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DEVONIAN TABULATE CORALS FROM WESTERN POMERANIA, POLAND

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Seven species of Tabulata (includnig three new ones: *Alveolitella pseudoramosa* sp.n., *Syringoporella stasinskae* sp.n., *Sinopora minima* sp.n.) from the Givetian and Frasnian of the Wyszebórz 1 borehole, north-western part of Poland has been described and figured. Tabulata occur with other fossils in three rich in fossils horizons of the Wyszebórz 1 profile.

Key words: Tabulata, taxonomy, Givetian, Frasnian, Poland.

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INTRODUCTION

The present paper concerns tabulates of the region of north-western Poland (fig. 1), the coral fauna of which is poorly known. The material has been extracted from the bore-core of the Wyszebórz 1 borehole performed by Przedsiębiorstwo Poszukiwań Naftowych (the Oil Searching Enterprise) of Piła in 1970—1971. The authors have based their stratigraphical considerations on papers by Pajchlowa (1971, 1977), Bednarczyk (1974) and Dadlez (1978). The preliminary stratigraphic study, as well as the Wyszebórz 1 profile have been made by Dr. B. Sikorski (PPN of Piła). Dr. H. Łobanowski (Institute of Geological Sciences, Polish Academy of Sciences, Warszawa) has collected the material and made stratigraphical examination of the core.

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The synthetic resin of "Loctite" (FRG) was used in the making thin sections.

The collection of Tabulata, containing 200 specimens and 225 thin section is housed in the Institute of Paleobiology, Polish Academy of Sciences, Warsaw (abbreviation: ZPAL).

LITHOLOGIC AND STRATIGRAPHIC CHARACTERISTICS OF DEVONIAN SEDIMENTS FROM THE WYSZEBÓRZ 1 PROFILE
(fig. 2)

Wyszebórz 1 borehole penetrated Cenozoic, Mesozoic and Devonian deposits and reached the Ordovician formation. The Devonian sediments are found at a depth of 1911.5—2722.0 m and are limited to the Givetian and Frasnian. They are 765 m thick, lie discordantly on Ordovician clayey

Fig. 1. Location of tabulate sites Wyszebórz 1 and Miastko 1 (boreholes) of the north-western Poland.

sediments (Bednarczyk 1974), and are covered by Triassic deposits (Buntsandstein).

The Tabulata occur only at a depth of 1995.0—2389.4 m. In this part of the profile, three lithologic complexes distinguished for the north-

western part of Poland by Dadlez (1978) have been recognized: Sianów, Wyszebórz and Koczała complexes. Deposits 44 m thick from a depth of 2371.0 to 2415.0 meters has been assigned to the Sianów complex. In the Wyszebórz 1 profile, the complex is composed of limestones with intercalations of sandstones and mudstones. At the top of the complex, 2385.3—2389.4 m deep, numerous biogenic remains have been found. These are: corals (Tabulata, Rugosa), brachiopod valves (fragments), crinoids (columnals), scolecodonts, conodonts (*Icriodus* sp.), fish scales and teeth, and megaspores. Dadlez (1978) determined the age of the Sianów complex as the Givetian.

Deposits assigned to the Wyszebórz complex, 303 m thick, occur at 2068—2371 m. These are terrigenous deposits: sandstones, claystones, mudstones with dolomitic sandstone and mudstone intercalations. In the uppermost part the Frasnian corals have been found. The microfauna of the complex (found at different depths) consists of fish scales and teeth, ostracods, scolecodonts and condonts — *Acodina* sp., *Icriodus subterminus* Youngquist, *Icriodus* sp., *Polygnathus* sp. One of the species, *Icriodus subterminus*, occurs from the Upper Givetian to the Lower Frasnian (the horizon of *Ancyrognathus triangularis*). According to Dadlez (1978) the Givetian/Frasnian boundary may run within this complex.

Deposits 156.5 meters thick, comprised between a depth of 1911.5 m and 2068.8 m, have been recognized as the Koczała complex. The complex is represented here by dolomites and limestones with intercalations of mudstones and small interbeddings of sandstones and claystones. At a depth of 2051—2056 m the deposits contain corals (Tabulata, Rugosa), stromatoporoids, brachiopods, crinoids (columnals), foraminifera, algae, fish scales, scolecodonts, megaspores and other plant remains, and conodonts (*Icriodus subterminus* Youngquist and *Polygnathus* sp.). The richest fauna is found at a depth of 1995.0—2027.3 m. It includes: corals (Tabulata, Rugosa), stromatoporoids, bryozoans, brachiopods, crinoids (columnals), foraminifera, algae, fish scales, scolecodonts and conodonts — *Ancyrodella gigas* Youngquist, *Ancyrodella rotundiloba rotundiloba* (Bryant), *Icriodus symmetricus* Branson et Mehl, *Icriodus subterminus* Youngquist, *Polygnathus asymmetricus asymmetricus* Bischoff et Ziegler.

Because of the occurrence of two species — *Ancyrodella gigas* Youngquist and *Polygnathus asymmetricus asymmetricus* Bischoff et Ziegler, the age of the deposits from a depth of 1997.6 m may be determined as the Upper Polygnathus asymmetricus Zone. Due to the fact that a few metres lower, at 2008 m, occurs *Ancyrodella rotundiloba rotundiloba* (Bryant) whose range does not reach beyond the top of the Middle *Polygnathus asymmetricus*, the age of the sediments from the interval 1997.6—2008.0 m may be assumed as the upper part of the Middle *P. asymmetricus*, which is identical to Iα in cephalopod zonation of the Lower Frasnian. Few conodonts obtained from the bore-core do not allow for more precise

zonation. On the basis of the material under study one may only confirm the Frasnian age of the Koczała complex as it was determined by Dadlez (1978).

CHARACTERISTICS OF TABULATA FROM WYSZEBÓRZ 1 BOREHOLE

Tabulata occur in one Givetian horizon and two Frasnian ones (fig. 2). Their colonies are most often poorly preserved. They are strongly recrystallized, or contain large amounts of iron-oxide, and this blurs the internal structure of the colony and skeleton microstructure to a considerable degree. Most often tabulates are preserved as large broken fragments of colonies, only slightly abraded.

The Givetian. — Scarce Tabulata colonies are found only in one 4 m thick horizon (depth 2385.3—2389.4 m), in fine-crystalline, grey limestones, interbedded with claystone (the top bed of the Sianów complex). Here occur: *Thamnopora* sp., *Trachypora* sp., *Alveolites obtortus* Lecompte, A. sp. (fig. 2). The species *A. obtortus* Lecompte is known both from the Givetian and Frasnian of Poland, Europe and the USSR. The Tabulata assemblage does not indicate the age of the horizon. The authors of the present paper follow Dadlez (1978) and Pajchlowa (1971, 1977) in dating the horizon as Givetian. Tabulata are accompanied here by quite numerous solitary Rugosa, digitate stromatoporoid colonies and other fossils.

The Frasnian. — Tabulata occur in two horizons of the middle part of the Frasnian profile (almost the whole of the Koczała complex). They are found in five meters thick, fine-crystalline reef limestones with silty-clayey intercalations (depth — 2051—2056 m), and in dolomites, brown-grey hard limestones and organogenic limestones with silty intercalations, 32 m thick (depth 1995.0—2027.3 m). Tabulata are abundant here, and some species as *Thamnopora boloniensis* (Gosselet), *T. proba* Dubatolov, *Alveolites obtortus* Lecompte, and especially *Alveolitella pseudoramosa* sp.n. — occur on a mass scale. They belong mainly to the families Pachyporidae, Alveolitidae, Multithecoporidae, Sinoporidae. In the Frasnian Tabulata assemblage dendroid colonies (*Thamnopora, Alveolitella*) dominate over phaceloid (*Syringoporella, Sinopora*) and massive (*Alveolites*) ones. The assemblage contains the following species (fig. 2): *Thamnopora boloniensis* (Gosselet), *T. proba* Dubatolov, *T.* sp., *Alveolites obtortus* Lecompte, *A.* sp., *Alveolitella pseudoramosa* sp.n., *A.* sp., *Syringoporella stasinskae* sp.n., *S.* sp., *Sinopora minima* sp.n. and *Heliolites* sp. Tabulata are accompanied by quite numerous dendroid (Amphipora), digitate and massive stromatoporoids, solitary Rugosa, bryozoans, brachiopods (single vavles), crinoids (columnals), ostracods, foraminifera, scolecodonts, conodonts, fish scales and teeth as well as algae and megaspores. The relatively poorly diversified

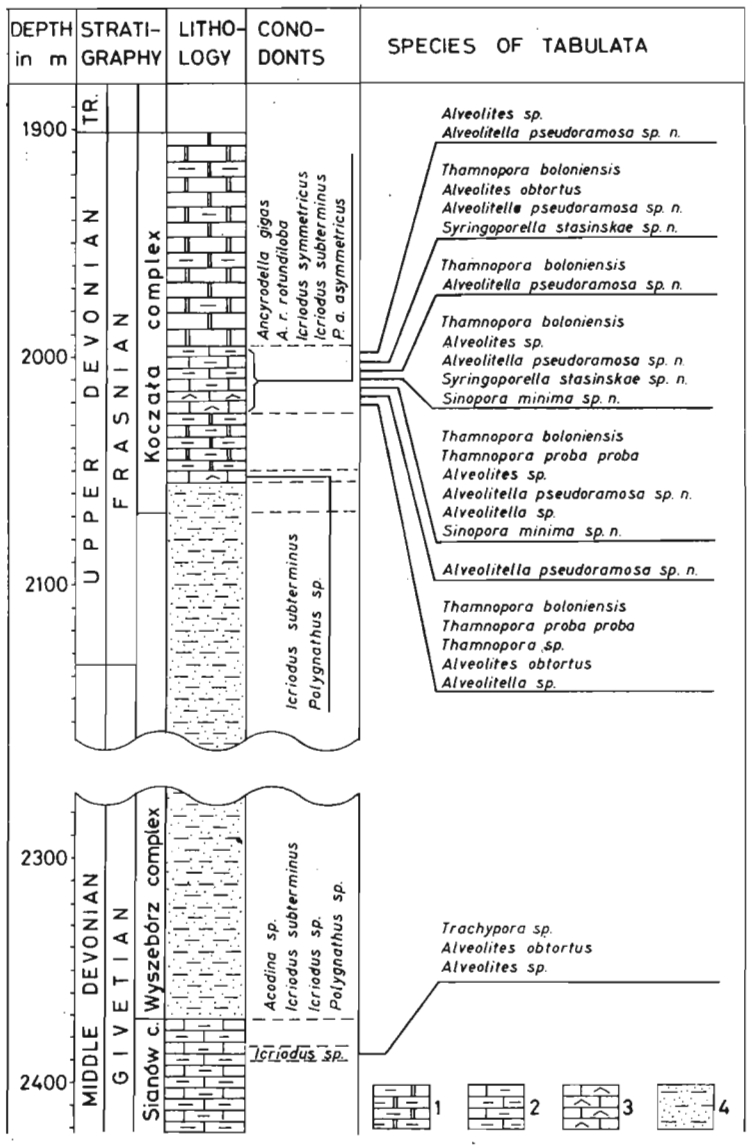


Fig. 2. Tabulate distribution in the Devonian of the borehole Wyszebórz 1. *1* clayey dolomites, *2* clayey limestones, *3* organogenic coral-stromatoporoid limestone, *4* sandy claystones and siltstones.

Frasnian Tabulata assemblage from the borehole in question is of a low stratigraphical values. However, the abundance of such Frasnian species as *T. boloniensis*, *A. obtortus*, and a presence of such form as *A. pseudoramosa* sp.n., which is very close to Frasnian *A. ramosa* (E. Roemer), seems to confirm the age of the deposits. In the borehole — Miastko 1, not far away (about 45 km) from Wyszebórz, the species mentioned above — *T. boloniensis* and *A. obtortus* — occur in the Frasnian exclusively (Stasińska 1969).

While comparing Devonian sections of the profiles from Wyszebórz 1 and Miastko 1, we must stress that despite the similar facies development of the two profiles and small distance (45 km) between them, the Tabulata assemblages of the boreholes differ considerably in species spectrum and frequency of tabulates in the bore-core. In the Givetian of Miastko Tabulata are numerous and variable (Stasińska 1969) whereas the Givetian of Wyszebórz contains a very poor assemblage with no species found at Miastko. In the Frasnian it is just the opposite, at Miastko only two cosmopolitan species are found (Stasińska 1969), whereas at Wyszebórz Tabulata are numerous and variable. The Frasnian of both sites contains the same cosmopolitan species (Table 1).

Table 1

Tabulate from Wyszebórz 1 and Miastko 1 boreholes

	Wyszebórz 1	Miastko 1
Frasnian	*Thamnopora boloniensis* (Goss) *Thamnopora proba* Dubatolov *Alveolites obtortus* Lecompte *Alveolites* sp. *Alveolitella pseudoramosa* sp. n. *Alveolitella* sp. *Syringoporella stasinskae* sp. n. *Sinopora minima* sp. n. *Heliolites* sp.	*Thamnopora boloniensis* (Goss) *Alveolites obtortus* Lecompte
Givetian	*Trachypora* sp. *Alveolites obtortus* Lecompte *Alveolites* sp.	*Thamnopora densa* Tchudinova *Thamnopora irregularis* Lecompte *Thamnopora tumefacta* Lecompte *Alveolites multispinosus* Dubatolov *Alveolitella fecunda* (Salée) *Crassialveolites crassus* (Lecompte) *Caliapora bettersbyi* (Milne-Edwards et Haime) *Placocoenites medius* (Lecompte) *Placocoenites escharoides* (Stein) *Scoliopora denticulata* (Milne-Edwards et Haime) *Natalophyllum giveticum* Radug. *Syringoporella* sp.

DESCRIPTIONS OF SPECIES

Order **Favositida** Sokolov, 1962
Suborder **Thamnoporina** Sokolov, 1962
Family **Pachyporidae** Gerth, 1921
Subfamily **Thamnoporinae** Sokolov, 1950

Genus *Thamnopora* Steininger, 1831
Thamnopora boloniensis (Gosselet, 1877)

1877. *Favosites boloniensis* Gosselet: 271.
1939. *Thamnopora boloniensis* (Gosselet); Lecompte: 122, pl. 17: 1—24, pl. 18: 1.
1976. *Thamnopora boloniensis* (Gosselet); Nowiński: 53, pl. 6: 3—8 (here synonymy).

Diagnosis. — See Dubatolov 1959.

Material. — Large fragments of three well-preserved colonies from a depth of 2001—2007 m, one poorly preserved colony fragment from a depth of 2007.0—2010.3 m, large fragments of three well preserved colonies — depth 2010.3—2015.3 m, nineteen almost complete, well-preserved colonies — depth 2015.3—2021.3 m, large fragments of four poorly preserved colonies — depth 2051.0—2056.0 m (ZPAL T XIV/1—30).

Dimensions (in mm):

diameter of a colony	9.0—13.9
diameter of corallites	
in axial zone	0.8—1.2
in peripheral zone	1.4—1.8 (2.0)
thickness of a corallite wall	
in axial zone	0.1—0.2
in peripheral zone	0.2—0.5
diameter of connecting pores	0.2—0.25
spaces between connecting pores	(1.1)1.5—2.0
spaces between tabulae	(0.2)0.3—0.8(1.1)

Distribution. — Givetian through Frasnian: cosmopolitan.

Thamnopora proba Dubatolov, 1952
(pl. 30: 3, 4a, b)

1952. *Thamnopora proba* Dubatolov; Dubatolov: 130, pl. 4: 5.
1959. *Thamnopora proba* Dubatolov; Tchudinova: 98, pl. 21: 3, pl. 22; 1—5, pl. 23: 1—2, pl. 24: 1—3, pl. 25: 1—4, pl. 26: 1a, b.
1962. *Thamnopora proba* Dubatolov; Dubatolov: 43, pl. 18: 1a—b, 2a—c, 3a—b, 4a—b.
1964. *Thamnopora proba* Dubatolov; Tchudinova: 42.

Diagnosis. — See Tchudinova, 1964.

Material. — Large fragments of five well-preserved colonies — depth 2015.3—2021.3 m, and the fragments of three poorly preserved colonies — depth — 2051.0—2056.0 m (ZPAL T XIV/31—38).

Dimensions (in mm):

diameter of a colony	12.0—18.0
diameter of corallites	
in axial zone	0.5—1.0
in peripheral zone	1.0—1.5
thickness of a corallite wall	
in axial zone	0.05—0.08
in peripheral zone	0.1—0.3
diameter of connecting pores	0.2
spaces between connecting pores	1.5
spaces between tabulae	0.7—1.0

Description. — Colonies dendroid. Branches cylindrical, slightly bent or straight, circular or slightly flattened in cross-section. Corallites long, thin-walled, arranged

in fanwise manner, oblique in relation to the colony sides. Calices deep, polygonal in cross-section, with blunt margins. Corallites polygonal and rounded in cross-section. Visceral chamber regularly circular or ovate. Microstructure of corallite walls blurred. The median line poorly discernible. Connecting pores sparse, circular, spaced irregularly on corallite walls. Septal spines thick, long, irregularly distributed within the colony, common rather in peripheral branch zone. Tabulae thin, straight or bent, horizontal or oblique.

Remarks. — *Thamnopora proba* Dubatolov from Wyszebórz differs from the colonies described from the Eifelian and Givetian of the Kuznetsk Basin and Altai (Dubatolov, 1952, 1962, Tchudinova, 1959, 1964) in thinner corallite walls in peripheral branch zone (due to lack of stereomal thickening of corallite walls), as well as in poorly developed septal apparatus. This species has not been recorded in Poland so far.

Distribution. — Eifelian through Givetian: USSR (Kuznetsk Basin, Upper Altai). Frasnian: Western Pomerania, Poland (Wyszebórz 1 borehole).

Family **Trachyporidae** Waagen et Wentzel, 1886
Genus *Trachypora* Milne-Edwards et Haime, 1851

Trachypora sp.
(pl. 30: 5)

Material. — A fragment of one, well-preserved colony from a depth of 2385.3—2389.4 m (ZPAL T XIV/40).

Dimensions (in mm):

diameter of a colony	14.0
diameter of corallites	0.5—1.5
thickness of a corallite wall	0.1—0.5
diameter of connecting pores	0.15—0.20
spaces between tabulae	0.5—1.0

Description. — Irregular dendroid colony with side appendages. Corallites of tamnoporoid shape, slightly bent, gradually bending from the branch axis and oblique in relation to the colony sides. Calices pocket-like, deep. Corallites irregularly polygonal in cross-section, polygonal rounded and elongated, with varied diameters. Lumen circular and ovate in cross-sections. Corallite walls of varied thickness, formed of two layers — *Thamnopora* type, microstructure fibrous-radial. Median line continuous, dark, distinct. Connecting pores round, sparse. Tabulae thin and thick, sparse, straight and bent, horizontal and oblique. Septal apparatus formed of sparse large scaly spines.

Remarks. — The small colony fragment does not allow to determine the species precisely. *Trachypora* sp. described above resembles most *Trachypora rhiphaes* Yanet from the Givetian of the Eastern Ural (Yanet 1977). Their resemblance consists in their branch diameters, the shape and diameters of their corallites the thickness and microstructure of walls as well as density of endotheca. However, *Trachypora* sp. from Wyszebórz differs from the Ural species in sparse connecting pores with smaller diameter, the presence of thick tabulae (beside thin ones) as well as in the presence of septal apparatus.

Distribution. — Givetian: Western Pomerania, Poland (Wyszebórz 1 borehole).

Suborder **Alveolitina** Sokolov, 1950
Family **Alveolitidae** Duncan, 1872

Genus *Alveolites* Lamarck, 1801

Alveolites obtortus Lecompte, 1939

1939. *Alveolites obtortus* Lecompte; Lecompte: 42, pl. 6: 4—7.
1959. *Alveolites obtortus* Lecompte; Dubatolov: 144, pl. 48: 3a, b, 4a, b (here synonymy).
1972. *Crassialveolites obtortus* (Lecompte); Yanet: 74, pl. 22: 3.

Diagnosis. — See Dubatolov, 1959.

Material. — One almost complete colony from a depth of 2001.0—2007.0 m, two complete, well-preserved colonies — depth 2051.0—2056.0 m, and a big fragment of a well preserved colony — depth 2385.3—2389.4 m (ZPAL T XIV/41—44).

Dimensions (in mm):

diameter of a colony	up to 100
diameter and dimensions of corallites	0.4—0.6 and 0.4—0.5 × 0.6—0.8
thickness of a corallite wall	(0.05)0.06—0.1(0.15)
diameter of connecting pores	0.18—0.2
spaces between connecting pores	0.8—0.9
spaces between tabulae	0.2—0.5

Remarks. — *Alveolites obtortus* Lecompte from the Frasnian of Wyszebórz 1 differs from the colonies of the same species, coming from the Lower Frasnian of the Holy Cross Mts. (Stasińska 1953), in more irregular thickness of corallite walls. From the Givetian colonies of the Holy Cross Mts. (Żerniki — IG-1 borehole, Kulicka et Nowiński, 1983) it differs in diameter of its connecting pores. From the Frasnian colonies of the Kuznetsk Basin (Dubatolov 1959) it differs in slightly greater corallite diameter and significantly larger connecting pores. From the colony of the Ural Givetian, described as *Crassialveolites obtortus* (Yanet 1972), our form differs in more circular cross-sections of the corallites with thinner walls, and in wider spacing of its connecting pores and tabulae.

Distribution. — Givetian: Poland (Holy Cross Mts.: Żerniki IG-1 borehole); USSR (Ural), Frasnian: Poland (Holy Cross Mts.: Wietrznia; Western Pomerania, Poland: Wyszebórz 1 and Miastko boreholes; Sudetes: Witoszów); Belgium (Dinant); USSR (Kuznetsk Basin); Viet-Nam.

Genus *Alveolitella* Sokolov, 1952

Alveolitella pseudoramosa sp. n.

(pl. 30: 1, 2a, b)

Holotype: Specimen No. ZPAL T XIV/132.

Type horizon: Frasnian (Koczała complex).

Type locality: Wyszebórz 1 borehole, depth 2010.3—2015.3 m.

Derivation of the name: pseudoramosa — similar to *Alveolitella ramosa* (Roemer).

Diagnosis. — Colonies dendroid of a diameter 3.0—10.0 mm. Cross-sections of corallites in the axial zones of colonies polygonal, rounded and round, with a diameter of 0.3—0.5 mm in the peripheral zone polygonal, elongated, with a diameter of 0.5—0.8 mm and slightly semilunar, with dimensions of 0.3—0.5 × 0.5—0.8 mm. The thickness of corallite wall from 0.02—0.06 mm in axial zone of the colony, to 0.1—0.3 mm in peripheral zone. Pores of a diameter of 0.1—0.12 mm, spaced from 0.5 to 0.7 mm. Tabulae straight, horizontal and oblique, spaces between them from 0.2 to 0.5 mm. Septal spines numerous, small.

Material. — Fragments of twenty six well-preserved colonies from a depth of

1995.0—2001.0 m, fragments of nineteen well-preserved colonies — depth 2001.0—2007.0 m, a fragment of one well-preserved colony — depth 2007.0—2010.3 m, fragments of fourty five poorly-preserved colonies — depth 2010.3—2015.3 m, fourty four almost complete, poorly preserved colonies — depth 2015.3—2021.3 m, a fragment of a poorly-preserved colony — depth 2021.3—2027.3 m (ZPAL T XIV/48—183).

Dimensions (in mm):

diameter of a colony	(3.0)4.0—6.0(10.0)
diameter of corallites	
in axial zone	0.3—0.5
in peripheral zone	0.5—0.8
thickness of a corallite wall	
in axial zone	0.02—0.06
in peripheral zone	0.1—0.2
diameter of connecting pores	0.1—0.12
spaces between connecting pores	0.5—0.7
spaces between tabulae	0.2—0.5

Description. — Small dendroid colonies, occasionally branching dichotomously. Branches straight, cylindrical or slightly bent and flattened. The thick-walled corallites arranged fanwise reach the surface at an angle of about 45°. Calices funnel-like, with blunt margins, sometimes with a single, wide septal spine, irregularly rounded or elliptic in cross-section, with a diameter of 1.0 mm. In the axial zone of the colony the corallites polygonal, almost round in cross-section, and in the peripheral zone — ovate and slightly semilunar. Visceral chamber strongly narrowed, circular or oval in cross-section, both in the axial and peripheral zones. Corallite walls thick, with almost undiscernible fibrous-radial microstructure. Stereoplasma of the colony peripheral zone and calice walls has a pinnate arrangement of fibres. Connecting pores numerous, fine, round. Septal apparatus well developed, formed of numerous small, sharp spines, undescernible in poorly-preserved colonies. Tabulae sparse, thin, straight, horizontal or oblique.

Remarks. — *Alveolitella pseudoramosa* sp.n. resembles *A. ramosa* (Roemer, 1855), described from the Frasnian of Belgium (Lecompte 1939) and from Poland (Nowiński 1976), in branch diameters, morphology, the angle at which the calices are arranged, and similar corallite diameters. The new species differs from *A. ramosa* in more regular and strongly rounded corallite cross-sections, better developed and larger connecting pores, wider spaces between the tabulae, and the presence of a well-developed septal apparatus.

From the similar *A. karmakensis* (Tchernychev) from the Eifelian of the Eastern Ural and Kuznetsk Basin (Tchernychev 1951, Dubatolov 1952, 1959, Yanet 1959) the new species differs in more regular, circular corallite cross-sections, and narrower spaces between the connecting pores.

Distribution. — Frasnian: Western Pomerania, Poland (Wyszebórz 1 borehole).

Order **Syringoporida** Sokolov, 1962
Family **Multithecoporidae** Sokolov, 1950
Genus *Syringoporella* Kettner, 1934
Syringoporella stasinskae sp.n.

(pl. 31: 1a, b, 2)

Holotype: Specimen No. ZPAL T XIV/189.
Type horizon: Frasnian (Koczała complex).
Type locality: Wyszebórz 1 borehole, depth 2001.0—2007.0 m.

Derivation of the name: in honour of the late Anna Stasińska, an eminent Polish student of Tabulata.

Diagnosis. — Colony phaceloid. Corallites short, tubular, 0.6—1.0 mm in diameter (most often 0.8—0.9 mm), with interspaces of 0.8—3.0 mm. Corallite walls 0.1—0.2 mm thick. Tabulae sparse, usually strongly oblique, rarely horizontal. Connecting tubes short, sparse.

Material. — One, large almost complete, well-preserved colony from a depth of 2001.0—2007.0 m, and one small colony from a depth of 2010.3—2015.3 m (ZPAL T XIV/189, 190).

Dimensions (in mm):

diameter of corallites	(0.6)0.8—0.9(1.0)
spaces between corallites	0.8—3.0
thickness of the corallite wall	0.1—0.2
diameter of connecting tubes	0.2—0.3
spaces between tabulae	0.1—0.4

Description. — Colony phaceloid, about 60 mm in diameter, composed of short tubular irregularly spaced corallites. Corallites round or slightly oval in cross-section. Walls relatively thick, with barely visible concentric-lamellar microstructure. Epitheca thick, of radial microstructure. Visceral chamber round or ovate. Connecting tubes very sparse, long, irregularly spaced within the colony. Tabulae sparse, thin, strongly oblique, rarely horizontal, usually straight. Septal spines absent. The colony described here is covered by a stromatoporoid, and the spaces between the corallites are completely filled by the skeleton of the latter. The serial sections suggest that both colonies developed simultaneously — as commensal organisms.

Remarks. — *Syringoporella stasinskae* sp.n. differs from all species known so far in very sparse and strongly oblique tabulae as well as in the presence of sparse connecting tubes. It is most similar to *S. prisca* Sokolov from the Lower Givetian of the Russian Platform (Sokolov 1952). The two species have similar corallite diameters and wall thicknesses. The new species differs, however, from Sokolov's one in very short corallites with wider spaces between them, in much spaced tabulae, and lesser diameter of connecting tubes. From the type species — *Syringopora moravica* Roemer 1880 (= *Syringoporella moravica* Kettner) from the Upper Givetian of Moravia (Czechoslovakia, Kettner 1934, 1937), and Kuznetsk Basin (Dubatolov 1963), the new species (having the same corallite diameter) differs in short corallites, much more spaced corallites and thinner corallite walls.

Distribution. — Frasnian: Western Pomerania, Poland (Wyszebórz 1 borehole).

Order **Auloporida** Sokolov, 1962
Family **Sinoporidae** Sokolov, 1955
Genus *Sinopora* Sokolov, 1955

Type species: *Monilopora dendroides* Yoh, 1932.

Diagnosis. — See Sokolov (1955).

Remarks. — The characteristics and comparison with similar genera have been presented by Sokolov (1955, 1962), Klaamann (1966), Rowett (1969, 1971) and Nowiński (1976). Seven species of this genus have been described so far from the Llandoverian (Klaamann 1966), Lower Carboniferous (Nowiński 1976) and Permian (Gerth 1921, Yoh and Huang 1932). *Sinopora minima* sp.n. described here is the first species of the genus found in the Devonian.

Sinopora minima sp.n.

(pl. 31: 3a—c)

Holotype: Specimen No. ZPAL T XIV/196.

Type horizon: Frasnian (Koczała complex).

Type locality: Wyszebórz 1 borehole, depth 2015.3—2021.3 m.

Derivation of the name: *minima* — very small colonies composed of few corallites are its characteristic feature.

Diagnosis. — Colonies phaceloid, composed of about a dozen corallites. Corallites short, 1.5—1.8 mm in diameter. Corallite walls 0.3—0.5 mm thick, with a uniform concentric-lamellar microstructure. Tabulae and septal spines absent.

Material. — One, almost complete colony from a depth of 2010.3—2015.3 m, and five large colony fragments from a depth of 2015.3—2021.3 m (ZPAL T XIV/191—196).

Dimensions (in mm).

diameter of corallites	(1.3)1.5—1.8(2.0)
diameter of the visceral chamber of corallites	0.5—0.9
thickness of the corallite wall	0.3—0.5

Description. — Colonies phaceloid, composed of about a dozen corallites, irregularly spaced, often touching one another with their walls. Corallites short, tubular, bent in different directions irregularly round or ovate in cross-section. Corallite walls thick, with a uniform, distinct concentric-lamellar microstructure of the *Multithecopora* type. Visceral chamber strongly narrowed, irregularly round or ovate. Epitheca undiscernible. Calices slightly funnel-like, deep, with thin, sharp margins. Connecting tubes, tabulae and septal spines absent.

Remarks. — *Sinopora minima* sp.n. differs from all known species of this genus, in very small colonies, composed of about a dozen corallites. It has larger corallite diameters and different microstructure of corallite walls than the type species — *S. dendroides* (Yoh), described from the Lower Permian of Southern China (Yoh 1932). The latter has the two-layered wall.

Distribution. — Frasnian: Western Pomerania, Poland (Wyszebórz 1 borehole).

REFERENCES

BEDNARCZYK, W. 1974. The Ordovician in the Koszalin-Chojnice region (Western Pomerania). — *Acta Geol. Polonica*, **24**, 4, 581—600.

DADLEZ, R. 1978. Podpermskie kompleksy strefy Koszalin-Chojnice. — *Kwart. Geol.*, **22**, 2, 269—297.

(DUBATOLOV, V. N.) ДУБАТОЛОВ, В. Н. 1959. Табуляты, гелиолитиды и хететиды силура и девона Кузнецкого бассейна. — *Тр. ВНИГРИ*, **139**, 1—292.

— — 1962. Табуляты и гелиолитиды силурийских и девонских отложений Рудного Алтая. — Изд-во АН СССР, 1—80. Москва-Ленинград.

— — 1963. Позднесилурийские и девонские табуляты, гелиолитиды и хететиды Кузнецкого бассейна. — *Ibidem*, 1—196.

GERTH, H. 1921. Die Antozoen der Dyas von Timor. *In*: Paläontologie von Timor, **9**, 65—147. Stuttgart.

GOSSELET, J. 1877. Le calcaire dévonien supérieur dans le Nord-Est de l'arrondissement d'Avenses. — *Ann. Soc. géol. Nord*, **4**, 238—320.

(KLAAMANN, E. R.) КЛААМАНН, Э. Р. 1966. Инкоммукатные Табуляты Эстонии. — Инст. Геол. АН Эстонской ССР, 3—87. Таллин.

KETTNER, R. 1937. Palaeontological studies of the Devonian of Čelechovice (Moravia). On some Alcyonarians. — *Fac. Sci. Univ. Charles*, **155**, 3—20, Praha.

KULICKA, R. and NOWIŃSKI, A. 1983. The Devonian Tabulata of the southern part of the Świętokrzyskie (Holy Cross) Mts., Poland — *Acta Palaeont. Polonica*, **28**, 3—4, 467—490.

LECOMPTE, M. 1939. Les tabulés du Dévonien moyen et supérieur du bord sud du bassin de Dinant. — *Mém. Mus. R. Hist. Natur. Belgique*, **90**, 3—277.

NOWIŃSKI, A. 1976. Tabulata and Chaetetida from the Devonian and Carboniferous of Southern Poland. — *Palaeont. Polonica*, **35**, 1—108.

PAJCHLOWA, M. 1971. Dewon. W: Ropo- i gazonośność obszaru nadbałtyckiego między Świnoujściem a Darłowem na tle budowy geologicznej. Cz. I, Budowa geologiczna. — Inst. Geol., 30—35.

— 1977. Dewon. W: Profile głębokich otworów wiertniczych Instytutu Geologicznego, z. 42 Człuchów. — *Ibidem*, 43—44.

ROEMER, F. A. 1855. Beiträge zur geologischen Kenntnis des nord-westlichen Harzgebirges, III. — *Palaeontographica*, **5**, 1—44.

ROWETT, C. L. 1969. Upper Palaeozoic stratigraphy and corals from the East-Central Alaska Range, Alaska. — *Techn. Pap. Arctic Inst. North America*, **23**, 3—120.

— 1971. Reconnaissance biostratigraphy of the Lower Permian in the Slana Area, Eastern Alaska Range, Alaska. — Pacific Geol., 3, Tsukiji Shokan Publ. CO, LTD, 42—44. Tokyo.

(SOKOLOV, B. S.) СОКОЛОВ, Б. С. 1952. Табуляты палеозоя Европейской части СССР, IV. Девон Русской платформы и западного Урала. — *Тр. ВНИГРИ* (н.с.), **62**, 3—208.

— — 1955. Табуляты палеозоя Европейской части СССР. Введение. Общие вопросы систематики и истории развития табулят. — *Ibidem*, **85**, 1—528.

— — 1962. Основы Палеонтологии. Tabulata. 192—254. Москва.

STASIŃSKA, A. 1953. Rodzaj *Alveolites* Lamarck z franu Gór Świętokrzyskich. — *Acta Geol. Polonica*, 3, 211—237.

— 1969. Koralowce dewońskie Tabulata z otworu Miastko 1 w północno-zachodniej Polsce. — *Ibidem*, **19**, 4, 765—778.

(TCHERNYCHEV, B. B.) ЧЕРНЫШЕВ, Б. Б. 1951. Силурийские и девонские Tabulata и Heliolitida окраины Кузнецкого угленосного Бассейна. 3—160. Госгеолтехниздат, Москва.

(TCHUDINOVA, I. I.) ЧУДИНОВА, И. И. 1959. Девонские тамнопориды Южной Сибири. — *Тр. Палеонт. инст.*, **73**, 3—146.

— — 1964. Табуляты нижнего и среднего девона Кузнекого Бассейна. — *Ibidem*, **101**, 3—82.

(YANET, F. E.) ЯНЕТ, Ф. Е. 1959. Tabulata. В кн.: Брахиоподы и кораллы из эйфельских бокситоносных отложений восточного склона Среднего и Северного Урала. 86—133. Госгеолтехниздат, Москва.

— 1972. Chaetetida и Tabulata. В кн.: Кишечнополостные и брахиоподы живетских отложений восточного склона Урала. 43—98, НЕДРА. Москва.

YOH, S. S. and HUANG, T. K. 1932. The coral fauna of the Chihsia Limestone of the Lower Yangtze Valley. — *Palaeont. Sinica* (B), **8**, 1, 10—17.

ALEKSANDER NOWIŃSKI i ANDRZEJ PREJBISZ

DEWOŃSKIE KORALOWCE TABULATA Z ZACHODNIEGO POMORZA, POLSKA

Streszczenie

Praca zawiera wyniki badań nad dewońskimi (żywet-fran) koralowcami Tabulata, z profilu otworu wiertniczego Wyszebórz 1 w północno-zachodniej Polsce (woj. Koszalin). Osady dewonu z Wyszeborza, miąższości 764 m, należą do 3 kompleksów litologicznych, wyznaczonych w północnej Polsce przez Dadleza (1978): kompleksu z Sianowa, kompleksu z Wyszeborza i kompleksu z Koczały. W profilu Wyszebórz 1 wykształcone są one w postaci osadów dolomityczno-wapiennych z wkładkami mułowców, iłowców i piasków. Koralowcom (Tabulata, Rugosa) towarzyszą tu dość liczne stromatoporoidy, brachiopody, mszywioły, liliowce (łodygi), małżoraczki, otwornice, skolekodonty, konodonty, zęby i łuski ryb oraz glony i megaspory.

Na podstawie obecności przewodnich konodontów (*Ancyrodella gigas* Youngquist, *A. rotundiloba rotundiloba* (Bryant) oraz *Polygnathus asymmetricus asymmetricus* Bischoff and Ziegler) oraz w oparciu o zespół Tabulata, potwierdzono frański wiek osadów należących do kompleksu z Koczały i uznano najwyższy z tutejszych poziomów koralonośnych za należący do poziomu *Polygnathus asymmetricus*. Niżej leżące osady (poniżej poziomu *P. asymmetricus*), zawierające nieprzewodnie konodonty i tabulaty, przyjęto za Dadlezem (1978) i Pajchlową (1971, 1977) jako utwory najniższego franu i żywetu. W osadach żyweckich Tabulata występują tylko w jednym poziomie i reprezentowane są zarówno przez kolonie gałązkowe jak i masywne. We frańskich osadach występują licznie w dwu poziomach. Kolonie gałązkowe zdecydowanie przeważają tu nad krzaczastymi i masywnymi. Opisano z Wyrzeborza 7 gatunków Tabulata, w tym 3 nowe: *Alveolitella pseudoramosa* sp.n., *Syringoporella stasinskae* sp.n. i *Sinopora minima* sp.n. Po raz pierwszy w Polsce opisano stąd *Thamnopora proba* Dubatolov, 1952.

Praca została wykonana w ramach problemu MR II 6.

EXPLANATION OF PLATES 30—31

All specimens from Wyszebórz, Western Pomerania

Plate 30

Alveolitella pseudoramosa sp. n.

1. Longitudinal section, × 5; holotype ZPAL T XIV/132, depth 2010.3—2015.3 m.
2. *a* cross section, × 5; *b* longitudinal section, × 5; ZPAL T XIV/179, depth 2015.3—2021.3 m.

Thamnopora proba Dubatolov, 1952

3. Cross section, × 5; ZPAL T XIV/31, depth 2015.3—2021.3 m.
4. *a* cross section, × 5; *b* longitudinal section, × 5; ZPAL T XIV/33, depth 2015.3—2021.3 m.

Trachypora sp.

5. Longitudinal and cross sections of a colony, × 10; ZPAL T XIV/40, depth 2385.3—2389.3 m.

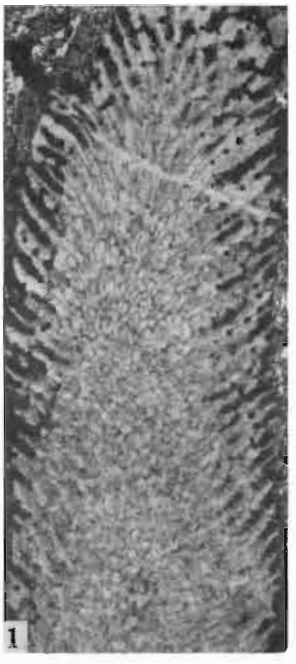
Plate 31

Syringoporella stasinskae sp. n.

1. *a* Cross section, × 10; *b* longitudinal section, × 10, holotype ZPAL T XIV/189, depth 2001—2007 m.
2. Longitudinal section, × 5; ZPAL T XIV/190, depth 2010.3—2015.3 m.

Sinopora minima sp. n.

3. *a* Cross section of a colony, × 10; *b* longitudinal section of a colony; *c* longitudinal section of a solitary corallite, × 10; holotype ZPAL T XIV/196, depth 2015.3—2021.3 m.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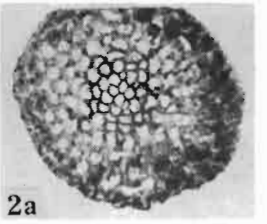
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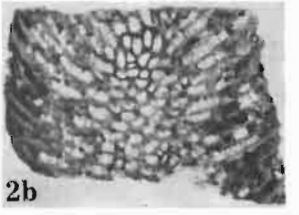
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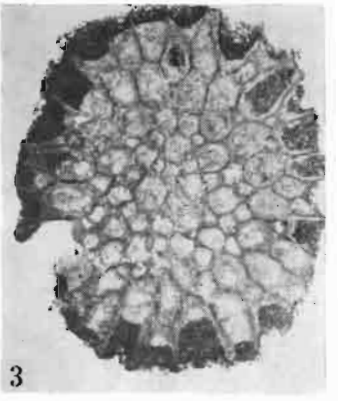
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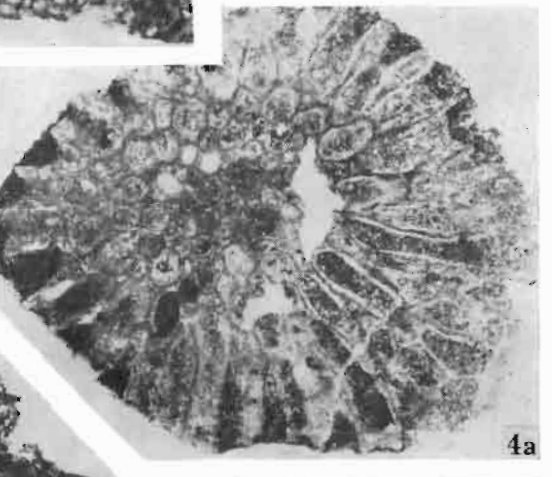
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4b


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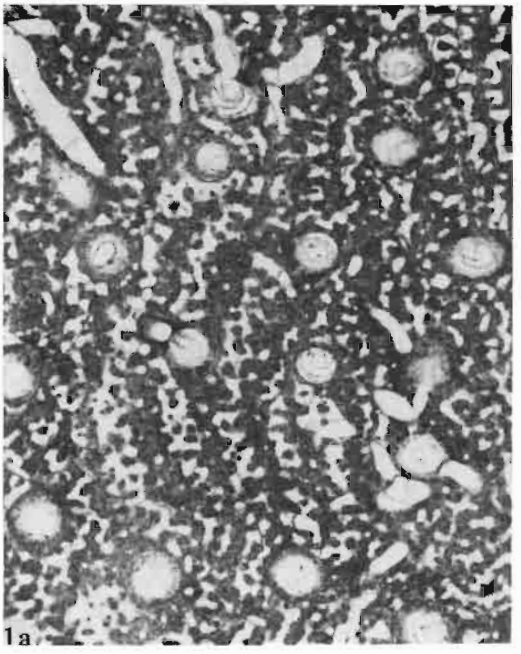
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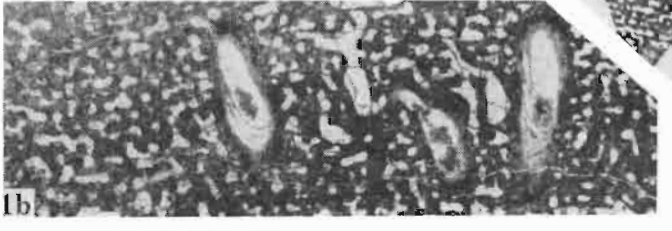
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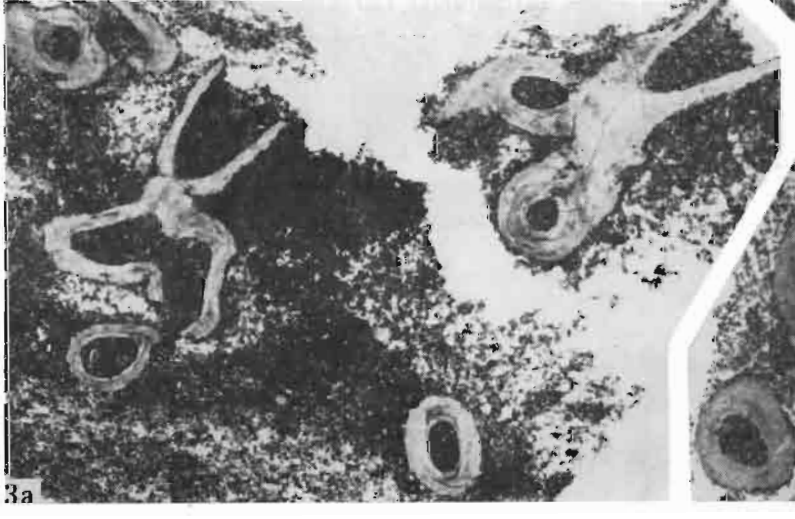
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