

## LOUVAIN NATURAL RADIOCARBON MEASUREMENTS VIII

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The measurements reported in this list were made in the Louvain C<sup>14</sup> Dating Laboratory in 1968 with the 0.6L CH<sub>4</sub> proportional counter. The counter generally operates at 3 atm pressure. Samples too poor to provide 2 L methane are measured at 1000 mm Hg pressure. Ages are calculated on the basis of a C<sup>14</sup> half life of 5570 yr and are quoted with 1 $\sigma$  counting error. The description of each sample is based on information provided by the submitters.

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### SAMPLE DESCRIPTIONS

#### I. GEOLOGIC SAMPLES

##### Anlier III series

Peat with alder rootlets (*Alnus*), id. by J. Heim from Bois le Prêtre (49° 45' 25" N Lat, 5° 36' 55" E Long) in forest of Anlier at Habay la Neuve, Prov. of Luxembourg, Belgium, alt 430 m. Bottom of Sub-Atlantic peat bog. Coll. 1963, subm. and pollen anal. by J. Heim, Univ. of Louvain, Lab. of Palynology.

**2060 ± 75**

##### Lv-169. Anlier III/1

**110 B.C.**

Peat from 70 to 80 cm. Pollen analysis shows beginning of Sub-Atlantic period, with beginning of continuous curve of *Fagus*, end of continuous curve of *Tilia* and sporadic presence of corn pollen. Level assumed first *Fagus* maximum F I masked by predominance of *Alnus*. In this region, date of this maximum is presumed A.D. 100 (Mullenders *et al.*, 1967).

**1600 ± 90**

##### Lv-170. Anlier III/2

**A.D. 350**

Peat from 80 to 90 cm. Age too young according to Lv-169. Sample probably contaminated by alder rootlets.

##### Anlier IV series

Peat with alder rootlets (*Alnus*), id. by J. Heim from Gros Chêne (49° 45' 55" N Lat, 5° 39' 20" E Long) at Habay la Neuve, Prov. of Luxembourg, Belgium, alt 460 m. Bottom of Sub-Atlantic peat bog in moist depression of forest of Anlier. Coll. 1963, subm. and pollen anal. by J. Heim.

**Lv-171. Anlier IV/1****930 ± 60  
A.D. 1020**

Peat from 50 to 60 cm. Sample probably contemporaneous of 3rd *Fagus maximum* F III age estimated A.D. 1200 (Mullenders *et al.*, 1967), although maximum does not appear in pollen diagram because of predominance of *Salix* and *Alnus*.

**Lv-172. Anlier IV/2****1490 ± 105  
A.D. 460**

Peat from 60 to 70 cm. According to pollen curves of *Tilia*, *Carpinus*, and corn, level younger than Lv-169 and perhaps corresponding to 2nd *Fagus maximum* F II age estimated A.D. 600 (Mullenders *et al.*, 1967).

## II. ARCHAEOLOGIC SAMPLES

**Lv-374. Cornaux, Switzerland****2410 ± 120  
460 B.C.**

Wood (*Quercus*), id. by A. Munaut from Cornaux (47° 02' N Lat, 7° 04' E Long), Canton of Neuchâtel, Switzerland. Remains of wooden bridge found in former bed of Thiele R. at 2 m below Roman horizon. Coll. 1965 and subm. by J. P. Jecquier, Cantonal Archaeol. Mus. of Neuchâtel. Among remains of bridge, 4 skeletons of warrior and horse bones, a Late La Tene sword, and 3 heads of pike. Bridge assumed Celtic (Schwab, 1966).

**Lv-393. Elkab, Egypt****8350 ± 160  
6400 B.C.**

Charcoal from Elkab (25° 08' N Lat, 32° 47' E Long), Prov. of Edfu, Egypt. Sample imbedded at 1 m depth in clayey silt filling former bed probably of Nile R. and assoc. with lamellar microlithic epipaleolithic industry. Coll. 1968 and subm. by P. Vermeersch, Comité des Fouilles Belges en Egypte. *Comment* (P.V.): this industry is still unknown in Egypt. It completes hiatus between Upper Sebilian (9000 B.C.) and Fayum (4600 B.C.) in chronology of prehistoric industries N of Assawan (Vermeersch, 1969). Sample too small to suffer NaOH leach.

**Lv-383. Grotte Blanchard, France****11,280 ± 220  
9330 B.C.**

Burned bones from cave hearth in Grotte Blanchard in Magdalenian site of La Garenne at Saint Marcel (46° 34' N Lat, 1° 30' E Long), Dept. of Indre, France. Sample from upper part of Level 2 (Allain, 1953; 1961) near bottom of cave. Coll. 1958 by M. R. Sauter; subm. by A. Leroi-Gourhan, Mus. de l'Homme, Paris. Cave is separated from upper cave "Grand Abri" and closed by rock fall and clay layer containing Upper Magdalenian industry from Level 4 and 7 bis. Hearth from this Level 4, in "Grand Abri," is dated by Libby as follows: C-577, burned bone, 9159 B.C. ± 480; C-578, ashy material, 13,897 B.C. ± 1200; C-579, burned bone from same horizon but outside hearth, 11,036 B.C. ± 560 (Libby, 1955). Level 6 is dated as L-399 D, burned bone from hearth, 7550 B.C. ± 500 (Radiocarbon, 1959, v. 1, p. 23), and as Gsy-34, charcoal cinders

and charred bones, 9280 B.C.  $\pm$  500 (Radiocarbon, 1966, v. 8, p. 134). Present C<sup>14</sup> date is a little more recent than assumed by Allain. *Comment*: sample was dissolved in HCl and solid residue used for dating.

**2990  $\pm$  250**

**Lv-358. El Khiam, Jordan**

**1040 B.C.**

Bones from El Khiam (31° 37' 50" N Lat, 35° 16' 00" E Long), Jordan. Sample from Area II B, Level 1 b at 0.40 m depth, Prepottery Neolithic horizon, Tahounian facies (Echegaray, 1963; 1964). Coll. 1962 and subm. by J. G. Echegaray, Prehist. Mus. of Santander, Spain. *Comment* (J.G.E.): sample dissolved in HCl and solid residue used for dating; measured at 1000 mm Hg pressure. In other sites, this horizon is dated ca. 6000 B.C.

**Ordonia series, Italy**

Samples from Ordonia (41° 18' N Lat, 15° 37' E Long), Prov. of Foggia, Italy. Series dates occupation of ancient Roman colony at Herdoniae (Mertens, 1967). Other dates pub. in Radiocarbon, 1965, v. 7 and 1967, v. 9. Subm. by J. Mertens, Univ. of Louvain, Archaeol. Inst.

**2160  $\pm$  260**

**Lv-282. Ordonia 65.OR.76**

**210 B.C.**

Charcoal from pit dug in rock and filled up before building of Temple B. Coll. 1965 by J. Mertens. Temple is archaeologically dated 2nd century B.C. C<sup>14</sup> date agrees with archaeology. *Comment*: sample measured at 1000 mm Hg pressure.

**1820  $\pm$  80**

**Lv-294. Ordonia 65.OR.92**

**A.D. 130**

Charcoal found at 1.20 m depth with potsherds in filling cryptoporticus of Forum. Coll. 1965 by G. De Boe. Archaeologic estimation is 2nd half of 1st century A.D.

**1900  $\pm$  85**

**Lv-295. Ordonia 66.OR.01**

**A.D. 50**

Charcoal from incineration grave at 1.10 m depth in zone of Amphitheatre. Coll. 1966 by R. Iker. In grave, coin of emperor Domitian (85 to 96 A.D.)

**Alba Fucens series, Italy**

Charcoal from Alba Fucens (42° 05' N Lat, 13° 25' E Long), Prov. of Aquila, Italy. Coll. 1966 by G. De Boe; subm. by J. Mertens.

**2350  $\pm$  75**

**Lv-334. Alba Fucens 66.AF.18**

**400 B.C.**

Burned horizon in shop along principal street of town.

**1700  $\pm$  75**

**Lv-336. Alba Fucens 66.AF.30**

**A.D. 250**

Burned horizon from urban villa. Trench 66.IV. Coins found in same horizon are dated from 3rd and 4th centuries A.D.

**Lv-337. Alba Fucens 66.AF.36****2180 ± 100  
230 B.C.**

Burned horizon, mixed, in back of room of urban villa. Trench 66.IV, S of Wall B.

**Lv-338. Alba Fucens 66.AF.46****1440 ± 70  
A.D. 510**

Burned horizon from room of important house of town. Trench 66.III.

*General Comment:* archaeological context for these samples indicates Late Roman epoch and layers seem homogenous. Two late C<sup>14</sup> dates agree with interpretation but 2 ancient are still unexplained. New investigations are necessary.

**Lv-333. Bruges****860 ± 95  
A.D. 1090**

Wood from pile used to lay out plan of Roman St. Donatius church at Bruges (51° 13' N Lat, 3° 13' E Long), Prov. of West Flanders, Belgium. Sample found at 4 m depth. Coll. 1955 and subm. by J. Mertens. Church is generally dated as beginning of 10th century. Dates agrees with C<sup>14</sup> date for basement of pre-Roman construction: Lv-43, A.D. 1110 ± 130 (Radiocarbon, 1962, v. 4, p. 97 and 1964, v. 6, p. 160).

**Lv-349. Liege****880 ± 240  
A.D. 1070**

Wood (*Quercus*) from statue from private collection of M. Van Zuylen, Quai Van Beneden, Liege (50° 40' N Lat, 5° 42' E Long), Belgium. Coll. 1967 and subm. by R. Antoine, Univ. of Louvain. Statue is archaeologically estimated from 14th century. C<sup>14</sup> date confirms expectation. *Comment:* sample measured at 1000 mm Hg pressure.

**Lv-317. Hal****2000 ± 85  
50 B.C.**

Charcoal from prehistoric hearth at Maasdaal (50° 42' 16" N Lat, 4° 15' 16" E Long) near Hal, Prov. of Brabant, Belgium. Hearth is overlain by 1.30 m dark sandy clay and yellowish sand. Coll. 1966 and subm. by R. Borremans, Zuidwest-Brabants Heemkundig Mus. Site is situated within short distance of spring on E bank of Senne R. Only artifact found in hearth is potsherd dated as La Tene (without precision). Other potsherds of same epoch were found in neighborhood. C<sup>14</sup> date confirms estimation.

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