

Radiocarbon dates from China

Professor Richard Pearson of the University of British Columbia has sent us the following interesting note. His list of dates is presented in the order in which they were reported. Professor Pearson drew our attention to the fact that the dates used a half-life of 5,730 years and that at present in the Chinese calculations was 1965 rather than 1950. Antiquity in common with most other archaeological journals has agreed to the guide-lines provided from time to time by the conferences on radiocarbon dating, namely to use the original Libby half-life of 5,568 and the present, before which these dates occur, as 1950.

Dr Switsur, Head of the Radiocarbon Laboratory in Cambridge, has very kindly re-calculated the Chinese dates for us. The dates we print here are therefore not the dates published in *K'ao Ku* in 1972 but dates corrected to the standard 5,568 half-life and 1950 present. Here we also follow the conventions set out in *Antiquity*, 1972, 265 namely bp, bc, or ad for the dates in radiocarbon years, and BP, BC, and AD only for dates in calendar years. These conventions, now becoming widely accepted, should be borne in mind in reading Dr Switsur's comments on the New Zealand conference and use of calibration curves.

Archaeological workers in the People's Republic of China have published the following radiocarbon dates in two issues of *K'ao Ku*, which appeared in 1972. Academia Sinica began the testing of samples of known historical age from November 1965 to March 1966. The laboratory abbreviation, ZK, stands for the Chinese Academy of Sciences. Specimens ZK-5, 1, 3, 6, 15, 21, 25, 17, 19, and 23 appear in *K'ao Ku* 1972 No. 1 (p. 55) while the remaining dates appear in No. 5 (pp. 56-8). These determinations provide interesting insights into a variety of Neolithic cultures in various

areas of the country, and will be of great use in reconstructing Neolithic development and man-land relationships in East Asia. In presenting these dates, I have included relevant previous site publications supplied by the original authors. Readers may also wish to consult Kwang-chih Chang, 1968 *Archaeology of Ancient China* (2nd edition, Yale Press) for background materials in English.

Mr Bernard So, University of British Columbia, assisted in the translation, which is part of a long-range project sponsored by the Canada Council and the Wenner-Gren Foundation.

Table 1. Chinese radiocarbon dates converted to the standard form.

*All bc dates except ZK-6

Lab. No.	Site, provenance, cultural affiliation	Site location	Material	Date bp	Date bc	Previous publication
ZK-5	Wu Kuan Ts'un, Late Yin (11th cent. BC —estimated)	Anyang, Honan	charcoal	2949	999 ± 100	
ZK-1	Tomb No. 406, Ch'ang Sha. Early Warring States (5th cent. BC —estimated)	Ch'ang Sha, Hunan	wooden figures	2327	377 ± 90	
ZK-3	Tomb No. 2, Ku Wei Ts'un. Late Warring States (3rd cent. BC —estimated)	Hui Hsien, Honan	wood	2177	227 ± 80	
ZK-6	Fragment of boat Tomb No. 203 Ch'ang Sha	Ch'ang Sha, Hunan	wood	1929 (ad)	21 ± 80	

ANTIQUITY

Lab. No.	Site, provenance, cultural affiliation	Site location	Material	Date bp	Date bc	Previous publication
ZK-15	Ta Ho Chuang site House remains No. 7 Ch'i Chia culture	Yung Ching, Kansu	slightly carbonized wooden pole	3571	1621 ± 95	
ZK-21	Ma Chia Yao site House F3	Yung Ching, Ma Chia Wan Ts'un, Kansu	charcoal	4018	2068 ± 100	
ZK-25	Pan Shan type house No. F1, Ching Kang Chia site	Lanchow, Kansu	carbonized wooden pole	3901	1951 ± 100	
ZK-17	Tomb fill, Hsia- Tu District	Chao-su Hsien Yi-li- hu-sha-ke Autonomous Region	charcoal	1958	8 ± 90	
ZK-19	From same layer as Tzu-Yang man	Uighur Autonomous District Huang-Shan Shi, Tzu-Yang, Szechwan	log	7273	5323 ± 130	
ZK-23	House of Ch'i Chia culture (F7) Ta Ho Chuang site. From same house, same excavation unit as ZK-15	Yung Ching, Kansu	charcoal	3542	1592 ± 95	
ZK-121	Pan-p'o Ts'un site Layer 5 test trench 1. Yang Shao culture	Sian, Shensi	charcoal	5738	3788 ± 105	H.P. Shih <i>et al.</i> , 1963 <i>Hsi-an Pan-p'o</i> . Wen Wu Press
ZK-122	Pan-p'o Ts'un site West of cliff area Yang Shao culture	Sian, Shensi	charcoal, roots removed	5704	3754 ± 105	„ „
ZK-38	Exact provenance not given, Pan-p'o Ts'un site, Yang Shao culture	Sian, Shensi	charcoal	5894	3944 ± 110	„ „
ZK-127	Pan-p'o Ts'un site Ash Layer, lower portion of SW quadrant of hearth No. 42 Excavation Unit 3 Specimen No. 55CPPF3 Yang Shao latest period of Pan-p'o	Sian, Shensi	carbonized hazel nuts	5427	3477 ± 105	„ „
ZK-76	Hou Kang site Excavation Unit T1 Layer No. 3, original specimen No. 71 AHG T1 3 Yang Shao culture	Anyang, Honan	charcoal	5330	3380 ± 105	<i>K'ao Ku</i> , 1972, No. 3
ZK-110	Miao-ti-kou site, ash pit No. 333 3rd Layer specimen No. 57 HA 13H 333 3. Yang Shao culture	Shen Hsien, Honan	charcoal	5257	3307 ± 100	An, Chih-min <i>et al.</i> , 1959. <i>Miao-ti-kou San Li Ch'iao</i> Peking: Sciences Press

NOTES AND NEWS

ZK-111	Miao-ti-kou site, ash pit No. 558 No. 5 Layer, belongs to the 2nd period of Miao-ti-kou (earliest Lung Shan) specimen No. 57 HA 13 H 558 5	Shen Hsien, Honan	charcoal	4140	2190 ± 95	An, Chih-min <i>et. al.</i> , 1959. <i>Miao-ti-kou San Li Ch'iao</i> Peking: Sciences Press
ZK-126	Wang Wan site, No. 79 ash pit, specimen No. H79 Belongs to Wang Wan culture Period III	Loyang, Honan	charcoal	3838	1888 ± 95	<i>K'ao Ku</i> , 1961, No. 4
ZK-91	Huang-lien-shu site Layer 2, inside of house No. 11, Ch'u Chia Ling culture	Hsi Ch'uan, Honan	charcoal	4101	2151 ± 95	
ZK-86	Hsiao-t'un, Anyang specimen No. 71 AST T1 7. Oracle bones not found at this particular location, but known from same layer, other locations	Anyang Honan	charcoal	2978	1028 ± 90	<i>K'ao Ku</i> , 1972, No. 2
ZK-55	Sung Che site, Layer 3 specimen No. A1200 cm. Ch'ing Lien Kang Culture	Shanghai City, Ch'ing Pu Hsien Kiangsu	wood fragment	5194	3244 ± 105	<i>K'ao Ku</i> , 1962, No. 2
ZK-49	Ch'ien Shan Yang site specimen No. T22 4:44 Liang Chu culture	Wu Hsing Chekiang	carbonized rice stalk	4567	2617 ± 100	<i>K'ao Ku Hsueh Pao</i> , 1960, No. 2
ZK-51	P'ao Ma Ling site, excavated from base of house foundation specimen No. F1	Shan Pei District, Kiangsi	charcoal	4164	2214 ± 95	<i>K'ao Ku</i> , 1962, No. 7
ZK-10	Hai Men Kou site	Chien Ch'uan Yunnan	<i>Camellia</i> pole	3012	1062 ± 90	<i>K'ao Ku T'ung-hsun</i> , 1958, No. 6
ZK-61	Nuo-Mu-Hung, Ta Li T'a Li Ha site specimen No. 1622 Layer 3	Ch'ing Hsi Tu-lan County Hai Hsi Region Ch'ing Hai	wooden post	3668	1718 ± 90	<i>K'ao Ku Hsueh Pao</i> , 1963, No. 1
ZK-108	Ts'ao Chia Tsui site, bottom of pit. Same layer produced specimens of the Ma Chia Yao culture	Hsi Kuo Yuan Commune, Lanchow City Kansu	charcoal	4397	2447 ± 100	
ZK-78	Shuang T'uo Tzu site, dwelling 16 specimen No. 64L 22F16.	Lu Ta City Liaoning	carbonized wooden post	3897	1497 ± 95	
ZK-79	Shuang T'uo Tzu site, dwelling 4 specimen No. 62L 22F4	Lu Ta City Liaoning	carbonized wood	3032	1082 ± 90	
ZK-84	Unspecified site, appears to be part of irrigation system. Found 5 m. beneath a river. Gives evidence of early date of hydrology. Samples taken from trunk and part of root.	Hupei	old wood	6370	4420 ± 110	