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NATIONAL PHYSICAL LABORATORY RADIOCARBON MEASUREMENTS V

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The following list comprises measurements made since those reported in NPL IV.

No changes have been made in measurement technique or in the method of calculating results.

Ages are given relative to A.D. 1950 and half-life of 5568 yr has been assumed. Measurements, corrected for fractionation relative to the P.D.B. standard, are referred to 0.950 times the activity of the NBS oxalic acid as contemporary reference standard. The quoted uncertainty is one standard deviation and includes an additional uncertainty equivalent to a standard deviation of 80 yr for the de Vries effect. Should a net sample count rate be less than 4 times the standard error of the difference between the sample and background rates, a lower limit to the age would be reported corresponding to a net sample count rate of 4 times the standard error of this difference.

The description of each sample is based on information supplied to the laboratory by the person submitting the sample.

ARCHAEOLOGIC AND GEOLOGIC SAMPLES

A. England

Cow Down series, Wiltshire

Wood charcoal samples from Cow Down (51° 10′ N Lat, 02° 10′ W Long), Longbridge Deverill, nr. Warminster, Wiltshire. Coll. 1958-60 by S. Hawkes; subm. by L. Biek, Ministry of Public Bldg. and Works. Cow Down 1, NPL-104, previously dated to 2480 ± 90 (NPL IV).

NPL-105. Cow Down 2 — **2580 ± 155**, **630 B.C.**, $\delta C^{13} = -25.0‰$

Wood charcoal (*Q. robur*) from post hole of main structural posts (Enclosure II, House I). Associated pottery has remarkable affinities to French Bronze age types of 8th-7th century B.C.

NPL-106. Cow Down 3 — **2450 ± 90**, **500 B.C.**, $\delta C^{13} = -25.0‰$

Wood charcoal (*Q. robur*) from post holes of main structural post ring, and from bottom of clear post socket which shows post circular in section, diam. 10 in. Probably a small tree trunk (Enclosure II, House 2).

NPL-107. Cow Down 4 — **2370 ± 95**, **420 B.C.**, $\delta C^{13} = -25.0‰$

Wood charcoal ('Hazel' *Corylus avellana*). Loom post hole (Enclosure II, House 2).

2410 ± 140

NPL-108. Cow Down 5 **460 B.C.**

$\delta C^{13} = -25.0‰$

Wood charcoal (*Q. robur*) from well down in filling of deep storage pit (Enclosure II, Pit 7).

2440 ± 90

NPL-109. Cow Down 6 **490 B.C.**

$\delta C^{13} = -25.0‰$

Wood charcoal ('Hazel' *Corylus avellana*), from well down in filling of deep storage pit (Enclosure II, Pit 37, layer 3).

General Comment (S.H.): dates obtained from 2 houses confirm suggestion from archaeological evidence, that beginnings of British Iron age in Wessex should be taken at least a century earlier than previously. NPL-108 and NPL-109 came from rubbish pits and results are older than expected from pottery and other finds *viz.*, 3rd to 1st century B.C.

Bridgewater Bay series, Somerset

Two samples of peat and 1 of wood from 3 boreholes through submerged forest at Stolford, Somerset. Coll. 1965 and subm. by Prof. C. Kidson, Univ. College of Wales, Aberystwyth.

3460 ± 90

NPL-146. Borehole 1 **1510 B.C.**

$\delta C^{13} = -25.0‰$

Peat from 14 ft 2 in. below surface in Borehole 1, sample at +3 ft 4 in. O.D. (51° 12′ N Lat, 03° 06′ W Long). Peat coll. from middle of layer of mixed clay and peat 3 ft thick, underlying marsh clay, and above woody peat 3 ft thick. *Comment* (C.K.): pollen analysis indicates formation from reed swamp community, supporting date in upper part of Zone VIIb.

5380 ± 95

NPL-147. Borehole 2 **3430 B.C.**

$\delta C^{13} = -25.0‰$

Peat from 10 ft 5 in. below surface in Borehole 2, sample at −1 ft 9 in. O.D. (51° 12′ N Lat, 03° 06′ W Long). Sample containing much wood was taken from 3 ft below top of peat layer 7 ft 6 in. thick, overlying clay with lias fauna, and underlying clay with marsh fauna. *Comment* (C.K.): pollen analysis indicates formation from *Alder carr* supporting date in Zone VIIa just before "elm decline," *cf.* Tealham Moor (Q-126, 5620 ± 120 Cambridge III).

6230 ± 95

NPL-148. Borehole 3 **4280 B.C.**

$\delta C^{13} = -25.0‰$

Wood sample (probably *Alnus*) from peat 3 ft 10 in. below surface in Borehole 3, sample at −8 ft 10 in. O.D. (51° 13′ N Lat, 03° 06′ W Long). Wood is from upper eroded surface of peat layer 3 ft thick underlying modern mud and overlying clay with marsh fauna. *Comment* (C.K): pollen analysis of peat surrounding sample indicates *Alder carr* origin supporting date in lower part of Zone VIIa. (de Beer, 1964).

B. Scotland

Scottish Highland series (cont'd.)

Previously dated NPL-94-96, 111, 112 (NPL IV).

NPL-110. Hill Fare, Kincardineshire **5080 ± 90**
3130 B.C.
$\delta C^{13} = -25.0‰$

Organic-mineral transition of peat profile (depth 222 cm) from peat covered ridge at approx. 1400 ft O.D. (57° 06′ 42″ N Lat, 02° 32′ 00″ W Long), N.E. Scotland. Coll. 1964 and subm. by J. M. Stewart, Macaulay Inst. for Soil Res. *Comment* (J.M.S.): supports palynological data that initiation of hill-peat development on E boundary of Grampian Mountains started in mid-Atlantic period. (Pollen Zone VIIa).

C. Wales

NPL-132. Coygan Camp, Carmarthenshire **5000 ± 95**
3050 B.C.
$\delta C^{13} = -25.0‰$

Hazelnut shells, partly charred from Pit C XIX at Coygan Camp (51° 45′ N Lat, 04° 30′ W Long), Carmarthenshire. Coll. 1964 by G. J. Wainwright; subm. L. Biek. This is 1st radiocarbon measurement of Neolithic sample from Wales. *Comment* (G.J.W.): early date brings Coygan settlement into line with others in Ireland, W England, and SW Scotland and re-emphasizes early colonization of W seaboard.

NPL-113. Clarach Beach, Cardiganshire **5970 ± 90**
4020 B.C.
$\delta C^{13} = -25.0‰$

Sample from tree root *in situ* of submerged forest-bed on Clarach Beach (51° 25′ 57″ N Lat, 04° 04′ 47″ W Long), Cardiganshire. Coll. 1965 and subm. by J. A. Taylor, Univ. College of Wales, Aberystwyth. Wood id. as *Pinus sylvestris* by P. D. Moore. *Comment* (J.A.T.): dating of this sample at 5970 ± 90 B.P. is first evidence suggesting correlation with submerged forest at Borth previously dated by Godwin: Q-380, 6026 ± 135 B.P., Q-382, 5898 ± 135 B.P. (Godwin, 1938; Cambridge III).

D. Italy

NPL-89. Canne S.M.1 **965 ± 95**
A.D. 985
$\delta C^{13} = -23.5‰$

Human bones from skeleton in grave (41° 17′ 40″ N Lat, 16° 08′ 38″ E Long) about 1 m.-deep covered by light stratum of earth, found at Canne (Bari), Italy. Coll. 1964 by Gen. D. Ludovico and Dr. A. Martini, State Archaeologist Dept. of Taranto, and subm. by Gen. Ludovico. It was hoped that distinction could be drawn between skeletons from battle of Canne (216 B.C.) and those of Middle Ages also found in same locality. *Comment* (Gen. D.L.): sample must be from one of Middle Age skeletons known to exist in locality, fewer than those of battle of Canne.

E. W Africa

Sénégal Delta series

Shells (*Arca senilis*) from marine terrace (15° 54′ N Lat, 16° 28′ W Long), Sénégal delta, W. Africa. Coll. (1964) P. Michel, Univ. of Dakar. Subm. by A. T. Grove, Univ. of Cambridge. Dating required to resolve age of terrace which Tricart (1961) considered to be Ouljienne.

NPL-102. Sample 915

1905 ± 125
A.D. 45
$\delta C^{13} = -0.5‰$

Sample coll. from edge of lagoon between 2 marine bars at alt. 1.3 m.

NPL-152. Sample 921

1650 ± 125
A.D. 300
$\delta C^{13} = -4.0‰$

Sample coll. from kitchen midden (?) at alt. 2 m.

General Comment (A.T.G.): ages correspond with those recently determined by C.E.A. and Isotopes, Inc., confirming that there have not been 2 marine transgressions in area, Ouljienne and Flandrian, but only one, now called Nouakchottien. Dubois, 1954; Elouard, 1966; Michel, 1957, 1959; Tricart, 1961).

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