

INSTITUT ROYAL DU PATRIMOINE ARTISTIQUE  
RADIOCARBON DATES XI

MICHELE DAUCHOT-DEHON, MARK VAN STRYDONCK, and  
JOS HEYLEN

Institut royal du Patrimoine artistique  
Koninklijk Instituut voor het Kunstpatrimonium, Brussels, Belgium

This list contains the results of  $^{14}\text{C}$  determinations obtained at the laboratory in 1984. Our laboratory measures  $^{14}\text{C}$  activity in the form of methane with a proportional counter built by Heidelberg University and an electronic unit built by Berthold, Benelux Analytical Instruments. The sample counting time is 4000 minutes with printouts at 100 minute intervals. Sample error is reported as one standard deviation.  $\delta^{13}\text{C}$  for mortar is measured by the University of Lyon Laboratory,  $\delta^{13}\text{C}$  was not measured or estimated for other samples.

ACKNOWLEDGMENTS

Technical assistance by D Eeckoudt is gratefully acknowledged. The construction of a new preparation line was supported by VIANO (Vereniging voor inderdisciplinair Archeologisch–Natuurhistorisch Onderzoek).

GEOLOGIC SAMPLES

*Belgium*

**Dunes series**

Samples from coastal plain in W Vlaanderen. Coll 1983 and subm Nov 1983 by R De Ceunynck, Univ Gent, Belgium.

<b>IRPA-579. De Panne D01</b>	<b>590 ± 50</b>
Soil at 180cm depth (51° 05' 45" N, 2° 36' 18" E).	
<b>IRPA-580. De Panne D05</b>	<b>1470 ± 50</b>
Soil at 485 cm depth (51° 05' 44" N, 2° 36' 45" E).	
<b>IRPA-581. De Panne DP/KV-51/C-14A</b>	<b>1630 ± 60</b>
Top of peat at 555cm depth (51° 05' 47" N, 2° 35' 37" E).	
<b>IRPA-582. De Panne DP/KV-51/C-14B</b>	<b>2080 ± 60</b>
Basal peat at 575cm depth (51° 05' 47" N, 2° 35' 37" E).	
<b>IRPA-585. Koksijde WWK1VB7/C-14B</b>	<b>470 ± 50</b>
Top of peat at 95cm depth (51° 06' 57" N, 2° 39' 37" E).	
<b>IRPA-587. Koksijde WWKVB7/C-14A1</b>	<b>790 ± 50</b>
Base of peat at 115cm depth (51° 06' 57" N, 2° 39' 37" E).	
<b>IRPA-588. Adinkerke AG10 top</b>	<b>4040 ± 70</b>
Peat at 170cm depth (51° 03' 36" N, 2° 33' 48" E).	

**IRPA-589. Adinkerke AG10 base** **4300 ± 70**

Peat at 180cm depth (51° 03' 36" N, 2° 33' 48" E).

**IRPA-590. Adinkerke** **4270 ± 70**

Wood found under base of peat at 187cm depth (51° 03' 36" N, 2° 33' 48" E).

**IRPA-624. Klemskerke-De Haan KB1** **1370 ± 50**

Soil with peat at 80cm depth (51° 15' 04" N, 3° 00' 05" E). Possible contamination by roots.

*General Comment* (R DeC): dates agree with previous results and with relative archaeol chronology; dates used to elaborate stratigraphy of coastal dunes.

### Mark series

The following results complete previously pub series (R, 1981, v 23, p 345–346; R, 1983, v 25, p 869) of samples from alluvial plain of Mark R in Brabant and Hainaut. Coll and subm 1983–1984 by W Huybrechts, Geol Inst, Free Univ Brussels.

**IRPA-553. Herne B81/6/5** **8890 ± 90**

Middle of peat, 622 to 625cm below surface (50° 43' N, 4° 01' E).

**IRPA-555. Herne B81/6/9** **870 ± 50**

Top of peat (50° 43' N, 4° 01' E), possibly contaminated by younger roots.

**IRPA-569. Herne B81/6/8(1)** **3080 ± 60**

Top of peat, 115 to 125cm below surface (50° 43' N, 4° 01' E).

**IRPA-570. Herne B81/6/8(2)** **6050 ± 80**

Base of peat at 230cm below surface (50° 43' N, 4° 01' E).

**IRPA-571. Marcq B81/6/17(A)** **10,370 ± 120**  
**(B)** **9490 ± 130**

Peat with pieces of wood at 425cm depth (50° 41' N, 4° 00' E). Sample divided in two parts; hard layer, A, and sandy peat, B. Sandy peat is diluted (75.5% sample).

**IRPA-572. Marcq B81/6/18(1)** **1640 ± 60**

Top of peat, 55 to 60cm below surface (50° 41' N, 4° 00' E).

**IRPA-573. Marcq B81/6/18(2)** **2740 ± 60**

Base of peat, 270 to 275cm below surface (50° 41' N, 4° 00' E).

**IRPA-619. Piepels** **12,140 ± 140**

Peat, 740.5 to 742.5cm below surface (50° 45' 11" N, 3° 59' 17" E).

**IRPA-643. Marcq B84/4/28(1)** 10,880 ± 120

Base of peat, 406 to 414cm below surface (50° 40' N, 3° 59' E).

**IRPA-644. Marcq B84/4/28(2)** 1130 ± 50

Wood at 170cm depth (50° 40' N, 3° 59' E).

### **Western coastal plain of Belgium series**

The following results complete previously pub series (R, 1984, v 25, p 385–387) of peat and wood from several levels of core in W Vlaanderen. Dated to study evolution of so-called surface peat (Baeteman *et al*, 1979; Baeteman, 1981). Coll and subm 1983 by C Baeteman, Geol Service Belgium.

**IRPA-515. Drie Grachten 6** 6500 ± 90

Peat from 824 to 830cm at Merkem (50° 57' 45" N, 2° 49' 22" E), diluted (74.4% sample).

**IRPA-520. Drie Grachten 7** 7030 ± 80

Peat from 1070 to 1080cm at Merkem (50° 57' 45" N, 2° 49' 22" E).

*General Comment* (CB): both samples coll from same boring, namely from base of 2nd and 3rd intercalated peat layer at viz.-4.35m and -6.85m (absolute level). Dates fit well into whole series from different peat layers of this boring (IRPA-521, -529, -524, -530, -531).

**IRPA-521. Drie Grachten 8** 1750 ± 50

Clayey peat from 288 to 292cm at Merkem (50° 57' 45" N, 2° 49' 22" E). *Comment* (CB): dates top of uppermost intercalated peat layer at +1.03m (absolute level). Site is loc far inland, nearly at S border of coastal plain. Date confirms that in these inland areas end of peat growth occurred much later than in more coastal parts. This is youngest known date of top of peat (which obviously is not eroded or disturbed) in area and coincides well with IRPA-537: 1870 ± 50 BP, also from top of same peat layer in more inland area.

**IRPA-518. Spermalie 2-4** 4860 ± 70

Wood from base of top peat, 340 to 350cm below surface (51° 07' 50" N, 2° 51' 15" E).

**IRPA-560. Wolvenest 4** 4970 ± 70

Peat from base of first peat layer, 349 to 353cm below surface at Ramskapelle (51° 06' 40" N, 2° 46' 45" E).

**IRPA-562. Violon** 5160 ± 70

Base of peat, 370 to 375cm below surface at Ramskapelle (51° 06' 40" N, 2° 46' 45" E).

*General Comment* (CB): results represent series of dates of base of uppermost intercalated peat layer at depth 0.29 and 0.50m (absolute level). Loci

are rather far from each other, although they are all in seaward part of coastal plain. Ages coincide very well, confirming that beginning of this peat growth was at ca 4900 BP.

**IRPA-519. Spermalie 2-5** **5650 ± 70**

Peat from top of base peat, 415 to 420cm below surface (57° 07' 50" N, 2° 51' 15" E).

**IRPA-566. Allaartshoeve** **8250 ± 100**

Peat from top of base peat, 1460 to 1467cm below surface at Wulpen (51° 06' 05" N, 2° 43' 40" E).

*General Comment* (CB): dates basal peat of initial Holocene marine influence at, respectively, 11 and 1m depth (absolute level) at two loci in vicinity of Nieuwpoort. Samples indicate totally different Holocene sequence due to level of pre-Holocene surface. Dates correspond with expected ages in accordance with depth although 8250 ± 95 BP is oldest known date of basal peat in W coastal plain of Belgium.

**IRPA-557. Wolleboom** **3360 ± 60**

Peat from base of basal peat, 700 to 703cm below surface at Reninge (50° 58' 43" N, 2° 47' 25" E). *Comment* (CB): date confirms that peat originated from eroded part of top of uppermost peat layer. This result can be compared with IRPA-539, -540, and -560 from similar situations.

**IRPA-558. Wolvenest 1** **6160 ± 80**

Wood from top of second peat layer, 563cm below surface at Ramskapelle (51° 06' 40" N, 2° 46' 45" E).

**IRPA-559. Wolvenest 2** **6200 ± 80**

Peat from top of second peat layer, 563 to 567cm below surface at Ramskapelle (51° 06' 40" N, 2° 46' 45" E).

**IRPA-561. Wolvenest 3** **6420 ± 80**

Peat from base of second peat layer, 573 to 577cm below surface at Ramskapelle (51° 06' 40" N, 2° 46' 45" E).

*General Comment* (CB): samples date top and base of intercalated peat layer at depth 2.63 to 2.77m (absolute level). IRPA-558 represents date of wood fragment formed at top of layer and fully agrees with <sup>14</sup>C age of top of peat, itself. This series agrees well with few dates on second regional intercalated peat layer at ca 2.5m depth (Hv-8795:6340 ± 110 BP, Hv-8796:6425 ± 70 BP; Hv-8799:6015 ± 65 BP, Baeteman, 1981).

**IRPA-564. Moerhof** **4830 ± 70**

Base of peat, 225 to 239cm below surface at Veurne (51° 03' 57" N, 2° 37' 05" E). *Comment* (CB): base of peat layer was sampled in area of de Buitenmoeren (just E of de Moeren). Greatest part of peat layer was excavated. Date should demonstrate if peat layer is to be correlated with uppermost regional peat layer (surface peat) and whether or not it started to grow

much later than in rest of coastal plain, as it occurs at higher level (+0.90m). Age agrees very well with all other dates of base of peat layer (Baeteman, 1981; Baeteman *et al.*, 1979; IRPA-518, -560, -562) and also with sample from vicinity in Bulskamp, IRPA-388: 4480 ± 240 BP, and its palynology (Baeteman & Verbruggen, 1980).

**IRPA-565. Mechelhof 2870 ± 60**

Peat from 988 to 994cm below surface at Leffinge (51° 10' 05" N, 2° 53' E). *Comment* (CB): peat was coll at 4.86m depth (absolute level) at base of continuous tidal flat (mud and mixed flat) sequence, 10m thick. From lithologic sequence it was not very clear whether peat is to be correlated with basal peat occurring at about same depth in surrounding area or if it is reworked peat block. Date confirms that peat originated from eroded part of top of uppermost intercalated peat layer and can be compared with IRPA-539 and -540 from similar situations.

*Scotland*

**Cairngorms Estate series**

This series from Cairngorms completes previously pub lists (R, 1976, v 18, p 158; R, 1977, v 19, p 385-387; R, 1978, v 20, p 197-198; R, 1981, v 23, p 347). Coll 1974-1981 and subm Dec 1983 by AD Dubois, Univ Antwerpen, Belgium.

**IRPA-591. Site 2A 5460 ± 70**

Wood (*Pinus*) (57° 08' 51" N, 3° 38' 42" E); alt +595m.

**IRPA-592. Site 22-A-A 1780 ± 60**

Wood (*Pinus*) (57° 08' 13" N, 3° 41' 11" E); alt +530m.

**IRPA-593. Site 7-1 (G1) 6870 ± 80**

Roots from wood (*Pinus*) (57° 07' 58" N, 3° 40' 17" E); alt +640 m.

**IRPA-594. Site 20-C 7350 ± 90**

Roots from wood (*Pinus*) (57° 07' 16" N, 3° 41' 11" E); alt +790m.

**IRPA-595. Site 6-bis 4760 ± 90**

Roots from wood (*Pinus*) (57° 07' 29" N, 3° 40' 33" E); alt +690m.

**IRPA-596. Site 22-C 3310 ± 60**

Wood (*Pinus*) (57° 08' 13" N, 3° 41' 11" E); alt +530m.

**IRPA-597. Site 17-B 4080 ± 60**

Roots from wood (*Pinus*) (57° 08' 48" N, 3° 38' 38" E); alt +615m.

**IRPA-599. Site 22-B-B 4130 ± 70**

Roots from wood (*Pinus*) (57° 08' 13" N, 3° 41' 11" E); alt +530m.

- IRPA-600. Site 2** **5900 ± 90**  
Wood (*Pinus*) (57° 08' 51" N, 3° 38' 42" E); alt +595m.
- IRPA-598. Barns of Barnack A** **3440 ± 60**  
Roots from wood (*Pinus*) (57° 07' 49" N, 3° 34' 05" E); alt +710m.
- IRPA-601. Barns of Barnack C** **6660 ± 80**  
Roots from wood (*Pinus*) (57° 07' 49" N, 3° 34' 05" E); alt +710m.
- IRPA-603. Barns of Barnack D** **6760 ± 80**  
Roots from wood (*Pinus*) (57° 07' 50" N, 3° 33' 57" E); alt +695m.
- IRPA-602. Barns of Barnack E** **4660 ± 60**  
Roots from wood (*Pinus*) (57° 07' 50" N, 3° 33' 57" E); alt +695m.
- IRPA-604. Coire Odhar Site F** **6750 ± 80**  
Roots from wood (*Pinus*) (57° 08' 54" N, 3° 34' 23" E); alt +700m.

*Africa***Morocco series**

Organic material and calcareous crust from Morocco coll 1978–1983 and subm 1984 by L Mathieu, Fac Agronom Gembloux, Belgium. Dates are used in morphol and pedol study in which soils and calcareous crusts are assoc (Bock & Mathieu, 1982).

- IRPA-628. Khenifra 11** **6110 ± 80**  
Organic material (32° 59' N, 5° 27' E). Humic acids extraction. Rharbien age expected.
- IRPA-629. Bab el Arbaa 18** **2720 ± 70**  
Organic material (34° 01' N, 4° 06' E). Humic acids extraction. Diluted: 69% sample. Rharbien age expected.
- IRPA-630. Bab Bon Idri 10** **2420 ± 70**  
Organic material (34° 08' N, 4° 05' E). Humic acids extraction. Diluted: 67.5% sample. Rharbien age expected.
- IRPA-631. Berkine 20** **6580 ± 110**  
Organic material (3° 39' N, 4° 03' E). Humic acids extraction. Diluted: 61.7% sample. Rharbien age expected.
- IRPA-632. Khenifra 2** **1730 ± 50**  
Organic material (32° 59' N, 5° 27' E). Humic acids extraction. Rharbien age expected.
- IRPA-638. Col Rose des Vents** **17,190 ± 230**  
Calcareous crust (33° 31' N, 4° 30' E). Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.

- IRPA-639. Mitek** **24,650 ± 530**  
Calcareous crust (34° 04' N, 3° 56' E). Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.
- IRPA-640. Gueldamane** **12,220 ± 140**  
Calcareous crust (34° 02' N, 3° 56' E). Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.
- IRPA-641. Jeouna** **16,530 ± 210**  
Calcareous crust (34° 12' N, 3° 58' E). Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.
- IRPA-642. Jebel Almar** **20,680 ± 330**  
Calcareous crust (34° 01' N, 3° 54' E). Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.
- IRPA-637. Iles du Cap Vert** **32,900 ± 330**  
Calcareous crust from Ile de Maio (15° 10' N, 23° 31' E) coll Oct 1980 and subm Oct 1984 by L Mathieu. Pretreated with HCl 37% until 50% weight loss. Tensiftien age expected.

*Portugal*

- IRPA-635. Praia do Foz Site 1** **4040 ± 220**  
Charcoal from Sines-Samougeria. Coll July 1984 by R De Ceunynck and subm Sept 1984 by A Gautier, Univ Gent, Belgium. From same site are dates: UM-1332: 520 BP and BETA-2909: 780 BP. Dilution: 19.7% sample.
- IRPA-636. Praia do Morgavel Site 7** **19,780 ± 300**  
Peat from Sines-Morgavel. Coll July 1984 by R De Ceunynck and subm Sept 1984 by A Gautier, Univ Gent, Belgium. Date is younger than Hv-2391: 39,940 BP and Hv-2392: 42,240 BP.

ARCHAEOLOGIC SAMPLES

*Belgium*

**Aven Ackers series**

Samples from Mesolithic site in Verrebroeck, Antwerpen (51° 30' N, 4° 11' 30" E). Coll and subm 1983–1984 by R Van Hove.

- IRPA-576. VeAZ83/I/G** **5510 ± 100**  
Podzol from soil layer accumulation (B2 horizon). *Comment* (RVH): archaeologically, date is interesting since podzolisation is younger than Mesolithic settlement on whole site. Dilution: 63.7% sample.
- IRPA-577. VeAZ81/III/W** **12,120 ± 140**  
Sample from peat layer underlying young Pleistocene cover sand. *Comment* (RVH): assigned to late Bölling or Allerød period. Date is *terminus post quem* for overlying Mesolithic settlement.

**IRPA-607. VeAZ81/III/C (A)** **4600 ± 70**  
**(B)** **4930 ± 70**

Podzol. (A) is soluble fraction in NaOH 1%; (B) is residue. *Comment* (RVH): dates organic sand layer (peaty material) which grew in and on late Pleistocene sand; thus, it is youngest layer before alluviation. According to palynology, result refers to older level.

**IRPA-633. VeAZ83/III** **8890 ± 100**

Nuts from pit excavated in late Pleistocene cover sand; stratigraphically younger than IRPA-577. Sample dates Mesolithic settlement.

**IRPA-578. Evergem** **2490 ± 60**

Nuts from Evergem, O Vlaanderen (51° 06' N, 3° 42' E). Coll Sept 1983 by J Van Moerkerke and subm Sept 1983 by C Verbruggen, Univ Gent, Belgium. Date agrees with archaeol data.

#### **Sint Martens-Latem series**

Samples from Sint Martens-Latem, O Vlaanderen (51° 01' 30" N, 3° 37' 20" E). Coll Nov 1983 and subm Feb 1984 by F Vermeulen, Univ Gent, Belgium.

**IRPA-609. LS83-M13** **3440 ± 60**

Soil from 150cm depth. *Comment* (FV): sample from humic layer assoc with remains of Late Bronze or Early Iron age.

**IRPA-610. LS83-M14** **2050 ± 60**

Soil from Roman pit, at 130cm depth. *Comment* (FV): archaeological date: ca AD 50.

**IRPA-611. Gavere AJ83-M3** **2150 ± 50**

Wood from Roman well in Gavere, O Vlaanderen (50° 55" N, 3° 39' 30" E), at 220cm depth. Coll Aug 1983 and subm Feb 1984 by F Vermeulen. *Comment* (FV): archaeological date: 1st century AD.

**IRPA-583. Lokeren** **410 ± 50**

Wood from well in Lokeren, O Vlaanderen (51° 06' N, 4° 01' E), at 100cm depth. Coll and subm 1983 by A Verstraeten. Middle Age date expected.

**IRPA-584. Sugny 83SU6** **1400 ± 60**

Charcoal from fire layer covered by walls of stone fortification occupied after AD 1075, in Sugny, Namur (49° 50' N, 4° 54' E). Coll and subm Nov 1983 by A Matthys, Natl Service Excavations, Belgium. *Comment* (AM): result agrees with archaeol data potsherds and tiles from Carolingian period found in other layer. More dates are needed to confirm this date.



**IRPA-586. Donk 82D0592** **1780 ± 60**

Charcoal from 70 to 90cm depth, Limburg (50° 56' N, 5° 07' 30" E). Coll Aug 1982 and subm April 1984 by L Van Impe, Natl Service Excavations, Belgium. La Tène age expected.

**IRPA-605. Zwin** **550 ± 50**

Wood from boat in Knokke, W Vlaanderen (51° 21' 45" N, 3° 21' E). Coll Sept 1983 and subm Jan 1984 by S Wartel, Inst Royal Sci Nat, Belgium.

**IRPA-608. Fagnolles** **660 ± 50**

Wood (oak) from timber of bridge of Fagnolles Castle, Namur (50° 07' 15" N, 4° 34' 01" E), at 250 to 300cm depth. Coll Aug 1983 and subm Feb 1984 by L Lowagic. Date agrees with archaeol data.

REFERENCES

- Baeteman, C, (ms), 1981, De Holocene ontwikkeling van de Weselijke kustvlakte (Belgie): PhD dissert, Univ Brussels, 297 p.
- Baeteman, C and Verbruggen, C, 1980, De Moeren: Excursiegids, Nederlands-Belgische pollen conf, 20th, Koksijde.
- Baeteman, C, Verbruggen, C, Dauchot-Dehon, M, Heylen, J and Van Strydonck, M, 1979, New approach to the evolution of the so-called surface peat in the Western Coastal Plain of Belgium: Service Geol Belgium, Prof paper, v 11, no. 167, p 2-16.
- Bock, L and Mathieu, L, 1982, La genèse des accumulations calcaires vue sous l'angle de l'approche géomorpho-pédologique: Soc belge géol Bull, v 91, no. 1, p 19-26.