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RACHIOSOMA GIGASEI nov. spec. AN ADDITION TO THE ECHINODERM FAUNA OF THE MAASTRICHTIAN (UPPER CRETACEOUS) OF BELGIUM

by Joris GEYS (*)

SUMMARY. - A very well preserved, fairly large regular echinoid, from the Maastrichtian at Lixhe (Belgium) is described and figured herein. It is a new species, named *Rachiosima gigasei*.

RESUME. - Un échinide régulier d'assez grande taille et bien conservé a été découvert dans le Maastrichtien à Lixhe (Belgique). Ce spécimen qui appartient à une nouvelle espèce, est décrit et figuré sous le nom de *Rachiosoma gigasei*.

INTRODUCTION.

A very well preserved, fairly large, regular echinoid was brought to my attention by Dr. P. GIGASE from Antwerpen, who found it in May 1968. The specimen was discovered in large chalk blocks, along the road from Haccourt to Eben-Emael, in the vicinity of the CBR quarry at Loën (community of Lixhe). The block which contained the specimen under discussion yielded a rich fauna of echinoids, brachiopods and molluscs, among which *Magas pumilus*.

The specimen does not correspond to any known species and thus turns out to be a new species. With the agreement of the collector, it has been deposited into the collections of the Koninklijk Belgisch Instituut voor Natuurwetenschappen (K.B.I.N.) in Brussels. I would like to express my gratitude for his generosity. Unfortunately, no other specimen of this new species is known sofar. The unique specimen, found by Dr. P. GIGASE, is automatically the holotype.

ABREVIATIONS.

D : ambital diameter of the test, from III to 5;

h : total height of the test;

ds : diameter of the apical system between the centers of the distal borders of ocular III and genital 5;

dp : diameter of the peristome, from III to 5, gill slits included.

SYSTEMATIC DESCRIPTION.

Rachiosoma gigasei nov. sp.

Locus typicus : Loën quarry, at Lixhe, prov. Liège, Belgium.

Stratum typicum : chalk with *Magas pumilus*, horizon III or IV (sensu W. M. FELDER, 1974), lower part of Upper Gulpen Chalk, Lower Maastrichtian.

Derivatio nominis : in honour of Dr. P. L. GIGASE who discovered the holotype and who brought it to my attention.

Holotype : K.B.I.N. collections, n° IST 10204, figured herein, pl. 1, fig. 1-6.

Specimens studied : Upper Gulpen Chalk, Lixhe (Liège, Belgium) : 1 specimen (the holotype).

Dimensions :

D = 39.9 mm		
h = 18.3 mm	h/D = 0,46	
ds = 12.5 mm	ds/D = 0.31	
dp = 13.5 mm	dp/D = 0.34.	

Description : Fairly large *Rachiosoma*, with more or less globular, slightly inflated test.

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The adoral side is strongly concave; the adapical side is dome shaped and convex. The ambitus is circular, although distorted to an oval in the holotype.

The peristome is circular and medium sized. It is strongly sunken. Gill slits are shallow. Girdle features cannot be observed.

The apical system is caducuous and leaves a pentagonal hole in the top of the test. Its size is relatively small. This part of the test being badly distorted, it is difficult to describe the original shape of the apical system more accurately.

Ambulacral primary tubercles are crenulate, non perforate. They are arranged in regular series of 16 or 17 each. Scrobicular areoles are confluent. They are shallow and conical. A sculpture of radiating grooves is more prominent in the adradial half of the scrobicules than perradially. Poriferous zones are simple throughout and slightly sinuous. There is no widening in the vicinity of the peristome. The plates are 5-geminate at the ambitus. Pore pairs have an inclination of less than 45°. Perradial extrascrobicular surfaces are narrow, sinuous and covered by a dense and coarse granulation.

Interambulacra are 1,5 times wider than the ambulacra. Primary tubercles are crenulate, non perforate, and of almost the same size as the ambulacral tubercles. They are arranged in series of 16 or 17. Scrobicular areoles are large, shallow, conical and smooth. They are confluent. Interradial extrascrobicular surfaces are moderately wide and densely granulated at the ambitus. The granulation fades out adapically, where the miliary surfaces are smooth and show the sutures of the plates as shallow grooves. These naked adapical parts of the extrascrobicular surfaces are slightly depressed. Adradially, a regular series of small secondary tubercles is present.

Diagnosis.

1. Strongly sunken peristome.
2. Interambulacral and ambulacral primary tubercles arranged in series of 16 or 17.
3. Interambulacral and ambulacral scrobicules confluent.
4. Extrascrobicular surfaces narrow in the ambulacra, moderately wide in the interambulacra.
5. Plates 5-geminate at the ambitus.
6. Small secondery tubercles in regular series in interambulacra.

DISCUSSION.

As long as nothing is known about the apical system of *Rachiosoma gigasei*, the generic attribution of this species remains open to discussion. I prefered *Rachiosoma* over *Gauthieria* because *R. gigasei* shows a closer resemblance to *Rachiosoma delamarrei* (DESHAYES, 1846) than to *Gauthieria radiata* (SORIGNET, 1850), which are the type-species of both genera.

Rachiosoma gigasei could be mistaken for an exceptionally large specimen of *Gauthieria pseudoradiata* (SCHLÜTER, 1883) (J. RAVN, 1928, pl. 6, fig. 4) (Campanian of the Hannover area, F. R. Germany). The strongly sunken peristome and the much greater number of tubercles in each series could be interpreted as the result of large size and old age. Significant differences however are the scrobicules, confluent in *R. gigasei*, but not so in *G. pseudoradiata*, and the presence of regular series of small secondary tubercles in *R. gigasei*. The same features allow to distinguish the new species from *Gauthieria radiata* (SORIGNET, 1850). Moreover, there is no trace of radial ornamentation on the interambulacral scrobicules of *R. gigasei*.

Gauthieria bonissenti (COTTEAU, 1865) (pl. 1170) ("Senonian" of dépt. Manche, France) is smaller and has a larger apical system than the species under discussion. Its poriferous zones are much less sinuous.

Gauthieria perfecta (AGASSIZ, 1840) (G. COTTEAU, 1865, pl. 1151) (Santonian of dépt. Sarthe, France) is smaller than *R. gigasei*. Its scrobicules are not confluent.

Gauthieria spatulifera (FORBES, 1850) (J. GEYS, 1980, fig. 4/3-7) Maastrichtian of W. Europe) is smaller and more flattened; its apical system is larger; its perradial extrascrobicular surfaces are narrower; its scrobicules are not confluent; small secondary tubercles are present adorally only.

Also *Rachiosoma grossouvrei* LAMBERT, 1897 (pl. 3) (Maastrichtian of Belgium) is much smaller and has a much more flattened shape than *R. gigasei*. Lambert's species has no sunken peristome, more sinuous poriferous zones, scrobicules that are not confluent and no secondary tubercles.

Rachiosoma rarituberculatum (COTTEAU, 1864) (pl. 1161) (Coniacian of Dordogne, France) is smaller than the species under discussion. It has less primary tubercles in a series; its perradial extrascrobicular surfaces are wider; its secondary tubercles are smaller and less regularly arranged than *R. gigasei*. In *R. rarituberculatum* the scrobicules are not confluent.

Rachiosoma raulini (COTTEAU, 1865) (pl. 1164) (Upper Cretaceous of Dordogne, France) is another small species, well different from *R. gigasei*. The former species' poriferous zones do widen near the peristome; its scrobicules are only occasionally confluent adorally; its peristome is not sunken; secondary tubercles are very small, irregular and only present on the adoral side.

In *Rachiosoma rectilineatum* (PERON & GAUTHIER, 1881) (G. COTTEAU, A. PERON & V. GAUTHIER, 1881, pl. 7, fig. 1-4) (Upper Cretaceous of Algeria and the Middle East), poriferous zones are rectilinear and scrobicules are not confluent. Moreover, this species is smaller and has less primary tubercles in each series than *R. gigasei*.

Rachiosoma subasperum (PERON & GAUTHIER, 1881) (G. COTTEAU, A. PERON & V. GAUTHIER, 1881, pl. 6, fig. 7-11) (Santonian of Algeria) is easily distinguished from *R. gigasei* by the presence of large granulated belts, separating adjacent scrobicules of the same series. *R. subasperum* is smaller and has a relatively large peristome.

All these species are superficially similar to *R. gigasei*, but yet clearly different when properly examined. I was unable to find a known species fitting the specimen discussed herein. Although *R. gigasei* is so-far represented by only one specimen, it must be considered as a new species and as an addition to the fossil fauna of the Belgian Upper Cretaceous.

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LEGEND TO PLATE 1

1. *Rachiosoma gigasei* nov. sp.
   Lixhe, Liège, Belgium; Upper Gulpen Chalk, Maastrichtian.
   Coll. K. B. I. N. - n° IST 10204 (holotyp).

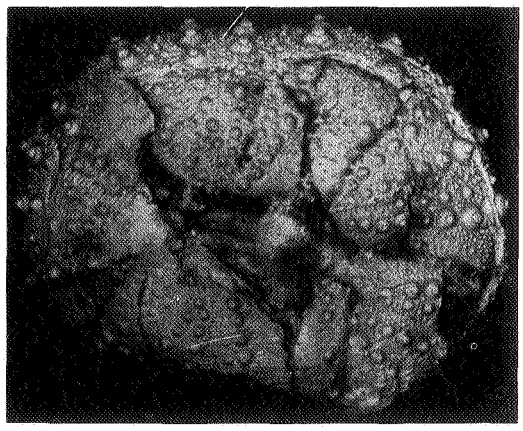
2. The same. Adoral view; x2.

3. The same. Adoral view; x2.

4. The same. Adapical part of ambulacrum III and interambulacrum 2; x6.

5. The same. Detail of the corona, near the sunken peristome; x6.

6. The same. Ambital part of ambulacrum III and interambulacrum 2; x6.



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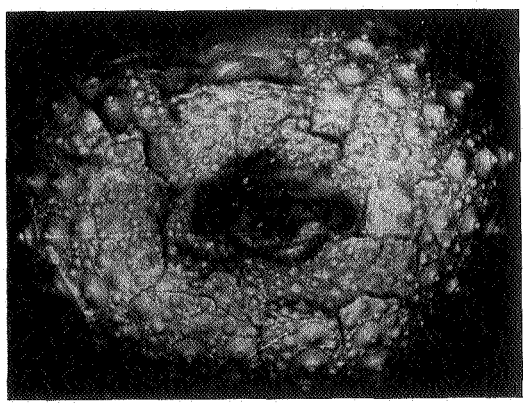

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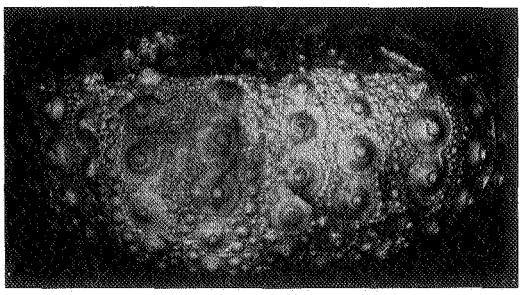

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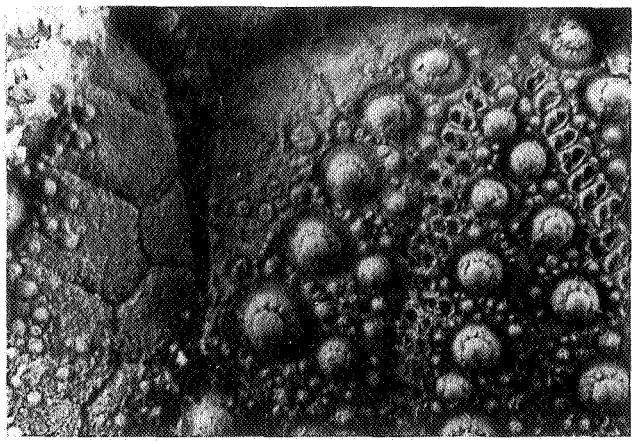

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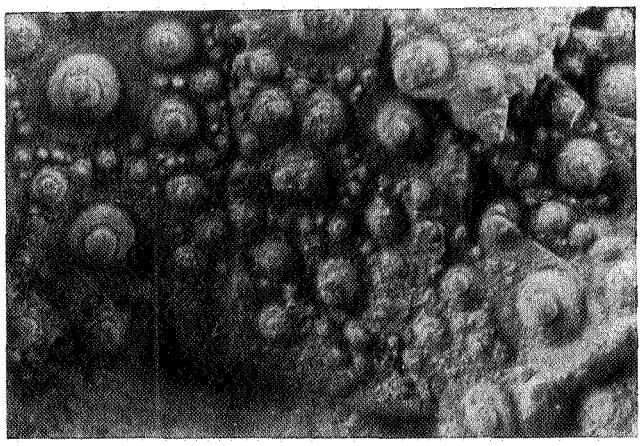

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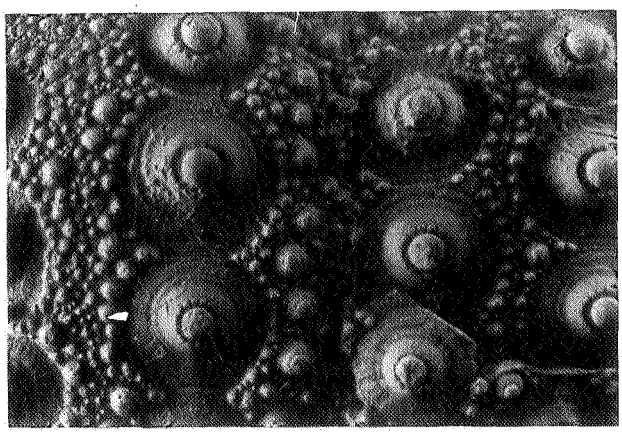

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