

## ANTWERP UNIVERSITY RADIOCARBON DATES IV

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Samples processed since the last list was published (R, 1978, v 20, no. 3, p 192-199) are reported here. The dates were obtained by liquid scintillation counting of benzene, using laboratory procedures outlined in previous articles (R, 1976, v 18, no. 2, p 151-160; R, 1977, v 19, no. 3, p 383-388).

### GEOLOGIC SAMPLES

#### *Belgium*

#### **Booitshoeke series**

Peat and clay layers in W Belgian coastal plain (51° 05' 34" N, 2° 44' 03" E). Coll and subm Nov 1978 by R Vanhoorne and A D Dubois.

**ANTW-316. Booitshoeke 1** **3210 ± 50**

Base of upper peat layer containing numerous reed rhizomes (*Phragmites australis*), 5cm thick, 125 to 130cm depth. Peat is overlain by clay. *Comment*: date is ca 530 yr younger than IRPA-286 (Baeteman *et al*, 1979; Baeteman, 1981; Dauchot-Dehon, Van Strydonck & Heylen, 1981a) in same strat position, but containing no reed rhizomes.

**ANTW-315. Booitshoeke 2** **2950 ± 60**

Extracted humic acids from ANTW-316. Humic acids were obtained by boiling peat sample with NaOH, followed by their precipitation by HCl 2N treatment. *Comment*: small difference between ANTW-315 and -316 reflects only minor percolation of humic acids through overlying clay.

**ANTW-317. Booitshoeke 3** **3680 ± 50**

Wood (*Alnus*) in same peat layer as ANTW-316, but 10m NW. *Comment*: date agrees with IRPA-286 (Baeteman *et al*, 1979; Baeteman, 1981; Dauchot-Dehon, Van Strydonck & Heylen, 1981a), in same strat position.

**ANTW-321. Booitshoeke 4** **3130 ± 50**

Reed rhizomes from intercalated clay layer, 10cm thick, between upper and lower peat layers, 130 to 140cm depth, immediately underlying ANTW-316. *Comment*: reed rhizomes are ca 565 yr younger than wood in overlying peat. Preliminary diatom analysis of this clay layer, which was previously observed in borings in that area (Stockmans & Vanhoorne, 1954), indicates that it was deposited under marine tidal flat conditions (L Denys, pers commun, 1985). Strat position and sedimentary environment support opinion of C Baeteman (Baeteman *et al*, 1979) that this clay layer resulted from Calais IV-B transgression.

*General Comment:* ages of samples containing reed rhizomes (ANTW-316 and -321) reveal that they did not originate from initial colonization after clay deposition, but actually belonged to plants growing several hundreds of years after initiation of upper peat layer. Explanation by deviating carbon isotope fractionation must be rejected, as *Phragmites australis* belongs to C-3 (Calvin cycle) group of plants, needing little or no correction (Lerman, 1973).

The same explanation, *ie*, presence of younger reed rhizomes contaminating peat sample, is proposed for unusually young date of IRPA-345 (3200 ± 200 BP) originating from base of upper peat layer (R, 1981, v 23, p 346).

**ANTW-304. Oostkerke** **4180 ± 60**

Clayey peat, containing many reed rhizomes, from boring 374 (Belgian Geol Survey) at 505 to 510cm depth (base of peat layer) in W Belgian coastal plain (51° 20' 54" N, 2° 44' 54" E). Coll and subm Aug 1978 by C Baeteman and A Tassanasorn. *Comment:* date is ca 400 yr too young compared with other samples from same layer, *ie*, ANTW-249, -102, IRPA-282, -288, Hv-8794 (Baeteman, 1981). However, it closely resembles date of IRPA-292 (R, 1981, v 23, p 33), from same layer, also containing reed rhizomes. This reveals that reed rhizomes did not originate from initial vegetation of peat fm. This conclusion agrees with findings on Bootshoeke series.

**Beerse series**

Peat and extracted humic acids from Beerse (51° 20' 22" N, 4° 48' 31" E). Coll and subm Nov 1978 by R Vanhoorne and A D Dubois.

**ANTW-310. Beerse 1** **9460 ± 80**

Peat from 264 to 276cm depth.

**ANTW-311. Beerse 2** **6080 ± 240**

Extracted humic acids from ANTW-310. Humic acids were extracted as above (ANTW-315).

*General Comment:* from strat point of view, peat corresponds to Late Glacial layers described by De Ploey (1961), Vanhoorne (1963), and Riezebos, Slotboom and Vanhoorne (Lithological expression of a palynologically deduced climatic oscillation during the Alleröd, ms in preparation) in same clay pit. Obtained date is >1000 yr BP younger than youngest date obtained by Riezebos, Slotboom and Vanhoorne (ms in preparation). This can be explained by presence of younger rootlets within peat. Relatively young date for extracted humic acids reflects their good percolation through sandy soil, overlying peat layer. *Salix* and *Juniperus* wood from peat layer is currently being analyzed for its deuterium content (Dubois, The deuterium hydrogen ratio in cellulose as a climatological and a paleoclimatological indicator, ms in preparation).

**Wuustwezel series**

Peat and extracted humic acids from Wuustwezel (51° 25' 15"N, 4° 35' 43" E). Coll and subm June 1978 by R Vanhoorne and A D Dubois.

**ANTW-300. Wuustwezel 1** **9930 ± 130**

Amorphous peat, 104 to 106cm depth. No rootlets visible.

**ANTW-308. Wuustwezel 2** **9100 ± 30**

Amorphous peat, 104 to 106cm depth, adjoining ANTW-300. No rootlets visible. *Comment:* significantly different age from ANTW-300 reveals contamination probably caused by younger rootlets indistinguishable from rest of peat.

**ANTW-303. Wuustwezel 3** **10,370 ± 80**

Amorphous peat, 104 to 106cm depth. Visible rootlets removed.

**ANTW-313. Wuustwezel 4** **8690 ± 90**

Extracted humic acids from sample ANTW-303. Humic acids were extracted as above (ANTW-315).

*General Comment:* pollen diagram, characterized by dominance of *Pinus* and *Betula* without any thermophilous trees and low NAP percentages reflects Late Glacial forested landscape, which should be set in Alleröd. According to generally accepted dates for Alleröd in Europe, date was expected to be 3000 yr older. This error is probably caused by occurrence of rootlets in peat, belonging to younger vegetation.

**ANTW-305. Wuustwezel 5** **7240 ± 80**

Slightly clayey amorphous peat, 106 to 111cm depth. No rootlets visible. *Comment:* on palynol grounds, open park landscape with a few specimens of *Betula* and *Salix* is inferred. However, *Salix* and *Betula* may represent dwarf specimens, playing no role in forestation. No thermophilous trees were observed. NAP pollen, in which *Artemisia* is more important than in Wuustwezel 4, attains almost 70%. According to palynol results, this peat should belong to Older Dryas. Date obtained is 5000 yr too young. There is no doubt that peat was contaminated.

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