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Namurské thecamoebý z ostravsko-karvinského revíru

Namurian Thecamoebina from the Ostrava-Karviná Coal District

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V jakloveckých a porubských vrstvách ostravsko-karvinského revíru byli nalezeni zástupci řádu *Thecamoebina*. Objevují se v polohách se sladkovodní nebo smíšenou (sladkovodní a marinní) faunou, nebo v polohách bez fauny, ležících v těch částech jakloveckého souvrství, ve kterých se hojně objevují jen patra se sladkovodní faunou. Materiál, který jsme získali, dovoluje popis několika nejvýznačnějších, dobře charakterisovaných a určitelných druhů.

Ustaven je genus *Prantlitina*, nový rod řádu *Thecamoebina*, se dvěma podrody: *P. (Prantlitina) nov. subgen.*, a *P. (Prantlitinopsis) nov. subgen.* K podrodu *P. (Prantlitina) nov. subgen.* jsme přiřadili druhy *P. (Prantlitina) prantli nov. spec.* (genotyp a subgenotyp), *P. Prantlitina šustai nov. spec.*, a *P. (Prantlitina) remeši nov. spec.* K podrodu *P. (Prantlitinopsis) nov. subgen.* jsme přiřadili druh *P. (Prantlitinopsis) štíri nov. spec.* (subgenotyp) a zástupce dvou dalších druhů s *nom. aperta*.

Některá fosiliferní patra nebo jejich polohy obsahují formy jisté velikosti a vyhraněného tvaru, takže při troše nestřídmosti mohl být popsán větší počet druhů. Ustavili jsme zatím jen ty, které jsou snadno identifikovatelné. Domníváme se totiž, že další taxionomické jednotky nelze ustavovat do té doby, dokud nebude získán tak bohatý materiál, který by objasnil, zda příčiny specifičnosti forem v některých patrech nebo jejich polohách jsou biologické nebo fyzikální.

Na teoretický a praktický význam objevu namurských thecamoeb jsme upozornili v jiné práci (1957).

Representatives of the order *Thecamoebina* were found in the Jaklovec and Poruba zones of Namurian age. They appear in the layers with a fresh-water or mixed (fresh-water and marine) fauna, and also in unfossiliferous layers lying in those parts of the Jaklovec zone in which only fresh-water faunal bands frequently occur. The acquired material allows the description of some outstanding, well-characterized and easily identifiable species.

The genus *Prantlitina* nov. gen. of the order *Thecamoebina* with two subgenera *P. (Prantlitina)* nov. subgen. and *P. (Prantlitinopsis)* nov. subgen. has been established. We place in the subgenus *P. (Prantlitina)* nov. subgen. the following species: *P. (Prantlitina) prantli* nov. spec. (genotype and subgenotype), *P. (Prantlitina) šustai* nov. spec., and *P. (Prantlitina) remeši* nov. spec. The species *P. (Prantlitinopsis) štúri* nov. spec. (subgenotype) and representatives of two other species with *nom. aperta* are placed in the subgenus *P. (Prantlitinopsis)* nov. subgen.

PRANTLITINA NOV. GEN.

Genotype, here designated, the species *Prantlitina prantli* nov. spec.

Derivatio nominis: In honour of the Czech paleontologist Dr. Ferdinand Prantl.

Stratum typicum: Namurian A (Ostrava beds. Jaklovec and Poruba zones).

Locus typicus: Barbora fresh-water layers, Ostrava-Karviná coal district, Orlová, mine Václav, 4th gallery, N.W. cross-cut, roof of the 10 P. seam.

Diagnosis: Test arenaceous of sand grains of equal size, uncalcareous, one-chambered, oval or ovoid in outline, without a distinct neck. Wall thick. Building material originally flexible so that postmortal deformations of tests are frequent. Inner cavity simple, in the fossil state often deformed. Aperture simple, slit-like, very often indistinct on the surface of the test, but visible on sections.

Remarks and relations: The new genus is the oldest so far known representative of the order *Thecamoebina*. Representatives of this order are abundant in Recent times. They live in fresh water and moist environments. Their tests are also encountered in brackish sediments in front of river mouths. It is, however, not proved whether some thecamoebina live in brackish waters. Namurian thecamoebina also lived in a fresh-water environment as they occur in sediments with a fresh-water fauna. They rarely appear also in layers with a mixed (fresh-water and marine) fauna, but are generally absent in those with a purely marine fauna.

Earlier finds of fossil representatives of the order *Thecamoebina* are questionable (H. M. Bolli and J. B. Saunders, 1954). The earliest representatives are recorded from Eocene Twigg's Clay of Georgia.

Flat tests of the genus *Prantlitina* nov. gen. most resemble tests of the genus *Pontigulasia*, whose representative *P. compressa* (Carter) has been found and described together with foraminifera from Eocene clays. However, tests of the genus *Prantlitina* do not possess a well-developed neck. The new genus slightly resembles the group of forms that are generally placed in the genus *Diffflugia* s. l. The genus *Prantlitina* differs from these forms by the fact that it does not possess a well-developed neck, that both the posterior and anterior ends of the test are approximately equally rounded, and that the tests lack spines (some protuberances, however, sometimes arise through postmortal deformations of tests). Sections and some individuals with a visible aperture show that the aperture probably lay near the proximal end of the test so that the tests were probably bilaterally symmetrical. Of course, changes in the position of the aperture may have been caused by postmortal deformations of tests.

Stratigraphical distribution: Representatives of the genus *Prantlitina* nov. gen. have been found up to the present only in the Ostrava-Karviná coal district in beds of Namurian age. It is possible to expect their presence even in later Carboniferous beds.

Prantlitina (Prantlitina) nov. subgen.

Subgenotype, by subsequent designation of the genotype, *Prantlitina (Prantlitina) prantli* nov. spec.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, Orlová, mine Václav, 4th gallery, N.W. cross-cut, roof of the 10 P. seam. Namurian A.

Diagnosis: The representatives of this typical subgenus are especially characterized by quite regularly oval tests, especially thick walls and by an especially strong inclination to postmortal deformations of tests. The absence of traces of the aperture on the surface of the test is a further typical character.

In the other features the subgenus *Prantlitina (Prantlitina) nov. subgen.* agrees with the definition of the whole genus.

Remarks and relations: The subgenus *Prantlitina (Prantlitinopsis) nov. subgen.* is distinguished from the typical subgenus *P. (Prantlitina) nov. subgen.* by the oval outline of the test, by thinner walls, by a slighter inclination to postmortal deformations of tests, and to a certain degree even by the fact that the aperture is sometimes visible on the surface of the test.

In addition to the subgenotype *P. (Prantlitina) prantli* nov. spec. we reckon to this typical subgenus two further species which we designate as *P. (Prantlitina) remeši* nov. spec. and *P. (Prantlitina) šustai* nov. spec.

Occurrence: The same as for the genus.

Prantlitina (Prantlitina) prantli nov. spec.

(pl. XL, figs. 1-4; pl. XLI, ser. 1-5)

Holotype, here designated, the specimen figured as fig. 1 in pl. XL.

Derivatio nominis: In honour of the Czech paleontologist Dr. Ferdinand Prantl, who deserves great merit for the development of paleontology in Czechoslovakia.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, Orlová, mine Václav, 4th gallery, N.W. cross-cut, 260 centimetres above the 10 P. seam. Namurian A (Ostrava beds).

Diagnosis: The test finely arenaceous, rough on the surface, flat, rounded at the sides, regularly oval, but always deformed so that the outline is more or less subangular. The aperture is not usually visible on the surface of the test.

Dimensions: The length of the holotype 0.6 mm., the width 0.4 mm. The dimensions of paratypes fluctuate only slightly round these values. The thickness of the test varies considerably, often being in various degrees diminished by pressure. The ratio of the length to the width, which fluctuates round the value 1.5, varies for the same reason.

Remarks and relations: The wall of the test is very thick. It consists of tiny uncalcareous sorted grains with much cement. The building material appears to be homogeneous and individual sandy grains are not well distinguishable from cement. In spite of these qualities the wall was not firm and easily cracked after death of the organism. For this reason it is impossible to define reliably the shape of the aperture and of the inner cavity on fossil specimens. All traces of the aperture have disappeared on the surface of the tests. This aperture was most probably elongated or slit-like. It is observable only on sections. It usually lies outside the proximal end of the test, but it is impossible to determine reliably whether that is due to postmortal deformations. The inner cavity is simple and very strongly broadens in the posterior third of the test. Of course, it is compressed and variously deformed in fossil specimens. It is often possible to observe how the mass of the walls was pressed into the space of the cavity from various sides after death of the organism.

Prantlitina (Prantlitina) prantli n o v. s p e c. differs from the other so far known species of the subgenus *P. (Prantlitina)* n o v. s u b g e n. by the greatest size, by the broadly oval outline of the test and by the greatest inclination to postmortal deformations. The species *P. (Prantlitina) šustai* n o v. s p e c. is the most similar, but it is slighter and has more inflated tests. The species *P. (Prantlitina) remeši* n o v. s p e c. is much less similar as it has strongly elongated tests.

Occurrence: Typical representatives of the new species were found in layers with a fresh-water fauna above the 10 P. seam (Barbora fresh-water layers), where they are abundant at certain levels.

Prantlitina (Prantlitina) šustai n o v. s p e c.

(pl. XL, figs. 5-7; pl. XLI, ser. 4)

Holotype, here designated, the specimen figured as fig. 5 in pl. XL.

Derivatio nominis: In honour of the late Ing. Václav Šusta, who deserves great credit for the investigation of the Ostrava-Karviná coal district.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, mine Fučík I, air-course above the 5th gallery, 120 cm. before point 712. Namurian A (Ostrava beds).

Diagnosis: Test finely arenaceous, rough on the surface, inflated, rounded on the sides, more or less regularly oval, often slightly deformed and subangular in outline. The aperture is generally not visible on the surface of the test.

Dimensions: The length of the holotype 0.4 mm., the width 0.25 mm. Dimensions of the paratypes fluctuate only slightly round these values. The ratio of the length to the width varies round 1.6. The thickness is variable because of deformations.

Remarks and relations: *P. (Prantlitina) šustai* n o v. s p e c. greatly resembles the species *P. (Prantlitina) prantli* n o v. s p e c. by the building material of the test and by its outline. It differs, however, from it by a smaller size, by a greater resistance of the walls to deformations, and by inflated sides. From the species *P. (Prantlitina) remeši* n o v. s p e c. it differs distinctly by less elongated tests.

Occurrence: Typical representatives of the new species were found in layers with a fresh-water fauna above the 9th seam in mine Fučík I, where they are abundant at certain levels.

Prantlitina (Prantlitina) remeši nov. spec.

(pl. XL, figs. 8, 9)

Holotype here designated, the specimen figured as fig. 8 in pl. XL.

Derivatio nominis: In honour of the nestor of Czechoslovak paleontologists MUDr. Mauric Remeš.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, mine Václav, 4th gallery, N.W. cross-cut, 120 cm. above the 10 P. seam. Namurian A (Ostrava beds).

Diagnosis: Test finely arenaceous, slightly rough on the surface, strongly narrowed, but oval on the sides, strongly elongated, somewhat pointed at the ends, rarely somewhat deformed. The aperture is generally not visible on the surface.

Dimensions: The length of the holotype 0.65 mm., the width 0.27 mm. Index of the length and width varies round 2.3.

Remarks and relations: The slender, long test of the new species is very striking and distinguishes it from the other known species of the subgenus *P. (Prantlitina)* n. subgen. The building material of the walls is comparatively firm so that the tests are only slightly deformed.

Very similar forms to the species here described were found in the Jaklovec zone in the roof of the 12th seam. We designate them as *P. (Prantlitina)* aff. *remeši* (pl. XL, fig. 11).

Occurrence: Typical representatives of the new species were found in layers with a fresh-water fauna above the 10 P. seam in mine Václav, where they occur sporadically.

Prantlitina (Prantlitinopsis) nov. subgen.

Subgenotype, here designated, the species *Prantlitina (Prantlitinopsis) štúri* nov. spec.

Derivatio nominis: Derived from the generic name *Prantlitina* by changing the ending *-itina* to *itinoopsis*.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, mine Fučík I, air-course above the 5th gallery, the roof of the 9th seam. Namurian A.

Diagnosis: Subgenus of the genus *Prantlitina* nov. gen., characterized by the following features: test thin-walled, ovoid, with truncated proximal end, flat, the aperture rather frequently visible, situated slightly excentrically. The tests are usually not deformed with the exception of slightly depressed flanks above the central cavity.

Remarks and relations: The subgenus *P. (Prantlitinopsis)* nov. subgen. differs from the subgenus *P. (Prantlitina)* nov. subgen. by the thinner wall, by the truncated proximal end of the test, by the more firmly cemented building material of the test as well as by the more conspicuous aperture, which is visible rather frequently on the surface of the test.

For the present we describe only a single species of the new subgenus, *P. (Prantlitiopsis) štúri* nov. spec. The new subgenus is, however, represented in the Ostrava beds by a greater number of species, as is shown by some finds (see pl. XL, figs. 14, 15). For the present, however, we do not possess so much material as to be able to establish more reliably the diagnoses of these further species.

Occurrence: The same as for the typical subgenus.

Prantlitina (Prantlitiopsis) štúri nov. spec.

(pl. XL, figs. 12, 13)

Holotype, here designated, the specimen figured as fig. 12 in pl. XL.

Derivatio nominis: In honour of the late Slovak paleontologist and geologist Dionýz Štúr, who deserves credit for the investigation of the Ostrava-Karviná coal district.

Stratum locusque typicum: Barbora fresh-water layers, Ostrava-Karviná coal district, mine Fučík I, air-course above the 5th gallery, 120 cm. before point 712. Namurian A.

Diagnosis: The test finely arenaceous, slightly rough on the surface, dull, thin and flat, the sides rounded.

Dimensions: The length of the holotype 0.38 mm., the width 0.22 mm., the thickness 0.07 mm. Dimensions of the paratypes do not differ essentially. The ratio of the length to the width amounts to approximately 1.7.

Remarks and relations: The fine sandy sorted material forms together with cement a slightly translucent mass through which the dark central cavity is sometimes very slightly perceptible. The aperture is visible rather frequently and is usually situated below the proximal end. The building material is firm, considerably resistant to deformations so that the tests usually keep their regularly avoid outline.

An adequate material for the description of further species of the subgenus *P. (Prantlitiopsis)* nov. subgen. has not been acquired for the present. Representatives of other species which differ from the new species by more elongated or broader tests are figured in pl. XL, figs. 14, 15.

Occurrence: Typical representatives of the new species were found in layers with a fresh-water fauna above the 9th seam in mine Fučík I. They are rare. Representatives of a related species were found in the Jaklovec zone in the roof of seam 13b in mine Ludvík, 5th gallery, the chief cross-cut.

Prantlitina (Prantlitiopsis) sp.

We figure specimens belonging to two new species of the subgenus *P. (Prantlitiopsis)* nov. subgen. The one (pl. XL, fig. 14) comes from the roof of seam 13b (Jaklovec zone) from mine Ludvík, 5th gallery, chief cross-cut. It is distinguished by a very slender test. The other (pl. XL, fig. 15) comes from the Barbora fresh-water layers, from the Václav mine, 4th gallery, NW. cross-cut. It is characterized by a broad and proportionately thick test. We do not describe these species because we expect to be able to do so in the future when a greater amount of material is at our disposal.

CONCLUSION.

The finds of thecamoebina in the Namurian beds of the Ostrava-Karviná coal district show that thecamoebina lived in a fresh-water environment as early as in the Carboniferous times. The presence of thecamoebina in fresh-water bands and layers allows the use of micropaleontological methods for the identification of such bands and layers.

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Translated by *Olga Vašíčková*

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EXPLANATION OF THE PLATES

Plate XL

- Fig. 1 — *Prantlitina (Prantlitina)* nov. subgen. nov. spec., holotype. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 260 cm. above the 10 P. seam (Barbora fresh-water layers).
- Figs. 2-4 — *Prantlitina (Prantlitina) prantli* nov. subgen. nov. spec., paratypes. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 5 m. above the 10 P. seam (Barbora fresh-water layers).
- Fig. 5 — *Prantlitina (Prantlitina) šustai* nov. spec., holotype. Locality: Mine Fučík I, air-course above 5th gallery, 120 cm. before point 712, roof of 9th seam (Barbora fresh-water layers).
- Figs. 6, 7 — *Prantlitina (Prantlitina) šustai* nov. spec., paratypes. From the same locality as the holotype.
- Fig. 8 — *Prantlitina (Prantlitina) remeši* nov. spec., holotype. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 1 m. above the 10 P. seam (Barbora fresh-water layers).
- Fig. 9 — *Prantlitina (Prantlitina) remeši* nov. spec., paratype. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 5 m. above the 10 P. seam (Barbora fresh-water layers).
- Fig. 10 — *Prantlitina (Prantlitina)* cf. *šustai* nov. spec. A broken specimen showing the character of internal cavity. Locality: Mine Ludvík, 5th gallery, roof of seam 12.
- Fig. 11 — *Prantlitina (Prantlitina)* aff. *remeši* nov. spec. Locality: Mine Ludvík, 5th gallery, roof of seam 12.
- Fig. 12 — *Prantlitina (Prantlitinopsis) štúri* nov. subgen. nov. spec., holotype. Locality: Mine Fučík I, air-course above 5th gallery, 120 cm. before point 712, roof of 9th seam (Barbora fresh-water layers).
- Fig. 13 — *Prantlitina (Prantlitinopsis) štúri* nov. spec., paratype. From the same locality as holotype.
- Fig. 14 — *Prantlitina (Prantlitinopsis)* s.p. Locality: Mine Ludvík, 5th gallery, chief cross-cut, 40 cm. above seam 13b.
- Fig. 15 — *Prantlitina (Prantlitinopsis)* s.p. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 260 cm. above the 10 P. seam (Barbora fresh-water layers).

The specimens figured are deposited at the National Museum in Prague.

Series of sections showing the internal structure of some representatives of the genus *Prantlitina* n o v. g e n.

- Ser. 1 — Four longitudinal sections across a specimen of *Prantlitina (Prantlitina) prantli* n o v. s p e c. The inner cavity is simple, but strongly deformed through pressure. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 1 m. above the 10 P. seam (Barbora fresh-water layers).
- Ser. 2 — Three longitudinal sections across a specimen of *Prantlitina (Prantlitina) prantli* n o v. s p e c. The inner cavity is especially strongly deformed so that the sections always cut only some of its parts. The aperture is situated outside the proximal end of the test. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 1 m. above the 10 P. seam (Barbora fresh-water layers).
- Ser. 3 — Eleven radial sections across a specimen of *Prantlitina (Prantlitina) prantli* n o v. s p e c. in the direction from the proximal end of the test to the distal one. Especially the distal part of the test suffers from strong postmortal deformations. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 5 m. above the 10 P. seam (Barbora fresh-water layers).
- Ser. 4 — Seven longitudinal sections across a specimen of *Prantlitina (Prantlitina) šustai* n o v. s p e c. The inner cavity opens near the proximal end of the test. Locality: Mine Václav, 4th gallery, N.W. cross-cut, 5 m. above the 10 P. seam (Barbora fresh-water layers).
- Ser. 5 — Five radial sections across a specimen of *Prantlitina (Prantlitina) s p.* Locality: Mine Václav, 4th gallery, N. W. cross-cut, 5 m. above the 10 P. seam (Barbora fresh-water layers).