

INSTITUT ROYAL DU PATRIMOINE ARTISTIQUE  
RADIOCARBON DATES VIII

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This list contains most of the measurements made during 1980, since our last list (R, 1981, v 23, p 33-37). A second methane synthesis unit became operational (Dauchot-Dehon and Van Strydonck, 1979) at the end of 1979. Basically, this unit is the same as the one built earlier (Klebert and Heylen, 1966).

ACKNOWLEDGMENTS

The assistance of M Dupas in analyzing the mortar sample is gratefully acknowledged.

I. GEOLOGIC SAMPLES

*A. Belgium*

**Mark series**

Peat, clayey peat, and wood samples from alluvial plain of Mark R in W Vlaanderen. Coll 1978-1979 by W Huybrechts and F Bogemans; subm by W Huybrechts and L Peeters, Geol Inst, Vrije Univ, Brussels.

**IRPA-347. Halle-B.I 1180 ± 80**

Base of peat layer, 40cm thick, at 65cm below surface (50° 42' N, 4° 18' 49" E).

**IRPA-348. Halle-B.IV 660 ± 50**

Base of layer, 60cm thick, at 120cm below surface (50° 42' 30" N, 4° 17' E).

**IRPA-349. Galmaarden GEM I 1440 ± 90**

Wood at 250cm below surface (50° 45' N, 3° 57' E).

**IRPA-350. Moerbeke B78/7/3 8700 ± 370**

Peat from layer, 435 to 480cm below surface (50° 44' 41" N, 3° 55' E).

**IRPA-351. Moerbeke B79/3/7 5720 ± 270**

Peat from layer, 295 to 325cm below surface (50° 44' 51" N, 3° 54' E).

**IRPA-352. Moerbeke B78/6/18 7500 ± 340**

Peat from layer, 400 to 520cm below surface, at 455cm depth (50° 44' 41" N, 3° 55' E).

**IRPA-353. Moerbeke B78/10/5 7790 ± 330**

Peat from layer, 160 to 195cm below surface (50° 44' 51" N, 3° 54' E).

**IRPA-354. Galmaarden GEM II 1380 ± 100**

Wood at 250cm below surface (50° 45' N, 3° 57' E).

**IRPA-355. Moerbeke B78/7/8 7830 ± 330**

Peat from layer, 350 to 400cm below surface (50° 45' N, 3° 54' E).

**IRPA-356. Galmaarden B78/7/4 5350 ± 290**

Peat at 500cm below surface (50° 45' N, 3° 57' E).

*General Comment* (WH): dates reveal two periods of peat accumulation: Boreal-beginning of Atlanticum (8700 to 7500 BP) and end of Atlanticum (5500 BP). Peat growth may have continued between these periods. Two wood samples are historical as expected from their stratigraphic position.

**Moeren series**

Peat from remains of excavated layers at Moeren in W Belgian coastal plain. Coll July 1980 by C Verbruggen, D Bruneel, and M Van Strydonck; subm July 1980 by C Verbruggen, Univ Gent, Belgium.

**IRPA-386. Houtem 3440 ± 190**

Base of peat layer, 139 to 152cm below surface (51° 00' 42" N, 2° 34' 43" E).

**IRPA-387. Bulskamp-Veurne 2 4330 ± 230**

Upper part of remaining peat layer, 188 to 195cm below surface (51° 02' 45" N, 2° 36' 57" E).

**IRPA-388. Bulskamp-Veurne 1 4480 ± 240**

Base of remaining peat layer, 203 to 208cm below surface (51° 02' 45" N, 2° 36' 57" E).

*General Comment* (CV): peat was presumed to be younger in Bulskamp-Veurne based on pollen diagram (*Fagus*) and higher stratigraphic level. Relatively younger onset of peat growth could indicate lasting tidal-flat conditions (Baeteman and Verbruggen, 1980).

**Booitshoeke series**

The following results complete previously pub list (R, 1981, v 23, p 33-37) from peat layer, 55cm thick, in W Belgian coastal plain (51° 05' 38" N, 2° 44' 05" E). Coll 1978 and subm 1980 by C Baeteman, Geol Service, Belgium.

**IRPA-344. Booitshoeke Zeedijk 1-A 2890 ± 150**

Top of layer, at 100cm below surface.

**IRPA-345. Booitshoeke Zeedijk 2-A 3200 ± 200**

Base of layer, at 155cm below surface.

*General Comment* (CB): top of layer agrees well; base is too young (Baeteman *et al*, 1979).

*B. Scotland***Cairngorm Estate series**

The following series completes previously pub lists (R, 1976, v 18, p 158; R, 1977, v 19, p 385-387; R, 1981, v 23, p 33-37). Coll 1975-1978

by L. Beyens and DK. Ferguson; subm 1980 by DK. Ferguson, Univ Antwerp, Belgium.

**IRPA-358. Inverton 2A, Sample 23** **5070 ± 260**  
Wood, 2.5km SW of Kingussie, Inverness-shire; alt + 230m (57° 03' 42" N, 4° 04' 18" W).

**IRPA-359. Inverton 6, Sample 24** **3720 ± 200**  
Wood from trunk, 2.5km SW of Kingussie, Inverness-shire, alt + 230m (57° 03' 42" N, 4° 04' 18" W).

**IRPA-360. Site 19, Sample 25** **4140 ± 210**  
Wood from trunk found between Allt Ban and Allt na Ciste, alt + 485m (57° 09' 12" N, 3° 39' 15" W).

**IRPA-361. a. Site 2, Sample 26** **5230 ± 260**  
**b. Sample 27** **5160 ± 240**  
Base of peat layer, 81 to 84cm below surface, alt + 600m (57° 08' 50" N, 3° 38' 40" W).

**IRPA-362. Site 12, Sample 28** **6090 ± 300**  
Base of peat layer, 203 to 210cm below surface, N of Caochan Dubh à Chadha, alt + 560m (57° 08' 23" N, 3° 41' 11" W).

**IRPA-363. Site 19, Sample 29** **4200 ± 230**  
Wood from root found between Allt Ban and Allt na Ciste, alt + 485m (57° 09' 12" N, 3° 39' 15" W).

**IRPA-364. Site 18, Sample 30** **4660 ± 240**  
Wood from root found between Allt Ban and Allt na Ciste, alt + 515m (57° 09' 03" N, 3° 39' 03" W).

**IRPA-365. Site 21, Sample 31** **4350 ± 240**  
Wood from Allt Creag and Leth-chan, alt + 515m (57° 09' 03" N, 3° 39' 03" W).

**IRPA-366. Site 7, Sample 32** **5670 ± 250**  
Base of peat layer, 110 to 114cm below surface, alt + 640m (57° 07' 58" N, 3° 40' 17" W).

*General Comment* (DKF): pine (*Pinus sylvestris*) appeared at 7500 BP. Ca 6000 BP blanket bog started to develop followed by disappearance of pine ca 5000 BP. Ca 4000 BP, blanket bog was recolonized by pine for a few hundred yr. However, after 3000 BP, pine was only found in sheltered spots. Age of most of the stumps indicates that climatic rather than human factors were responsible for disappearance of pine.

## II. ARCHAEOLOGIC SAMPLES

### *A. Belgium*

#### **Pommeroeul series**

Wood from Roman vessels and landing stage at Pommeroeul, Hainaut, found 300 to 400cm below surface (50° 27' 30" N, 0° 40" E). Coll

1975 and subm 1980 by G Deboe, Nat Service Excavations, Brussels.  
Before dating, wood was stored under water for 5 yr.

<b>IRPA-368. Pommeroeul III-1A</b>	<b>1960 ± 50</b>
Wood from Vessel III, Plank 1A.	
<b>IRPA-369. Pommeroeul III-65</b>	<b>1930 ± 50</b>
Wood from Vessel III, Plank 65.	
<b>IRPA-370. Pommeroeul III-75</b>	<b>2000 ± 70</b>
Wood from Vessel III, Plank 75.	
<b>IRPA-371. Pommeroeul III-12</b>	<b>2030 ± 60</b>
Wood from Vessel III, Plank 12.	
<b>IRPA-372. Pommeroeul III-3 E</b>	<b>1830 ± 50</b>
Wood from Vessel III, Plank 3E.	
<b>IRPA-373. Pommeroeul Landing Stage I</b>	<b>1660 ± 50</b>
Wood from Landing Stage I.	
<b>IRPA-374. Pommeroeul Landing Stage II</b>	<b>1750 ± 50</b>
Wood from Landing Stage II.	
<b>IRPA-375. Pommeroeul Landing Stage III</b>	<b>1760 ± 50</b>
Wood from Landing Stage III.	
<b>IRPA-383. Pommeroeul II-30 K</b>	<b>1730 ± 50</b>
Wood from Vessel II, Plank 30 K.	
<b>IRPA-384. Pommeroeul IV B-11</b>	<b>1730 ± 50</b>
Wood from Vessel IV B, Plank 11.	

*General Comment:* dates agree with archaeol data.

#### **Bredene series**

Study on human occupation during Roman period in Belgian coastal plain at Bredene (51° 14' 24" N, 2° 57' 33" E). Coll and subm 1979-1980 by H Thoen and C Baeteman in collaboration with Vereniging voor Oudheidkundig Bodemonderzoek in W Vlaanderen.

<b>IRPA-342. Br 79/1/12</b>	<b>2060 ± 130</b>
Organic material from Layer 19 K at 140cm below surface.	
<b>IRPA-376. Br 79/1/15</b>	<b>1440 ± 40</b>
Clayey peat at 195cm below surface.	
<b>IRPA-377. Br 79/1/18</b>	<b>2200 ± 60</b>
Top of black peat layer at 150cm below surface.	

<b>IRPA-379. Br 79/1/20</b>	<b>1920 ± 50</b>
Base of brownish peat at 175cm below surface.	
<b>IRPA-381. Br 79/2/2</b>	<b>630 ± 50</b>
Base of peat layer, 20cm thick, at 205cm below surface.	
<b>IRPA-382. Br 79/2/4</b>	<b>1540 ± 40</b>
Top of peat layer, 20cm thick, at 185cm below surface.	
<b>IRPA-389. Br 80/5/80</b>	<b>1050 ± 50</b>
Peat at 160cm below surface. Dilution: 51% sample.	
<b>IRPA-390. Br 80/5/81</b>	<b>1490 ± 150</b>
Peat at 220 to 230cm below surface. Dilution: 49% sample.	

#### **Leffinge series**

The following results complete previously pub list (R, 1981, v 23, p 33-37). Clayey peat underlying Furnaces XI and XXVI at Leffinge (51° 08' 40" N, 2° 52' 13" E). Coll and subm 1980 by H Thoen, Univ Gent, Belgium.

<b>IRPA-339. LFZ 78/17a</b>	<b>2490 ± 130</b>
1% NaOH soluble fraction.	
<b>IRPA-340. LFZ 78/17b</b>	<b>2490 ± 140</b>
1% NaOH insoluble fraction.	

*General Comment* (HT and CV): pollen diagram confirmed end of peat growth at ca 3000 BP (IRPA-337, -338, -283). Clayey organic deposit intercalated between peat layer and Roman surface was dated to 2500 BP.

#### **IRPA-367. Jandrain-Jandrenouille** **5450 ± 260**

Mixture of charcoal and clay charged with chalk pit at 600cm below surface in Brabant (50° 41' 30" N, 0° 36' 20" E). Coll 1972 and subm 1980 by F Hubert, Nat Service Excavations, Brussels. Sample not treated with alkali. *Comment* (FH): age determination of Neolithic pit of Mickelsberg culture.

#### **St Lambert series**

Samples from archaeol excavation at Place St-Lambert (Danthine, 1980; Alenus-Lecerf, 1980), Liège (50° 38' 45" N, 5° 34' 30" E). Coll 1979 by M Dauchot and M Otte; subm 1979 by M Otte, Serv Archaeol Prehist, Univ Liège, Belgium. *Comment*: studied to compare radiocarbon dates of charcoal with dates obtained of mortar carbonate (Table 1). Mortar samples were first examined to separate fractions containing chalk carbonate from those containing carbonate formed after mortar preparation. Two types of charcoal were examined: charcoal incorporated in mortar (\*) and charcoal found separately.

TABLE 1  
St Lambert radiocarbon dates

IRPA no.	Reference	Material	Depth (cm)	Radiocarbon age	Expected age (century AD)
296 A	PSL-78-E2/A	charcoal*	180	modern	7th-13th
B	PSL-78-E2/B	charcoal*	180	modern	7th-13th
C	PSL-78-E2/C	mortar	180	4000 $\pm$ 210	7th-13th
D	PSL-78-E2/D	mortar	180	3940 $\pm$ 210	7th-13th
298	PSL-78-E6	charcoal*	250	310 $\pm$ 40	4th-11th
303 A	PSL-78-E3	charcoal	180	modern	7th-13th
311	L 498	charcoal	100	30,000	12th-15th
312	L 556	charcoal	330	1500 $\pm$ 80	3rd-7th
313	L 624	charcoal	220	30,000	1st-4th
314	L 631	charcoal	250	30,000	9th-11th
315	L 634	charcoal	250	30,000	8th-9th
316	L 667	charcoal	300	2110 $\pm$ 130	1st-4th
317	L 679	charcoal	300	9540 $\pm$ 330	1st-4th
318	L 751	charcoal	300	9920 $\pm$ 390	1st-4th
319	L 794	charcoal	225	990 $\pm$ 80	3rd-8th
320	L 798	charcoal	250	8330 $\pm$ 350	1st-5th
322	L 852	charcoal	250	3410 $\pm$ 200	1st-4th

*General Comment:* charcoal gives three groups of dates: a) dates that are too old are caused by mixture of wood and coal in furnaces. This is quite possible since coal was outcropping (Lecouturier, 1930); b) samples not polluted by coal yield dates that agree well; c) excess radiocarbon in (\*) charcoal has not been explained yet. High ages obtained from mortar carbonate are probably caused by infiltration due to several inundations and small underground brook with high content of chalk carbonate (Lecouturier, 1930) rather than to insufficient separation of chalk and mortar carbonate. The study is being continued.

### B. Italy

#### Artena series

Charcoal with soil and roots from occupation layer 30cm below surface at Artena, Prov Rome (41° 43' N, 12° 57' E). Coll Aug 1979 and subm 1980 by R Lambrechts, Univ Louvain, Belgium.

**IRPA-341. Sample 1** **2310  $\pm$  140**

**IRPA-407. Sample 2** **2290  $\pm$  60**

**IRPA-408. Sample 3** **2320  $\pm$  60**

*General Comment:* dates agree with archaeol age: 3rd to 4th century BC.

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**ERRATUM.** Please note an error in Volume 22, Number 4 that has been brought to our attention by Nikolaas J van der Merwe, Department of Archaeology, University of Cape Town, South Africa. In the obituary for Willard F Libby, we commented that Melvin Calvin received a Nobel Prize in 1950. Actually, he received his prize in 1961, a year after Libby received his Nobel Prize.