

JERZY FEDOROWSKI

PTERORRHIZA Densa n. sp. (Tetracoralla)
Z DOLNEGO ŻYWETU SKAŁ (GÓRY ŚWIĘTOKRZYSKIE)

(Tabl. XXI)

Pterorrhiza densa n. sp. (Tetracoralla) from the Lower Givetian
of Skały (Holy Cross Mountains)

(Pl. XXI)

STRESZCZENIE

Opisano nowy gatunek *Pterorrhiza densa* z dolnożyweckich łupków z *Microcyclus* ze Skał; zbadano morfologię i ontogenezę, która odznacza się dominacją septum przeciwległego od początku stadium neanicznego. Stwierdzono konwergencję z rodzajem *Ceratophyllum* Gürich oraz określono podobieństwa i różnice w stosunku do zbliżonych gatunków *Pterorrhiza*.

Diagnoza. *Pterorrhiza* o koralitach średnicy do 25 mm i 44×2 septach. Septa I rzędu dochodzą niemal do osi. Tabule wklęsłe, o pęczkowatej strefie przyosiowej.

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Abstract: *Pterorrhiza densa* n. sp. described below occurs in the Lower Givetian Shales with *Microcyclus* in Skały. Morphology and ontogenesis of this species are studied.

Introduction. The shales with *Microcyclus* occur in the profile Grzegorzowice — Skały — Włochy described by Sobolev (1904). They overlie directly the brachiopod shales (Różkowska, 1956, Fig. 1, layer 7; Pajchłowa, 1957, Fig. 1, complex XVI). The coral fauna of this profile was already partly described by Różkowska (1954, 1956) and by Fedorowski (1965, 1967). The species dealt with here was found during the work on the genus *Ceratophyllum* Gürich 1896 (Fedorowski, 1967).

The present work has been made in the Laboratory of Palaeozoology of the Polish Academy of Sciences in Poznań, directed by Professor Maria Różkowska, to whom the author is most deeply indebted for discussion and reading the manuscript. The photographs are due to Mr. Kazimierz Fryś from the Laboratory of Palaeozoology of the Polish Academy of Sciences in Poznań. The drawings are made by the author.

Order: Tetracoralla

Suborder: Streptelasmatina Wedekind, 1927

Family: Thamnophyllidae Soshkina, 1949

Subfamily: Macgeinae Rózkowska, 1956

Rodzaj: *Pterorrhiza* Ehrenberg, 1834

Pterorrhiza densa n. sp.

(Tabl. XXI, Figs. 1—4)

Holotypus: specimen No Tc-2/457, Table I, Figs. 1—4.

Locus typicus: Skaly, Holy Cross Mountains.

Stratum typicum: Shales with *Microcyclus*, Lower Givetian.

Derivatio nominis: densus (Latin) — dense; the internal structure is dense.

Material: 5 well preserved specimens of single corals with proximal ends and 1 specimen with a partly preserved calice.

Diagnosis: *Pterorrhiza* with corallites 25 mm in diameter and with 44×2 septa. The septa of the I cycle almost reach the axis. Tabulae concave, with vesicular periaxial zone.

Transversal section (Table XXI, Fig. 3). Epitheca thin. Septa set in epitheca with dilated ends possess in the peripheral part granulate carinae. Septa of the I cycle, thin in the zone of flat vesicles and in the axial part, lenticularly thickened in the inner dissepimentarium and in the periaxial tabularium, slightly undulated, almost reach the axis. Septa of the II cycle thin in the zone of flat vesicles, dilated in the inner part of the dissepimentarium. It seems that their axial ends mark the limit between the dissepimentarium and the tabularium. Flat vesicles very large, visible are trapezoidal sections of horse-shoes, inner dissepimenta small and convex.

Longitudinal section (Table XXI, Fig. 2). Peripheral vesicles flat, very wide extending from epitheca to the zone of horse-shoes, whose structure is regular. Inner dissepimentarium with oblique convex dissepimenta passes gradually into the periaxial vesicular part of tabularium. Tabulae in the axial part wide, flat or slightly concave with additional plates, distributed in systems. Numerous stereoplasmatic thickenings of tabulae. Very distinct and wide fans of trabeculae.

Ontogenetical development (Table XXI, Figs. 4a-f). Ontogenetical development beginning with the neanic stage, i.e. 8 septa in a diameter of 2 mm, has been investigated. Septa are dilated, join each other over the whole length and near the axis and fill the whole corallite. Nevertheless the slightly longer counter septum already predominates (Table XXI, Fig. 4a). Only 0,2 mm higher up, at a diameter of 3,0 mm, the septa, whose number is 14, still very thick, separate near the axis. At the same time near the counter septum appear the first dissepimenta (Table XXI, Fig. 4b).

Later the septa remain very thick in the axial part but become thinner at the periphery while the dissepimentarium develops from the counter septum towards the cardinal septum. Septa of the II cycle appear simultaneously, when the formation of the first ring of dissepimenta is achieved (Table XXI, Fig. 4c). The cardinal septum throughout almost the whole neanic stage excepted its youngest part (Table XXI, Figs. 4a-b),

predominates in the corallites together with the counter septum. It is longer than the adjoining major septa and joins during a long period of the development the counter septum at the axis of the corallite; in this way is stressed bilateral symmetry in the course of ontogenesis. The bilateral symmetry disappears in the ephebic stage. The cardinal septum may become slightly shorter.

Remarks. The present species was found in the profile whence several subspecies of *Macgeea bathycalyx* (F r e c h) have been described (R ó ż k o w s k a, 1956). However, none of them were found in the *Microcyclus* Shales. *M. bathycalyx* and its subspecies differ from *P. densa* n.sp. by a very regular loose structure with the zone of horse-shoes distinctly marked in transversal section, and by a clearly separated tabularium with convex tabulae. In both species bilateral symmetry predominates during ontogenesis.

The ontogenesis and the morphology of the present species resemble those of the genus *Ceratophyllum* G ü r i c h 1896: e.g. in both cases in the neanic stage predominates the counter septum. The main characters by which the present species differs from *Ceratophyllum* and resembles *Pterorrhiza* are the presence of horse-shoes and the symmetrical fans of trabeculae. Thus we deal here with a rather clear case of convergence.

*Institute of Palaeozoology of the Polish
Academy of Sciences, Laboratory in Poznań*

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OBJAŚNIENIE TABLICY XXI
EXPLANATION OF PLATE XXI

Pterorrhiza densa n. sp., holotyp, okaz nr Tc-2/457

Pterorrhiza densa n. sp., Holotype, specimen No Tc-2/457

Fig. 1. Widok ogólny, wielkość naturalna

Fig. 1. General view; natural size

Fig. 2. Przekrój podłużny, X3

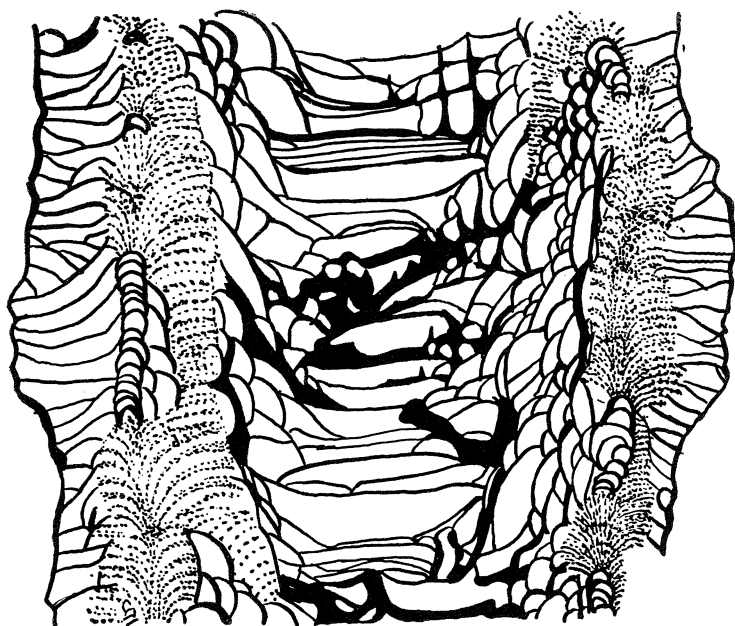
Fig. 2. Longitudinal section, X3

Fig. 3. Przekrój poprzeczny, X3

Fig. 3. Transversal section, X3

Fig. 4. Kolejne przekroje stadium neanicznego, X3

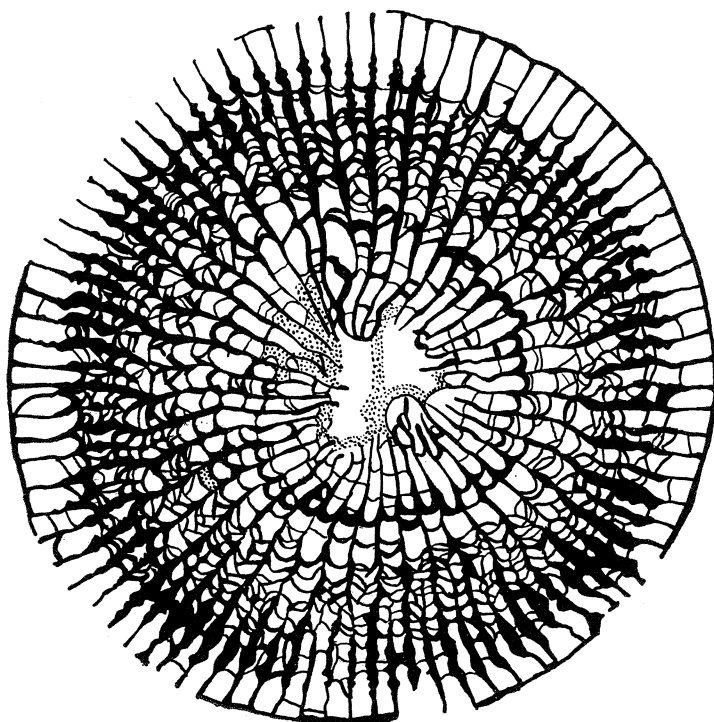
Fig. 4. Successive sections of the neanic stage, X3



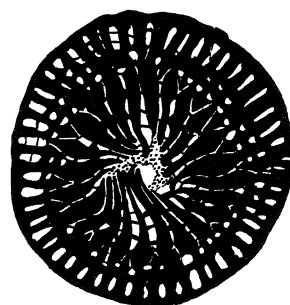
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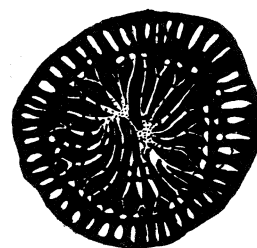
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3



4f



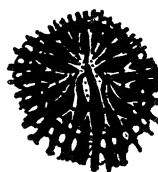
4e



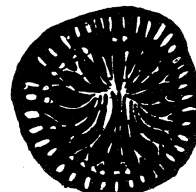
4a



4b



4c



4d