[RADIOCARBON, VOL. 9, 1967, P. 295-300]

LOUVAIN NATURAL RADIOCARBON MEASUREMENTS V

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The measurements reported in this list were made in the Louvain C^{14} dating laboratory in 1966. Sample preparation, counting procedure and calculation method are described in the previous lists. Ages are calculated on the basis of a C^{14} half life of 5570 yr (Godwin, 1962). Errors, including the experimental standard deviation of the counting rate of the background, of the modern standard and of the unknown sample, are expressed by 1σ (Crèvecoeur and others, 1959).

Thanks are due to Professor P. C. Capron for his help in many constructive discussions. We wish to acknowledge the assistance of F. Frix in the operations of the laboratory, and of G. Michotte in the maintenance of electronics. The description of each sample is based on information provided by the submitters. Financial support was provided by the Institut Interuniversitaire des Sciences Nucléaires, Brussels.

SAMPLE DESCRIPTIONS

I. GEOLOGIC SAMPLES

Valley of the Lienne series

Peat from marshy alluvial plain of river Lienne, Prov. of Luxembourg, Belgium. Bogs of valley of the Lienne show differences between evolution of vegetation of lower valleys and that of the High Plateaus (Gullentops and others, 1966). Pollen analysis by W. Mullenders, Univ. of Louvain, Lab. of Palynology. Coll. 1965 and subm. by W. Mullenders.

Lv-271. Lierneux I **2190 ± 160**
240 B.C.

Peat from Hierlot (50° 18′ 36″ N Lat, 5° 46′ 16″ E Long) near Lierneux, alt 340 m. Taken from peat layer, 15 cm thick, in steep bank of rivulet of Hierlot, 1 m below surface of grassland. Pollen analysis indicates beginning of Sub-Atlantic period.

Lv-272. Chevron I **2600 ± 130**
650 B.C.

Fibrous peat from Chevron (50° 21′ 50″ N Lat, 5″ 49′ 02″ E Long) at foot of northern slope of Plateau des Tailles, alt 260 m. From 37.0 to 42.5 cm below ground surface. Palynologically this level is situated slightly above Sub-Boreal-Sub-Atlantic transition. Date agrees with others of this transition in the Ardennes: 814 B.C. at Baraque Michel (Dricot, 1960), 820 B.C. and 840 B.C. at Grand Passage (Lv-59 and Lv-60, Louvain II).

3580 ± 130

Lv-273. Chevron I **1630 B.C.**

Fibrous peat from same site, 52 to 58 cm depth. At this level comes Atlantic-Sub-Boreal transition, usually dated 1600 to 2000 B.C.

7630 ± 170

Lv-274. Chevron I **5680 B.C.**

Peaty clay in bottom of peat layer, 75 to 83 cm depth. Sample corresponds to Boreal-Atlantic transition, estimated age 5500 to 6000 B.C.

Valley of the Nethen series

Dates in correlation with the study of the formation of the alluvial plain of the Nethen river, Prov. of Brabant, Belgium (Mullenders and others, 1966). Coll. 1965 by J. Lorent and subm. by F. Gullentops, Univ. of Louvain, Lab. of Geol. Pollen analysis by W. Mullenders.

2110 ± 90

Lv-276. Tourinnes la Grosse I **160 B.C.**

Humic matter from Tourinnes la Grosse (50° 46′ 54″ N Lat, 4° 46′ 03″ E Long), from calcareous peat layer, ca. 20 cm thick, at 120 cm below ground surface in bank of Nethen river, alt 75 m. Date agrees with pollen analysis: beginning of Sub-Atlantic period. *Comment:* date only includes soluble humic matter, because solid residuum after NaOH leach was insufficient.

4260 ± 150

Lv-277. Nethen I **2310 B.C.**

Peat from Nethen (50° 46′ 54″ N Lat, 4° 39′ 38″ E Long) in alluvial plain of Nethen river, alt 32 m. Peat layer, 175 cm thick, is covered by 380 cm of clayey alluvium and peaty clay. Sample from 410 to 425 cm below ground surface. Pollen diagram shows at this level end of Atlantic period. Date agrees well with other C^{14} dates for this period.

6350 ± 180

Lv-279. Nethen I **4400 B.C.**

Peat from same site as Lv-277, 510 to 520 cm depth. Boreal-Atlantic transition. According to pollen analysis, date seems too young. Transition is generally dated 7500 to 7800 B.P. *Comment* (W.M.): contamination by younger material is possible because inadequate boring instruments; however other dates for same level at Baraque Michel are 6720 ± 120 and 6740 ± 70 (Schumacker, 1961). Thus palynological indications for this transition may be placed a little too high in Belgium.

3570 ± 110

Lv-280. Dilsen **1620 B.C.**

Wood (Quercus, id. by J. Heim) from Dilsen (51° 02′ 15″ N Lat, 5° 44′ 30″ E Long), Prov. of Limburg, Belgium, alt 34 m. Imbedded in humic clay horizon at ca. 3 m below ground surface. Coll. 1965 by E.

Paulissen, Univ. of Louvain, Lab. of Geol.; subm. by F. Gullentops. Pollen analysis, by W. Mullenders, indicates beginning of Sub-Boreal period. Date agrees with expectations (Paulissen, 1966).

5210 ± 130

Lv-284. Meeswijck I **3260 B.C.**

Peat and wood twigs from Meeswijck (51° 00′ 20″ N Lat, 5° 43′ 35″ E Long), Prov. of Limburg, Belgium, alt 35 m. Peat layer, 45 cm thick, at ca. 3 m below ground surface. Sample taken at 32 to 35 cm depth in peat layer. Coll. 1965 and subm. by W. Mullenders. Pollen diagram shows at this level second part of Atlantic period, with classical elm fall. Date agrees closely with other dates of this level in Belgium, Netherlands, Germany and England.

II. ARCHAEOLOGIC SAMPLES

Neuchatel Lake series, Switzerland

2890 ± 110

Lv-270. Pirogue of Bevaix **940 B.C.**

Wood from prehist. pirogue, 8 m long, found in Neuchatel lake at Le Moulin (46° 55′ N Lat, 6° 49′ E Long) near Bevaix, Canton of Neuchatel, Switzerland. Coll. 1879 by M. Borel; subm. by P. Grandjean, Cantonal Archaeol. Mus. of Neuchatel. The pirogue is correlated with known stations of Bronze age (Vouga, 1943). C^{14} date agrees with archaeol.

1730 ± 100

Lv-269. Roman oar **A.D. 220**

Wood from oar-rudder found in Neuchatel lake near Bevaix (46° 55′ N Lat, 6° 50′ E Long), Canton of Neuchatel, Switzerland. Subm. by P. Grandjean. The oar, kept in Cantonal Archaeol. Mus. of Neuchatel, was assumed to be of Roman age. C^{14} date confirms estimate.

1080 ± 90

Lv-209. La Tène **A.D. 870**

Wood from wall of wooden construction at La Tène (47° 15′ N Lat, 7° 00′ E Long) along Thièle river, near Préfargier, Canton of Neuchatel, Switzerland. Subm. by P. Grandjean. *Comment* (E. Borel): in the first archaeol. analysis, construction was correlated with the prehist. site of La Tène, but a new study by J. P. Jecquier, Cantonal Archaeol. Mus. of Neuchatel, ascribes it to time of Charlemagne. C^{14} date agrees with second estimate.

2660 ± 150

Lv-217. Robberg Cave, S. Africa **710 B.C.**

Bones from Wagenaar's Cave (34° 05′ S Lat, 23° 22′ E Long) in Robberg Peninsula Reserve at Plettenberg Bay, Cape Province, South Africa. Cave was occupied until recently by the "Strandloopers". It contains a cultural deposit, 17 ft thick, of Late and Middle Stone Age (Ins-

keep, 1965). Dated skeleton, found in upper level, dates end of deposit. Coll. 1964 by E. L. Boné, Univ. of Louvain, Lab. of Paleontology, and Q. B. Hendey, South African Mus. of Cape Town; subm. by E. L. Boné and R. R. Inskeep, Univ. of Cape Town. *Comment:* bones were treated with cold normal HCl and the insoluble part used for dating.

Ordona series, Italy

Charcoal from Ordona (41° 18′ N Lat, 15° 37′ E Long), Prov. of Foggia, Italy. Series dates occupation of ancient Roman colony at Herdoniae (Mertens, 1964; 1965). First part was published in Louvain III. Coll. 1965 and subm. by J. Mertens, Univ. of Louvain, Archaeol. Inst.

Lv-218. Ordona **1660 ± 90** **A.D. 290**

Charcoal from "chapel" at E of Temple A. The building, situated near the forum, must have been destroyed in beginning of 4th century.

Lv-222. Ordona **2210 ± 100** **260 B.C.**

Charcoal from Excavation XLVI under Wall 19, 4 m depth. Date agrees with archaeol. estimate.

Lv-225. Ordona **2330 ± 120** **380 B.C.**

Charcoal from Excavation XVIII, under Roman road, 1.35 m depth. From same site as Lv-177 and Lv-178, dated A.D. 50 ± 80 and A.D. 20 ± 100 (Louvain III).

Lv-226. Ordona **2020 ± 90** **70 B.C.**

Charcoal from Excavation XLV under street of ancient city, 1.70 m depth. Date agrees with archaeol.

Lv-281. Ordona **2700 ± 100** **750 B.C.**

Charcoal from lower layer of amphitheatre, 1. 20 m depth. Dates pre-Roman city. Date agrees with archaeol. estimate.

Lv-283. Ordona **1530 ± 120** **A.D. 420**

Charcoal from Ordona from a pit arranged in a shop along SE side of forum. Date gives proof of the time of occupation of Phase 2 in this construction.

Lv-26. Beerlegem **1550 ± 90** **A.D. 400**

Wood from wooden bottom of Merovingian grave at Beerlegem (50° 54′ 20″ N Lat, 3° 43′ 30″ E Long), Prov. of Eastern Flanders, Belgium. Coll. 1957 by Roosens, Service des Fouilles, Brussels; subm. by

J. Mertens. Grave is archaeol. dated, according to funeral goods, to first half of 7th century (Roosens, 1959).

760 ± 100

Lv-195. Marchin **A.D. 1190**

Wood from fortified farm of Laître (50° 27′ 42″ N Lat, 5° 15′ E Long) at Marchin, Prov. of Liege, Belgium. From a beam, part of original construction of a tower, above a loophole, at 2 m above present level of street. Coll. 1964 and subm. by J. E. Opsomer, Univ. of Louvain. This fortified farm constructed on foundations of a Roman villa; a 12th-century date for the building of the tower was expected. Historic study continues.

1990 ± 120

Lv-188. Houtberg I **40 B.C.**

Charcoal from Tontelange (49° 42′ 29″ N Lat, 5° 47′ 50″ E Long), Prov. of Luxembourg, Belgium. Found with human bones in necropolis of La Tène III, at 50 cm depth under Grave B, Sq. V. Coll. 1959 and subm. by M. Coûteaux, Univ. of Louvain, Lab. of Palynology. Potsherds were determined and archaeol. dated by P. Bonenfant, Service des Fouilles, Brussels, as middle of 1st century B.C., probably just before Roman influence (Bonenfant, 1961). A pot from another grave of same site contained pollen with 40 percent of Fagus (Coûteaux, 1961)

840 ± 100

Lv-285. Nadrin **A.D. 1110**

Wood from Ollomont (50° 03′ N Lat, 5° 06′ E Long) at Nadrin, Prov. of Luxembourg, Belgium. Taken from medieval masonry at height of ca. 7 m in steeple of church. Coll. 1966 and subm. by R. Lemaire, Univ. of Louvain, Appl. Sci. Inst. C^{14} date confirms archaeol. estimate: between A.D. 1050 and 1130 (Genicot, 1966).

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