

**NATIONAL TAIWAN UNIVERSITY
RADIOCARBON MEASUREMENTS II**

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The C¹⁴ dates given below have been obtained by counting CO₂ at 2 atm pressure in a 1 L proportional counter. Details of procedure are given in our previous list (R., 1970, v. 12, p. 187-192). Radiocarbon dates in this list are based on 95% of activity of NBS oxalic acid as the modern standard and were calculated using 5570 yr as the half-life of C¹⁴. Errors quoted with the dates are standard deviation originating from the statistical nature of radioactive disintegration process. Results obtained during 1970 and 1971 are described here.

ACKNOWLEDGMENT

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SAMPLE DESCRIPTIONS

I. GEOLOGIC SAMPLES

A. Japan

NTU-124. Hirogami **1370 ± 40**
A.D. 580

Bogwood from landslide area, Hirogami, Niigata, Japan (37° 20' N Lat, 139° 00' E Long), at 0m depth. Coll. and subm. 1969 by S. Yamaguchi, Disaster Prevention Inst., Kyoto Univ. *Comment* (S.Y.): date approximates landslide (Yamaguchi and Lin, 1971).

B. China

Hwalien series

Shell and coral of coral reef from Hwalien harbor, Taiwan (23° 59' N Lat, 121° 32' E Long). Coll. 1951 and subm. 1971 by C. C. Lin, Dept. Geol., Natl. Taiwan Univ.

NTU-159. Hwalien 1 **1512 ± 45**
A.D. 438
Coral, at +3m, 2.5m depth.

NTU-166. Hwalien 2 **1052 ± 32**
A.D. 898
Shell, at +3m, 1m depth.

General Comment (C.C.L.): dates coral reef overlying Milun Formation (Lin, 1969) unconformably and is overlain by the Chara-Melanoides Clay

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and Sand Member of the Peipin Formation (Lin, 1969). Dates are geologically reasonable.

Hengchun series

Coral of coral reef from Wangsa village, Hengchun, Taiwan (22° 03' N Lat, 120° 45' E Long), at +35m. Coll. and subm. 1971 by C. C. Lin.

NTU-161. Hengchun 1 **>30,000**
Ca. 1m depth.

NTU-162. Hengchun 2 **>30,000**
Ca. 1.5m depth.

NTU-163. Hengchun 3 **>30,000**
Ca. 3m depth.

General Comment (C.C.L.): dates are minimum for isolated Pleistocene emerged coral reef, overlain by laterite soil (with gravel), and underlain by Plio-Pleistocene arenaceous limestone of Maopitou Formation (Lin, 1967). Dates are expected.

Taitung series

Coral and shell of emerged coral reef from Taitung area. Coll. 1960 and subm. 1970 by C. C. Lin.

NTU-150. Taitung 1 **3820 ± 115**
1870 B.C.

Coral from Tanman, Changpin, Taitung, Taiwan (23° 13' N Lat, 121° 24' E Long), at +20m, 0.5m depth.

NTU-151. Taitung 2 **6132 ± 184**
4182 B.C.

Coral from Chiwen village, Taitung, Taiwan (23° 08' N Lat, 121° 23' E Long), at +35m, ca. 0.5m depth.

NTU-152. Taitung 3 **1643 ± 49**
A.D. 307

Coral from Chiten village, Taitung, Taiwan (23° 07' N Lat, 121° 22' E Long), at +20m, ca. 0.5m depth.

NTU-153. Taitung 4 **1950 ± 59**
A.D. 0

Coral from Chengkung, Taitung, Taiwan (23° 06' N Lat, 121° 22' E Long), at ca. +35m, ca. 1.5m depth.

NTU-154. Taitung 5 **3221 ± 97**
1271 B.C.

Coral from Chengkung, Taitung, Taiwan (23° 06' N Lat, 121° 22' E Long), at ca. +15m, ca. 2m depth.

9234 ± 277

NTU-158. Taitung 6

7284 B.C.

Coral from Fukang valley, Taitung, Taiwan (22° 48' N Lat, 121° 11' E Long), at +15m, ca. 2m depth.

2349 ± 70

NTU-165. Taitung 7

399 B.C.

Shell from Chiwen village, Taitung, Taiwan (23° 08' N Lat, 121° 23' E Long), at +35m, ca. 0.5m depth. *Comment* (C.C.L.): younger than expected.

General Comment (C.C.L.): samples expected to date emerged coral reefs. Except for NTU-165, dates are acceptable.

II. ARCHAEOLOGIC SAMPLES

*China***Changpin series****NTU-125. Changpin 4**

>15,000

Charcoal from LHVI (Sung, 1969) cave, Changpin, Taitung, Taiwan (23° 24' N Lat, 121° 25' E Long), at +100m, ca. 3.35m to 3.55m depth. Coll. and subm. 1970 by W. H. Sung, Dept. Archaeol. and Anthropol., Natl. Taiwan Univ. *Comment* (W.H.S.): this sample was obtained from geologically and culturally earlier horizon of Changpin culture. Four C¹⁴ dates, NTU-69-71 (Hsu *et al.*, 1970) and Y-2638 (Sung, 1969) of the latest phase of this culture range from 5000 to 6000 yr B.P. Thus, present date not only agrees with above-mentioned dates but also with estimate of W. H. Sung (1969), that earlier phase of Changpin culture must go back to Pleistocene.

III. GEOPHYSICAL SAMPLES

*C¹⁴ in Atmospheric Carbon Dioxide***Atmospheric radiocarbon activity series, Taipei**

C¹⁴ content in ground level atmospheric CO₂ is monitored monthly at Taipei, Taiwan (25° 02' N Lat, 121° 32' E Long). The following list contains exposure time at NaOH solutions to air and per cent increase of C¹⁴ above 95% NBS oxalic acid. Data are graphed in Fig. 1. The statistical error is less than 1%.

| Sample no. | Exposure time | δC ¹⁴ , ‰ |
|------------|------------------------|----------------------|
| NTU-113 | 15 Jan. — 20 Jan. 1968 | +56.6 |
| NTU-114 | 15 Feb. — 21 Feb. 1968 | +59.5 |
| NTU-115 | 15 Mar. — 20 Mar. 1968 | +61.0 |
| NTU-116 | 15 Apr. — 21 Apr. 1968 | +56.0 |
| NTU-117 | 18 May — 23 May 1968 | +49.9 |
| NTU-118 | 16 June — 22 June 1968 | +55.5 |
| NTU-119 | 15 July 1968 | +55.9 |

| Sample no. | Exposure time | δC^{14} , ‰ |
|------------|--------------------------|---------------------|
| NTU-120 | 20 Sept. — 25 Sept. 1968 | +55.6 |
| NTU-121 | 18 Oct. — 22 Oct. 1968 | +53.5 |
| NTU-122 | 15 Nov. — 20 Nov. 1968 | +55.0 |
| NTU-123 | 17 Dec. — 22 Dec. 1968 | +54.7 |
| NTU-126 | 15 Jan. — 21 Jan. 1969 | +51.2 |
| NTU-127 | 15 Feb. — 21 Feb. 1969 | +47.2 |
| NTU-128 | 16 Mar. — 21 Mar. 1969 | +52.7 |
| NTU-129 | 16 Apr. — 21 Apr. 1969 | +43.7 |
| NTU-130 | 16 May — 21 May 1969 | +67.7 |
| NTU-131 | 17 June — 21 June 1969 | +54.2 |
| NTU-132 | 15 Aug. — 21 Aug. 1969 | +49.4 |
| NTU-133 | 15 Sept. — 21 Sept. 1969 | +50.7 |
| NTU-134 | 15 Oct. — 21 Oct. 1969 | +40.0 |
| NTU-135 | 15 Nov. — 20 Nov. 1969 | +54.1 |
| NTU-136 | 15 Dec. — 20 Dec. 1969 | +74.7 |
| NTU-137 | 15 Jan. — 20 Jan. 1970 | +52.4 |
| NTU-138 | 14 Feb. — 18 Feb. 1970 | +55.7 |
| NTU-139 | 15 Mar. — 21 Mar. 1970 | +55.9 |
| NTU-140 | 15 Apr. — 20 Apr. 1970 | +56.4 |
| NTU-141 | 15 May — 21 May 1970 | +55.7 |
| NTU-142 | 15 June — 21 June 1970 | +56.2 |
| NTU-143 | 15 July — 20 July 1970 | +55.0 |
| NTU-144 | 15 Aug. — 20 Aug. 1970 | +45.7 |
| NTU-145 | 14 Sept. — 21 Sept. 1970 | +52.6 |
| NTU-146 | 14 Oct. — 20 Oct. 1970 | +49.8 |
| NTU-147 | 15 Nov. — 20 Nov. 1970 | +44.7 |
| NTU-148 | 14 Dec. — 20 Dec. 1970 | +48.9 |

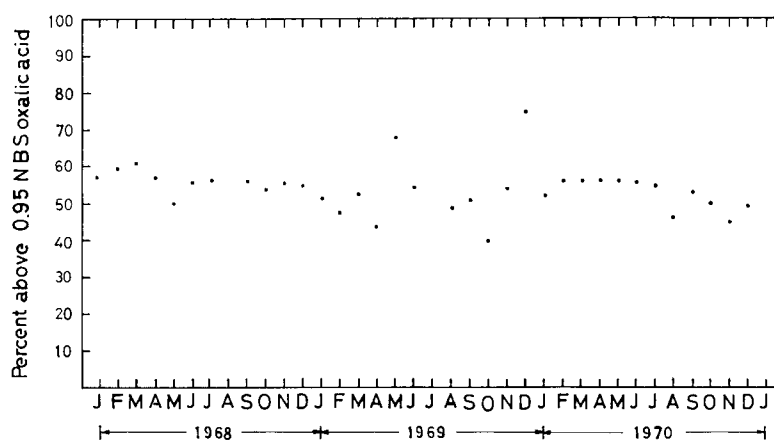


Fig. 1. C^{14} enrichment over NBS standard of atmospheric CO_2 during 1968 to 1970 at Taipei, Taiwan $25^\circ 02' N$ Lat, $121^\circ 31' E$ Long).

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