SBORNÍK NÁRODNÍHO MUSEA v PRAZE
ACTA MUSEI NATIONALIS PRAGAE
Vol. VII. B (1951) No. 3. Geologia et Palaeont. No. 2
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FERDINAND PRANTL:

O UDÁNLIVÉM VÝSKYTU RODU PHILLIPSASTREA D'ORBIGNY, 1849, V ČESKÉM DEVONU.

ON THE SUPPOSED OCCURRENCE OF THE GENUS PHILLIPSASTREA D'ORBIGNY, 1849, IN THE DEVONIAN OF BOHEMIA.

PRAHA 1951

NÁKLADEM NÁRODNÍHO MUSEA V PRAZE
V GENERÁLNÍ KOMISI MATICE ČESKÉ, PRAHA II - 1700, VÁCLAVSKÉ NÁM.

FERDINAND PRANTL:

O udánlivém výskytu rodu Phillipsastrea D'Orbigny, 1849, v českém devonu.

On the Supposed Occurrence of the Genus Phillipsastrea D'Orbigny, 1849, in the Devonian of Bohemia.

(Předloženo dne 18. XII. 1950.)

Udánlivý výskyt rodu *Phillipsastrea* D'ORB. 1849 ve středočeském devonu zaznamenal již F. POČTA (1902), který odtud popsal druh *P. cuncta* POČTA, 1902. Nověji zmiňují se o výskytu tohoto rodu u nás i F. HANUŠ (1923, 1927) a R. RŮŽIČKA (1940), kteří souhlasně udávají, že je zde zastoupen více druhy.

Tyto údaje převzali pak jistí další autoři (D. HILL, 1939, C. D. SOSHKINA, 1947 a—b, a j.) a vyvozovali z nich jisté závažné závěry o kmenovém příbuzenství a zeměpisném i stratigrafickém rozšíření tohoto rodu. Ve skutečnosti však tento rod, který je velmi význačnou formou svrchnodevonskou, není ve středočeském devonu vůbec zastoupen a závěry, vyvozované z údaje POČTOVA (1902) jsou proto mylné. Prostudováním plocoidních korálů phillipsastreoidního vzhledu ze sbírky HANUŠOVY a RŮŽIČKOVY, dnes uložených v *Národním museu v Praze,* jsem se přesvědčil, že jedinci, označovaní jimi jako *Phillipsastraea sp.* náležejí ve skutečnosti do střednodevonského rodu *Billingsastraea* GRABAU, 1917. Revisí druhu POČTOVA dospěl jsem k názoru, že není rovněž příslušníkem rodu *Phillipsastrea* D'ORBIGNY, 1849, nýbrž zástupcem chonophylloidního rodu *Iowaphyllum* STUMM, 1949, který až dosud z evropského devonu nebyl uváděn. Zároveň jsem zjistil, že není druhem spodnodevonským, jak se domníval F. POČTA (1902), nýbrž druhem střednodevonským, pocházejícím ve skutečnosti z vápenců (mramorů) slivenecký ch — $g\alpha'_1$, a nikoliv z vápenců koněprus kých — f.

V anglické části práce glosuji různé názory na taxonomické postavení rodu *Phillipsastrea* D'ORBIGNY, 1849, a podávám podrobný popis dvou druhů rodu *Billingsastraea* GRABAU, 1917 *(B. bohemica* NOV. SPEC.

a *B. branikensis* NOV. SPEC.), které pokládám za nové. Zároveň uvádím výsledky revise POČTOVA druhu *Iowaphyllum cunctum* (POČTA, 1902).

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The supposed presence of this genus in the Devonian of Central Bohemia was recorded first by PH. POČTA (1902) who described from here on species under the designation of *Phillipsastraea cuncta*. More recently F. HANUŠ (1923; 1927) and R. RŮŽIČKA (1940) mentioned again the occurrence of this genus. Both of these authors stressed the opinion that it is represented here also by several other species, but no detailed description of their finds has been published up till now, just as the description or figure of the fine inner structure has not been published for POČTA's species, which is based chiefly on the external characters of the corallum.

The statement of PH. POČTA (1902) on the occurrence of *Phillipsastraea cuncta* in the Devonian of Central Bohemia, which he supposed to be a Lower Devonian form, led several latter authors (e. g. D. HILL, 1939, C. D. SOSHKINA, 1947a, 1947b) to draw serious important phyletic or biostratigraphic conclusions. There however do not agree with the fact, for by a detailed revision of the whole plocoid Tetracorals from the Devonian of Central Bohemia I am able now to ascertain that the genus *Phillipsastrea* D'ORBIGNY, 1849, is not represented here at all. POČTA's species mentioned above must be placed in the quite unrelated genus *Iowaphyllum* STUMM, 1949, and the specimens designated by F. HANUŠ (1923, 1927) and R. RŮŽIČKA (1940) as *Phillipsastraea* sp. belong really to the genus *Billingsastraea* GRABAU, 1917.

Phillipsastrea D'ORBIGNY, 1849.

Objective synonyms: *Phillipsastraea* D'ORBIGNY, 1850
Phillipsastraea auct. *(partim)*
Smithia EDWARDS & HAIME, 1851

Subjective synonyms: *Streptastraea* G. & F. SANDBERGER, 1856
Pseudoacervularia SCHLÜTER, 1881
Pachytheca SCHLÜTER, 1885
? *Meduseaphyllum* ROEMER, 1855
? *Haplothecia* FRECH, 1885
non *Pachytheca* CANU, 1913
non *Phillipsastraea* SOSHKINA, 1947 (= *Pachyphyllum* EDWARDS & HAIME, 1851)

Genolectotype, by subsequent designation of EDWARDS & HAIME (1850, p. LXXI) — *Astraea hennahi* LONSDALE, 1840 *(partim)*. (See: W. D. LANG and S. SMITH (1935, p. 556) or W. D. LANG, S. SMITH and H. D. THOMAS (1940, p. 99).

Stratum typicum: Upper Devonian.
Locus typicus: Devonshire (Torquay), England.

For generic diagnosis in modern conception see: W. D. LANG and S. SMITH (1935, p. 556, ff. 549, 552—54, etc.), D. HILL (1939, p. 236), S. SMITH (1945, p. 36), E. C. STUMM (1949, p. 34), H. C. WANG (1950, p. 220).

Remarks: This genus was established by A. D'ORBIGNY (1849, p. 12) under the generic name *Phillipsastrea*. Later A. D'ORBIGNY

(1850, I, p. 107) changed this name into the gramatically more precise designation *Phillipsastraea*, which is today universally accepted.

The genus *Phillipsastrea* D'ORB. is a very well-known and current example of the Devonian plocoid Tetracorals of the thamnasteroid or aphroid type, which is one of the most specialised groups of the Devonian Tetracorals at all. From a morphological point of view they are compound coralla derived, as was shown by W. D. LANG and S. SMITH (1935, p. 457) a. o., from the ancestral cerioid forms by a gradually progressing degeneration and finally by the complete disappearance of the epitheca, which originally separed the individual corallites from each other. *E. g.* in the cerioid genus *Prismatophyllum* SIMPSON, 1909, in which subcerioid genomorphs may occur as in the true *Phillipsastrea* D'ORB., 1849. This phenomenon indicates in my opinion that both these genera are really only arbitrary stages of some evolutionary series. Such compound plocoid coralla are characterised by a very complex zooidoskeleton in the sense of G. and H. TERMIER (1947, p. 37 ff.), which is seemingly the result of a special colonial mode of life, and which is from an evolutionary point of view a character secondarily acquired by some Devonian representatives of this class. The results of modern paleontological investigations give us namely reason to belive that such plocoid forms have been evolved repeatelly and independently from different parental stages or phyletic groups of some cerioid Devonian Tetracorals.

It will be perhaps sufficient to mention here the more recently described genus *Eddastraea* HILL (1942, p. 147), based on *Phillipsastraea grandis* DUN in BENSON, 1918, from the Devonian of New South Wales, which is typical acanthophyllid form, and the chonophyllid genus *Iowaphyllum* STUMM (1949, p. 50), with genotype *Smithia johanni* HALL & WHITFIELD, 1872, from the Upper Devonian (Hackberry For.) of Iowa, which are from a phyletic point of view quite unrelated to the approximatelly synchronic genus *Phillipsastrea* D'ORB., from which they were not distinguished originally.

The subjective synonymy of the genus *Phillipsastrea* D'ORBIGNY, 1849 is rather intricate, and on many points it is still controversial. The homogenity of this genus was already contested by several authors [A. C. ROMINGER (1876, p. 128), W. WEISSERMEL (1876, p. 128) a. o.] I agree with their opinion, and believe therefore that this genus is only an arbitrary systematic group of polyphyletic or at any rate of diphyletic origin, rather than a true and natural systematic unit. The material from the Devonian of Central Bohemia which I have at my disposal does not allow me however to deal with this problem in the required detail. Therefore I point chiefly only the to the still unclarified relations between the genus *Phillipsastrea* D'ORBIGNY, 1849, and *Pachyphyllum* EDWARDS and HAIME, 1850, of which the latter is characterised by a vertical series of horseshoe-shaped dissepiments bordering the tabularium. A. C. ROMINGER (1876, p. 128) just as more recently W. D. LANG and S. SMITH (1935, p. 554, 557 ff.) a. o. does not however attach the importance of a distinctive generic character to this feature and in a detailed discussion they maintain that *Pachyphyllum* EDWARDS and HAIME, 1850, the genotype of which is the species *P. bouchardi* EDWARDS

& HAIME, 1850 from the French Upper Devonian (Ferques near Boulogne) is congeneric with *Phillipsastrea* D'ORBIGNY, 1849. More recently D. HILL (1939, p. 237); S. SMITH (1945, p. 37), E. D. SOSHKINA (1947a, 1947b) and similarly H. C. WANG (1950, p. 220) a. o. defend the same view. D. HILL admits that the forms included usually in the genus *Pachyphyllum* EDWARDS & HAIME have the value of a separate group within the uniform genus *Phillipsastrea* D'ORB.

In contrastdistinction to them many several authors [F. ROEMER, 1883, p. 389, 392; S. A. MILLER, 1889, p. 198, 199; C. L. WEBSTER, 1889, p. 1; W. D. LANG, S. SMITH and H. D. THOMAS, 1940, p. 92; M. DEMBIŃSKA-RÓZKOWSKA, 1948, p. 213, H. W. SHIRMER and R. R. SHROCK, 1944, p. 97; G. M. EHLERS, 1949, p. 1, E. C. STUMM, 1949, p. 34, 37 a. o.] believed that *Pachyphyllum* EDWARDS & HAIME is an independent genus. I am of their opinion, too.

M. DEMBIŃSKA-RÓZKOWSKA (1948, p. 213) a. o. emphasizes that *Pachyphyllum* EDWARDS & HAIME is a typical *placellophylian form*, and that it is phyletically quite different from the genus *Phillipsastrea* D'ORB., which is a *disphyllian form*. Also E. C. STUMM (1949, p. 32) regards the genus *Phillipsastrea* D'ORB. as a member of the subfamilly *Disphyllinae* HILL, 1939 whereas for the genus *Pachyphyllum* EDWARDS & HAIME he proposes the separate new subfamilly *Pachyphyllinae* STUMM, 1949 (p. 35). In this connection it should be however mentioned that this new subfamilly *Pachyphyllinae* STUMM, in which the author places in addition to the genus in question also the genera *Macgeea* WEBSTER, *Temnophyllum* WALTER, *Phacellophyllum* GÜRICH, *Synaptophyllum* SIMPSON, *Thamnophyllum* PENECKE a. o., seems to correspond at last in part to the earlier established familly *Thamnophyllidae* SOSHKINA (1947a, p. 764; 1947b, p. 538) to which belong according to its author also the genera *Macgeea* WEBSTER, *Thamnophyllum* PENECKE, *Temnophyllum* WALTHER, *Synaptophyllum* SIMPSON, a. o. As the chief character of this family E. D. SOSHKINA (1947a, p. 764) emphasizes the vertical series of the characteristic horseshoe-shaped dissepiments, which border the tabularium, just as does C. E. STUMM (1949, p. 32) for his new subfamilly *Pachyphyllinae* STUMM. E. D. SOSHKINA places in his new family also the genus *Phillipsastrea* D'ORB., but evidently confuses them with *Pachyphyllum* EDWARDS & HAIME.

In this connection it is necessary, I think, also to mention briefly the rather controversial taxonomic position of the genus *Billingsastraea* GRABAU (1917, p. 957) based on the species *Phillipsastraea verneuilli* EDWARDS & HAIME, 1851 from the Middle Devonian of Wisconsin, in which the septa are not dilated at the border of the tabularium as they are typically in *Phillipsastrea* D'ORB.

This genus was originally established only as a subgenus of the genus D'ORBIGNY's of 1849. Full generic independance was giwen to it by E. C. STUMM (1937, p. 438), who regarded it as a closely allied, also *disphyllian form* to the genus *Phillipsastrea* D'ORB. In the conception of H. C. WANG (1950, p. 217) on the contrary the genus in question is a quite unrelated *pycnactid form*, closely allied to and derived from the genus *Heliophyllum* HALL in DANA, 1848.

Stratigraphic and Geographic Distribution: As pointed out by R. WEDEKIND (1937, p. 40), D. HILL (1939, p. 237) and E. C. STUMM (1949, p. 35) the genus *Phillipsastrea* D'ORB. is in its occurrence restricted exclusively only to the Upper Devonian strata of Europe, North America and Western Australia.

In the Middle and Lower Devonian and similarly in the older formation (Silurian) it has not yet been determined with fully certainty. Where its occurrence in them is reported by some earlier author we have always imperfectly known or doubtful species which would have to be revised and re-described. The oldest species of the genus in question is the Silurian species *Phillipsastraea walli* ETHERIDGE (1892, p. 169, pl. XI. fig. 7) from the Lower Ludlovian of New South Wales. More recently serious doubts were raised by D. HILL (1939, p. 236) about the taxonomic position of this species. I agree with this author that this species may not be a member of the familly *Disphyllidae* HILL, 1939, at all. The same applies in my opinion also to the species *Phillipsastraea silurica* LAGUSEN (1865, p. 302, pl. III, figs. 1—3) from the Limestones with *Gypidula esthonica* of Esthonia (SSSR), which W. WEISSERMEL (1894, p. 611, footnote) considered a true *Phillipsastrea*. As it was pointed out by D. HILL (1939, p. 236) in the paper mentioned above the plocoid form from the Lower (?) Devonian of Ellesmereland considered by S. LEUWE (1914, p. 14, pl. VI, fig. 2) conspecific with *Phillipsastrea gigas* BILLINGS is very unsuficiently figured and its taxonomic position remains very doubtful. The Bohemian species *Phillipsastraea cuncta* POČTA, considered by PH. POČTA in 1902 to be a Lower Devonian form, was unsuficiently described too, and according to the result of my revision given below it belongs to the quite unrelated genus *Iowaphyllum*, STUMM, 1949. The specimens from the Middle Devonian of Central Bohemia, refered by F. HANUŠ (1923, 1927) and R. RŮŽIČKA (1940) to the genus *Phillipsastraea* D'ORB. without any more accurate specific designation and description or figure belongs in my opinion rather to the genus *Billingsastraea* GRABAU, 1917. In the Devonian strata of Central Bohemia the genus *Phillipsastrea* D'ORB. seems not to be represented at all. For the other doubtfull or controversial species of this genus reported by various authors also from the Lower or Middle Devonian I refer the reader to the article by D. HILL (1939) mentioned above several times.

BILLINGSASTRAEA GRABAU, 1917

Subjective synonym: Radiastraea STUMM, 1937.
Genotype, by original designation, the species *Phillipsastraea verneuilli* EDWARDS & HAIME, 1851.
Stratum typicum: Middle Devonian.
Locus typicus: Wisconsin, USA.

For generic diagnosis see: E. C. STUMM (1937, p. 347; 1949, p. 35).

Remarks: This genus differs from *Phillipsastrea* D'ORB. chiefly in having the septa thin, not dilated at the border of the tabularium.

The septa have usually well developed cross-bar carinae. The tabulae are predominantly incomplete.

The contradiction in the view taken on the taxonomic position of this genus by E. C. STUMM (1949, p. 35) and H. C. WANG (1950, p. 217) I treat in more detail in the discussion of the genus *Phillipsastrea* D'ORB., given above, and refer the reader to this.

More recently E. C. STUMM (1949, p. 35) has merged in the synonymy of this genus his own genus *Radiastraea* STUMM (1937, p. 439), based originally on the species *R. arachne* STUMM, 1937 from the Middle Devonian Strata of Nevada, which was erected on the incorrect supposition that a small aulos is present.

I place to this genus two species from the Middle Devonian of Central Mohemia, *B. bohemica* NOV. SPEC. and *B. branikensis* NOV. SPEC., which I believe to be new. Both of them are distinctly aphroid forms, in which the septal carinae are only poorly developed or lacking. The North American species of this genus have on the contrary the cross-bar septal carinae very strongly developed. But I do not consider this quantitative difference such as important distinctive generic character as to prevent the Bohemian species mentioned above from being placed in this genus. In my opinion this feature only indicates that the Bohemian species are derivered from orthogenetic lineages different from those from which the North American species are derived.

Stratigraphic and Geographic Distribution: The genus *Billingsastraea* GRABAU seems to be restricted exclusively to the Middle Devonian (E. C. STUMM, 1949, p. 48). Until now it has been found only in the Middle Devonian strata of North America and Western Australia. In the European and Asian Middle Devonian it had not been found and therefore ist occurrence in Central Bohemia remains for the present its only European occurrence.

BILLINGSASTRAEA BOHEMICA NOV. SPEC.

(tab. I, figs. 1—2, tab. II, fig. 1)

Holotype, here designated, the corallum figured as fig. 1—2 in pl. I.
Stratum typicum: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
Locus typicus: The quarry *"u kapličky"* at the road to M. Chuchle, S. of Prague.
Derivatio nominis: bohemicus (L.) = czech, according the country of origin.

Diagnosis: Distinctly aphroid *Billingsastraea* of medium size. The major septa are straight, smooth, without pronounced septal carinae, extend to the middle of the tabularium and are connected by numerous dissepiments.

Description: Discoidal plocoid corallum of medium size. The holotype is 105 mm. in diameter and has a maximum height of 40 mm. The other specimens I know consist of coralla of somewhat smaller measurements. The distal surface of the corallum is flat or slightly convex, with not quite regularly arranged corallites. Their calices are relatively small, 7—8 mm. in diameter, rather deep and surrounded

by a narrow, slightly raised, circular marginal border. The distance between the individual corallites varies in the holotype between 14—19 mm. (measured from the middle of one corallite to the middle of the other one). The septa show on the weathered surface of the corallum a characteristic thorny or needle-like fibrous structure, which is not usually so clearly visible in thin section, apparently owing the manner of preservation.

The proximal part of the corallum is pedunculated and covered with a rather thick holotheca, which is concentrically furrowed or wrinkled.

The inner structure is of characteristically aphroid type. The septal apparatus is restricted only to the tabularium and its immediate surroundings. At the border of the tabularium the septa are not dilated. Whereas the minor septa are relatively very short and remain restricted to the dissepimentarium, the major septa, usually in the number of 31—33, reach almost to the middle of the tabularium. They are straight, thin, smooth, or sometimes with slightly indicated carinae, connected by fairly abundant dissepiments. The latter are in some concentric zones often somewhat thickened by sclerenchyme. The distal ends of the septa are also usually cemented by secondary sclerenchyme. Tabularium consist of numerous, thin, complete or incomplete, almost flat or slightly arched tabulae. The dissepiments occupying a large part between the individual corallites are fairly large, broad, low, convexly arched upwards. In some layers they are also sometimes thickened by secondary sclerenchyme.

Remarks and relations: Of all representatives of this genus the species *B. bohemica* NOV. SPEC. here erected seems to resemble most the genotype — *B. verneuilli* (EDWARDS & HAIME, 1851, P. 447, pl. X, fig. 10) from the Middle Devonian of Wisconsin. It approaches it mainly in the relative size of the individual corallites and in the number of the septa. The American species has however much more markedly carinated septa, which are usually confluent between the adjoining corallites. In contradistinction to this the septa in *B. bohemica* NOV. SPEC. are mainly restricted only to the tabularium and its immediate vicinity and carry only very slightly indicated septal carinae.

The synpatric and synchronic species *B. branikensis* NOV. SPEC. differs from the species described above chiefly by its smaller and much more regularly arranged corallites with a correspondingly smaller number of septa, in which carinae are not developed. The dissepiments in the tabularium are much less frequent, and the ordinary dissepiments are of a different shape and size.

Locality: The quarry "u kapličky" on the road to M. Chuchle, S. of Prague.

Horizon: Zlíchov Limestones — $g\alpha_3$, the *"coral horizon"* at their basis (Middle Devonian). In association with *Billingsastraea branikensis* NOV. SPEC., *Syringaxon bohemica* (BARR.), *S. smithi* PRANTL, *Barrandeophyllum bohemicum* PTL., etc.

Billingsastraea branikensis NOV. SPEC.

(tab. II, figs. 1—2, tab. III, fig. 2)

Holotype, here designated, the specimen figured as fig. 1 in pl. II.
Stratum typicum: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
Locus typicus: The quarry *"u kapličky"* on the road to M. Chuchle, S. of Prague.
Derivatio nominis: branikensis, occuring in the Braník Limestones — $g\alpha$, of which the Zlíchov Limestones — $g\alpha_3$ forms their upper division.

Diagnosis: Aphroid *Billingsastraea* of small size, in which the septa are smooth, without septal carinae.

Description: The corallum may be discoidal or irregularly laminal. The distal surface is approximately plane or slightly convex. The proximal surface is covered by relatively strong, concentrically wrinkled holotheca.

The small calicular pits, about 3,5—5 mm. in diameter, are surrounded by narrow more or less strongly elevated peripheral platforms, which vary in different coralla from 7,7—9,5 mm. in diameter. They are quite equidistantly arranged with the intervals approximately the same as or slightly smaller than their diameter.

The inner structure of this species is distinctly aphroid. The septa are practically restricted only to the tabularia and their immediate surroundings, so that the septa of neighbouring corallites do not touch at all. These septa are thin in their whole course, smooth, without septal carinae. The major septa reach almost to the middle of the tabularium, where their distal ends, usually slightly dilated, are cemented together with great amount of secondary sclerenchyme. There are usually 16—17 of them in each corallite. The minor septa are very short. The major and minor septa are in the tabularium connected by some dissepiments, usually arranged in a few concentrical zones. The tabulae in the tabularium are are ordinarily incomplete, small and very closely packed. The ordinary dissepiments, occupying the interspaces between the tabularia, are rather large, of unequal size, more or less strongly convex, fairry different in size and shape, and are quite uniformly arranged in stratified layers. Some of them are thickened by secondary sclerenchyme.

Remarks: The holotype is a portion of a large laminate corallum, which shows a strongly pronounced, foliate appearence, and is 80 mm. in lenght and max. 64 mm. in width.

Individual coralla of this species vary considerably, both in the size of the corallites and in minor details of structure. In some of them the peripheral platforms, surrounding the calicular pits, are much more strongly elevated than in others, and the more axial portions of the corallites are occasionally raised in a mammillated fashion.

Repeated rejuvenescence occurs in the individual coralla simultaneously in all corallites at distinct levels and produces a foliate appearence well marked in the vertical sections as in the more intensively weathered specimens.

Relations: The species *B. bohemica* NOV. SPEC., which as a synpatric species occurs in the same stratigraphic level with *B. brani-*

kensis NOV. SPEC. described above, differs from it chiefly by its larger and more irregularly spaced corallites with a correspondingly greater number of septa. The dissepiments in the tabularium of the last mentioned species are much more frequent, and the septa carry slightly indicated carinae.

Locality: The quarry *"u kapličky"* on the road to M. Chuchle, S. of Prague.

Horizon: Zlíchov Limestones — $g\alpha_3$, the *"coral horizon"* at their basis (Middle Devonian).

Iowaphyllum STUMM, 1949.

Genotype, by original designation of E. C. STUMM (1949, p. 50) — *Smithia johanni* HALL & WHITFIELD, 1872.
Stratum typicum: Hackberry Group (Upper Devonian).
Locus typicus: Iowa, North America.

For generic diagnosis see: E. C. STUMM (1949, p. 50).

Remarks: The genus in question is a compound, plocoid, *chonophyllian form* with a characteristic septal structure, in which the septa are greatly dilated and in lateral contact with each other across the wide dissepimentarium. I place to this genus the Bohemian species *Phillipsastraea cuncta* POČTA, 1902, whose inner structure does not correspond to the generic diagnosis of the genus *Phillipsastrea* D'ORB., 1849, nor to those other Devonian plocoid Tetracorals discussed above, but on the contrary agrees best with the genus of E. C. STUMM.

Stratigraphical and geographical Distribution: This genus has been described up till now only from the Upper Devonian strata of North America in only three species. It has not yet been recorded from the Devonian of Europe or other regions.

Iowaphyllum cunctum (POČTA, 1902).

(pl. IV, figs. 1—2)

1902 — *Phillipsastraea cuncta* POČTA, in J. BARRANDE: Système Silurien du Centre de la Bohême, vol. VIII, tome II, p. 158, pl. 113, fig. 18 (Anthozoires at Alcyonaires).
Holotype, by monotype, the corallum figured by PH. POČTA in 1902 as fig. 18 in pl. 113.
Stratum typicum: Slivenec Limestones — $g\alpha_1'$ (Middle Devonian).
Locus typicus: Koněprusy, near Beroun (Central Bohemia).

Description: Compound thamnastreoid to subaphroid coralla with relatively irregularly arranged corallites, which have relatively small calicular pits and fairly large, slightly convex and usually not quite circular peripheral platforms.

The major septa, about 18 in number, some of which are thickened of their whole length, reach usually to the middle of the tabularium, where they are sometimes somewhat irregularly twisted. The minor septa terminate at the margin of the tabularium. Across the wide dissepimentarium both septa are characteristically dilated and in lateral

contact, forming a distinct stereozone. The thickened septa show sometimes a thorny or needlelike fibrous structure as in *Schlotheimophyllum* or *Pseudochonophyllum*. The same feature is sometimes clearly visible also directly on more or less weathered surface of corallum. The septa of some corallites may continue to the axial pits of the neighbourring corallites or may abut at their peripheral ends against those of neighbourring ones. The tabularium in relatively narrow, about 4—7 mm. in diameter, and is filled with numerous, thin, flat or slightly convex tabulae, which are almost complete. In the periaxial region they are more arched as in the axial portion of the tabularium. The areas between the corallites are filled more or less completely with relative large, distally arched dissepiments.

For the other details I refer the reader to the original description of PH. POČTA (1902). The septal carinae, mentioned in the original description were not observed.

Remarks: The holotype and at the same time the only specimen I know of this species is about 75 mm. long and max. 45 mm. broad part of a corallum with 10 corallites, of which some are incomplete. The calicular pits are filled by matrix. The shape of the corallites is quite irregular, and some of have their calicular pits and their arched peripheral platforms more or less oval or deformed. Strictly circular calicular pits are quite rare.

The proximal, not figured part of the corallum is cut off and polished, just as are also the lateral sides. Ph. POČTA's original description is based only on these polished surfaces. Therefore his description of the fine inner structure of this species does not correspond fully to the facts in some details, and was found insuficient already earlier by some authors (e. g. D. HILL, 1939, p. 236; E. D. SOSHKINA, 1949b, p. 539). Therefore I gave above the supplements to the original description POČTA's, according to a new thin section made from the cut-off lower, unfigured portion of the holotype (See pl. IV, fig. 2). At the same time I must however point out that I did not find in this thin section the septal carinae mentioned by PH. POČTA (1902). The other unfigured specimens of which PH. POČTA speaks in his original description were unfortunately not deposited in the collections of the *National Museum, Prague,* and have probably been lost.

PH. POČTA (1902) was well aware that his species *P. cuncta* has a distinctly *chonophyllian character,* as may be seen from his right comparing of this species with the species *Chonophyllum pseudohelianthoides* SCHERZEL, 1892, on which latter C. D. SOSHKINA (1937, p. 59) established the new genus *Pseudochonophyllum* SOSHKINA. More recently E. C. STUMM (1949, p. 50) considers the latter genus to be probably congeneric with *Chonophyllum* EDWARDS & HAIME, 1850, and H. C. WANG (1950, p. 215) places it among the synonyms of the quite allied genus *Craterophyllum* FOERSTRE, 1909, (non *Craterophyllum* BARBOUR, 1911, NEC *Craterophyllum* TOLMACHEV, 1931).

Relations: The species *I. cunctum* (POČTA, 1902) differs from the genotype of the genus *Iowaphyllum* STUMM, 1949, chiefly by its major and minor septa being characteristically thickened nearly in their

whole course, whereas in *I. johanni* (HALL & WHITFIELD, 1872) they are in the tabularium thin, unthickened by secondary sclerenchyme. The species *I. alpenense* (ROMINGER, 1876) and *I. knotti* (DAVIS, 1887) differ in the measurements of the corralites, number of their septa as well as in some minor details of their inner structure.

Locality: Koněprusy, near Beroun (Central Bohemia).

Horizon: Slivenec Limestones — $g\alpha_1'$ (Middle Devonian). — PH. POČTA (1902) reports that this species derives from the Koněprusy Limestones — f, i. e. from the Lower Devonian. This statement must be somewhat corrected, as this species derives in fact from the Slivenec Limestones — $g\alpha_1'$ (Middle Devonian), overlying in the neighbourhood of Koněprusy the Koněprusy Limestones — f (Lower Devonian). This seems to be quite clear from the characteristic texture and redish colour of the matrix limestone.

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EXPLANATION OT THE PLATES.

Pl. I.

1. *Billingsastraea bohemica* NOV. SPEC. The holotype. 1 : 1. The distal surface of the corallum showing the arrangement of the corallites.
   Horizon: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.
2. *Billingsastraea bohemica* NOV. SPEC. The holotype. 1 : 1. The proximal surface showing the holotheca.
   Horizon: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.

Pl. II.

1. *Billingsastraea branikensis* NOV. SPEC. The holotype. 1 : 1. The distal surface showing the arrangement of the corallites with relatively low pepheral platforms.
   Horizon: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.
2. *Billingsastraea branikensis* NOV. SPEC. A paratype. 1 : 1. The distal surface showing the arrangement of the corallites with more raised, mammillated peripheral platforms.
   Horizon: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.

Pl. III.

1. *Billingsastraea bohemica* NOV. SPEC. A paratype. 1 : 2. Trasverse section.
   Horizon: Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.
2. *Billingsastraea branikensis* NOV. SPEC. A paratype. 1 : 2. Transverse section.
   Horizon: The Zlíchov Limestones — $g\alpha_3$ (Middle Devonian).
   Locality: The quarry "u kapličky" at the road to M. Chuchle, S. of Prague.

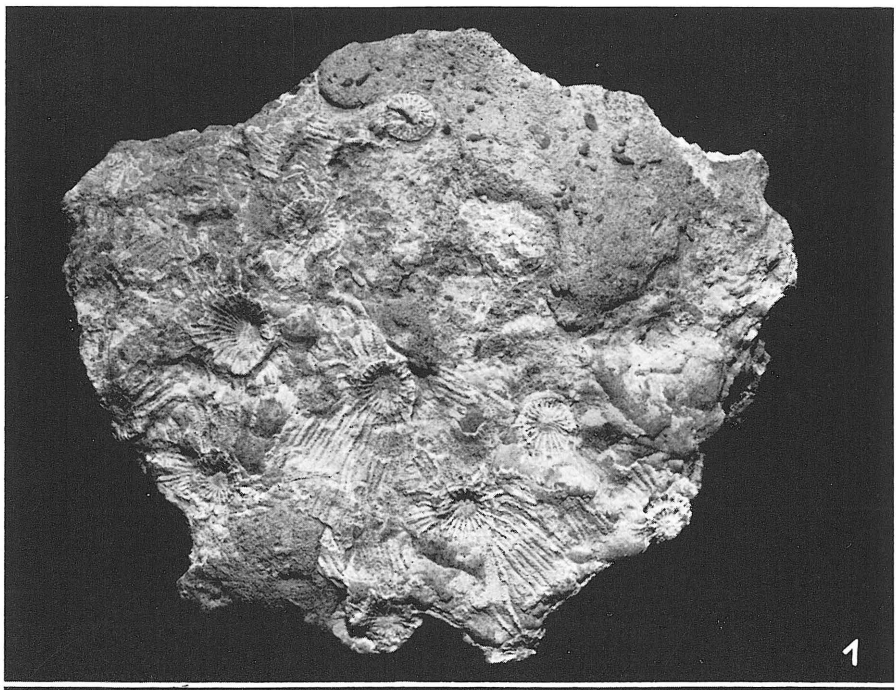
Pl. IV.

1. *Iowaphyllum cunctum* (POČTA, 1902). The holotype. 1 : 1. The distal surface of the corallum showing the arrangement of the corallites.
   Horizon: Slivenec Limestones — $g\alpha_1'$ (Middle Devonian).
   Locality: Koněprusy, near Beroun (Central Bohemia).
2. *Iowaphyllum cunctum* (POČTA, 1902). A transverse section made from the cut-off proximal, unfigured portion of the holotype. 1 : 2.
   Horizon: Slivenec Limestones — $g\alpha_1'$ (Middle Devonian).
   Locality: Koněprusy, near Beroun (Central Bohemia).

SBORNÍK NÁRODNÍHO MUSEA V PRAZE - ACTA MUSEI NATIONALIS PRAGAE
VII. (1951) - B (PŘÍRODOVĚDNÝ) No. 3. - GEOLOGIE ET PALAEONT. No. 2.
REDAKTOR IVAN KLÁŠTERSKÝ

FERDINAND PRANTL: O UDÁNLIVÉM VÝSKYTU RODU PHILLIPSASTREA D'ORBIGNY, 1849, V ČESKÉM DEVONU. ON THE SUPPOSED OCCURRENCE OF THE GENUS PHILLIPSASTREA D'ORBIGNY, 1849, IN THE DEVONIAN OF BOHEMIA.

V BŘEZNU 1951 VYDALO SVÝM NÁKLADEM V POČTU 1100 VÝTISKŮ NÁRODNÍ MUSEUM V PRAZE - VYTISKLA STÁTNÍ TISKÁRNA, N.P., ZÁVOD 02 - CENA BROŽOV. VÝTISKU 31 Kčs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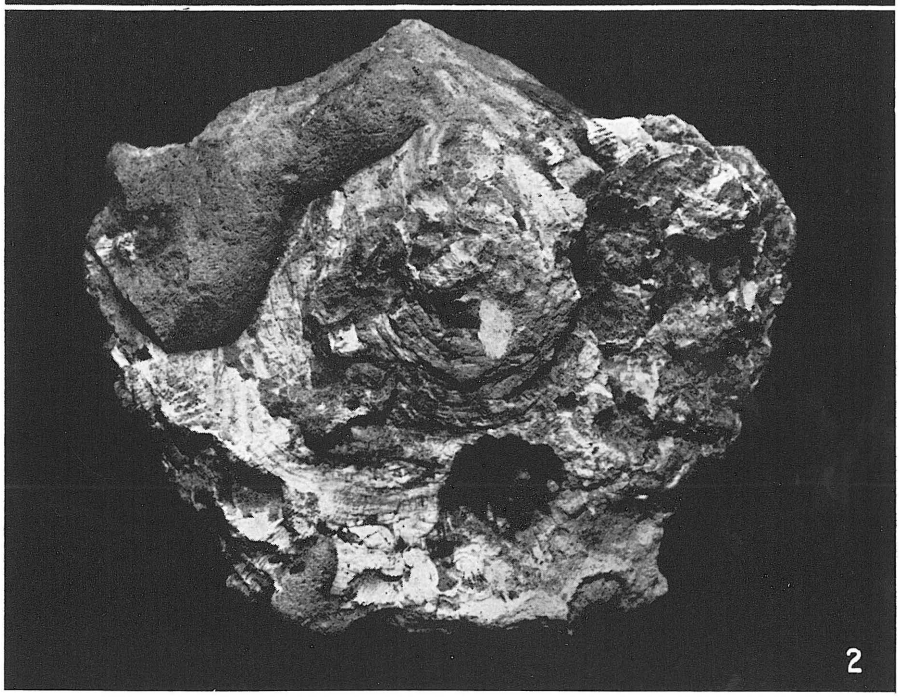
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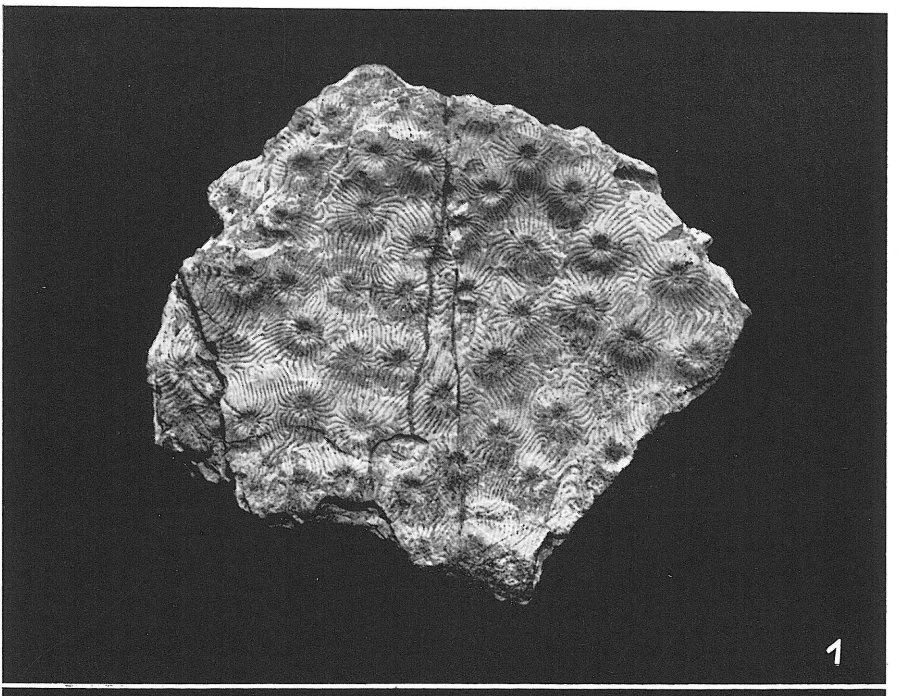
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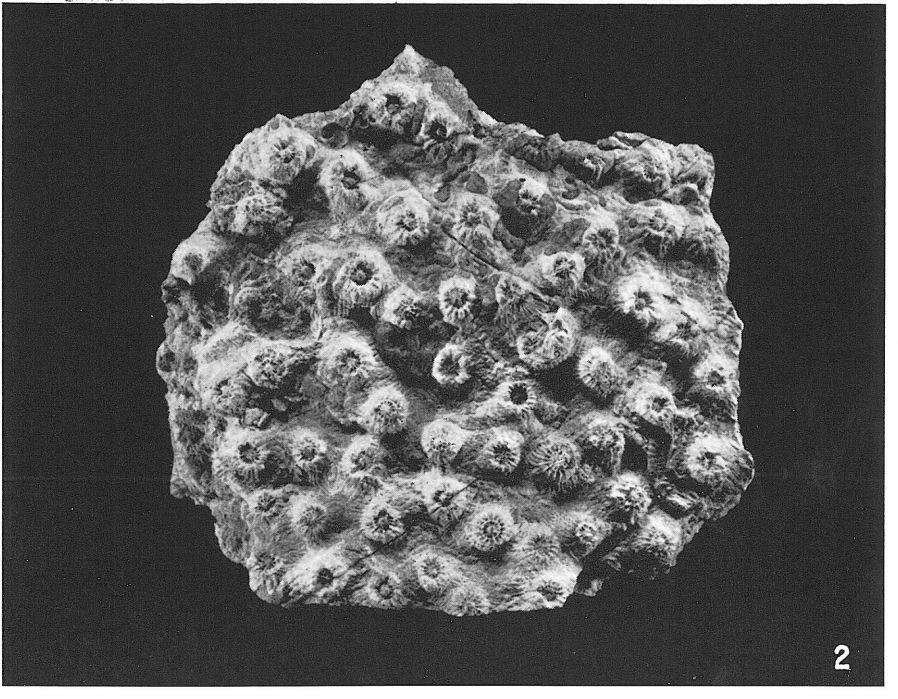
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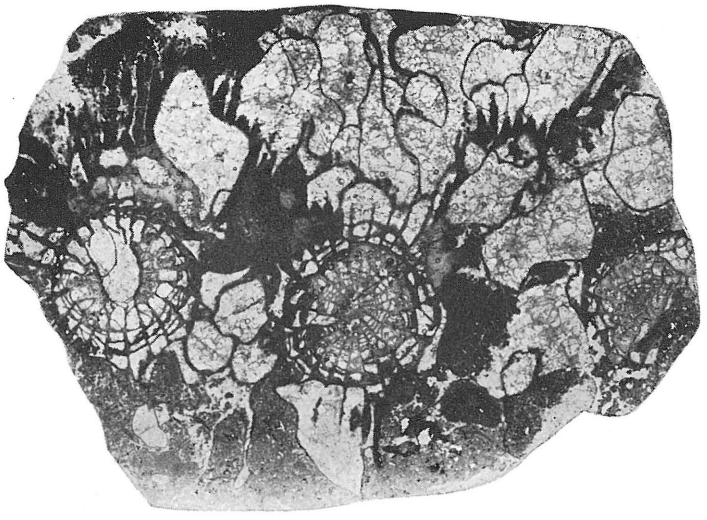

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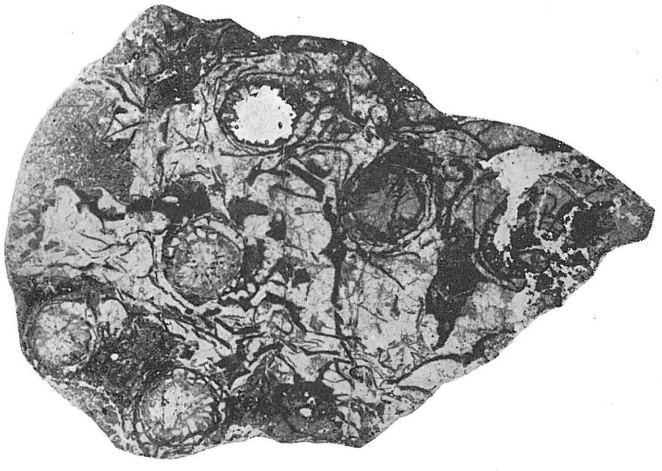

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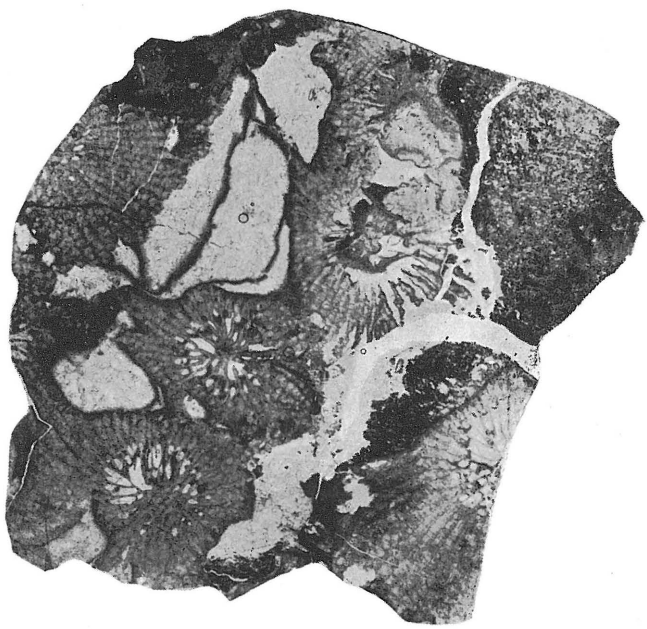

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