

THE DINGSISHAN SITE AND THE PREHISTORY OF GUANGXI, SOUTH CHINA

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ABSTRACT

Dingsishan is a well-preserved shell midden site in Guangxi, South China. Large quantities of artefacts and a very unusual form of disarticulated inhumation burial occur in this site. The Dingsishan assemblage can be divided into four phases, tentatively dated from parallels with other sites to between 10,000 and 5500 BP. The discovery of this assemblage provides important information for the Holocene prehistory of South China.

The Guangxi Zhuang Autonomous Region in South China is a subtropical area between latitudes 21° 28' to 26° 24' N, and longitudes 104° 30' to 112° 3' E. The climate is warm and humid, with an average annual temperature between 20 and 22°C, average annual precipitation between 1200 and 2000 mm, and average humidity of 80% (Xu 1992). Deciduous and evergreen forests cover the region. There are several large rivers running through the area, namely the Zuo, the You and the Yong River, with limestone hills alongside.

This area is rich in archaeological remains. Caves containing Palaeolithic and Neolithic remains are found in north, central and south Guangxi, while shell midden sites (30 located so far) are mainly distributed on river terraces in the south. Some sites have been excavated, such as Baozitou and Qingshan near Nanning City, Xijin in Heng County, Jiangxi'an in Fusui County, Baxun in Wuming County, and Changtang, Nabeizui and Lingwu in Yongning County (Archaeological Training Class of Guangxi *et al.* 1975) (Figure 1). Artefacts and burials have been discovered in these sites. However, due either to poor preservation or limitation of remains, data gathered from these sites are insufficient for building cultural chronology.

In 1997, an archaeological site called Dingsishan near Nanning City in south Guangxi was excavated. A total of 149 burials dated to different cultural phases, and a large quantity of artefacts including potsherds, stone, bone and

shell implements were discovered, associated with very rich quantities of shellfish and other aquatic and terrestrial animals. This discovery provides important new information on the prehistoric cultures of Guangxi.

THE DINGSISHAN ASSEMBLAGE

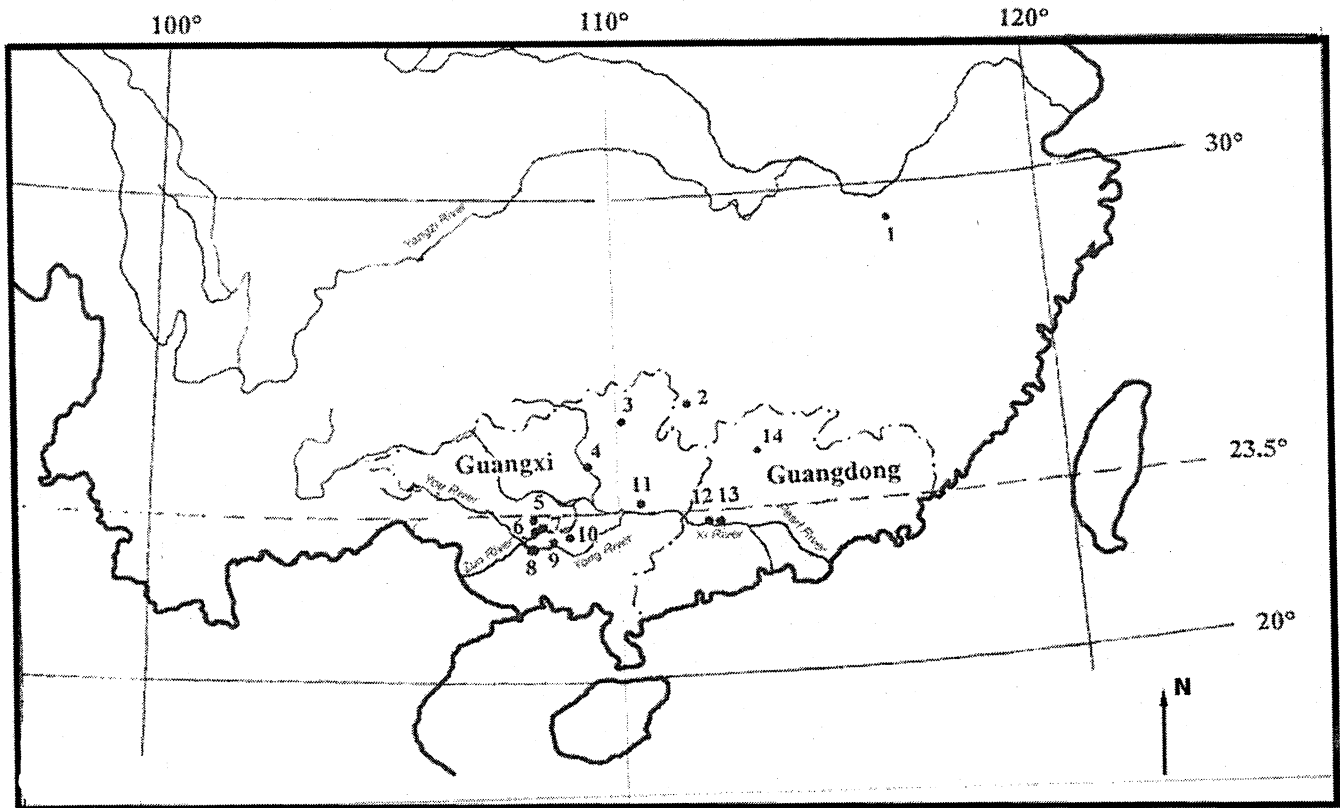
Dingsishan is a mound located at latitude 22° 43' 48" N and longitude 108° 28' 6" E, approximately 3 km south of the town of Yongning (Figure 2). The mound is situated at the eastern bank of the Bachi River, which is a tributary of the Yong River. Another stream named the Qingshui, which originates from a local spring, runs along the east and north sides of the mound to join the Bachi just north of Dingsishan. On its south edge, the mound extends to a series of small hills.

The northern and eastern parts of the site have been partly destroyed such that today about 5000 m² of archaeological deposit survive. The 1997 excavation, totalling 500 m², took place from April to July and was located in the northern, eastern and central parts of Dingsishan. The total thickness of the stratigraphy ranged from 35 cm to more than 250 cm, consisting of four to seven layers. Judging from the artefacts found in each layer, four cultural phases can be identified.

Phase I

Remains of this phase were mainly found in layer 4 in trenches T2206 and T2207, both in the central part of the site. The soil of this layer is a brownish red clay of quite solid structure, with a thickness ranging from 10 to 25 cm. A small number of sherds, a perforated stone and a substantial quantity of small tektite flakes were found in this layer, but no structural or other features were discovered.

All tempered with very coarsely crushed calcite, Phase I sherds are very friable, indicating a low firing temperature. So far, only one type of big, round-bottomed vessel can be restored. The vessel walls are hand-built, uneven and thick, and impressed with thick cord-marks using cordage over



1: Xianrendong. 2: Yuchanyan. 3: Zengpiyan. 4: Bailiandong. 5: Baxun. 6: Qingshan. 7: Baozitou. 8: Jiangxi'an. 9: Dingsishan. 10: Changtang. 11: Shijiaoshan. 12: Xiankezhou. 13: Hetang. 14: Shixia.

Figure 1: Archaeological sites mentioned in the text.

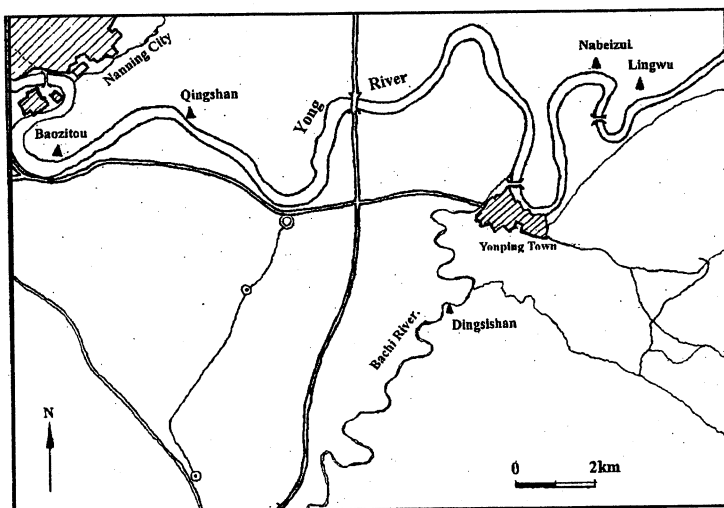


Figure 2: Location of the Dingsishan site.

3 mm in diameter (Figure 3). The prevailing colour is greyish yellow. Appliqué decoration is present beneath several rims.

Apart from sherds, a single perforated sandstone pebble was found in phase I, together with 105 small tektite flakes and 36 cores. Tektite lithics have never been found before in China. As the majority of tektites measure only between 1.7 and 2.25 cm in width, and between 1.4 and 3 cm in length, any flakes produced from this material are quite small, and often round in plan shape (Figure 4). The point of impact is often visible, indicating that flaking was likely conducted by direct percussion. Secondary retouch is very rare. The surfaces of some tektites seem to be water-worn, although we have not yet located the source of this unique raw material.

Phase II

Remains of this phase were mainly found in the north and central parts of the site. For example, in trench T2202, layers 4 - 7 contain artefacts belonging to phase II. The

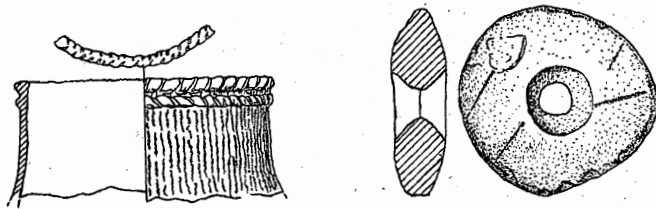


Figure 3: Potsherd (12.5%) and perforated stone (25%) of Phase I, the Dingsishan assemblage.

colours of these layers in T2202 range from brownish red to greyish yellow and thicknesses range from 15 - 50 cm.

A total of 16 burials in simple pits belong to this phase. All were found within the shell middens without any burial containers, some with indistinguishable grave edges. Most of the grave pits are quite small, measuring from 45 - 60 cm in width and from 60 - 135 cm in length. Thus, it is not surprising that all the bodies were in flexed or squatting positions in these small graves. Although the human remains were not very well preserved due to the acid soil, four types of burial could still be identified: supine and flexed; lying on one side and flexed; prone and flexed; and squatting. Grave goods are rare; only a few stone, bone or shell implements.

The quantity of pottery in this phase increases significantly over that in phase I, but variety is still limited. A hand-built globular pot is still the only type of vessel, tempered with crushed calcite, and fired at quite a low temperature. It is noticeable that the calcite was crushed into finer granules in Phase II than in Phase I. Another distinguishing feature of the pottery in this phase is the prevalence of basket marking, which replaces the thick cord-marking of Phase I. Nevertheless, cord-marks of medium size (cord diameter 2-2.5 cm) still occur (Figure 5), applied to the surface by rolling and impressing. The majority of the pottery is greyish brown, but some is red.

The toolkit of Phase II includes one perforated stone and seven abraders, all made of sandstone. Ground axes and adzes made of limestone occur as a new implement type (4 axes and 3 adzes), well polished on their cutting edges (Figure 5). Judging from the scars remaining on their surfaces, it seems that the axes and adzes were ground after their initial forms were shaped by flaking. Use-wear has been identified on the edges of one axe and two adzes.

Shell implements consist of 31 shell knives, accounting for 47.7% of the total tools in Phase II. All are made from shells of the freshwater genus *Lamprotula* sp. Sizes vary from 5.7 - 12.8 cm long, 3.2 - 8.5 cm wide, and 0.2 - 1.2 cm thick. These knives were initially shaped by flaking, after which the edges were polished. The majority of the shell knives were perforated in the centre (Figure 5), a few with two holes. Bone implements include adze-like (spatulate)

tools, points and a needle. Most are well polished on their edges or points.

Phase III

Archaeological remains of this phase were mainly found in the north and central part of the site, as with Phase II in different layers in different trenches. For example, layers 2 to 7 in trench T2003 all contained Phase III artefacts, whereas in trenches T2206 and T2207 only layer 2 produced such remains. Burials and substantial quantities of pottery, lithic, shell and bone implements were recovered from layers of this phase.

The total of 133 burials from Phase III can be classified into four different types: supine and flexed, prone and flexed, squatting, and disarticulated. The latter are quite extraordinary, not secondary or disturbed since the joints and even the toes and fingers of the skeletons are still *in situ* (Figure 6). This should not be considered as evidence of cannibalism as the graves were purposely built and the skeletons deliberately placed then covered. An example is tomb M117, which was discovered in layer 2 in trench T2202. The grave is an oblong earthen-walled pit measuring 102 cm in length, 75 cm in width and 20 cm in depth. Greyish-yellow soil mixed with big mollusc shells was used to refill the grave after the burial. It seems that the tomb occupant was disarticulated at the neck, the waist and the knee. The skull was separated from the body and placed in the west side of the grave. The trunk was placed in the centre of the grave in a prone position. The arms were also separated from the trunk and placed in the eastern part of the grave, associated with the lower legs and toes. The pelvis and the femora were placed in the northeastern corner (Figure 6). The deceased was identified as a male, 40-45 years old. A total of 13 small stone slabs were also found within this grave.

As the human remains and other archaeological data are still under analysis, it is not yet clear exactly how many disarticulated burials were found in 1997. Nor is it clear whether the flesh of the deceased was removed before burial. Such a burial method has not been identified before in China and it raises many questions for further investigation.

Both the quantity and the variety of artefacts increased in Phase III. Pottery continued to be hand-built, but craftsmanship improved and the crushed calcite temper was almost completely replaced by fine sand. Firing temperatures were also higher. The globular vessel form was still dominant, with thin cord-marking being the main kind of surface finish and basket-marking being rare. Pottery colours range from reddish-brown to greyish brown, with the reddish brown prevailing. Black pottery also occurred in this phase.

Stone implements from this phase include 31 axes, 19 adzes, 6 hammers and 2 abraders. The edges of the former

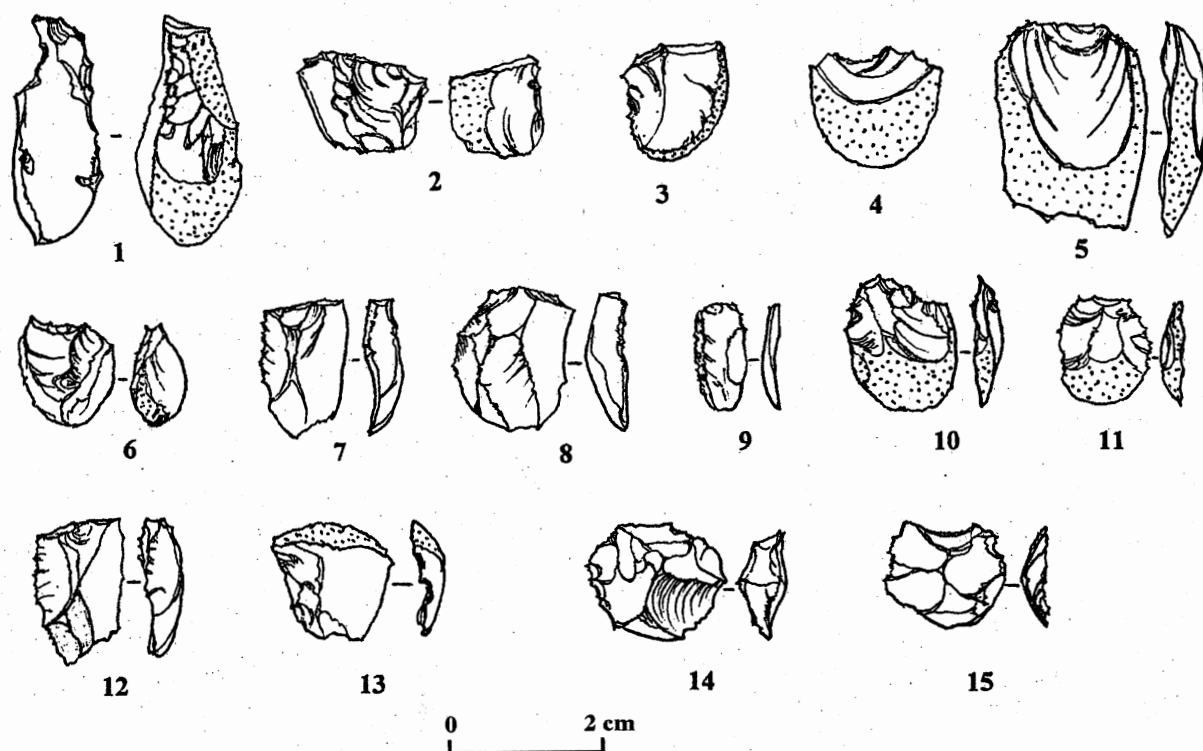


Figure 4: Tektite flakes and cores of Phase 1, the Dingsishan assemblage. 1, 2, 4, 6 and 14: cores; others: flakes.

two types were carefully polished (Figure 7). In general, stone tool technology in Phase III is the same as that in Phase II. There are 15 *Lamprotula* shell knives in Phase III, similar to those in Phase II. Many have use-wear on their edges.

Bone implements in this phase consist of one adze, points, needles and a fishhook. The points and/or working edges of these implements are well ground, but the other parts are often only coarsely polished. This manufacturing style is consistent with that used for the polished stone tools.

Phase IV

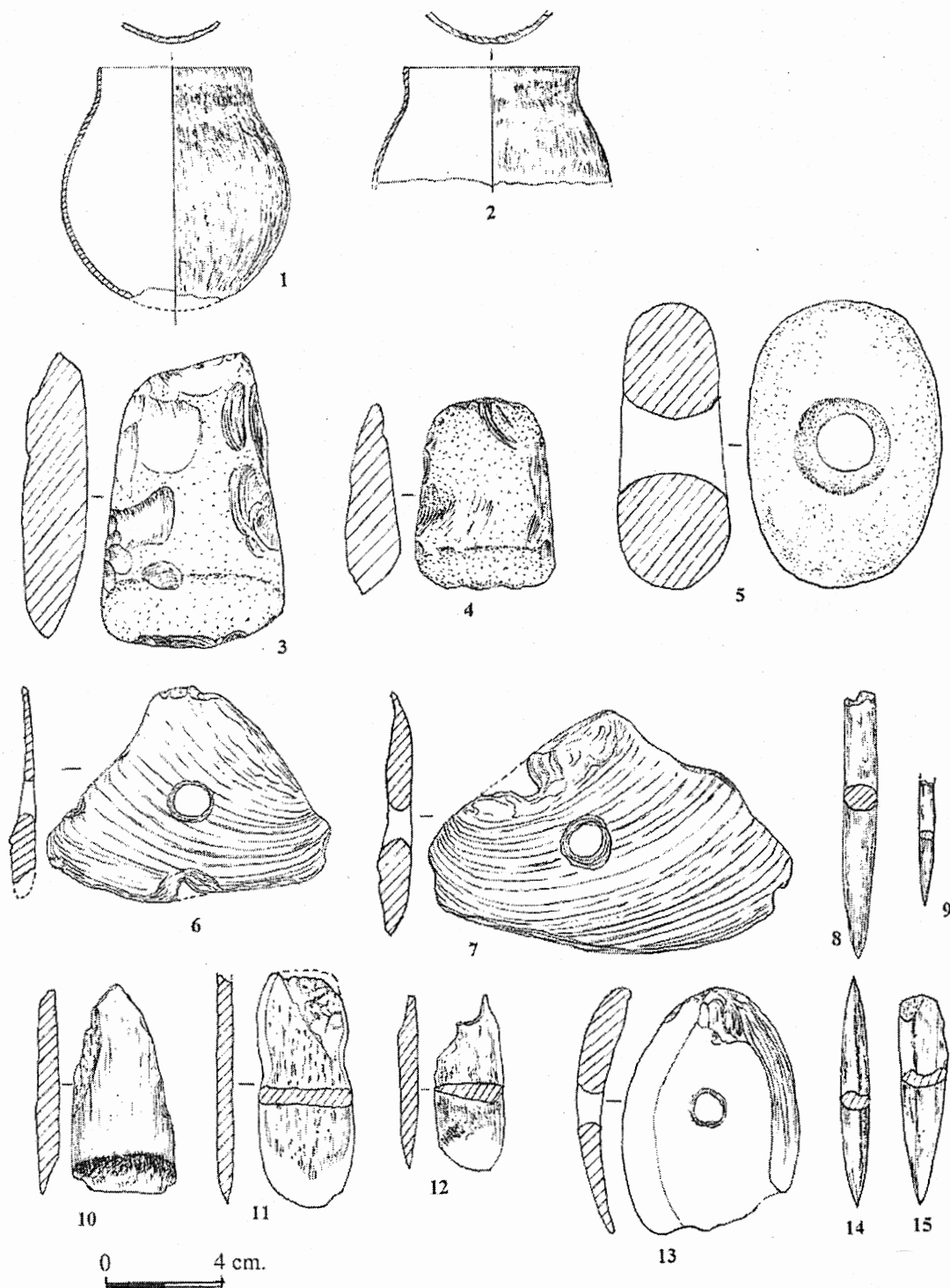
The archaeological remains of this phase were mainly found in the eastern part of the site, in layers 2 and 3 in trench T2012 and layer 2 in trench T1009. The thicknesses of these layers range from 5 - 40 cm. Pottery, stone and bone implements continue, but this phase has no features or burials and there is a complete disappearance of the use of shell. Organic tempers now dominate the pottery, followed by sieved sand. Most of the vessels are brownish-red or red, but orange appears as a new colour in this phase. The quantity of black pottery also increases. Some vessels are now wheel-made, walls tend to become thinner, and firing temperatures increase. Globular pots with high necks and/or ring-feet, cooking *fu*, cups and lids all make a first appearance in this stage (Figure 8). Thin cord-marking is the main

type of surface finishing, followed by comb incision. But while the quantity and variety of pottery in Phase IV seems to have increased, there is a decrease in this regard with the other artefact types. Only 12 stone tools were recovered - 3 axes, 4 adzes and 5 abraders (Figure 8). The 14 bone implements include adze-like tools, points and a needle. Whether such relative poverty is due to the limited excavated deposit of Phase IV, or other causes, remains unknown.

DISCUSSION

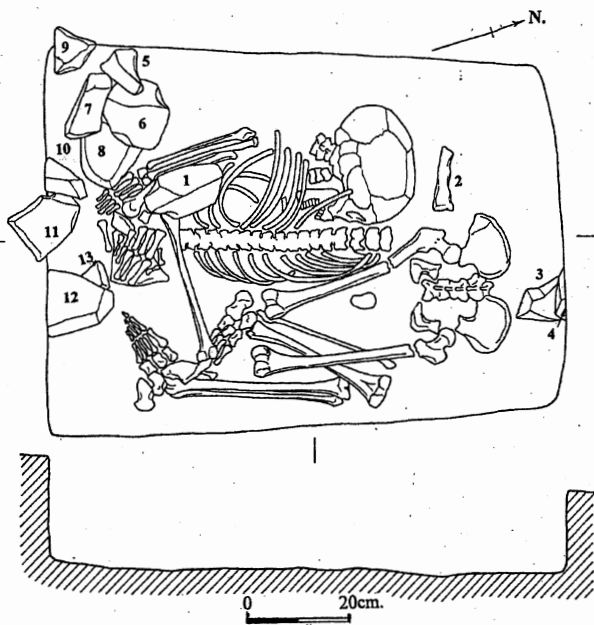
Dingsishan is the best preserved shell midden site so far discovered in Guangxi. With its thick cultural deposit and abundant artefacts, it provides important information for understanding the chronology and the cultural characteristics of prehistoric Guangxi. On the other hand, the discoveries made in Dingsishan also raise many new questions.

At present, only one radiocarbon date has been obtained from Dingsishan, for Phase II. The sample is a riverine shell and is dated to $10,365 \pm 13$ bp, or between 11,041 and 11,965 years BP after calibration. However, we are fully aware of the problems with radiocarbon dating of shells from limestone areas, and consider this date as too ancient (Radiocarbon Laboratories 1982). Further dating will be conducted in the future.



1-2. Pots; 3, 4. Stone adzes; 5. Perforated stone; 6, 7, 13. Shell knives; 8, 14, 15. Bone points; 9. Bone needle; 10. Bone adze; 11. Bone spade; 12. Bone axe.

Figure 5: Artefacts of Phase II, the Dingishan assemblage.



Nos 1-13: Stone slabs.

Figure 6: Disarticulated burial No. M117 of Phase III, Dingsishan assemblage.

In terms of relative dating, the Dingsishan assemblage can be compared with other assemblages from adjacent areas. Early Neolithic assemblages in Guangxi come from Zengpiyan Cave in Guilin City (Guangxi Archaeological Team *et al.* 1976) and Liyuzui shell midden in Liuzhou City (Liuzhou City Museum *et al.* 1983) etc. (Figure 1). Although the cultural characteristics of the Early Neolithic are not clearly defined, these assemblages dated to the early Holocene share some common features, including pottery tempered with coarsely crushed sand or other minerals, the presence of small lithic implements, and perforated stones. Phase I at Dingsishan has similar characteristics, thus it should belong to the early Holocene. It should also be noted that the early Neolithic in this region has mainly been found in caves and rock shelters, whereas Dingsishan is located on a river terrace.

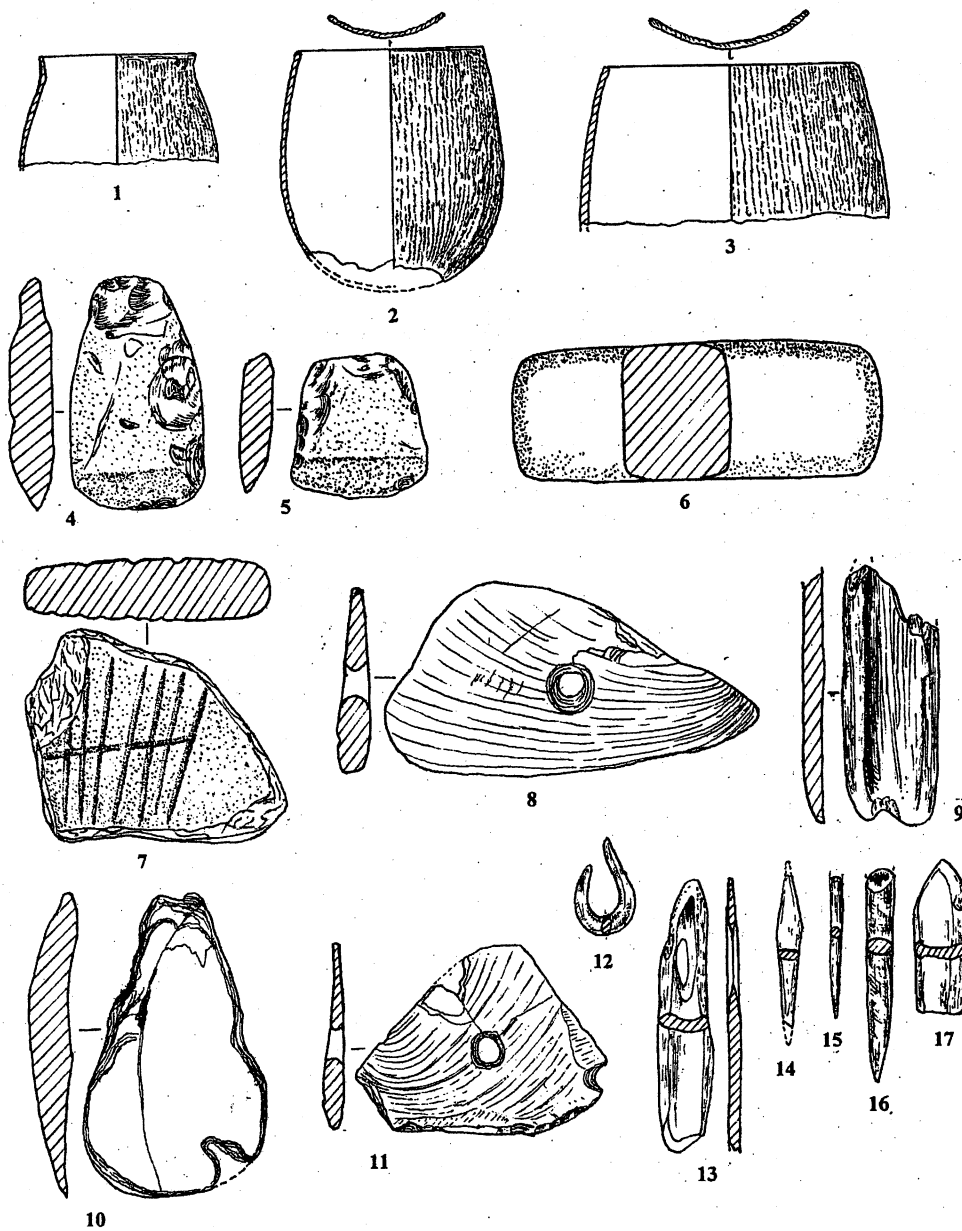
The early pottery from Dingsishan also exhibits similar characteristics to the pottery from Xianrendong Cave in Wannian County, Jiangxi Province (CPAM of Jiangxi Province 1963; Jiangxi Museum 1976; Liu 1996), and from Yuchan Cave in Dao County, Hunan Province (Yuan 1996) (Figure 1). This pottery is all hand-built, with uneven and thick walls and very friable fabrics indicating low firing temperatures. These features are generally characteristic of early pottery in China. Since the early Xianrendong and Yuchanyan assemblages date to approximately 10,000 years BP, a similar date may apply to Dingsishan Phase I.

Above Phase I, a number of changes occurred in the Dingsishan artefact sequence. For example, the round-bottomed cooking *fu* and the basket-impressed decoration of Phases II and III were not found in Phase I. On the other hand, thick cord-marking and the globular pot with appliqué decoration were only found in Phase I. The quantity of tektite implements was substantial in Phase I, but much less in Phase II and almost zero in Phase III. The types of polished stone implements and shell knives commonly found in Phases II and III were not found in Phase I.

The deposits of Phases II and III contain the bulk of the Dingsishan assemblage and have similar cultural characteristics, such as the round-bottomed *fu*, basket-marking, cord-marks of medium and small diameters, large quantities of shell implements, and flexed and squatting burials. The similarities in the toolkits and the abundances of shell and other animal remains in these two phases suggest that their subsistence strategies were also similar. Of course, there were some cultural differences between the two phases, but only of a minor nature. The two phases represent one archaeological culture.

Archaeological remains similar to Phases II and III of Dingsishan have been found widely at over 30 sites in the Nanning area, for instance at Baozitou in Nanning City, Xijin in Heng County, Jiangxi'an and Ganzao in Fusui County, and Changtang in Yongning County (Figure 1). These sites are located particularly along the Zuo, You and Yong rivers and their tributaries. Geographic settings for these sites are similar in that they are often found on the first terrace at a bend in a river course, or near the junction of two rivers. All are shell midden sites which also have large quantities of terrestrial animal remains which indicate that gathering, fishing and hunting were major economic activities. There is no visible evidence of early agriculture. Burials are often found within these sites. Skeletons were often surrounded by stone slabs and flexed in various positions, but disarticulated burial has been found so far only in Phase III at Dingsishan. Grave goods are often rare.

Phases II and III of the Dingsishan assemblage should be named the Dingsishan Culture of the middle Neolithic in the Guangxi area. Based upon comparisons with Neolithic pottery found in the middle Yangzi valley with reliable absolute dates, the Dingsishan culture should date to between 8000 and 7000 BP. In neighbouring Guangdong Province, 28 burials have been found in the Xiankezhou site in Zhaoqing City (Guangdong Museum 1991; Guangdong Museum *et al.* 1990) (Figure 1). Burial types here include prone and flexed, lying on one side and flexed, and squatting. Tooth-extraction was found in two individuals. This custom is also found at Hetang in the Pearl River delta (Yang *et al.* 1981) (Figure 1), where flexed burials are not found. On the other hand, flexed burials have been found in the Nanning



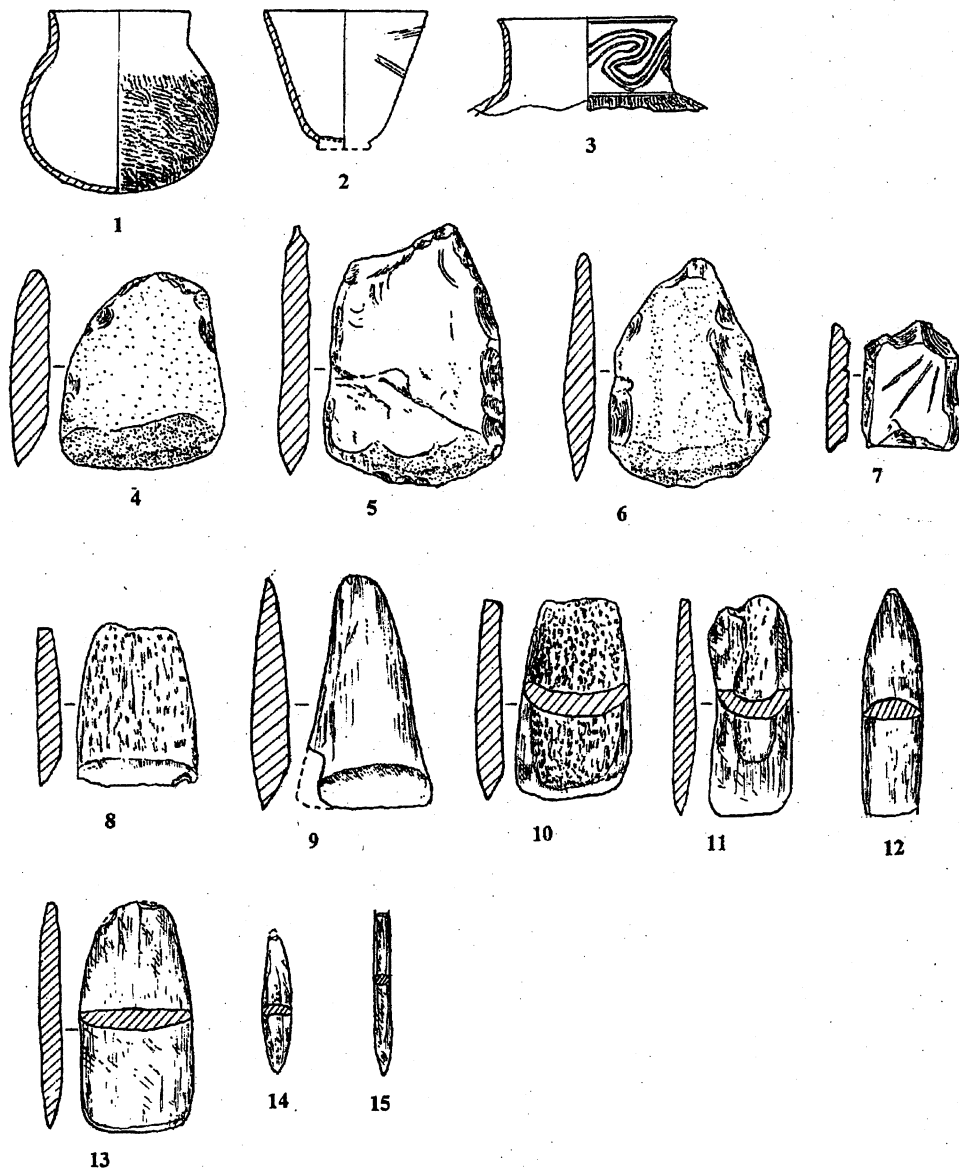
1-3. Pots; 4. Stone axe; 5. Stone adze; 6. Stone hammer; 7. Stone abraded; 8, 11. Shell knives; 9. Bone adze; 10. Shell spade; 12. Bone fish hook; 13, 16. Bone drills; 14. Bone arrowhead; 15. Bone needle; 17. Bone spearhead (1, 3: 14%; 2: 8.75%; 4-17: 35%).

Figure 7: Artefacts of Phase III, Dingsishan assemblage.

area without tooth-extraction. The Xiankezhou site is located on the lower reaches of the Xi River close to the western (inland) edge of the Pearl River delta. To judge from its pottery decoration of thin cord-marking, incision and stamped squares, from the presence of fine pottery and use of the potter's wheel, and from the presence of vessels with ring-feet and shouldered axes, the Xiankezhou assemblage

should be younger than the Dingsishan assemblage. But it indicates that there might have been cultural exchanges between prehistoric South Guangxi and Guangdong.

Phase IV at Dingsishan is sufficiently different from the Dingsishan culture of Phases III and IV that it should be classified differently. The possibility of the emergence of farming in this phase cannot be ruled out. Pottery similar to



1, 3. Pots; 2. Cup; 4. Stone adze; 5, 6. Stone axes; 7. Stone abrader; 8-10. Bone adzes; 11, 13. Bone axes; 12. Bone spearhead; 14. Bone arrowhead; 15. Bone needle (1-3: 20%; 4-15: 40%).

Figure 8: Artefacts of Phase IV, Dingsishan assemblage.

that of Phase IV at Dingsishan occurs in the site of Shixia in northern Guangdong. Globular pots tempered with fine sand and greyish-brown *fu*, decorated with thin cord-marks and incision, have been found in the lower layer at Shixia (Yang 1989), which belongs to the so-called "Proto-Shixia Culture". Whether there were cultural exchanges between these two sites is unknown. Taking the absolute dates of the Proto-Shixia culture and another related assemblage at Shijiaoshan in eastern Guangxi (Guangxi Archaeological Team CASS *et*

al. 1997), Phase IV at Dingsishan should date to approximately 6000 to 5500 BP.

The disarticulated burials at Dingsishan remain as a puzzle. According to preliminary analysis, males of about the same age have been identified in all four types of burials identified in Phase III. Thus, sex and age do not seem to be specific to the disarticulated burial tradition. The scarcity of grave goods in Dingsishan is not helpful for identification of status differences. In addition, there are no visible cutting

marks on the bones of the disarticulated skeletons. To aid further understanding of the site we intend to study the palaeoenvironment, palaeoclimate and the natural resources of the site. Use-wear analysis will be conducted on the stone tools and analysis is presently being conducted on the human remains.

In summary, there are many cultural characteristics shared by the Dingsishan assemblage and other archaeological assemblages in South China. As South China is perceived as an extension of Mainland Southeast Asia in terms of climate, environment and natural resources (e.g. Higham 1995), the Dingsishan assemblage provides new data for studying the prehistory not merely of South China, but in a broader sense, of Southeast Asia as well.

(Original translated by Tracey Lie-dan Lu)

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