

BELFAST RADIOCARBON DATES VI

A. G. SMITH, G. W. PEARSON, and J. R. PILCHER

Palaeoecology Laboratory, Queen's University,
Belfast, Northern Ireland

INTRODUCTION

The dating equipment and operating conditions remain essentially as previously described. This list includes some small samples counted at a filling pressure equivalent to 76cm Hg. at 20°C. Carbon isotope ratios were obtained and calculated as described (R., 1973, v. 15, p. 212). All samples are from Ireland.

ACKNOWLEDGMENTS

Most pretreatments and routine operation of the dating apparatus have been carried out by Florence Qua and Anise Colville to whom we are much indebted. The Ministry of Finance for Northern Ireland continued to give financial support for dating of samples relating to the work of the N Ireland Archaeological Survey.

I. ARCHAEOLOGIC SAMPLES

UB-561. Ballynagilly, Pit F(L) 155 **3605 ± 55**
1655 B.C.

$$\delta C^{13} = -25.6\text{‰}$$

Further charcoal sample from series reported in R., 1973, v. 15, p. 218-219, from Ballynagilly Td., Co. Tyrone (54° 42' N Lat, 6° 51' W Long; Irish Grid Ref. H 743837; alt. 200m). From pit 1.5m S of Neolithic house, lined with charcoal and filled with clay. Age and use of pit not known; fill contained 1 sherd of Neolithic pottery. *Comment*: date similar to those from samples assoc. with 'Plainware' (e.g., UB-355, 3525 ± 75, R., 1971, v. 13, p. 107).

UB-663. Catherwoods Fort, Co. Down **1400 ± 60**
A.D. 550

$$\delta C^{13} = -23.8\text{‰}$$

Oak wood from post of internal building from ringwork (rath) known as Catherwoods Fort, Co. Down, 8km SE of Belfast (54° 32' N Lat, 5° 52' W Long; Irish Grid Ref. J 385675; alt. ca. 165m). Site excavated and sample coll. 1971 by A. E. P. Collins, Archaeol. Survey of N Ireland. Subm. 1971 by D. M. Waterman. *Comment* (A.E.P.C.): Medieval type sherds found in gulley assoc. with building. Result suggests building was older in origin.

UB-665. Tullyallen Ringwork, Co. Armagh **1400 ± 65**
A.D. 550

$$\delta C^{13} = -24.5\text{‰}$$

Charcoal from ringwork (rath) at Tullyallen, 15km SE of Armagh, Co. Armagh (54° 14' N Lat, 6° 30' W Long; Irish Grid Ref. H 986347; alt. ca. 130m). Sample from lower dark layer of fill of Trench 2. Site excavated and sample coll. 1971 by A. E. P. Collins. Subm. 1971 by D. M. Waterman.

Comment (A.E.P.C.): date shows rath was in use early in Early Christian period.

UB-613. Dublin, Winetavern Street, 802 **1100 ± 75**
A.D. 850
 $\delta C^{13} = -24.6\%$

Wood from timber house dug into boulder clay from Viking settlement in Winetavern St., Dublin, Ireland (53° 25' N Lat, 6° 15' W Long; Irish Grid Ref. O 142340; alt. ca. 15m). Site excavated by B. O'Riordain, Natl. Mus., Ireland. Coll. 1971 by B. O'R. *Comment*: date agrees closely with archaeological evidence. *Cf.* comment on other samples from site (R., 1973, v. 15, p. 216-217).

UB-503. Newferry, Complex III, Sample 3 **5310 ± 85**
3360 B.C.
 $\delta C^{13} = -25.8\%$

Further charcoal sample from series (R., 1973, v. 15, p. 213-214), from cultural layers stratified in diatomite at Newferry, 13km WSW of Ballymena, Co. Antrim (54° 49' 30" N Lat, 6° 27' 30" W Long; Irish Grid Ref. H 992982; alt. 16m). Site excavated 1970, 1971 by P. C. Woodman, Ulster Mus. Belfast with members of the Palaeoecology Lab. Sample from occupation layer in upper diatomite (Complex III), Trench J 7W (Field notation; Layer 3A).

UB-715. Loughermore Valley Flax **125 ± 35**
A.D. 1825
 $\delta C^{13} = -26.6\%$

Sample of flax fibers (*Linum usitatissimum*) from 1m depth in blanket peat in Loughermore Valley, 13km SW of Limavady, Co. Londonderry (54° 55' N Lat, 7° 05' W Long; Irish Grid Ref. C 587135; alt. 170m). *Comment*: blanket peat appeared undisturbed over flax; thus, might have been ancient. Date shows flax to be recent and presumably in a retting pit which was later filled in.

For further dates of archaeological interest see UB-341, UB-688 (this list).

II. PALAEOECOLOGIC SAMPLES

Samples relating to research on origin and development of upland blanket peat in NE Ireland by A. Goddard (1971). Coll. 1968-1971 and pretreated by A. Goddard.

Ballypatrick Forest series, Co. Antrim

Blanket peat from deposits overlying reedswamp on slopes of Carneighaneigh Mt., 9km SE of Ballycastle, Co. Antrim (55° 9' 30" N Lat, 6° 7' 35" W Long; Irish Grid Ref. D 193364; alt. ca. 235m). See also UB-403 and -265 (R., 1971, v. 13, p. 117).

UB-707. Ballypatrick Forest, 129 to 132cm **2010 ± 70**
60 B.C.
 $\delta C^{13} = -27.6\%$

Fine particulate fraction of blanket peat from 129 to 132cm depth.

At beginning of decline in tree pollen values and rise in plantain, grass, and sedge pollen.

UB-708. Ballypatrick Forest, 156 to 160cm **2700 ± 75**
750 B.C.
 $\delta C^{13} = -26.9\%$

Fine particulate fraction of blanket peat from 156 to 160cm depth. At level of relatively high plantain pollen values; other weed-type pollen present. *Comment*: phase of increased agricultural activity shown by date to fall in later Bronze age.

Crocknamoyle series, Co. Antrim

Blanket peat samples from Drumfresky Td., 6.5km NW of Cushendall, Co. Antrim (55° 7' N Lat, 6° 9' W Long; Irish Grid Ref. D 313188; alt. 230m). See also UB-404 and -405 (R., 1971, v. 13, p. 120-121).

UB-727. Crocknamoyle, 66 to 70cm **2500 ± 60**
550 B.C.
 $\delta C^{13} = -27.6\%$

Fine particulate fraction of blanket peat from 66 to 70cm depth. At level of low tree pollen values, fall in grass and sedge values and rise in heaths. Slight rise in plantain values.

UB-726. Crocknamoyle, 90 to 104cm **2585 ± 75**
635 B.C.
 $\delta C^{13} = -26.7\%$

Fine particulate fraction of blanket peat from 90 to 104cm depth. At rise in tree pollen values and fall in plantain values suggesting decreased human activity and forest regeneration. *Comment*: date shows events described took place in later Bronze age.

Beaghs Forest series, Co. Antrim

Blanket peat from Beaghs Td., 8km SW of Cushendall, Co. Antrim (55° 4' N Lat, 6° 11' W Long; Irish Grid Ref. D 158248; alt. 320m). See also UB-347 (R., 1971, v. 13, p. 119).

UB-721. Beaghs Forest, 20 to 24cm **830 ± 60**
A.D. 1120
 $\delta C^{13} = -27.4\%$

Fine particulate fraction of blanket peat from 20 to 24cm depth. At beginning of rise in sedge and plantain pollen values. Tree pollen values fall above 20cm depth.

UB-338. Beaghs Forest, 37 to 41cm **1470 ± 75**
A.D. 480

Fine particulate fraction of blanket peat from 37 to 41cm depth. Sample 1cm above UB-347, 2520 ± 70 (R., 1971, v. 13, p. 119), which was, however, humic acid. At beginning of rise of heath and sedge pollen; fall of hazel curve. *Comment*: dates beginning of true ombrogenous peat formation but is ca. 1000 yr younger than UB-347, suggesting either a very slow initial accumulation of organic deposit or a break in deposition.

Beaghs Sand Quarry series, Co. Antrim

Blanket peat at sand quarry in Beaghs Td., 8km W of Cushendall, Co. Antrim (55° 5' N Lat, 6° 11' W Long; Irish Grid Ref. D 157274; alt. 280m). See also UB-346 (R., 1971, v. 13, p. 120).

UB-690. Beaghs Sand Quarry, 105 to 108cm **2125 ± 65**
175 B.C.
 $\delta C^{13} = -27.1\text{‰}$

Fine particulate fraction of blanket peat from 105 to 108cm depth. At rise in grass and sedge pollen values.

UB-691. Beaghs Sand Quarry, 142 to 145cm **2945 ± 60**
995 B.C.
 $\delta C^{13} = -27.5\text{‰}$

Fine particulate fraction of blanket peat from 142 to 145cm depth. At end of high plantain pollen values. *Comment:* together with UB-346, 3705 ± 65 (*q.v.*) date suggests clearance and occupation of site shown by pollen evidence lasted ca. 800 yr from ca. 1800 to 1000 B.C.

UB-692. Loughaveema, 114 to 118cm **2170 ± 70**
220 B.C.
 $\delta C^{13} = -26.7\text{‰}$

Fine particulate fraction of blanket peat from 114 to 118cm depth in Ballyvenagh Td., 9km NNW of Cushendall, Co. Antrim (55° 9' N Lat, 6° 7' W Long; Irish Grid Ref. D 205363; alt. 225m). At level of high plantain pollen values and just before fall in oak and alder pollen values. See also R., 1971, v. 13, p. 118-119. *Comment:* result shows agricultural activity indicated by pollen evidence was in early part of Iron age.

UB-720. Gruig Top, 51 to 55cm **2670 ± 75**
720 B.C.
 $\delta C^{13} = -23.6\text{‰}$

Fine particulate fraction of blanket peat from 51 to 55cm depth in Timpan Td., 6.5km NW of Cushendall, Co. Antrim (55° 6' N Lat, 6° 8' W Long; Irish Grid Ref. 306198; alt. 275m). Sample assoc. with layer of charcoal at level of increase of heath and birch pollen and decrease of sedge pollen. See also series in R., 1971, v. 13, p. 120. *Comment:* result shows burning was in later Bronze age.

Altnahinch monolith series, Co. Antrim

Further samples from series reported in R., 1973, v. 15, p. 220-221, from valley bog in Altnahinch Td., 12km SE of Cushendall, Co. Antrim (55° 3' N Lat, 6° 15' W Long; Irish Grid Ref. D 233125; alt. ca. 250m). Samples from monolith from exposed peat face to N of reservoir dam. Depths measured from bog surface.

UB-717. Altnahinch monolith, 185 to 187cm **4205 ± 80**
2255 B.C.
 $\delta C^{13} = -26.7\text{‰}$

Coarse particulate fraction (less than 800 μ) of blanket peat. At begin-

ning of substantial and continuous curve for plantain pollen; fall of total tree pollen and particularly of hazel. *Comment*: date shows reduction of forest cover indicated by pollen evidence was in Late Neolithic or Beaker times.

7270 ± 90
UB-719. Altnahinch monolith, 299 to 303cm **5320 B.C.**
 $\delta C^{13} = -26.3\%$

Fine particulate fraction of reedswamp peat. Sedge pollen values fall from ca. 30% to 5% at 298cm and remain low. Rise in pine pollen and 1st appearance of alder pollen. *Comment*: date for this empirical limit of alder curve comes at older end of range for upland sites, (*cf.* Smith and Pilcher, 1973).

Breen Wood series, Co. Antrim

Samples from raw humus deposit in supposed relict oakwood in Breen Td., 7.5km S of Ballycastle, Co. Antrim (55° 9' N Lat, 6° 14' W Long; Irish Grid Ref. D 125335; alt. ca. 300m). Depths are below base of superficial *Sphagnum* layer.

575 ± 60
UB-740. Breen Wood, 1 to 3cm **A.D. 1375**
 $\delta C^{13} = -26.7\%$

Fine particulate fraction of raw humus. At rise of tree pollen values from 30% to 55% due mainly to birch. *Comment*: dates woodland regeneration after open heath phase which lasted some 900 yr by comparison with UB-741, below.

1440 ± 75
UB-741. Breen Wood, 14 to 16cm **A.D. 510**
 $\delta C^{13} = -27.3\%$

Fine particulate fraction of raw humus. At sharp fall of tree pollen values from ca. 70% at 16.5cm to ca. 30% at 15.5cm. Non-tree pollen mainly heaths and sedges. *Comment*: results shows deforestation indicated by pollen evidence was in Early Christian times. Monument of this period known in area.

General Comment on upland peat samples from NE Ireland: 3 samples in this section (UB-708, -691, -720) confirm that agricultural practices revealed by pollen analysis of lower parts of upland peats belong to Bronze age (*cf.* comments on UB-334, -337F, -346, -339, -405 [R., 1971, v. 13, p. 119-121]).

Samples relating to pollen analytic study of origins and altitudinal variation in peats of the Sperrin Mts., by A. McKenna and A. G. S. Coll. 1971 by A. McK. and A. G. S.

Oughtnamwella series, Co. Tyrone

Peat from Oughtnamwella Td., 14.5km W of Draperstown, Co. Tyrone (54° 48' N Lat, 7° 01' W Long; Irish Grid Ref. H 631949; alt. ca. 210m). Depths are measured from bog surface.

UB-588. Oughtnamwella, 81 to 85cm **2090 ± 65**
140 B.C.
 $\delta C^{13} = -27.8\text{‰}$

Fine particulate fraction of woody amorphous peat. At rise of heath and sedge pollen curves ca. 15cm below stratigraphic change to blanket peat.

UB-587. Oughtnamwella, 119 to 123cm **3075 ± 60**
1125 B.C.
 $\delta C^{13} = -29.7\text{‰}$

Fine particulate fraction of reedswamp peat. At rise of alder curve and end of possible agricultural phase.

UB-586. Oughtnamwella, 140 to 144cm **3945 ± 115**
1995 B.C.
 $\delta C^{13} = -27.6\text{‰}$

Fine particulate fraction of reedswamp peat. Sample diluted with inactive methane for counting. At final decline of pine curve and reduction of elm. Beginning of general increase of non-tree pollen.

UB-585. Oughtnamwella, 154 to 158cm **4670 ± 75**
2720 B.C.
 $\delta C^{13} = -28.6\text{‰}$

Fine particulate fraction of reedswamp peat. Base of organic deposit.

Crockbrack series, Co. Londonderry

Peat from Crockbrack Td., 14.5km S of Dungiven Co. Londonderry (54° 48' N Lat, 6° 53' W Long; Irish Grid Ref. H 717957; alt. 530m). Depths measured below bog surface.

UB-580. Crockbrack, 104 to 108cm **3980 ± 45**
2030 B.C.
 $\delta C^{13} = -27.9\text{‰}$

Fine particulate fraction of blanket and amorphous peat. At transition to blanket peat. At final decline of pine curve and decrease of total tree pollen curve.

UB-579. Crockbrack, 116 to 122cm **4630 ± 45**
2680 B.C.
 $\delta C^{13} = -27.6\text{‰}$

Fine particulate fraction of amorphous peat. At minimum of total tree pollen curve. A single plantain pollen grain present.

UB-578. Crockbrack, 126 to 132cm **5435 ± 50**
3485 B.C.
 $\delta C^{13} = -28.4\text{‰}$

Fine particulate fraction of amorphous peat. Base of organic deposit. At beginning of general tree-pollen decline (mostly hazel) and rise of heath curve.

General Comment: reduction of forest cover shown by pollen evidence between levels of UB-578 and -579 falls in earlier part of Neolithic period.

Leaghs Bridge series, Co. Tyrone

Peat from Leaghs Bridge, 8km W of Draperstown, Co. Tyrone (54° 47' N Lat, 6° 55' W Long; Irish Grid Ref. H 702941; alt. ca. 275m). Depths measured below bog surface.

UB-584. Leaghs Bridge, 90.5 to 91.5cm **3855 ± 85**
1905 B.C.
 $\delta C^{13} = -25.7\text{‰}$

Charcoal selected in field from layer in amorphous peat. At final decline of pine curve and end of general decline of tree pollen. Immediately below 1st appearance of plantain pollen and stratigraphic change to blanket peat.

UB-583. Leaghs Bridge, 95 to 98cm **3975 ± 75**
2025 B.C.
 $\delta C^{13} = -27.9\text{‰}$

Fine particulate fraction of amorphous peat. At beginning of fall of total tree pollen curve (mainly hazel) and at substantial rise of heath pollen.

UB-582. Leaghs Bridge, 116 to 119cm **5445 ± 85**
3495 B.C.
 $\delta C^{13} = -27.5\text{‰}$

Fine particulate fraction of clayey amorphous peat with charcoal. At beginning of heath pollen curve.

UB-581. Leaghs Bridge, 132 to 135cm **6790 ± 90**
4840 B.C.
 $\delta C^{13} = -28.2\text{‰}$

Fine particulate fraction of clayey amorphous peat. Base of organic deposit. Immediately below rational limit of alder curve.

Cloghornaigh series, Co. Tyrone

Peat from Cloghornaigh Td., 13km SW of Dungiven, Co. Tyrone (54° 55' N Lat, 7° 01' W Long; Irish Grid Ref. H 637974; alt. ca. 335m). Depths measured from top of peat.

UB-576. Cloghornaigh, 86 to 94cm **5270 ± 80**
3320 B.C.
 $\delta C^{13} = -28.0\text{‰}$

Fine particulate fraction of amorphous peat with pine roots. At sharp rise of heath pollen values.

UB-590. Cloghornaigh, 94.5 to 97.0cm **5410 ± 95**
3460 B.C.
 $\delta C^{13} = -28.0\text{‰}$

Fine particulate fraction from upper part of bulk sample of amorphous peat with pine roots.

UB-575. Cloghornaigh, 97.0 to 99.5cm **4685 ± 135**
2735 B.C.

Fine particulate fraction from lower part of bulk sample of amor-

phous peat with pine roots. Base of organic deposits. Sample diluted with inactive methane for counting. *Comment*: date is younger than 2 stratigraphically higher. Some form of contamination is indicated.

General Comment on Sperrin Mt. peat samples: peat initiation, which took place while landscape was generally still forested, began earliest at a valley site (Leaghs Bridge, UB-581, 6790 ± 90). At Cloghornaugh and Crockbrack, which differ in alt. by ca. 200m, dates for basal peat are indistinguishable: UB-590, 5410 ± 95 (excepting UB-575, which is too young) and UB-578, 5435 ± 50 . At these 3 sites, initial deposit was amorphous, often woody peat. Initiation of peat was clearly earlier than initiation of blanket peat in N Antrim (see R., 1971, v. 13, p. 121). At 4th site (Oughtnamwella) on steep slope, initiation of basal reedswamp peat was more recent: UB-585, 4670 ± 75 . At 2 sites where transition to blanket peat has been dated, results are close: UB-584, 3855 ± 85 (Leaghs Bridge) and UB-580, 3980 ± 45 (Crockbrack). Except at Oughtnamwella (initially reedswamp) rise of heath pollen curve to substantial values appears to have occurred in earliest Neolithic times (UB-578, 5435 ± 50 , UB-576, 5270 ± 80 , and UB-582, 5445 ± 85). Two samples date final decline of pine curve: UB-584, 3855 ± 85 (1905 B.C.) from Leaghs Bridge and UB-586, 3945 ± 115 (1995 B.C.) from Oughtnamwella. These dates comparable to others falling within a few centuries either side of 2000 B.C., noted in R., 1971, v. 13, p. 122, and indistinguishable from date for final pine decline at nearby site of L. Lark (UB-380, 3955 ± 75 , 2005 B.C.) (See also Smith and Pilcher, 1973).

Samples relating to study of history of sub-fossil pine layers in raised bogs by A. Doran and A. G. S.

Sluggan pine cone series, Co. Antrim

Samples from Sluggan Bog, Ballylurgan Td., 2.4km NE of Randalstown Co. Antrim ($54^{\circ} 46' N$ Lat, $6^{\circ} 18' W$ Long; Irish Grid Ref. J 009921; alt. ca. 50m). See R., 1971, v. 13, p. 455-456 for summary of palaeoecologic results from this site and R., 1973, v. 15, p. 226-227 for dates of other pine stumps.

6670 \pm 180
UB-709. Sluggan, pine cones, Sample 1 **4720 B.C.**
 $\delta C^{13} = -25.0\%$

Pine cones from immediately below burnt layer in peat on large prostrate pine trunk dated by UB-459, 7095 ± 115 (see above).

6795 \pm 110
UB-710. Sluggan, pine cones, Sample 2 **4845 B.C.**
 $\delta C^{13} = -25.4\%$

Pine cones from upper burnt layer assoc. with roots of small pine stumps.

General Comment: dates for pine cones, UB-709 and 710, are indistinguishable from both UB-460, 6615 ± 95 (upper pine stump) allowing for

139-yr life span, and UB-459, 7095 ± 115 (lower, prostrate, pine) allowing for 272-yr life span. Pine cones could have come from either tree.

Fallahogy pine cones series, Co. Londonderry

Samples from raised bog at Fallahogy Td., Co. Londonderry, 18.4km WNW of Ballymena ($54^{\circ} 54' N$ Lat, $6^{\circ} 34' W$ Long; Irish Grid Ref. C 926070; alt. 36m). See also UB-722 (this list) for date of pine stump from this site.

UB-723. Fallahogy pine cones, Sample 1 **7675 ± 105**
5725 B.C.
 $\delta C^{13} = -24.6\text{‰}$

Pine cones from layer 8 to 12cm above reedswamp peat.

UB-724. Fallahogy pine cones, Sample 2 **7610 ± 100**
5660 B.C.
 $\delta C^{13} = -25.9\text{‰}$

Pine cones from layer 3 to 5cm above reedswamp peat.

General Comment: cones appear to belong to a period of pine forest slightly before nearby group of trees dated by UB-621, 7245 ± 100 (R., 1973, v. 15, p. 226).

III. TIMBER SAMPLES

Samples from sub-fossil and other timbers taken to aid construction of floating tree-ring chronologies.

UB-627. Derrycrow, Bog Oak 475 **4110 ± 40**
2160 B.C.
 $\delta C^{13} = -23.8\text{‰}$

Bog oak from Derrycrow Td., 10.2km N of Portadown, Co. Armagh ($45^{\circ} 30' 45'' N$ Lat, $6^{\circ} 29' 30'' W$ Long; Irish Grid Ref. H 987641; alt. ca. 18m). Sample from yr 195 to 214 of 274-yr-old tree. See also UB-528, 4630 ± 60 (R., 1973, v. 15, p. 225) for bog pine from this site.

UB-687. River Bann, Bog Oak 894 **1405 ± 45**
A.D. 545
 $\delta C^{13} = -25.5\text{‰}$

Bog oak from deepening of R. Bann at Ballynery, 5.5km N of Portadown, Co. Armagh ($54^{\circ} 28' N$ Lat, $6^{\circ} 26' W$ Long; Irish Grid Ref. J 014593; alt. ca. 20m). Sample from yr 55 to 74 of 151-yr-old tree.

UB-679. Lough Macnean, Bog Oak 859 **2170 ± 45**
220 B.C.
 $\delta C^{13} = -25.8\text{‰}$

Bog oak from Lough Macnean Lower, 12.5km WSW of Enniskillen, Co. Fermanagh ($54^{\circ} 17' N$ Lat, $7^{\circ} 49' W$ Long; Irish Grid Ref. H 125384; alt. ca. 65m). Sample from yr 38 to 57 of 129-yr-old tree from ditch near present E margin of lake.

UB-680. LoughMacnean, Bog Oak 869 **6055 ± 45**
4105 B.C.
 $\delta C^{13} = -26.7\text{‰}$

Bog oak from Lough Macnean Lower, 12.5km WSW of Enniskillen, Co. Fermanagh (54° 17' N Lat, 7° 49' W Long; Irish Grid Ref. H 121376; alt. ca. 65m). Sample from yr 162 to 181 of 223-yr-old tree from shallow water near Cushrush I.

Cullyhanna Hunting Lodge series

Oak stakes from margin of Cullyhanna lake, 5km N of Crossmaglen, Co. Armagh (54° 7' N Lat, 6° 36' 30" W Long; Irish Grid Ref. H 915198; alt. 105m). Stakes with sharpened ends formed part of a staked enclosure thought to be a hunting lodge. Ref. Hodges (1958).

UB-341. Cullyhanna Lodge, Tree 343 **3475 ± 75**
1525 B.C.
Sample from yr 57 to 66 of 161-yr-old tree.

UB-688. Cullyhanna Lodge, Tree 343 **3305 ± 50**
1355 B.C.
 $\delta C^{13} = -23.5\text{‰}$

Sample from yr 108 to 127 of 161-yr-old tree.

General Comment: results show staked enclosure belongs to Bronze age rather than to period A.D. 500 to 1300 estimated by excavator.

Cullyhanna Bog Oak series

Fossil oaks weathered out of lake muds at margin of Cullyhanna lake, 5km N of Crossmaglen, Co. Armagh (54° 7' N Lat, 6° 36' 30" W Long; Irish Grid Ref. H 915198; alt. 105m).

UB-683. Cullyhanna, Bog Oak 493 **5325 ± 40**
3375 B.C.
 $\delta C^{13} = -24.2\text{‰}$
Sample from yr 66 to 80 of 80-yr-old tree.

UB-682. Cullyhanna, Bog Oak 487 **2375 ± 35**
425 B.C.
 $\delta C^{13} = -24.7\text{‰}$

Sample from yr 168 to 187 of 232-yr-old tree.

General Comment: see also UB-342, 4685 ± 75 (R., 1971, v. 13, p. 462). Fossil oaks of at least 3 periods are represented.

Randalstown Bog Oak series

Bog oaks from motorway construction area 1km SE of Randalstown Co. Antrim (54° 44' N Lat, 6° 18' W Long, Irish Grid Ref. J 095898; alt. ca. 40m) in same general area as UB-417 (R., 1971, v. 13, p. 462).

UB-684. Randalstown, Bog Oak 513 **3640 ± 35**
1690 B.C.
 $\delta C^{13} = -24.9\text{‰}$

Sample from yr 68 to 87 of 179-yr-old tree.

UB-685. Randalstown, Bog Oak 516**3055 ± 55****1105 B.C.** $\delta C^{13} = -23.4\text{‰}$

Sample from yr 213 to 232 of 243-yr-old tree.

UB-686. Randalstown, Bog Oak 517**2625 ± 35****675 B.C.** $\delta C^{13} = -24.8\text{‰}$

Sample from yr 67 to 81 of 130-yr-old tree.

Derrykerran North Bog Oak series

Bog oaks found during motorway construction at Derrykerran, 2km W of point where motorway crosses R. Bann (54° 28' N Lat, 6° 27' W Long; Irish Grid Ref. J 006588; alt. ca. 24m). See also UB-286 (R., 1971, v. 13, p. 123) from same site.

UB-712. Derrykerran North, Bog Oak 112**4115 ± 55****2165 B.C.** $\delta C^{13} = -25.4\text{‰}$

Sample from yr 74 to 93 of 181-yr-old tree.

UB-713. Derrykerran North, Bog Oak 127**4180 ± 45****2230 B.C.** $\delta C^{13} = -24.8\text{‰}$

Sample from yr 131 to 153 of 285-yr-old tree.

UB-714. Derrykerran North, Bog Oak 137**4815 ± 50****2865 B.C.** $\delta C^{13} = -24.0\text{‰}$

Sample from yr 106 to 125 of 150-yr-old tree.

UB-711. Derrykerran South, Bog Oak 367 B**5010 ± 40****3060 B.C.** $\delta C^{13} = -25.6\text{‰}$

Bog oak from Derrykerran South Td., 4.8km N of Portadown, Co. Armagh (54° 28' N Lat, 6° 27' W Long; Irish Grid Ref. J 007588; alt. ca. 24m). Sample from yr 138 to 152 of 396-yr-old tree. *Comment:* yr 367 to 386 of this tree dated previously: UB-343, 4985 ± 100 (R., 1971, v. 13, p. 461). Since pub. of UB-343, tree-ring sequence has been extended 46 yr.

UB-681. Ballymacombs More, Bog Oak 322**2500 ± 35****550 B.C.** $\delta C^{13} = -25.4\text{‰}$

Bog oak from Ballymacombs More, 13km ESE of Ballymena, Co. Londonderry (54° 50' N Lat, 6° 28' W Long; Irish Grid Ref. H 985988; alt. ca. 18m). Sample from yr 190 to 209 of 219-yr-old tree. *Comment:* for further bog oak samples from this site, see R., 1971, v. 13, p. 462; R., 1973, v. 15, p. 225-226).

UB-340. Toome, Bog Oak 520**2145 ± 65****195 B.C.** $\delta C^{13} = -24.4\text{‰}$

Bog oak from peat and diatomite deposits 1km W of Toome, Co.

Londonderry (54° 45' N Lat, 6° 28' 30" W Long; Irish Grid Ref. H 980903; alt. ca. 20m). Sample from yr 19 to 30 of 149-yr-old tree.

UB-725. Sluggan, Bog Pine 811 **6575 ± 70**
4625 B.C.
 $\delta C^{13} = -24.4\text{‰}$

Pine stump from Sluggan bog, Ballylurgan Td., 2.4km NE of Randalstown, Co. Antrim (54° 46' N Lat, 6° 18' W Long; Irish Grid Ref. J 009921; alt. ca. 50m). Sample from yr 21 to 30 of 153-yr-old tree. One of series of trees with fire-damage marks, stratigraphically above main pine stump layer dated by UB-459, 7095 ± 115, (R., 1973, v. 15, p. 227). *Comment*: date indistinguishable from UB-709, Sec. II, this list, which dates pine cones from layer containing charcoal.

UB-722. Fallahogy, Bog Pine 952 **5565 ± 50**
3615 B.C.
 $\delta C^{13} = -24.4\text{‰}$

Bog pine from S side of bog in Fallahogy Td., 18.4km WNW of Ballymena, Co. Londonderry (54° 54' N Lat, 6° 35' W Long; Irish Grid Ref. C 933073; alt. ca. 40m). Sample from ca. outer 20 yr of 143-yr-old tree. UB-621 (R., 1973, v. 15, p. 226) dates stump from different area of same bog.

IV. GEOLOGIC SAMPLE

UB-548. Murlough Spit 1 **955 ± 55**
A.D. 995
 $\delta C^{13} = -26.5\text{‰}$

Charcoal from sand dune in Murlough Td., 3km S of Dundrum, Co. Down (54° 13' N Lat, 5° 51' W Long; Irish Grid Ref. J 410345; alt. ca. 12m). Sample underlies 50 to 75cm blown sand in side of old dune. Coll. 1971 by P. Shaw; subm. 1971 by N. Stephens, both of Geog. Dept., Queen's Univ., Belfast. See R., 1971, v. 13, p. 451 for other dates from same area (Dundrum Nature Reserve series).

REFERENCES

- Goddard, A., 1971, Studies of the vegetational changes associated with initiation of blanket peat accumulation in North-East Ireland: Ph.D. thesis, Queen's University, Belfast, unpub.
- Smith, A. G. and Pilcher, J. R., 1973, Radiocarbon dates and vegetational history of the British Isles: *New Phytol.*, v. 72, p. 903-914.
- Hodges, H. W. M., 1958, A hunting camp at Cullyhanna Lough near Newtown Hamilton, County Armagh: *Ulster Jour. Archaeol.*, v. 21, p. 7-13.