

DICERORHINUS KIRCHBERGENSIS IN THE TIGLIAN?

BY

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(Communicated by Prof. I. M. VAN DER VLIERK at the meeting of March 26, 1960)

In 1927 J. J. A. BERNSEN described a maxillar dentition of *Dicerorhinus kirchbergensis* from the Tiglian. This identification has since been accepted and copied in all lists of European quaternary faunas. Now in recent years all other old pleistocene finds of *D. kirchbergensis* have been shown either to represent *D. etruscus* or to be of younger date. Therefore the arguments advanced by BERNSEN will be reexamined in the following.

BERNSEN described a maxillar dentition of "*Rhinoceros Mercki*" lacking the right P² and the greater part of the left P³ (only fragments of the outer ectoloph wall are present). The right P³ has no outer wall so that here too exact dimensions can not be given. The animal was of considerable age, its teeth show considerable wear.

BERNSEN writes:

"The great wear of the upper dentition has caused many characters, among which the primary character, to disappear. The remaining ones do not point to *Rh. etruscus*, but to *Rh. Mercki*, viz:

1. The exceedingly weak development of the inner cingulum in premolars and molars.
2. The direction of this cingulum in the pm 2 and 1 (P³, P⁴).
3. The great gradient of the anterior cingulum.
4. The V-shaped entrance to the medisinus of the molars, which, though comparatively wide in mol. 2, falls within the limits of variation of the *Mercki* forms studied by me.
5. The curved outer surface in mol. 3.
6. The thick cement covering of the outer wall of the molars.
7. The size of the separate teeth which exceeds that of all *etruscus* forms".

On reexamination of these seven points the following is seen:

(Point 1) The dentition has worn down close to the cingulum. This, and the fact that the enamel curves in on the lingual side of the chewing surface, makes it extremely difficult to say how much of a cingulum there actually was. Furthermore the argument loses much weight when BERNSEN writes a few lines lower:

"The dentition in Maastricht Museum possesses characters pointing in the direction of *Rh. Mercki*, as the development of the inner cingulum, which is insignificant for *Rh. etruscus*."

Nevertheless BERNSEN gives its determination as *Rh. etruscus*.

(Point 2) Both P³ and P⁴ have worn to such a degree that it is impossible to evaluate the exact development of the inner cingulum. BERNSEN's statement that the inner cingulum is absent on the anterior part of the right P³ is not supported by examination of his specimen. The same holds for the right and left P⁴.

(Point 3) BERNSEN here refers to the fact that the anterior cingulum of the M¹ and M² on the lingual side does not turn up at an angle, but sharply downwards. This is a situation which on the evidence of other molars of *D. etruscus* probably is a result of heavy wear. The upward curve which should be found on the lingual side of the protoloph is absent. Intermediate forms can be found in *etruscus* molars showing less wear.

(Point 4) Here again BERNSEN makes a risky assumption on the basis of a feature which he should not use in an absolute sense but only comparatively.

The shape of the medisinus entrance (protoloph sloping, metaloph steep, the medisinus rather wide, rounded, on the border between protoloph and metaloph a shallow incision) in the dentition from Steyl does not differ significantly from that of other molars from the Tegelen area.

(Point 5) Marked cases of this may also be found in *D. etruscus* molars. Only heavy wear makes the curvature look more pronounced.

(Point 6) The thickness of the cement covering in the fossil depends on the degree of conservation. Other molars from Tegelen show quite definitely that the cement covering was lost in preparation. Other *etruscus* molars (in the Leiden Museum for instance the molars described by STROMER VAN REICHENBACH 1899) show appreciable cement covering.

(Point 7) The principal argument of BERNSEN: the size of the molars. BERNSEN measured the molars stuck together with a bituminous substance. For all measurements and comparisons he always used complete dentitions or rows of elements. Obviously, reliable results cannot be obtained this way.

After separation and thorough cleaning, the following dimensions have been obtained (figures between brackets are those given by BERNSEN): (see table).

Dimensions by and large fall within the range indicated for *D. etruscus* from Mosbach (larger molars from other localities are known).

BERNSEN states that the molars from Steyl are smaller than the *R. megarhinus* (= *D. kirchbergensis*) molars from Grays and Ilford, Essex,

TABLE 1

	Tegelen (Steyl)		D.etruscus Mosbach	D.kirchbergensis (Schroeder '30)
	sin.	dext.		
length ectoloph P ²	32 (32)	—	30-35	32-36
width protoloph	37 (39)	—	34-42	34-43
P ³	—	—	33-36	36-46
	—	—	49-53	55-70
P ⁴	ca. 41 (ca. 40)	38 (39)	36-41	40-53
	61 (62)	57 (57)	55-64	55-74
M ¹	ca. 47 (ca. 43)	ca. 45 (ca. 43)	42-49	47-60
	61 (63)	62 (63)	53-63	63-72
M ²	52 (55)	52 (55)	46-51*)	52-63
	63 (64)	62 (64)	57-62	63-73
M ³	60 (65)	59.5 (62)	51-61	61-71
	59 (62)	58 (61)	50-58	58-70

*) FREUDENBERG, 1914, mentions a specimen with Length 55.

and the *Rh. leptorhinus* Owen (= *D. hemitoechus* Falc.) molars from Barrington, all in the British Museum. They are about the same size as the molars of *Rh. leptorhinus* Owen (= *D. hemitoechus*) from Ilford, Essex and Peckham and the *Rh. Mercki* (= *D. kirchbergensis*) molars from Mosbach described by SCHROEDER 1903, page 108.

They are larger than all other *Rh. leptorhinus* molars in the British Museum and some molars of *Rh. Mercki* described by SCHROEDER 1903, pp. 106 en 133. These are the conclusions given by BERNSEN.

The new measurements show:

The molars from Steyl fall within the range of *D. etruscus*. They are too small for *D. kirchbergensis*. The measurements in the table for this species are taken from SCHROEDER, who did not recognize *D. hemitoechus* as a separate species. His *Rhinoceros Mercki* (and BERNSEN's) is a combination of *D. hemitoechus* and *D. kirchbergensis*. As the teeth of *D. hemitoechus* are on the average smaller than those of *D. kirchbergensis* the minimum values for the latter should actually be higher than those given in the table. There remains no argument not to attribute the Steyl dentition to *D. etruscus*.

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LITERATURE

- BERNSEN, J. J. A., The Geology of the Teglian Clay and its Fossil Remains of *Rhinoceros* (1927).
- FREUDENBERG, W., Die Säugetiere des älteren Quartärs von Mitteleuropa. Geologische und Pal. Abhandl. N.F. 12, 4/5 (1914).
- SCHROEDER, H., Die Wirbelthierfauna des Mosbacher Sandes, I Gattung *Rhinoceros*. Abh. K. Pr. Geol. Landesanst. N.F. Heft 18 (1903).
- STROMER VON REICHENBACH, E., Über *Rhinoceros*-Reste im Museum zu Leiden. Samml. des Geol. Reichs-Museums in Leiden, N.F. II, II (1899).