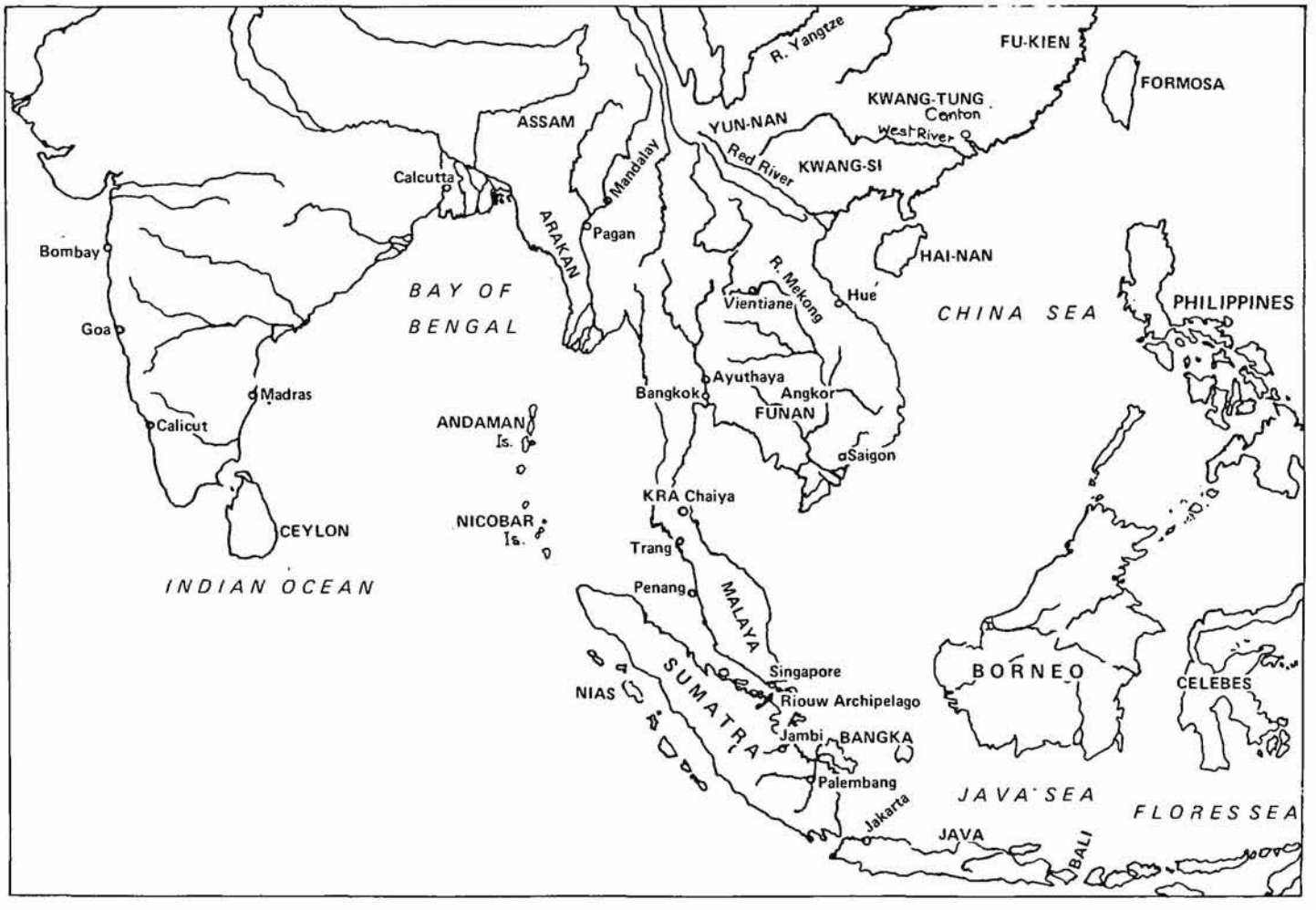
been the focus of a study by Wolters (1967). He collected data pertaining to the pattern and nature of the trade which formed the background of the rise of Srivijaya in the 7th century. Trading and shipping activities, he stated, caused the emergence of a number of ports along the maritime route from west to east. The east-west route is the oldest known route in the history of navigation since shipper out in the open sea determined his exact positions through astronomy (Celerier 1956, 1965). It can be assumed, therefore, that the trade route between Southeast Asia and India and other areas further west had developed long before the northbound route to China. By the fifth century, however, in the days of Fa-Hsien and Gunavarman, the route to China was already established (Wheatly 1961).

After the trade route to China had become better known and more developed, the eastern coast of Sumatra and its off-shore islands became more important. Local rulers sought dominance over the Western part of the Indonesian archipelago in order to control this very strategic position. Srivijaya was the first sea power in history successful in taking a dominant place over the Straits area which held the key to the trade and navigation to China as well as to the West. Evidently its expansion to the north was not only aimed at the control of in-and outgoing sea traffic of the Straits, but also of the traffic overland on the Kra Isthmus. Moreover, the expedition to the south to conquer Bhumi Jawa has usually been interpreted as a move to bring both sides of the Sunda Strait under the command of Srivijaya.

Expansionist Policy

The government was a thalassocracy, a confederation of petty kingdoms and harbour towns where the Maharaja of the islands of Zabaj held supreme command. Rivalries within (such as with Malayu) as well as with outside powers were a constant threat to the position of the Maharaja. For instance, according to an Arab source, the Khmer king demanding the head of the king of Srivijaya found himself dead on order of the latter, instead. A more serious threat came from the Chola kings: Rajaraja, the king who boasted to be 'conqueror of 12,000 islands', and his son who continued his naval ambitions launched an attack on the kingdoms in the south, including Srivijaya. This rivaly appeared to be a consequence of the growing amount of trade and shipping activities Srivijaya was having with the Indian subcontinent and Sri Langka.

Mauny (1965) and an Arab source mentioned that an Indonesian invasion to East Africa took place in 945 A.D. According to some interpretations, this was related to the expansionist policy of the Srivijaya. It rests on the assumption that navigation and trade were in the hands of Srivijaya, in other



words, that Srivijaya possessed a merchant fleet of its own. Some scholars doubt this despite I-tsing's description that navigation to China was carried out by Srivijayan ships. Wolters' study on the pre-Srivijaya era, too, suggests that 'the shippers of the Persian trade' were, in fact, Malays. A Japanese source (OeTadafusa) of the 12th century hints that Po-ssu had to be sought in Southeast Asia implying that its identification with Persia was not always necessary. A study of the navigation along the coasts of Champa and Annam revealed that several toponyms on these coasts are of Malay origin. This supports the view that Malay shipping to China was indeed carried out by Malay ships with a Malay crew (Manguin 1972). The ***roteiros*** or books for sea-pilots on this area used by the Portuguese in the 16th century were based on information from Malay shippers. Therefore, no reason exists to suppose that the missions from Srivijaya to China were carried out by foreign ships.

Types of Boats

Contemporary pictures of the shape and construction of the ships are also available as can be seen at the reliefs of the Chandi Borobudur. Among the eleven boats depicted, Van Erp (1923) was able to distinguish three types, viz. (1) the very simple dug-out canoe, (2) dug-outs with raised side-boards without outriggers, and (3) dug-outs with raised sideboards with outriggers. In addition to this, Van der Heide (1927) made another typology based on the use of masts, i.e. (1) plain proas without masts; (2) single-masted ships without outriggers, the mast consisting of a square perpendicular pole; (3) ships with a bipod mast without outriggers; (4) ships with a bipod mast with outriggers; and (5) ships with double bipod masts with outriggers.

The reliefs depicting the bigger ships show a variety of types, an indication of how diversified and well advanced the technique of shipbuilding was in that period. However, it should be noted that until now no data are available regarding the interior parts of those ships.

The Orang Laut

Perhaps no ethnic group has a more maritime culture than the Orang Laut. These so-called sea-gypsies or sea-nomads live in the estuaries and mangrove jungle of the east coast of Sumatra, the Riau-Lingga archipelago, and the west coast of the Peninsula up to southern Thailand and Burma (Sopher 1965). Their peculiar way of life, boat-dwelling, has made them 'sea people' in the true sense of the word. Wolters' theory that the Maharaja of Srivijaya made use of the navigational skills of these sea-gypsies is plausible and should be the object of a more intensive study on the role of the Orang Laut in the rise and fall of the maritime kingdoms in the region (Wolters 1970). Is it a mere coincidence that the Orang Lauts are now concentrated in the very area which was once ruled by Srivijaya, i.e. from the Riau and Lingga islands up to the island of Phuket in southern Thailand where Srivijaya reached its northern most frontier? Is the close relationship between the Orang Lauts and the kings of Malacca, and later with the kings of Johore (Andaya 1975), a continuation of a traditional link which had its roots in previous generations? A more thorough research is needed to come up with answers to these questions. And it has to be carried out with colleagues in Malaysia and Thailand.

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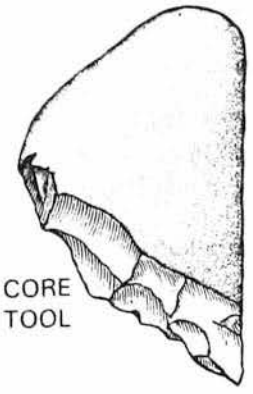

CORE TOOL


FLAKE TOOL

The beginnings of Philippine prehistory lie during this period of intense geologic upheavals, probably during the last half, which elsewhere in the world appears to be the time when man also made his presence known. Various estimates of the Pleistocene Epoch place the duration from one to two and a half million years. Exactly when man made his appearance in the Philippines is a present object of archaeological research. The different cultural chronologies that categorize Philippine prehistory are continually being defined and identified by the diagnostic cultural materials that mark the periods. Prior to the appearance of man, excavation sites have yielded fossilized remains of animal life that are characteristic of the Pleistocene Epoch. Among these animals are elephas, stegodon, and rhinoceros which became extinct in the Philippines some 250,000 years ago. The Probabilities are that early man in the Philippines lived contemporaneously with the above animal life as early as the middle part of the Ice Ages.

Lower Paleolithic

The earliest presence of man in the Philippines has been detected in the Cagayan Valley. When research in this area began in 1971, flake and core tools have been found in different localities at times by themselves and at other times within the vicinity of fossilized remains of extinct animals. It proved difficult to relate the tools with the animal remains. Early in the research, two pieces of flake tools made of chert and bones of an elephas were found within an earth stratum. Late in 1979, the earth layer was identified to be the Awidon Mesa Formation — a layer which is definitely identified to be Pleistocene in age. Although the tools and fossils were not directly associated, all fall within the same lithology, hence contemporaneous in geologic time. They provided the first concrete evidence of the earliest presence of man in the Philippines, placing this during the Pleistocene together with now extinct fauna.

Paleolithic Period

The earliest period in man's chronology is the Paleolithic, also known as the old stone age. It is identified by the type of tool technology prevalent during this period — the flake and core tools which are the only types that survived through time. The Paleolithic is a period when several species of man lived sequentially or contemporaneously, depending on varying conditions. The most common sequence: ***Homo australopithecus, Homo erectus, Homo neanderthalensis,*** and finally, ***Homo sapiens.*** In the Philippines the appearance of these human species is probably limited to the last two, due to the particular geologic history of the archipelago. The Philippine Paleolithic is divided into two phases with the appearance of ***Homo sapiens*** distinguishing the Upper Paleolithic from the Lower Paleolithic.

The Philippine Paleolithic is tentatively placed from about the Mid-Pleistocene to approximately 6,000 years ago. The culture associated with this period is that of foraging which includes hunting and food gathering. It is highly probable that the earliest beginnings of plant domestication began during the latter part of this age with the practice of incipient cultivation.

The real base of subsistence is food gathering. With the kind of tools in use, man at this point in time is an ineffective hunter, his game largely limited to the young, the aged and weak of the animal population. But the broad food spectrum available to him and the density of the population relative to land area allow man to remain quite sedentary in certain areas, or to move about in a cyclical pattern through the seasons in a particular territory. Populations are probably organized into small multi-household groups with bilateral descent of cognatic types of kinship.

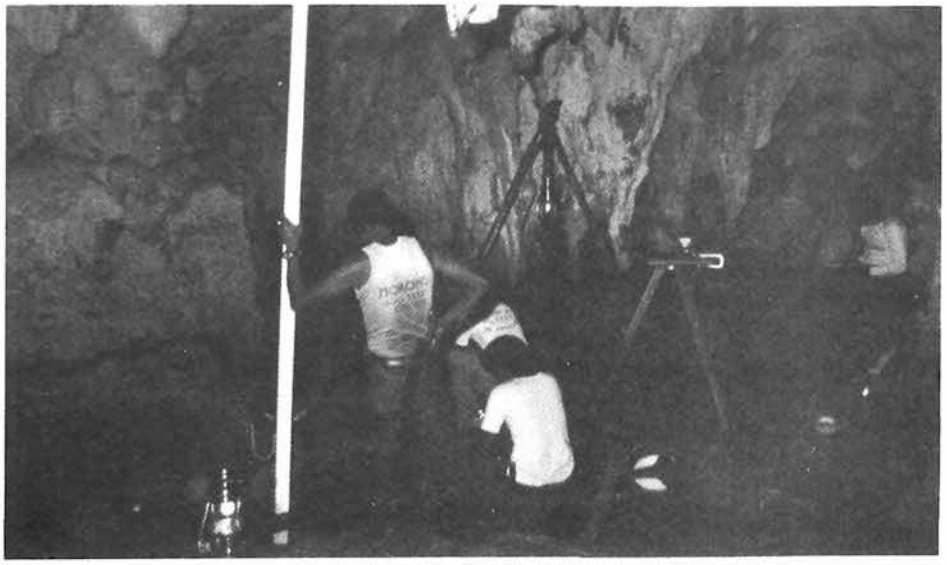
Lithic Technology

The tool technology of the Paleolithic or Stone Age in the Philippines is characterized by two types of tools: the flake and core tools. Tools of other materials like wood, bone and other organic materials might not have survived time. Philippine tools are generally unifacial, or flaked on one side only.

Flake Tools. When a fragment of rock is chipped off from a module of quartz, the fragments are known as a ***flake*** and the remaining part of the module, a ***core.*** The flake may be used directly for cutting, or scraping which makes it into what is referred to as a ***flake tool.*** The flake may be further modified along the working edges for more efficiency. This modified flake then is known as a ***retouched flake tool.*** Stone flakes are often recognized by features as striking flatform, point of percussion, bulb of percussion, bulba scar, fissures, ripples, hinges, and other features.

Core Tool. This type of tool is made by chipping off pieces from one side usually of a module to shape it into a working form. Tools of this category have been called variously as chopper-chopping tools, pebble or cobble tools; several types of these core tools have been identified as conforming to definite metal templates. There are two general categories: points and high angle scrapers.

Two other types of maintenance equipment have been also identified: the hammerstone and the anvil.



Excavations in the Cagayan Valley still go on.

Flake Tools of Tabon and Cagayan. A controversial piece, variously identified as fresh ivory and fossilized wood, was uncovered in Cagayan Valley. The tool, however, exhibits the stepped methods of flaking previously thought to be found exclusively in the Australian continent. The "horse hoof" scraper, which is basically a high angle, stepped flaked scraper 360 degree edge, is found to be abundant not only in the Tabon Caves and Cagayan Valley but also in the island of Panay as shown by four specimens.

High angle scrapers were found in the Tabon Caves, showing different shapes of edges and angles of retouch.

Two large flake tools were unearthed in Tabon, while two smaller ones were excavated from the Cagayan Valley proximate to some remains of elephas.

The Paleolithic Pebble-cobble Tool Industry. Asian literature refers to these materials as chopper-chopping tools as formulated by Movius (1944) or generally pebble tools. Later studies, however, approach these materials with reference to the working edge and general characteristic of the tool itself to arrive at a descriptive categorization.

Far from being randomly manufactured, the techniques exhibited show early man to be highly selective of his materials and to have taken advantage of features of his core materials to produce scientific types. This is highly suggestive of specialized tool use.

It is also noted that the same type of tool industry was persistently used in the Tabon Cave from the mid-Pleistocene period of some 400,000 years to the 23-24,000 years.

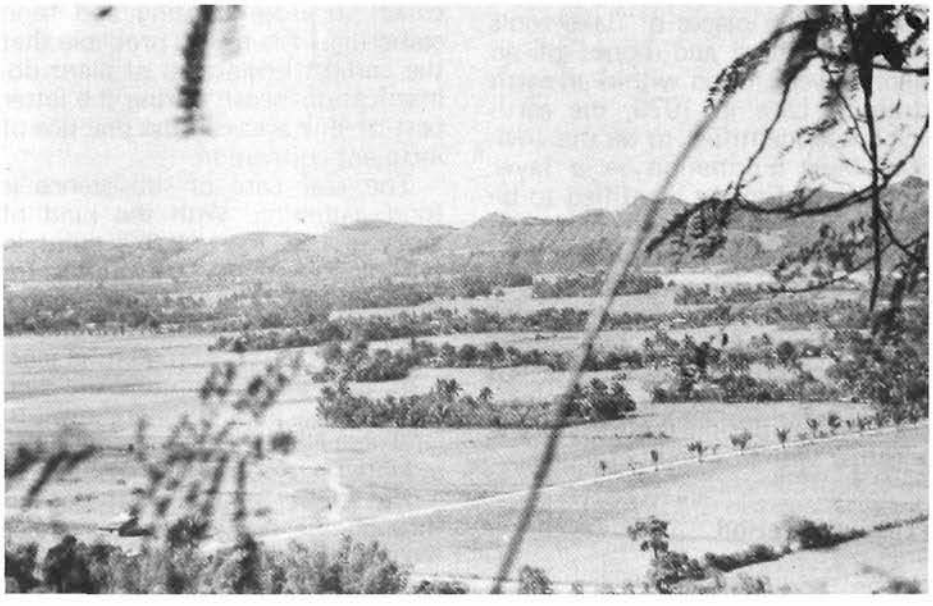
Upper Paleolithic

The first evidence of the appearance of modern man in the Philippines was revealed by the archaeological work done in Lipuun Point in Quezon, Palawan, principally in the Tabon Cave. When first discovered, Tabon cave appeared to be a jar burial site on the surface, yielding an estimated 200 jars, covers and smaller vessels scattered on the surface. The materials dated from about 200 to 500 B.C. Continued work in the cave, however, provided the earliest fossil remains of man in the Philippines dated to approximately 23,000 years before 1950. The remains, now known as the Tabon Man, is *Homo sapiens* or modern man. Five flake tool assemblages or cultural associations have been dated in Tabon Cave:

Flake Assemblage 1-B	925 to 250 B.P.
Flake Assemblage 2	21,000 B.P.
Flake Assemblage 3	22,000 B.P. and 23,000 ± 1000 years B.P.
Flake Assemblage 4	30,500 ± years B.P.
Flake Assemblage 5	45,000 – 50,000 years B.P. (estimated)

At Tabon, a possible trend toward smaller flake tools in the

Somewhere in Cagayan Valley, the earliest presence of man was manifested.



upper levels and, apparently, more secondary retouching of flake tooks in the upper pleistocene and the early post-pleistocene times were observed. Nevertheless flake tools with fine retouching were found even in the deepest levels. Tools range from large to small in all levels. The paleolithic industries of Palawan reflect in part the greater marginality of the Philippines in general, since these types of tools survive there to more recent dates than those obtained in the mainland of Asia.

Guri Cave. The sea reached its present level approximately 6000 years ago. At about this time, Guri Cave in Palawan was being used by man using a flake tool industry. Data show that the use of flake tools survived even onto recent dates along with neolithic and metal tools, showing that there is no sharp demarcation between cultural developmental stages. In the main entrance of the cave, a midden containing cultural materials was found dating to early post-pleistocene from 500 to about 2000 B.C. The second major occupational period of the cave was during the early metal age about 300 to 500 B.C. The stone tools in the cave showed the same type of tool tradition as in Tabon.

Neolithic Period

At about 6000 B.C. when the last of the glacial periods ended, the sea rose to its present level and the land bridges connecting the Philippines to the mainland of Asia were again submerged. This created a maritime environment and triggered off new technological adjustments. The development that differentiates the Neolithic Period from the preceding is that man, during this period, became a food producer instead of being merely a forager. Food production became possible with the full development of incipient cultivation into plant domestication and the domestication of animals. In Southeast Asia, early plant domestication has developed from the incipient cultivation of tubers, specially from the genus *Dioscorea,* instead of the domestication of grain. Stone tools of this period are characterized by the tabular form represented by the adze and the utilization of stone polishing, sawing and drilling. The other technologies present were pottery-making, weaving, boat building, and the proliferation of ornamentation.

The Philippine Neolithic is placed about 5000 B.C. to 300 A.D. But it does not mean that this is true to every place and each group of people for cultural developments are accretions that do not necessarily displace previous cultural traits. In terms of cultural materials, the presence of Neolithic materials does not necessarily exclude the use of paleolithic types of tools. Archeological work in the Sagung Cave in Palawan has produced both neolithic and paleolithic materials in the same context showing the functional survival of earlier tool types.

Early Neolithic

The early phase of the Neolithic Period in the Philippines is marked by the appearance of polished stone tools with the tabular form. The earliest forms are made by grinding one edge sharp, hence, the name edge-ground-tool. Later ones are polished all over after the initial flaking to arrive at the tabular form. Some of these tools included well-made chisels, gouges and ax-adzes. The materials used are basalt, diorite and varieties of chalcedony like nephrite. Giant shells, like the *Tridacna,* were also used. Shells have also been found used as ornaments like beads, pendants and bracelets.

Duyong Cave. The early phase of the neolithic in the Philippines is typified by the findings in the archaeological work in the Duyong Cave in Palawan. Here a single burial was found associated with skeletal remains, a polished stone adze, another adze made from the hinge of the shell, *Tridacna,* and stone shell pendants. Found here, too, was a shell container for lime, suggesting the practice of betel-nut chewing at this early period. The date yielded by carbon

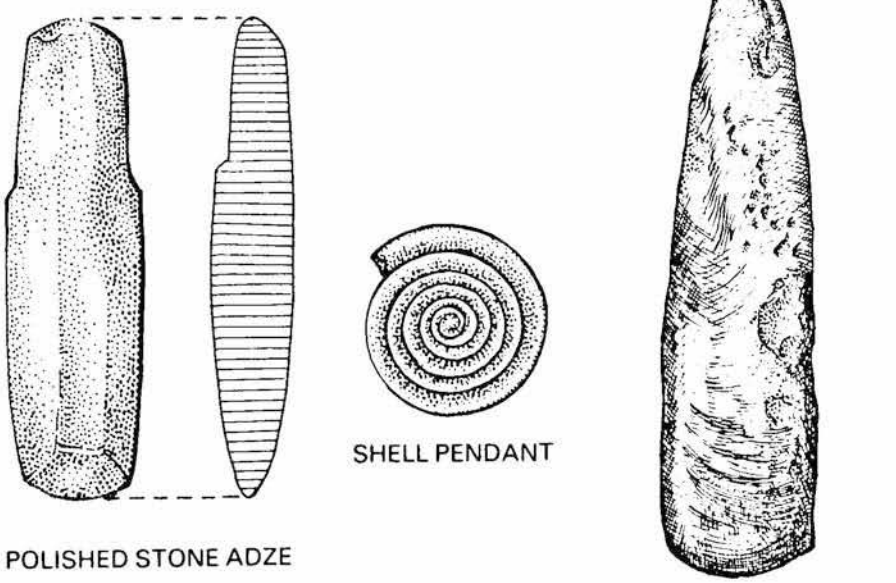


Illustration of early tools used in the Neolithic Period

samples placed the Duyong burial at 4,630 ± 250 years B.P.

Late Neolithic

Innovations in the tool technology and the appearance of a different class of ornaments and pottery distinguished this period from the preceding early sequence. The development of the techniques of sawing and drilling led to the production of stepped and shouldered adzes. The technological development also led to the production of ornaments of stone like beads made from agate, jade, jasper, onyx and other semi-precious stones. Distinctive of this period is the first appearance of pottery, an offshoot of which is the introduction of the jar burial complex. Again in Palawan, the Manunggul Cave is typical of late neolithic associations. A National Treasure found in this cave is a burial jar painted with red hematite with curvilinear designs. The cover has two figures riding a boat depicting presumably the voyage of the dead to the afterlife. The assemblage in this cave has been dated to 2,660± 80 years B.P. Other late neolithic sites have been worked in the Philippines, like the Bato Cave of Sorsogon and the shell middens of Lal-lo, Cagayan, but much yet remain unknown about this important period in Philippines prehistory.

Manunggul Jar

Details of the spirit boat on the jar cover from Manunggul Cave.