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THE ANTIQUITY OF THE QUADRANGULAR ADZE IN  
CHINA AND SOUTH-EAST ASIA

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Abstract

The antiquity of axe/adzes with quadrangular cross-sections in China and South-East Asia has always been a matter of some interest to the prehistorians of Oceania, especially those in Polynesia. Recent radiocarbon dates from China and South-East Asia provide, for the first time, a reliable indication of its age in that area.

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INTRODUCTION

A long-established viewpoint in the Pacific from the time of the classic studies of Robert von Heine-Geldern has been that adzes of lenticular to oval cross-section preceded those of rectangular or quadrangular cross-section. The spread of the latter in the Pacific, moreover, is often claimed to have been associated with the dispersal of Austronesian speaking populations into this area from the Asian mainland. It is therefore of some interest to Pacific archaeologists that the recent evidence from Asia no longer requires an acceptance of the postulated sequence except in North China. Elsewhere in South-East Asia the rectangular sectioned polished stone axe/adze appears initially in contexts associated with cord marked pottery as early or earlier than the occurrence of oval-sectioned axe/adzes in North China. These contexts also indicate it is unlikely there were earlier periods in which polished stone adzes with oval sections will one day be found.

The evidence from the northern Chinese nuclear area centres on the middle part of the Huangho valley has often been cited as demonstrating the expected axe/adze sequence. Thus, in this area, circular to oval-sectioned axe/adzes with their more symmetrical cutting edges characteristic of the Yang-shao culture everywhere preceded the appearance of axe/adzes with more asymmetrical cutting edges

characteristic of the succeeding Lung-shan culture (Chang, 1968a: 128). The recent publication in English of the first radiocarbon dating for sites in North China (Barnard, 1972; Chang, 1973) fully supports that view. They provide a series of consistent age determinations of between 4500 B.C. and 2500 B.C. as the likely temporal span of the Yang-shao culture, and a period covering the following millennium, 2500-1800 B.C., as a likely age of the North Chinese Lung-shan culture.

The origin of this change in axe/adze typology in North China has never been satisfactorily explained except to cite it as one of a number of local innovations believed to characterise the development of the Lung-shan culture out of the Yang-shao. Chang (1968a: 145), for example, assumed that the primary use of the new adze form was for carpentry rather than tree-felling, although it is widely used in both capacities elsewhere. The possibility of its being a cultural replacement of more southerly origin is not discussed.

It is of some importance, therefore, that recent radiocarbon dates from South China, Taiwan, and mainland South-East Asia allow one to choose between the two alternatives outlined by Chang for the general cultural impetus that gave rise to the changes in northern China. The first alternative, and the one originally preferred by Chang (1968a: 147) was that Lung-shan was a local development out of Yang-shao in the nuclear area of the Yellow River valley. Spreading more widely in the north than the Yang-shao culture, especially down river to the coast and south into the Yangtze River valley, it eventually reached the south-western coast of Taiwan by 2500 B.C. This expansion, which joins together a number of rather similar cultural complexes that appeared to be more or less contemporary, Chang referred to as the Lungshanoid horizon.

The second alternative, which on the basis of the new C.14 dates Chang (1973) now believes warrants more serious consideration, is that at least some of the elements which characterize the Lungshanoid horizon had their origin in southern China and South-East Asia, and later diffused to North China, where they were incorporated into the Lung-shan cultural assemblages that developed out of the Yang-shao.

For example, Chang (1973) would now seem to agree on the basis of the C.14 dates that rice, a plant of south-east Asian or southern Chinese origin, is one item which exhibits a pattern fitting the second alternative. In this article I have used the slightly younger estimations of calendrical age, rounded to two standard deviations, given by Chang (1973) rather than the consistent, but several hundred years older set of estimates given by Barnard (1973).

Provisionally dated to 3500-3000 B.C. at Non Nak Tha in Thailand (Bayard, 1971: 32), rice is also now dated for one site of the Ch'ing-lien-kang culture of South China at circa 3220-3600 B.C., at one site of the Liang-chu culture at circa 2550-2950 B.C., and at another site also associated with the Lungshanoid horizon of the region at 2540-2140 B.C. (Chang, 1973). As well, there is a date for an inland site on the Hansui branch of the main Yangtze River which places Ch'u-chia-ling culture at circa 2470-2070 B.C. Other sites of this culture in the middle Yangtze and Hupei lake district have shown that by this time rice was a principal mode of subsistence (Chang, 1968a: 138). All of these dates for Lungshanoid sites with rice in southern China and the one from South-East Asia are earlier, or as early as the date of 2500-2120 B.C. for materials of the transitional Miao-ti-kou II culture following the late Yang-shao and earlier than the fully Lungshan sites of northern China dated at circa 2250-1910 B.C.

#### THE AGE OF THE QUADRANGULAR AXE/ADZE

Another item of equal interest to rice and fitting the same pattern is the polished axe/adze with a rectangular cross-section. It is usually associated with these cultures, along with square or flat chisel. In the Ch'ing-lien-Kang culture stepped and shouldered adzes are occasionally found, in addition to the common and widespread rectangular form (Chang, 1969: 228). The same may be true for some of the sites of the Ch'u-chia-ling culture (Cheng, 1966: 34). None of these is mentioned for Miao-ti-kou II, but "square stone adzes and chisels are especially distinctive" of the types of classical Lung-shan culture site of North China for which we have the later C.14 dates of 2250-1910 B.C. Like rice, we would seem to have evidence of a sloping horizon for the diffusion of quadrangular adzes and chisels from South into North China.

Support for this viewpoint can be drawn from a number of other sites in South-East Asia, Taiwan and the Philippines. Spirit Cave, in North-West Thailand, has a sequence beginning with a 12,000-year-old Hoabinhian assemblage to which polished quadrangular adzes, ground slate knives, and cord-marked pottery are added at circa 6500-5400 B.C. (Gorman, 1972: 99-102). A similar addition of roughly chipped rectangular adzes and a few sherds of pottery to a "Neolithic" flake layer overlying Hoabinhian assemblages at Gua Cha (Peacock, 1961: 126; 1971: 110) in Malaya is undated, but at Gua Kechil cord-impressed pottery again appears in Hoabinhian contexts, to which is added in successive levels a plain burnished ware, and rectangular sectioned and polished adzes (Dunn, 1964: 115), the one oval section adze, among the nine specimens from the upper 22 inches of deposit, being in the

8-10 inch level. The final level before the Hoabinhian tools are replaced by the polished stone adzes, is roughly dated to between 4380-2780 B.C. at one standard deviation when the estimate is corrected for secular effort (Dunn, 1970: 1047). Finally, the late end of the Corded-Ware culture in Taiwan (without associated Hoabinhian tools) has recently been dated at circa 3850-3580 B.C. in one site in southern Taiwan. "A few polished stone adze were found, invariably rectangular in cross-section" (Chang, 1968: 141) in the Corded-Ware stratum of North-Western Taiwan at the Ta-p'en-k'eng site to which the cord-marked pottery of the southern dated site is compared (Chang, 1973: 525). At the Feng-pi-t'ou site in South-Western Taiwan, no similar adzes occur in the Corded-Ware stratum, but the following Fine Red Ware pottery stratum has yielded a number of small rectangular axe/adzes with rectangular cross-sections in which neither the shoulder axe nor the stepped adze has been found (Chang, 1969: 220). No direct dating exists for this Lungshanoid related assemblage, so Chang has had to estimate its age from a set of fairly secure 1500 B.C. dates for the lower shell mound stratum two layers above. In my view, his estimate of 2500 B.C. now appears to have been somewhat conservative in the light of the new evidence.

Although Chang (1969: 53) argued that "at least 500 years must have intervened between the Corded-Ware and the Lungshanoid cultures to explain the depositional disconformity as well as the cultural discontinuity", this would not place the Fine Red Ware assemblage much later than 3000 B.C. if the 3850-3580 B.C. estimate for the southern Corded-Ware culture is correct. Given that the Fine Red Ware's closest Lungshanoid cultural affinities are with the Ch'ing-lien-Kang culture of South China (Chang, 1969: 229), this too suggests a pre-3000 B.C. age. Moreover, the Red Ware stratum is followed by an undated Sandy Red Ware stratum before reaching the overlying Lower Shell Mound stratum dated at 1500 B.C. Thus, from both the Corded-Ware culture in the north and the following Fine Red Ware culture in the south, there is evidence that adzes of rectangular cross-section mark the first appearance of polished stone tools in Taiwan. In this respect, it is interesting that Chang reports that some adzes of the northern Corded Ware culture (Chang, 1969: 164) and one example from the southern Fine Red Ware contexts (Chang, 1968b: 145; 1969: 60) possess a rudimentary form of the "step" found on "stepped" adzes. True stepped and shouldered adzes are known from Taiwan only during the succeeding Yuan-shan cultural phase of 2500 B.C. and after.

Finally, in the Philippines, Fox (1970: 62 and Plate 8) has reported an early Neolithic burial without pottery in association with a large polished stone axe/adze of quadrangular section, and four tridacna shell adzes, all dating to circa 4700 to 4380 B.C. In addition, Fox (1969: 162) notes for his Late Neolithic/Early Pottery phase dated to 1000 to 1500 B.C. and probably earlier, that the pottery "is associated with small quadrangular adzes-axes, gouges, and chisels, sometimes made of nephrite, including stepped forms".

#### CONCLUSION

On the basis of the above information it would now appear that axe/adzes with quadrangular cross-sections in association with cord-marked pottery have a potential time depth of 7000 to 3500 B.C. in South-East Asia and Taiwan, at a time when cylindrical axe/adzes with oval sections were present in corded ware and painted pottery contexts in North China. By the third millennium B.C. butt modifications in the form of steps or shoulders had been developed, and these features were added to the basic rectangular section adze forms of the southern area. The unmodified form had diffused into North China by the end of the third millennium B.C., where it replaced the earlier Yang-shao adze types with oval sections. A postulated diffusion of the quadrangular adze without hafting grip into the Oceanic part of the Pacific by 3000 B.C. should therefore occasion no real surprise, and it is noteworthy that by 1000 B.C. or before, it had in fact reached Fiji, Tonga and Samoa.

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