

DICERORHINUS cf. HEMITOECHUS

(Mammalia Perissodactyla)
from the Middle Pleistocene Cave
at Petralona - Chalkidiki - N. Greece

(PRELIMINARY REPORT)

By MIKAEL FORTELIUS & NIKOS A. POULIANOS

Introduction

The rhinoceros remains from the Petralona Cave, of mainly lower Middle Pleistocene age, come from the two upper layer complexes, referred to as the Crenian and Petralonian, and corresponding roughly to the Cromerian Interglacial and the Mindel (Elster) Glaciation respectively. (Poulianos, A. 1977). In this article we have used the local terminology in order to avoid confusion by possible later changes in correlation. For a more detailed treatment of the stratigraphy, and the fauna, see Kurtén and Poulianos, (1977: 50ff).

The material in question has not been treated in the literature before, except for a brief comment by Kretzoi (1977:141). He states that the remains belong to the genus Stephanorhinus (i.e. Dicerorhinus, Kretzoi 1942: 312), but does not refer them definitely to any species.

On the whole the remains are very few and fragmentary, and identification can not be considered absolutely certain. We have, however, tried to give a discussion of the relevant features of each specimen, and our reasons for identification.

We feel that one comment on the stratigraphical conditions in the cave is needed, since a new trench (T.B.) has been opened after the article of Kurtén and Poulianos (1977) appeared. In connection with this trench excavations have been undertaken in the «Anthropological Hall», where the top stalagmite lies directly above the Crenian layers, and no Petralonian is present. Many of the rhinoceros finds from this area are more or less embedded in the stalagmite itself.

The correlation we have used between the older and the newer trenches was supplied by Dr. A.N. Poulianos (personal communication).

The presence of proportionally many milk-teeth among the remains is noteworthy. Since the cave has been inhabited by man during the Middle Pleistocene, it is not inconceivable that at least some of the remains be a result of his activity. According to Dr. A.N. Poulianos (1971) the rhinoceros skull was found together with limestone scrapers, inside the zygomatic bones. This may support the idea just mentioned.

The remains are of the Middle Pleistocene type of the steppe rhinoceros (i.e. the teeth are moderately hypsodont, the supratemporal crests moderately concave and the remains in general rather small), corresponding to those described by Falconer (1868) and by Azzaoli (1961) termed Dicerorhinus hemitoechus falconeri and separated from the Late Pleistocene D. hemitoechus aretinus.

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Dicerorhinus cf. hemitoechus (Falconer 1868).

The material

Petraionian period:

- partially preserved skull T.A. 68, 88 (69)
- p³ dex. T.A. 68 200 (76)
- p⁴ dex. fragm. T.A. 68, 200 (75)
- M² dex. T.A. 68, 219 (41)
- fragment of right upper molar T.A. 21 (12)
- partially preserved right mandible T.A. 68, 200 (43)
- proximal fragment of left radius Sph. 19.7.77
- sigmoid cavity of right ulna T.A. 68, 220.
- distal part of right femur O⁶⁹ T.A. 20.9.75.
- distal part of right tibia T.A. 68, 223.
- left calcaneum T.A. 68, 120.

Crenian period:

- right tibia T.A. 68, 137.
- D³ sin. M 77, 542.
- fragment of upper deciduous tooth, probably D³ dex. M 77, 544.
- partially preserved left maxilla with D² - D⁴, T.B. 1538
- fragment of upper deciduous tooth T.A. 152.
- proximal fragment of right tibia II «baza Kath». (box 31).

The skull

During the excavations of 1968 a partially preserved skull was recovered. Subsequently a reconstruction of plaster was made, with the original bone fragments in situ. Obviously it is this reconstruction that Kretzoi has in mind when he writes about «a fairly complete skull» (Kretzoi 1977 : 141). The reconstruction has now been taken apart.

The preserved parts consist mainly of the skull roof from the posterior part of the second horn base to the occipital crest, and the posterior parts of the maxillae with fragments of the zygomatic arches. The left maxilla carries the last premolar and the molars, the right one the molars only. The occiput has been lost, as well as the surround-

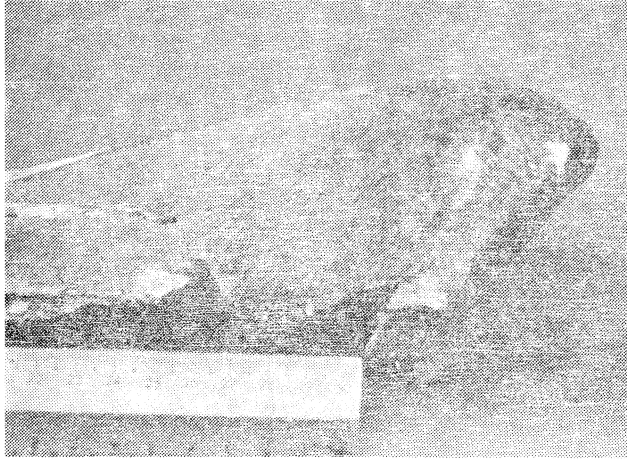


Photo 1: Hind part of a Dicerorhinus cf. hemitoechus skull, seen from the left.
T.A. 68, 88 (69).

ing area and the entire anterior part of the skull and the remains, consequently, can hardly be termed anything but fragmentary.

Except for the teeth, which will be treated below, a few features lend themselves to discussion. The occipital crest is well developed. Owing to the absence of the occiput the angles given by Zeuner (1934:23ff) and Loose (1961:43f) can not be measured exactly but it seems that the crest is of the acute type characteristic of the grazing species, in this case D. hemitoechus.

The parietals are moderately constricted by the cristae temporales, and there is a very slight incision in the middle of the occipital crest, which is rather smoothly domed when seen from the posterior. The skull is very regular and even in shape, with no sharp edges or projections. Even the occipital crest itself is fairly rounded (phot. 1).

The teeth are extremely worn, and little can be said about their morphology. Even the size of the teeth is affected by the heavy wear, as they are partially (in particular the M¹) worn down below the base of the crown, so that the length dimension is reduced (phot. 3). For dimensions see tables 3-5.

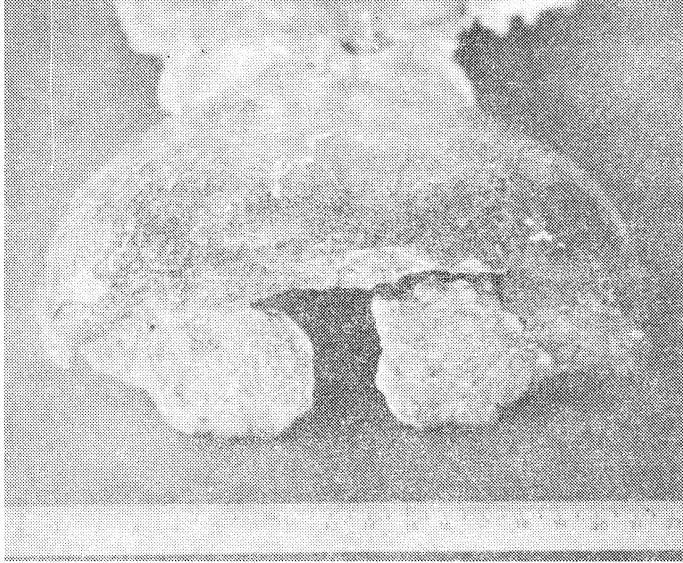


Photo 2: The same skull (as photo 1), seen from behind.

As can be seen from the double logarithmic plots (fig. 1,2,3) the teeth group fairly well with our *D. hemitoechus* sample, although they appear slightly larger.

Because of the shape of the occipital crest and the size of the teeth we have referred this skull to *D. cf. hemitoechus*, although with a certain caution.

D e c i d u o u s t e e t h

Of the deciduous teeth the perfectly preserved crown of a virtually unworn D^3 sin. is of particular interest. It comes from the «Mausoleum», which belongs to the Crenian period.

The crown is rather high (see table 1), although clearly less so than in the permanent teeth (table 5). A strong crochet is present, but no antecrochet or crista. The entrance of the medisinus is rather narrow and V-shaped, with two small protuberances closing it lingually. Such protuberances are considered typical of the permanent M^1 of *D. etruscus* by Vialli (1956:41), but not of the deciduous teeth of this species, where the entrance is broad and U-shaped (Guerin and Heintz 1971:14). Consequently the tooth must be referred to

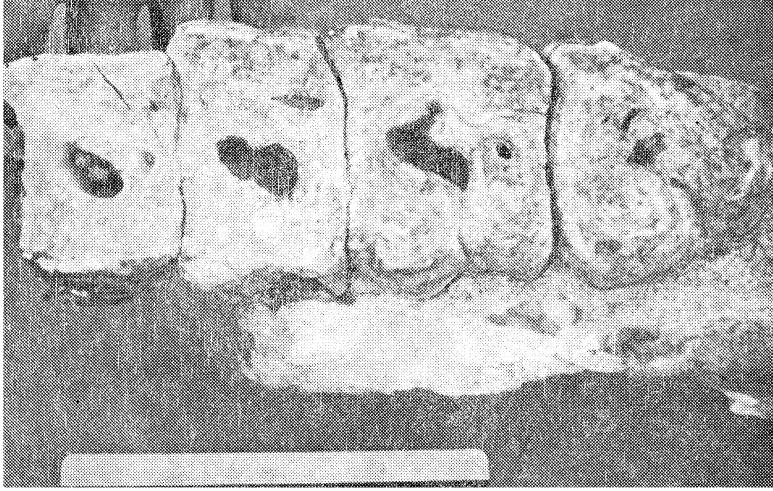


Photo 3: Left upper dentition (P⁴-M¹-M²-M³) of the same skull (as in photo 1).

some other species. The height of the crown suggests *D. hemitoechus*, a suggestion supported by the similarity between the tooth in question and the M² crown discussed below.

A left maxilla with the deciduous tooth-row D²-D⁴, preserved

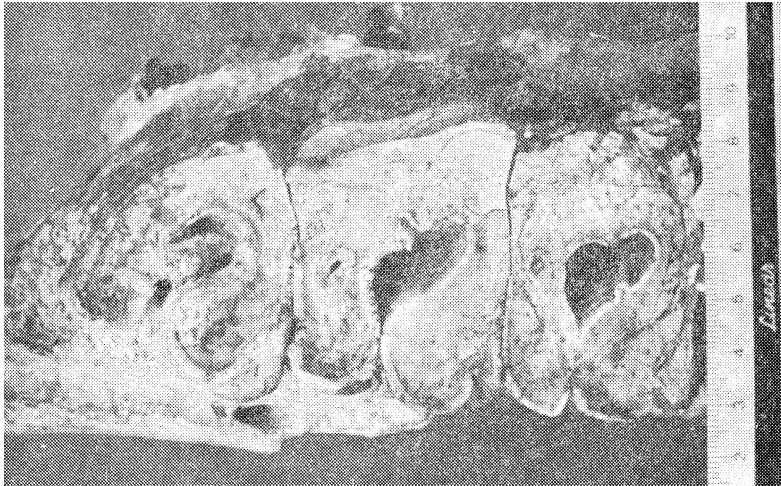


Photo 4: Detail of photo 3.

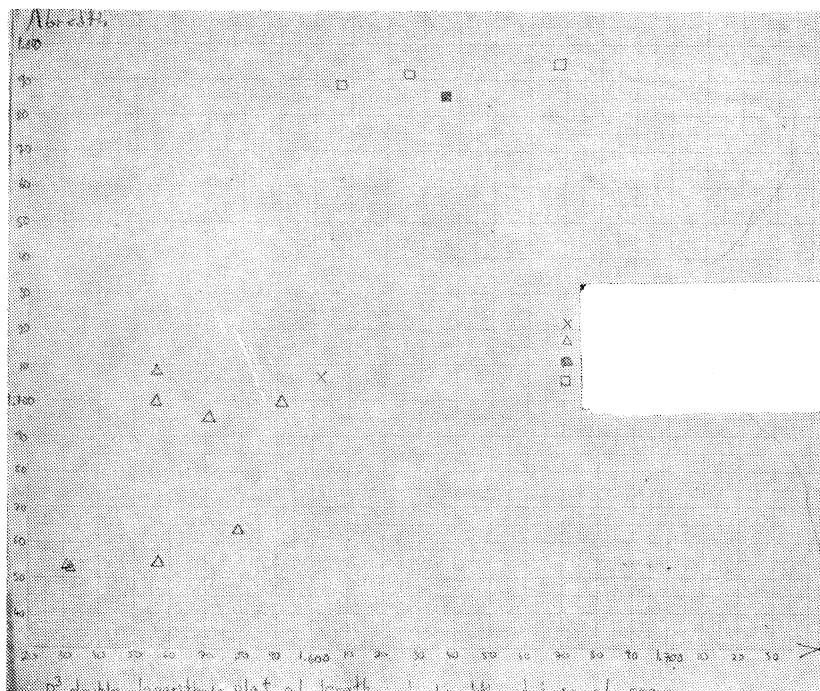


Fig. 1:

X - Petralona, T.A. 68, 200 (76)

Δ - *D. hemitoechus*, Staesche 1941

■ - *D. Kirchbergensis*, Weimar-Ehringsdorf, Kahlke, 1975.

□ - *D. Kirchbergensis*, Taubach, Kahlke, 1977.

P^3 , double logarithmic plot of length and breadth at base of crown.

in stalagmite, comes from the top stalagmite of the «Anthropological Hall». As the teeth are embedded in the stalagmite, no exact measurements can be given. Also, the D^4 is rather damaged. The teeth are moderately worn, and it appears that they have been of the same high-crowned type as the tooth discussed above. The entrance of the medisinus of the D^3 and D^4 is rather narrow, although the shape of the bottom is obscured by stalagmite. There is no reason to doubt that these teeth belong to the same species as the D^3 just discussed.

Two fragments of deciduous teeth have also been referred to this species because of morphological similarity to the complete teeth. One of these comes from the «Mausoleum», the other from Cre-

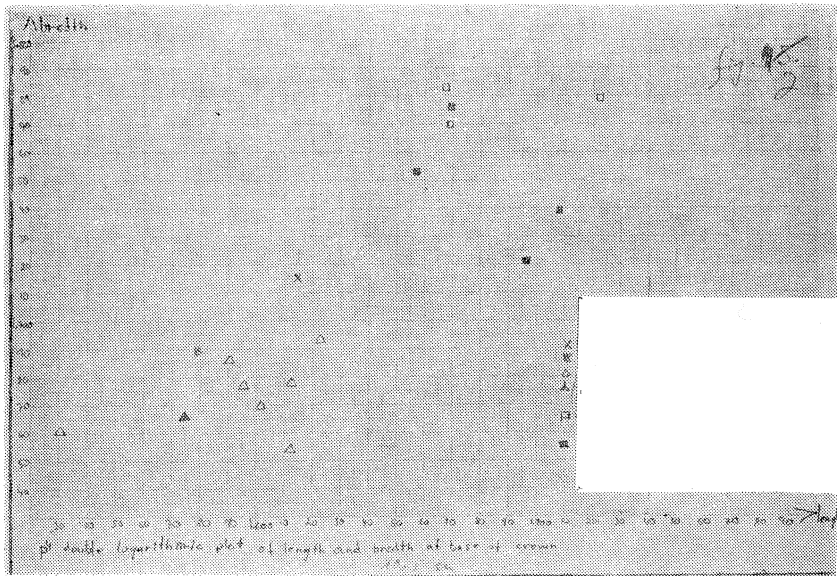


Fig. 2:

- X - Petralona, T.B. 1714
 - # - Petralona, T.A. 68, 88 (69)
 - Δ - D. hemitoechus, Staesche 1941
 - ▴ - D. hemitoechus, Weimar-Ehringsdorf, Kahlke, 1975.
 - - D. Kirchbergensis, Taubach, Kahlke, 1977.
 - - D. Kirchbergensis, Weimar-Ehringsdorf, Kahlke, 1975.
- P^4 double logarithmic plot of length and breadth at base of crown.

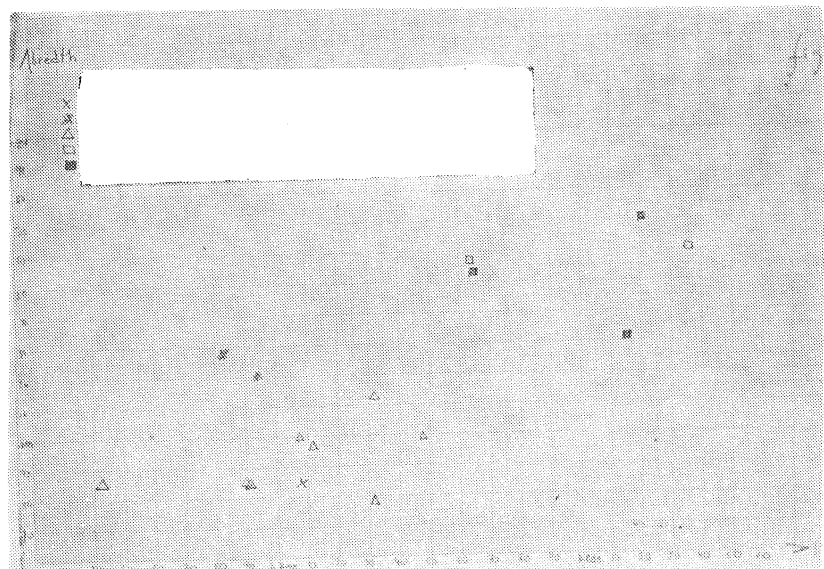


Fig. 3:

- X - Petralona, T.A. 68, 219 (41).
 - # - Petralona, T.A.68, 88 (69), possibly shortened by wear.
 - Δ - D. hemitoechus, Staesche, 1951.
 - - D. Kirchbergensis, Taubach, Kahlke, 1977.
 - - D. Kirchbergensis, Weimar-Ehringsdorf, Kahlke, 1975.
- M^2 , double logarithmic plot of length and breadth at base of crown.



Photo 5: *Dicerorhinus* cf. *hemitoechus*, D³ sin. Outside of Mausoleum, 1977, No 542

nian layer of «trench A». Both fragments are from teeth worn approximately to the same degree as those of the maxilla.

P e r m a n e n t t e e t h

Except for the dentitions of the skull treated above there are a few loose teeth and a partially preserved mandible present.

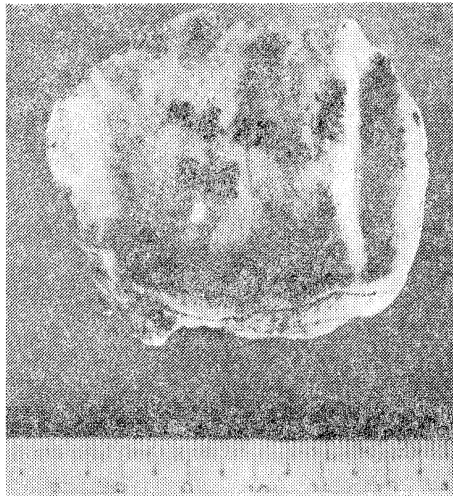


Photo 6: Side view of photo 5.

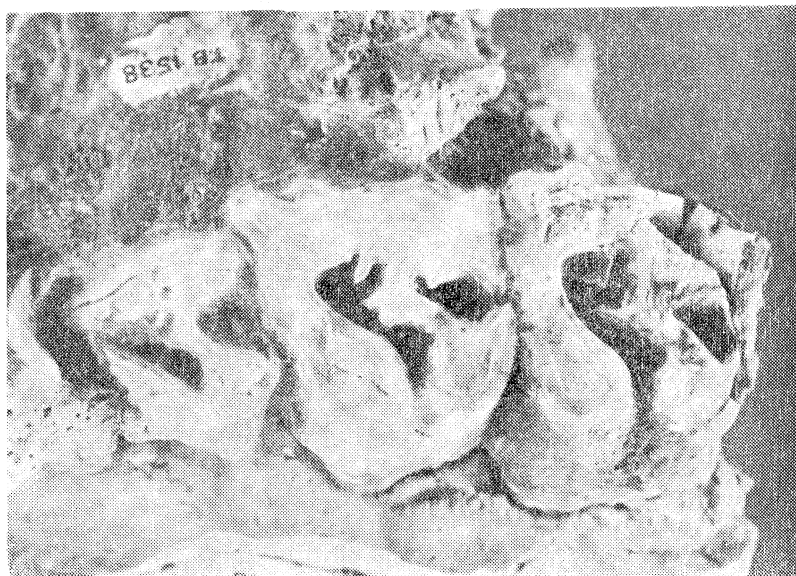


Photo 7: D² - D³ of Dic. cf. hemitoechus, T.B. 1538.

p³:

There is one fairly worn p³ dex. present. It comes from the Petralonian of trench A, and is well preserved, with the roots intact. The ectoloph shows the characteristically undulating pattern of *D. hemitoechus* (Staesche 1951:131, Guerin 1976 : 406), and there is no internal cingulum. The measurements are given in table 2. As can be seen, the tooth is clearly smaller than the values for *D. kirchbergensis*, and it groups very well with our sample of *D. hemitoechus* in the double logarithmic plot (fig. 1).

p⁴:

There is a complete p⁴ sin. present, and a fragment of a p⁴ sin. Both teeth are covered with a thin layer of stalagmite, both are of the same size and shape, and both are equally worn. Still, the right fragment comes from the Petralonian of trench A, whilst the left tooth comes from the top stalagmite of the «Anthropological Hall».

The complete tooth is preserved with a fragment of the maxilla, it is rather worn and its features are mainly obscured by the stalagmite covering. It is of the same general appearance as the p³ discussed



Photo 8: P²dex. D.cf. hemitoechus T.A. 200 (76)

above, with both sinuses forming deep, isolated pits. Measurements are given in table 3, a double logarithmic plot in fig. 2. As can be seen from these, the tooth, although large, fits well with our sample of D. hemitoechus.

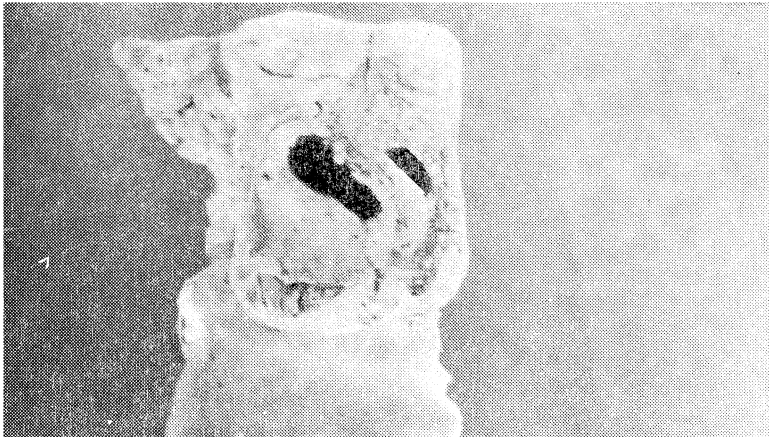


Photo 9: P⁴ sin. D. cf. hemitoechus, T.B. 1714.