

BEAUFORTIA

SERIES OF MISCELLANEOUS PUBLICATIONS

ZOOLOGICAL MUSEUM - AMSTERDAM

No. 91

Volume 8

February 27, 1961

On the remains of some Carnivora found in a prehistoric site at Vlaardingen, the Netherlands*)

P. J. H. VAN BREE

(Zoölogisch Museum, Amsterdam)

INTRODUCTION

The excavation of a prehistoric site at Vlaardingen, about 10 km W. of Rotterdam, yielded among ceramics and other man-made objects, many remains of zoological origin (GLASBERGEN, 1960). Mr. P. J. VAN DER FEEN and Miss M. R. WALVIUS, who were in charge of the zoological material found at Vlaardingen, trusted the author with the identification of the remains of the Carnivora, with the exception of the remains of at least 5 Dog-like animals, which were sent to Prof. Dr. A. E. VAN GIFFEN at Groningen.

The prehistoric settlement at Vlaardingen is provisionally dated as between 2300 and 2100 B.C. The settlement was situated along the border of a creek or river, which later on silted up. The bank on which the habitation level was found, was rather low and the whole biotope may perhaps be compared with the recent situation in the Biesbosch, a region at the estuaries of the rivers Meuse and Rhine, about 30 km S.E. of Rotterdam.

Little is known about the remains of wild Carnivora found in the neighbourhood of pre- and protohistoric settlements in the Netherlands. VAN GIFFEN (1913) mentioned Fox, *Vulpes vulpes*, Bear, *Ursus arctos*, Polecat, *Mustela putorius*, Stoat, *Mustela erminea* and Grey Seal, *Halichoerus grypus*. The remains of these animals were found in mounds situated in the provinces of Friesland and Groningen and are dated 100 B.C. till 700 A.D. In 1947, HOOIJER reported on protohistoric mammals from the Linderbeek, province of Overijssel. Besides the remains of a Dog and a Domesticated Cat, the only rests of wild Carnivora found there were two scapulae of a Bear, *Ursus arctos*; dated about 650 B.C. Later on VAN DER FEEN & KORTENBOUT VAN DER SLUIJS (1953a and b) published the finds of Bear, *Ursus arctos*, Otter, *Lutra lutra*, Polecat, *Mustela putorius* and Marten, *Martes spec.* These remains were found at

*) Received December 22, 1960

a neolithic settlement near Hekelingen, a village 15 km S.W. of Rotterdam. This settlement was dated about 2000 B.C.

It is possible now to add a few more species to those mentioned-above, as will be shown in the following preliminary list of examined material from the excavation at Vlaardingén.

IDENTIFIED MATERIAL

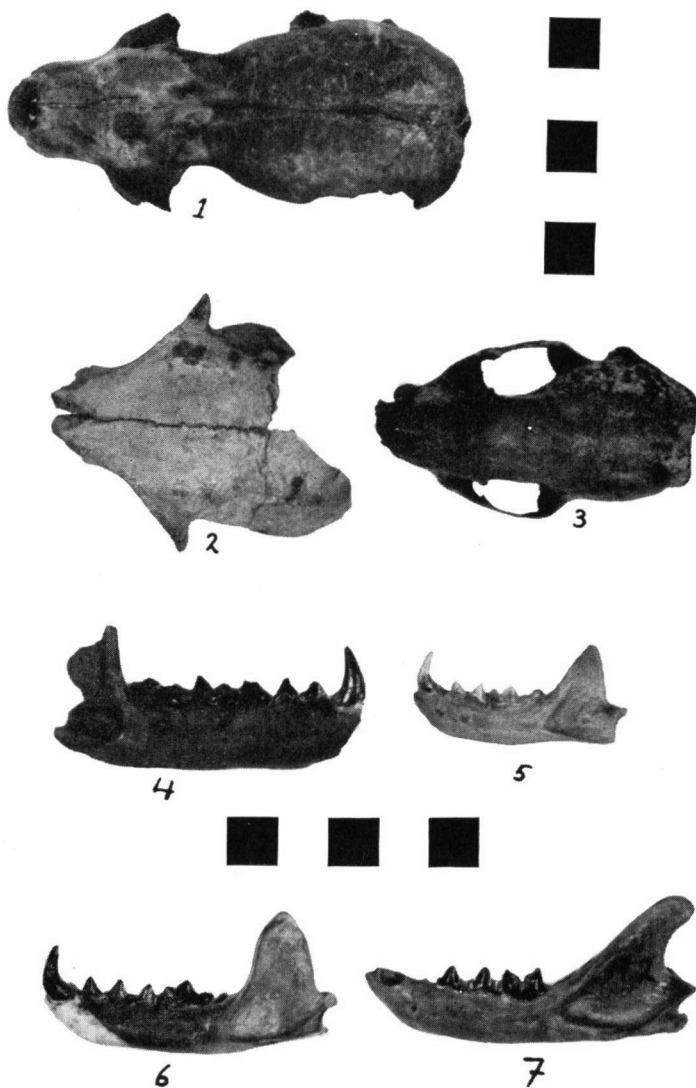
Felis cf. silvestris Schreber

- A. 1. [Vla, 18-XII-59, H 17 c, oeverwal I¹] Right mandible with P₃, P₄ and M₁. Length mandible : 64.1 mm; length P-M: 20.3 mm.
- A. 2. [Vla, 15-XII-59, F 17a, kreekvulling, deel II] Left mandible with P₃, P₄ and M₁. Length mandible: 64.0 mm; length P-M: 20.6 mm. According to me, part A.1. and part A.2. belong together, although they differ much in colour. (fig. 7).
- A. 3. [Vla, 17-XII-59, F 18a, kreekvulling, I] Left mandible with P₃ and M₁. The frontal part is broken off at the posterior rim of the alveolus of C. Length P-M: 20.0 mm.
- A. 4. [Vla, 21-XII-59, G a + b, oeverwal] Left mandible with P₃, P₄ and M₁. Distal part damaged, so too the crown of M₁. Length P-M: 22.1 mm.
- A. 5. [Vla, 17-XII-59, Sleuf w.kart. v/h A. profiel, put 7, oeverwal] Braincase, originally intact; arrived in Amsterdam in fragments. Breadth interorbital constriction: 18.5 mm. Greatest length right auditory bulla 19.7 mm; greatest breadth: 12.4 mm. Bones on the upper side of the braincase rather thin. (fig. 2).
- A. 6. [Vla, 16-XII-59, F 17 b, kreekvulling II, deel II]. Occiput.
- A. 7. [Vla, 3-XII-59, G. 23 d, woonlaag] Right ulna, greatest length 124 mm.
- A. 8. [Vla, 14-XII-59, F 14] Left humerus, greatest length 107.5 mm; greatest diameter of the middle of the shaft 8.0 mm.
- A. 9. [Vla, 7-XII-59, F 22 d] Left humerus, greatest length 97.0 mm; greatest diameter of the middle of the shaft 8.3 mm.
- A. 10. [Vla, 30-XI-59, P 7] Proximal end of left humerus.
- A. 11. [Vla, 30-XI-59, P 7] Shaft of right humerus. Greatest diameter of the middle of the shaft 6.9 mm.
- A. 12. [Vla, 21-XII-59, G 19 a + b] Right radius, greatest length 107.3 mm; greatest diameter of the middle of the shaft 6.1 mm.
- A. 13. [Vla, 15-XII-59, E 16] Left tibia, proximal part broken off; greatest diameter of the middle of the shaft 8.3 mm.
- A. 14. [Vla, 29-XI-59, H 40 c + d] Right radius, upper part broken off, greatest diameter of the middle of the shaft 5.7 mm.
- A. 15. [Vla, 7-I-60, N 9, put 12] Upper part of left tibia; greatest diameter of the middle of the shaft 8.2 mm.
- A. 16. [Vla, 13-XII-59, G 23 b] Left fibula, greatest length 78.6 mm.
- A. 17. [Vla, 18-XII-59, I 17 d, II] Right os coxae, damaged. Greatest length more than 85.0 mm.
- A. 18. [Vla, 15-XII-59, F 16] Right os coxae, damaged. Greatest length 74.6 mm.
- A. 19. [Vla, 20-XII-59, F 19 b] Right scapula, only the most lateral part with acromion and processus coracoideus and the beginning of the spina scapulae left.
- A. 20. [Vla, 18-XII-59, G 18 d] Left femur, epiphyses broken off, greatest diameter of the middle of the shaft 7.6 mm.
- A. 21. [Vla, 14-XII-59, I 20, venige woonlaag, II] Right ulna, greatest length 135.8 mm.

Lutra lutra (L.)

- B. 1. [Vla, 19-XII-59, H 18 c, oeverwal] Right mandible with P₁, P₂, P₃, P₄ and M₁. Angular process (gonion caudale) broken off as well as the lateral wall of the alveolus of C. Length P-M: 33.4 mm.

¹). The data in brackets pertain to the excavation; they indicate the date, the place and the layer of the find. For way of measuring, see page 116.



FIGURES 1—7. Remains of some Carnivora found at Vlaardingien. 1 and 6 *Martes martes* (L.); 1, damaged cranium, upper view (part C. 1.); 6, left mandible, lateral view (part C. 2.). — 2 and 7 *Felis cf silvestris* SCHREBER; 2, upper view of the anterior dorsal part of the braincase (part A. 5); 7, left mandible, lateral view (part A. 2.). — 3 and 5 *Mustela putorius* L.; 3, upper view of cranium (part E. 4); 5 lateral view of left mandible (part E. 6). — 4, *Lutra lutra* (L.), lateral view of right mandible (part B. 5). Each black square represent one square centimeter.

- B. 2. [Vla, 22-XII-59, F 20 b, oeverwal, deel II] Left mandible with C, P₁, P₂, P₃, P₄ and M₁. Most posterior parts of this mandible are broken off. Length P-M: 35.5 mm.
- B. 3. [Vla, 21-XII-59, G 19 b, oeverwal] Left maxilla with I¹, I², P², P³, P⁴ and M¹. Length maxillary tooth row: 50.8 mm; Length P-M- 31.0 mm. Part B.3. and B.2. may perhaps belong to one skull.
- B. 4. [Vla, 7-XII-59, I 21 c., zwarte laag] Right mandible with P₁, P₂, P₃, P₄ and M₁. The frontal part is broken off at the centre of the alveolus of C. Length P-M: 35.0 mm.
- B. 5. [Vla, 9-XII-59, H. 23. d, onder woonlaag] Right mandible with C, P₁, P₂, P₃, P₄ and M₁. The most anterior part and the most distal parts are broken off. Length P-M: 34.5 mm. (fig. 4).
- B. 6. [Vla, 19-XII-59, E 19 b, kreek] Right mandible with P₂ and P₃. The lateral part of the wall of the alveolus of C is broken off. Length mandible: 69.0 mm.
- B. 7. [Vla, 10-XII-59, G 20. d. venige overwal] Right mandible with P₂, P₃ and P₄; frontal part broken off at centre of alveolus P₁.
- B. 8. [Vla, 28-XI-59, kreekput 7, met dragline eruit] Left mandible with P₁, P₂, P₃, P₄ and M₁. Left half of the wall of the alveolus of C is lacking. Length mandible: 69.0 mm. Length P-M: 34.1 mm. Probably parts B. 5 and B. 8 belong to one animal.
- B. 9. [Vla, 12-I-60, O 7 (put 12), onder zwarte laag in verrommelde laag] Right mandible with P₁, P₂, P₃ and P₄; frontal and distal parts are broken off.
- B. 10. [Vla, 14-XII-59, veenlaag III] Left mandible with C and P₁; part before C is broken off. The alveoli of P₂, P₃ and M₁ are closed. Old animal?
- B. 11. [Vla, 28-X-59, 2 E sub + 2 D sub.] Left mandible with P₄. The part of the mandible before P₃ is broken off as well as the distal parts.
- B. 12. [Vla, 21-XII-59, G 19 a + b, oeverwal] Right mandible with P₄. Part before P₄ broken off, alveolus of M₁ closed.
- B. 13. [Vla, 16-XII-59, E 17 b, kreekvulling II] Left ulna. Greatest length: 75.2 mm.
- B. 14. [Vla, 16-XII-59, E 17 b, kreekvulling II] Right ulna. Greatest length: 75.8 mm.
- B. 15. [Vla, 14-XII-59, H 20, veenlaag III] Right ulna. Greatest length: 68.2 mm.
- B. 16. [Vla, 14-XII-59, H 20, veenlaag III] Left humerus; lower half broken off.
- B. 17. [Vla, 16-XII-59, F 17 d, kreek] Left os coxae; most frontal part of ilium broken off, as well as the greatest part of the pubis.
- B. 18. [Vla, 6-I-60, Q 9] Part of left mandibel, only M₁ present.
- B. 19. [Vla, 21-XII-59, G 19 a + b] Right humerus; greatest length 78.0 mm.
- B. 20. [Vla, 21-XII-59, G 19 a + b] Right humerus; greatest length 70.7 mm.
- B. 21. [Vla, 1-XII-59, F 22 d] Right tibia; greatest length 81.3 mm.
- B. 22. [Vla, 11-XII-59, G 20 a] Proximal part of left scapula.
- B. 23. [Vla, 11-I-60, P 8] Part of squamosis of the left side with fossa glenoidalis and processus zygomaticus.
- B. 24. [Vla, 3-XII-59, G 23 b] Part of squamosis of the right side with fossa glenoidalis and processus zygomaticus.
- B. 25. [Vla, 13-XII-59, G 23 d] Right radius; greatest length 48.3 mm.
- B. 26. [Vla, without further data] Left radius, greatest length 56.4 mm.

Martes martes (L.)

- C. 1. [Vla, 16-XII-59, E 17 c, kreekvulling II] Cranium, both zygomatic arches broken off. Left lateral side of brain case is lacking. Teeth lost, except on the right side P⁴ and M¹ and on the left side P³, P⁴ and M¹. Condylbasal length: 87.4 mm; length maxillary tooth row: 35.7 mm; postorbital constriction: 20.7 mm. (fig. 1).
- C. 2. [Vla, 26-XI-59, kreekput 7] Left mandible with C, P₂, P₃, P₄ and M₁. (fig. 6).
- C. 3. [Vla, 15-XII-59, F 16, kreekvulling II, deel IV] Left mandible with P₂, P₃, P₄ and M₁; frontal and distal parts of mandible damaged.
- C. 4. [Vla, 17-XII-59, F 18 b] Left femur; greatest length 83.0 mm.
- C. 5. [Vla, 19-XII-59, G 18 c] Left femur; greatest length 77.3 mm.
- C. 6. [Vla, 21-XII-59, G 19 a + b] Left femur; greatest length 82.0 mm.
- C. 7. [Vla, 11-I-60, Q 8, put 12] Left femur; greatest length 84.7 mm.
- C. 8. [Vla, 20-XII-60, E 19 b] Right femur; greatest length 83.5 mm.
- C. 9. [Vla, 27-XI-59, D 18 (II)] Left humerus; greatest length 71.7 mm.

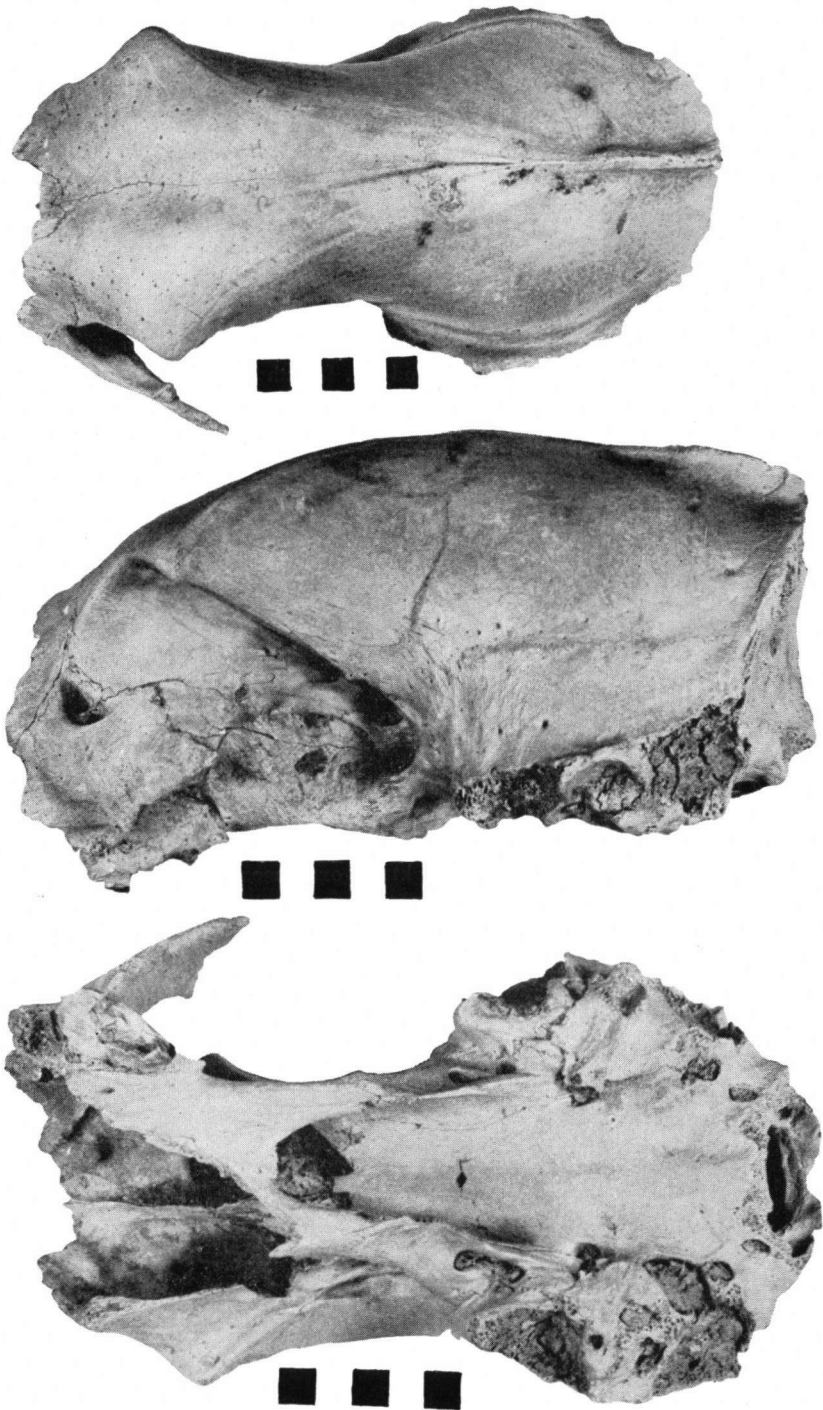


FIGURE 8. *Ursus arctos* L. Remains of calvarium; upper, left and lower view. Each black square represents one square centimeter.

- C. 10. [Vla, 27-XI-59, D 18 (II)] Left humerus; damaged.
- C. 11. [Vla, 11-I-60, Q 8, put 12] Right os coxae; greatest length 63.4 mm.
- C. 12. [Vla, 19-XII-59, F 19 b] Left os coxae; damaged.
- C. 13. [Vla, 18-XII-59, ?] Right ulna; greatest length 73.2 mm.
- C. 14. [Vla, 17-XII-59, H 19 d] Left ulna; greatest length 69.6 mm.
- C. 15. [Vla, 8-II-60, P 7] Left radius, greatest length 50.1 mm.
- C. 16. [Vla, 27-XI-59, D 18 (II)] Right radius, greatest length 56.0 mm.
- C. 17. [Vla, 15-XII-59, F 16] Left ulna, greatest length 67.7 mm.
- C. 18. [Vla, 27-XI-59, D 18 (II)] Left ulna, greatest length 67.3 mm.

Mustela putorius L.

- E. 1. [Vla, 21-XII-59, G 19 d, oeverwal deel II] Cranium, left side of brain case and occiput lacking. Zygomatic arches damaged. Teeth present on right side P², P³ and M¹; on left side P², P³ and M¹. Length maxillary toothrow: 24.4 mm; breadth post orbital constriction: 17.5 mm.
- E. 2. [Vla, 7-XII-59, G 21 a, oeverwal] Cranium, frontal part of the zygomatic arch on the right side broken off. Teeth present: left side P³ and M¹. Condylolbasal length 66.4 mm; mastoid breadth 34.8 mm. Zygomatic breadth: 37.3 mm. Length maxillary tooth row: 23.2 mm; post orbital constriction: 16.5 mm. Inter-orbital constriction: 17.0 mm.
- E. 4. [Vla, 16-XII-59, F 17 a, kreekvulling II, deel II] Cranium, left auditory bulla and occiput lacking. Teeth present on left side: C, P², P³ and M¹; on right side: I¹, I², I³, P², P³ and M¹. Zygomatic breadth: 39.6 mm; length maxillary toothrow: 21.6 mm; breadth post-orbital constriction: 15.8 mm. (fig. 3).
- E. 6. [Vla, 3-XII-59, G 23 d, woonlaag] Left mandible with C, P₂, P₃, M₁ and M₂. Length mandible: 41.8 mm. (fig. 5).
- E. 7. [Vla, 16-XII-59, F 17 d, kreek] Right mandible with P₁, P₂, P₃, M₁ and M₂. Length mandible: 37.0 mm; length P-M: 18.3 mm.
- E. 8. [Vla, 15-XII-59, E 16, kreekvulling deel V] Left mandible with P₂, P₃ and M₁. Frontal part broken off at posterior rim of alveolus P₁.
- E. 9. [Vla, 16-XII-59, F 17 a] Left humerus, greatest length 44.6 mm.
- E. 10. [Vla, 16-XII-59, F 17 a] Left femur, greatest length 47.6 mm.
- E. 11. [Vla, 11-I-60, Q 8, put 12] Left tibia, greatest length 50.8 mm.
- E. 12. [Vla, 11-I-60, Q 8, put 12] Right tibia, greatest length 49.0 mm.
- E. 13. [Vla, 18-XII-59, G 18 b (II)] Right os coxae; most anterior part broken off.

Mustela lutreola (L.)

- E. 3. [Vla, 17-XII-59, F 18 c, kreekvulling, deel III] Rostral part of cranium, with dorsal side of brain case. Zygomatic arches broken off. Teeth present on left side C, P², P³ and M¹; on the right side P⁴ and M¹. Length maxillary toothrow: 21.5 mm.
- E. 5. [Vla, 16-XII-59, F 17 a, kreekvulling II, deel II] Rostral part of cranium with frontal part of the braincase and left auditory bulla. Zygomatic arches broken off. Teeth present on left side: I¹, I², I³, C, P², P³ and M¹. Length maxillary toothrow 21.6 mm; postorbital constriction 13.5 mm. A picture of this skull is given by VAN BREE (1961), as well as more measurements.

By lack of sufficient comparative material the author is not sure of the right identification of the limb bones of the genus *Mustela* (*M. putorius* and *M. lutreola*) found at Vlaardingeng. Provisionally all those bones are classed with *Mustela putorius*.

Ursus arctos L.

- F. 1. [Vla, 10-XII-59, F 23 c, oeverwal, 3.93 beneden N.A.P., naast berkenbakje] Braincase and upper frontal part of rostrum. Zygomatic arches and auditory



FIGURE 9. *Halichoerus grypus* (FABRICIUS). Upper and lower view of the braincase (parts D. 1. and D. 2 glued together). Each black square represents one square centimeter.

bullae broken off. Damaged remains of M^2 on the left side present. Basal suture closed. Post palatal length: 123.0 mm; mastoid breadth: about 121 mm. Breadth interorbital constriction: 72.0 mm; breadth postorbital constriction: 70.0 mm. (fig. 8).

- F. 2. [Vla, 21-XII-59, G 19 a + b] Proximal part of right mandible without teeth.
F. 3. [Vla, 22-XII-59, F 20 b] Proximal part of right intermaxillare and part right maxillare without teeth.
Remarkable is that no others parts of the skeleton, except for these 3 parts of probable the same skull, has been found.

Halichoerus grypus (Fabricius)

- D. 1. [Vla, 7-XII-59, F 22 a, oeverwal, scheidig met zwarte bandje] Braincase, except, part D.2. Left auditory bulla broken off. Mastoid breadth, after part D. 1 and D. 2 had been glued together: 143.5 mm. (fig. 9).
D. 2. [Vla, 7-XII-59, F 22 b, woonlaag]. Squamosus and auditory bulla of the right side; belonging to braincase D. 1.
D. 3. [Vla, 21-XII-59, F 22 c, oeverwal] Left os coxae; frontal part of ilium and distal parts of ischium and pubis broken off.
D. 4. [Vla, 18-XII-59, I 17 b, woonlaag] Right humerus. Greatest length: 153.0 mm.

MATERIAL DIFFICULT TO IDENTIFY

- G. 1. [Vla, 12-I-60, 0 7, put 12, onder zwarte laag in verrommelde laag]. Central part of left mandible without teeth; probably belonging to *Lutra lutra*.
The piece looks like if has been in a fire.
G. 2. [Vla, 16-XII-59, F 17 a, kreekvulling II, deel IV]. Left half of occiput; cf *Martes spec.*
C. 5. [Vla, 17-XII-59, F 18 a, kreekvulling I]. Upper canine; cf. *Lutra lutra*.

Besides the 3 above-mentioned pieces, a number of bones and bone fragments pertaining of Carnivora were found. Those skeleton parts were, however, to damaged to identify. The bones are: G 6 [Vla, 15-XII-59, F 16], G. 7. [Vla, 30-XI-59, P 7], G. 8. [Vla, 14-XII-59, F 18 b], G. 9. [Vla, 26-XI-59], G. 10. [Vla, without date, Q 8, put 12], G. 11 [Vla, 17-XII-59, F 18 c], G 12, [Vla, 3-XII-59, G 23 b] and G. 13. [Vla, without any data].

WAY OF MEASURING

The measurements have been taken in the following way:

Condylbasal length: least distance from the posteriormost projections of the exoccipital condyles to the anteriormost point of the premaxillary bones between the incisors.

Postpalatal length: distance between the posteriormost median border of the palate to the basion (the anteriormost inferior border of the foramen occipitale magnum).

Zygomatic breadth: greatest distance across the squamosal portion of the zygomatic arches.

Mastoid breadth: greatest distance across the mastoid processes.

Length maxillary tooth row: distance between the anteriormost point of the premaxillary bones between the incisors to the posteriormost border of the last molar.

Molarlength (P-M): distance between the anteriormost border of the first premolar to the posteriormost border of the last molar.

Mandible length: least distance from the anteriormost border of the incisive alveolus to the posteriormost border of the processus condyloideus.

Breadth interorbital constriction: least distance across the top of the skull between the orbits.

Postorbital constriction: the least distance across the top of the skull between the lateral sides of the frontal behind the postorbital processes.

RESULTS AND DISCUSSION

Summing up the results of the identifications, we can say that at Vlaardingen, the remains are found of at least 3 Wild Cats (*Felis cf silvestris*), 7 Otters (*Lutra lutra*), 4 Pine-Martens (*Martes martes*), 3 Polecats (*Mustela putorius*), 2 European Minks (*Mustela lutreola*), 1 Brown Bear (*Ursus arctos*) and 1 Grey Seal (*Halichoerus grypus*). The remains of so many wild Carnivora found in a rather small area (80 by 10 meters), indicate that these animals were hunted; whether they were hunted for their meat, for their fur, or for meat and fur, is difficult to say. It is a matter of fact even now, the pelts of Otters and Martens are still highly estimated for their quality.

Comparing the measurements of the remains of Carnivora, found at the excavation at Vlaardingen, with those of recent animals in the collection of the Zoological Museum in Amsterdam, no significant differences could be found. The same applies to the comparison of the given measurements with those published by MILLER (1912). An exception is perhaps skull C.1. of a Pine-Marten, which is rather large; about as large as the skulls of Pine-Martens from prehistoric sites in Denmark (DEGERBØL, 1933). This skull is remarkable too, as it shows on the frontal behind the, left orbital process, a small hole with a bone deformation around it probably caused by a parasitic worm (? *Skrjablingulus nasicola* LEUCK.) (HALTENORTH, 1937). Also rather large are the skulls of *Mustela putorius*. The measurements of these skulls fall in between those of *Mustela putorius putorius* L. and those of *Mustela putorius robusta* (NEWTON) as published by DEGERBØL (1933) and REQUATE (1956).

As to the material of *Felis cf silvestris* the following notes could be of some importance. The measurements of the mandibles and of the mandible tooththrows, as well as the measurements of the cranium (interorbital breadth, dimensions of the bulla auditory) fall within the section, where the same skull measurements of *Felis catus* L. and of *Felis silvestris* SCHREBER overlap (DEGERBØL, 1933; POCOCK, 1951; HALTENORTH, 1953, 1957). The post-orbital region of the braincase of A.5 is flat and not vaulted, the suture between frontals and parietal bones is rather smooth and straight and the temporal ridges cross the suture between frontal and parietal bones at a distance of more than 1 cm. from the median suture.

According to the list of skull characteristics of *F. catus* and *F. silvestris*, as compiled by HALTENORTH (1957), the above-mentioned criteria point to *Felis catus*. The same can be said of the shape of the postorbital processes.

We have either to do with the cranium of a Domesticated Cat, *Felis catus*, or with one of a young Wild Cat, *Felis silvestris*. In view of the length of some limb bones (A.7, A.8, A.12 and A.21) and in view of the dating of the excavated material (third millenium B.C.), however, the Cat remains are provisionally classed with *Felis silvestris*. Perhaps later on, when more limb bones are found, a more certain identification can be made (DEGERBØL, 1933; RÖHRS, 1956; CANTUEL, 1955).

During the course of this research the remains of *Martes spec.*, found at the excavation at Hekelingen, could be studied. One piece [Hekelingen, Put A, vlak VI, no. 17, leg. P. J. R. Modderman, 1950], the distal

part of a right maxilla with P², P³, P⁴ and M¹, proved to be very interesting, as it could be identified more precisely. This piece did belong to a Pine-Marten, *Martes martes* (L). As such, this identification gives an extension to the list of Carnivora published by VAN DER FEEN & KORTENBOUT VAN DER SLUIJS (loc. cit.).

ACKNOWLEDGEMENTS

The author wants to express his thanks to Drs. P. J. VAN DER FEEN and Miss M. R. WALVIUS for trusting him the identification of the remains of the Carnivora found at Vlaardingen. The same applies also to Prof. Dr. W. GLASBERGEN (Institute of Pre- and Protohistory, Amsterdam), who directed the excavation of the prehistoric site.

The author is indebted to Drs. A. M. HUSSON of the Rijksmuseum van Natuurlijke Historie at Leiden for the loan of material of recent species for comparison. He also wants to thank Miss Drs. A. T. CLASON, Biological-Archaeological Institute at Groningen, for the help given.

LITERATURE

- BREE, P. J. H. VAN
1961 On a subfossil skull of *Mustela lutreola* (L.) found at Vlaardingen, the Netherlands. — Zool. Anz. (in press).
- CANTUEL, P.
1955 Remarques sur le squelette d'un Chat sauvage, *Felis sylvestris* Schreber — Mammalia 19 : 4.
- DEGERBØL, M.
1933 Danmarks Pattedyr i Fortiden i Sammenligning med recente Former I.—Vidensk Medd. Dansk. Nat. Foren. 96.
- FEEN, P. J. VAN DER, & G. KORTENBOUT VAN DER SLUIJS.
1953a Skeletresten uit de opgravingen te Hekelingen. Published in: P. J. R. Modderman — A Neolithic settlement in the Polder Friesland near Hekelingen, island of Putten (Z.H.) — Proc. of State Service for Archaeological Investigations in the Netherlands 4 : 2.
1953b Les vertébrés des fouilles de Hekelingen (Pays Bas) — Mammalia 17 : 4.
- GIFFEN, A. E. VAN.
1913 Die Fauna der Wurten — Tijdschrift Ned. Dierkundige Ver. (2) 13.
- GLASBERGEN, W.
1960 Vlaardingen — Archeologisch Nieuws (Nieuws Bulletin Kon. Ned. Oudheidkundige Bond) 6de S. 13 : 2.
- HALTENORTH, Th.
1937 Neue Wirte und Verbreitungsgebiete von *Troglotrema acutum* Leuck. und *Skrjabinogulus nasicola* Leuck. — Sitz. Ber. Ges. Naturf. Freunde Berlin.
1953 Die Wildkatzen der Alten Welt — Leipzig.
1957 Die Wildkatze — Wittenberg/Lutherstadt.
- HOOIJER, D. A.
1947 Protohistoric Mammals from the Linderbeek, province of Overijssel, the Netherlands. — Proc. Kon. Ned. Akad. van Wetenschappen. 50 : 2.
- MILLER, G. S.
1912 Catalogue of the Mammals of Western Europe — London.
- POCOCK, R. I.
1951 Catalogue of the genus *Felis* — London.
- REQUATE, H.
1956 Der bisher älteste Iltisfund von der Kimbrischen Halbinsel. — Zool. Anz. 156: 3/4.