

**INSTITUT ROYAL DU PATRIMOINE ARTISTIQUE
RADIOCARBON DATES XIII**

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This list contains the results of ^{14}C determinations obtained at the laboratory in 1986 and 1987. $\delta^{13}\text{C}$ was measured by the British Museum Research Laboratory or the Free University of Brussels: $*\delta^{13}\text{C}$ is estimated (Stuiver & Polach, 1977).

GEOLOGIC SAMPLES

Belgium

IRPA-754. Brussegem **9490 \pm 100**
 $*\delta^{13}\text{C} = -25\text{‰}$

Organic material from Brussegem, Brabant (50° 55' N, 4° 14' E) at 2.11–2.13m depth. Coll and subm Feb 1986 by F Bogemans, Geol Service Belgium.

IRPA-756. Weerde **28,730 \pm 850**
 $*\delta^{13}\text{C} = -24\text{‰}$

Wood from borehole at Weerde, Brabant (50° 58' N, 4° 28' E). Coll and subm Feb 1986 by F Bogemans.

Wintham series

The following results complete previously pub series (R, 1987, v 29, no. 2, p 197–208) of peat and wood from O Vlaanderen (51° 07' 08" N, 4° 18' 15" E). Coll and subm 1986 and 1987 by P Kiden, Univ Gent, Belgium.

IRPA-768. Zeesluis 4 **5740 \pm 70**
 $\delta^{13}\text{C} = -27\text{‰}$

Base of peat at 2.80m depth. *Comment* (PK): with other dates from same location (IRPA-712, -740, -741) IRPA-768 shows gradual rise of local river level in Scheldt alluvial plain due to rising sea level. Based on other dates from Wintham and absolute alt of this sample, date ca 6000 BP was expected. Actual result is somewhat younger, probably due to compaction of underlying sandy-clayey sediments.

IRPA-816. Zeesluis 5 **30,260 \pm 1000**
 $*\delta^{13}\text{C} = -25\text{‰}$

Wood from braided river deposits at 6.3m depth. *Comment* (PK): date may be too old due to reworking of older material (pers commun, Linda Huysmans, based on macrofossil analysis). Date is only max for these and overlying Pleistocene sediments.

Antwerpen series

Samples from Scheldt R alluvial deposit at Antwerpen, Antwerpen (51° 21' N, 4° 16' E). Coll and subm Jan 1986 by P Kiden.

IRPA-769. Berendrechtsluis 1 **6000 ± 70**
 $*\delta^{13}C = -27\text{‰}$
Peat at 11.0m depth.

IRPA-770. Berendrechtsluis 2 **4480 ± 70**
 $*\delta^{13}C = -27\text{‰}$
Peat at 9.38m depth.

IRPA-771. Berendrechtsluis 3 **4630 ± 70**
 $*\delta^{13}C = -27\text{‰}$
Peat at 8.50m depth.

IRPA-772. Berendrechtsluis 4 **3570 ± 60**
 $*\delta^{13}C = -27\text{‰}$
Peat at 7.65m depth.

General Comment (PK): age of IRPA-769 is as expected with respect to absolute height of sample. IRPA-770 is ca 500 yr younger than expected as result of decreased rate of rise of river level due to flood-basin effect in Lower Scheldt area. IRPA-771 and -772 are much older than expected (by at least 600 yr) and -771 even shows slight age reversal with -770. This is probably result of simultaneous peat growth at different levels of sloping Pleistocene subsoil due to groundwater seepage.

De Panne-Adinkerke series

Samples from De Panne-Adinkerke, W Vlaanderen (51° 04' 30" N, 2° 94' 45" E). Coll and subm 1980 by R De Ceunynck, Univ Gent, Belgium.

IRPA-792. DP stort 8/8/86 **2970 ± 70**
 $\delta^{13}C = +0.4\text{‰}$
Shells (*Serobicularia plana*) at 1.8m depth. Diluted; 58.38% sample.

IRPA-793. DP stort 85 **3260 ± 60**
 $\delta^{13}C = -6.7\text{‰}$
Shells (*Cerastoderma edule*) at 2.0m depth.

Bornem series

Samples in infilled paleochannel in Scheldt R alluvial plain at Bornem, Antwerpen (51° 06' 40" N, 4° 13' 40" E). Coll and subm Aug 1987 by P Kiden.

IRPA-850. Bornem-Buitenland 1 **9400 ± 190**
 $\delta^{13}C = -31.1\text{‰}$
Marl at 5.68–5.72m depth.

IRPA-851. Bornem-Buitenland 2 **9660 ± 110**
 $\delta^{13}C = -34.9\text{‰}$
Marl at 5.91–6.01m depth. Diluted; 81.29% sample.

IRPA-852. Bornem-Buitenland 3 **9920 ± 200**
 $\delta^{13}C = -33.9\text{‰}$
Marl at 6.38–6.48m depth. Diluted; 70% sample.

General Comment (PK): dates of IRPA-851 and -852 are expected. Age of IRPA-850 is greater than initially expected but seems correct considering results of IRPA-851 and -852. Dates show gradual infilling of Late Glacial paleochannel and early onset of peat growth in deepest part of channel.

Western coastal plain of Belgium series

These results complete previously pub series (R, 1987, v 29, no. 2, p 197–199, R, 1986, v 28, no. 1, p 71–72) of peat and wood from W Vlaanderen. Coll by L. Denys and subm 1987 by C. Baetemen, Geol Service Belgium.

IRPA-825. Wolvenest **3830 ± 70**
 $\delta^{13}C = -26.8\text{‰}$
Peat from base of intercalated clay layer in top peat layer, 2.92–2.95m below surface at Ramskapelle (51° 06' N, 2° 46' E).

IRPA-860. Wolvenest **3550 ± 60**
 $\delta^{13}C = -27.3\text{‰}$
Peat from top of intercalated clay layer in top peat layer, 2.82–2.85m below surface at Ramskapelle (51° 06' N, 2° 46' E).

IRPA-859. Wolvenest **2710 ± 60**
 $\delta^{13}C = -26.8\text{‰}$
Peat from top of top peat, 2.32–2.38m below surface at Ramskapelle (51° 06' N, 2° 46' E).

IRPA-864. Vliegveld **3800 ± 60**
 $\delta^{13}C = 28\text{‰}$
Peat from clay level in top peat layer, 4.25–4.29m below surface at Leffinge (51° 10' N, 2° 53' E).

IRPA-865. Vliegveld **4700 ± 70**
 $\delta^{13}C = -28.6\text{‰}$
Peat from top of intercalated clay layer in top peat layer, 4.78–4.82m below surface at Leffinge (51° 10' N, 2° 53' E).

IRPA-866. Vliegveld **4820 ± 70**
 $\delta^{13}C = -27.6\text{‰}$
Peat from base of intercalated clay layer in top peat layer, 4.90–4.94m below surface at Leffinge (51° 10' N, 2° 53' E).

- IRPA-867. Oostkerke** **2200 ± 50**
 $\delta^{13}C = -27.4\text{‰}$
Peat from top of top peat, 1.75–1.80m below surface at Oostkerke (51° 02' N, 2° 42' E).
- IRPA-868. Oostkerke** **4750 ± 70**
 $\delta^{13}C = -28.5\text{‰}$
Peat from base of top peat, 3.82–3.85m below surface at Oostkerke (51° 02' N, 2° 42' E).
- IRPA-869. Oostkerke** **5050 ± 80**
 $\delta^{13}C = -27.2\text{‰}$
Peat from second peat layer, 3.94–3.97m below surface at Oostkerke (51° 02' N, 2° 42' E). Diluted; 60.13% sample.
- IRPA-872. Waterhoek** **1610 ± 50**
 $\delta^{13}C = -28.2\text{‰}$
Clay peat with reed from top of top peat, 1.43–1.48m below surface at Noordschote (50° 57' N, 2° 49' E).
- IRPA-873. Waterhoek** **4460 ± 60**
 $\delta^{13}C = -29.4\text{‰}$
Wood from 4.37–4.43m below surface at Noordschote (50° 57' N, 2° 49' E).
- IRPA-874. Waterhoek** **4850 ± 80**
 $\delta^{13}C = -28.1\text{‰}$
Peat from 5.53–5.58m below surface at Noordschote (50° 57' N, 2° 49' E). Diluted; 64.5% sample.
- IRPA-875. Waterhoek** **5400 ± 90**
 $\delta^{13}C = -27.2\text{‰}$
Clay peat from 5.77–5.83m below surface at Noordschote (50° 57' N, 2° 49' E). Diluted 75;12% sample.
- General Comment (CB):* IRPA-872: top of upper peat layer. Age corresponds with IRPA-521 and -527, also from top of surface peat at more inland sites, showing that peat growth persisted considerably longer here than in coastal area.
- IRPA-873 dates onset of dry conditions during peat growth as indicated by diatom analysis. IRPA-875, -874 date onset and termination of (relatively mild) saltwater influence at site. IRPA-825 peat at base of clayey intercalation in upper peat layer; -860 peat at top of same intercalation; -864 clayey intercalation in upper peat layer. Results agree with dates for clay layers of limited extension in same stratigraphic position (ANTW-316, -317, IRPA-527, -286, -287, -290) and other indications of increased

marine influence during this period (IRPA-529). IRPA-865 at base of upper peat layer and -866 at top of second peat layer immediately underlying upper layer date onset and end of increased marine influence and clay deposition. Relatively late start of rather continuous peat growth was expected because of proximity to present coastline; IRPA-865–866 closely agrees with IRPA-721 and -868, also from base of surface peat. IRPA-859 at top of upper peat and -867 at top of upper peat are expected dates for top of surface peat. IRPA-869 at second peat layer and -868 at base of first peat layer should be older. Generally, second peat layer yields considerably older results (IRPA-559, -561, -724, -515: R, 1986, v 28, no. 1, p 71–72), yet dates correspond with others for beginning of surface peat growth. IRPA-869 is possibly affected by root contamination, but it should probably be considered reliable, indicating discontinuity in peat growth shortly after initiation.

ARCHAEOLOGIC SAMPLES

Belgium

Maldegem series

Samples from Roman wells at Maldegem, O Vlaanderen (51° 13' 22" N, 3° 25' 38" E). Coll and subm 1986–1988 by H Thoen, Univ Gent, Belgium (Thoen & Vandermoere, 1986).

IRPA-673. Sample 1 **1630 ± 50**
 $*\delta^{13}C = -27\text{‰}$
Wood (*Quercus*).

IRPA-674. Sample 2 **1810 ± 50**
 $*\delta^{13}C = -27\text{‰}$
Wood (*Betula*).

IRPA-827. MAV 87/6/2/N3 **1960 ± 50**
 $\delta^{13}C = -27.6\text{‰}$
Wood (*Alnus*). Board from construction of well 2.

IRPA-828. MAV 87/6/a/f **1840 ± 50**
 $\delta^{13}C = -28.1\text{‰}$
Wood fragments (*Alnus*, *Corylus*, *Quercus*) from filling of well 2.

IRPA-829. MAV 87/6/d/f 3 **1880 ± 50**
 $\delta^{13}C = -23.7\text{‰}$
Wood (*Ilex*); pile from filling of well 3.

IRPA-830. MAV 87/6/d/N2 **1800 ± 50**
 $\delta^{13}C = -26.8\text{‰}$
Wood (*Alnus*) from construction of well 3.

IRPA-650. Oudenaarde **750 ± 50**
 $\delta^{13}C = -16.3\text{‰}$

Mortar from St Elooi Church in Oudenaarde, O Vlaanderen (50° 51' N, 3° 35' E). Coll and subm 1986 by M Savko, IRPA. *Comment:* sample was first examined to separate fractions containing chalk carbonate from those containing carbonate formed after mortar preparation (van Strydonck, Dupas & Dauchot-Dehon, 1982). Dating methods are described in van Strydonck, Dupas and Dauchot-Dehon (1986). Date agrees with archaeol age; end of 13th century AD.

IRPA-651. Leffe Abdij **1070 ± 50**
 $\delta^{13}C = -11\text{‰}$

Mortar from St Georges Church in Dinant, Namur (50° 16' N, 4° 46' E). Coll and subm 1986 by M Savko. *Comment:* sample was first examined to separate fractions containing chalk carbonate from those containing carbonate formed after mortar preparation. Sample was too small for dating, described in van Strydonck, Dupas and Dauchot-Dehon (1986). All carbonate was transformed to CO₂, which may explain non-concordance with archaeol date: 14th century AD.

Oudenaarde series

Organic material and wood from excavations of Donk in Oudenaarde, O Vlaanderen (50° 50' 30" N, 3° 35' 30" E). Coll 1985 by M van Strydonck and subm 1985 by P Vanderplaetsen, Univ Gent, Belgium.

IRPA-667. OD84/1 **4990 ± 70**
 $*\delta^{13}C = -24\text{‰}$
Wood.

IRPA-743. OD85/V17 **5240 ± 70**
 $*\delta^{13}C = -24\text{‰}$
Organic material.

IRPA-744. OD85/V31 **5050 ± 70**
 $*\delta^{13}C = -24\text{‰}$
Wood.

IRPA-745. OD85/sl3/k1 **4670 ± 70**
 $*\delta^{13}C = -24\text{‰}$
Wood.

IRPA-746. OD85 **3130 ± 60**
 $*\delta^{13}C = -27\text{‰}$
Peat from first Neolithic settlement.

IRPA-748. OD85/25/s12 **4160 ± 65**
 $*\delta^{13}C = -24\text{‰}$
Charcoal.

General Comment (JV): all but IRPA-748 are from same site which belongs to Michelsberg culture. IRPA-667 and -744 derive from archaeol layer covering some pits, which yielded IRPA-743 and -745. IRPA-743 is somewhat older and seems to agree with archaeol assessments as very large and deep pit from which it came was filled slowly and naturally. Somewhat later date of IRPA-745, from a smaller pit, does not necessarily indicate stratigraphic contradiction. This pit, although older than archaeol layer, may have had short duration. The 2σ ranges of these dates overlap and, even with 1σ there is only a very small gap. IPRA-746 is from peat layer overlying archaeol features. Date completely agrees with stratigraphic and geologic observations. IRPA-748 was from late Neolithic site. Date fits well with observed (late) Vlaardingen and Beaker influences on that site.

Zoniënbos series

Charcoal from pit in Uccle, Brabant (50° 46' N, 4° 24' E). Coll Jan 1986 and subm April 1986 by J Sanders, Univ Gent, Belgium. Results used to date furnace for metallurgy study in Zoniënbos (Sanders, Langohr & Cuyckens, 1985; Theon, 1983).

IRPA-763. 86/2/13-A **1020 ± 50**
 $*\delta^{13}C = -24\text{‰}$
Top of pit.

IRPA-764. 86/2/13-B **1240 ± 50**
 $*\delta^{13}C = -24\text{‰}$
Base of pit.

IRPA-765. 86/2/3/1 **1240 ± 50**
 $*\delta^{13}C = -24\text{‰}$
Base of pit.

IRPA-766. 86/1/29/1.A **1150 ± 50**
 $*\delta^{13}C = -24\text{‰}$
Top of pit.

IRPA-767. 86/1/29/1-B **1080 ± 50**
 $*\delta^{13}C = -24\text{‰}$

Base of pit. *Comment:* difference between IRPA-766 and IRPA-768 has no signification. Results are statistically the same.

“Hogeweg” series

Samples from Hogeweg site at Gent, O Vlaanderen (51° 3' N, 4° 47' E). Coll April 1985 by J Vanmoerkerke and subm March 1986 by M C Laleman, Dienst Monumentenzorg en Stadsarcheologie, Gent, Belgium.

IRPA-773. HW85 level 26 **2710 ± 60**
 $*\delta^{13}C = -24\text{‰}$
Oak leaves found in a pit.

IRPA-774. HW85 level 18**3030 ± 90**
 $*\delta^{13}C = -24^{0}_{00}$

Charcoal in circular grave from Bronze Age.

Zerkegem series

Samples from boards of well at Zerkegem, W Vlaanderen (51° 10' 27" N, 3° 03' 24" E). Subm 1986 by A van Doorselae, Univ Leuven, Belgium. Early Middle Age expected.

IRPA-775. ZER86/5/k33/N3**1790 ± 50**
 $*\delta^{13}C = -24^{0}_{00}$

Wood.

IRPA-776. ZER86/5/k39/N3bis**1350 ± 50**
 $*\delta^{13}C = -24^{0}_{00}$

Wood.

IRPA-777. ZER85/5/k26**1580 ± 50**
 $*\delta^{13}C = 24^{0}_{00}$

Wood.

Mirwart series

Samples from blast furnace at Mirwart, Luxembourg (50° 02' N, 5° 14' 30" E). Coll July 1985 by JP Weber and subm May 1986 by A Matthys, Natl Service Excavations, Belgium; 16th century expected (Weber, 1985).

IRPA-779. 85MA3.F1.4**350 ± 50**
 $*\delta^{13}C = -25^{0}_{00}$

Charcoal.

IRPA-780. 85MA9.F1.5**490 ± 50**
 $*\delta^{13}C = -15^{0}_{00}$

Charcoal.

Hastedon series

Samples from Hastedon, Namur (50° 28' 59" N, 4° 50' 40" E). Coll Aug 1985 and subm June 1986 by P Bonenfant, Free Univ Brussels, Belgium. Results used to date protohistoric pit.

IRPA-785. Hastedon 5**1750 ± 100**
 $*\delta^{13}C = -24^{0}_{00}$

Charcoal. Diluted; 39.5% sample.

IRPA-784. Hastedon 6**2195 ± 40**
 $*\delta^{13}C = -24^{0}_{00}$

Charcoal.

IRPA-802. Kooigem **2300 ± 60**
 $*\delta^{13}C = -24\text{‰}$

Charcoal from funerary deposit in trench of cult site at Kortrijk, W Vlaanderen (50° 50' N, 3° 19' E). Coll 1985 by E Glabeke and subm 1987 by J Termote, Vereniging voor Oudheidkundige Bodemonderzoek in W Vlaanderen. Based on typological study, date should be La Tène Ib or La Tène Ic-II period.

Oudenburg series

Samples from well in Roksem, W Vlaanderen (51° 10' 35" N, 3° 1' 15" E). Coll Nov 1986 by J de Meulemeester (de Meulemeester & Dewilde, 1987) and subm March 1987 by G de Boe, Natl Service Excavation, Belgium. Results used to date archaeol site of Oudenburg. Middle Age period expected.

IRPA-809. Well 1 **1370 ± 50**
 $\delta^{13}C = -26.4\text{‰}$
Wood.

IRPA-810. Well 2 **1030 ± 20**
 $\delta^{13}C = -26.4\text{‰}$
Wood.

IRPA-861. En 83/50 **4990 ± 90**
 $\delta^{13}C = -25.3\text{‰}$
Charcoal from prehistoric level of Mark Castrum (Callebaut, 1984) in Ename, O Vlaanderen. Coll Oct 1983 and subm Nov 1987 by D Callebaut, Natl Service Excavations, Belgium. Expected age: Late Neolithic. Diluted; 64.51% sample.

Hamipré series

Charcoal from oven in Iron Age "tombelle" at Hamipré, Luxembourg (49° 50' N, 5° 30' 45" E). Coll 1983 and subm 1987 by A Cahen-Delhay, Natl Service Excavations, Belgium. Date from same site, Hv-12992: 360 ± 65.

IRPA-814. 83Ha32 **2330 ± 60**
 $\delta^{13}C = -24.5\text{‰}$
Result agrees with other date.

IRPA-815. 83Ha37 **1220 ± 50**
 $\delta^{13}C = -24.4\text{‰}$
Date is too young.

Ursel series

Samples from excavations of Ursel at Knesselare, O Vlaanderen. Coll 1987 by J Bourgeois and J Vanmoerkerke and subm 1988 by J Nenquin, Univ Gent, Belgium.

IRPA-818. S54 **3620 ± 60**
 $\delta^{13}C = -25.7\text{‰}$
Charcoal from Bronze Age tumulus.

IRPA-819.A S26 **2490 ± 55**
 $\delta^{13}C = -24.8\text{‰}$
Charcoal from Bronze Age tumulus; SW section.

IRPA-819.B S26 **2500 ± 60**
 $\delta^{13}C = -25.1\text{‰}$
Charcoal from Bronze Age tumulus; S section.

IRPA-820. Tomb 7 **1980 ± 60**
 $\delta^{13}C = -25.8\text{‰}$
Charcoal from Iron Age. No NaOH pretreatment. Diluted; 63.8% sample.

IRPA-821. Tomb 8 **1990 ± 50**
 $\delta^{13}C = -25.5\text{‰}$
Charcoal from Iron Age.

IRPA-822. Tomb 12 **2070 ± 50**
 $*\delta^{13}C = -25\text{‰}$
Charcoal from Iron Age.

IRPA-823. Tomb 23 **1990 ± 50**
 $\delta^{13}C = -25.7\text{‰}$
Charcoal from Iron Age.

General Comment (JN): dates agree with archaeol expectation.

Donk series

The following results complete series (R, 1987, v 29, no. 2, p 205) of samples from multicomponent site in Donk, Limburg (50° 57' 24" N, 5° 07' 56" E). Coll Oct 1986 and subm Dec 1986 by L van Impe, Natl Service Excavations, Belgium.

IRPA-795. 86/DO/1319 **1360 ± 50**
 $\delta^{13}C = -27\text{‰}$
Wood used to protect river bank.

IRPA-796. 86/DO/1318 **1290 ± 50**
 $\delta^{13}C = -25.9\text{‰}$
Wood from pile-planking.

IRPA-797. 86/DO/1317 **1380 ± 50**
 $*\delta^{13}C = -25\text{‰}$
Wood from pile-planking.

IRPA-798. 86/DO/1321 **1010 ± 50**
 $\delta^{13}C = -28.2\text{‰}$
Wood from branch.

IRPA-799. 86/DO/1323 **1180 ± 50**
 $\delta^{13}C = -28.3\text{‰}$
Wood from branch.

IRPA-800. 86/DO/1276 **1180 ± 50**
 $\delta^{13}C = -28.1\text{‰}$
Wood from branch.

IRPA-801. 86/DO/1320 **1330 ± 50**
 $\delta^{13}C = -28.5\text{‰}$
Wood from branch.

IRPA-879. Abdÿ 't Park **305 ± 60**
 $\delta^{13}C = -25.9\text{‰}$
Straw in plaster from Abdij of Park at Heverlee, Brabant (50° 52' N, 4° 45' E). Coll and subm 1988 by R M Lemaire, Univ Leuven, Belgium.

Balearic Islands

Taula del Torralba series

Samples from Menorca, Spain (39° 35' N, 2° 44' E). Coll April 1987 and subm July 1987 by W Waldren, Deya Archaeol Mus and Research Centre, Deya Mallorca, Spain.

IRPA-781. Sample 3 **2020 ± 70**
 $*\delta^{13}C = -24\text{‰}$
Charcoal.

IRPA-782. Sample 4 **2400 ± 60**
 $*\delta^{13}C = -24\text{‰}$
Charcoal.

IRPA-813. SFO YS T1 **2830 ± 100**
 $*\delta^{13}C = -25\text{‰}$
Charcoal from red earth on bedrock at Ferrandel-Oleza, Mallorca, Spain (39° 34' N, 2° 44' E). Coll April 1987 and subm July 1987 by W Waldren.

Mallorca series

Lime burials from Mallorca, Spain (39° 94' N, 2° 44' E). Coll and subm 1985–1986 by W Waldren. CO₂ extraction follows method described in van Strydonck, Dupas and Dauchot-Dehon (1986). See Tables 1 and 2.

TABLE 1
Mallorca radiocarbon dates

Ref	IRPA no.	Fraction (%)	Date	Isotopic fractionation (‰)
ABSM-QL ≠ 7	−676	100	2330 ± 60	−15.7
		50	2550 ± 60	−14.2
		25	2330 ± 60	−13.88
ABSM-QL CE(23)	−695	100	2040 ± 60	−12.28
		52	2620 ± 60	−11.55
		24	2050 ± 60	−10.57
		12	1960 ± 100	−10.44
SFO-YS	−710	98	1790 ± 60	−17.71
		53	1965 ± 60	−15.92
		16	1560 ± 60	−14.49
ABSM Pretalyot c	−762	100	22.460 ± 400	−1.38
		49	23.731 ± 460	0.69
		19	18.300 ± 240	4.14
SFO-YS T1	−778	100	1990 ± 60	−11.58
		50	1520 ± 60	−17.6
		30	1490 ± 60	−16.32
		17	1520 ± 60	−17.49
ABSM-QL ≠ 12	−789	100	2280 ± 60	−16.48
		21	2350 ± 60	−13.69
ABSM-QL NR4	−790	100	2430 ± 60	−18.79
		50	2570 ± 60	−18.02
		14	2360 ± 60	−17.85

ART SAMPLES

Belgium

IRPA-786. DI 86/3483 2L/35

510 ± 50
**δ¹³C = −20‰*

Bones from tomb in S’Niklaas church at Gent, O Vlaanderen (51° 3’ N, 4° 47’ E). Subm June 1986 by J de Boeck, IRPA. Result used to date textile found in same tomb.

Tancrémont series

Statue of Christ on crucifix in Tancrémont chapel at Pepinster, Liège (50° 32’ N, 5° 50’ E). Subm by M Serck, IRPA.

IRPA-787. DI 84/2955 2L/47 A

570 ± 50
**δ¹³C = −24‰*

Wood (*Quercus*) from cross.

IRPA-788. DI84/2955 2L/47 B

1160 ± 50
**δ¹³C = −24‰*

Wood (*Tilia*) from Christ. *Comment:* date of cross is younger than that of Christ.

TABLE 2
 Mallorca radiocarbon dates

Ref	IRPA no.	Fraction (%)	Date	Isotopic fractionation (%)
ABSM-QL ≠ 9	-750	20	2100 ± 60	-17.83
		20	2150 ± 60	-17.84
		18	2610 ± 60	-17.85
		18	2520 ± 60	-18.61
ABSM-QL ≠ 10	-751	21	2500 ± 60	-12.14
		19	3660 ± 70	-11.31
		19	4190 ± 70	-10.79
		20	4620 ± 80	-10.79
		21	5270 ± 80	-9.68
ABSM-QL ≠ 8	-752	20	2090 ± 60	-14.84
		21	2540 ± 60	-14.5
		18	2390 ± 60	-14.58
		20	2310 ± 70	-15.03
		21	2440 ± 60	-14.76
ABSM-QL ≠ 13	-803	19.3	2270 ± 60	-14.13
		19.45	2560 ± 60	-14.37
		19.67	2320 ± 60	-14.18
		20.08	2250 ± 60	-14.54
		21.49	2430 ± 60	-14.86
ABSM-NOP 2	-804	19.33	2590 ± 60	-18.28
		19.04	2700 ± 60	-19.27
		19.40	2900 ± 60	-20.34
		19.09	2930 ± 60	-20.96
		23.13	3070 ± 60	-21.21
	-806	18.59	2290 ± 60	-24.07
		19.19	2640 ± 60	-17.04
		17.82	2980 ± 60	-16.82
		18.43	2760 ± 60	-16.78
		26.14	2700 ± 60	-16.54
	-808	19.45	1970 ± 60	-22.39
		19.82	2250 ± 60	-23.07
		20.84	2270 ± 60	-24.57
		19.15	2350 ± 60	-24.15
ABSM-QL 6	-811	20.73	2250 ± 60	-24.83
		19	2460 ± 60	-14.27
		20	2530 ± 60	-14.15
		20	2650 ± 60	-14.7
		20	2620 ± 60	-14.92
		21	2530 ± 60	-15.37

General Comment (MVS): Samples show recarbonation of lime. Fossil carbonate was found only in a few samples. For comprehensive discussion, see van Strydonck and Waldren (1987).

IRPA-794. DI86/3574 2L/35 **370 ± 40**
 $\delta^{13}C = -26.1\text{‰}$

Blue (indigo) cloth from “De zeven vrije kunsten” tapestry in Gruuthuse Mus Brugge, W Vlaanderen (51° 19' N, 3° 9' E). Subm Nov 1986 by J Vynckier, IRPA. Diluted; 79.28% sample. Expected age: 17th century AD.

IRPA-853. DI87/3813 2L/7 **170 ± 50**
 $\delta^{13}C = -23.3\text{‰}$

Wooden Japanese mask; style of Nara period, 8th century AD.

*Peru***Chancay series**

Samples from Peru, Chancay period. Coll 1977 by J Purin and subm Jan 1986 by J de Boeck.

IRPA-620. AAM.65.13-6 **1240 ± 50**
 $\delta^{13}C = -23.9\text{‰}$
Wood (bamboo).

IRPA-621. AAM.65.13-4 **1030 ± 60**
 $\delta^{13}C = -24.4\text{‰}$
Wood (bamboo). Diluted; 71.15% sample.

IRPA-622. **670 ± 50**
 $\delta^{13}C = -19.9\text{‰}$
Cloth (cotton).

REFERENCES

- Callebaut, D, 1984, Het castrum van de mark Ename: *Archaeol Belgica*, v 285, p 102.
 de Meulemeester, J and Dewilde, M, 1987, Romeinse en middeleeuwse landelijke bewoning langs de Zeeweg te Roksem (gem Oudenburg): *Archaeol Belgica*, v III, p 225–231.
 Sanders, J, Langohr, R and Cuyckens, G, 1985, Bodem en relief in het Zoniënbos: Inleiding tot een excursie: *De Aardrykskunde*, v 2, p 87–133.
 Stuiver, M and Polach, H, 1977, Discussion: Reporting of ^{14}C data: *Radiocarbon*, v 19, no. 3, p 355–363.
 Thoen, H, 1983, Overblijfselen van antieke siderurgie in het Zoniënbos: Sporen van de Mens in Zoniën, v 2, p 17–20.
 Thoen, H and Vandermoere, N, 1986, The Roman fortified site at Maldegem (East Flanders): *Scholae Archaeol*, v 6, p 5–58.
 van Strydonck, M, Dupas, M and Dauchot-Dehon, M, 1983, Radiocarbon dating of old mortars, in Mook, W G and Waterbolk, H T, eds, Internatl symposium on ^{14}C and archaeology, 1st, Proc: Strasbourg, PACT.
 ————1986, The influence of contaminating (fossil) carbonate and the variations of $\delta^{13}C$ in mortar dating, in Stuiver, M and Kra, R S, eds, Internatl ^{14}C conf, 12th, Proc: *Radiocarbon*, v 28, no. 2A, p 702–710.
 van Strydonck, M and Waldren, W, in press, in Mook, W G and Waterbolk, H T, eds, Internatl symposium on archaeology and ^{14}C , 2nd, Proc: PACT.
 Weber, J P, 1985, Le haut fourneau de Marsolle près de Mirwart (Lux): *Archaeol Mediaevalis*, v 8, p 96–98.