A C T A P A L A E O N T O L O G I C A P O L O N I C A
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JERZY FEDOROWSKI

UPPER VISÉAN TETRACORALLA FROM SOME BORINGS IN THE LUBLIN COAL MEASURES (POLAND)

Abstract. — Ten species of tetracorals are described from the Lublin Coal Measures Basin, Poland, including 3 new species and 1 species determined only to the genus level. The known species indicate Upper Viséan age.

INTRODUCTION

The present paper is the first elaboration of the Lower Carboniferous tetracorals from the boring cores from Husynne, Kosmów, Teptiuków and

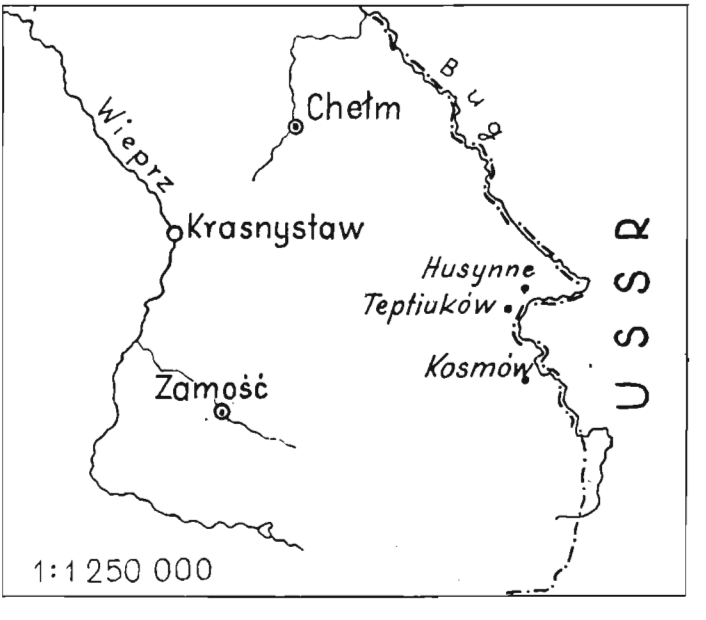

Fig. 1. — **Sketch map of the bore-holes in Lublin Coal Measures, from which come the described corals (after Cebulak & Porzycki, 1966, Text-fig. 4).**

Krasnystaw[1] (Lublin Coal Measures) (Fig. 1). The material investigated represents only some of borings in this region, thus the present paper is but a preliminary note on the coral fauna of this area. On account of this, neither the essential faunistical analysis, nor palaeoecological and palaeogeographical considerations are presented here. These are left until the complete elaboration of the tetracorals in this region is ready.

Basing on the tetracorals here described, one can confirm the Upper Viséan age of the deposits, in which they occur. This age was previously determined by Bojkowski (1966) on the base of other macrofauna. The

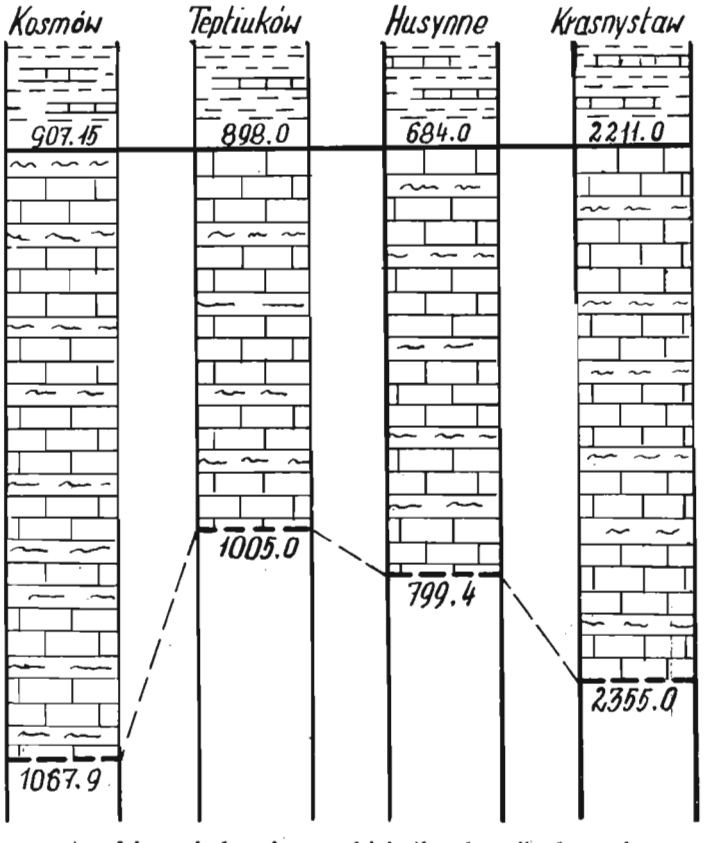

Fig. 2. — Fragments of bore-holes, from which the described corals come. Continuous line separates Upper Viséan from Namurian. Numbers mark the depth of occurrence and the thickness of Upper Viséan deposits containing corals (after Cebulak & Porzycki, 1966, Text-fig. 3).

lithological profiles of borings were prepared by Cebulak and Porzycki (1966). Those parts of profiles containing corals are given on Text-fig. 2.

The specimens are generally very well preserved, the structural elements did not undergo any significant recrystallisation or leaching, thus

[1] *Abbreviations:* Husynne — Hu. 1, Kosmów — Ko. 1, Teptiuków — Te. 1, Krasnystaw — Kr. 1.

their detailed investigation was possible. No traces of wear or other damage indicative of transport or a turbulent environment were stated.

Sedimentation was probably very quick and in the still plastic deposit high pressure must have to occur, because all fragments of weaker structure, i. e. calyces, are comparatively strongly compressed and some of them quite crushed.

The specimens described in the present paper are housed in the Upper Silesian Field Station of the Geological Institute at Sosnowiec (abbreviated as OG).

ACKNOWLEDGEMENTS

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DESCRIPTIONS[2]

Order **Tetracoralla**
Superfamily **Zaphrentoidida** Schindewolf, 1938
Family **Hapsiphyllidae** Grabau, 1928
Genus *Bradyphyllum* Grabau, 1928
Bradyphyllum bojkowskii n. sp.
(Pl. I, Fig. 1 *a-l*)

Holotype: OG-Hu. 1/233; Pl. I, Fig. 1 *a-l*.
Type locality: Husynne.
Type horizon: Upper Viséan, depth of boring 779.4—779.65 m.
Derivation of the name: bojkowskii — after Dr. Karol Bojkowski, who kindly provided the material.

Diagnosis. — *Bradyphyllum* with diameter under calyx 11.5×12.5 mm and 28 major septa, losing zaphrentoid structure first in ephebic stage; cardinal septum only slightly shorter than the remaining major septa.

[2] Systematics after Hill (*in*: R. C. Moore, ed., Treatise on Invertebrate Paleontology, Part F, 1956).

Material. — One complete specimen 30 mm long, with proximal end and calyx preserved. Diameter at the margin of calyx 15 mm, depth of calyx 10 mm. Epitheca nearly smooth, with weak longitudinal grooves and growth wrinklings. A series of polished surfaces (cross sections) with 19 peels and 1 longitudinal section were prepared.

Description. — Cross-section (Pl. I, Fig. 1 *j, k*). Septa arranged radially, shallowly embedded with their pointed ends in epitheca, undifferentiated in quadrants, prominently thickened at the epitheca and slightly less in axial parts. Some septa may be joined to each other by the rhopaloid axial thickenings. Cardinal septum somewhat shorter and thinner, the remaining protosepta do not differ from the major septa. Minor septa only in the form of tubercles on epitheca.

Longitudinal section (Pl. I, Fig. *1-l*). Tabulae scarce, in peripheral parts they join horizontally with epitheca, in axial parts, very steep, raised nearly vertically, with rare, vesiculate tabellae. The section passed the zaphrentoid part, thus the stereoplasmatic and septal filling is present in the axial part.

Ontogeny (Pl. I, Fig. 1 *a-i*). — *Nepionic stage* (Pl. I, Fig. 1*a*). The development of this species was traced almost from the very beginning of the postlarval stage, from 4 protosepta connected adaxially in the form of a nearly isosceles cross, with a slight dominance of joined cardinal and counter septum. The attempt to photograph this stadium was not successful.

During subsequent development, short counter-lateral septa (CL) appear. Already (Pl. I, Fig. 1*a*) the zaphrentoid arrangement of septa can be noticed, as well as the formation of the incipient cardinal fossula at the cardinal septum. The point of connection of protosepta, moved behind the axis towards the counter septum, manifesting the dominant role of the cardinal septum. It loses this character first in the ephebic stage.

Neanic stage (Pl. I, Fig. 1 *b-i*). The increase of metasepta begins in the cardinal quadrants and alternates regularly in cardinal and counter quadrants, till the end of development. The minor septa appear cyclically at the end of the neanic stage. This stage terminates with the change of zaphrentoid structure into the typical for the genus, pseudoradial one, in which the cardinal septum can hardly be recognized.

Remarks. — The species described is most close to *Bradyphyllum oppositum* Fomičev (Fomičev, 1953), from the Middle Carboniferous of Donetz Basin and of Spain (De Groot, 1963). Both species have similar diameters and numbers of septa (in *B. oppositum* 11 mm and 25 major septa), they have minor septa only in a rudimentary form, cardinal septum only slightly shorter than the remaining ones, as well as a small, free axial field.

The main differences occur during the ontogeny. According to Fomičev (1953, p. 132), during the development of *B. oppositum* the quadrants

and the counter septum dominate, and the zaphrentoid structure (or in this case rather fasciculoid structure) is replaced comparatively early by the pseudoradial one. On the contrary, in *B. bojkowskii* n. sp. the quadrants and cardinal septum dominate, and the typical zaphrentoid structure is replaced by the pseudoradial, for the first time, just under the calyx.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan.

Family **Polycoeliidae** Roemer, 1883
Subfamily **Polycoeliinae** Roemer, 1883
Genus *Claviphyllum* Hudson, 1942
Claviphyllum kosmovense n. sp.
(Pl. II, Fig. 1 *a-j*)

Holotype: OG-Ko. 1/e; Pl. II, Fig. 1 *a-j*.
Type locality: Kosmów.
Type horizon: Upper Viséan, depth of boring 994.1 m.
Derivation of the name: kosmovense — after the type locality.

Diagnosis. — *Claviphyllum* with 21 septa, at the diameter under calyx 4.5×5.0 mm; counter septum somewhat longer than the counter laterals (Cl), metasepta 2 and 3 of the counter quadrants may be equal to them; in younger ontogenetic stages the cardinal septum dominates.

Material. — One complete specimen with proximal end preserved and somewhat compressed calyx; diameter at the margin 9 mm, depth 10 mm. Epitheca thick, with distinct longitudinal grooves and weak growth wrinklings. Twenty one peels were made from the successive polished surfaces (cross-sections).

Description. — Cross-section (Pl. II, Fig. 1 *j*). Septa in their free part are arranged in a manner typical for the genus. In cardinal quadrants they are inclined towards the cardinal septum, and in counter quadrants towards the counter septum. The latter is thicker than the remaining septa of counter quadrants, and somewhat, but distinctly longer than septa Cl and 1. Septa 2 and 3 in these quadrants also do not stand out in length as in the other species of this genus. The cardinal quadrants are typically pronounced. Cardinal septum is shortened, metasepta 1 and 2 strongly elongate and rhopaloid, reaching the axis of a corallite.

Ontogeny (Pl. II, Fig. 1 *a-i*). — *Nepionic stage* (Pl. II, Fig. 1 *a,b*). During the development of this species, one can observe quite different structures in different ontogenetic stages. In the nepionic and neanic stage, the cardinal septum dominates, while in the ephebic stage — the counter septum.

On the specimen investigated, only the terminal fragment of the nepionic stage was preserved, which displayed 6 protosepta. They divide the interior of corallite into two unequal parts: the smaller at the counter

septum, and the larger at the cardinal septum. Such a shifting of the point of connection of septa is preserved up to the end of neanic stage.

Neanic stage (Pl. II, Fig. 1 *c-i*). During this stage the cardinal septum distinctly thickened at first, gradually becomes thinner, simultaneously growing in length. The increase of the metasepta is initiated in the cardinal quadrants, which results in their development preceding that of the counter quadrants. On the boundary between the neanic and ephebic stages (Pl. II, Fig. 1 *i*) the very thin cardinal septum is broken and shortened. Counter septum is here slightly rhopaloid, and the remaining septa have a zaphrentoid arrangement, with very broad, closed cardinal fossula.

During the subsequent development, the connection of axial ends of septa is broken, their arrangement changes into the pattern typical for the genus, and their lengths differentiate. The successive stage was described as the cross-section (see above).

Remarks. — The species described differs from the other species of this genus above all in the structure of counter quadrants, where the somewhat larger length of septa 2 and 3 and counter septum is weakly marked. Neither Hill (1938, 1941), nor Hudson — author of the genus (1942), who investigated the type species *Claviphyllum eruca* (McCoy), presented the ontogenesis very precisely. An incomplete ontogenesis of *C. pauperculum* Schindewolf, reported by Schindewolf (1952), is different. The counter septum dominates during the ontogenesis from the youngest stage shown on this author's drawing, quite opposite to what occurs in the species investigated by the present author. Thus, a detailed comparison of this so essential character is impossible.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan.

Genus *Antiphyllum* Schindewolf, 1952

Antiphyllum husynnense n. sp.

(Pl. I, Fig. 2 *a*, *b*)

Holotype: OG-Hu. 1/532; Pl. I, Fig. 2 *a*, b.
Type locality: Husynne.
Type horizon: Upper Viséan, depth 783.6—784.6 m.
Derivation of the name: husynnense — after the type locality.

Diagnosis. — *Antiphyllum* with 16 septa at the diameter of 4×5 mm. Minor septa lacking.

Material. — One specimen 15.5 mm long, with slightly crushed calyx and with the proximal end attached to the brachiopod shell. Diameter at the margin of calyx 5 mm, depth of calyx 5 mm. Epitheca with very distinct growth wringlings.

Description. — Cross-section (Pl. I, Fig. 2 *a*, *b*). Septa thickened and for the most part rhopaloid, connecting around the large cardinal fossula,

into which the cardinal septum enters. The latter is also rhopaloid and distinctly elongate. Metasepta adjoning the cardinal one do not contact with the other septa, they are considerably shortened and occur in the form of knobs on the epitheca. Counter septum very short and comparatively thin, situated in the counter fossula, well separated by the counter-lateral septa (Cl) which are inclined above it.

In the ontogenetic development, cardinal septum dominates. The incipient stages were not observed because of the strong recrystallization of the proximal end. In older stages the arrangement of septa is very regular (Pl. I, Fig. 2 *b*). Protosepta: C, both A, and both Cl dominate, and counter septum (K) is even shorter than the metasepta.

Remarks. — So far, only one species was known in this genus: *A. inopinatum* Schindewolf, 1952, from the Namurian of Upper Silesia (Poland). *A. husynnense* differs from the type species in lacking minor septa and significantly greater shortening of counter septum and the major septa neighbouring to the cardinal septum. Besides, *A. inopinatum* has, in the young stages of the ontogeny, elongate counter septum which is not observed in the specimen above described.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan.

Subfamily **Tachylasmatinae** Grabau, 1928
Genus *Tachylasma* Grabau, 1922
Tachylasma tenue Kabakovitsh, 1952
(Pl. I, Fig. 3 *a*, *b*)

1952. *Tachylasma tenue* Kabakovitsh; N. V. Kabakovitsh, Novyj vid..., pp.115—126, Pl. 1, Figs. 1—13, Text-figs. 1, 2.

Diagnosis. — „Tiny, narrow, conical *Tachylasma,* 20—25 mm along the convex side. Epitheca with longitudinal ridges. Cardinal septum on the concave side. In the adult stage 18 (rarely 19—20) septa radially arranged, at the diameter 5—6 mm. The longest are six septa: lateral, counter-lateral and the third pair of septa in the cardinal quadrants (Cl_1, Kl_1, Cl_3). In cross-sections, their axial ends are thickened, staff-like. Counter septum shorter and thinner than the neighbouring Kl_1. The shortest are: cardinal septum (C) and the second pairs of septa in the cardinal and counter quadrants (Cl_2 and Kl_2). The axial ends of these and of the remaining septa are not thickened. Minor septa lacking or very weakly developed. Tabulae well developed, scarce, convex" (after Kabakovitsh, 1952, p. 119).

Material. — One incomplete specimen 12 mm long, with crushed calyx and without proximal end, found in boring Husynne, at a depth 779.7—780.0 m. Two polished surfaces (cross-sections) were made, from which the peels were prepared.

Remarks. — The author of the species based the terminology of septa on Hudson's papers (among others — 1942). Lublin specimens are described according to the terminology of Hill (1956), thus in the descriptions some differences occur.

The specimen from the Lublin region is somewhat smaller and has a slightly smaller diameter (4×5 mm) than the holotype at the same number of septa (18 major septa). However, the internal structure as well as the arrangement and differentiation of the major septa is nearly identical as those in the holotype. The same pairs of septa dominate, and the number of septa in counter quadrants is also by 2 more than in the cardinal quadrants. The zaphrentoid arrangement of septa in the neanic stage is also similar.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. U.S.S.R.: Moscow Basin, Serpuchov Stage, Steshevo Horizon (C_1^{st}).

Family **Cyathaxoniidae** Edwards & Haime, 1850

Genus *Cyathaxonia* Michelin, 1847

Cyathaxonia cornu Michelin, 1847

(Pl. I, Fig. 4 *a-d*)

1847. *Cyathaxonia cornu* Michelin; H. Michelin, Iconographie..., p. 258, Pl. 59, Fig. 9 a, b.

1960. *Cyathaxonia cornu* Michelin; N. P. Vassiljuk, Nižnekamennougolnye korally..., p. 157, Pl. 12, Fig. 8.

1964. *Cyathaxonia cornu* Michelin; N. P. Vassiljuk, Korally zon..., p. 87, Pl. 7, Fig. 1.

Diagnosis. — "Small, ceratoid and slightly curved *Cyathaxonia*, with a columella circular in section. The minor septa lean on the neighbouring major septa on the counter side and the major septa reach the columella" (after Hill, 1938—1941, p. 195).

Material. — Six well preserved specimens, usually with calyces and proximal ends; 3 specimens were found in Husynne (depth 783.0—783.6 m) and 3 in Kosmów (depth 1021.0—1021.3 m).

Remarks. — The dimensions of the specimens vary in small limits and are typical for the species: length 8—12 mm, diameter at the margin of calyx 4.0—5.5 mm, number of septa 16×2 — 18×2. These characters as well as the internal structure and the ontogenesis (Pl. I, Fig. 4 *a-d*) are typical for the species.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. Great Britain: Carboniferous, zones Z_2—Z_3. Belgium and France: Tournaisian. Southern Sahara (as *C.* cf. *cornu*), Tournaisian. U.S.S.R.: Lower Carboniferous.

Family **Hapsiphyllidae** Grabau, 1928
Genus *Hapsiphyllum* Simpson, 1900
Hapsiphyllum sp.
(Pl. I, Fig. 5 *a*, *b*)

Material. — One not too well preserved specimen from Kosmów I, depth 808.9 m, without proximal end and with damaged calyx.

Description. — Cross-section (Pl. I, Fig. 5 *a*, *b*). In the section under calyx (Pl. I, Fig. 5*a*) cardinal fossula widens towards the interior of a corallite, behind its axis. Major septa arranged comparatively regularly, not differentiated by the length, nor gathered in systems; they join in the stereoplasmatic rim of fossula. Cardinal septum elongate, minor septa lacking.

On the incomplete section at the bottom of calyx, minor septa already occur, which appear cyclically and the cardinal septum is distinctly shortened.

Remarks. — The arrangement of major septa, their undifferentiated length (except cardinal septum), the shape of fossula, widening towards the axis, as well as the occurrence of minor septa, allow the mentioned specimen to be assigned to the genus *Hapsiphyllum*. The characters of this specimen do not agree with any known species of this genus, but the poor state of preservation makes it impossible to establish new specific name.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan.

Superfamily **Zaphrenticae** Edwards & Haime, 1850
Family **Cyathopsidae** Dybowski, 1873
Genus *Caninophyllum* Lewis, 1929
Caninophyllum inostrancewi (Stuckenberg, 1904)
(Pl. II, Figs. 2, 3 *a*-*b*)

1904. *Caninia inostrancewi* Stuckenberg; A. Stuckenberg, Korally i mšanki..., p. 26, Pl. 2, Fig. 1 a-d.

1952. *Caninia inostrancewi* Stuckenberg; T. A. Dobrolyubova, Caninia..., pp. 71—83, Pls. 1—3 (*cum synon.*).

Diagnosis. — "Large, single corals. Septa scarce, extending to the cuter wall. Major septa long, reaching 2/3 the radius of a corallite; minor septa weakly developed, but always present. In young stages, septa pinnately arranged in relation to the long cardinal septum and lateral septa, in adult stage nearly radially arranged" (after Dobrolyubova, 1952, p. 72).

Material. — Two incomplete specimens of solitary corallites from the bore-holes in Krasnystaw, depth 2292 m; 3 cross-sections with peels were made.

Remarks. — The specimens from the Lublin region have about 40 major septa, at the diameter about 40 mm. These dimensions agree with those given by Dobrolyubova (1952) and Stuckenberg (1904). The structure of the skeletal elements is also very close: 1) length and shape of major septa, which are thickened, fusiform in cardinal quadrants and thin in counter quadrants; 2) thickened inner wall in cardinal quadrants; 3) narrow dissepimentarium.

Despite previous opinions, the present author assigns this species to the genus *Caninophyllum* Lewis, 1929 instead of to *Caninia* Michelin in Gervais, 1840. Its characters, such as the continuous and long major septa, comparatively long minor septa, angulo-concentrical dissepimenta as well as the lack of amplexoid stage during the ontogeny (according to Dobrolyubova's drawings — Pl. 1, Figs. 1—3, 10—14), are just the characters of this genus.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. U.S.S.R.: Moscow Basin, Serpuchov Stage, Steshevo Horizon (C_1^{st}).

Family **Aulophyllidae** Dybowski, 1873
Genus *Dibunophyllum* Thomson & Nicholson, 1876
Dibunophyllum bipartitum (McCoy, 1849)

(Pl. II, Fig. 4 *a*, *b*)

1849. *Clisiophyllum bipartitum* McCoy; F. McCoy, On some new..., p. 2.
1869. *Lonsdaleia rugosa* McCoy; A. Kunth, Beiträge..., pp. 208—213, Pl. 3, Fig. 1 a, b.
1938—1941. *Dibunophyllum bipartitum bipartitum* (McCoy); D. Hill, A monograph..., pp. 72—75, Pl. 1, Figs. 15—19, 21; Pl. 2, Figs. 1—6; Text-figs. A, B (*cum synon.*).
1958. *Dibunophyllum bipartitum bipartitum* McCoy; V. Kostič-Podgorska, Fauna..., pp. 42—44, Pl. 22, Figs. 1—4.
1966. *Dibunophyllum bipartitum bipartitum* (McCoy); H. Żakowa, Poziom Goniatites..., Pl. 20, Fig. 10 a-c.

Diagnosis. — "Large simple rugose corals, whose variable axial structure is usually one-third the diameter of the corallite, and consists typically of a long median plate, a few (usually four to eight) septal lamellae on either side, directed to the axis, and numerous tabellae, sloping steeply down at its periphery; less typically the lamellae may become curved, the medial plate disappear, and the bilateral symmetry be lost. Minor septa are usually withdrawn towards the periphery; the dissepimentarium is wide, the dissepiments usually inosculating, sometimes complete. The tabulae are conical and incomplete; the tabellae arranged in two series, the plates of the outer being fewer and less steeply inclined than those of the inner series" (after Hill, 1938—1941, p. 67).

Material. — One fragmentary specimen from bore-hole in Krasnystaw, depth 2306 m.

Remarks. — The state of preservation of the specimen does not allow

one to assign it with certainty to any of the known 3 subspecies of *D. bipartitum*, to which Hill (*l.c.*) limited the whole pleiad of "species" and "genera" into which previous English authors divided this very variable and widely spread species.

The structural characters of the specimen, such as the axial structure, width of dissepimentarium, structure of cardinal fossula and shortening of minor septa, seem to the present author to be sufficient for the assignment of this specimen to *D. bipartitum* McCoy. It can probably be assigned to the nominate subspecies, because it has regular and transparent axial structure with 4 septal lamellae in the preserved part of specimen. The distinguishing character of this specimen is the relatively significant length of minor septa on the ontogenetically younger section. It seems, however, to be the result of individual variability.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. Great Britain: type horizon D_1 and Zone 2 of the Lower Carboniferous. Known from the equivalents of these beds in nearly the whole of Europe.

Family **Lithostrotionidae** d'Orbigny, 1851

Genus *Lithostrotion* Fleming, 1828

Lithostrotion junceum (Fleming, 1828)

(Pl. II, Fig. 5 *a*, *b*)

1828. *Caryophyllia juncea* Fleming; J. Fleming, A history..., p. 508 = *Junci lapidei* Ure, 1793, p. 327, Pl. 19, Fig. 12.
1960. *Lithostrotion junceum* (Fleming); N. P. Vassiljuk, Nižnekamennougolnye korally.., p. 77, Pl. 19, Fig. 1.
1964. *Lithostrotion junceum* (Fleming); N. P. Vassiljuk, Korally zon..., p. 88, Pl. 7, Fig. 2.
1966. *Lithostrotion junceum* (Fleming); H. Żakowa, Poziom Goniatites..., Pl. 21, Figs. 1, 7.

Diagnosis. — "Slender, fasciculate *Lithostrotion* with 14—18 major septa and occasional rudimentary minor septa; with a styliform columella and conical tabulae, and without dissepiments. Diphymorphic corallites may occur, in which the columella becomes discontinuous and the tabulae flattened" (after Hill, 1938—1941 p. 172).

Material. — Two specimens of colonial tetracorals from the bore-hole in Teptiuków, depth 1004.9—1005.7 m, and from Krasnystaw, depth 2294 m; the latter with very well preserved corallites.

Remarks. — The specimens from the Lublin Coal Measures, both in their measurements and the internal structure, do not differ from the holotype and the other typically pronounced specimens of this species.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. Great Britain: species described from the horizons D_1 and D_2. Known from their equivalents in the whole of Europe.

Lithostrotion caespitosum Martin, 1793
(Pl. II, Fig. 6 *a-c*)

1793. *Madreporae caespitosae* Martin; W. Martin, Petrifacta..., p. 21, Pl. 17 (partim).
1923. *Lithostrotion caespitosum* Martin; A. J. Perna, Korally..., p. 156, Pl. 2, Fig. 1 (*cum synon.*).
1958. *Lithostrotion caespitosum* (Martin); T. A. Dobrolyubova, Nižnekamenno-ugolnye..., pp. 155—158, Pl. 22, Fig. 3; Pl. 23; Pl. 33, Fig. 2.

Diagnosis. — "A dendroid colony consists of cylindrical corallites, 7—8 mm in diameter, and with the number of septa 26×2. Major septa long, reaching columella or terminating in short distance before it. Minor septa insignificantly enter into the tabularium, composed of 2—3 rows of dissepimenta. Tabulae raised towards the columella and spaced from each other 0.25—1.0 mm. Columella lenticular, of different thickness" (after Dobrolyubova, 1958, p. 155).

Material. — Four specimens of dendroid colonies with crushed corallites and often unrecognizable structure; one specimen from bore-hole in Husynne, depth 725.5, 2 specimens from bore-hole in Teptiuków, depth 945.0—945.6 m, 1 specimen from the same bore-hole, depth 957.0—957.1 m.

Remarks. — Hill (1938—1941) assigns a part of the specimens described by Martin (1793) as *Madreporae caespitosae* to *Diphyphyllum furcatum* Thomson, 1887, because the specimens found by her in Martin's type locality display the characters of the genus and species mentioned. However, taking into account that Martin (*l.c.*) under the name *Madreporae caespitosae* draws the typical *Lithostrotion* with columella and septa reaching it, the present writer agrees with opinions of Dobrolyubova (1958) that a new specific name should not be established for specimens corresponding in structure with Martin's description and drawing, even though the holotype is lost and the topotypes have not been found.

In spite of the poor state of preservation of the specimens from the Lublin region, it may be stated that they agree in their structure and dimensions with the diagnosis given for the species by Dobrolyubova (1958). It seems, however, that the minor septa enter deeper into the tabularium than in the specimens so far described.

Occurrence. — Poland: Lublin Coal Measures, Upper Viséan. Great Britain and Belgium: Upper Viséan. U.S.S.R.: Moscow Basin, Vinevsk horizon; Southern Urals, Lower Carboniferous.

Palaeozoological Laboratory
of the Polish Academy of Sciences
Poznań, Świerczewskiego 19
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JERZY FEDOROWSKI

GÓRNO-WIZEŃSKIE TETRACORALLA Z NIEKTÓRYCH WIERCEŃ ZAGŁĘBIA LUBELSKIEGO

Streszczenie

W pracy niniejszej opracowano 10 gatunków tetrakorali z górnego wizenu Zagłębia Lubelskiego, pochodzących z czterech wierceń: Husynne, Kosmów, Teptiuków i Krasnystaw. W tej liczbie było 6 gatunków znanych: *Cyathaxonia cornu* Michelin, 1847, *Tachylasma tenue* Kabakovitsh, 1952, *Caninia inostrancevi* (Stuckenberg, 1904), *Dibunophyllum bipartitum* (McCoy, 1849), *Lithostrotion junceum* (Fleming, 1828) i *L. caespitosum* (Martin, 1793). Jeden gatunek — *Hapsiphyllum* sp. — został oznaczony tylko rodzajowo. Pozostałe trzy — to gatunki nowe; diagnozy ich są następujące:

Bradyphyllum bojkowskii n. sp.

(Pl. I, Fig. 1 *a-l*)

Bradyphyllum o średnicy pod kielichem 11,5×12,5 mm i 28 septach I rzędu, zatracające strukturę zafrentoidalną dopiero w stadium efebicznym; septum główne tylko nieznacznie krótsze od pozostałych septów I rzędu.

Claviphyllum kosmovense n. sp.

(Pl. II, Fig. 1 *a-j*)

Claviphyllum o 21 septach, przy średnicy pod kielichem 4,5×5,0 mm; septum przeciwległe nieznacznie dłuższe od counter-laterals (Cl); metasepta 2,3 kwadrantów przeciwległych mogą być im równe w młodszych stadiach ontogenezy dominuje septum główne.

Antiphyllum husynnense n. sp.

(Pl. I, Fig. 2 *a,b*)

Antiphyllum o 16 septach I rzędu, przy średnicy 4×5 mm; brak septów II rzędu.

ЕРЖИ ФЭДОРОВСКИ

ВЕРХНЕВИЗЕЙСКИЕ TETRACORALLA ИЗ НЕКОТОРЫХ СКВАЖИН ЛЮБЛИНСКОГО БАССЕЙНА (ПОЛЬША)

Резюме

В настоящей работе приводятся результаты изучения 10 видов верхневизейских четырехлучевых кораллов Люблинского бассейна, происходящих из четырех скважин: Гусыннэ, Космув, Тептюкув и Красныстав. Среди изученных форм было 6 видов уже известных: *Cyathaxonia cornu* Michelin, 1847, *Tachylasma tenue* Kabakovitsh, 1952, *Caninia inostrancewi* (Stuckenberg, 1904), *Dibunophyllum bipartitum* (McCoy, 1849), *Lithostrotion junceum* (Fleming, 1828), и *L. caespitosum* (Martin, 1793), и 3 новых. Один вид — *Hapsiphyllum* sp. — определено только как род. Диагнозы новых видов следующие:

Bradyphyllum bojkowskii n. sp.

(Пл. I, фиг. 1 *a—l*)

Bradyphyllum диаметром 11,5×12,5 мм под чашечкой, с 28 септами I порядка, теряющими зафрентоидную структуру лишь в эфебической стадии; главная септа только немного короче от остальных септ I ряда.

Claviphyllum kosmovense n. sp.

(Пл. II, фиг. 1 *a—j*)

Claviphyllum диаметром 4,5×5,0 мм под чашечкой, с 21 септами; септа противоположная немного длиннее от контралятеральных (Cl); метасепты 2, 3 противоположных квадрантов могут быть с ними равны; в более юных стадиях онтогенеза доминирует главная септа.

Antiphyllum husynnense n. sp.

(Пл. I, фиг. 2 *a, b*)

Antiphyllum диаметром 4×5 мм, с 16 септами I порядка. Септы II порядка отсутствуют.

PLATES

Plate I

Fig. 1. *Bradyphyllum bojkowskii* n. sp., cross-sections: *a* nepionic stage, *b-i* neanic stage, *j,k* ephebic stage, *l* longitudinal section (Og-Hu. 1/233, holotype).

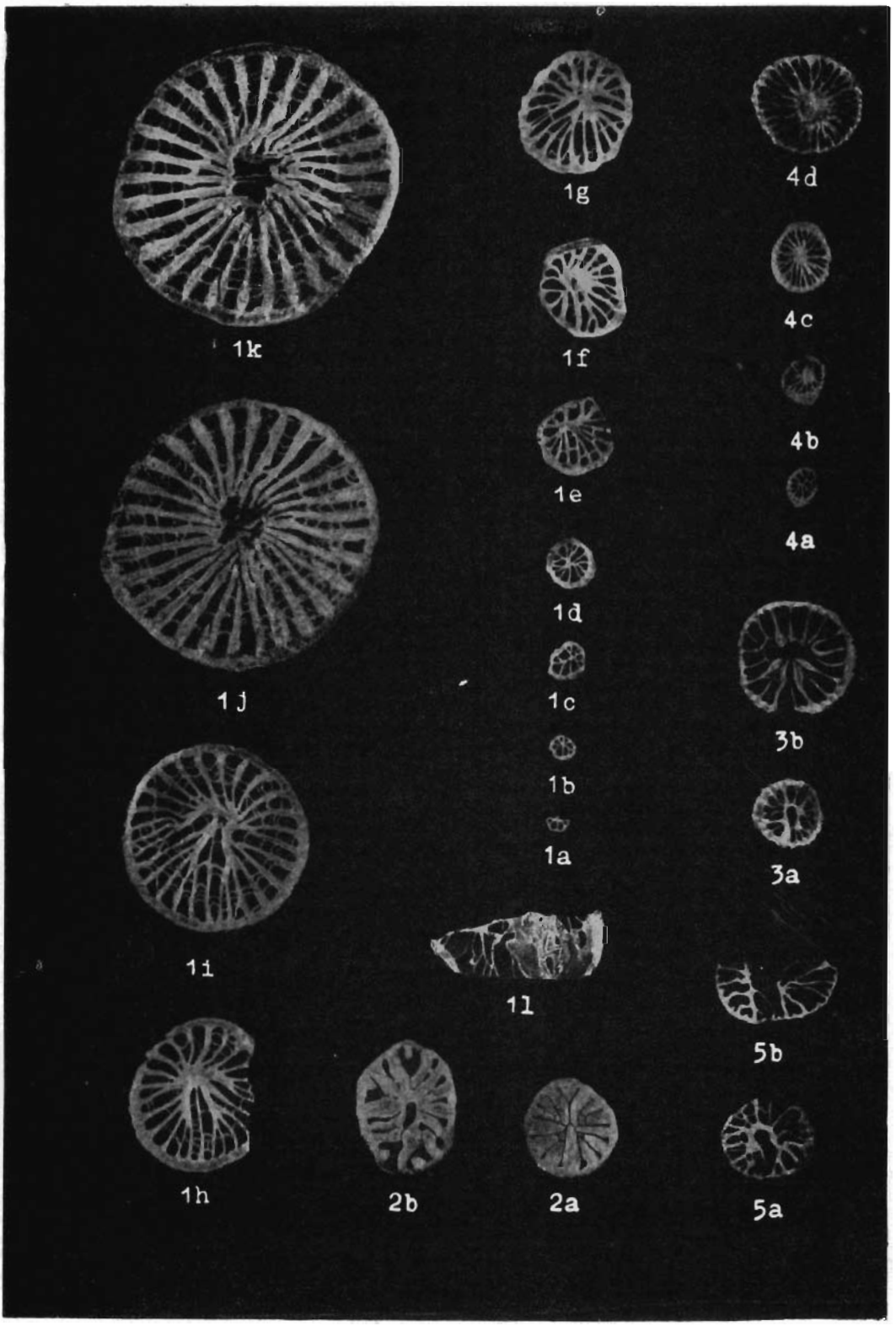
Fig. 2. *Antiphyllum husynnense* n. sp., cross-sections: *a* neanic stage, *b* ephebic stage (Og-Hu. 1/532, holotype).

Fig. 3. *Tachylasma tenue* Kabakovitsh, 1952, cross-sections: *a* neanic stage, *b* ephebic stage (Og-Hu. 1/229).

Fig. 4. *Cyathaxonia cornu* Michelin, 1847, cross-sections: *a* neanic stage, *b-d* ephebic stage (OG-Hu. 1/534).

Fig. 5. *Hapsiphyllum* sp., cross-sections: *a* below calyx, *b* at the bottom of calyx (OG-Ko. 1/a).

All figures ×4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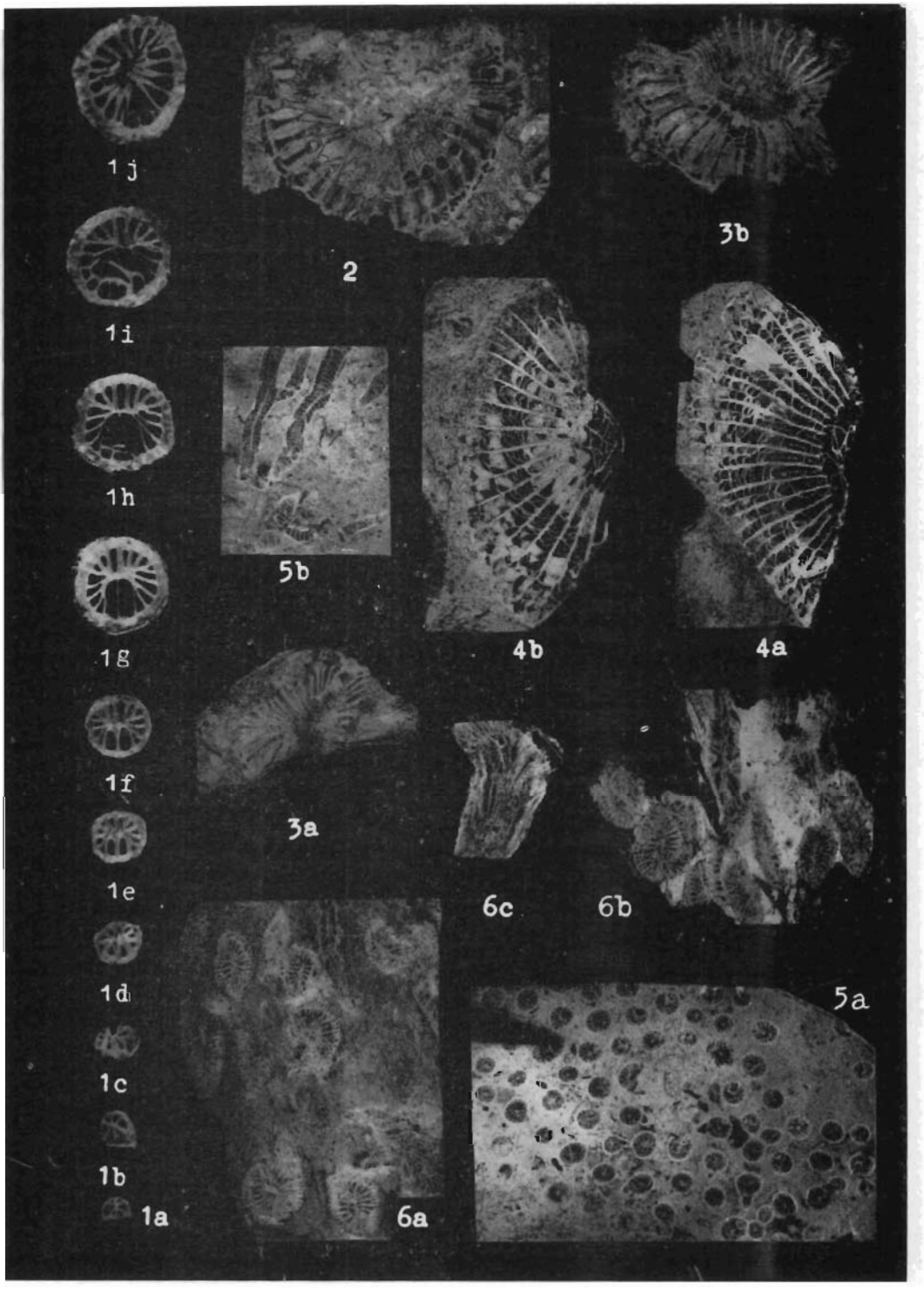
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Plate II

Fig. 1. *Claviphyllum kosmovense* n. sp., cross-sections: *a,b* nepionic stage, *c-i* neanic stage, *j* ephebic stage (OG-Ko. 1/e), holotype); ×4.

Fig. 2. *Caninophyllum inostrancewi* (Stuckenberg, 1904), cross-section (OG-Kr. 1/729); ×2.

Fig. 3. *Caninophyllum inostrancewi* (Stuckenberg, 1904): *a,b* cross-sections (OG-Kr. 1/728); ×2.

Fig. 4. *Dibunophyllum bipartitum* (McCoy, 1849):*a,b,* cross-sections (OG-Kr 1/731); ×2.

Fig. 5. *Lithostrotion junceum* (Fleming, 1828): *a* cross-section, *b* longitudinal section (OG-Kr. 1/730); ×2.

Fig. 6. *Lithostrotion caespitosum* (Martin, 1793); *a,b* cross-sections, *c* longitudinal section (OG-Te. 1/301); ×2.