ON TWO NEW SPECIES OF HOLECTYPUS DESOR FROM THE SENONIAN OF SOUTH-LIMBURG NEAR MAASTRICHT, NETHERLANDS

by

H. ENGEL

Zoologisch Museum, Amsterdam

Up to now the genus *Holectypus* Desor (1842, p. 52) 1847, (cf. Mortensen, 1948, Monogr. IV 1, p. 26) in its restricted sense (with 4 genital pores) has not been recorded from the Senonian. So the two specimens described below as *H. boschmai* nov. spec. may have been remaniated and finally deposited in the Senonian of South-Limburg. They then may belong to the Jurassic species *H. corallinus* d'Orbigny, 1850.

Though the preservation of two other specimens of *Holectypus* from the Limburg Senonian does not permit to decide whether a fifth genital pore is present, it is presumed there was. These two specimens are described as *H. macrostomus* nov. spec. As said, up to now no Senonian *Holectypus* is known with 4 genital pores.

Holectypus boschmai nov. spec. (pl. XIV)

Cf. *Holectypus corallinus* d'Orbigny, 1850 (see Cotteau, 1873, p. 430, pl. 110, 111).

2 specimens, "Upper Cretaceous, Limburg" (Zoological Museum, University of Amsterdam).

Though in their outer form our specimens can be compared with *Caenholectypus turonensis* (Desor, 1847) and in the form of the periproct with *C. macropygus* (Agassiz, 1836), (for both see Cotteau, 1861, p. 56, resp. p. 44), they differ in having only 4 genital pores.

The better preserved one may be designated as the type specimen. It is 20.5 mm long, 21.0 mm wide, and 11.0 mm high, the paratype is 20.6 mm long, 20.7 mm wide, and 10.6 mm high.

The paratype is less well preserved, but the absence of parts of the test here permits to see that there are no such radiating partition walls as in the Discoidiidae.

The form is rather low, not conical, evenly rounded above, on the sides and below. As the mouth is distinctly sunken, the underside is not flat, but rounded, evenly sloping to the ambitus and to the mouth.

The posterior end projects slightly more than the anterior (in the holotype the distance from the center of the mouth to the latter being 10 mm, to the former 10.5 mm). The peristome is decagonally oval, 6 mm wide and 5 mm long. It shows very distinct gill slits. The large periproct lies on the underside, between peristome and margin. It is 6.7 mm long and 4.9 mm wide, the distance to the peristome being 1.3 mm. In posterior lateral side view the periproct is slightly visible, though it does not reach the ambitus. It is egg-shaped, rounded distally and narrowing proximally, but not ending in a distinct point. The ambulacra are straight from apex to mouth. About 70 oblique pore pairs are counted in a row, the 2 pores of a pair being of about the same size. At the ambitus the ambulacra are slightly less than half as wide as the interambulacra. Here and there the narrow, simple A plates on the upper side and the compound triades of plates near the mouth, as figured by Hawkins (1920, pl. 65 fig. 7), can be discerned. One IA plate corresponds to about three A plates. The tests are much worn, but on the underside not far from the margin, irregular horizontal rows of tubercles occur on the IA plates, interspersed with miliary granules, while on the A plates the tubercles on every third A plate near the pores and some intermediate tubercles more centrally on the ambulacrum are discernable. Though the contours of the plates on the apex are indiscernable, the madreporite is distinct, as are four genital pores; the fifth is certainly absent. The species is recognized among the other Limburg species by its round and regular, rather low shape, with regular ambulacra, a rather deep central mouth with distinct gill slits and a large egg-shaped periproct between mouth and border.

If the label "Upper Cretaceous, Limburg" is right this is the first *Holectypus* s.s. (with 4 genital pores) from the Senonian. Hence the possibility should be considered that these specimens have been remaniated from some older layer into this locality. As said above, they are then most likely to belong to the Jurassic *H. corallinus* d'Orbigny, for which see Cotteau (1873, p. 436, pl. 110, 111).

Holectypus (Caenholectypus?) macrostomus nov. spec.
(textfigures 1, 2)

The genus (subgenus) *Caenholectypus* is characterized by 5 genital pores. It is impossible to see whether the fifth genital pore is present here. Up to now, no Senonian form is known to have 4 genital pores (the above-mentioned excepted), it must be thought highly probable that the species belongs to the genus (subgenus) *Caenholectypus* Pomel, 1883. For this genus see Mortensen, 1948, p. 30.

The species is nearly related to *Holectypus excisus* (Desor, 1847) (*Discoidea excisa* Desor, 1847, in Agassiz et Desor, 1847, p. 148; *Holectypus excisus* (Cotteau, 1861, p. 51, pl. 1016 fig. 1-7)), only, it has a much wider mouth, which is flush with the test.

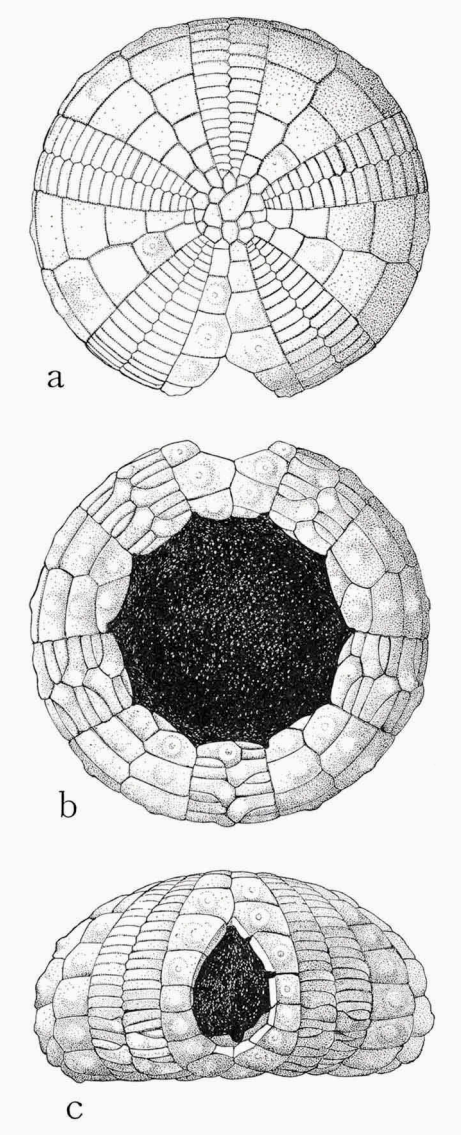


Fig. 1. *Holectypus macrostomus* nov. spec. from Maastricht, holotype, Teyler Museum, Haarlem, no. 16027. a, apical view; b, oral view; c, posterior lateral view. A. Middelhoek del. × 13.

2 specimens, Maastricht, Museum Teyler Nr. 16027 (recorded by Winkler with other species, 1863, p. 196, Nr. 10980 as *Cidaris regalis*).

The larger specimen is the one best preserved and is designated as the type. It is 3.7 mm long, 3.9 mm wide, 2.3 mm high; in the smaller specimen these measures are 3.0, 2.9, 1.7 resp.

The test is regularly rounded, the ambitus only indented by the periproct.

The periproct is large, ovoid, pointed above, rounded below, in the larger specimen about 1.1 mm high, 0.7 mm wide, marginal, at the posterior end of the test and flush with it; it reaches from a point 0.5 mm from the peristome, till about 2 mm from the apex.

The peristome is very wide, 2.1 mm in diameter, rounded decagonal with distinct gill slits.

The apex is of the usual type, but not distinct enough for us to give many details. Though a large madreporite, four genital plates and five ocellar plates can be distinguished, it is impossible to see anything of the genital pores.

The tests are very much worn and their smallness makes it difficult to see the details. The ambulacral pores seem to form one regular row. The limits of the plates are quite distinct. At the ambitus the IA are about 3 times as high and about 1½ times as wide as the A. The number of IA plates is about 12 in a row, that of the A plates about 30. The IA plates are very high and seem to bear one or two larger tubercles and some granula. This, however, is very indistinct and we are not sure that the spots which can be discerned really are reminiscences of the tubercles. The A plates are regular and simple on the upper side, but begin to form distinct triads, in the usual way, slightly under the place where the vertically convex margin begins. Thus this begins rather higher than usual, but this may be understood as a consequence of the very extreme width of the mouth and hence the narrowness of the underside. On the underside, the pores seem to form a slight tendency towards arcs of three.

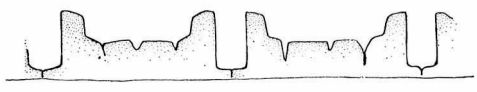


Fig. 2. *Holectypus macrostomus* nov. spec., same specimen as fig. 1; two auricles on the mouth edge. A. Middelhoek del. × 13.

The auricles (textfigure 2) are well preserved and very distinct. Though they remind of those pictured by Hawkins (1934, p. 642) their forms differ in that they are flat, rounded or pointed above, perhaps as a consequence of their being worn, for one is smaller and more pointed than the

other. The ridges linking the processes interradially are quite distinct and higher than the very low radial ridges between each pair. Near the auricles each interradial ridge slopes evenly upwards, thus suggesting a triangular form of the auricle. Though the periproct permits to look behind the auricles, a buttress is not seen.

Internal radiating walls are absent as may be easily seen in the very clean tests.

Literature cited

Agassiz, L., & E. Desor, 1847. Catalogue raisonné des Echinides. Ann. Sci. Nat. Zool., ser. 3 vol. 7, p. 145.

Cotteau, G., 1861. Paléontologie Française. Terrain Crétacé, VII (Echinides). Paris.

——, 1873. Paléontologie Française. Terrain Jurassique, IX (Echinides Irréguliers). Paris.

Desor, E., 1842. Monographie des Galérites, 3e Monogr. in L. Agassiz, Monographies d'Echinodermes vivans et fossiles. Neuchâtel.

——, 1847. Sur le Danien, nouvel étage de la Craie. Bull. Soc. Géol. France, ser. 2 vol. 4, p. 179 (Séance du 16 nov. 1846).

Hawkins, H. L., 1920. The morphology and evolution of the ambulacrum in the Echinoidea Holectypoidea. Phil. Trans. R. Soc. London, sect. B vol. 209, p. 377.

——, 1934. The lantern and girdle of some recent and fossil Echinoidea. Phil. Trans. R. Soc. London, sect. B vol. 223, p. 617.

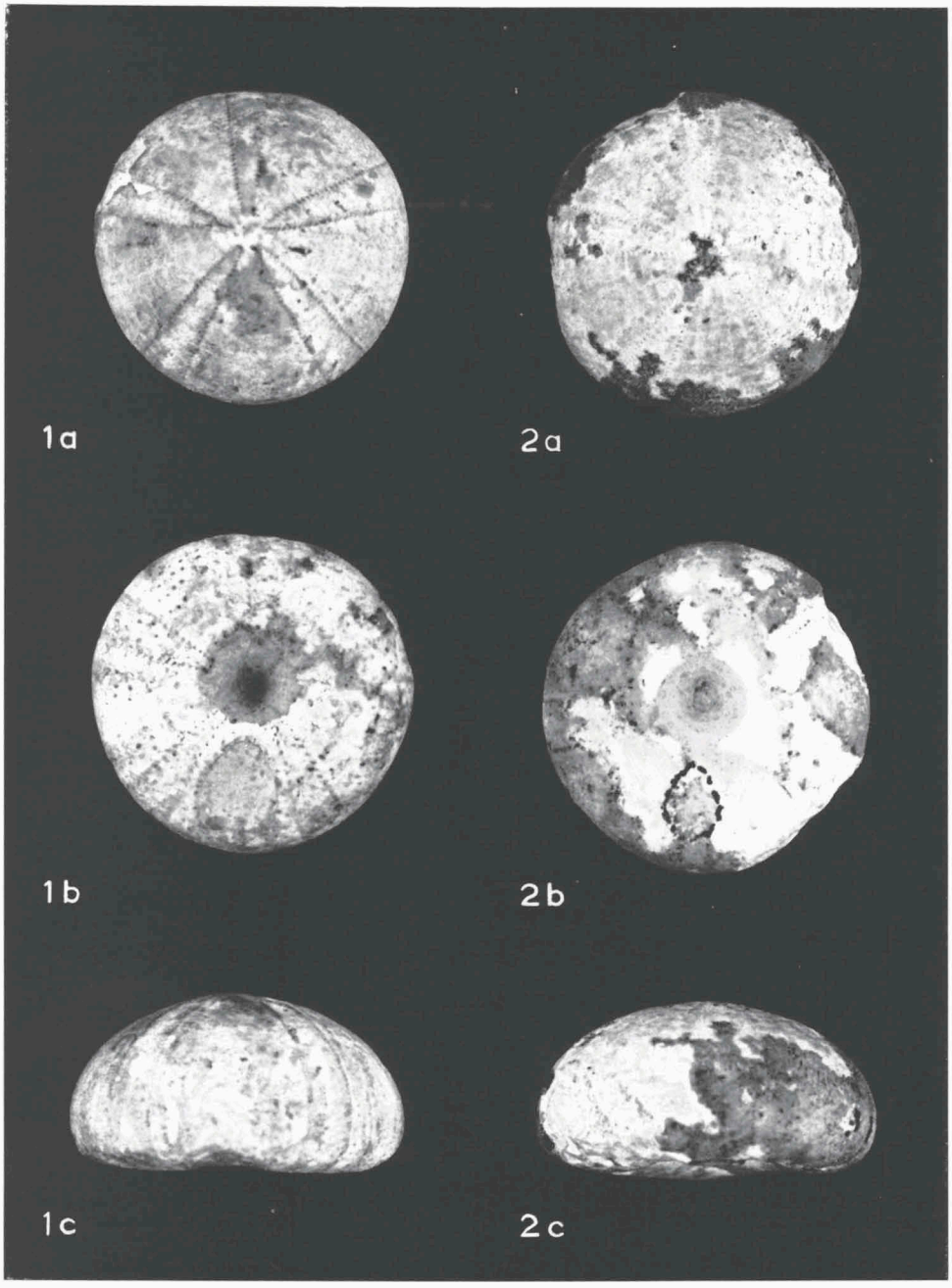
Mortensen, Th., 1948. A monograph of the Echinoidea. IV. 1, Holectypoida, Cassiduloida. Copenhagen.

Winkler, T. C., 1863. Musée Teyler, Catalogue systématique de la collection paléontologique. Haarlem.

Explanation of the plate

Plate XIV

Holectypus boschmai nov. spec. from Limburg, Zoological Museum, University of Amsterdam. 1, holotype; 2, paratype. 1a, 2a, apical view; 1b, 2b, oral view; 1c, 2c, posterior lateral view. All figures × 2.


1a
2a
1b
2b
1c
2c