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Remains of the *Cervidae* (Mammalia) from Rębielice Królewskie in Poland

[Pp. 273—288, 10 text-figures]

Szczątki *Cervidae* (Mammalia) z Rębielic Królewskich w Polsce

Останки *Cervidae* из Рембелиц Крулевских (Польша)

Abstract. The authoress describes the remains of *Croizetoceros ramosus* (Cr. et J.) and *Eucladocerus* sp. from Rębielice Królewskie in Poland. The age of the locality, the distribution of the forms described and the nature of the environment are also discussed.

INTRODUCTION

The vertebrate remains from Rębielice Królewskie were described by many authors (KOWALSKI 1960, 1963; MŁYNARSKI, 1959, 1960; SYCH, 1965; FAHLBUSCH, 1969). Besides insectivores, rodents and lagomorphs, the mammalian remains from Rębielice include a certain number of teeth and bones of the *Cervidae*. I have received this material from the Institute of Systematic and Experimental Zoology, Polish Academy of Sciences, in Cracow, in whose collection it is kept, catalogued as MF/978 and MF/979.

Remains of the *Cervidae* are very rarely found in the Tertiary layers and those from the beginning of the Quaternary in Poland. An exceptional locality in this respect is Węże near Działoszyn (SAMSONOWICZ, 1934), where very rich material of this mammalian group has been collected (CZYŻEWSKA, 1959, 1960, 1968). The materials from Rębielice are, however, much less numerous and very fragmentarily preserved. They were, for the most part, detached teeth or their fragments, and for this reason a very close morphological analysis of the dentition was necessary. Its results are presented in this paper.

The terminology concerning dentition, used in this paper, is analogous to that in previous papers and based on the terms applied by OBERGFELL (1957) for the dentition of the deer from the Lower Miocene. The names of the cusps of the mandibular teeth are given in brackets, the cusps of the upper teeth are designated only with successive numbers. The terms are explained in the legend for Fig. 1. Measurements were taken with the help of vernier callipers and given in millimetres. The measurements and indices are explained in the descriptive part.

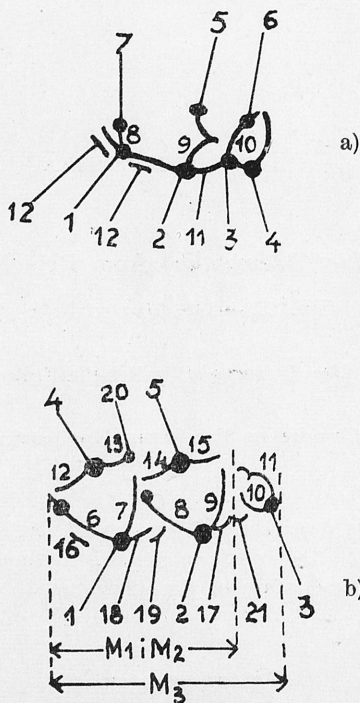


Fig. 1. A simplified and modified diagrammatic drawing showing the structure of teeth of the *Cervidae*, after OBERGFELL (1957): a) lower premolars: 1) cusp from which cullis₁ (anterior) takes rise; 2) main cusp of labial wall (protoconid); 3) cusp from which cullis₃ (posterior) takes rise; 4) posterior cusp of labial wall (hypoconid); 5) main lingual cusp (metaconid); 6) posterior lingual cusp (entoconid); 7) anterior lingual cusp (paraconid); 8) cullis₁ (anterior); 9) cullis₂ (inner, middle one); 10) cullis₃ (posterior); 11) counterpart of palaeomeryx fold; 12) anterior list (cingulum); b) molars: 1—5) labial and lingual cusps of first, second and third lobes; 6) praespina₁; 7) postspina₁; 8) praespina₂; 9) postspina₂; 10) praespina₃; 11) postspina₃; 12) praeala₁; 13) postala₁; 14) praeala₂; 15) postala₂; 16) anterior list (cingulum); 17) posterior list (cingulum); 18) palaeomeryx fold, protoconal fold on upper molars; 19) median style (stylid); 20) mesostyle (stylid); 21) median style (stylid); 22) parastyle

I am greatly indebted to Prof. Kazimierz KOWALSKI, Head of the Institute of Systematic and Experimental Zoology, Polish Academy of Sciences, in Cracow, for the loan of the remains of the *Cervidae* from Rebiełice Królewskie for study and to Prof. Zbigniew RYZIEWICZ of the Institute of Palaeozoology, Wrocław University, for his concern in my work, valuable advice and frequent discussions.

DESCRIPTION

Family: *Cervidae* GRAY, 1821

Subfamily: *Cervinae* BAIRD, 1857

Genus: *Croizetoceros* HEINTZ, 1970

Croizetoceros ramosus (CROIZET et JOBERT, 1828)

Material (Inst. of Syst. and Exper. Zoology, Polish Academy of Sciences, MF/978).

Relatively few and fragmentary remains of this species were found at Rebie-lie Królewskie. They include the following whole teeth and their fragments: a) lower teeth I_1 — I_3 (Nos. 32, 35, 36), P_2 , P_3 (Nos. 3, 5), M_1 and M_2 (Nos. 1, 15); b) upper teeth: DP^3 , DP^4 (No. 4), P^4 (No. 23) and molars (No. 24). There are also two ungular phalanges of this deer (Nos. 30, 38).

Lower teeth

Only P_2 and P_3 are known out of the premolars and M_1 and M_2 out of the molars.

P_2 (No. 5) has a well-developed protoconid. The metaconid is small or very small. The anterior cusp is quite small or distinct with a bifurcation formed by the inner wall and incipient cullis₁. The posterior wall of the crown and the third cullis are distinguished in all the specimens. The length of the crown is 9.5—9.8, the width 4.8—6.4 and the height reaches 5.7 (cf. HEINTZ, 1970, Fig. 141, Table 20).

P_3 (No. 3) has a small metaconid, which is expanded rather to the rear. The cullises are very distinct, the anterior one being larger than the corresponding cullis on P_2 . The length of the crown is 11.3, the width 7 and the height 7.5 (cf. HEINTZ, 1970, Fig. 140, Table 20).

M_1 (No 1) is characterized by a connection of cusp 1 and 5 by postpina₁ and praeala₂ (Fig. 2 a and b). The fossette of the posterior lobe of the tooth is widely opened to the front. The length of the crown is 13, the width 8.1—9.8 and the height reaches 9.3 (cf. HEINTZ, 1970, Fig. 138, Table 19).

M_2 (No. 15), like M_1 , has a connection of postspine₁ and praeala, and the fossette of its posterior lobe is open towards the front. The small median stylid is present. The styles and cusp folds of the inner wall are poorly developed. The anterior list is very small. The length of the crown is 14, the width 10.1 and the height 10.4 (cf. HEINTZ, 1970, Fig. 137, Table 19).

I_1 (No. 32) has a very asymmetrical crown; its outer edge is deflected buccally. The labial wall of the tooth is smooth, the lingual one shows a shallow but wide depression. The upper width of the crown is 6.0—7.1, its basal width 4.0—4.7 and the height reaches 6.1. I_2 and I_3 (Nos. 35, 36) show no characteristic features. The length of the root of I_2 is nearly twice as long as the height of the crown.

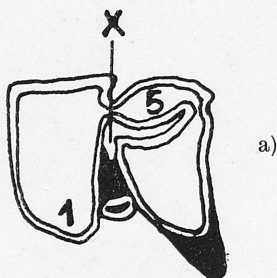
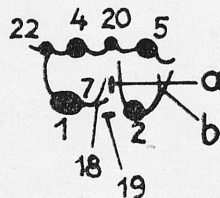


Fig. 2. *Croizetoceros ramosus* (CROIZET et JOBERT) from Rebielice Królewskie: M₁, No. 1. a) heavily worn tooth, x 2, b) diagrammatic drawing showing anterior part of crown of unworn tooth. For explanation see Fig. 1. x — fossette of posterior lobe, opened to front

Upper teeth

The characters of the deciduous teeth DP³ and DP⁴ (No. 4) are as follows: DP³ has a thin and delicate parastyle and mesostyle on its external wall. The protoconal fold is visible on postspina¹ and beside it is the inner style built of enamel and dentine. The median style of this tooth is very small. Postspina² is bifurcated (b). The length of DP³ is 12.6, the width 10.5, the height 8, the tooth being worn (Fig. 3). The protoconal fold is also present on DP⁴ and the

Fig. 3. *Croizetoceros ramosus* (CROIZET et JOBERT) from Rebielice Królewskie, No. 4. A diagrammatic drawing of left DP³, x ca 2. For explanation see Fig. 1. a — inner pillar of dentine and enamel, situated between lobes; b — bifurcated postspina²



median style clings to praespina². There is a low and inconspicuous list on the anterior wall. The styles and cusp folds of the inner wall are robust. The length of DP⁴ is 11.9—13 the width 12.6—12.8 and the height reaches 8.9 (cf. HEINTZ, 1970, Table 17).

The lingual wall of P⁴ (No. 23) is very oblique. The large fossette of the anterior lobe is separated from the narrow fossette of the second lobe by an incomplete partition of enamel and dentine. The parastyle and cusp fold of the labial wall are pronounced. The length of the crown is 10.9 the width 14 and the height 11.2 (cf. HEINTZ 1970, Fig. 132, Table 12).

The upper molars (No. 24) are marked by the fairly sharp outline of the inner cusps. Postspina¹ has the protoconal fold, postspina² is bifurcated as well.

The median style is low and passes into the small cingulum, the anterior list is also small. The styles and cusp folds of the external wall are conspicuous and join together at the base of the crown. The mesostyle protrudes most (cf. HEINTZ, 1970, Fig. 130, Table 11).

Third digital phalanx (os ungularis)

The length of this bone approximates the corresponding dimension in the roe. It is relatively slender and the solear side is slightly convex or nearly flat (No. 38). Seen laterally, the dorsal edge of the bone is slightly concave and, in consequence, the anterior part of the phalanx seems narrower and slenderer than the posterior. The processus extensorius is fairly massive and displaced

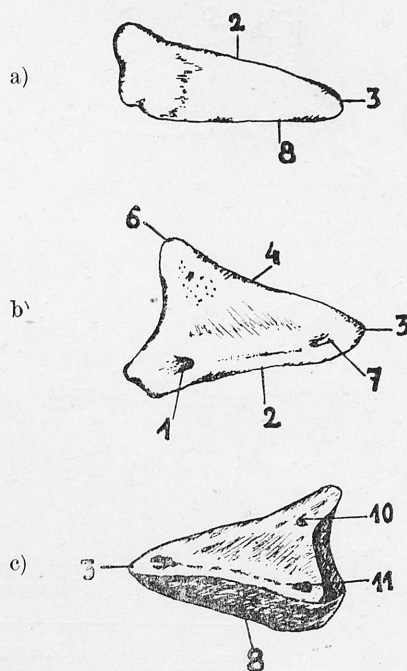


Fig. 4. *Croizetoceros ramosus* (CROIZET et JOBERT) from Rębielice Królewskie. Third digital phalanx, No. 30. x ca 1. a) — facies solearis, b) — facies parietalis, c) — facies axialis (medialis). 1) Foramen angulare, 2) margo solearis, 3) apex, 4) margo dorsalis, 5) foramen ungueale superior, 6) processus extensorius, 7) foramina in apical region, 8) margo interosseus, 9) facies articularis, 10) foramen solearis

more inwards. The foramen ungueale superior is either present (No. 38, Fig. 5) or replaced by several smaller openings (No. 30, Fig. 4). The angular foramen is large and situated at the same height as the foramen in the proximity of the apex of the phalanx. The sole narrows relatively gently towards the front, the apex is sharp, and the dorsal edge nearly straight and not arched as it is, e. g., in the red deer. There are two foramina, an upper and a lower, in the facies axialis. A delicately marked groove extends along the interosseous edge. The articular surface is very concave, fairly broad at the bottom and inclined obliquely inwards.

In view of the geological age of the locality at Rębielice Królewskie, which comes close to the age of Węże near Działoszyn, one might also expect the occur-

ence of *Procapreolus wenzensis* (CZYŻEWSKA) in it. At a close analysis, however, the remains from Rębielice show some clear-cut differences, which exclude the presence of *Procapreolus*. P_2 of the deer from Rębielice is longer and the

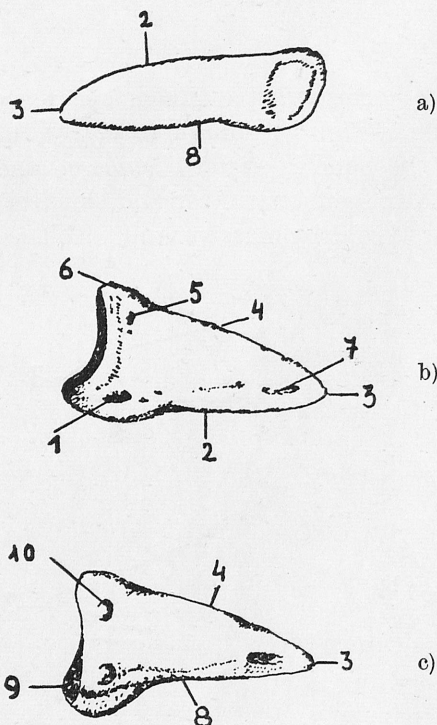


Fig. 5. *Croizetoceros ramosus* (CROIZET et JOBERT) from Rębielice Królewskie. Third digital phalanx, No. 38, x 1. a) Facies solearis, b) faxies parietalis, c) facies axialis (medialis). For explanations see

Fig. 4

Table I

Measurements and Index of Third Digital Phalanx
of *Croizetoceros ramosus* (CROIZET et JOBERT)

Ser. No.	Measurements and Index	Rębielice Królewskie	
		No. 30	No. 38
1.	Greatest length	30,5	34
2.	Width of articular surface	11,5	12,1
3.	Height of articular surface	17,5	15
4.	Greatest width of sole	9	12,4
	1:3	57,4	53,5

structure of its crown more differentiated than in *Procapreolus wenzensis* (CZYŻEWSKA). In M_1 and M_2 $posstpina_1$ and $praeala_2$ are coalesced and the fossette of the posterior lobe is open, which characters are absent from the molars of *Procapreolus wenzensis* (CZYŻEWSKA). These teeth differ also in size; M_1 of *Procapreolus wenzensis* (CZYŻEWSKA) is somewhat smaller, though its height

is similar, and M_2 is narrower. So far as the upper teeth are concerned, DP^3 and DP^4 of *Procapreolus* are lower and the parastyle is very poorly developed. P^4 of the deer from Rębielice is markedly larger than that in *Procapreolus*. *Procapreolus* is closely related to the roe and, according to FLEROW (1952), the ungular phalanx of the roe has a height equal to about two-third the length of this phalanx. For the deer from Rębielice (Nos. 30 and 38) the index of the length of the phalanx to the height of the articular surface is 53.5 and 57.4 or somewhat above 1/2.

Some specimens from Rębielice have similar measurements to those in *Procapreolus* (CZYŻEWSKA 1968). These are as follows: the width and height of P_2 and all the measurements of P_3 .

Croizetoceros ramosus (CROIZET et JOBERT) particularly well known from West European localities, is a very characteristic species of deer from the Villafranchian. It is marked by its specific large antlers, no remains of which have been found at Rębielice. The teeth of a deer somewhat larger than the roe found at this locality belonged in all probability to *Croizetoceros ramosus* (CROIZET et JOBERT) because they show a number of characters of this species, namely, the same size, the same structure of the upper and lower premolars, the lower molars with a connection between postspina₁ and praeala₂ and with the fossette of the posterior lobe opened toward the front, and the upper molars with conspicuously protruding styles and cusp folds on the external wall. These last teeth are characterized by their relatively small cingulum, which is present in the vicinity of the median style and on the anterior wall of the crown (DEPÉRET, 1883; VIRET, 1954; HEINTZ, 1970). Their measurements are also relatively great (HEINTZ, 1970, Fig. 130, Table 11).

Genus: *Eucladocerus* FALCONER 1868

?*Eucladocerus* sp.

Material (Inst. of Syst. and Exper. Zoology, Polish Academy of Sciences, MF/979).

The following whole and damaged teeth have been found at Rębielice Królewskie: a) lower teeth: DP^3 , DP^4 (Nos. 10, 21, 22), P_3 , P_4 (Nos. 7, 11, 14), molars (No. 6) and incisors (No. 33); b) upper teeth: DP^2 , DP^3 (No. 2), premolars (Nos. 8, 9, 12, 13, 16) and molars (Nos. 18, 19, 27). There are, in addition, the second and third digital phalanges (Nos. 28, 29) and the left radiale (No. 37).

Lower teeth

DP_3 (Nos. 10, 22) has a narrow crown, whose anterior part shows a very characteristic structure, namely, its labial wall, extending from the anterior cusp, and the first cullis are markedly elongated and subparallel to the long axis of the tooth. The paraconid is also a fairly long narrow cusp. The very short

second cullis connects the protoconid with the metaconid; the protoconid has the shape of a pillar and its posterior surface adjoins the entoconid. Thus, the space between the second and third cullises is closed on the labial side and forms a small fossette. A poor development of the metaconid is characteristic of this tooth. The length of the tooth is 14.7, the width 7.2 and the height 7.5—7.7 (Fig. 6). DP₄ (No. 21) is a fragment that consists of the anterior and the middle

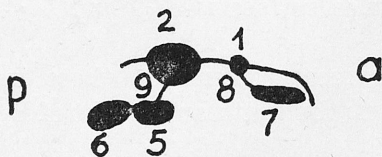


Fig. 6. ?*Eucladocerus* sp. from Rebiełice Królewskie. Diagrammatic drawing of fragmentary DP₃, No. 10. For explanations see Fig. 1. a — front
p — back

lobe. The tooth is heavily worn. The median stylid is present. The neighbouring elements of the labial walls, postspina₁ and praespina₂, and those of the lingual walls, postala₁ and praeala₂, are connected with each other. The fossettes are narrow. The width of the tooth is 10.4, the height 7, and the length of the two lobes 15.6 (cf. HEINTZ, 1970, Table 87).

Only the posterior part of the crown of P₃ (No. 11) is preserved. The fossettes enclosed between the second and third cullises and between the third cullis and the posterior wall of the tooth are opened only in the upper portion of the crown so that they are already closed on the teeth which are not too heavily worn. Between the paraconid and metaconid there is a wide depression, the metaconid adjoins the third cullis posteriorly. The length of the tooth is 16.5,

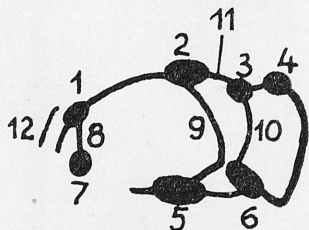


Fig. 7. ?*Eucladocerus* sp. from Rebiełice Królewskie. Diagrammatic drawing of P₄, No. 7. For explanations see Fig. 1

the width 11.6 and the height 13.3—14 (worn teeth). P₄ (Nos. 7, 14; Fig. 7) has an elongated lamellar metaconid, which extends to the entoconid, this last being arranged obliquely to the long axis of the tooth. There is no connection between the paraconid and metaconid. The length of the tooth is 19, the width 11.4 and the height 16.3. The length-to-height index (85.8) is characteristic of the teeth of medium height. The length-to-width index is 60 (cf. HEINTZ, 1970, Figs. 230 and 231, Tables 85 and 86).

The molar teeth (Nos. 6, 20) have small parastylid and a sturdy but low mesostylid. The cusp folds are broad but not pronounced; the lower part of the crown is particularly smooth. The fossette of the second lobe is opened toward the front, and postspina₁ and praeala₂ are connected. The length of M₂ is 25, the width 15 and the height 20.4 (cf. HEINTZ, 1970, Fig. 228, Tables 84 and 86).

I_1 (No. 33), with an asymmetrical crown, has its external edge bent strongly toward the cheeks. The upper width of the crown is 9.7—10.3, its basal width 5.3—7 and the height 8—11.7.

Upper teeth

The length of the crown of DP^2 (No. 2) is 17, the width 9.3 and the height 11.6. The tooth is worn (Fig. 8a). DP^3 (No. 2) has wide fossettes. On the anterior lobe there is a small protoconal fold; praespina² is also bifurcated. On the inner surface of postspina² there are 2 lists, which extend from the edge of the crown to the bottom of the fossette, and beside them there occurs a style of dentine and enamel (Fig. 8). The median style between the lobes is small. The parastyle

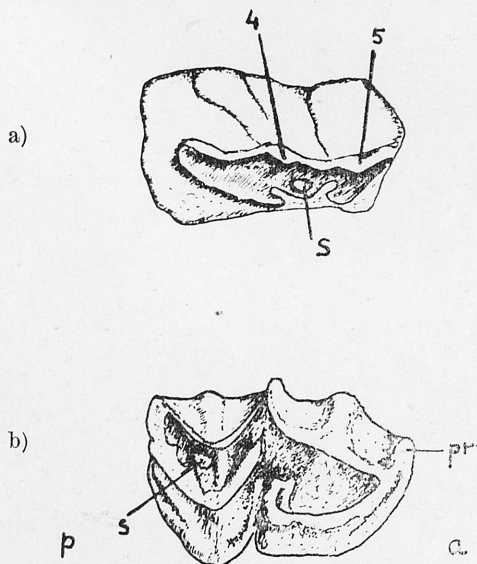


Fig. 8. ?*Eucladocerus* sp. from Rebiecice Królewskie. Upper deciduous teeth, No. 2. a) left DP^2 , x ca 2; b) right DP^3 , x ca 2. For explanations see Fig. 1. a — front, p — back, pr — parastyle, s — pillar of dentine and enamel

is low and inclined to the rear. An anterior list and a very small posterior one are present. The length of the tooth is 17.4, the width 10.7 and the height 12.6 (cf. HEINTZ, 1970, Table 87).

The parastyle and the cusp folds of the anterior lobe of P^2 (Nos. 12, 13, 16) are very convex. A wall of dentine and enamel, which projects into the fossette, sharply separates the two lobes. The length of the tooth is 18.3, the width 13.4 and the height 18.2 (cf. HEINTZ, 1970, Fig. 224, Tables 82 and 86). P^3 and P^4 are known from only small fragments (Nos. 8, 9), and only fragments of the labial walls of molars (Nos. 18, 19, 27), with markedly protruding styles and cusp folds, have been preserved. The height of these fragments reaches to 20.5.

Limb bones

The fovea ligamentosa on the medial surface of the second digital phalanx, near its distal trochlea, is large and deep (Fig. 9). The margo solearis of the third phalanx is distinctly bent, so that the sole narrows toward the front

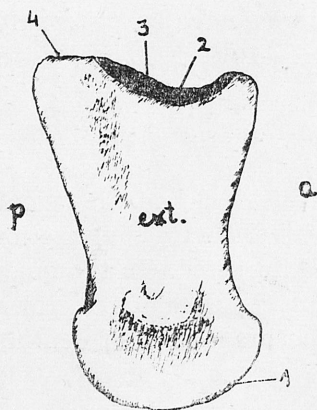


Fig. 9. ?*Eucladocerus* sp. from Rebielice Królewskie. Second digital phalanx, No. 28, \times ca 1. 1) Trochlea phalangis, 2) fovea articularis lateralis, 3) crista sagittalis, 4) processus ligamentalis lateralis; a — front, p — back, ext — external surface

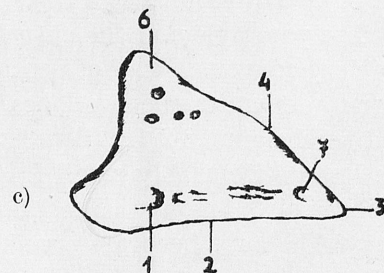
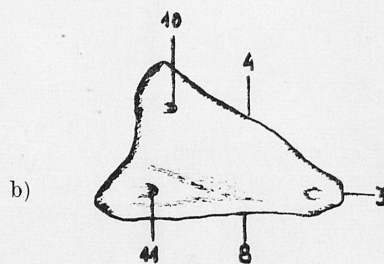
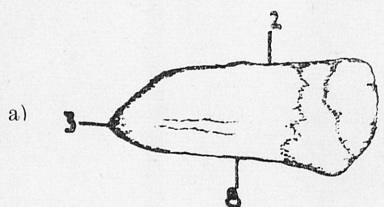


Fig. 10. ?*Eucladocerus* sp. from Rebielice Królewskie. Third digital phalanx, No. 29, \times ca 1. a) Facies solearis, b) facies parietalis, c) facies axialialis (medialis). For explanations see Fig. 4

at first very slightly and near the tip rapidly (Fig. 10). The left radiale found at Rebielice Królewskie (No. 37) is somewhat smaller than this bone of *Cervus elaphus* L. It shows a deep-cut groove, known as the canalis intermedio-radialis. The anterior height is 21.4.

The structural details of the teeth of the larger deer from Rębielice Królewskie do not differ from those of *Eucladocerus* (HEINTZ, 1970; TEILHARD de CHARDIN and PIVETEAU, 1930; VIRET, 1954). Their measurements and proportions are such as those in the small and medium sized forms of this genus. Our remains are, however, too fragmentary to allow the identification of the species.

Table II

Measurements and Index of Digital Phalanges of
?Eucladocerus sp.

Ser. No.	Measurements and Index	Rębielice Królewskie	
		No. 28 and others phalanx II	No. 29 phalanx III
1.	Greatest length	48	36.2
2.	Width of proximal surface	19.4—21.2	16.8
3.	Anterior-posterior diameter of this surface	23.6—29.2	23.8
	1:3	60.8	65.8

Eucladocerus sp. from Rębielice differs in a number of characters from *Cervus warthae* (CZYŻEWSKA) from Węże near Działoszyn (CZYŻEWSKA, 1959, 1968), which indicates that different species occur in these localities. P₃ and lower molars of the deer from Rębielice are longer and narrower, even though in their structure they resemble these teeth of the other species. DP₃ of the deer from Rębielice is long and narrow, with short cullises and a characteristic region of the anterior cusp; the paraconid is long and parallel to the tooth wall. P₂ is bigger and higher than this tooth in *Cervus warthae* (CZYŻEWSKA) and P⁴ is longer and higher (the length-to-height index of P⁴ in *?Eucladocerus* sp., No. 8, is 103.5 against 125.4 in *Cervus warthae* (CZYŻEWSKA). As in *Cervus elaphus* L., M² of *Cervus warthae* (CZYŻEWSKA) may be longer than the remaining molars (CZYŻEWSKA, 1959, p. 403), whereas in *Eucladocerus* the molars M¹, M², and M³ increase in length gradually. DP₂ and DP₃ of the deer from Rębielice differ in measurements from these teeth of the other species, their parastyle is conspicuous, the posterior cingulum is present, but the median style missing.

The second and third digital phalanges differ in structure from these bones in *Cervus*. The margo solearis of the third phalanx is markedly bent, whereas in *Cervus* there is only a slight bend. The length of this phalanx is much smaller than the doubled height. According to FLEROW (1952) this length is not larger than the doubled height in *Cervus*. The index of length of the second phalanx of *Eucladocerus* sp. to its antero-posterior diameter (60.8) indicates that the diameter is only slightly greater than half the length, whereas in *Cervus* it is two-thirds of the length (FLEROW, 1952).

DISCUSSION

A small number of remains of the *Cervidae* were found beside the bones of the *Insectivora* and *Rodentia* (KOWALSKI, 1960, 1962, 1963; FAHLBUSCH, 1969), *Leporidae* (SYCH, 1965), pieces of the carapace of *Geoemyda eureka* (WAGNER) and vertebrae of snakes (MLYNARSKI, 1959, 1960) in a karst fissure filled up with sediment bright red in colour at Rębielice Królewskie in the Kłobuck District (51° N, 18°51' E). The vertebrate fauna from Rębielice is regarded as Upper Pliocene in age, but the Lower Villafranchian is not excepted (KOWALSKI, 1960, 1962, 1963; FAHLBUSCH, 1969). This age is indicated by such species occurring at Rębielice as *Mimomys stehlini* KORMOS, described also from Valdarno and other localities in Italy, Sète (France), Gundersheim (Germany) and Węże near Działoszyn (Poland) and *Prospalax priscus* (NEHRING), which is characteristic of the border between the Pliocene and Pleistocene.

Like the fauna from Węże near Działoszyn, the collection from Rębielice is interesting, among other things, because besides numerous small mammals (*Insectivora*, *Rodentia*) it contains also larger mammals (*Leporidae*, *Cervidae*).

The remains of the *Cervidae* may throw some light on the problem of the age of the fauna from Rębielice. According to CRUSAFONT PAIRO et al. 1964 and HEINTZ (1967, 1969, 1970), the Villafranchian localities of France and Spain are characterized by the presence of several species of the *Cervidae* and the genus *Gazella*. In that region the boundary between the Lower and Middle Villafranchian is marked out by the extinction of some deer species, one of them being *Cervus cusanus* CROIZET et JOBERT¹. At Rębielice this species has most certainly not been found, although *Procapreolus venzensis* (CZYŻEWSKA), standing close to it, lived at the locality of Węże near Działoszyn (CZYŻEWSKA, 1968), older than that at Rębielice.

The remains of *Croizetoceros ramosus* (CROIZET et JOBERT) occur in localities of the Lower, Middle and Upper Villafranchian, being represented by three subspecies, which differ from each other in size (HEINTZ, 1970). The specimens from Rębielice correspond with this species both in morphology and size, but the poor material that we have at our disposal does not allow the identification of the subspecies.

The boundary between the Lower and Middle Villafranchian is also marked by the appearance of *Eucladocerus senezensis* DEPÉRET, which species persisted up to the end of the Villafranchian. The remains of ?*Eucladocerus* sp. from Rębielice are very scanty and I did not manage to establish their specific membership for certain, but both the measurements and the structure of the fragments found do not vary from those in *Eucladocerus senezensis* DEPÉRET.

In addition to *Croizetoceros ramosus* (CROIZET et JOBERT) and *Eucladocerus senezensis* DEPÉRET, *Cervus philisi* SCHAUB occurs in the fauna of the Middle

¹ = *Procapreolus cusanus* (CROIZET et JOBERT) (CZYŻEWSKA, 1968; KOROTKIEWICZ, 1963, 1964, 1965).

and Upper Villafranchian of France and Spain, but sometimes it is lacking, e. g., at La Roche-Lambert and La Puebla de la Valverde. No remains of *Cervus philisi* SCHAUB have been found at Rebielice.

Rebielice Królewskie is the first locality in Poland from which *Croizetoceros ramosus* (CROIZET et JOBERT) and *Eucladocerus* have been described. In Eastern Europe these forms have been recorded from the regions situated farther to the south than Poland is. They are known from the Upper Pliocene localities of Moldavia and the Ukraine², e. g., *Croizetoceros ramosus* (CROIZET et JOBERT) from Lopacka and Pilinej Moldavan and *Eucladocerus* from Rani and Cherevitchni in the Odessa Province, Kairi in the Kherson Province and Kapri, Morska and Volova Balka on the coast of the Sea of Azov (KOROTKIEWICZ, 1966). The above-mentioned localities of the Ukraine, judging by the small mammals collected in them (TOPATCHEVSKY, 1962; PIDOPLITCHKO and TOPATCHEVSKY, 1962), are not the same age, and their assemblages of small mammals are clearly younger than those from Rebielice. Supposedly, *Eucladocerus* from the Ukraine is also younger than this form from Poland.

The hitherto known picture of the environment of Rebielice complimented with the material of the *Cervidae* presents itself as follows: The main group of the small mammals of Rebielice are forest species, for they form about 63% of all the species found, and the deer should also be included in this group. The deer's food, in addition to sprouts, leaves and bark of trees, always contains grass and herbs. For this reason, besides the wood, presumably a mixed one, there must have been areas free from trees, e. g., glades and meadows. The ungual phalanges of *Croizetoceros ramosus* (CROIZET et JOBERT) and ?*Eucladocerus* sp. from Rebielice have a relatively broad sole, its length-to-breadth index being 35.7 and 41.4, respectively. This character is rather an adaptation to a soft, probably wet, substrate.

The group of small mammals from Rebielice includes also aquatic species (*Desmana kormosi* SCHREUDER, cf. *Neomys* sp.). The existence of a water reservoir in the region of Rebielice is, besides, indicated by the presence of remains of the *Cervidae*, although these animals are not associated with water as closely as the above-mentioned forms. They can even stay temporarily in steppes, but always in the proximity of water (VERESHCHAGIN, 1959; GEPTNER and NASIMOWICZ, 1967; FLEROW, 1952).

The remains of the *Cervidae* from Rebielice are very fragmentary. It is even difficult to determine to how many individuals they belonged. Specimens of very young individuals with quite unworn deciduous teeth are lacking. The deciduous teeth collected at Rebielice are rather heavily worn. One specimen of M₁ (No. 1) comes from an old animal, and it even lacks the fossette of the

² Pilinej Balgar in Moldavia and Zhdanov in the Donetsk Province in the Ukraine are the localities in which *Eucladocerus plotarandoides* ALESSANDRI has been found (KOROTKIEWICZ, 1966). According to KAHLKE (1965, 1969), this name is synonymous with *Praemegaceros verticornis* (DAWKINS). The classical locality of this species, Süssenborn, contains remains of a Lower Pleistocene fauna (NOLTE, WOLFRAM and WÖLLNER, 1969).

anterior lobe. Other permanent teeth are lightly or, at most, moderately heavily worn. The qualitative and age composition of the collection suggests a casual extinction of the deer at Rebielice.

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STRESZCZENIE

W pracy opisane zostały zęby i kości dystalnej części kończyn *Croizetoceros ramosus* (CROIZET et JOBERT) i ?*Eucladocerus* sp. pochodzące z Rebiełic Królewskich (Polska). Na podstawie szczątków *Cervidae* autorka wyraża pogląd, że fauna z Rebiełic odpowiada faunom wilafranszu Europy Zachodniej, omawia zagadnienie występowania obu form w Europie Wschodniej oraz zagadnienie charakteru środowiska, w którym one żyły.

СОДЕРЖАНИЕ

В работе описаны некоторые зубы и кости дистальной части конечностей *Croizetoceros ramosus* (CROIZET et JOBERT) и *Eucladocerus* происходящие из Рембелиц Крулевских (Польша). На основании останков *Cervidae* автор выражает мнение, что фауна из Рембелиц соответствует фауне Вильяфраншу Западной Европы. Автор рассматривает проблему существования обеих форм в Восточной Европе, а также характер среды.

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