

RADIOCARBON DATES FROM INAMGAON AND OTHER CHALCOLITHIC SITES

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ABSTRACT

The radiocarbon dates presented here were measured by counting the samples in methane form in gas-proportional counters. The Chalcolithic culture at Inamgaon has been dated to c. 1500–1000 B. C. A number of important Chalcolithic sites of West Pakistan have also been dated.

THIS report includes the radiocarbon dates from the important sites of Amri, Gharluli, Inamgaon, Kayatha, Malvan, Mundigak, Nam Pong, Nindovari, Pirak and Tepe Yahya.

All the samples (except TF-922) were pretreated for the removal of contaminants like soil carbonates and humic acid. Methane was prepared out of the samples by using some recently developed techniques (Agrawal *et al.*, 1971) and was counted in gas-proportional counters (Kusumgar *et al.*, 1963).

Each sample has two dates in B.P. years: the first is based on the half-life value of 5568 ± 30 yrs.; the second, in parenthesis, on 5730 ± 40 yrs. To convert these B.P. dates to A.D./B.C. scale, 1950 should be subtracted. Dates based on the same half-life value only should be inter-compared.

GENERAL COMMENT ON DATES*

Amri Pd IB has been dated to 2900 ± 115 B.C. and Pd IC to 2665 ± 110 B.C. Nindovari Damb, a Kulli culture site, has given 2065 ± 110 B.C.—a date consistent with another Kulli site, Niai Buthi (P-478, 1900 ± 65 B.C.). Three C^{14} dates (TF-1129, TF-1131, TF-1132) have now been measured by us for the crucial site of Mundigak. Pirak was considered chalcolithic by Raikes but Casal and Jarrige have found it to be iron-associated and much later (Jarrige and Enault, 1972). The C^{14} dates, (TF-861, TF-1108, TF-1109, TF-1201 and TF-1202), confirm the latter estimates. Inamgaon series appears to bracket the chalcolithic occupation between c. 1500 to 1000 B.C.

 C^{14} DATES WITH SAMPLE DESCRIPTION*Amri, West Pakistan*

Amri (Lat. 26° N., Long. 68° E.), District Dadu, was excavated by J. M. Casal, Musée Guimet, Paris, who submitted the samples. Rootlets were hand picked.

TF-863, Amri Culture, Period IC, 4485 ± 110
(4615 ± 110)

Charcoal, Field Id. Ai A, Layer 19.

TF-864, Amri Culture, Period IB, 4710 ± 110
(4850 ± 115)

Charcoal, Field Id. Ai A 10, Layer 28 C.

Gharluli, Faryab, Afghanistan

TF-1160, Chalcolithic, 1310 ± 115
(1350 ± 115)

Charcoal from Gharluli (Lat. $35^\circ 45'$ N., Long. $65^\circ 00'$ E.), District Maimana, Trench I, Locus IC, Depth 250–280 cm. The sample was submitted by L. Dupree, P.O. Box 3037, Kabul, Afghanistan. Comment (Dupree): It is a cave site, where nomads have dug pits during most periods and disturbed the underlying material.

Inamgaon, Maharashtra, India

Inamgaon (Lat. $18^\circ 35'$ N., Long. $74^\circ 32'$ E.), District Poona. The samples were submitted by H. D. Sankalia, Deccan College, Poona.

TF-1000, Period I, 3230 ± 80
(3325 ± 85)

Charcoal from Trench INM-I, Tr. D 2, Layer 15.

TF-1001, Period I, 3415 ± 90
(3515 ± 95)

Charcoal from Trench INM-I, Tr. A1-A2, Layer 16.

TF-924, Transitional Periods I and II, 3225 ± 200
(3320 ± 200)

Charcoal from Section Scraping, Layer 2.

TF-1087, Period II, 3260 ± 105
(3355 ± 105)

Charcoal from INM-I, Tr. D 2, Layer 12.

TF-1086, Period II, 3385 ± 150
(3485 ± 155)

Charcoal from INM-I, Tr. D 1, Layer 8.

TF-1085, Period III, 3295 ± 105
(3390 ± 110)

Charcoal from INM-I, Tr. C 2, Layer 6.

TF-922, Period III, 3205 ± 100
(3295 ± 100)

Charcoal from Mound-I, Tr. C 3, Layer 5.

TF-996, Period III, 2930 ± 180
(3020 ± 185)

Charcoal from INM-I, Tr. A 2, Layer 4, Pit.

* For discussion the dates derived from the half-life value of 5730 yrs. have been used.

TF-923, Period III, 2890 ± 170
(2975 ± 170)

Charcoal from Mound I, Tr. C 2, Layer 5.

Kayatha, Madhya Pradesh, India

TF-974, Period III, 3485 ± 95
(3585 ± 100)

Charcoal from Kayatha (Lat. $23^{\circ} 14'$ N., Long. $76^{\circ} 02'$ E.), District Ujjain, Tr. KTH-B, Layer 19, Field No. KTH-B, 1466, submitted by H. D. Sankalia, Deccan College, Poona-6.

Malvan, Gujarat, India

TF-1084, Chalcolithic, 2675 ± 90
(2750 ± 95)

Charcoal from Malvan, District Surat, Trench MVN I C, Layer 3 A, Depth 1 m. The sample was sent by F. R. Allchin and J. P. Joshi, Archl. Survey, Nagpur. Comment: The sample comes from period I.

Mundigak, Kandahar, Afghanistan

Mundigak (Lat. $32^{\circ} 30'$ N., Long. $65^{\circ} 30'$ E.), excavated by J. M. Casal and G. F. Dales, The University Museum, Philadelphia, Pennsylvania, U.S.A.

TF-1129, Period I, 4950 ± 105
(5095 ± 110)

Wood charcoal from Mound A, Depth 0.90 to 1.20 m. Sample No. 1.

TF-1131, Period I, 4570 ± 100
(4705 ± 105)

Wood charcoal from Mound A, Sample No. 3.

TF-1132, Period II, 4805 ± 100
(4945 ± 105)

Wood charcoal from Mound A, Field No. 4. Comment (Dales): Period assignment is doubtful.

Nam Pong 7, Thailand

TF-651, Early Bronze Age, 4155 ± 200
(4275 ± 200)

Charcoal from Nam Pong, 7 (Lat. $16^{\circ} 15'$ N., Long. $102^{\circ} 31'$ E.), Square ES, Layer 19, Depth 1.2 m., Bag No. 1810 E. Submitted by W. G. Solheim II, Department of Anthropology, University of Hawaii, Hawaii, U.S.A.

Nindowari damb, West Pakistan

TF-862, Kulli Culture, 3900 ± 105
(4015 ± 110)

Charcoal from Nindowari damb (Lat. 27° N., Long. $66^{\circ} 30'$ E.), District Khuzdar, from Trench ND, Layer 3, Field Id. ND. B 1-XXIV. Site was excavated by J. M. Casal who submitted the sample.

Pirak, Khuzdar Division, West Pakistan

Pirak (Lat. $29^{\circ} 30'$ N., Long. $67^{\circ} 54'$ E.), District Kanchi, excavated by J. M. Casal, who submitted the samples.

TF-1108, Pirak Complex 2650 ± 100
(2725 ± 105)

Charcoal from Layer 10, Depth 2 m., Field Identification PK-A-3 J.

TF-1109, Pirak Complex, 2705 ± 120
(2780 ± 125)

Charcoal from Layer 11, Depth 1.60 m., Field Identification, PK-A.

TF-861, Pirak Complex, 2660 ± 100
(2735 ± 105)

Charcoal from Layer 12 W, Depth 1 m., Field Identification PK-A.

TF-1202, Pirak Complex, 2940 ± 80
(3025 ± 80)

Charcoal from Layer 32 N., Depth 4 to 5 m., Field Identification PK-A-3 J.

TF-1201, Pirak Complex, 2650 ± 150
(2725 ± 155)

Charcoal from Layer 34, Depth 4 to 5 m., Field Identification, PK-A-3 K.

Tepe Yahya, Kerman, Iran

Tepe Yahya, District Baft, was excavated by C. C. Lamberg-Karlovsky, Harvard University, Cambridge, Massachusetts, U.S.A., who submitted the samples.

TF-1139, Period VI, 4195 ± 110
(4315 ± 115)

Charcoal from hard clay fill, Trench C, Locus TT 6, Layer 3, Field No. C TT 6, 3.

TF-1136, Period V A, B, 4130 ± 85
(4250 ± 85)

Charcoal from Trench XC, TTI, Layer 5-1, found in rubble area beneath floor of Layer 5, near South Balk, Field No. XC, TTI, 5-1.

TF-1143, Period IV B, 4150 ± 130
(4270 ± 135)

Wood charcoal from Trench B, Feature 1-1 from floor of room, 80 cm beneath major IV A architecture.

TF-1140, Period IV B, 3560 ± 110
(3665 ± 110)

Charcoal from Trench B/BW, Locus Test Trench 4, Layer 1, Feature 4.

ACKNOWLEDGEMENT

The authors are thankful to Prof. D. Lal for helpful suggestions and to Shri S. V. Kerkar for laboratory assistance.

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