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ZBORNIK IVANA RAKOVCA / IVAN RAKOVEC VOLUME					

**CARNIAN CORAL *THAMNOTROPIS RAKOVECI* N. SP.
FROM PERBLA NEAR TOLMIN (NW YUGOSLAVIA)**

KARNIJSKA KORALA
THAMNOTROPIS RAKOVECI N. SP.
IZ PERBLE PRI TOLMINU

DRAGICA TURNŠEK

ABSTRACT

UDC 563.66(116.13)(497.12-15)

The Carnian coral *Thamnotropis rakoveci* n. sp. is described. Its structural elements and systematics are treated in detail.

IZVLEČEK

UDK 563.66(116.13)(497.12-15)

Opisana je karnijska korala *Thamnotropis rakoveci* n. sp. Podrobno so obdelani strukturni elementi in sistematika.

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INTRODUCTION

In the organogenous limestone of dark grey colour, appearing as mud mound within the clastic series at Perbla near Tolmin, S. BUSER discovered numerous, corals, sponges, stromatopores and other reef organisms. They have been attributed to the Carnian age. The new species from this community is here described.

Acknowledgements

The author is kindly indebted to MARIO PLENIČAR for revision of the text, MILOJKA HUZZAN for illustrations and plates, CARMEN NAROBÉ for photographs, KATA CVETKO for thin sections, and SIMON PIRC for translation into English.

DESCRIPTION OF SPECIES

Genus: *Thamnotropis* Cuif 1975

Type species: *Thamnasteria frechi* Volz 1896

The type species of *Thamnasteriamorpha* Melnikova 1971 must be changed (Intern. Regeln: Art. 70).

Thamnotropis rakoveci n. sp.
Pl. 1—3

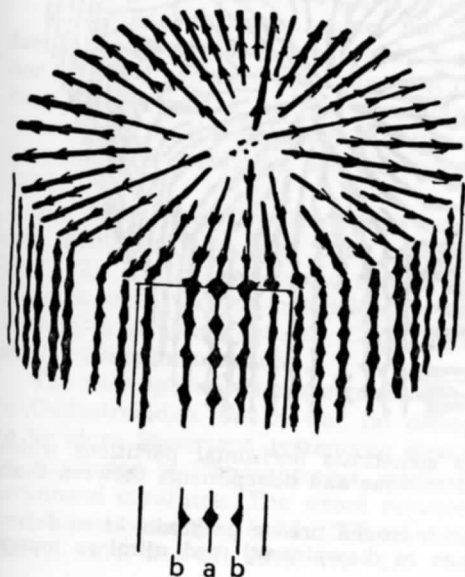


Fig. 1 Schematic corallite showing ornamentation of septa. If vertical section is perpendicular to the septum it hits the whole pennula (a); if the section is oblique to the septum it hits one side of pennula only — then the form of mi-pennula (b) is seen.

Sl. 1 Shematska slika koralita z ornamentacijo sept. Če je vertikalni presek pravokoten na septum, zajame celotno penulo (a), če je poševen na septum, preseka samo eno stran penule, takrat vidimo obliko mi-penule (b).

Derivatio nominis: Profesor IVAN RAKOVEC, my yearlong superior,
at his 85th birthday

Holotypus: Specimen P-780 (fragments of colony, 5 thin sections)

Locus typicus: Perbla near Tolmin

Stratum typicum: Carnian

Material: Five specimens (P-780, P-781, P-782, P-783, P-784)

Diagnosis: *Thamnotropis* with massive and spongy columella, and dimensions: $d = (6)7-8(9)$ mm, $s = 40-70$

Description: Colony is bulby to encrusting. Corallites are thamnasterid, in cross section they look rhomboid to polygonal. Septa are confluent, mainly compact, with very rare pores in the axial and intercorallite parts of colonies. Lateral ornamentations of septa are pennulae which join into horizontal menianae. In vertical-tangential section we also observe mi-pennulae which are just pennulae in oblique sections (Fig. 1). Upper edges of menianae are slightly dentate. Endotheca consists of rare thin vesicular dissepiments which do not form dissepimentarium in any part of colony. Synapticulae are rare. In vertical longitudinal section we see in several parts of the colony horizontal partitions supposed by VOLZ to be horizontal elements. If we reconstruct the structural elements we see they are in fact septa cut lengthwise (Fig. 2). Between these septa much thinner partitions can be observed; they are dissepiments and menianae. Columella is spongy, formed of trabecular prolongations of septa. In some corallites these prolongations are recry-

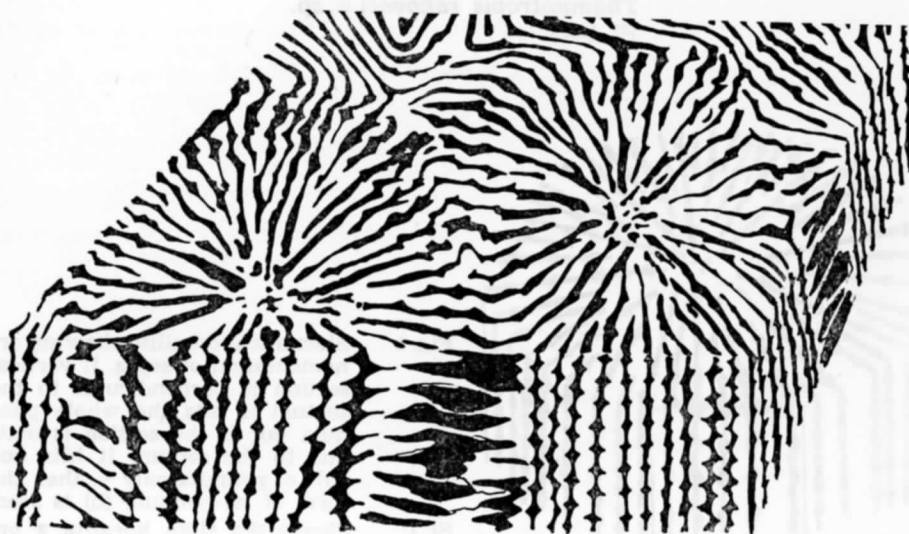


Fig. 2 Vertical section of colony shows sometimes horizontal partitions which are in fact septa cut lengthwise. Menianae and dissepiments between them are much thinner.

Sl. 2 V vertikalnem preseku kolonije so mestoma prečne pregrade, ki so dejansko podolžni preseki sept. Meniane in dissepimenti med njimi so mnogo tanjši.

stallized, altered, and secondarily joined into the mass looking like a massive styliform columella. Especially on the surface it is difficult to distinguish the real structure of columella. There is no wall. Microstructure consists of trabeculae irregularly centrized. In pennulae trabecular axes are not divergent, and only their fibres are enlarged.

Comparison: New species differs from the type species *T. frechi* in spongy columella and in larger dimensions which in *T. frechi* are: $d = 2,5-3,5$ mm, $s = 16-24$. (VOLZ 1896; 59; CUIF 1975, 121-124). *Thamnasteriamorpha dronovi* and *T. karapetovi* differ in concentric corallites (MELNIKOVA 1971, 1975).

The genus *Thamnotropis* is outwardly very similar to the genus *Cuifastraea* Melnikova 1983. The difference is in endotheca: our specimens have no dissepimentarium, mentioned by MELNIKOVA in *Cuifastraea*. This is a sufficient reason to distinguish both genera. It is interesting that in representatives of *Cuifastraea* columella is spongy, as it is in our new species. So *T. rakoveci* has the role of the intermediate form between *Thamnotropis* and *Cuifastraea*.

SYSTEMATICS

CUIF (1975) revised some Triassic corals with menianae into his new genera: *Tropiastraea* (cerioid), *Tropidendron* (phaceloid), *Tropiphyllum* (solitary), and *Thamnotropis* (thamnasterid). He supposed them to belong to the same higher systematic category (CUIF 1975, 121-124) to which, however, he did not give the name. This was done by BEAUVAIS (1980, 355) who attributed the three first Cuif's genera to the new subfamily Tropiphyllinae, and added the genus *Conophyllia* d'Orbigny 1849 and others. Genus *Thamnotropis* was omitted probably by mistake, because it was not mentioned anywhere in her system. She attributed Tropiphyllinae to the suborder Archaeocoeniina.

MELNIKOVA joined some Triassic forms with menianae into her new family Cuifastraeidae into which she included *Tropiphyllum* Cuif 1975, and her two new genera *Cuifastraea* and *Gillastraea*. *Conophyllia* she distinguished from Cuifastraeidae by free pennulae without menianae. She attributed Cuifastraeidae to the suborder Fungiina. *Thamnasteriamorpha* which also has pennulae and menianae, she did not attribute here (MELNIKOVA 1971, 1975, 1983).

No doubt that Tropiphyllinae and Cuifastraeidae have similar pennulae and menianae, and they both belong to the superfamily Pennulaceae (GILL 1967, 73). Higher systematic category is not clear yet. Owing to the mainly compact septa they do not belong to Fungiina, owing to the pennulae they are strange in Archaeocoeniina. Cuifastraeidae differ from Tropiphyllidae in vesicular dissepimentarium.

The new species *Thamnotropis rakoveci* with spongy columella approaches to Cuifastraeidae, but it has no dissepimentarium which is here considered to be more important systematic element than columella. So our species can be attributed to *Thamnotropis*, while *Thamnasteriamorpha* has concentrically arranged corallites. The exact relationship of Tropiphyllidae, Conophyllidae and Thamnasteridae (ALLOITEAU 1952, 656; CUIF 1975, 116-125; MELNIKOVA 1971, 28-34; 1975, 109-133; 1983, 47), must be deliberated, any way.

STRATIGRAPHICAL COMPARISON

The type species *Thamnotropis frechi* (VOLZ 1896) is known from the Cassian formation (Carnian) of Dolomites in Italy. Of the same age are the other representatives of Cuif's Tropiphyllinae (CUIF 1975). The species of *Thamnasteriamorpha* (MELNIKOVA 1971, 1975) and of *Cuifastraea* (MELNIKOVA 1983) are of Norian-Rhaetian age.

The position of our locality in Perbla can be compared with Hudajužna (TURNSEK et al. 1982) which was considered to be of Cordevolian-Julian age.

POVZETEK

V organogenem apnencu temnosive barve, ki leži kot manjši greben med klastičnimi kamninami v Perbli pri Tolminu, je S. BUSER odkril številne grebenske organizme. Po legi jih uvršča v karnij. V pričujoči razpravi je iz te združbe opisana nova koralna vrsta.

Thamnotropis rakoveci n. sp.

Tab. 1—3

Derivatio nominis: V zahvalo mojemu dolgoletnemu predstojniku akademiku IVANU RAKOVCU ob njegovi 85-letnici rojstva.

Holotypus: Vzorec P-780 (odlomki kolonije in 5 zbruskov)

Locus typicus: Perbla pri Tolminu

Stratum typicum: Karnij

Material: Pet vzorcev (P-780, P-781, P-782, P-783, P-784)

Diagnoza: *Thamnotropis* s spongiozno in masivno kolumelo in dimenzijami $d = (6)7-8(9)$ mm, $s = 40-70$

Opis: Kolonija je gomoljasta do skorjasta. Koraliti so tamnasteridni, v prečnem preseku izgledajo romboidni do poligonalni. Septa so konfluentna, v glavnem kompaktna. Pore so zelo redke. Lateralne okrasitve sept so penule, ki se spajajo v horizontalne meniane. V vertikalnem preseku opazujemo tudi mi-penule, vendar so to le normalne penule v poševnem preseku (sl. 1). Vrhnji robovi menian so gladki ali le rahlo nazobčani. Endoteka je iz redkih vezikularnih disepimentov, ki ne tvorijo disepimentarija v nobenem delu kolonije. V podolžnem preseku vidimo na več mestih horizontalne prečke, ki niso horizontalni elementi, ampak le septa, ki jih je presek zajel v njihovi podolžnosti (sl. 2). Le tanjše prečke med njimi so meniane in disepimenti. Sinaptikule so izredno redke. Kolumela je spongiozna. V nekaterih koralitih so trabekularni podaljški sekundarno zlit v maso, ki izgleda kot debela stiliformna kolumela. Stene ni. Mikrostruktura je iz trabekul, ki so nepravilno centrirane. V penulah ni opaziti divergence trabekularnih osi, ampak le odebelitve vlaken.

Primerjava: Nova vrsta se loči od tipične *T. frechi* po spongiozni kolumeli in večjih dimenzijah (*T. frechi*: $d = 2,5-3,5$ mm, $s = 16-24$). *Thamnasteriamorpha dronovi* in *T. karapetovi* se ločita v koncentričnih koralitih. Rod *Thamnotropis* je na zunaj zelo podoben rodu *Cuifastraea* (MELNIKOVA 1983), nima pa disepimentarija. Zanimivo pa je, da imajo vrste rodu *Cuifastraea* spongiozno kolumelo, kakršno opazujemo tudi pri novi vrsti, zato je *T. rakoveci* primer prehodne oblike med obema rodovoma.

Sistematika: S triasnimi koralami, ki vsebujejo penule in meniane, so se podrobneje ukvarjali CUIF (1975), MELNIKOVA (1971, 1975, 1983) in deloma BEA-UVAIS (1980). Brez dvoma imajo Tropiphyllidae in Cuifastraeidae podobne penularne strukture in spadajo v naddružino Pennulaceae (GILL 1967). Uvrstitev v red pa še ni jasna. Zelo neenotna je tudi razporeditev rodov v družine.

Naša vrsta *Thamnotropis rakoveci* je po spongiozni kolumeli blizu družini Cuifastraeidae. Toda nima disepimentarija, ki je pomembnejši sistematski strukturni element kot kolumela. Zato menim, da spada k rodu *Thamnotropis*. Primerjavo med družinami Conophyllidae, Thamnasteriidae in Tropiphyllidae (cf. ALLOITEAU 1952, 656; CUIF 1975, 116—125; MELNIKOVA 1971, 28—34; 1975, 109—133; 1983, 47) pa je potrebno še preučiti.

Stratigrafska razširjenost: *T. frechi* je znana iz »kasijanske« formacije v Dolomitih. Podobne vrste *Thamnasteriamorpha dronovi* in *T. karapetovi* ter vrste rodu *Cuifastraea* so iz norijsko-retijskih skladov. Naše nahajališče uvrščamo v karnij.

LITERATURE — LITERATURA

- ALLOITEAU, J., 1952: Madréporaires post-paléozoïques. In PIVETEAU: *Traité de paléontologie*, 1, 539—684, Paris.
- BEAUVAIS, L., 1980: Sur la taxinomie des Madréporaires mésozoïques. *Acta Palaeont. Polonica*, 25, 345—360, Warszawa.
- CUIF, J. P., 1975: Recherches sur les Madréporaires du Trias. III. Étude des structures pennulaires chez les Madréporaires triasiques. *Bull. Mus. Nat. Hist. nat.*, 3. sér., 310, *Sci. Terre*, 44, 45—127, Paris.
- GILL, G. A., 1967: Quelques précisions sur les septes perforés des polypiers mésozoïques. *Mém. Soc. Géol. France*, N. S., 106, 55—81, Paris.
- INTERNATIONALE Regeln für die zoologische Nomenklatur. 2. Auflage, 1970, Frankfurt am Main.
- MELNIKOVA, G. K., 1971: Novie dannie o morfologii, mikrostrukture i sistematike pozdnetriasovih Thamnasterioidea. *Paleont. žurnal*, (1971), 2, 21—35, Tab. 1—2, Moskva.
- MELNIKOVA, G. K., 1975: Pozdnetriasovie skleraktinii Jugo-Vostočnogo Pamira. Ed. »Donit«, 1—236, Dushanbe.
- MELNIKOVA, G. K., 1983: Novie pozdnetriasovie skleraktinii Pamira. *Paleont. žurnal*, (1983), 1, 45—53, Moskva.
- TURNSEK, D., BUSER, S., OGORELEC, B., 1982: Carnian Coral-Sponge Reefs in the Amphiclina beds between Hudajužna and Zakriž (Western Slovenia). *Razprave IV. razr. SAZU*, 24, 51—98, Ljubljana.
- VOLZ, W., 1896: Die Korallenfauna der Trias. II. Die Korallen der Schichten von St. Cassian in Süd-Tirol. *Palaeontographica*, 43, 1—123, Stuttgart.

PLATES — TABLE

PLATE 1

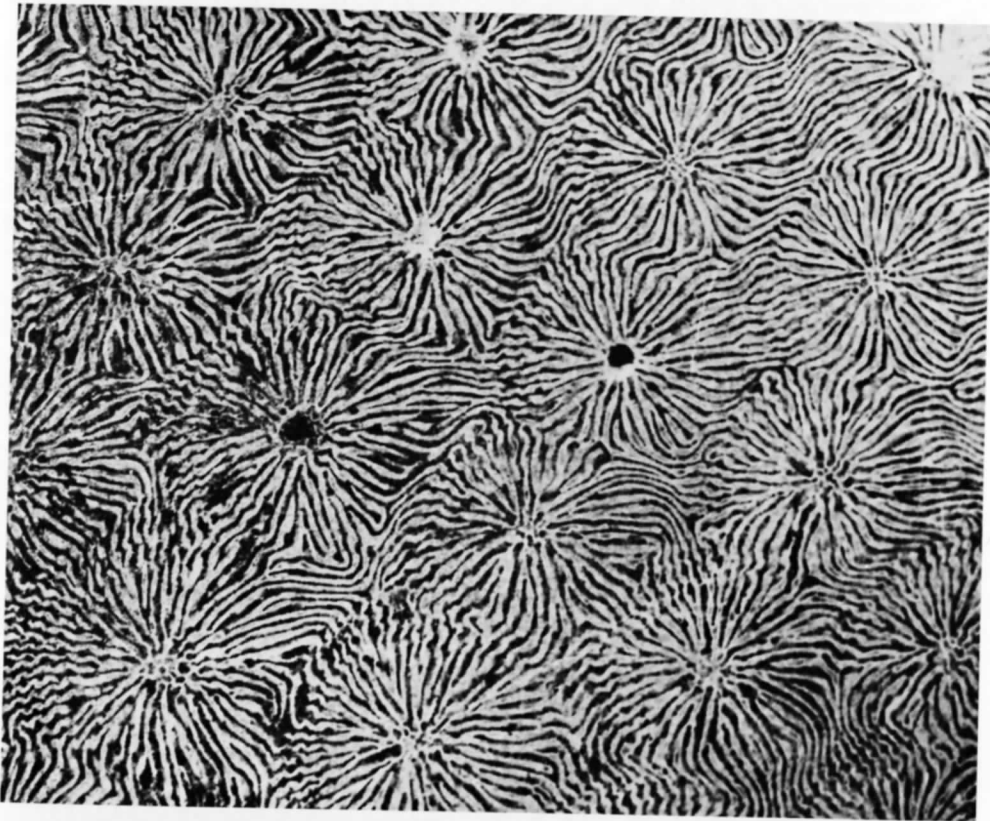
Thamnotropis rakoveci n. sp.

- Fig. 1 Transverse section of colony. Corallites look polygonal, but there is no wall, and septa are confluent. Holotypus, thin section P-780 a, 4 $\times$.
- Fig. 2 Vertical section of colony, showing tangential and longitudinal sections of septa. Horizontal partitions are in fact septa cut lengthwise. Section is a little oblique and so hits more septa. Holotypus, thin section P-780 b, 4 $\times$

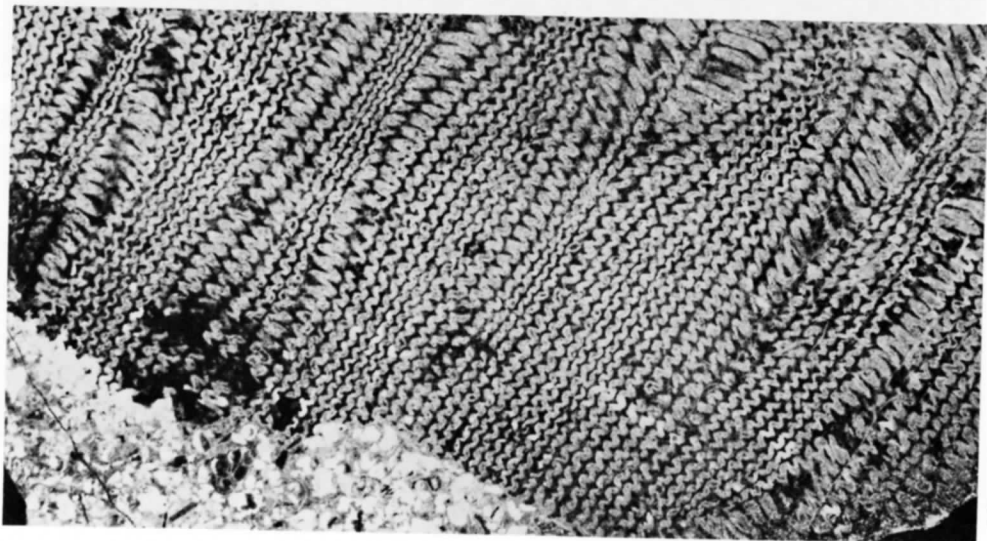
TABLA 1

Thamnotropis rakoveci n. sp.

- Sl. 1 Prečni presek kolonije. Koraliti zgledajo poligonalni, toda ni stene in septa so konfluentna. Holotip, zbrusek P-780 a, 4 $\times$.
- Sl. 2 Vertikalni presek kolonije s tangencialnimi in podolžnimi preseki sept. Horizontalne pregrade so dejansko septa v podolžnem preseku. Presek je nekoliko poševen, zato zajame več sept. Holotip, zbrusek P-780 b, 4 $\times$.



1



2

PLATE 2

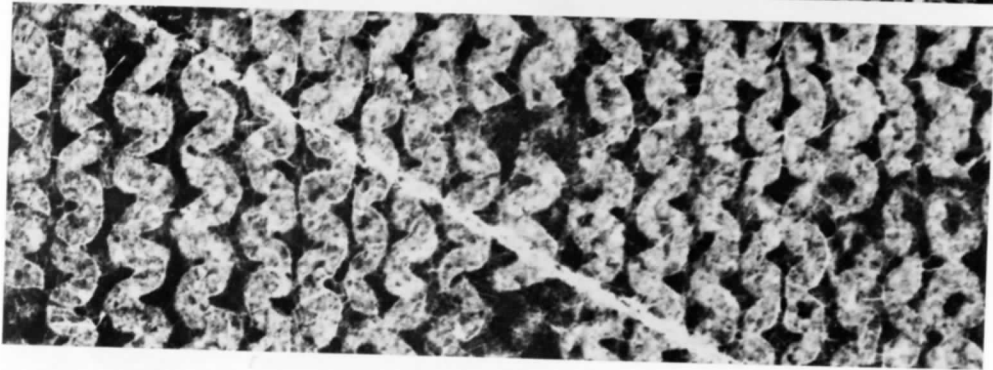
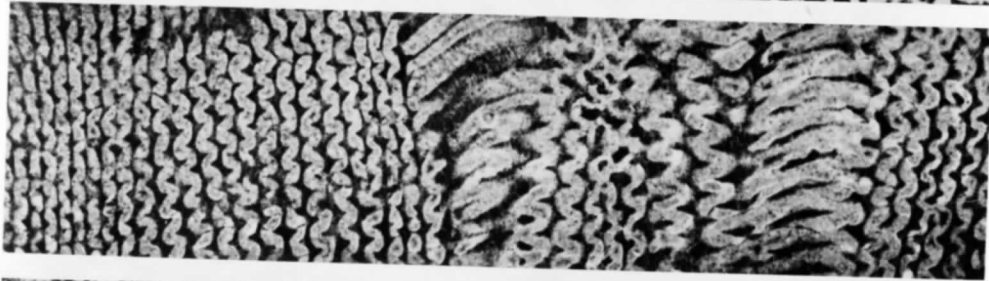
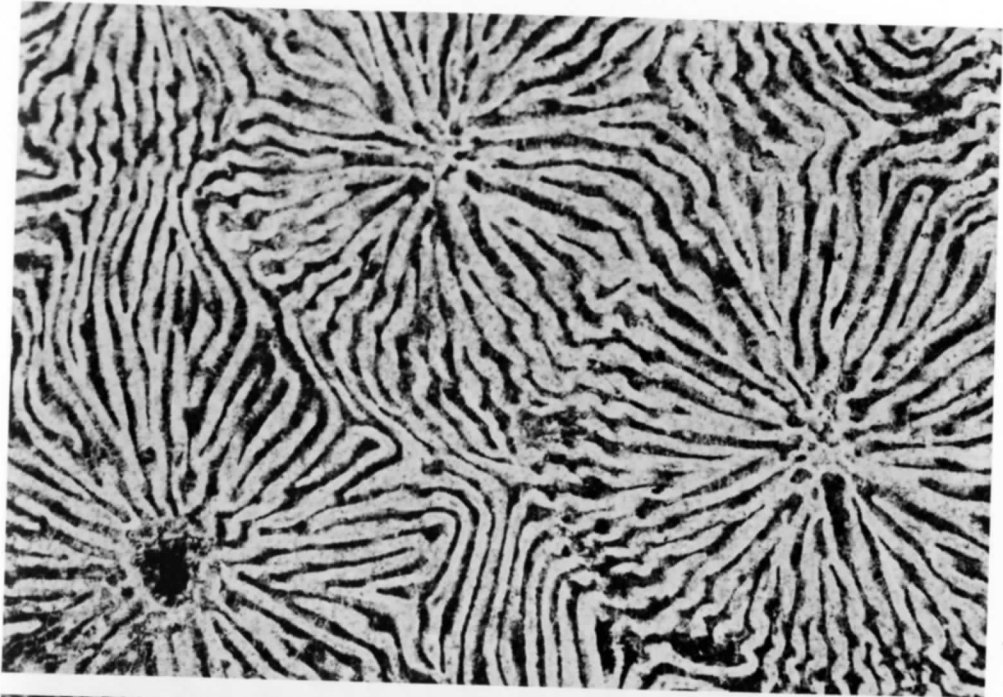
Thamnotropis rakoveci n. sp.

- Fig. 1 Transverse section of three corallites. Note columella which is spongy. In some corallites it is altered, trabecular prolongations are secondarily joined into the mass looking like a massive styliform columella. Septa are mainly compact. Pores and synapticalae are very rare. Thin section P-780 a, 8 $\times$.
- Fig. 2 Vertical section of colony showing tangential and longitudinal sections of septa. Thin section P-780 d, 8 $\times$.
- Fig. 3 Vertical tangential section of septa. Note pennulae (a), where the section of septum is perpendicular. All the other sections are oblique and pennulae look like mi-pennulae. Thin section P-780 c, 20 $\times$.

TABLA 2

Thamnotropis rakoveci n. sp.

- Sl. 1 Prečni presek treh koralitov. Kolumela je spongiozna. Le v nekaterih koralitih je spremenjena; trabekularni podaljški se sekundarno zlijejo v maso, ki zgleda kot masivna stiliformna kolumela. Septa so v glavnem kompaktna, pore in sinaptikule so zelo redke. Zbrusek P-780 a, 8 $\times$.
- Sl. 2 Vertikalni presek kolonije s tangencialnimi in podolžnimi preseki sept. Zbrusek P-780 d, 8 $\times$.
- Sl. 3 Vertikalni tangencialni presek sept. Penule (a) so popolne le v septih, kjer je presek pravokoten na septum. Vsi drugi preseki so poševni in penule izgledajo kot mi-penule. Zbrusek P-780 c, 20 $\times$.



↑
a

↑
a

PLATE 3

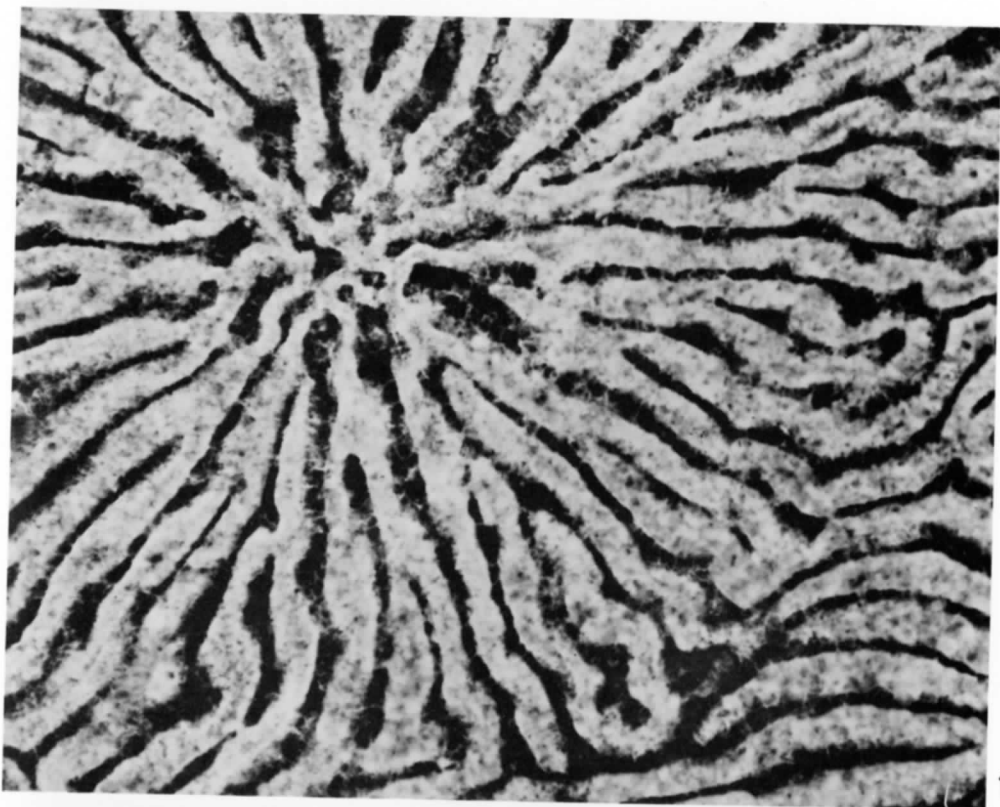
Thamnotropis rakoveci n. sp.

- Fig. 1 Detail from the transverse section of colony. Microstructure is poorly preserved. Sclerodermites are irregularly centrized. Divergence of trabecular axes can not be observed. Thin section P-780 a, 20 $\times$.
- Fig. 2 Vertical section of colony showing septa cut lengthwise and a little oblique. Menianae and (?) dissepiments between septa are much thinner. Thin section P-780 e, 20 $\times$.

TABLA 3

Thamnotropis rakoveci n. sp.

- Sl. 1 Detajl iz prečnega preseka kolonije. Mikrostruktura je slabo ohranjena. Sklerodermiti so nepravilno centrirani. Divergence trabekulnih osi ne vidimo. Zbrusek P-780 a, 20 $\times$.
- Sl. 2 Vertikalni presek kolonije s podolžnimi nekoliko poševnimi preseki sept. Meniane in (?) disepimenti med septi so mnogo tanjši. Zbrusek P-780 e, 20 $\times$.



1



2