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**The Rhinoceros from Sedia del Diavolo
(Rome) is « Dicerorhinus hemitoechus »**

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The Rhinoceros from Sedia del Diavolo (Rome) is « *Dicerorhinus hemitoechus* »

In describing the scanty rhinoceros remains from the deposit of Sedia del Diavolo (Rome), Caloi, Palombo and Petronio (1980:187) reach the conclusion that the species is either *Dicerorhinus hemitoechus* or *D. kirchbergensis*. The lower cheek tooth figured by these authors on p. 188 (MPUR/V1469 — P₄ rather than M₁), is in fact diagnostic of *D. hemitoechus*. As pointed out originally by Staesche (1941:131), the flattened buccal wall of the metalophid is highly characteristic of this species (see for instance Kahlke 1975:373 ff; 1978:133 f). Perhaps because the functional significance of this character has been unknown it has not so far received much attention. In the following I will give a brief summary of the relevant functional relationships. I have presented the argument more fully elsewhere (Fortelius 1981 and *in press*).

In buccal view the ectoloph wear profile of most rhinoceroses has a pronounced « saw-toothed » relief. This relief is produced by the crescent-shaped buccal walls of the lower teeth, which wear broad U-shaped facets into the ectolophs of the corresponding upper teeth. This is particularly pronounced in forms with strongly developed phase I facets (see e. g. Fortelius 1981:160), emphasizing the long buccal cutting edges. In such forms (e. g. *Diceros bicornis*, *Dicerorhinus kirchbergensis*) the occlusal surfaces of the upper teeth are strongly concave in mesial view. The sawtoothed relief transversal to this concavity increases the length of the cutting edge transversal to the direction of occlusal movement, and thus shearing efficiency. I have suggested that such long cutting edges (blades) are related to the relatively large size and complex shape of the food particles of browsers (Fortelius 1981:155).

In forms that do not emphasize shear at the ectoloph, particularly in grazers like *Ceratotherium simum* and *Coelodonta antiquitatis*, the ectoloph is usually more or less straight in buccal view, and the occlusal surfaces are flat rather than concave in mesial view, with no clear division into buccal phase I and lingual phase II facets. Correspondingly, the buccal walls of the lower teeth are straight rather than curved.

On the whole, *Dicerorhinus hemitoechus* corresponds to the former of the above types. In a number of details, however, it shows suggestive modifications towards

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the latter, one such being the flattened buccal walls of the metalophids. Other examples are the relative decrease in the size of the premolars (Guerin 1981:1043), the high and conical M³ (Adam 1961:8 ff), and the thick cementum and correspondingly rough enamel (Guerin 1981:645).

All these modifications point towards some element of grazing in *D. hemitoechus*, although it must be emphasized that there is no evidence for the traditionally conceived « grazing steppe rhino » in the dental morphology. However, the fact that the flattened metalophid is part of a distinct functional complex seems to argue strongly for its value as a diagnostic character, and there can hardly be any doubt that the P₄ sin. (MPUR/V1469) from Sedia del Diavolo belongs to *Dicerorhinus hemitoechus*.

REFERENCES

- ADAM K. D. 1961. *Die Bedeutung der pleistozänen Säugetier-Faunen Mitteleuropas für die Geschichte des Eiszeitalters*, « Stuttg. Beitr. Naturkde », 78, pp. 1-34.
- CALOI L., PALOMBO M. R., PETRONIO C. (1980), *La fauna quaternaria di Sedia del Diavolo (Roma)*, « Quaternaria », 22, pp. 177-209.
- FORTELIUS M. (1981), *Functional aspects of occlusal cheektooth morphology in hypsodont, non-ruminant ungulates*, Inter. Symp. Concept. Meth. Paleont. Barcellona Contr. Pap., pp. 153-162.
- (in press), *Ecological aspects of dental functional morphology in the Plio-Pleistocene rhinoceroses of Europe*, in: Kurtén B. (ed.): *Teeth: Form, Function and Evolution*, Columbia Univ. Press, New York.
- GUERIN C. (1981), *Les rhinocéros (Mammalia, Perissodactyla) du Miocène terminal au Pléistocène supérieur en Europe occidentale. Comparaison avec les espèces actuelles*, « Docum. Lab. Géol. Lyon », 79 (1-3), pp. 1-1185.
- KAHLKE H. D. (1975), *Die Rhinocerotiden-Reste aus den Travertinen von Weimar-Ehringsdorf*, « Abh. zentr. geol. Inst. », 23, pp. 338-397.
- (1978), *Die Rhinocerotiden-Reste aus den Travertinen von Burgtonna in Thüringen*, « Quartärpaläontologie », 3, pp. 129-135.
- STAESCHE K. (1941), *Nashörner der Gattung Dicerorhinus aus dem Diluvium Württembergs*, « Reichsst. Bodenforsch. NF », 200, pp. 1-148.

ZUSAMMENFASSUNG

Der Zahn eines Nashorners on Sedia del Diavolo, vorher als M₁ von *Dicerorhinus* sp. bestimmt, ist in der Tat P₄ von *D. hemitoechus*.

RIASSUNTO

Un dente di rinoceronte di Sedia del Diavolo, descritto come M₁ di *Dicerorhinus* sp, viene determinato come P₄ del *D. hemitoechus*.