

BELFAST RADIOCARBON DATES VIII

G W PEARSON and J R PILCHER

Palaeoecology Laboratory, Queen's University
Belfast, Northern Ireland

INTRODUCTION

Procedures of measurements and calculation remain as previously described. All samples are pretreated according to the methods described in R, 1971, v 13, p 103 and p 123 unless specified under the sample descriptions. Unless stated samples are from Ireland.

ACKNOWLEDGMENTS

We wish to thank Florence Qua and Annice Melville who have carried out pretreatments and the routine operation of the dating equipment. The Ministry of Finance supported the dating of the White Rocks samples and the Royal Society, London, supported the dating of the Exmore samples. We thank the archaeologists who submitted samples for their cooperation in the preparation of this report.

I. ARCHAEOLOGIC SAMPLES

White Rocks series, Co Antrim

Samples from old land surface in sand dunes at White Rocks, Ballymacrea Lower Td, 2.5km E of Portrush, Co Antrim (55° 12' N, 6° 37' W; Irish Grid Ref C 884406; alt ca 15m). Hearth in old land surface excavated 1971 by A E P Collins, Archaeol Survey N Ireland. Assoc flint work thought to be Neolithic. Subm 1971 by D M Waterman for Ministry Finance N Ireland.

UB-666. White Rocks, I

3255 ± 730

1305 BC

$\delta^{13}C = -20.2\%$

Human bones from pit-grave dug from supposed Neolithic land surface. Probably buried as loose bones rather than articulated skeleton. *Comment:* low collagen content of bones necessitated dilution of counting gas.

UB-667. White Rocks, II, hearth

2100 ± 70

150 BC

$\delta^{13}C = -25.6\%$

Charcoal, some of oak wood, from hearth in old land surface, assoc with flint and pottery thought to be Neolithic. *Comments:* date shows charcoal is not Neolithic; artifacts are either not assoc with charcoal or are not Neolithic.

General Comment: precision of UB-666 precludes detailed interpretation. Sample is clearly prehistoric and could be Neolithic; charcoal (UB-667) is clearly not Neolithic.

Crossnacreevy Ring Fort series, Co Down

Sample from ringfort (rath) in Crossnacreevy Td, 7km SW of Belfast,

Co Down (54° 34' N, 5° 50' W; Irish Grid Ref J 397702; alt ca 120m). Site excavated 1971 by A Harper, Archaeol Survey N Ireland. Palaeoecologic investigations of site by B Clayton, Palaeoecol Lab, Queen's Univ, Belfast.

UB-674. Crossnacreevy, post-hole **1350 ± 30**
AD 600
 $\delta^{13}C = -25.2\text{‰}$

Fine charcoal extracted from clay in post-hole on house platform. *Comment* (AH): result falls within expected range for this type of site, and is consistent with archaeological dating of other finds. Sample dates assoc stone lamp. Lamp is 1st from stratified context in Ireland.

UB-751. Crossnacreevy, basal ditch fill **715 ± 65**
AD 1235
 $\delta^{13}C = -27.5\text{‰}$

Humic acid from bulk sample of basal 10cm of ditch fill. Coll 1972 and pretreated by B Clayton. *Comment* (BC): even allowing for some movement of humic acid within clay ditch filling, date is considerably younger than occupation of site indicated by UB-674. Taken with pollen analytic evidence, date suggests re-digging of ditch at later date.

UB-849. Crossnacreevy, ditch fill 50 to 56cm **540 ± 90**
AD 1410
 $\delta^{13}C = -28.1\text{‰}$

Humic acid extracted from clay of ditch fill from 50 to 56cm depth and 20cm above base (see UB-751). *Comment* (BC): date shows reasonable deposition rate for ditch and supports interpretation that it was re-dug.

UB-753. Crossnacreevy, buried soil charcoal **2750 ± 70**
800 BC
 $\delta^{13}C = -25.0\text{‰}$

Fine charcoal extracted from large bulk sample of soil under bank of ringfort. *Comment* (BC): clearly pre-dates construction considerably and demonstrates persistence of charcoal in surface layers of soil.

UB-848. Crossnacreevy, buried soil, humic acid **1910 ± 90**
AD 40
 $\delta^{13}C = -26.6\text{‰}$

Humic acid extracted from 14 to 20cm of monolith used for pollen analysis. Stratigraphically equivalent to UB-753. *Comment* (BC): while later than charcoal in soil, humic acid still seems considerably older than construction.

General Comment: UB-674 provides best estimate of utilization date. Bracket provided by pre-rath soil and ditch fill is too wide to be archaeologically useful. Dates for ditch fill reinforce pollen evidence for re-cut ditch for which there is no archaeological evidence or explanation.

Rainsborough series, Northamptonshire, England

Samples from Rainsborough hillfort, Newbottle parish, 9.5km SE of Banbury, Northamptonshire, England (52° 00' N, 1° 14' W; Grid Ref SP 526348; alt 145m). Site excavated 1961 to 1965 by M Avery, Archaeol Dept, Queen's Univ, Belfast. Ref: Avery, Sutton, and Banks (1967).

UB-736. Rainsborough, RC '62, Samples 20 and 21 **2460 ± 70**
510 BC
 $\delta^{13}C = -25.5\text{‰}$

Charcoal from Pit K, Layers 1 and 2 combined. See Avery, Sutton, and Banks (1967, pl 18c). *Comment* (MA): Layer 2 was pit filling preceding burning horizon (Early Iron Age Phase 3a); Layer 1 probably included debris of that burning.

UB-737. Rainsborough, RC '64, Sample 4 **2490 ± 35**
540 BC
 $\delta^{13}C = -24.6\text{‰}$

Charcoal of oak, id by JRP, from N Guard Room, R Layer 6, 7 or 9a, see Avery, Sutton, and Banks (1967, pl 21a). *Comment* (MA): oak was probably a main support timber for guardroom roof, constructed in Early Iron Age Phase 2a, in use during Phase 2b, burnt in Phase 3a.

UB-853. Rainsborough, RC '64, Sample 45 **2430 ± 75**
480 BC
 $\delta^{13}C = -23.2\text{‰}$

Charcoal of ash wood, id by JH, branches ca 25 yr-old, from South Guard Room; see Avery, Sutton, and Banks (1967, fig 14, Timber B). *Comment* (MA): ash wood was probably used in construction of guard room roof; see comment on UB-737, above.

UB-854. Rainsborough, RC '62, Sample 1 **2305 ± 115**
355 BC
 $\delta^{13}C = -23.2\text{‰}$

Charcoal from L/hollow, Layer 3, see Avery, Sutton, and Banks (1967, fig 8). *Comment* (MA): pottery from layer (nos 91-99) suggests contamination (*ibid*, p 278-279).

UB-855. Rainsborough, RC '62, Sample L 23 **2450 ± 75**
500 BC
 $\delta^{13}C = -20.3\text{‰}$

Carbonized grain of hexaploid type wheat, id by JRP, from Cutting L 1, Post-hole 2, Layer 3 (Avery, Sutton, and Banks, 1967, figs 7 & 8; p 225). *Comment* (MA): post-hole was for 4-post structure possibly built over hollow dated by UB-854, above.

General Comment (MA): results for 5 samples are statistically indistinguishable. UB-737 and -853 both date growth of wood used in construction of guard-roomed fort in Early Iron Age Phase 2a; cf series from Dinorben (Savory, 1971, p 256) and Birm-185a, b from Croft Ambrey guard room (2410 ± 135, 2377 ± 136; R, 1971, v 13, p 153). Finds from

guard room floors (Avery, Sutton, and Banks, 1967, nos. 132-140, 154-173, and probably 128-131) are presumably a decade or so younger than construction date of roof. UB-736 and -855 are probably of Early Iron Age Phase 2a (Avery, Sutton, and Banks, 1967, p 262).

Fengate series, Northamptonshire, England

Samples from settlement site at Fengate, 0.5km E of Peterborough, Northamptonshire, England (52° 34' 30" N, 0° 13' W; Grid Ref TL 212990; alt 3m). Site excavated by F M M Pryor, Royal Ontario Mus, Toronto, Canada. Coll and sub 1971 by FMMP.

UB-676. Fengate, Sample 1
3230 ± 70
1280 BC
 $\delta^{13}C = -24.4\text{‰}$

Charcoal from sandy clay from Padholme Road site, Area VIII, intersec of Ditch 3 with Feature 4, Layer 1. *Comment* (FMMP): should date main period of use of Ditch 3.

UB-677. Fengate, Sample 2
2885 ± 135
935 BC
 $\delta^{13}C = -24.7\text{‰}$

Wood of small branches of birch, id by J Hillam, from Padholme Road site, Area IX, Feature 4, Layer 5. *Comment* (FMMP): should date main use of Ditch 1.

UB-822. Fengate, Sample 4
2290 ± 125
340 BC
 $\delta^{13}C = -26.2\text{‰}$

Twigs from Vicarage Farm site, Area I, Feature 6, Layer 4. *Comment* (FMMP): sample from bottom of pit containing Early Iron age pottery.

General Comment (FMMP): UB-676 and -677 date main period of use of Ditches 1-4 (Pryor, 1974, fig 1). UB-822 dates pottery of Early Iron age type illustrated in Pryor (1974, fig 14, nos 1-21); this date would indicate a considerable degree of overlap between the 'early' and 'late' Iron age ceramic styles at Fengate (*cf* Pryor, 1974, p 38, Gak-4198).

UB-907. Knocknacarragh Mill, Co Galway
1355 ± 45
AD 595
 $\delta^{13}C = -23.0\text{‰}$

Structural oak timber from horizontal mill in Knocknacarragh Td ca 3km from Galway, Co Galway (53° 16' N, 9° 7' W; Irish Grid Ref M 262237). Coll 1971 by A T Lucas, Nat Mus Ireland, Dublin. *Comment* (ATL): no Irish horizontal mills can be dated by assoc with artifacts or structures. Only one other has so far been dated by radiocarbon.

II. PALAEOECOLOGIC SAMPLES

Samples relating to palynologic study of postglacial vegetational history of SE Co Down, by SM Holland, Palaeoecol Lab, Queen's Univ. Stratigraphic depths are below bog surfaces.

Slieve Croob monolith series, Co Down

Blanket peat from near summit of Slieve Croob, 8.75km NNW of Castlewellan Co Down (54° 20' N, 5° 59' W; Irish Grid Ref J 318454), alt ca 560m.

UB-824. Slieve Croob monolith, 8 to 14cm **390 ± 60**
AD 1560
 $\delta^{13}C = -25.8\text{‰}$

Fine particulate fraction of blanket peat. Low tree pollen values and increase of grass and heath pollen.

UB-825. Slieve Croob monolith, 70 to 76cm **1440 ± 70**
AD 510
 $\delta^{13}C = -25.3\text{‰}$

Fine particulate fraction of blanket peat. Increase of plantain and heath pollen, cereal type pollen present.

UB-826. Slieve Croob monolith, 152 to 158cm **2605 ± 70**
655 BC
 $\delta^{13}C = -25.3\text{‰}$

Fine particulate fraction of blanket peat. Decrease in pollen concentration.

UB-827. Slieve Croob monolith, 171 to 175cm **2785 ± 75**
835 BC
 $\delta^{13}C = -25.3\text{‰}$

Fine particulate fraction of blanket peat. Marked reduction of tree pollen and high heath pollen values.

UB-828. Slieve Croob monolith, 202 to 206cm **3325 ± 75**
1375 BC
 $\delta^{13}C = -25.3\text{‰}$

Fine particulate fraction of transitional reedswamp peat. Increase of plantain pollen.

UB-829. Slieve Croob monolith, 223 to 227cm **3845 ± 80**
1895 BC
 $\delta^{13}C = -25.6\text{‰}$

Fine particulate fraction of reedswamp peat. Decrease of hazel pollen.

UB-830. Slieve Croob monolith, 242 to 246cm **3940 ± 85**
1990 BC
 $\delta^{13}C = -26.1\text{‰}$

Fine particulate fraction of reedswamp peat. Plantain pollen curve becomes continuous.

UB-831. Slieve Croob monolith, 250 to 254cm **4095 ± 85**
2145 BC
 $\delta^{13}C = -25.5\text{‰}$

Fine particulate fraction of reedswamp peat. Pine and elm pollen reduced to low values, maximum of ash pollen.

UB-832. Slieve Croob monolith, 256 to 260cm **4215 ± 85**
2265 BC
 $\delta^{13}C = -23.9\%$

Fine particulate fraction of reedswamp peat. Oak and hazel pollen curves increase.

UB-833. Slieve Croob monolith, 264 to 268cm **4685 ± 85**
2735 BC
 $\delta^{13}C = -25.8\%$

Fine particulate fraction of fine detritus mud. Decline of pine pollen values, cereal type pollen present.

Lackan Monolith I series, Co Down

Samples from raised bog in Lackan Td, 6km NE of Rathfriland, Co Down (54° 16' N, 6° 5' W; Irish Grid Ref J 242378), alt ca 75m.

UB-791. Lackan Monolith I, 3 to 5cm **2080 ± 65**
130 BC
 $\delta^{13}C = -24.1\%$

Fine particulate fraction (see R, 1971, v 13, p 123) of *Sphagnum* peat. At onset of clearance phase with maximum values of heath pollen.

UB-792. Lackan Monolith I, 16 to 17cm **2330 ± 50**
380 BC
 $\delta^{13}C = -24.8\%$

Sphagnum peat. Acid pretreatment. Regeneration following clearance phase with high values of grass, heath, and plantain pollen.

UB-793. Lackan Monolith I, 24 to 25cm **2590 ± 45**
640 BC
 $\delta^{13}C = -24.0\%$

Sphagnum peat. Acid pretreatment. Clearance phase with high values of grass and plantain pollen.

UB-794. Lackan Monolith I, 44 to 45cm **2970 ± 40**
1020 BC
 $\delta^{13}C = -24.3\%$

Sphagnum peat. Acid pretreatment. Increase of birch pollen values, decrease of plantain pollen values.

UB-795. Lackan Monolith I, 57 to 58cm **3320 ± 45**
1370 BC
 $\delta^{13}C = -25.2\%$

Sphagnum peat. Acid pretreatment. At beginning of clearance phase with high values of grass and plantain pollen.

UB-796. Lackan Monolith I, 79 to 80cm **3590 ± 50**
1640 BC
 $\delta^{13}C = -24.7\%$

Sphagnum peat. Acid pretreatment. Increase of plantain pollen values.

- UB-797. Lackan Monolith I, 111 to 112cm** **4105 ± 50**
2155 BC
 $\delta^{13}C = -25.3\text{‰}$
Sphagnum peat. Acid pretreatment. Reduction in pine and elm pollen values.
- UB-798. Lackan Monolith I, 124 to 125cm** **4465 ± 50**
2515 BC
 $\delta^{13}C = -25.7\text{‰}$
Sphagnum peat. Acid pretreatment. Elm pollen curve shows substantial increase at this level.
- UB-799. Lackan Monolith I, 134 to 134.5cm** **4605 ± 85**
2655 BC
 $\delta^{13}C = -25.6\text{‰}$
Sphagnum peat. Acid pretreatment. Beginning of recovery of elm pollen curve.
- UB-800. Lackan Monolith I, 149 to 149.5cm** **4695 ± 50**
2745 BC
 $\delta^{13}C = -26.3\text{‰}$
Sphagnum peat. Acid pretreatment. Elm pollen virtually absent. Beginning of continuous plantain pollen curve. Cereal type pollen present.
- UB-801. Lackan Monolith I, 156 to 156.5cm** **5085 ± 45**
3135 BC
 $\delta^{13}C = -25.0\text{‰}$
Sphagnum peat. Acid pretreatment. Sample at level where elm pollen curve is falling rapidly, just before main elm decline.
- UB-802. Lackan Monolith I, 169 to 170cm** **5835 ± 55**
3885 BC
 $\delta^{13}C = -25.5\text{‰}$
Sphagnum peat. Acid pretreatment. Pine pollen values reduced.
- UB-803. Lackan Monolith I, 179 to 180cm** **6975 ± 110**
5025 BC
 $\delta^{13}C = -25.4\text{‰}$
Sphagnum peat. Acid pretreatment. Beginning of continuous alder pollen curve.
- UB-804. Lackan Monolith I, 194 to 196cm** **7375 ± 100**
5425 BC
 $\delta^{13}C = -25.5\text{‰}$
 Fine particulate fraction of reedy transitional peat. Pine pollen values high.
- UB-805. Lackan Monolith I, 244 to 246cm** **8305 ± 60**
6355 BC
 $\delta^{13}C = -27.3\text{‰}$
 Fine particulate fraction of reedswamp peat. Beginning of continuous curve for heath pollen.

- UB-806. Lackan Monolith I, 308 to 310cm** **8660 ± 70**
6710 BC
 $\delta^{13}C = -26.7\text{‰}$

Fine particulate fraction of reedswamp peat from near base of organic deposits. Birch and willow pollen values high.

Carrivmoragh monolith series, Co Down

Samples from valley bog, 5km NW of Castlewellan, Co Down (54° 19' N, 5° 59' W; Irish Grid Ref J 315416), alt ca 260m. Stratigraphic depths are below present bog surface. All samples were alkali soluble, acid insoluble humic acid extracted from deposit (Fraction 'C' of R, 1970, v 12, p 296).

- UB-864. Carrivmoragh monolith, 30 to 33cm** **1700 ± 65**
AD 250
 $\delta^{13}C = -27.0\text{‰}$

Organic mud. Upper limit of organic deposits.

- UB-865. Carrivmoragh monolith, 52 to 55cm** **3035 ± 50**
1085 BC
 $\delta^{13}C = -27.3\text{‰}$

Organic mud. Sample just above clay layer and at end of high plantain pollen values.

- UB-866. Carrivmoragh monolith, 66 to 70cm** **3295 ± 50**
1345 BC
 $\delta^{13}C = -27.3\text{‰}$

Organic mud. Just below clay layer and at marked increase of plantain pollen. Continuous curve for cereal type pollen starts and grass pollen curve rises.

- UB-867. Carrivmoragh monolith, 76 to 79cm** **3455 ± 45**
1505 BC
 $\delta^{13}C = -26.4\text{‰}$

Organic mud. End of continuous curve for pine and elm pollen. Sudden decrease in fern spores.

- UB-868. Carrivmoragh monolith, 89 to 92cm** **3925 ± 60**
1975 BC
 $\delta^{13}C = -26.8\text{‰}$

Organic mud. Marked decrease of elm pollen values and slight decrease of pine pollen values. Plantain and cereal type pollen present.

- UB-869. Carrivmoragh monolith, 97 to 100cm** **3795 ± 55**
1845 BC
 $\delta^{13}C = -27.1\text{‰}$

Organic mud. Beginning of large increase in grass pollen values.

UB-870. Carrivmoragh monolith, 105 to 108cm **4750 ± 85**
2800 BC
 $\delta^{13}C = -26.5\text{‰}$

Clay with organic content. Decreased elm pollen values and start of low pine pollen values. Plantain and cereal type pollen present.

UB-871. Carrivmoragh monolith, 116 to 120cm **5110 ± 60**
3160 BC
 $\delta^{13}C = -26.8\text{‰}$

Organic mud. Decline in pine pollen values. Plantain pollen present.

UB-872. Carrivmoragh monolith, 131 to 134 **7495 ± 70**
5545 BC
 $\delta^{13}C = -27.3\text{‰}$

Fine detritus mud. Start of continuous alder pollen curve.

UB-873. Carrivmoragh monolith, 156 to 160cm **8945 ± 85**
6995 BC
 $\delta^{13}C = -26.7\text{‰}$

Reedswamp peat. High birch pollen values and increase in hazel pollen values. Base of organic deposits.

General Comment on samples from SE Co Down (SMH): monoliths were taken at each of sites listed above, pollen analyzed and radiocarbon dated. Radiocarbon samples were taken at levels of important vegetational change. Results are reasonably consistent and comparable with age determinations for similar vegetational changes elsewhere in Northern Ireland (Smith, 1973). The rational border of alder pollen was dated as 6975 ± 110 (UB-803, Lackan), and 7495 ± 70 (UB-872, Carrivmoragh), which is similar to determinations at Ringneil Quay, Co Down (Morrison, 1961). At Lackan, UB-801 (5085 ± 45), UB-800 (4695 ± 50) and UB-799 (4605 ± 85) date beginning, middle, and end of elm decline, respectively. Decreases in elm pollen percentages at Carrivmoragh and Slieve Croob were dated as 4750 ± 85 (UB-870) and 4685 ± 85 (UB-833), respectively. The pine pollen curve becomes discontinuous at Slieve Croob from 4095 ± 85 (UB-831), and at Lackan from 4105 ± 50 (UB-797). At Carrivmoragh, pine pollen percentages decrease to 1% at 3925 ± 60 (UB-868), but the pollen curve does not become discontinuous until 3455 ± 45 (UB-867). Deposition rates calculated for the 3 sites are being utilized for the calculation of absolute pollen influx.

Loch Garten series, Inverness-shire, Scotland

Samples of lake mud from Loch Garten, 11.5km SSW of Grantown-on-Spey, Moray, Scotland ($57^{\circ} 15' N$, $3^{\circ} 42' W$, alt 220m). Samples from core coll using 3m Mackereth corer by P E O'Sullivan, Fac Humanities, The Polytechnic, Wolverhampton, England. Lake water depth 3.5m. Pretreatment by alkali and acid wash. Pollen analysis by P E O'S. Sample depths refer to position in core.

UB-850. Loch Garten, 80 to 90cm
3635 ± 205
1685 BC
 $\delta^{13}C = -27.6\%$

Dates main expansion of heathland and cultural pollen types at 83cm. Sample gas diluted with inactive methane.

UB-851. Loch Garten, 250 to 260cm
5860 ± 100
3910 BC
 $\delta^{13}C = -27.9\%$

Dates main Flandrian expansion of *Alnus* pollen at 255cm.

UB-852. Loch Garten, 270 to 282cm
7585 ± 335
5635 BC
 $\delta^{13}C = -28.2\%$

Dates base of sediment core coll. Sample gas diluted with inactive methane.

General Comment (PEO'S): date for UB-850, marking earliest pollen-analytic evidence for forest clearance in Speyside dist of E-Central Scottish Highlands, seems consistent with current archaeological opinion on age of Clava Group of Chambered Tombs (Henshall, 1972). UB-851 date suggests main Flandrian expansion of *Alnus* occurs later on Speyside than proposed by Birks (1970), based on radiocarbon dates of tree-stump layers. Similarly, UB-852 date is minimum for Pine forest establishment on Speyside, before main rise of Alder. For full discussion of results, see O'Sullivan (1974).

UB-874. Gosford Castle Forest, peat layer
4380 ± 80
2430 BC
 $\delta^{13}C = -28.4\%$

Twigs from clay layer underlying peat in Gosford Castle Forest, 1km N of Markethill, Co Armagh (54° 18' N, 6° 31' W; Irish Grid Ref H 965408), alt ca 90m. Peat layer was covered by ca 1m boulder clay; might have been interglacial. Result shows peat is postglacial and presence of boulder clay was probably due to land-slip or human activity. Pretreatment by alkali and acid washes.

UB-856. Kinnegar, peat layer
9890 ± 100
7940 BC
 $\delta^{13}C = -26.6\%$

Peat layer at 9.3 m depth below surface, under estuarine clay at Kinnegar, 6.4km NE of Belfast, Co Down (54° 38' 30" N, 5° 50' 45" W; Irish Grid Ref J 387784), alt ca sea level. Bulk sample of peat layer coll by commercial corer from base of estuarine clay and above red clay. Peat thickness estimated at 5cm. Coll 1972 by P Medhurst, Palaeoecol Lab. Acid pretreatment. *Comment*: date shows peat and overlying estuarine clay being studied by PM covers most of postglacial period.

III. TIMBER SAMPLES

Samples of subfossil and other timbers taken to aid construction of floating tree-ring chronologies and to place these in a relative framework.

Mill Lough series, Co Fermanagh

Timbers from Mill Lough, Loughgare Td, Co Fermanagh (54° 13' 30" N, 7° 17' W; Irish Grid Ref H 467313), alt 88m. Coll 1968 when lake level was artificially lowered. Lake dwelling exposed at this time dated by UB-267: 685 ± 80 (R, 1971, v 13, p 123).

UB-811. Mill Lough, Bog Oak 201 **1620 ± 40**
AD 330
 $\delta^{13}C = -23.3\%$

Yr 141 to 160 of 191-yr-old tree.

UB-812. Mill Lough, Bog Oak 215 **1680 ± 45**
AD 270
 $\delta^{13}C = -23.7\%$

Yr 220 to 239 of 256-yr-old tree.

UB-813. Mill Lough, Bog Oak 219 **1985 ± 35**
35 BC
 $\delta^{13}C = -22.5\%$

Yr 162 to 181 of 267-yr-old tree.

UB-814. Mill Lough, Bog Oak 227 **6400 ± 60**
4450 BC
 $\delta^{13}C = -23.5\%$

Yr 157 to 176 of 253-yr-old tree.

UB-815. Mill Lough, Bog Oak 228 **5725 ± 40**
3775 BC
 $\delta^{13}C = -23.5\%$

Yr 93 to 112 of 237-yr-old tree.

General Comment: timbers dredged from this lake clearly belong to a wide range of ages.

Blackwater series, Co Tyrone

Further samples from series of timbers dredged from R Blackwater near Verners Bridge, Co Tyrone (54° 29' 30" N, 6° 38' W; Irish Grid Ref H 883615), alt 17m. Coll 1968. See also UB-287: 1025 ± 60 (R, 1971, v 13, p 123) and UB-550: 825 ± 35 (R, 1973, v 15, p 227).

UB-754. Blackwater, Bog Oak 54A **1455 ± 50**
AD 495
 $\delta^{13}C = -24.4\%$

Yr 106 to 126 of 176-yr-old tree.

UB-755. Blackwater, Bog Oak 59 **1635 ± 40**
AD 315
 $\delta^{13}C = -22.8\%$

Yr 72 to 86 of 215-yr-old tree.

UB-904. Derrylard, Site II, Bog Oak 1282 **3640 ± 45**
1690 BC
 $\delta^{13}C = -24.2\%$

Yr 65 to 79 of 263-yr-old tree from banks of R Bann at Derrylard Td, 11.5km NW of Portadown, Co Armagh (54° 30' N, 6° 31' W; Irish Grid Ref H 961627), alt 17m.

UB-758. River Bann, Bog Oak 892 **2695 ± 50**
745 BC
 $\delta^{13}C = -23.8\text{‰}$

Yr 152 to 172 of 212-yr-old tree from R Bann at Ballynery, 5.5km N of Portadown, Co Armagh (54° 28' N, 6° 26' W, Irish Grid Ref J 014593), alt ca 20m. See also UB-687: 1405 ± 45 (R, 1973, v 15, p 607).

UB-808. Balloo Cottage, Bog Oak 1082 **4510 ± 40**
2560 BC
 $\delta^{13}C = -23.5\text{‰}$

Yr 29 to 38 of 123-yr-sample from tree ca 300 yr from saddler's cottage in Balloo Td, 19km SE of Belfast, Co Down (54° 28' N, 6° 34' W; Irish Grid Ref J 486607), alt 50m. See also UB-756, -757 (R, 1974, v 16, p 275), and UB-620 (R, 1973, v 15, p 226) for other bog oak timbers from this cottage.

Fallahogy Bog Pine series, Co Londonderry

Bog pines from E end of bog in Fallahogy Td, 18.4km WNW of Ballymena, Co Londonderry (54° 54' N, 6° 35' W; Irish Grid Ref C 933073), alt ca 40m. See also UB-621 (R, 1973, v 15, p 226) and UB-722 (R, 1973, v 15, p 610).

UB-767. Fallahogy, Bog Pine 906 **7970 ± 65**
6020 BC
 $\delta^{13}C = -22.2\text{‰}$

Yr 56 to 76 of 163-yr-old tree from E end of bog. Forms part of sequence of 307 yr.

UB-768. Fallahogy, Bog Pine 902 **7065 ± 60**
5115 BC
 $\delta^{13}C = -23.6\text{‰}$

Yr 66 to 76 of 169-yr-old tree from E end of bog. One of group of cross-dated trees all showing fire damage.

UB-769. Lough Eyes, Bog Oak 968 **515 ± 30**
AD 1435
 $\delta^{13}C = -23.3\text{‰}$

Oak timber from crannog (lake-dwelling) in Lough Eyes, 8.7km E of Eniskillen, Co Fermanagh (54° 20' N, 7° 30' W; Irish Grid Ref H 325433), alt 95m. Sample taken to determine whether timber belonged to crannog construction or to time of raising of water level in 17th century. Sample appears to date crannog.

UB-918. Rices Island, Bog Oak No. 1180 **6015 ± 60**
4065 BC
 $\delta^{13}C = -21.2\text{‰}$

Bog oak from cut-off bog at Rices I, 18.5km SW of Ballymena, Co Antrim (54° 46' N, 6° 30' W; Irish Grid Ref H 962922), alt 20m. Yr 274 to 283 of 283-yr-old tree.

UB-809. Lisnisk, Bog Oak 1066**4595 ± 60****2645 BC** $\delta^{13}C = -23.2\text{‰}$

Bog oak from Lisnisk Td, 3.8km ENE of Rathfriland, Co Down (54° 15' N, 6° 7' W; Irish Grid Ref J 236349), alt 90m. Yr 143 to 162 of 325-yr-old tree.

REFERENCES

- Avery, M, Sutton, J E G, and Banks, J W, 1967, Rainsborough, Northants, England, Excavations 1961-5: [London] Prehist Soc Proc, v 33, p 207-306.
- Birks, H H, 1970, Studies in the vegetational history of Scotland. I. A pollen diagram from Abernethy Forest, Inverness-shire: Jour Ecol, v 58, p 827-846.
- Henshall, A S, 1972, The chambered tombs of Scotland: v 2, Edinburgh.
- Morrison, M E S, 1961, The palynology of Ringeneil Quay, a new Mesolithic site in Co Down, Northern Ireland: Royal Irish Acad Proc, v 61C, p 171-182.
- O'Sullivan, P E, 1974, Two Flandrian pollen diagrams from the East-Central Highlands of Scotland: Pollen Spores, v 15, in press.
- Pryor, F M M, 1974, Excavation at Fengate, Peterborough, England: The First Report, Royal Ontario Mus Archaeol Mon 3, Toronto.
- Savory, H N, 1971, A Welsh Bronze age hillfort: Antiquity, v 45, p 251-261.
- Smith, A G, Pilcher J R, 1973, Radiocarbon dates and vegetational history of the British Isles: New Phytol, v 72, p 903-914.