

NIEUWE LEDEN.

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EINE REVISION DER FOSSILEN SÄUGETIERFAUNA AUS DEN TONEN VON TEGELEN. IX.

Notizen über die *Cervidae* von † Dr. J. J. A. Bernsen O. F. M., gesammelt und herausgegeben von Dr. A. Schreuder, Zoölogisches Museum, Amsterdam.

IX. CERVIDAE. ¹⁾

CERVUS RHENANUS DUBOIS.

Identic with:

Cervus (Rusa) spec. from. Senèze (STEHLIN 1923)

„*Cervus pardinensis* Cr. et Job.” from Senèze (DEPÉRET et MAYET 1911; ROMAN et DARESTE 1931).

Probably also with:

„*C. etueriarum* Cr. et Job.” from the Forest Bed (NEWTON 1882, p. 55, and 1891, p. 27, Pl. IV, fig. 4).

Materials:

1. Complete left antler, DUBOIS 1905, fig. 6, Teyler Museum, Haarlem.
2. Fragment of young antler, DUBOIS 1905, fig. 7, Teyler Museum, Haarlem.
3. Fragment of very young antler, DUBOIS 1905, fig. 8, Teyler Museum, Haarlem.
4. Fragment of left antler, Teyler Museum, Haarlem.
5. Basal fragment of right antler, Pl. I, fig. 5, Museum Maastricht.
6. Basal fragment of right antler, Pl. I, fig. 3, no. 8, Museum Maastricht.
7. Basal fragment of right antler, Pl. I, fig. 4, no. 69, Museum Maastricht.
8. Basal fragments of pair of antlers with pedicles. Left antler, Pl. I, fig. 6, Mission Museum Steyl.
9. Basal fragments of pair of antlers with pedicles, Pl. I, figs. 7 and 8, Zool. Museum Amsterdam, Coll. Böhmers en v. Bemmels.
10. Basal fragments of pair of antlers with pedicles, C. 50, *ibid*.
11. Basal fragments of pair of antlers with pedicles, C. 52, *ibid*.
12. Pair of pedicles, C. 59, *ibid*.
13. Second fork of a right antler, C. A; Pl. I, fig. 9; *ibid*.

Description of the antlers in
Teyler Museum.

1. DUBOIS (1905) describes a complete left antler under the name of *C. rhenanus* nov. spec.

with the following words: „Le merrain est grêle, comme chez l'Axis vivant, et très recourbé, à concavité antérieure-extérieure. Le premier andouiller s'en détache par un angle peu aigu, à une distance assez grande du cercle de pierrures. Il est fort et modérément recourbé vers le merrain. L'andouiller supérieur est assez faible, il est dirigé en avant et à l'extérieur. La fourche qu'il forme avec la pointe du merrain dessine un angle assez aigu et cette pointe est environ trois fois aussi longue que l'andouiller. A proprement parler ce dernier est la continuation du merrain, tandis que l'autre branche de la fourche se détache du merrain par un angle obtus, de sorte que, si cette branche n'était pas de beaucoup la plus longue, on pourrait la regarder comme le vrai andouiller”. (cfr. DUBOIS 1905, fig. 6.)

2. A young three-tined antler. Slender beam much less curved than the last mentioned. First tine broken off, placed at a distance from the burr. Second tine and end-tine broken off (cfr. DUBOIS 1905, fig. 7).

3. A very young two-tined antler. First tine broken off. End-tine slender (cfr. DUBOIS 1905, fig. 8).

4. Basal fragment of left antler.

Description of the antlers in the
Maastricht Museum.

5. Basal fragment of right, shed antler (Pl. I, fig. 5). Burr strongly marked, oblique to basal portion of beam, presents a nearly round outline. First tine complete, rising at a distance from the burr, at an obtuse angle with the beam; at the base oval in section, higher on round; bending strongly upward and slightly outward, the top bending slightly inward. Beam bending backward and a little outward at the origin of the first tine; above the burr slightly oval (32 × 27 mm) in section, channelled. A separate fragment of the beam strongly bent, oval in section, channelled.

6. Basal fragment of right, shed antler. (No. 8 M. M., Pl. I, fig. 3). Burr strongly marked, oblique to basal portion of beam, presents a nearly round outline. First tine broken off at the half of its length, rising at a greater distance from the burr



1



2^A



2^B



3



4



5



6



7



8



9

blanco bladzijde



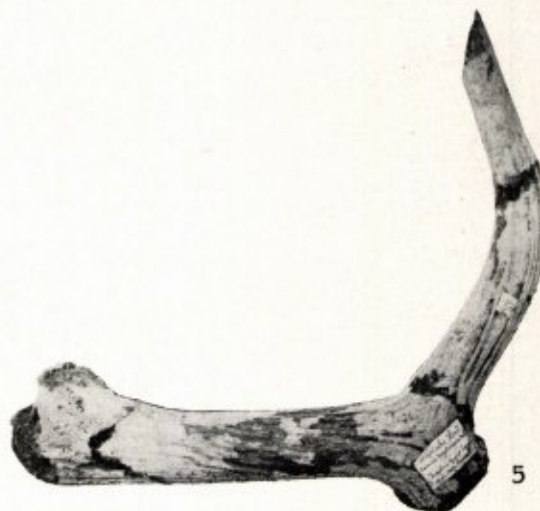
1



4



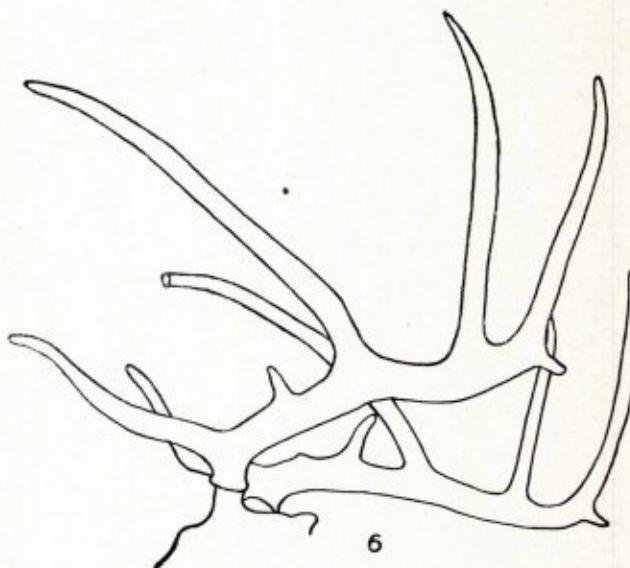
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5



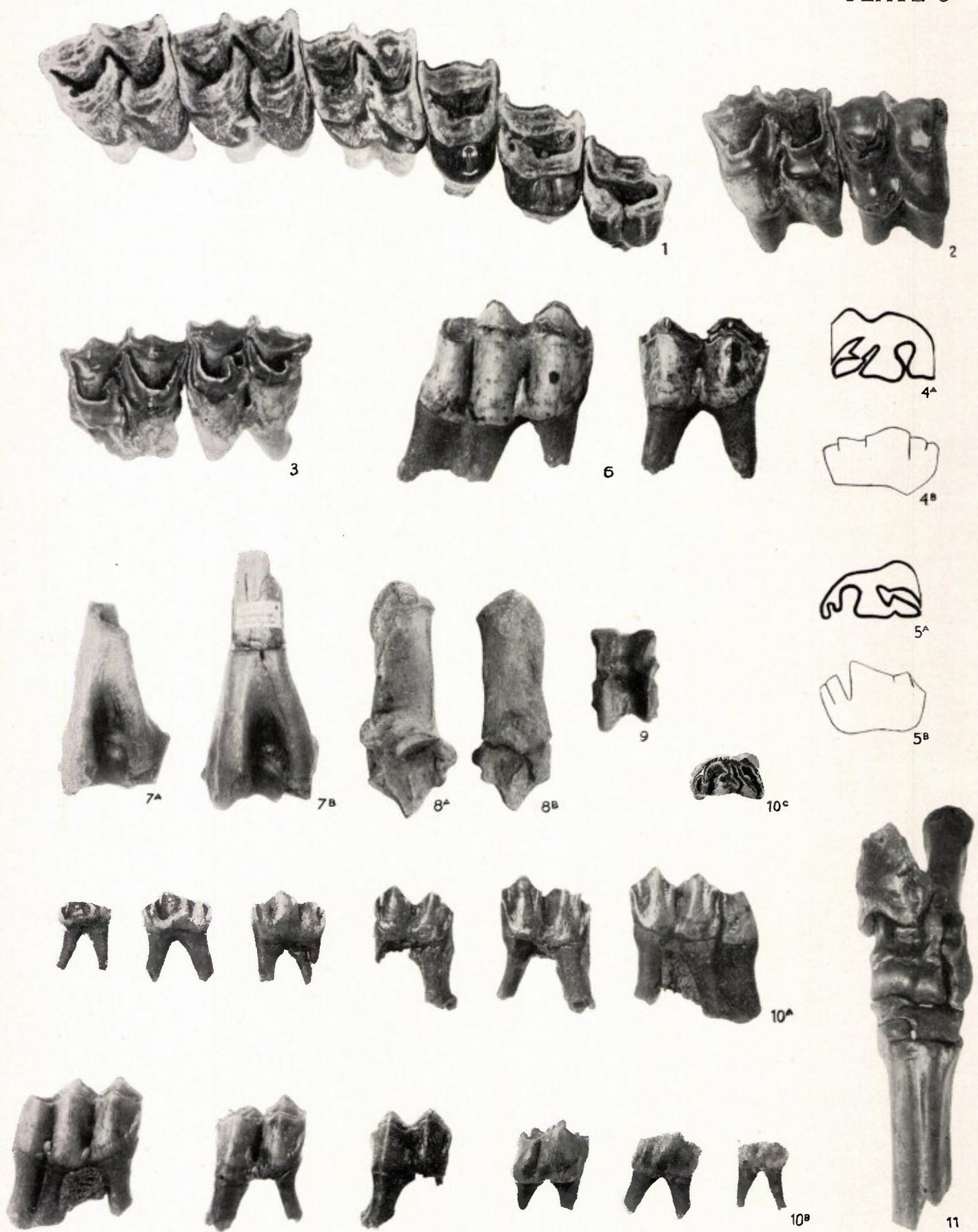
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6

CERVIDAE FROM TEGELEN

blanco bladzijde



CERVIDAE FROM TEGELEN

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DIMENSIONEN DER GEWEI-
ÄSTE VON CERVUS
RHENANUS DUBOIS, etc.

DIMENSIONEN DER GEWEI- ÄSTE VON CERVUS RHENANUS DUBOIS, etc.											Fig. 6. Dubois 1905 Teyler Museum	Fig. 7. Dubois 1905 juv. Teyler Museum	Taf. I, Fig. 5 Maastr. Museum	Taf. I, Fig. 3 Maastr. Museum	Taf. I, Fig. 4 Maastr. Museum	Taf. I, Fig. 6 Steyler Museum	Taf. I, Fig. 8 Zööl. Mus. Amsterdam	Taf. I, Fig. 7 Zööl. Mus. Amsterdam	C 50 Zööl. Mus. Amsterdam	C 52 Zööl. Mus. Amsterdam	C 59 Zööl. Mus. Amsterdam	Taf. I, Fig. 9 Zööl. Mus. Amsterdam	Vechta Mus.	Nat. Hist. Mus. Basel Senèze 1720	Nat. Hist. Mus. Basel Senèze 1540	Senèze 793	Senèze 1225	Senèze 245	Senèze 1341	Senèze 1475	Senèze 1465	r. Senèze 1464	l. Senèze 1464	juv. Senèze 455	juv. Senèze 644	juv. Senèze 643	juv. Senèze 794	juv. Senèze 1680	juv. Senèze 246	juv. Senèze 1215	Senèze 559	Senèze 1313	Senèze Lyons, Fac. des Sciences	Senèze Lyons, Fac. des Sciences „C. pardin. Cr. et Job.“	Brit. M. No. 34590 C. cyl. Dawk. Fig. 11 Ardé	Brit. M. No. 34607 C. cyl. Dawk. Fig. 12 Ardé	Brit. M. No. 6100 C. „etuer. Cr. et Job.“ Forest Bed	Brit. M. No. 6365 C. „etuer. Cr. et Job.“ Forest Bed	Brit. M. No. 6365 * C. „etuer. Cr. et Job.“ Forest Bed	Brit. M. No. 6368 C. „etuer. Cr. et Job.“ Forest Bed
1. Umfang Rosenstock	88	—	—	—	—	81	96	96	92	100	80	—	—	—	—	90	—	91	115	106	—	99	99	—	—	—	—	—	—	—	—	—	—	—	—	—	84	86	115	—	—	—	89	—						
2. Umfang Rose	100	—	130	131	±95	120	135	135	130	127	—	—	118	178	±142	125	—	140	170	—	—	160	160	87	87	130	90	±115	±120	—	—	—	—	—	—	135	±130	168	—	—	—	—	145							
3. Umfang Stange oberhalb der Rose	87	88	96	87	70	85	104	102	91	87	—	—	85	125	105	85	100	90	123	95	—	137	142	58	63	85	70	92	78	—	120	—	89	90	112	—	87	90	118	100										
4. Umfang Stange zwischen bei- den Gabeln	80	67	78	70	58	79	84—92	—	75	—	—	—	±70	108	94	75	85—90	82	—	93	±115	111	109	50	55	60	60	63	65	—	100	—	76	72	95	—	80	75	100	83										
5. Länge Rosenstock (innen) . .	±20	—	—	—	—	28	20	18	21	18	21	—	—	15	—	34(*)	—	35	27	37	—	21—22	±25	—	—	—	—	—	—	—	—	—	—	31.5	31	33.5	±30	—	—	38.5	—									
6 Distanz Rose-Augensprossgabel- lung (innen gemessen, inklus. Rose)	80	64	78	85	53	101	105	109	70	88	—	—	75	111	87	81	105	112	90	140	—	62	65	80	89	64	61	59	72	67	65	88	81	60	117	92	69	88	75	88										
7. Länge Augenspross	186	—	149	—	—	—	—	120	—	—	—	—	108	290	—	120	180— 190	—	—	—	—	—	83	—	±110	104	±135	—	—	—	—	—	250	82	±140	190	148	—	—	240	215									
8. Distanz zwischen beiden Gabeln	336	200	—	—	—	—	300+	—	—	—	—	—	—	425	+360	—	—	—	—	—	—	335	—	192	—	—	—	—	—	—	—	395	355	250	260	340	256	320	—	—	—									
9. Länge vorderen oberen Spross .	109	—	—	—	—	—	—	—	—	—	—	—	101	220	—	—	—	—	—	—	150	—	—	—	—	—	—	—	—	—	110	140	80	90+	135	35	—	—	—	—										
10. Länge hinteren oberen Spross .	312	—	—	—	—	—	—	—	—	—	—	265	—	—	—	—	—	—	—	—	290	315	—	—	—	—	—	—	—	—	—	240	—	±200	230	250	185	—	—	—	—									
11. Gesamtlänge (von Rose zu hin- teren Spitze)	720	—	—	—	—	—	—	—	—	—	—	—	—	710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	695	575	+500	500	630	462	—	—	—	—										

(*) auszen

than in the last mentioned fragment, oval in section at the base, higher on round; bending strongly upward and slightly outward; rising at nearly right angles with the beam. Beam at the origin of the first tine bending backward and a little inward, higher on bending outward, nearly round in section.

7. Basal fragment of very young, right, shed antler (Pl. I, fig. 4). Burr strongly marked, nearly round in section, nearly at right angles with the beam.

First tine rising at a distance from the burr, broken off at its base. Beam distinctly oval in section above the burr, round above the first tine. Beam curved as in the two last specimens but less marked, more straight. Fork of first tine more sharp-angled.

Description of the antlers in the Mission Museum at Steyl.

8. Left antler: pedicle long, round. Burr strongly marked, at nearly right angles with beam. Beam nearly round above burr (24.5×29.5), flattened as it approaches first tine, channelled, but free from knobs; bending outward above burr, bending backward at origin of first tine and round in section; there broken off. First tine at acute angles with beam, oval in section at base, bending outward; broken off (Pl. I, fig. 6).

Right antler: pedicle long, round. Burr strongly marked, at right angles with beam. Beam nearly round above burr, broken off.

Description of the antlers in the Zool. Museum at Amsterdam.

9²). Left antler: pedicle of moderate length, round. Burr much damaged, nearly at right angles with beam. Beam oval in section (27.5×34.5), more flattened as it approaches first tine, strongly channelled, knobbed especially at the inner side; bending outward above burr, bending backward at origin of first tine, higher on outward and upward again, round in section; broken off at some distance beneath second furcation. First tine at acute angles with beam, oval in section at base, bending outward; broken off, channelled and knobbed (Pl. I, fig. 8).

Right antler: burr strongly marked, at right angles to beam. First tine oval in section at base, round to the middle; bending outward at the furcation, higher on slightly backward, strongly channelled and knobbed, point smooth, slightly damaged (Pl. I, fig. 7).

The suture between the frontalia has released, so that both antlers are apart now. The anterior portion of both orbits has been preserved.

10. Right antler: pedicle damaged, of moderate length. Burr strongly marked, oblique to beam. Beam oval in section ($26-31$) above burr, more flattened as it approaches first tine, channelled and weakly knobbed, higher on round in section, broken off. First tine broken off.

Left antler: pedicle nearly round in section (26×29), of moderate length. Burr strongly marked, oblique to beam. Beam oval in section (26.5×29.5), broken off.

11. Left antler: pedicle of moderate length, oval (28×30). Burr strongly marked, oblique to beam. Beam damaged, channelled, slightly knobbed, broken off just beneath first fork.

Right antler: pedicle and burr as left specimen, beam broken off above burr.

12. Pedicles nearly round (23×25), broken off trough strongly marked burr.

13. Beam much flattened beneath second fork; anterior tine nearly round, bending outward just like brow-tine of no. 9 (left antler); broken off. Hinder tine nearly round (20×22) at 3 cm above the furcation), bending forward above the middle and slightly inward at the tip; channelled, not knobbed (Pl. I, fig. 9).

Comparison with fossil forms:

Regarding this rather small deer, which is very common in the Tegelen Clay, Dr. Bernsen made the following note: „Small deer from Senèze (referred by Mrs. DEPÉRET et MAYET to *C. pardinensis* Cr. et Job.) = *Cervus rhenanus* Dub.; cfr. however STEHLIN 1923, p. 278.”

We should thus have to change the specific name or *rhenanus* Dub. to that of *pardinensis* Cr. et Job., since the latter is by far the oldest. However, Mr. STEHLIN doubts the correctness of DEPÉRET et MAYET's identification of this deer from Senèze with the species from Perrier for which the name of *C. pardinensis* has been established by CROIZET et JOBERT, and terms the deer which is abundant in Senèze as in Tegelen, provisionally *Cervus (Rusa) spec.*, „ein graziler Vertreter der Rusagruppe”. When a further study of the rich material in Basle might show that the Tegelen species is identical with that of Senèze and differs from *C. pardinensis* of Perrier, the specific name of *C. rhenanus* must be maintained. Therefore I think it advisable to use the latter name until future investigations have brought a decision.

Dr. BERNSEN founded his opinion on a thorough study of the remains in the British Museum and in the collection at Lyons and Basle. All specimens mentioned in the Table of measurements have been sketched too. The annotations added, show that the antlers from Senèze in the collections of the Faculté des Sciences at Lyons (see Table) and at Basle (especially those marked: Se 1720, 1540, 793, 1125, 245, 1475, 1465, 1464, 455, 794, 246 and 559, strongly resemble the Tegelen objects.

Also a striking resemblance of the latter to the three-tined antlers of *C. cylindroceros* Dawkins from Ardé (Puy de Dôme), described and figured (not quite correctly) by DAWKINS (1878, p. 414) was observed: „Studying the large specimen (DAWKINS fig. 11) in the British Museum (no. 34590, cfr. Table) I could not see any differences worth mentioning, except a stronger curvature of the beam.”

The Forest Bed antlers in the British Museum, referred by NEWTON (1882, p. 55 and 1891, p. 27, Pl. IV, figs. 4 and 5), under reservation, to *C. etueriarum* Cr. et Job. agree so closely with those from Tegelen, that Mr. DUBOIS (1905, p. 614)

estimated them to be „indubitablement” indentic, as did BERNSEN also. Mr. DUBOIS has established the name of *C. rhenanus*, because he denied their identity with the French *C. etueriarum* Cr. et Job. (BERNSEN was of the same opinion). The only adult antler known from Tegelen then (DUBOIS 1905, fig. 6) and the most complete specimen from the Forest Bed (cfr. Table Br. Mus. 6100 and NEWTON's fig. 4) are much more slender than the French antlers for which the specific name of *etueriarum* has been established. Although afterwards more robust specimens have been found in Tegelen (Pl. I, figs. 7 and 8), the French type antlers in question are by far more compact.

TEETH.

The large number of small teeth and fragments of small skeleton bones must undoubtedly be ascribed to this deer. Unfortunately they have never been found in connection with any part of skull and it is an exception when a complete set of teeth can be gathered (Pl. III, fig. 10).

Length of upper teeth-row 82.5 mm.

Length of lower teeth-rows 84.5 and 90.0 mm.

Incisivi: length and width of i_2 4.7 and 4.5 mm.

of i_3 4.5 and 3.0 mm.

Interior height of crown and root of i_2 is 10.8

+ 15.1 mm, of i_3 10.2 + 12.4 mm.

Upper premolars: length 36^* mm 3) ($p^2 = 12.0 \times$

10.5 ; $p^3 = 12.0 \times 12.1$; $p^4 = 11.0 \times 13.5$).

Upper molars: length 48 mm ($m^1 = 15 \times 15.7$;

$m^2 = 17.5 \times 17.6$; $m^3 = 17.6 \times 17.1$).

Upper molars: length 46 mm.

Upper molars: length 49^* mm.

Lower premolars: length 35 mm ($p_2 = 10.0 \times 6.3$;

$p_3 = 12.7 \times 7.1$; $p_4 = 13.4 \times 7.6$).

Lower premolars: length 36 mm ($p_2 = 10.1 \times 6.0$;

$p_3 = 13.5 \times 7.8$; $p_4 = 14.1 \times 8.5$).

Lower premolars: length 36.1 mm.

Lower premolars: length 33.5 mm.

Lower molars: length 52^* mm ($m_1 = 15.5 \times 9.0$;

$m_2 = 17.5 \times 10.0$; $m_3 = 22 \times 9.8$).

Lower molars: length 55 mm ($m_1 = 16.5 \times 10.4$;

$m_2 = 18.5 \times 12.0$; $m_3 = 23.0 \times 11.5$).

Lower molars: length 53 mm (two sets).

Lower molars: length 52 mm (three sets).

The length of 11 specimens of m_3 varies between 21.5 and 23 mm.

The height of an unworn m_2 is 16.8 mm.

One young upper dentition is preserved in the Maastricht Museum. Both sides consist of a nearly unworn m^2 , a slightly worn m^1 and two milk teeth. These are pd^4 which is quite molariform with a short column, and pd^2 . The larger anterior portion of this long narrow tooth has been worn down so much, that only two elongated pits occur in the wearing-surface (fig. 1). Length and width of pd^4 are 13.7 and 13.2 mm; of pd^2 13.2 and



Fig. 1. Left pd^2 , crown view; nat. size.

8.2 mm. The max. height exteriorly of m^2 is 16.6 mm, of m^3 14.5 mm, of pd^4 7.4 mm and of pd^2 4.6 mm. The enamel of the permanent teeth is rough. That of the milk-teeth smooth and lustrous.

The pattern of p_4 is of the primitive type, the enamel infold between the meta- and paraconid being widely open in all specimens (Pl. III, fig. 10), as in some species of recent *Rusa*.

The tubercles between the lobes of the molars vary in size and form; e.g. in some specimens of m_3 the anterior column is very short, in others I found it to be 5 mm long. The posterior column can be present (Pl. III, fig. 10 b) or absent.

The height of three mandibles at the posterior end of m_3 is 29, 30.7 and 29.5 mm; the maximal thickness there is 16.5, 14.8 and 15.0 mm.

BONES.

Here follow some measurements of foot bones and of a few extremities of the long bones of the small type of deer ⁴⁾:

humeri, distal end: width 39, 39; ant. post. diam.

40, 38 mm.

radius, distal end*: width 35; ant. post. diam.

25 mm.

metacarpal, prox. end*: width 29; ant. post.

diam. 20 mm.

tibia, proximal end*: width 58; ant. post. diam.

53 mm.

tibiae, distal end: width 32, 35, 36*; ant. post.

diam. 26, 28, 28* mm.

astragali, length:

45, 43, 42*, 41', 39.5, 38 mm.

„ width:

27, 26, 26.5*, 25', 24, 22.5 mm.

„ ant. post. diam.:

22.5, 23, 22*, 22', 19.5, 18.5 mm.

calcanei, length: 90*, 89', 89 mm.

„ width: 25*, 24', 28 mm.

„ ant. post. diam.: 30*, 30', 28 mm.

metatarsals (prox.), width 26, 28, 27 mm.

ant. post. diam.: 29, 30, 31 mm.

metatarsal (distal), width 32* mm.

ant. post. diam.: 22.5* mm.

The length of some phalanges I varies between 46 and 50 mm.

The length of some phalanges II, varies between 31 and 35 mm.

To be continued.

¹⁾ The preceding Part was published in Jaargang 22, No. 11. The plates and list of literature will be given at the end of the „Notizen über die Cervidae”.

²⁾ Immediately before the author's journey to the collections at Lyons and at Basle Dr. Bernsen saw this pair of antlers from Tegelen and some other fragments (10—13) in the Zoological Museum of Amsterdam in the collection Böhmers en van Bemmelen. He intended to photograph and measure these specimens after his return, but, alas, it had been his last visit to Amsterdam. Both antlers (9) had been already mentioned by him in the Table, but the numbers I filled in, like those of 10—13, having measured and described the objects in the same way as B. used to do.

³⁾ The three sets marked with * belong together.

⁴⁾ The bones marked with * belong to the same individual. The bones marked with ' belong to the same individual.