

ON THE SKULL OF A LYNX, *LYNX LYNX* (LINNAEUS, 1758), FOUND IN THE ROMAN CASTELLUM AT VALKENBURG, PROVINCE OF ZUID-HOLLAND, THE NETHERLANDS

by

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ABSTRACT

The authors report on the almost complete skull of a Lynx, *Lynx lynx* (Linnaeus, 1758) found during excavation of a Roman castellum at Valkenburg, Province of Zuid-Holland, the Netherlands in 1962. Photographs and measurements of the skull are presented as well as a review of the Lynx remains found in European settlements from the Neolithic to the Middle Ages.

INTRODUCTION

In view of the original distribution of the Lynx in Europe (Kratochvíl, 1968) it is theoretically possible for remains of this species to be found during excavation or dredging in the Netherlands. The chance is, however, not great. In studies of animal remains from a large number of prehistoric and early historical settlements in Europe, the number of finds of the Common Lynx (and of the Pardel Lynx) appear to be remarkably small. This is in contrast to the number of remains of the other larger European species of carnivores. The finding of an almost complete Lynx skull in the Roman castellum at Valkenburg makes a short discussion worth-while.

CONDITION AND DATING

In 1962 there was a joint excavation campaign of the Biological-Archaeological Institute of the State University at Groningen and the Institute for Prae- and Protohistory of the University of Amsterdam in the Roman castellum under the village mound of Valkenburg. The skull of a Lynx was found on May 18, 1962 in the southern part of transect 0.20+.

According to a written communication by Drs. M. D. de Weerd (I.P.P.), the skull was found in the

right half of the praetentura of castellum I, of the 1st century A.D.

Up to now, no other skeleton parts matching the skull have been found. The numerous animal bones, mostly from slaughter and kitchen refuse, found at this site in previous excavations, mainly belong to domestic animals such as cow, sheep, pig, dog, cat and fowl. Only a small number of bones were from wild animals, among which were parts of fox, brown bear, otter and wild cat (Clason, 1967). The other animal remains found in 1962 have not yet been examined.

ZOOLOGICAL DESCRIPTION

Examination of the skull showed that it belonged to a subadult or a young adult specimen. The suturae of the skull had disappeared at the basis but were clearly visible at the top. Considering its age, it is remarkable that the permanent molars show obvious signs of wear. Furthermore it is conspicuous that the upper side of the rostrum runs forward in a flat curve and does not branch off in a nod. This characteristic, and the fact that the molar row in the lower jaw is longer than 30 mm, indicate that this is a Common Lynx (*Lynx lynx*), and not a Pardel Lynx (*Lynx pardina* (Temminck, 1824)) from Spain (see Miller, 1912: 470-480). Since in Felidae the male animals are generally larger than the females, we tried to sex the skull on the basis of skull size data. Besides the measurements already published by Miller (loc. cit.) we could obtain data of the following animals: Zoological Museum, Amsterdam, No 12.264, subadult ♀, Jämtland, Sweden; Národní Museum, Praha, No 2713, adult ♀ but not old, Slovakia (C.S.S.R.);

Národní Museum, Praha, No 11.812, adult ♀, Slovakia (C.S.S.R.);
 Národní Museum, Praha, No 11.813, adult ♂, Slovakia (C.S.S.R.);
 Národní Museum, Praha, No 11.811, adult ♂ but not old, Slovakia (C.S.S.R.);
 Collection Mazák, No F-007, adult ♂, N. E. Moravia (C.S.S.R.);
 Collection Mazák, No S-1, adult ♂, Lapland, Sweden.

Dr. V. Mazák, National Museum in Prague, whom we like to thank cordially for his cooperation, was so kind as to place at our disposal the measurements of the Czechoslovak animals.

Comparison of the measurements of the Valkenburg skull with those of other Lynx skulls gives no certainty as to the sex of this animal (see table I), not only because the skull belonged to a subadult animal, but also because measurements of male and female animals overlap. Personally we would not exclude the possibility that this was a young male (see measurements lower jaw). Besides making a comparison with a number of recent skulls, we also compared the skull with data on subfossil material from a number of prehistoric

settlements in Denmark (Degerbøl, 1933), in the German Democratic Republic (Müller, 1967) and in Rumania (Haimovici, 1964). Considering the size of the teeth, the Valkenburg skull is little smaller than the Neolithic specimen from Denmark. However, the data of the Valkenburg skull correspond completely with the Rumanian data.

In comparing the measurements of subfossil skulls from Denmark, the German Democratic Republic and Rumania with recent skulls from Sweden and Czechoslovakia, we cannot observe a real difference in size between those two groups. Degerbøl (1933) and Kurtín (1968) also state that the recent Lynx does not differ in size from the prehistoric one.

THE SKULL IN ARCHAEOLOGICAL CONTEXT

As mentioned above, remains of the Lynx found in European settlements are scarce. Surveying the finds from the Neolithic, the period in which agriculture occurs for the first time, to the Middle Ages, we attain the following list:

Table I. The dimensions (in mm) of the Lynx skull from Valkenburg (BAI 7331) compared with recent specimens; for particulars, see text.

Sex	?	♀	♀	♀	♂	♂	♂	♂
Collection	BAI	ZMA	NMP	NMP	NMP	NMP	Mazák	Mazák
No.	7331	12,264	2713	11,812	11,813	11,811	F-007	S-1
Condylbasal length	—	126.2	137.0	132.0	149.0	137.5	140.5	143.5
Greatest length skull	cf 145.0	138.6	153.5	145.0	161.5	154.8	158.0	161.0
Zygomatic width	—	96.8	106.0	105.0	115.4	116.4	104.5	110.0
Interorbital constriction	35.0	30.9	34.0	32.7	30.5	32.7	30.5	33.0
Postorbital constriction	39.5	38.1	43.0	39.0	37.7	42.0	37.0	36.0
Rostral width over canines	41.2	37.6	41.5	39.0	45.0	41.7	41.0	43.3
Mastoid breadth	—	60.2	65.8	62.0	68.3	66.7	66.5	71.0
Maximum width braincase	59.1	57.8	62.0	57.5	65.0	63.0	60.0	60.0
Palatal length (= prosthion - staphylion)	59.0	54.8	60.0	57.7	69.0	58.3	57.5	61.0
I ¹ — M ¹ length *	60.0	56.2	61.0	56.0	68.0	61.0	61.0	62.0
Pm ³ length *	10.5	11.6	12.0	11.7	12.8	12.0	11.2	12.6
Pm ⁴ length *	18.5	17.5	18.0	17.8	18.5	19.0	17.9	19.1
Pm ³ — Pm ⁴ length *	29.2	29.5	29.8	29.0	31.5	31.0	29.3	31.5
Pm ⁴ — Pm ⁴ width *	60.5	56.9	61.5	59.0	67.0	63.0	62.0	63.5
Mandible length (= condylion mediale — infradentale)	102.8	94.7	99.8	96.5	110.0	111.2	105.0	107.0
I ₁ — M ₁ length *	cf 58.0	56.0	58.0	57.0	63.0	60.0	61.0	61.0
Pm ₂ — M ₁ length *	37.6	38.0	35.8	35.0	38.0	37.0	37.5	39.0
M ₁ length *	15.6	15.2	14.8	14.6	14.8	16.0	15.6	16.4

* Cingulum measurements; the lengths have been taken in direction of the toothrow.

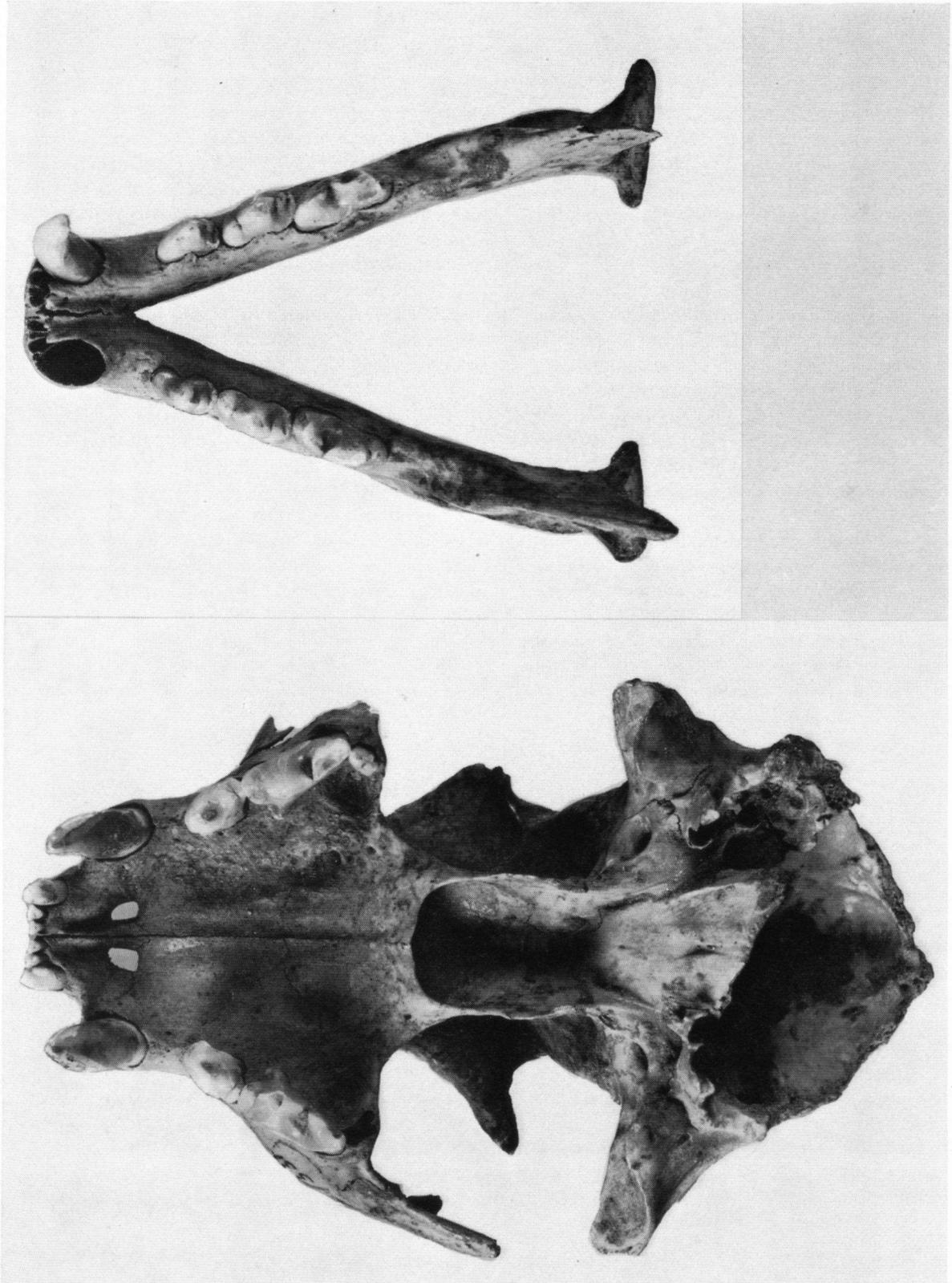


Fig. 1. Lingual view of the calvarium and mandible of *Lynx lynx* found at Valkenburg (Z.H.), the Netherlands. Photo: Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam.



Fig. 2. Lateral view of the *Lynx* skull from the excavation of the Roman castellum at Valkenburg. Photo: Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam.



Fig. 3. Dorsal view of the skull of *Lynx lynx* found at Valkenburg (Z.H.), the Netherlands. Note the incisions on the top of the skull. Photo: Biologisch — Archaeologisch Instituut, Groningen.

Neolithic:*Lynx lynx*

Russia:

- Novi Rusesti, lowest strata, settlement of the Band-ceramic in Moldavia, \pm 4000 B.C., 10 bone fragments (Tringham, 1969).

Jugoslavia:

- Lepinski Vir, settlement of the Starčevo-Körös culture, 5400-4000 B.C., 6 bone fragments (Bökönyi, 1970).

Hungary:

- Berettyószentmárton, settlement of the Herpalý culture, \pm 3500 B.C., 1 bone fragment (Bökönyi, 1959).

Denmark:

- Dyrholmen, \pm 3500 B.C., 1 maxilla, 1 mandibula.
- Mejlgaard, 1 C from the maxilla.
- Virksund, 1 humerus.
- Ertebølle, \pm 4000 B.C., 1 mandibula, 1 radius, 1 ulna, metacarpalia III and IV, 4 pelvis fragments, 1 tibia, 1 fibula, 20 tarsi, 1 metatarsus, 2 phalanges.
- Gudumland, 1 ulna.
- Aalborg, 1 mandibula, 1 ulna, 1 tibia (Degerbøl, 1933).

Switzerland:

- Egolzwil 3, settlement of the Egolzwil culture, \pm 3500 B.C., 1 pelvis fragment, length acetabulum 23.0 mm (Higham, 1967).
- Egolzwil 2, settlement of the younger Cortaillod culture, \pm 3000 B.C., number not mentioned. Steckboen, Bielersee (Hartmann-Frick, 1970).

France:

- Martignons, Comm. de Juillac-le-Coq (Charente) settlement, Camp I, \pm 2600 B.C., 1 bone fragment (Poullain-Josien, 1966).
- Roucadour, cave occupied from Neolithic to Hallstatt, number not mentioned (Ducos, 1957).

Lynx pardina

France:

- Châteauneuf-lez-Martiques (B. du R.), cave used as shelter by „cardial ancien”, \pm 5000 B.C., 1 bone fragment (Ducos, 1957).

Spain:

- Cerro la Virgin I, Prov. of Granada, settlement from the pre-Bellbeaker culture, \pm 2200 B.C., 1 bone fragment.
- Cerro la Virgin II, settlement from the Bellbeaker culture, \pm 1800 B.C., 1 bone fragment (Boessneck, 1957).

Bronze Age:*Lynx lynx*

German Democratic Republic:

- Berlin-Lichterfelde, settlement, \pm 1100 B.C., a.o. 1 humerus, biggest width distal: 34.9 mm; width trochlea 26.4; smallest width diaphysis: 13.9 (Müller, 1962).

Denmark:

- Maglehøj near Fredriksund, 1 bone fragment from a grave (Degerbøl, 1933).

Hungary:

- Békés-Vasoserdő, settlement, 1 bone fragment (Bökönyi, 1959).

Rumania:

- Girbovát, settlement from the late Bronze Age, \pm 1100 B.C., 1 maxilla (Haimovice, 1964).

Lynx pardina

Spain:

- Cabezo Redondo, Prov. of Alicante, settlement, \pm 1350 B.C., 1 skull fragment (Von den Driesch & Boessneck, 1969).

Middle Ages:*Lynx lynx*

German Democratic Republic:

- Dessau-Mossigkau, early-slavonic settlement, 6th to 8th century A.D., 1 upper tearing molar (Müller, 1967).
- Berlin-Köpenick, castle, late slavonian, 11th to 14th century A.D., stratum D2, phalanx II (according to a recent personal communication of Dr. Müller, this appears to be a phalanx of an eagle), pathologically deformed; stratum E, “Frühdeutsche Zeit”, 1 mandibula (Müller, 1967).

As appears from this enumeration, the Valkenburg skull is up to now the only find known of a Lynx from the Roman period. According to Keller (1909) the Romans had little knowledge of the Lynx. Plinius states that the Lynx was used in 55 B.C. by Pompejus Magnus in games in the Circus. If this ever happened subsequently is not communicated, which gives Keller reason to think that this is little probable. When caught as a young animal the Lynx can easily be tamed and kept in the house. Obviously the Romans did not do so.

The question whether the Valkenburg skull belonged to an animal caught in the neighbourhood of the fort, or to an animal brought from elsewhere, is difficult to answer. The first assumption is the more probable one in view of the absence so far of the back of the head and the rest of the skeleton. If it was a tamed animal from elsewhere, one could wonder why such a young animal was killed. The Lynx could have been captured by members of the garrison or bought from the native population. It is possible that only a skin was bought, in which the skull was still present. Some strong incisions on the forehead show that in the latter case the skull was cut out of the skin within the walls of the castellum.

Remains of the Lynx are seldom found in food remains of pre- and protohistoric Europe, the Netherlands included. We can ask whether this is due to the rarity of the species, whether the species was not attractive as booty, or whether it was too difficult to hunt. Since the Lynx is very handy in avoiding the hunter and can throw dogs off the scent, we prefer the latter assumption.

The species is not described in historical works in the Netherlands. This may indicate that the species ceased to occur in our country rather early;

probably because deforestation on a large scale started in the Middle Ages. In Germany, where vast forests existed much longer, the Lynx could better survive. Blasius (1857: 176) cites Wernigerode (1817) and Seesen (1818) — both situated in the Harz mountains — as the westernmost

places where the Lynx was shot for the last time in Germany. In Poland and Czechoslovakia the species survives up to the present. In Western Europe the Pardel Lynx still occurs in the Pyrenees and farther south.

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