Arts asiatiques

Social Organisation at Khok Phanom Di, Central Thailand (2000-1500 B.C.)

Charles Franklin Wandesforde Higham

Résumé

Khok Phanom Di, situé sur une étendue plate à 80 km à l'est de Bangkok, est constitué d'un grand tertre de cinq hectares qui s'élève à douze mètres de hauteur dans la vallée de Bang Pakong. Depuis 1984, nos recherches se sont concentrées sur ce tertre, avec, en particulier, une fouille plus étendue pour étudier la disposition des sépultures.

La richesse du matériel a dépassé nos espérances. Les préhistoriques ont occupé une région située au bord d'un estuaire dominé par les mangroves côtières. La mer était toute proche. Le riz a été cultivé depuis l'occupation du site.

Cette occupation se trouve comprise entre 2000 et 1500 de notre ère. La durée d'utilisation du cimetière est de l'ordre de 400 à 500 ans, ce qui correspond à environ vingt générations.

Hommes, femmes et enfants ont tous été enterrés de la même façon, accompagnés de magnifiques poteries et de parures de coquillages et de parures en os. Les morts étaient inhumés en groupes dans des tombes collectives. Dans une même lignée familiale, nous avons dénombré dix-sept générations. Nous pensons que cette communauté était matrilinéaire parce que les femmes ont fabriqué les récipients en terre cuite.

A la quatorzième génération, une femme a été enterrée avec des offrandes d'une richesse considérable. La possession de parures marquait le statut social. Les individus étaient en compétition pour l'acquisition de ces biens : les uns réussissaient, les autres non. Mais lorsque le niveau de la mer baissa, le site fut abandonné.

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Introduction

This paper concentrates on a specific theme from an unusual prehistoric site. It is concerned with the assessment of changing social organisation over a span of about 20 generations at Khok Phanom Di, a site which was located in sheltered waters near the mouth of a major estuary when the sea was about 2 m higher than it is today. This site is located in the valley of the Bang Pakong River (figs. 1 and 2), and excavations there spanned seven months during 1985. The excavation square measured 10 by 10 metres, and natural deposits were encountered at a depth of nearly 6.8 metres[1]. The single large square was chosen in order to obtain data on changing spatial organisation of activities. The results have enabled those involved in the analysis of the material to assess the social organisation in association with intimate knowledge of the palaeoenvironment, subsistence activity, technology and exchange[2].

This is important, because, as Keesing has shown[3] through numerous test cases, social organisation cannot be usefully considered, even in modern ethnographic instances, without knowledge of the habitat in which a given social group operated, their subsistence activities, patterns of exchange in various goods, relationships with other societies and their objectives. In citing Goodenough[4] for example, Keesing noted the possibility that cognatic descent would be adaptive where a husband's group was short of land, but a wife's group had plenty. Where subsistence tended to stress the role of women, then uxorilocal residence would favour matrilineality. In contrast, a patrilineal system could develop from a cognatic descent organisation where the role of men in subsistence was stressed. Clearly, this is a vast simplification of a complex topic, and it is cited only to underline the importance of the consideration of social organisation within a long-term environmental framework. Conse-

Fig. 1. Map showing the location of Khok Phanom Di and other major prehistoric sites in mainland Southeast Asia.
Carte indiquant la localisation de Khok Phanom Di et d'autres sites préhistoriques importants sur le continent Sud-Est asiatique.

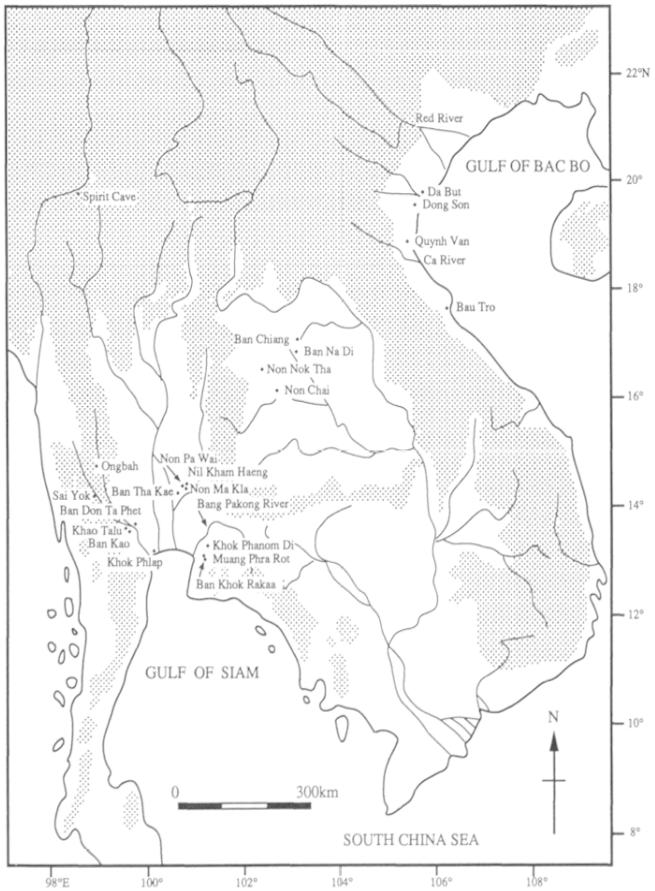

Fig. 2. The site of Khok Phanom Di stands clearly on the skyline as a high, tree-covered mound surrounded by the flat lands of the Bang Pakong Valley laid down under a shallow sea.
Le site de Khok Phanom Di se détache clairement à l'horizon en formant un monticule recouvert d'arbres et entouré par les terres plates de la Vallée de Bang Pakong qui reposait sous une mer peu profonde.

quently, our understanding of the habitat, subsistence and technology of the site will be considered in conjunction with the mortuary data in reviewing how this prehistoric community structured social relations.

Stratigraphy and chronology

When turning to the stratigraphic and chronological framework, we are essentially dealing with two quite different issues which it is essential to integrate. The first is the natural stratigraphic sequence recorded in the sediment cores taken from the vicinity of the site, and in which is encoded both the geomorphological and the vegetational history of this part of the Bang Pakong Valley during the middle and later Holocene period[5]. The second is the cultural stratigraphy of the mound and the dating of the successive deposits. Relating the cultural to the vegetational sequence is crucial to an appreciation of the prehistoric sequence and the segment of it which is represented at Khok Phanom Di.

In general, the cores begin with a white, possibly fluvial clay which was laid down either towards the end of the Pleistocene or during the Holocene prior to the initial marine transgression. This layer was encountered at a depth of *c* 7-8 m below the present ground surface, and therefore *c* 4 m below the present mean sea level. One core has a band of dark grey clay over the fluvial deposit, which is interpreted by Maloney as being a probable brackish-water deposit representing the initial intrusion of the sea. There followed a thick (4-5 m) layer of green clay with occasional shell bands, including fragments of wood and sand. This represents deposition during a period of high sea level. With the end of the marine phase, Maloney encountered a series of brown, grey and buff clays reflecting a fall in the sea level and the establishment of fresh or brackish-water conditions. The AMS dates for the two dated cores, which are set out as the OxA series in Table 1, disclose that the green marine clays were being deposited from at least the mid-sixth millennium B.C. During the marine phase, the pollen diagram is dominated by the mangrove taxon *Rhizophora*. Core KL2, which comes from near the northern edge of the site, also reveals a sequence of sharp rises in charcoal, associated with increased frequencies of fern spores indicating more open conditions. These date from 5500, 5200 and 4400 B.C. The last of these also saw an increase in grass pollen and the weeds of rice fields. Maloney has suggested that, whereas the first two episodes could just as well reflect natural burning or hunter-induced events, the third is most likely to be the result of rice cultivation.

The upper sections of the cores reveal a massive increase in charcoal and grass pollen, some of which falls within the size range of cultivated rice. An AMS date from core KL2 at a depth of 0.87-0.91 m has been dated to 1910-1435 B.C. It is during this upper part of the sedimentary sequence that Khok Phanom Di was occupied.

One of the four sections representing the cultural sequence at Khok Phanom Di is seen in fig. 3. It is a complex build up within which one can recognise a number of distinct contexts. The clearest are the graves for inhumation burials, of which 154 were encountered. There are also shell middens, caches containing sets of adzes, pits, postholes, ash spreads, hearths, a clay dump and a raised mortuary structure comprising timber and clay wall foundations over about 28 layers of levelled fill (fig. 4). Briefly summarised, the basal 60-70 cm comprise ash lenses, artefact caches, shell middens and postholes intimating initial occupation of the site. There followed *c* 4 m in which the principal remains were mortuary : the graves of 104 individuals interred, superimposed or alongside each other in clusters and ringed by pits and discrete midden spreads held to result from mortuary feasting. From a depth of 2.2 m, the nucleated grave tradition gave way to individual graves of great wealth linked with fewer lenses which, again, are interpreted as the remains of

Context	Source	Lab. No.	yrs. B.P.	yrs. B.C.
Layer 6:6	charcoal	ANU-5482	3310 ± 128	1875-1400
Layer 8:2	lens 4 ash lens	NZ-7020	1840 ± 310	405-625 A.D.
Layer 8:2	lens 4 ash lens	ANU-5483	3430 ± 80	1990-1560
Layer 8:3	lens 6 ash charcoal	NZ-7021	3670 ± 140	2525-1710
Layer 8:7	lens 10 charcoal	NZ-6973	3272 ± 200	1975-1120
Layer 9:1	white ash lens	NZ-7033	3280 ± 110	1860-1390
Layer 9:6	charcoal under lens 9	NZ-7060	3680 ± 90	2395-1785
Layer 9:7	hearth	NZ-7063	4310 ± 310	3650-2310
Layer 10:6	lens 3 hearth	ANU-5484	3280 ± 140	1900-1325
Layer 10:13	lens 10 charcoal lens	ANU-5485	3410 ± 110	1975-1545
Layer 10:15	lens 11 ash lens	ANU-5486	3610 ± 90	2305-1720
Layer 10:19	hearth 7	ANU-5487	3420 ± 110	2135-1655
Layer 10:21	hearth 15	ANU-5489	3420 ± 90	1980-1555
Layer 10:22	hearth 19	ANU-5488	3580 ± 100	2290-1695
Layer 10:24	charcoal in ash lens	ANU-5491	3530 ± 80	2165-1675
Layer 10:25	hearth 27	ANU-5492	3480 ± 110	2125-1650
Layer 10:25	charcoal	ANU-5490	3730 ± 100	2525-1885
Layer 11:	hearth 1	ANU-5493	3560 ± 80	2185-1685
KL2	0.87-0.91 m	OxA-1354	3360 ± 120	1910-1435
KL2	1.46-1.50 m	OxA-1355	560 ± 150	1235-1595 A.D.
KL2	2.25-2.29 m	OxA-1356	5560 ± 160	4710-3960
KL2	3.50-3.54 m	OxA-1357	6060 ± 200	5330-4555
KL2	4.82-4.86 m	OxA-1358	6280 ± 130	5530-4935
KL2	4.91-4.95 m	OxA-1359	6400 ± 300	5800-4755
BMR2	0.88-0.92 m	OxA-1449	3960 ± 100	2855-2185
BMR2	3.96-4.00 m	OxA-1360	6560 ± 100	5767-5230
BMR2	6.60-6.64 m	OxA-1361	6610 ± 140	5855-5230

Table 1 : Radiocarbon dates from Khok Phanom Di and associated pollen cores. All are based on a 5570 year half life, calibrated according to Klein et al.[6] *and expressed at the 2ρ range.*

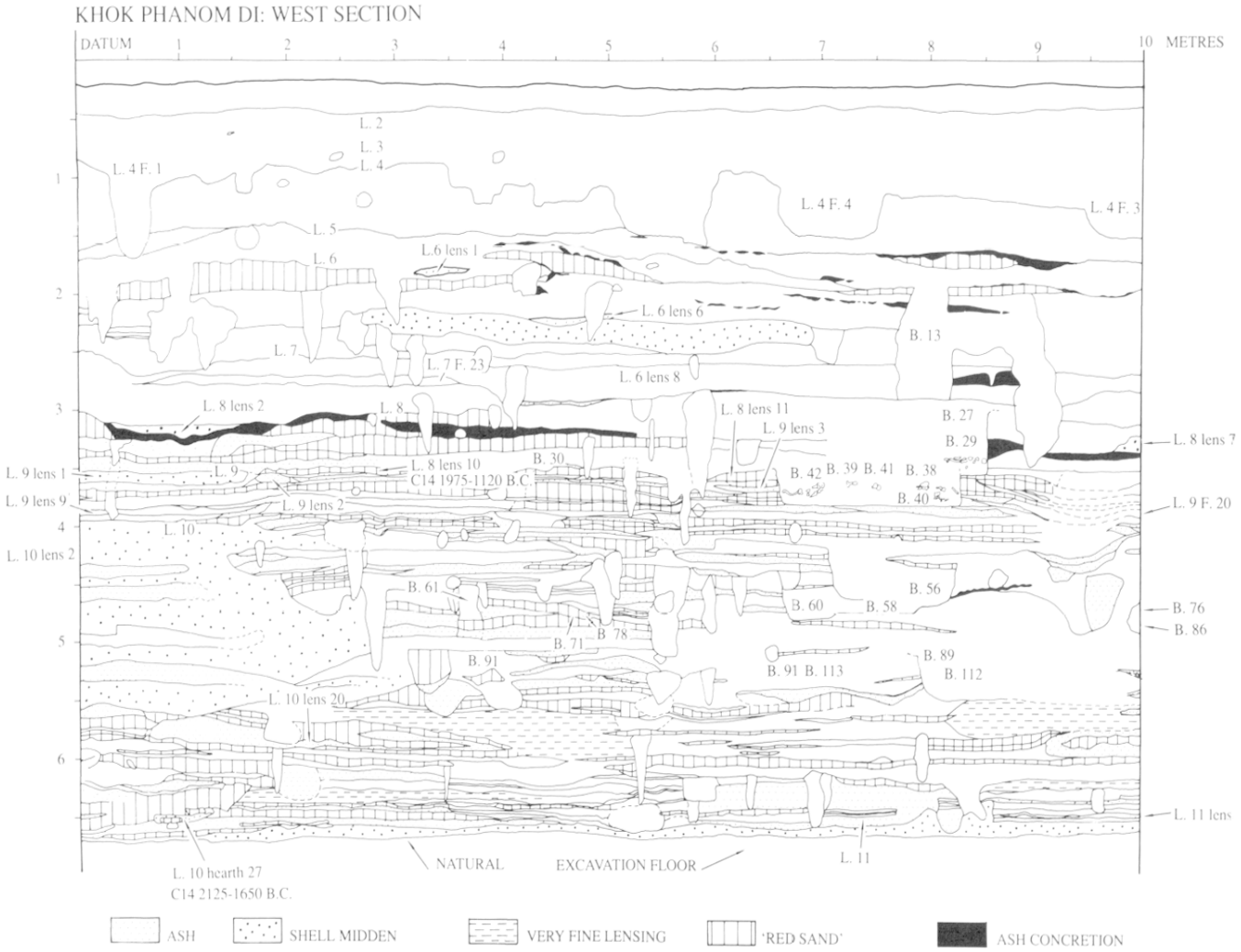

Fig. 3. The west section of Khok Phanom Di.
La section ouest de Khok Phanom Di.

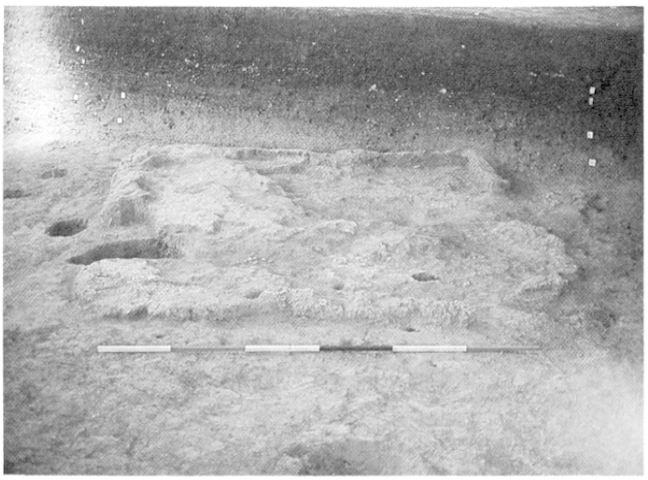

Fig. 4. The surface of the raised mortuary structure which covered burials 18 an 19 at Khok Phanom Di.
La surface de la structure funéraire qui recouvrait les sépultures 18 et 19 de Khok Phanom Di.

mortuary feasts. The uppermost metre was deposited after the sea level fell away from the vicinity of the site, at which time the mortuary tradition terminated and the area excavated was used as a pottery atelier.

The radiocarbon dates are consistent with the stratigraphic sequence and suggest that occupation took place between 2000 B.C. and about 1500 B.C. (Table 1). The dating of the uppermost metre is equivocal because no clearly-provenanced charcoal was encountered. This spread of dates indicates a very rapid build-up of cultural deposits.

Although we are broadly familiar, through the pollen and sediment data, with the fact that the occupants of Khok Phanom Di lived near the shore until the sea receded toward the end of the sequence, it is possible to obtain more details on the environment from other avenues of enquiry. Firstly, the distribution of marine against brackish-water deposits seen in fig. 5 shows how Khok Phanom Di was located on a former estuary of a major river. McKenzie[7], in his analysis of the ostracodes and foraminifera from cultural contexts on the site, has identified marine as well as estuarine or delta backwater and freshwater species. Kijngam[8], who has analysed the fish, crab and turtle remains, has also identified many specimens of *Lates calcarifer*, which enters the Bang Pakong estuary for spawning.

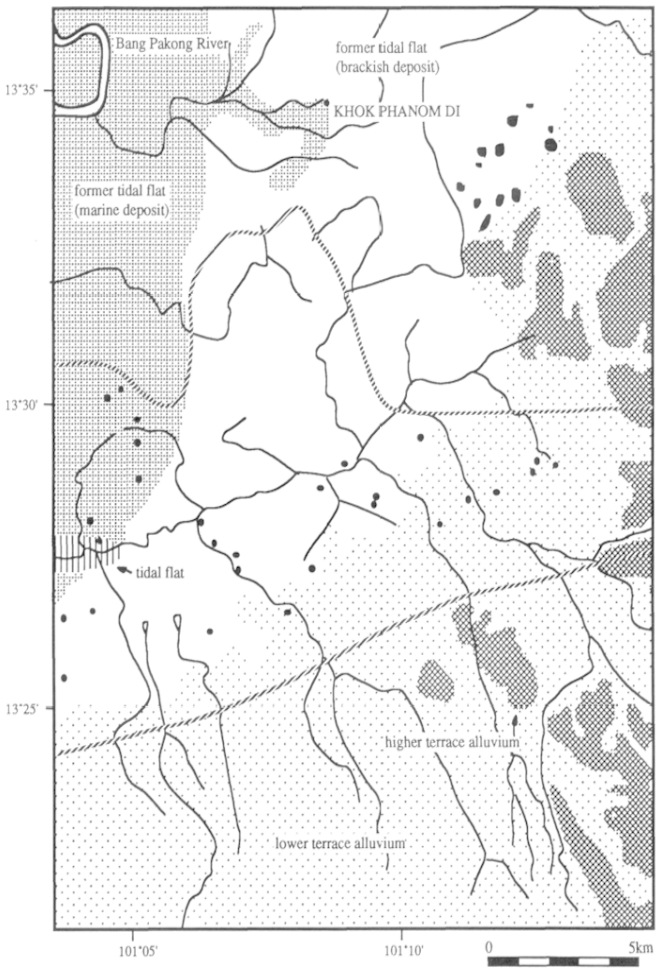

Fig. 5. The location at Khok Phanom Di and other prehistoric sites in the Bang Pakong Valley study area, shown in relationship to the distribution of soils. Only the area with the banded line has been intensively surveyed for prehistoric sites.
La localisation de Khok Phanom Di et d'autres sites préhistoriques dans la zone étudiée de la Vallée Bang Pakong mise en relation avec la nature des sols. Seule la partie délimitée par la ligne hachurée a fait l'objet d'investigations poussées dans une recherche des sites préhistoriques.

Fig. 6. The stomach contents from burial 56 are visible within the pelvic area. They comprise fish bones and scales.
Le contenu de l'estomac du défunt enterré dans la tombe 56 tel qu'il apparaît dans la région pelvienne. Il comprend des arêtes et des écailles de poisson.

The crabs, like many of the shellfish, are adapted to the mangrove and the mudflat habitat. Yet there are also some fish and shellfish remains which come from a freshwater environment. The same general conclusions have been reached by West[9] in her analysis of the bird bones. These include ibis and spoonbills which frequent swamps and mangroves, the Sarus crane which prefers swamps and marshes, as well as the Oriental darter, which feeds in sheltered tidal habitats.

Subsistence

While these species illuminate the environment when the site was occupied, they also inform us on the diet. This was clearly reliant upon naturally-replenished marine resources. There are abundant remains of shellfish, particularly the bivalve *Anadara*, fish, crabs and turtles. Two burials contained the stomach contents, which comprised rice, small fish bones and fish scales (fig. 6). Land mammals were very rare, and included deer, macaque, langur and pig. Rice remains were present from basal layers. They were found as chaff fragments in the cultural layers, as impressions on clay adhering to the outer surfaces of pottery vessels, rarely as a temper in pottery and although they have not yet been analysed, rice chaff has been observed in faecal remains. Whether the rice was cultivated or collected wild, or indeed both, has not yet been resolved, although Jill Thompson[10] is engaged in the analysis of the rice and other plant remains recovered. Some information on this aspect of the subsistence, however, will be considered below in the following review of the material culture.

The Material Culture

As might be expected, the assessment of the subsistence is enhanced by a consideration of the technology. It is first noted that no evidence for metal has been found at the site. Cutting implements were made of stone or shell. In terms of implements which might have been used in agriculture, we find a considerable number of stone adze heads[11] (fig. 7). One of the most obvious characteristics of the assemblage is the re-sharpening and re-forming of adzes when they fractured. This finding must be considered in the light of the source of the stone. There were several possible sources, all of which were exotic to the lower Bang Pakong Valley (fig. 8). The principal rock types identified for adze making were volcanic siltstone and andesite. The distance to the sources of these rocks from Khok Phanom Di is compatible with both exchange and an element of difficulty in their acquisition. Very few were founds as grave goods, and nearly all had been used, some to the limits of their usefulness.

There were also several heavy implements fashioned from leucogranite and described as hoes. These, too, are made from a stone which is exotic to Khok Phanom Di, the most likely source being about 45 km to the south. There are also a series of sandstone grinding stones and pounders which Pisnupong feels might have been used in the preparation of rice. These, too, are exotic, the available sources being up to 140 km to the north.

Apart from shell jewellery and pottery, the most abundant artefact type found was a shell knife, fashioned from the

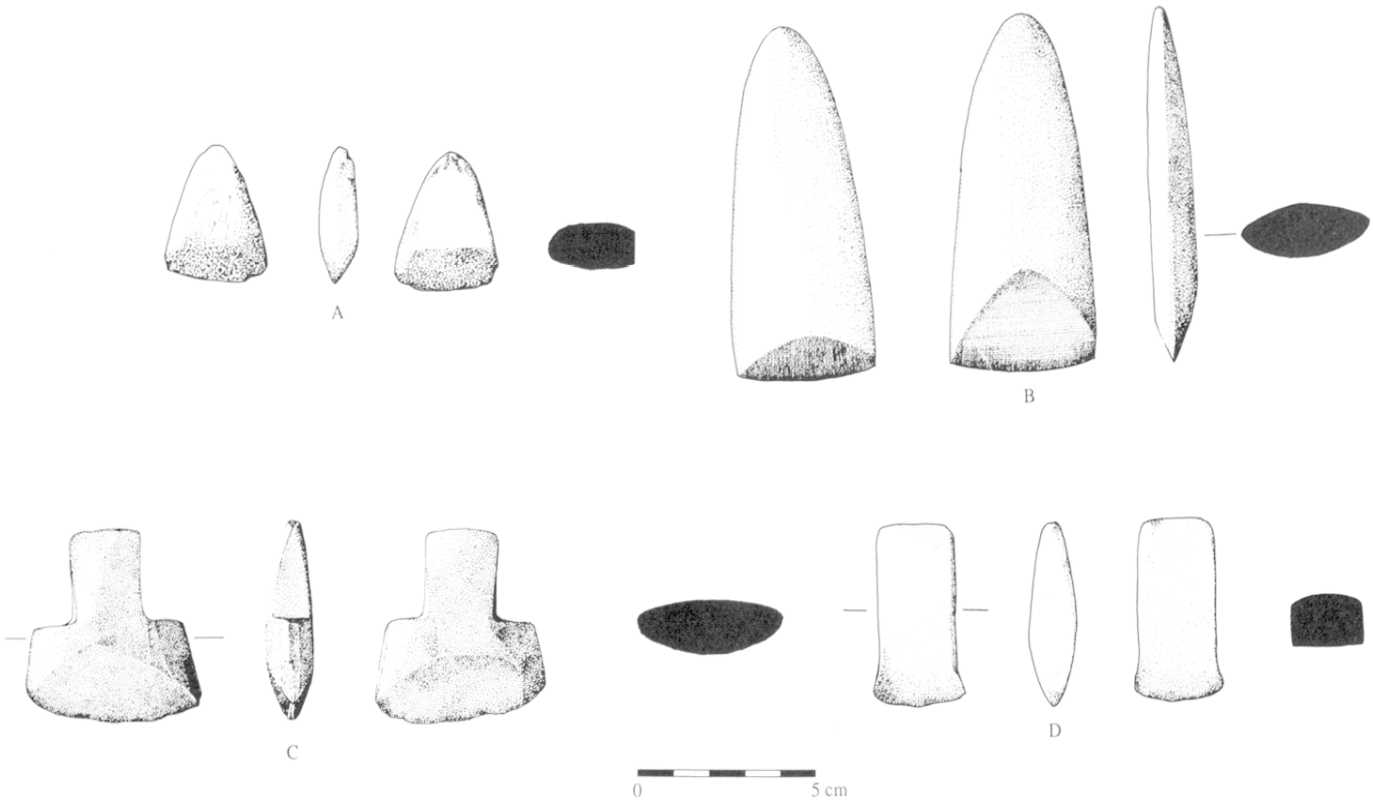

Fig. 7. The adzes from Khok Phanom Di. Top left : layer 9, top right : layer 10, bottom left : layer 11, bottom right : layer 11.
Herminettes provenant de Khok Phanom Di. En haut à gauche : niveau 9, en haut à droite : niveau 10, en bas à gauche : niveau 11, en bas à droite : niveau 11.

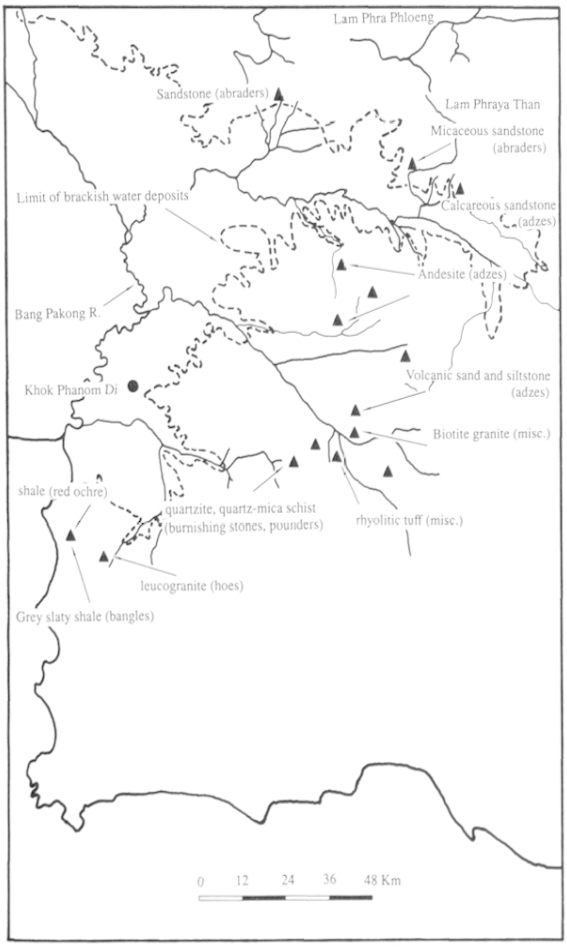

Fig. 8. Map showing the location of the sources of stone used at Khok Phanom Di.
Carte de localisation des ressources minérales utilisées à Khok Phanom Di.

freshwater bivalve *Pseudodon inoscularis* (fig. 9). These have a concave cutting edge, ground by a sandstone abrader. Thomas Higham[12], who has undertaken the analysis of these implements, has noted their occurrence in all but the uppermost metre of deposit. In his analysis, he was able to exclude virtually all likely functions other than harvesting rice. The knives were fashioned from a freshwater bivalve, of a species which would have been adapted to the same habitat as the rice plant itself.

Apart from the rare occurrence of a fish hook in association with a burial, all the bone fish hooks were found in non-mortuary contexts in layers 11 and 10. This does not imply that fishing declined in significance, rather that the build-up of layers 2-9 resulted from different activity patterns than those in the lower horizons at the site. Clay netweights and possibly the bone harpoons also represent fishing activity (fig. 9).

There is a group of bone artefacts having several features in common. They have a clear curvature, the convex side being described as the lower, and the concave surface being called the upper, surface. The contour of the lower surface is continuous to the working edge, whereas the upper surface has a slight facet. Each of the two surfaces at the sharpened or working end bears a high gloss reflecting repeated rubbing across a resilient medium

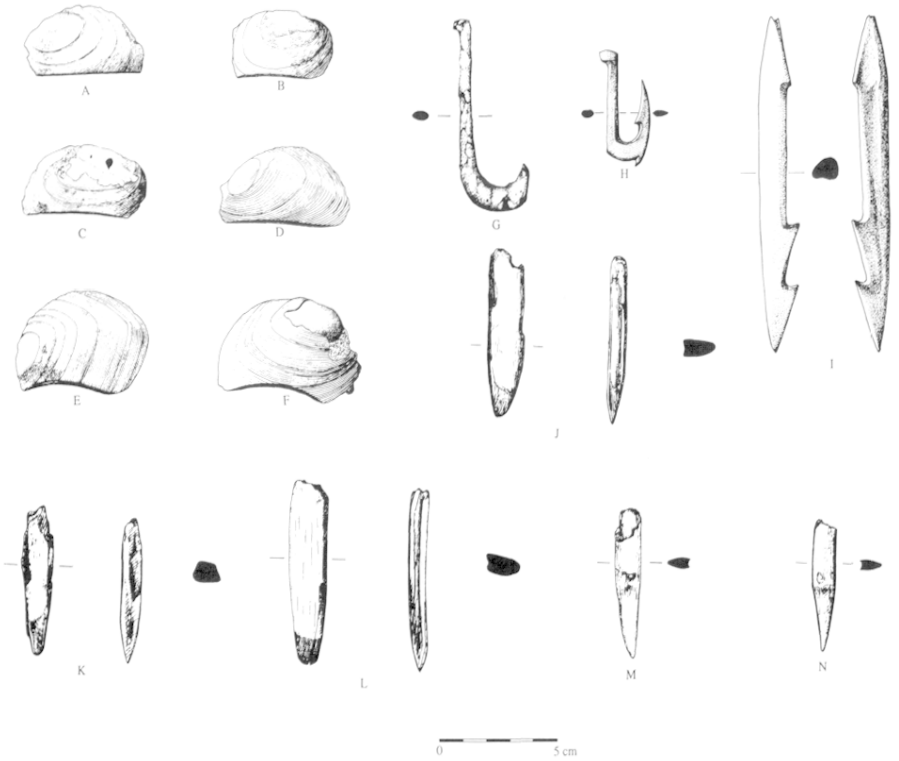

Fig. 9. Khok Phanom Di material culture :
A-F : shell harvesting knives,
G-H : bone fish hooks,
I : bone harpoon,
J-L : bone bobbins,
M-N. : bone awls.
La culture matérielle de Khok Phanom Di :
A-F : couteaux en coquillage pour la moisson,
G-H : hameçons en os,
I : harpon en os,
J-L : bobines en os,
M-N : perçoirs en os.

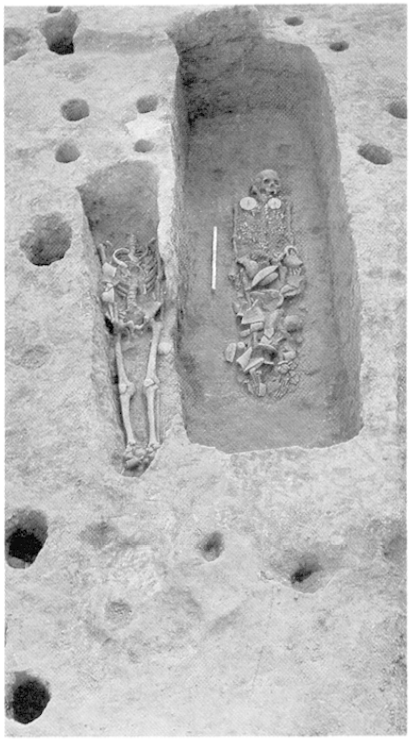

Fig. 10. Burial 15, that of an adult female, was by far the richest and largest encountered at Khok Phanom Di. The shallow grave of a headless male is seen to the left.
La tombe 15, celle d'une femme adulte, était de loin la plus riche et la plus grande de Khok Phanom Di.
A gauche, on aperçoit la tombe peu profonde d'un homme sans crâne.

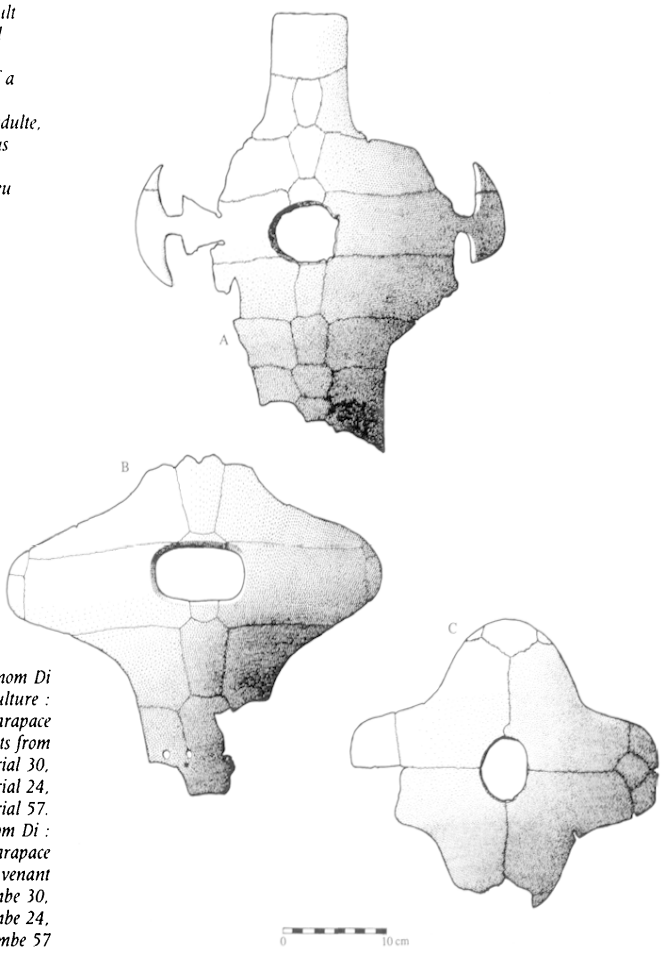

Fig. 11. Khok Phanom Di material culture : the turtle carapace ornaments from
A : burial 30,
B : burial 24,
C : burial 57.
Culture matérielle de Khok Phanom Di : ornements en carapace de tortue venant
A : de la tombe 30,
B : de la tombe 24,
C : de la tombe 57

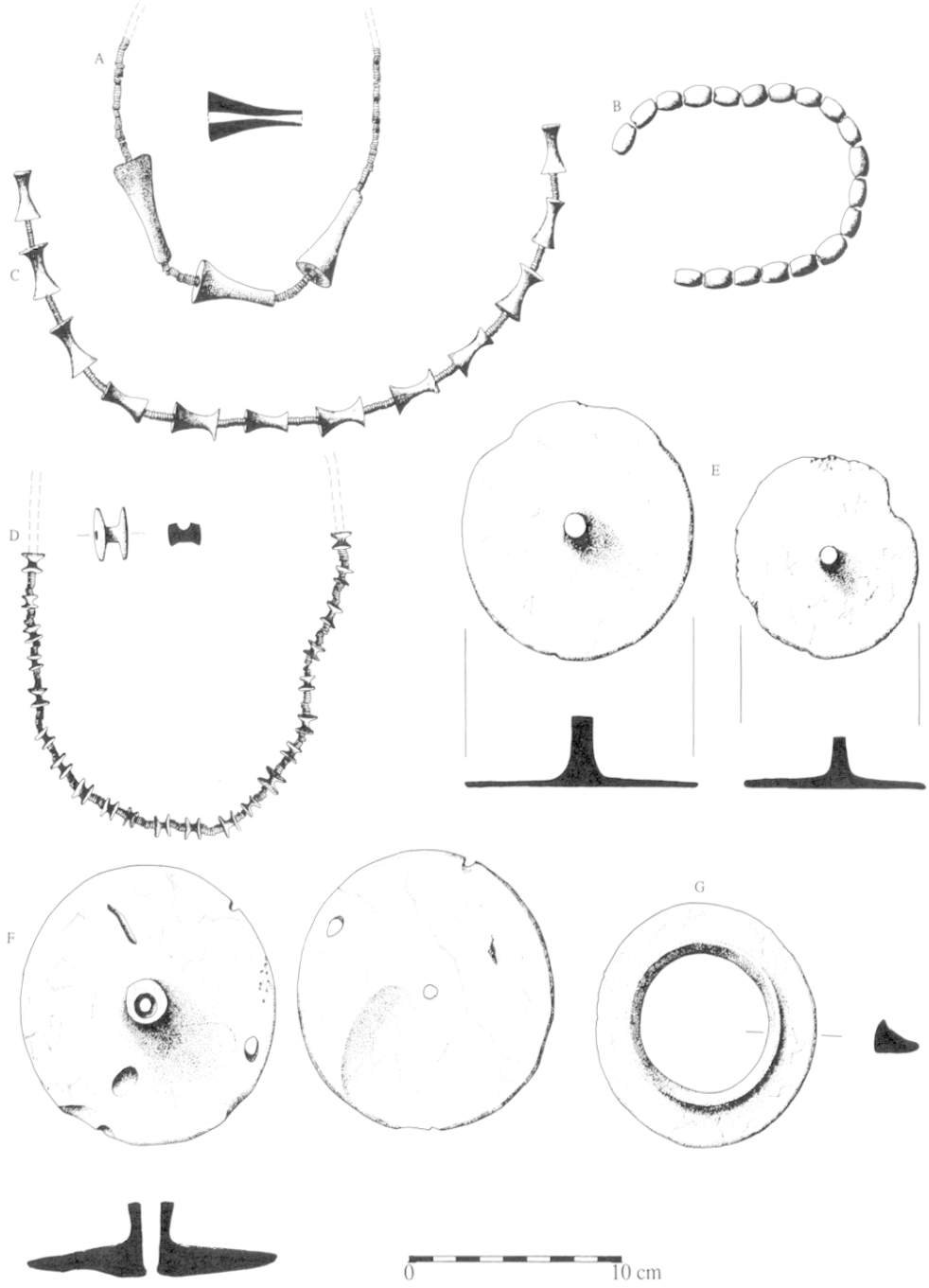

Fig. 12. Khok Phanom Di material culture : shell beads from
A : burial 132,
B : burial 90,
C : burial 33,
D : burial 6,
E : shell discs from burial 15,
F : shell discs from burial 6,
G : shell bracelet from burial 15.
Culture matérielle de Khok Phanom Di : perles en coquillage venant
A : de la tombe 132,
B : de la tombe 90,
C : de la tombe 33,
D : de la tombe 6.
E : disques en coquillage de la tombe 15,
F : disque en coquillage de la tombe 6,
G : bracelet en coquillage de la tombe 15.

(fig. 9). A recurrent characteristic of this particular class of artefact is the presence of a carefully cut " U " shaped groove down one side. In some cases, the edges of the grooves bear polishing which suggests that some substance was repeatedly run across them. In the better preserved examples, there are also clear polishing lines within the groove itself, which run as straight parallel lines along the length of the artefact. There is also some polishing present on the body of the artefact. This indicates that it is unlikely that the implements were hafted because this would have ruled out the polishing marks on the edges of the groove, which extend over the complete length of the groove, and on the body of the artefact. Clearly, however, the sharpened facets received the most intensive contact with the medium which imparted the bright gloss to the surface of the bone. In one case, a hole had been bored through the base, though there was no clear indication of wear within it. Some of these implements are very slightly waisted at the base as if, with time, a depression has been worn due to the narrow filament being tied there. Indeed, it is held probable that we are dealing with bobbins used in weaving. Similar but smaller artefacts are interpreted as awls.

Shell was the dominant raw material employed in the manufacture of jewellery. Pilditch[13] has concluded that by far the commonest item was the small disc-shaped bead. There is a typological succession of other varieties of shell bead, beginning with the funnel and barrel-shaped varieties in the earlier burials, then changing to an I-shaped bead in the later part of the sequence of burials, and concluding with the H-shaped bead (fig. 12). Two particular issues require resolution. The first is whether some or all the shell jewellery was obtained through

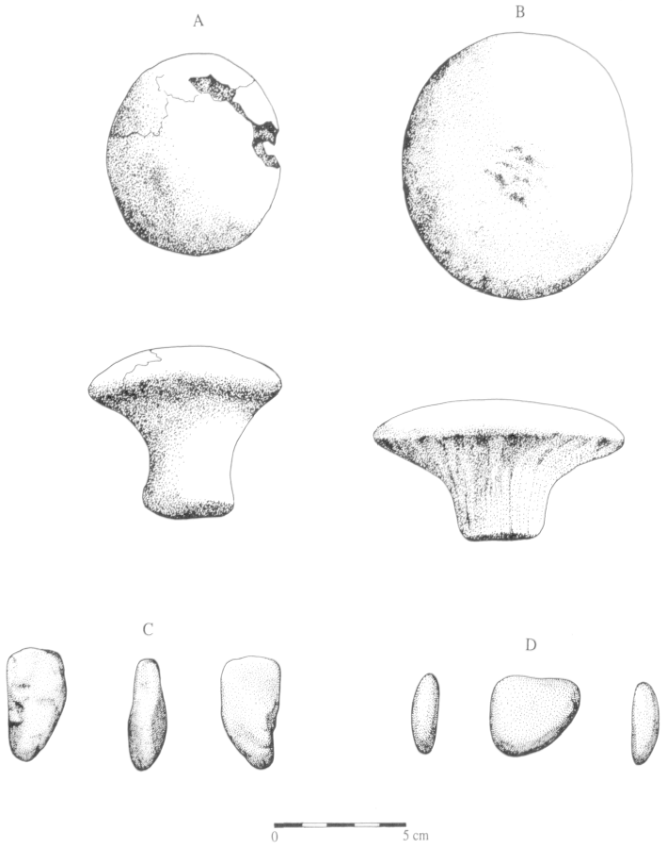

Fig. 13. Khok Phanom Di material culture. A : clay anvil from burial 33, B : clay anvil from layer 10, C-D : burnishing pebbles from burial 91.
Culture matérielle de Khok Phanom Di, A : tamponnoir en argile de la tombe 33, B : tamponnoir en argile du niveau 10, C-D : galets à polir de la tombe 91.

exchange. The alternative is the degree to which it was locally made. At present, the employment of trochus and tridacna shell is attested, and cowrie shells were found in some graves. Since our understanding of the environment does not include the clean coraline sand which those species inhabit, it seems plausible that much of this jewellery was indeed exotic. Shell was also used in making other objects of display. We find bracelets, large discs (fig. 12) and, in one instance, probable components of a head dress. After the sea level receded and no more burials were encountered, shell jewellery became rare, but many fragments of bangle were found made of an exotic grey slaty shale.

Khok Phanom Di was a centre for the manufacture of pottery. Vincent, who is the project ceramicist, has reported that the mortuary vessels from the site are masterpieces[14]. From the earliest layers to the latest, we find the clay anvils used to shape vessels. Some of the burials, and most of the general layer contexts, have yielded quartz pebbles (fig. 13). Moore[15] has noted that, of a sample of about 300, 16 % were found in graves. She found that most have wear facets bearing fine striations. These she replicated after running a modern equivalent over green-hard clay for five hours. The same wear pattern was also noted on similar pebbles collected from northern Thailand, and still in use burnishing pottery. Her conclusion, which is virtually inescapable, is that these pebbles were used for imparting the burnished surface to pottery. One pair of pebbles, placed in a *Geloina* valve, were found together with a clay anvil near the right ankle of the burial 15, the richest encountered (fig. 14).

This same burial, that of a woman aged about 35 years at death, also contained a heap of roughly formed cylinders of unfired clay. These had been placed over the body, and are interpreted as the remains of an early stage in the shaping of individual pots. They are abundant in the post-cemetery context, where they ring a clay dump and lie in association with clay anvils as part of a pottery-making facility. One feature of Khok Phanom Di is that the edges of the mound rise up from the centre, almost like walled ramparts. Inspection of a cross-section of these " walls " shows lens upon lens of ash and pot sherds, while at each margin is a solid deposit of large sherds. These are interpreted as successive bonfire firings of the vessels, with wasters being dumped at the edge of the firing area.

Vincent's preliminary findings are that most of the clay used was of local origin, but that there are exotic fabrics in the occupation as in the burial vessels. For an intensive pottery-making centre, there are relatively few pots from mortuary contexts, with an overall average of just under one pot per grave. Yet the vessels selected as mortuary offering are outstanding pieces of work, and display a wide range of both forms and decorative motifs (fig. 15). Burnishing, together with the incision of geometric patterns, was the preferred means of decoration. Some vessels are round-based, some pedestalled and others had tripod legs. It is not unusual to encounter burials with sets of pots, those for a child being similar in shape but smaller in size when compared with those in adjoining adult graves. The significance of the pottery industry will be further considered after a review of the mortuary data.

The People of Khok Phanom Di

Choosiri[16] has recently completed an analysis of the basic biological and demographic profile of the people of Khok Phanom Di. She has found that the males had an average stature of 163-173 cm (n=30) and the females, 154-163 cm (n=36). This range does not differ markedly from estimates from Ban Chiang, Ban Na Di, Non Nok Tha and Ban Kao. The average age of death at Khok Phanom Di for females is 29 years and for males, 27.4 years. The life expectancy for other Thai sites, based

Fig. 14. Khok Phanom Di material culture : the burnishing pebbles and clay anvil found at the feet of burial 15.
Culture matérielle de Khok Phanom Di : les galets à polir et le tamponnoir en argile trouvés au pied de la tombe 15.

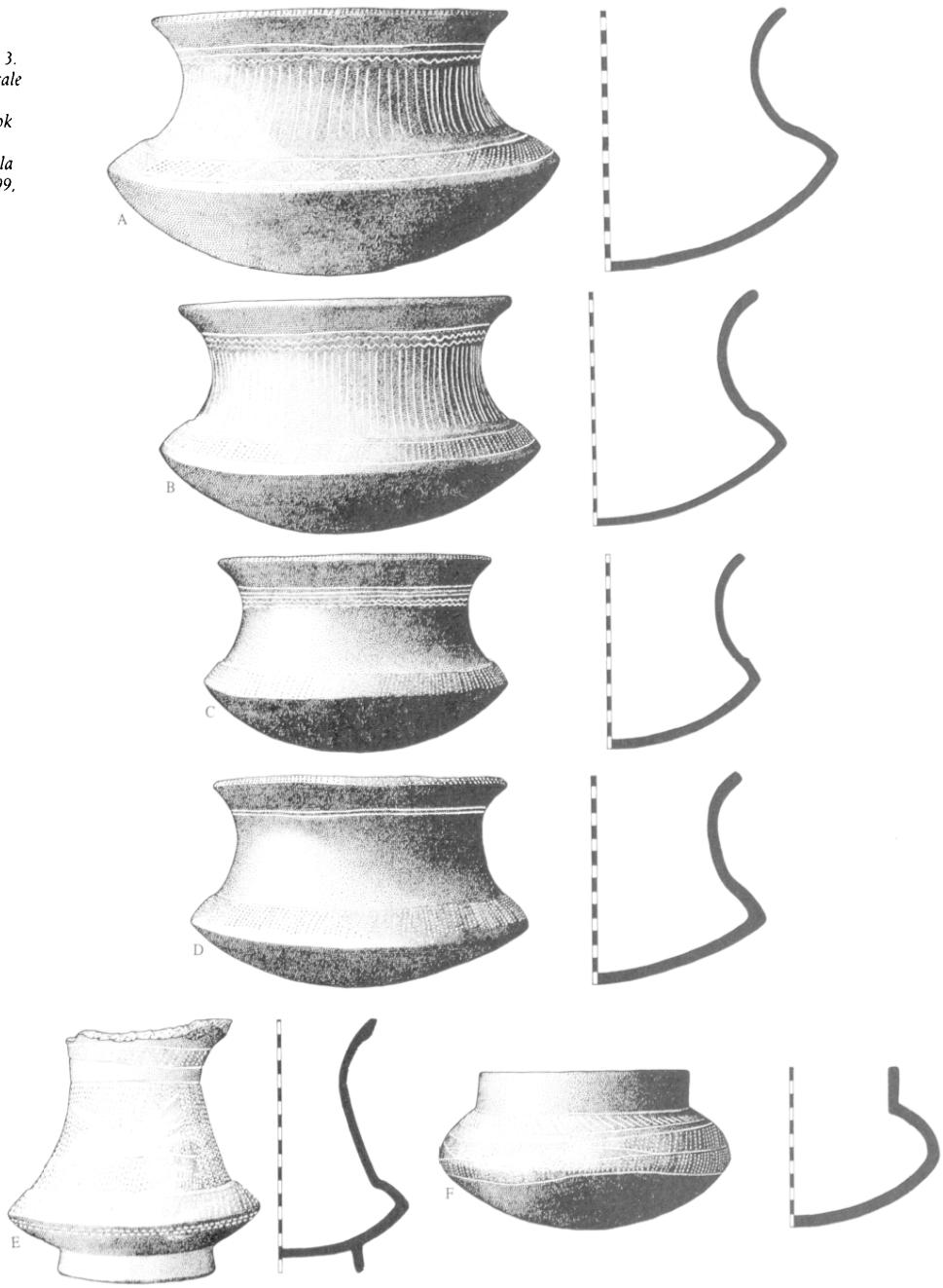

Fig. 15. Some of the mortuary vessels from Khok Phanom Di. A-B : burial 93, cluster C mortuary phase 3. C-D : burial 90, cluster C mortuary phase 3. E-F : burial 99, cluster F mortuary phase 2. The scale is in cm.
Quelques uns des vases funéraires provenant de Khok Phanom Di. A-B : de la tombe 93, de la phase funéraire 3 du groupe C. C-D : de la tombe 90, de la phase funéraire 3 du groupe C. E-F : de la tombe 99, phase funéraire 2 du groupe F. L'échelle est en cm.

upon the sample of sexed individuals, is 30 years for Ban Kao (n=28), 25.2 for Non Nok Tha (1966 excavation), n=64 and 32 for Ban Na Di (n=32). One approach to assessing the adequacy of the diet is to compute Nordin's score[17]. This is based upon the cortical thickness of the 2nd metacarpal. In her analysis of Nordin's score in the Khok Phanom Di sample, McGill[18] has shown that the average for the 21 available males was 59.9. This compares with mean figures of 57.8 for a sample of 58 Norwegian lumbermen, 58.5 for Finnish city dwellers and 63.0 for Finnish farmers. The mean for 22 females from Khok Phanom Di was 55.7, which is less than the equivalent figure of 63.0 for modern British women. Her overall conclusion is that the people of Khok Phanom Di were well nourished, that there is no instance of malnutrition, and that there was no change in the adequacy of nutrition through time.

The mortuary data and social organisation

The distribution of human interments at Khok Phanom Di, both in terms of chronology and spatial distribution, must be appreciated within the context of the overall stratigraphic build-up before proceeding with a consideration of social organisation. Part of the mortuary ritual involved the cutting of a grave. Clearly, it is important to identify the layer from which the grave was cut, in order to place graves in a relative sequence. At Khok Phanom Di, the survival of prehistoric stratigraphic contexts was so consistently good that it was nearly always possible to recognise an interment from the grave silhouette long before the human remains themselves were encountered. We therefore know that the earliest grave at the site was cut at a depth of 6.51 m, and the latest was recognised at a depth of

Fig. 16. Khok Phanom Di cluster F stage mortuary phase 2. From left to right, burial 91, male, burial 113, a female who bore 2-3 children and burial 99, a 7-8 month old infant. Note how the placement of the pottery vessels of the female and infant match each other. The infant's vessel is a miniature version of that accompanying the adult. Khok Phanom Di, phase funéraire 2 du groupe F. De gauche à droite, tombe 91, homme ; tombe 113, femme qui eut 2 ou 3 enfants ; tombe 99, enfant de 7 à 8 mois. Remarquer la similitude de la position des vases en terre cuite de la femme et de l'enfant. Les vases de la sépulture de l'enfant sont une version miniature de ceux de l'adulte.

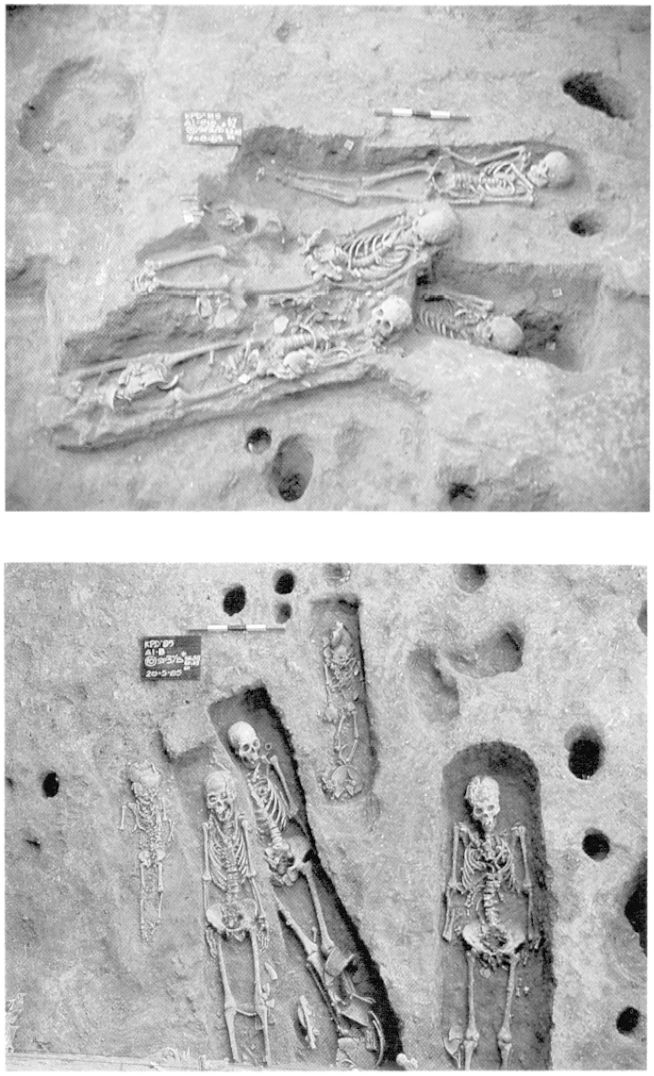

Fig. 17. The concentration of burials within clusters is seen by these two views : a. cluster C, b. cluster F during mortuary phase 3.
Concentration des tombes au sein des groupes : a. groupe C, b. groupe F pendant la phase funéraire 3.

1.20 m below datum. Human inhumation burials, therefore, cover the period during which 5.31 m of cultural deposits accumulated. Only very rarely did any of the 154 *in situ* burials intercut and disturb earlier ones.

Even during the excavation, it became evident that the distribution of burials was far from random. Indeed, interments were encountered in clear spatial relationships to others. This is clearly apparent by an inspection of Figs. 18 to 24. During the build-up of deposits comprising our Zone A (layers 10-11), burials were distributed in nuclei which we have designated " clusters " (fig. 16). In Zone A, we have clusters A to G. These clusters comprise burials packed close to each other and distinguished from other clusters by space devoid of interments (fig. 17). Clusters A, C and F are defined by such open spaces. In the case of clusters B, D, E and F, however, interments were situated near the edges of the excavation square and there is a strong likelihood that other burials belonging to these clusters remain undiscovered.

During the build-up of Zone B deposits (layers 4-9), the mortuary ritual showed new developments. One of these was the preferred disposal of the dead in a row with no close proximity between individuals. This is clearly seen in fig. 23. Two women belonging to this period were interred under a raised structure. At the same time, the ritual attending the dead also evolved. While graves still pointed towards the east, there was an elaboration of structures built over groups of graves and an increase in the disparity between rich and poor sets of grave goods. There are two groups of graves set out in a row within this part of the sequence. They are known as clusters H and I. There are also groups of two or three burials set apart from all other burials found at the site. The first comprises Bs. 14, 15 and 16. These are splendidly rich and elaborate interments (fig. 22). Secondly, there are the three burials associated with the raised structure (Bs. 6, 18 and 19, fig, 23).

In terms of cultural variables, then, we have recognised 11 groupings, designated in the main by the prefix " cluster ". There is also the chronological variable, which has made it possible to sub-divide these clusters into sequential groups. On this basis, we have recognised seven successive so-called " Mortuary Phases ", abbreviated below as " MP ". When we examine the fine details of the stratigraphic succession of burials within each of the culturally and spatially defined clusters, it is

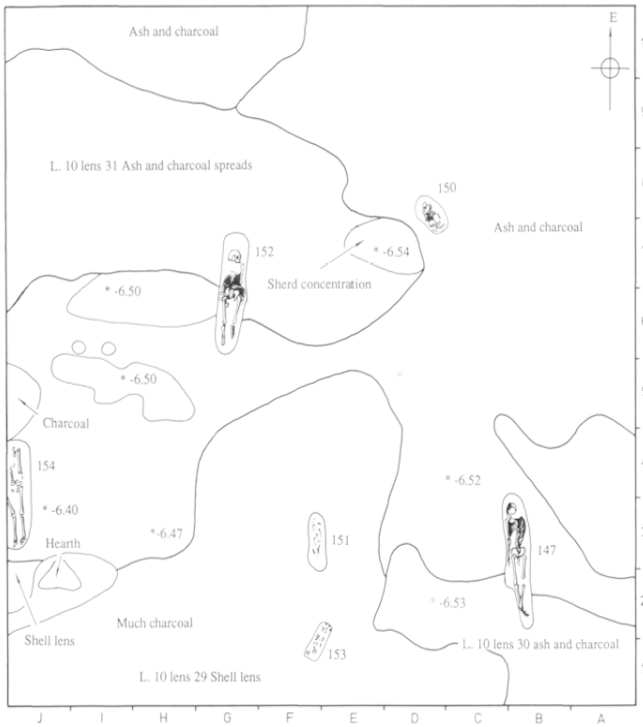

Fig. 18. The burials belonging to mortuary phase 1. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 1. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

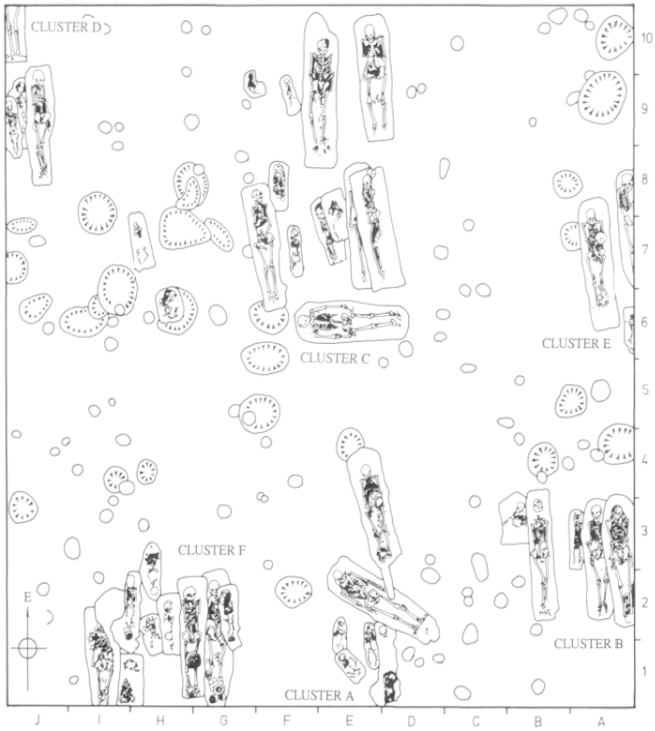

Fig. 19. The burials belonging to mortuary phase 2. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 2. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

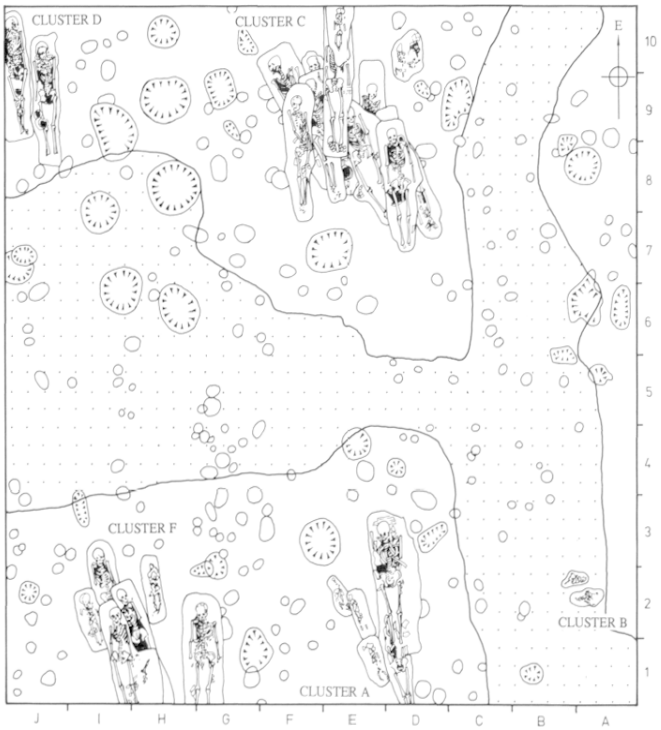

Fig. 20. The burials belonging to mortuary phase 3. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 3. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

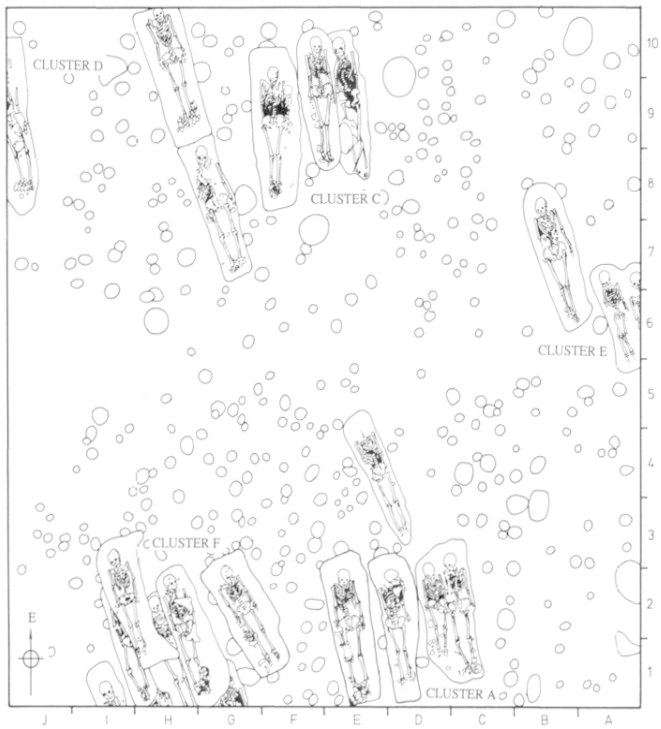

Fig. 21. The burials belonging to mortuary phase 4. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 4. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

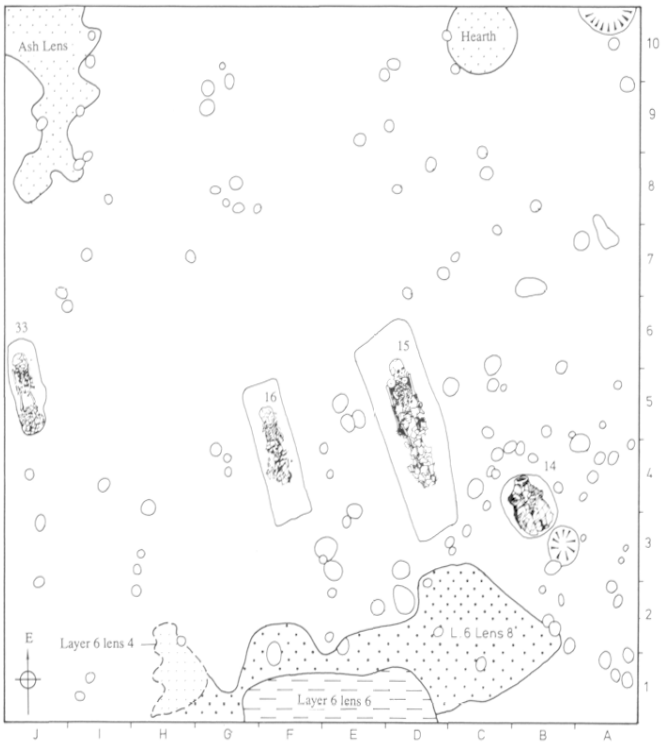

Fig. 22. The burials belonging to mortuary phase 5. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 5. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

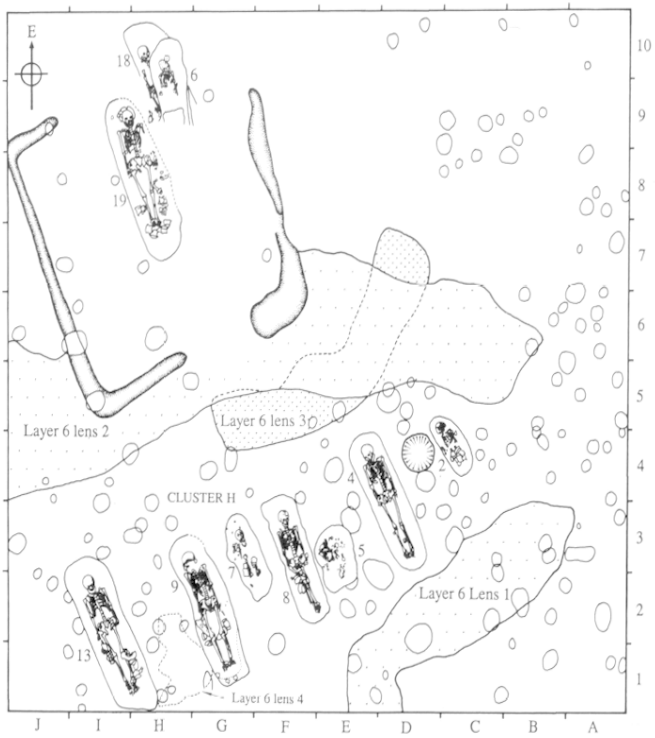

Fig. 23. The burials belonging to mortuary phase 6. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 6. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

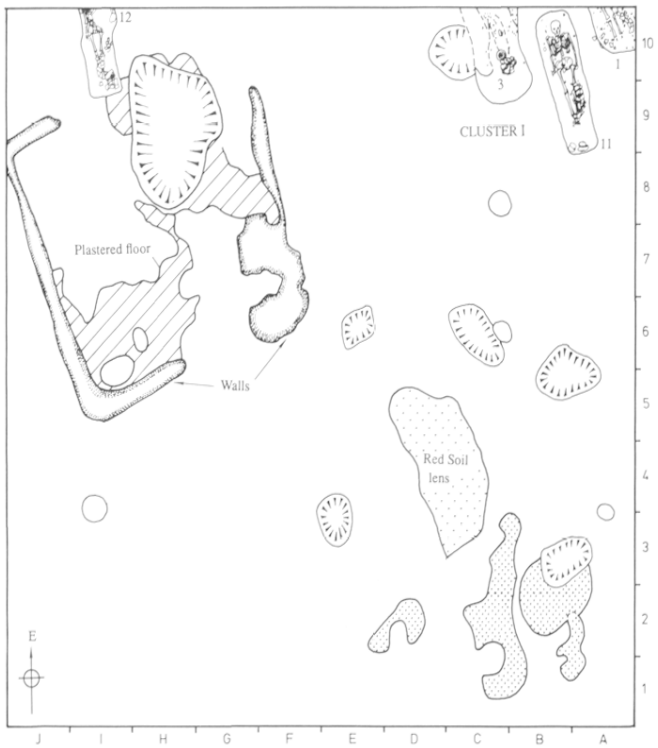

Fig. 24. The burials belonging to mortuary phase 7. Pits are hachured. Postholes or areas of disturbance are unfilled. Scale in m.
Les tombes appartenant à la phase funéraire 7. Les fosses sont hachurées. Les trous de poteau ou les zones qui ont subi des bouleversements sont laissés en blanc. Echelle en m.

evident that small numbers of individuals were buried *as a group*, to be followed in many instances by further small groups. At times, the hiatus between the burial of a small group was brief, almost imperceptable. At other times, the hiatus was quite lengthy, measured in terms of the build-up of intervening deposits, but the subsequent return to burial activity unswervingly brought people back to the same place to make their interments. It is concluded that the occupants of the site were well aware where their ancestors were buried. Only very rarely indeed were earlier graves disturbed by any form of excavation, be it pits, postholes or further graves.

The sub-division of clusters into successive burial events has been recognised with the term " stage ". In the case of cluster C, there are ten such stages. For cluster B, there were only two. The inter-relationships between these clusters, with their component stages, are set out in fig. 25.

Mortuary Phase (MP) 1 incorporates the six earliest graves, which show no clustering. Clusters A-G belong to MPs 2-4, while the interments belonging to MPs. 5, 6 and 7 provide marked changes. MP 5 incorporates a handful of outstandingly rich individuals. MP 6 involves the three burials found associated with a raised structure and cluster H, which lies in front of the building. It is, however, proposed below that it is possible to link burials belonging to MPs. 5 and 6 with the preceding clusters C and F. Finally, MP 7 comprises the few interments assigned to clusters I and the isolated B. 12.

These burials were placed in conjunction with a wide range of other activities, including the deposition of middens, build-up of ash lenses and the cutting of pits. The interpretation of the mortuary remains can only be made effectively in the context of

these associated deposits. In brief, it is held that the middens and some of the pits reflect mortuary feasting.

In considering the human burials from Khok Phanom Di, it has already been observed that individuals were laid out in clusters, and that some of these clusters were added to over about 400 years. Discontinuities in mortuary behaviour are recognised in the ascription of burials to one of seven successive mortuary phases. The transition from MPs. 1-2 was signalled by the commencement of clustering graves together, for during the former, the few burials encountered were interred with no apparent spatial relationship between them. Mortuary phases 2, 3 and 4 are separated only because of either an apparent hiatus in interments, or a particularly rapid period of deposition giving the impression that burial activity in this part of the site ceased. Mortuary phases 4, 5, 6 and 7 are distinguished from each other by distinct changes in behaviour. Thus, MP. 5 comprises four outstandingly rich burials. MP. 6 sees two groups of burials, one rich and the other poor in terms of artefacts buried with the dead. Mortuary phase 7 followed MP. 6 after an interval, and graves were found in another part of the site when compared with those preceding it.

Despite these clear differences in where and how the dead were buried with the passage of time, there remains a marked underlying continuity in their treatment. In nearly all cases, a grave was excavated, of a size sufficient to receive the corpse, and orientated such that the head faced in an approximately easterly direction. There are exceptions, but these are few. Burial 131, for example, faced due north and B. 100 was placed with the head 25° to the east of north. There may well be simple cultural reasons for these aberrations. Thus B. 100 just fitted between burials 143 and 110 by lying sideways.

Within its grave, the body lay on the back with the hands usually by the side and the legs straight. The legs were crossed at the ankles very rarely, as in B. 147. In some cases, a wooden bier has survived. It is evident that, in the majority of cases, the body was prepared first by covering it with red ochre. Some people at this stage wore items of shell jewellery, but bangles were also placed over the chest, or in the case of B. 16, over rather than on the wrist. In some cases, the survival of an unwoven beaten bark fabric (named tapa) discloses that the body with its accompanying pottery vessels were wrapped together in cloth to form a package before interment. There is recurrent evidence that graveside ritual included an activity which resulted in thin ash spreads. These may be the result of feasting, or of cleansing the ground prior to the digging of a grave. It is also considered likely that the digging of pits, some of which are almost perfectly circular and contain food remains, was part of the graveside ritual. In the case of cluster C during MPs. 2-4, for example,

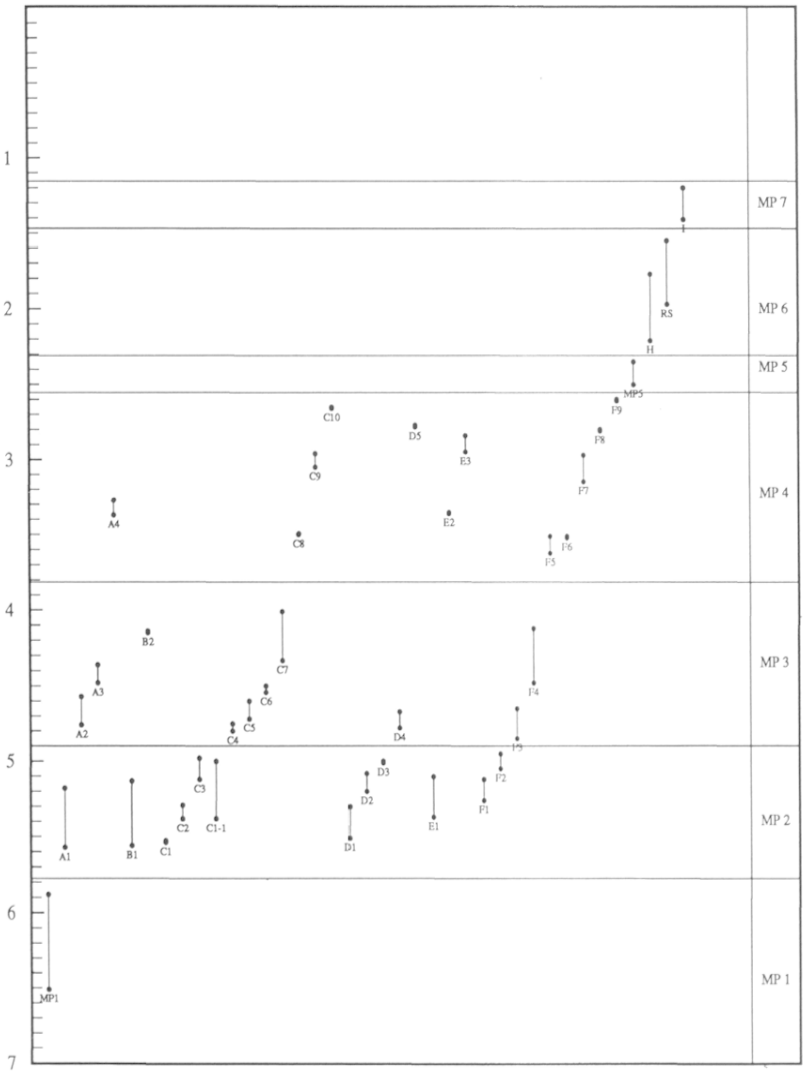

Fig. 25. The relationships between the clusters and stages of human interments at Khok Phanom Di. The left hand scale shows the depth below datum in metres. Abbreviations are as follows : the prefix A-I refers to the cluster and the number following is the stage within each cluster. RS refers to the burials under the raised structure. The right hand scale gives the sequence of mortuary phases.
Relations entre les groupes et les périodes d'enterrement des corps à Khok Phanom Di. L'échelle à gauche indique la profondeur donnée en m. Abréviations : les préfixes A-I font référence au groupe et le chiffre qui suit à la période correspondante à l'intérieur de chaque groupe. RS se rapporte aux tombes situées sous la structure. L'échelle, à droite, indique les différentes phases mortuaires.

Fig. 26. The layout of the graves for cluster H shows a linear pattern and regular spacing. The large graves for burials 16 and 15 are visible in centre left of this view across the excavation square.
La disposition des tombes du groupes H révèle une disposition en ligne et un espacement régulier. Les grandes fosses pour les inhumations 16 et 15 sont visibles au centre à gauche de cette vue de l'espace fouillé.

there are about as many pits as there are graves. The distribution of middens, in particular that known as lens 2 in layer 10, skirts the mortuary clusters in such a way as to suggest strongly that there was a form of structure over or round the graves. This likelihood is further supported for the earlier mortuary phases by the disposition of postholes, although it is conceded that no clear plan of such a structure has been identified. Some rows of postholes, however, apparently follow the same east to west alignment of the graves. The presence of structures in MP. 6 is beyond doubt. A raised structure has been found, while for cluster H, the posthole distribution again is strongly suggestive of a mortuary building. Throughout the mortuary sequence, graves were found in the vicinity of discrete midden lenses containing food remains. In virtually all cases, these middens present a complementary distribution to the grave clusters. It is not, at present, possible to be sure of the circumstances under with these middens accumulated, although the matching size of *Anadara* valves in some strongly suggests a single and brief phase of deposition. They could represent a normal accumulation of food remains built up during domestic activities. Quite how routine activities took place in the narrow spaces between mortuary clusters is hard to identify. It is also possible that the food remains represent mortuary feasting in commemoration of the dead ancestors. If this were the case, then the preparation of food close to the ancestral graves would be easier to explain. Neither alternative presents a consistently plausible explanation, because what might be regarded as implements used in day-to-day activities, such as fish hooks, net weights, shell knives and adzes are found in these deposits.

There is no uniformity to the quantity of grave goods interred with the dead. From the earliest to the latest burials, shell beads were present. Other grave goods include red ochre, bark cloth shrouds, pierced animal canines, shell beads of the disc, I, H, barrel, short barrel and funnel varieties, fish-bone bangles, shell bangles, bone ornaments, perforated shells, modified fish vertebrae, turtle carapace ornaments, adzeheads, burnishing pebbles, clay anvils, pottery vessels, cylinders of clay representing an early stage in the forming of pots and the remains of animals. Styles of pots and beads changed with time. So too did other aspects of the burial rite. With MP. 4, for example, more attention was given to providing individual graves spaced from adjacent burials. As time proceeded, graves tended to become deeper. Two rich graves were far bigger than was necessary to contain the body. With MPs. 5 and 6, the number of food middens was reduced in conjunction with the reduced number of burials. At the same time, the orientation of bodies was more precise. Manifestly with cluster H in MP. 6, bodies were carefully spaced : a gap of about 1 m was left between the adult graves (fig. 26).

In determining the social relationships which underlie this clustering of graves over a timespan of about four centuries, we have at our disposal an unusually clear relative chronology of

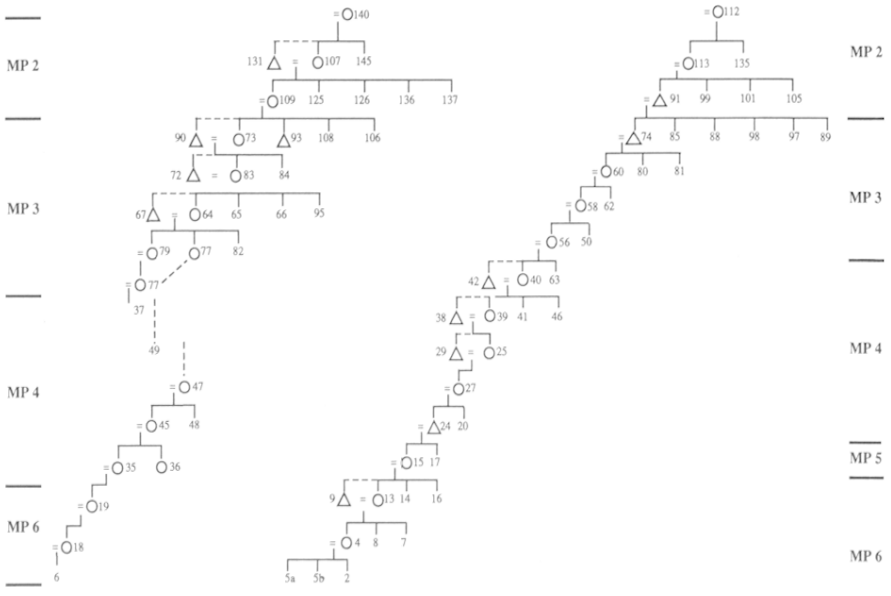

Fig. 27. The putative genealogies C and F from Khok Phanom Di. Males and females in the same stage are shown as either consanguinally or affinally related. Note how several generations towards the end of the sequence only comprise female. The genetic relationships are based on the presence of shared skeletal abnomalities.
Les généalogies présumées C et F à Khok Phanom Di. Hommes et femmes d'une même période sont indiqués, qu'ils soient liés par consanguinité ou par alliance. Remarquer que plusieurs générations vers la fin ne comprennent que des femmes. Les rapprochements génétiques sont basés sur la présence commune d'anomalies du squelette.

burials based upon the depth from which the grave was cut. In some cases too, more than one individual was interred in the same grave, or with the advent of MP. 6, in a row involving a horizontal stratigraphy. A question which poses itself, is whether or not the individuals interred collectively were affinally or consanguinally related. In order to consider this issue critically, two steps have been taken. The first was to take the two most durable clusters, numbered C and F, and sort them in terms of the sequence of interments into as fine a series of groups as possible. The second was to try and assemble the individuals into a genealogy (fig. 27). This mechanical procedure, reliant as it is on empirical observation of proximity in time and space, is but a prelude to a testing procedure which involves the identification of genetically determined bone anomalies. This analysis has been undertaken by Choosiri[16]. She has, for example, pointed out that burials 9 and 8, the former a 25-29 year-old male and the latter a 15-19 year-old male, share traits at the bregmatic bone which suggests a father-son relationship. The presence of vertebral column atlas bridging in burials 90 and 131 is also held to indicate a consanguinal relationship. The first six putative generations in cluster C also have a + pattern on the lower third molar whereas only one person at the same time in cluster F has this feature. These, and numerous other such examples, intimate that we are dealing with collective burial areas in which are interred up to about 20 generations. This time span is in accord with the chronology of this part of the site as determined by radiocarbon dates.

This interpretation opens the way to a more detailed analysis of social organisation between these groups, and through time. At this stage of our analysis, we have posed a series of questions, and the results will be briefly summarised. They are based on an extensive series of multivariate analyses. What we find is this. Until the end of MP. 3, there is no apparent difference between the treatment or wealth of adult males and females. Thereafter, males were distinguished by having ornate turtle carapace ornaments buried with them (fig. 11), but in clusters C and F, males became rare. From MP. 5, some females, and one in particular, burial 15, became exceedingly rich (fig. 10). Children and infants were usually treated in a similar fashion to the adults with whom they were interred, rich with rich, and poor with poor, except that there is no case where more than three presumed generations within a cluster were unusually well endowed with grave goods. Only some adult women and children were associated with clay anvils for pottery shaping, but some males were found with pebbles used in burnishing pots. All clusters contain some people buried with pottery-making implements. Increasing age was not matched by increasing wealth in terms of grave goods, except that it was usually the case that only infants over 2 months of age were buried with offerings. Among the principal observations was that, within any given cluster, wealth expressed as grave goods oscillated with time within and between presumed family groups.

In terms of time, MP. 1 saw no apparent clustering at all. The dead were buried within occupation remains. During MPs 2-4, there were clusters of burials placed over each other with time, associated with pits and food remains representing mortuary feasting. Each cluster had its own wooden structure round it. With MP. 5, cluster F attained great wealth expressed in the burial of an adult woman and a child, but their successors were less successful as the cluster C group attained wealth, being buried under a large mortuary structure.

Interpretation of the mortuary record

It is suggested that the sedentary occupants of a central estuarine location used the same cemetery over a period of about 20 generations. The radiocarbon chronology indicates a rapid build up of cultural deposits, and a timespan of 4 centuries for the 20 generations is in harmony with the radiocarbon dates which have been obtained. The mortuary data are compatible with several plausible interpretations. Only the preferred one will be described below.

This interpretation begins with four assumptions.

1. That where a person was buried was a matter of importance.
2. That the stages in each cluster reflect family groups or at least individuals more closely related to each other than most of the individuals buried in other clusters. This qualification acknowledges the possibility that brothers or sisters might be present in different clusters following marriage. Males and females buried contemporaneously are likely to have been affinally or consanguinally related than not related at all.
3. That the objects interred with an individual, and particularly shell jewellery, reflect in some measure the status of the deceased.
4. That the pattern of burials might reflect the presence of a descent group as defined by Keesing[3]: "a kin group whose membership is based on a rule of descent".

This interpretation begins by stressing the continuity of the basic mortuary rite, the shared genetic markers over the generations and mutilation by tooth evulsion being seen as indicators of a basic continuity. The scattered and relatively few graves belonging to MP. 1 are interpreted as the founding population. These people may well have brought with them the well-used adzes found cached at the base of the cultural deposits, and were familiar with pottery making and decoration by burnishing. After the first one or two generations, nucleated and formal disposal areas were demarcated. We encounter 6 in the area excavated. Each has yielded adult males and females as well as infants. These disposal areas were regularly spaced in a grid-like pattern. While pots were probably locally made, some of the shell beads are considered more likely to be exotic. It is held that each cluster represents generations of families, and that the clusters as a whole were linked by common descent from an ancestor or ancestral group.

Status indicated by the quantity of shell ornaments and pottery vessels was by no means confined to one family group. Rather, is oscillated between them. Cluster E contained a very rich male. Just later, cluster F included two or three generations of rich adults, whose wealth was expressed too through their children. But this status was not maintained through more than two or three generations. Cluster C during early MP. 3 went through 2 generations of relative wealth while cluster F was poor. While some families advertised status through rich endowments to their dead infants, there was no permanent inherited status. Rather, status was obtained through individual prowess or skills. Each cluster during this early stage includes individuals buried with the burnishing stones used to decorate pots. One such skill may well have been in the field of ceramics.

While the maintenance of formal disposal areas for the dead, increasingly placed over the graves of the ancestors, continued during MP. 3, we can detect changes. Some families ceased to be

represented. If this reflects something more than the effect of sampling only a 10 by 10 m area, it could have resulted from the extinction of a particular family through high infant mortality, or the fissioning of a family to found another settlement. The despatch of a surviving member of a family as a marriage partner to another settlement is a third alternative. There is also no clear-cut continuity within, for example, cluster A. Whereas during the same period cluster C presents 3 generations, cluster A has one or two, followed by a hiatus of some length before the next interments. In this case, we can examine the likelihood that a family had no direct descendents. Thus, the woman in B.110 bore 2-3 children. She was buried close to 4 infants. If they were her offspring, then there is little possibility that this particular family produced immediate descendents. In this case, it is possible that later interments in cluster A represent the use of this designated burial area by a more distantly related family.

The two enduring lines were clusters C and F. We encounter a change in both, to a predominance of adult females. For cluster C, females and infants were now found to the exclusion of males. Females outnumbered males in cluster F. It is suggested that this represents the stressing of matrifiliation. Under such a system, males may have been introduced into it as marriage partners from other settlements and returned there for burial, or males from a more distantly related group at Khok Phanom Di itself may have been introduced into clusters C and F and then returned to their own mortuary area for interment. Two females interred in the same stage could then represent a mother buried with her adult daughter, or her sister. The extreme rarity of shell jewellery during this phase could represent a dislocation in established exchange relationships. Or, if males were no longer economically prominent as the women increasingly dominated through their pottery-making skills, and brought into the community as marriage partners, it is possible that husband-wealth payments expressed in shell jewellery moved out from Khok Phanom Di. It may be that at the stage where men were less prominent and the role of women was increasingly important, males wore elaborately ornamented turtle carapaces as emblems of masculinity (fig. 11).

Whichever interpretation is followed in accounting for the increasing rarity of males and shell jewellery during MPs. 3-4, there is no doubting the profound change which occurred with MP. 5. At the end of MP. 4, representatives of the cluster C and F lines were still interred over their ancestors, but increasingly displayed a matrifilial bias. With MP. 5, a female in cluster F achieved unprecedented wealth. The status of the woman buried in B. 15, displayed through the size of the grave and the splendour of the offerings, is mirrored by that of two infants interred nearby. She was buried next to a shallow grave containing a headless male. Her two shell discs are a new and rare form of artefact which is seen as a high status symbol (fig. 12), while her anvil and burnishing stones again draw our attention to the role of the master potter in this community (fig. 14). It is suggested that, after a period of competitive emulation between two groups represented by clusters C and F, the latter achieved high rank in the person of this woman. Whether she was uniquely accorded high status and rank is not known. It may be that she was not alone because at the very edge of the eastern side of the excavation, we encountered the grave of a male which, while not as rich as B. 15, was still endowed with 56,200 disc beads, 418 I-shaped beads, a shell bangle, turtle carapace ornament and pottery vessel.

There is certainly no evidence that the high status accorded the woman in B. 15 continued among her descendents. Quite the contrary. They were laid out on the same orientation as B. 15, and the old female in this cluster, B. 4, was interred in a grave the southern edge of which was contiguous with the northern edge of B. 15. The dead in this cluster were in the main interred with time from north to south, beginning with an adult female, proceeding through an infant, a 15-year-old, then a male, newborn twins, an infant and finally, the women in B. 4. They are poor in relation to the two women and a child buried under the adjacent raised structure at the same time. Here, we find the most compelling evidence that, during the later part of the mortuary sequence, there was inequality of wealth between two groups. The two women with their potters anvils and abundant shell beads, together with the child buried with a shell disc, are most likely to be descended from the line of cluster C. With their rise in wealth, that of cluster H fell away. Yet in both, we again encounter a predominance of women in the ratio of 4:1, and all four women were buried with the tools for making pottery vessels.

In this interpretation of the mortuary data, we have the following main conclusions:

1. During the entire mortuary sequence, the occupants of the site were favoured by access to a major river estuary with its abundant food resources. The shellfish to the mudflats and crabs of the mangrove could be collected by young and old, while anadromous fish came up the river to spawn. The river gave access to a hinterland which provided resources of stone. So too did the then coastline, while maritime exchange would have brought shell jewellery to the site. Its occupants would then have had an advantageous position from which to control the distribution of such exotic jewellery, as well as their own pottery vessels, to the sites in the hinterland.
2. Specified areas for closely-related family members were established within in the region of 2-3 generations of initial settlement. The basic mortuary rite was maintained throughout the 20 or so generations represented.
3. These clusters are interpreted as the collective burials of members of families related to each other as members of a descent group. Burials were accompanied by the digging of pits and probably feasting. Food remains were placed in these pits.
4. Until the end of MP. 4, some families display relatively high wealth expressed through grave goods. Some contemporary families were poor. The wealth of these rich adults was matched by similar treatment for their infants. It is suggested that such wealth and status were not permanant, but oscillated between families. This could reflect the aspirations and qualities of individuals.
5. While the lines represented in clusters C and F continued over a long term, those of E, D and B effectively terminated during MP. 2 or early MP. 3. This could reflect their extinction or fissioning.
6. During MPs. 3 and 4, women assumed increasing importance as the producers of pottery. Their predominance in clusters C and F seen as evidence for the development of a matrifilial bias.
7. The dominant position of women potters reached a peak during MPs. 5 and 6. Firstly the family of cluster F achieved prominence, but this was followed by a reversal, with the cluster C family dominating over the descendents of cluster F, now labelled cluster H. Much energy expended on individual graves is noted, but high status was not permanently retained by the

descendents of a successful person. Again, we find oscillating wealth and status between people belonging to different matrifilial groups.

8. The provision of wealthy graves for infants and children continued into MP. 7, but this was the last episode in the history of this cemetery. The environmental change which occurred with the fall in the sea was accompanied by the end of prehistoric mortuary activity.

Summary and conclusions

Khok Phanom Di dates from *c* 2000 B.C., and was located in a pivotal estuarine position from which access to mangroves, mudflats and fresh water swamps was possible. The occupants were sedentary, relying on the renewable estuarine resources and probably cultivating rice in freshwater swamps behind the mangal fringe. This must have been a rich habitat, measured in terms of renewable food resources. It was also a location which made possible exchange into the hinterland and with other communities whose settlements had access to the shore of the Gulf of Siam. There is every indication that both these advantages were exploited. The food remains disclose a marine diet incorporating rice. The material remains include exotic stone and shell. This environment conferred a further major strategic advantage: it provided potting clay. To the consistent body of evidence that the occupants of the site made or used bone bobbins, awls, fish hooks, harpoons, clay netweights and stone adzes and hoes, we may add that the site was a manufacturing centre of pottery vessels some of which were of exceptional technical quality.

The excavations also encountered a rich mortuary record. Apart from the earliest and the latest contexts, the deposits reflect burial of the dead and attendant mortuary ritual. This, it is felt, included the excavation of pits to contain food and feasting which involved the consumption of marine food and rice. In considering this information, it is felt desirable to incorporate results from a wide range of different studies each of which provides relevant information. Thus, there was an established exchange network involving stone and almost certainly exotic shell. In terms of health, the people were evidently well nourished, while skeletal information is compatible with there being corporate burial areas of consanguines in which women played an increasingly dominant social role.

The earliest burials were effected in what are interpreted as occupational material: ash spreads, hearths and shell middens. After two or three generations, formal burial areas for members of particular social, we feel family, groups were established and maintained for about 10 generations. During this period, wealth in terms of exotic or beautiful grave goods, oscillated between these family groups. Young children of the richer adults were endowed with impressive grave goods, but such grave wealth rarely if ever spanned more than two generations. There was a major change in mortuary behaviour after 12-13 generations, although the basic rite was maintained. An outstandingly rich woman and two wealthy children, assumed to have been her offspring, were interred in a group. It is argued that these three were descended from the people labelled "cluster F". Again, this wealth did not span more than two generations. The ensuing burials saw two rich females interred under a raised structure, later joined by a child. We see these people as being descended from cluster C. Meanwhile, heirs to cluster F were poor by comparison. In both clusters, it is the women whose burials were given such elaborate ritual, and in each case, they were interred with the anvils and burnishing stones used in making pottery vessels.

It is suggested that we have encountered a system in which exotic ornaments were employed in mortuary ritual as symbols of acquired status. This, it is further noted, was not inherited beyond the next generation of infants or children. Within the context of the technological and economic traditions of these people, it is suggested that women acquired high status through individual skill in making and exchanging ceramic masterpieces. This status was not ascribed to subsequent generations, although the children of these women were often buried with a rich assemblage of goods. This situation encouraged a matrifilial bias and probably increasing emphasis on matrilineality[19] since to lose women through marriage to other communities would involve a subsequent loss of the very means to acquire high standing within the social orbit of Khok Phanom Di. Since this system had its beginnings and climax within a rich estuarine habitat, it is not altogether surprising to find that the recession of the sea saw the end of a mortuary tradition spanning about 20 generations.

The Wider Implications

Although this paper is intended solely as a miniature portrait of social organisation at one site, it is impossible not to allude briefly to some broader implications. The view presented above links female potters of rare skill, sedentism, exotic good exchange, rice cultivation and coastal/estuarine collecting with a pattern of increasing matrifiliation and involvement in feasting the ancestral members of a descent group. What we have found is that social organisation within the span of about 20 generations was not fixed, by was under constant modification. Identifying such patterns is one of the prehistorian's most critical objectives. They are a prerequisite, for example, to approaching explanations for continuity and change within cultural systems as a whole. Thus, Geoffrey Benjamin has written apropos recent cultural patterns in Malaysia that: "The main thing to note is that from a political point of view the "patri" pole is inherently more unstable than the "matri" pole, since it keeps the men of the local group together, making them able, and likely, to cooperate with each other in squabbling with other local groups. "Patri"-groups tend, therefore, to be more thinly distributed over the land. "Matri-groups are more stable since it is harder for the men, who are now dispersed, to cooperate in squabbling with other groups. For this reason, and because some male cooperation in subsistence activities is always needed, "matri"-groups tend to be more closely distributed over the ground."[20]

Social archaeology in Southeast Asia is in its infancy, and it is paradoxical that such unusually clear information should come from one of the few sites in the region to be the object of a major excavation. At Ban Na Di, I have argued for the presence of at least two social groups, one of which was consistently of higher rank than the other[21]. Bayard[22] has likewise proposed that two affiliative groups are represented in the Non Nok Tha cemetery. The layout of graves at Ban Don Ta Phet[23] looks suspiciously as if it follows a linear pattern, and certainly some of them contain

numerous sumptuary and exotic goods. The Khok Phanom Di material might provide us with an important lesson at this early stage of seeking structure in the prehistory of Southeast Asia. This is that social organisation is most unlikely to be uniform over time or through space. If the situation at Khok Phanom Di proves to be matched elsewhere, we should rather expect highly localised shifts in social organisation in response to a web of changes in the local environment, the group's technology, subsistence activities, success in prestige good exchange and relationships with other groups. Such shifts might involve stressing the "patri" pole or the "matri" pole as at Khok Phanom Di. They might equally involve an opportunity for big-women to achieve status or for a descent group to seek and obtain ascribed rank. The way ahead will involve research to bring together numerous strands of evidence, but it cannot be anticipated that the evidence for burying and celebrating the ancestors will always be as clearly expressed as it is at Khok Phanom Di. It is for this reason that I began by describing it as an unusual prehistoric site.

1. The full report on the excavation of Khok Phanom Di is due to appear in three volumes. The first covers the stratigraphy, chronology, palynology and sediments, ostracodes and foraminifera and the burial record. The second describes the material culture and the final volume will describe the biological data and the overall summary.

2. This article is, in essence, a report on work in progress. During the analysis of the material from this site, our views are being modified from time to time by new findings in the laboratory. Pausing briefly to review our current interpretations before finalising the report has been useful for those engaged on the project, and it is hoped, to those interested in what was found at Khok Phanom Di. Comments on this paper would be much appreciated.

The excavation of Khok Phanom Di in 1985 followed three earlier research initiatives there, by Pornchai Suchitta, Damrongkiadt Noksakul and Pirapon Pisnupong. To all three I offer my thanks for their cooperation in the 1985 excavation. The excavation was co-directed by the author and Rachanie Bannanurag. I acknowledge with deep gratitude not only Mrs. Bannanurag's unflagging support, but also her generosity in making available for this paper, material destined for inclusion in her doctoral dissertation.

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One of the great pleasures of working on the material from Khok Phanom Di is the opportunity to supervise or encourage research students to contribute their time and skills to the analysis of the finds. I am currently supervising the doctoral research of Rachanie Bannanurag (burial data), Mrs. J. Pilditch (the jewellery) and co-supervising that of Ms. I. McKinney (sediments, with Professor C.A. Landis) and Ms. N. Tayles (human remains, with Professor P. Houghton). I also supervised with Charles Landis, the Masters research of Pirapon Pisnupong (stone artefacts, now completed) and that of Dianne Hall (ceramic decoration), Praphid Choosiri (human remains, with Professor P. Houghton and now completed), and the completed B.A. Honours dissertations of Ms N. Pollock (female pelves), Ms C. McGill (Nordin's score) and Ms C. Roy (human incisors), all with Professor Houghton, Ms M. Moore (burnishing pebbles), Alan Grant (mammalian remains) and Thomas Higham (shell knives). Gillian Thompson is working on the plant remains che recovered during seven unbroken months of supervising the flotation while excavations were in progress for her doctoral dissertation at the Australian National University under the supervision of Jack Golson and Douglas Yen.

In preparing this paper, I have greatly benefitted from conversations with Peter Wilson and Geoffrey Benjamin.

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Without the assistance of all my friends and colleagues, this paper could not possibly have been contemplated...

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Organisation sociale à Khok Phanom Di (Thaïlande Centrale), 2000-1500 avant notre ère

Khok Phanom Di, situé sur une étendue plate à 80 km à l'est de Bangkok, est constitué d'un grand tertre de cinq hectares qui s'élève à douze mètres de hauteur dans la vallée de Bang Pakong. Depuis 1984, nos recherches se sont concentrées sur ce tertre, avec, en particulier, une fouille plus étendue pour étudier la disposition des sépultures.

La richesse du matériel a dépassé nos espérances. Les préhistoriques ont occupé une région située au bord d'un estuaire dominé par les mangroves côtières. La mer était toute proche. Le riz a été cultivé depuis l'occupation du site.

Cette occupation se trouve comprise entre 2000 et 1500 de notre ère. La durée d'utilisation du cimetière est de l'ordre de 400 à 500 ans, ce qui correspond à environ vingt générations. Hommes, femmes et enfants ont tous été enterrés de la même façon, accompagnés de magnifiques poteries et de parures de coquillages et de parures en os. Les morts étaient inhumés en groupes dans des tombes collectives. Dans une même lignée familiale, nous avons dénombré dix-sept générations. Nous pensons que cette communauté était matrilinéaire parce que les femmes ont fabriqué les récipients en terre cuite.

A la quatorzième génération, une femme a été enterrée avec des offrandes d'une richesse considérable. La possession de parures marquait le statut social. Les individus étaient en compétition pour l'acquisition de ces biens : les uns réussissaient, les autres non. Mais lorsque le niveau de la mer baissa, le site fut abandonné.