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BOHUSLAV RŮŽIČKA A FERDINAND PRANTL:

O nedokonale známých „aviculoidních“ mlžích českého siluru a devonu

(Some imperfectly known "aviculoid" Pelecypods from the Silurian and Devonian
of Bohemia)

Šestý svazek klasického díla J. Barranda „*Système Silurien du Centre de la Bohême*“ z r. 1881 je věnován mlžům středočeského staršího paleozoika. Převážná většina zde stanovených a vyobrazených forem však zcela postrádá bližšího vymezení sebestručnějším slovním popisem nebo diagnosou, a proto platnost těchto druhů je s přísně nomenklatorického hlediska sporná. K předním úkolům československé paleontologie současné doby náleží proto revise a kritické zhodnocení taxionomické platnosti a nomenklatorické oprávněnosti těchto forem.

Tento požadavek má své plné oprávnění nejen s hlediska ryze systematického a evolučního, nýbrž i s hlediska praktického, protože mnohé z těchto forem ukazují se být významnými druhy biostratigrafickými, vhodnými jak k zpřesňování stratigrafie jednotlivých oddílů středočeského ordoviku, siluru a devonu, tak i pro korelaci oblasti Barrandienu s ordovickými, silurskými a devonskými uloženinami jiných území.

Po této stránce bylo až dosud u nás vykonáno velmi málo, a československá paleontologie zůstává Barrandovu odkazu mnoho dlužna. V uplynulých desetiletích se u nás vlastně téměř nikdo soustavnou revisí Barrandem stanovených mlžů soustavněji nezabýval. Vedle starší studie J. Pfaba (1934), věnované revisi některých taxodontních mlžů středočeského ordoviku, zabýval se těmito otázkami hlavně jen B. Růžička (1949, 1950 a 1951), který se věnoval revisi forem, zahrnovaných J. Barrandem (1881) pod kumulativním označením *Avicula* nebo *Avicula? Pterinea*.

Tyto práce prokázaly, že Barrandovy „aviculoidní“ formy v jeho původním pojetí jsou velmi heterogenní a umělou skupinou, která ve skutečnosti v sobě zahrnuje zástupce četných rodů, náležejících do samotných, blíže nepřibuzných čeledí a skupin.

Mezi nimi zjistil B. Růžička (1949, 1950a, 1950b) jak zástupce čeledi *Leiopteriidae* Maillieux, tak čeledi *Pteriidae* Thiele a *Pterineidae* Dall. Některé formy ukázaly se pak dále být příslušníky čeledi *Pterinoplectinidae* Newell a *Aviculopectinidae* Etheridge jr. Konečně několik

Barrandových druhů náleží ve skutečnosti i k rodu *Cypricardinia* Hall, 1859, a tedy do skupiny *Heterodonta* Neumayer.

Taxionomické přeurčení a revisi systematického zařazení bylo však možno provést jen u těch „*aviculoidních*“ forem, které jsou ve sbírce Barrandově zastoupeny větším počtem poměrně dobře zachovaných syntypů, nebo u takových, kde vedle typu Barrandova byl k dispozici ještě další, vhodně zachovaný materiál téhož druhu. Po provedené revisi zbyl však ještě jistý počet forem, stanovených J. Barrandem (1881) jen na základě jediného, často více méně neúplného a proto rodově (genericky) blíže neurčitelného exempláře. Zpravidla se jedná o neúplný otisk nebo jádro jediné misky. V některých případech je dále na závadu nepostačující preparace, kterou však s ohledem na ojedinělost materiálu nebylo možno zlepšiti. Podrobnému popisu těchto forem věnujeme toto pojednání. K pokud možno zevrubným popisům přistupujeme proto, že chceme zachytit zajímavé nebo důležité morfologické podrobnosti jednotlivých forem a tím umožnit jejich případné bližší srovnání s druhy zastoupenými i v ostatních silurských oblastech, po případě s novými nálezy. Za tím účelem podáváme i nové vyobrazení, protože v některých případech J. Barrandem podaná vyobrazení studovaných forem nejsou zcela přesná.

Jak jsme se již zmínili, byly v této práci popsány „*aviculoidní*“ formy stanoveny J. Barrandem na základě více méně neúplných jader nebo otisků jedné misky a jsou proto rodově neurčitelné.

Ponecháváme jim proto až na další kumulativní označení „*Avicula*“, ač jsme si více jak dobře vědomi, že tím nemůžeme a ani nechceme vyjádřit jejich příslušnost k rodu *Avicula* Klein, 1753, jako přesně stanovenému a vymezenému rodovému taxonu. Proto také píšeme toto označení v uvozovkách.

Jsou to tyto formy:

- | | |
|---|--|
| „ <i>Avicula</i> “ <i>urbana</i> Barrande, 1881 | „ <i>A.</i> “ <i>lingua</i> Barrande, 1881 |
| „ <i>A.</i> “ <i>insolita</i> Barrande, 1881 | „ <i>A.</i> “ <i>manulia</i> Barrande, 1881 |
| „ <i>A.</i> “ <i>impotens</i> Barrande, 1881 | „ <i>A.</i> “ <i>jacens</i> Barrande, 1881 |
| „ <i>A.</i> “ <i>victima</i> Barrande, 1881 | „ <i>A.</i> “ <i>complanans</i> Barrande, 1881 |
| „ <i>A.</i> “ <i>invisa</i> Barrande, 1881 | „ <i>A.</i> “ <i>incumbens</i> Barrande, 1881 |
| „ <i>A.</i> “ <i>trunca</i> Barrande, 1881 | |

Současně připomínáme, že k formě „*Avicula*“ *invisa* Barr. jsme přiřadili rovněž i poněkud méně klenutou pravou misku, označenou J. Barrandem v r. 1881 jako *Avicula imperfecta*. Tato forma shoduje se totiž všemi svými význačnými znaky s formou „*Avicula*“ *invisa* Barr.

Závěrem dovoluujeme si upozornit na jednu málo známou, ale paleoekologicky a strationomicky významnou okolnost. Lamellibranchiata středočeského siluru a devonu jsou, vzdor své bohaté rodové i druhové rozrůzněnosti, poměrně řídké a vzácné zkameněliny. Některé formy jsou až dosud známe jen ve velmi malém počtu exemplářů, a to i z nalezišť, na nichž ostatní průvodní fauna je velmi hojná. S výjimkou několika málo, více méně specializovaných rodů (na př. *Conocardium* Barrande, *Maminka* Barrande, *Spanila* Barrande a j.) nalézáme ve středočeském siluru a devonu obvykle jen jednotlivé izolované misky. Nálezy jedinců s oběma miskami jsou velmi vzácné, a u některých forem nebyly až dosud vůbec

zjištěny. (Na př. *Královna Barrande*, *Hercynella Barrande* a j.). Podle našeho názoru představují tyto jednotlivé izolované misky lamelli-branchiátové s největší pravděpodobností thanatocenosis, t. j. postmortálně redeponované a mechanicky splavené misky jednotlivých forem z jejich vlastního, více litorálního biotopu do hlubších, centrálních partií středoevropského silurského a devonského sedimentačního prostoru.

BOHUSLAV RŮŽIČKA AND FERDINAND PRANTL.

Some imperfectly known "aviculoid" Pelecypods from the Silurian and Devonian of Bohemia.

(With 2 plates)

The sixth volume of J. Barrande's classical work „*Système Silurien du Centre de la Bohême*“, 1881, deals with Lamellibranchs of the Lower Paleozoic of Central Bohemia. Most of the established and described forms, however, are lacking any more particular determination by an even brief verbal description or diagnosis and therefore the validity of the species is disputable from the severe nomenclatorial point of view.

Therefore one of the chief tasks of the present Czech paleontology is the revision and critical evaluation of the taxonomic validity and the nomenclatorial correctness of those forms. This demand is fully entitled not only from the systematic and evolutionary point of view but also from the practical one, as many of those forms proved to be significant biostratigraphical species suitable as well for the detailed stratigraphy of the single strata of the Ordovician, Silurian and Devonian of Central Bohemia as well as for the correlation of the Barrandian area with the Ordovician, Silurian and Devonian deposits of other areas.

In this respect only few has been done as far in our country and the Czech paleontology is still indebted to Barrande's legacy for a great deal. In the last ten years nearly nobody has dealt with the systematic revision of Barrande's determined Pelecypods. Besides an older study of J. Pfab (1934) dealing with the revision of some taxodont Pelecypods of the Ordovician of Bohemia it was chiefly only B. Růžička (1949, 1950a, 1951) who dealt with the revision of some forms designated by J. Barrande (1881) by cumulative name *Avicula* or *Avicula? Pterinea*.

These works showed that Barrande's „aviculoid“ forms are in his conception a very heterogeneous and artificial group which comprises the representatives of several genera belonging to different, closer non related families and groups. Among them B. Růžička (1949, 1950, 1950a, 1951a, b) ascertained the representatives of the family *Leiopteriidae* Mailleux as well as those of the families *Pteriidae* Thiele and *Pterineidae* Dall. Some forms proved to be members of the family *Pterinopectinidae* Newell and *Aviculopectinidae* Etheridge jr. And finally some of Barrande's species belong in fact to the genus *Cypricardina* Hall, 1859, and therefore to the group *Heterodonta* Neumayer.

The taxonomic redelimitation and the revision of the systematic position, however, was possible only in those „aviculoid“ forms which are in Barrande's collection represented by a number of well preserved

syntypes or in those where, besides B a r r a n d e's types, there was another well preserved material of the same species available. After the revision, however, there still remains a certain number of forms determined by J. B a r r a n d e, 1881, only on the basis of one often incomplete and therefore generically undeterminable specimen.

As a rule it is an incomplete mold or cast of one valve. In some cases there is in the way the imperfect preparation which could not be improved with the regard to the sporadic nature of the material. This paper deals with the detailed description of those forms. We proceeded to the complete description because we wanted to point out some interesting or important details of single forms and to enable the correlation with the species represented in other Silurian areas, or with some possibly new finds. For this purpose we give also new figures because B a r r a n d e's figures of the studied forms are in several cases not quite exact.

DESCRIPTIONS

„*Avicula*“ *urbana* B a r r a n d e, 1881.

(Pl. I. fig. 1.)

1881 — *Avicula urbana* B a r r. Vol. VI. 219, fig. VI, 1—2.

Locus typicus: Koněprusy.

Stratum typicum: Upper Koněprusy Limestones — f. (Lower Devonian.)

Holotype: Left valve figured by J. Barrande (1881) on pl. 219 as fig. VI, 1—2.

Material: As far only the lectotype is known.

Description: A large, incomplete, strongly convex left valve laterally elongated to the posterior side. The apex portion, the anterior side of the valve and a part of the inferior border are lacking in the holotype. The posterior ear is well developed, subtriangular, moderately vaulted, separated from the body of the valve by a distinct depression which shows no character of a sharp furrow. The boundary between the body of the valve and the ear is also marked by conspicuous density of radial ribs. The place where the posterior ear sets on the cardinal border, as well as a part of the posterior cardinal border, are lacking. Also the place where the ear margin passes into the posterior border of the valve proper is not sufficiently freed by preparation, and is partly broken off.

The holotype is preserved as a sculptured cast. The preserved portion of the valve proper shows radial costation consisting of rather coarse costae with rounded ridges. The interspaces are slightly concave of different width. In the wider ones there occur somewhat weaker costae of second order by which irregular bundles of costae arise. The costation of the ear is identical with the costation of the valve proper. On the inferior border of the valve the lower layer of the valve proper was fossilized, on which the growth lines crossing the radial ribs are visible. This produces a reticulation formed by rhombuses and rhomboids.

Remarks and Observations: The general shape of the described specimen reminds of the subgenus *Pterinea* (*Tolmaia*) Williams, 1908, or the genus *Actinopterella* Williams, 1908, but the imperfect preservation makes an exact systematic classification impossible. In no case, however, it can be a representant of the genus *Pteria* Scopoli, 1777, as the

surface of the described specimen, as already mentioned, shows an expressive radiating costation, while the representatives of the genus, *Pteria* Scopoli, 1777, as it is well known, have the surface of the valve usually smooth.

Distribution and Occurrence: Upper Koněprusy Limestones — f₂ — Koněprusy.

„*Avicula*“ *insolita* Barrande, 1881.

(Pl. I. fig. 2.)

1881 — *Avicula insolita* Barr. Vol. VI. pl. 222, fig. I, 1—2.

Locus typicus: Dvorce.

Stratum typicum: Budňany Limestones — e β. (Ludlow.)

Holotype: Right valve figured by J. Barrande (1881) on pl. 222. as fig. I, 1.

Material: As far only the holotype is known.

Description: A right valve, medium-sized, vaulted, longitudinally elongated. Owing to the incompleteness of the valve it is impossible to give figures for its measurement. The maximum convexity is attained at about one half of the height. The maximum convexity is formed by a strongly convex arch which slopes to the inferior side of the valve as well as towards the hinge margin. The beak is vaulted, pointed, straight and does not extend distinctly over the hinge margin. It is situated nearly in the middle of the hinge margin. The apex angle is about 120 degrees. The posterior and inferior margin of the valve as well as a part of the anterior margin, and the posterior ear are lacking. Barrande's figuring does not correspond to the reality. The posterior part of the hinge margin, which is marked there, corresponds in fact to the furrow by which the ear was separated from the valve proper. Thus Barrande's marking of the posterior ear is nothing else than a very slight depression in the convexity of the valve proper which corresponds to the equally slight depression on the anterior side. The anterior side of the hinge margin is straight. The anterior ear is tiny, very slightly vaulted, probably triangular. The posterior border of the ear is lacking. From the body proper of the valve the ear is separated by a distinct sharp furrow, which encloses with the hinge margin an angle of about 30 degrees.

The holotype is mostly preserved as a cast. On its surface there are irregular, rounded, concentric ribs, fitting in each other, considerably effaced and not visible on the substance of the valve proper. The substance of the valve proper covers in the remainder the anterior ear, a portion of the anterior side of the valve and appears in fragments near the inferior border of the valve. The substance of the valve proper covers in the remainder the anterior ear, the portion of the anterior side of the valve and appears in fragments near the inferior border of the valve. The substance of the valve proper bears close, threadlike, equidistant radial costae. 6 costae fall regularly on 2 mm.

Remarks and Observations: The described specimen resembles the representatives of the genus *Pterinopecten* Hall, 1883, both by the external structure of the valve and the type of costation, but the unfavorable preservation of the valve, in which we did not succeed to ascertain anything more particular about the internal structure, does not permit any exact generic determination.

Distribution and Occurrence: Budňany Limestones — eß
— Dvorce.

„*Avicula*“ *impotens* Barrande, 1881.

1881 — *Avicula impotens* Barr. Vol. VI, pl. 229, fig. I, 2, non pl. 229, fig. I, 1.
Locus typicus: Dvorce.

Stratum typicum: Budňany Limestones — eß. (Ludlow.)

Lectotype: Left valve figured by J. Barrande (1881) on pl. 229 as fig. I, 2.

Material: As far only the holotype is known.

Description: A tiny left valve, strongly laterally elongated to the posterior side, rather convex. The height is about 10 mm, length about 13 mm. The axis of maximum convexity encloses with the supposed portion of the hinge margin an angle of about 40 degrees. The convexity then decreases slowly both towards the anterior and the posterior side of the valve so, that there are no remarkable differences between the convexity of both sides. The maximum convexity is formed by a curve which attains the maximum curvature in about one half of the height of the valve. Out of this point it slopes by a faintly undulate line to the inferior border of the valve. Towards the hinge margin it falls by a tiny well vaulted arch. The beak is not sufficiently freed by preparation. It is minute, obscure, blunt and probably straight. It is situated far from the middle of the hinge margin on the anterior side. The anterior hinge margin is tiny and neither sufficiently freed by preparation. The posterior part of the hinge margin together with the greatest part of the ear are lacking. From the valve proper the posterior ear is separated by a moderate depression without a distinct furrow. It can be supposed, however, that the posterior ear was relatively larger, subtriangular, moderately bent.

The specimen is preserved as a cast bearing irregular, in places coarser, threadlike outstanding growthlines, which are well visible on the inferior, anterior and posterior margin of the valve and disappear towards the beak. We were able to ascertain neither the muscle scars nor the hinge type.

Remarks and Observations: Besides the specimen described above, J. Barrande (1881) designed by the name *Avicula impotens* a form, which he figured on Pl. 229 as Fig. I, 1. But in fact this specimen belongs to the genus *Leiopteria* Hall 1882, *emend.* Spriesterbach, 1909. The above described specimen is lacking all expressive features of this genus and according to our opinion it is rather reminiscent of the representants of the genus *Dozierella* Newell, 1940. This opinion, however, could be confirmed only by the find of a better preserved specimen with a distinct hinge.

Distribution and Occurrence: Budňany Limestones —
eß, Dvorce.

„*Avicula*“ *victima* Barrande, 1881.

(Pl. I. fig. 4.)

1881 — *Avicula victima* Barr. Vol. VI. pl. 219, fig. VIII.

Locus typicus: Chuchle.

Stratum typicum: Budňany Limestones — eß. (Ludlow.)

Lectotype: Right valve figured by J. Barrande (1881) on pl. 219 as fig. VIII.

Material: As far only the holotype is known.

Description: A tiny left valve strongly vaulted, longitudinally elongated. Owing to the very imperfect state of preservation of the valve it is impossible to express its dimensions in figures. The axis of maximum convexity forms with the posterior part of the hinge margin an angle of 53 degrees. Away from it there is a greater descent of the convexity on the posterior side of the valve than on the anterior one. The maximum convexity is formed by a curve which attains maximum curvature in about the upper third of the valve height. Out of this point it falls in a moderate uninterrupted arch to the inferior part of the valve. Towards the hinge margin it slopes by a more vaulted arch. The beak is vaulted, moderately prosogyric, pointed and it extends only very slightly over the hinge margin. It is situated on the anterior side of the valve, near the middle of the hinge margin. The anterior as well as the posterior part of the hinge margin is even and straight. The anterior ear is small, separated from the body proper of the valve by a short, fairly deep furrow which begins on the anterior side of the hinge margin to the right of the beak and disappears to the inferior margin of the ear. The ear is vaulted and its convexity descends to the hinge margin and to the posterior margin of the ear. The ear sets in on the hinge margin by a tiny arch forming thus a small lobe. With the anterior margin of the valve proper it coalesces by a moderate notch. The posterior ear is relatively large, its posterior margin as well as the place, where it passes into the margin proper of the valve, are lacking. From the valve proper it is separated by a moderate depression in the convexity without any distinct furrow. The ear proper is moderately bent. Near to the hinge margin there occurs one rounded lateral tooth which disappears on the posterior margin of the ear. We were not able to ascertain the muscle scars.

The valve is preserved as a smooth cast showing not very distinct traces of radial costation. Near to the posterior margin there are several furrows but those have nothing to do with the costation of the valve. They probably result from another fossil which had been removed by preparation.

Remarks and Observations: The tiny lobelike terminated ear sharply separated from the valve proper, as well as the course of the lateral tooth are reminiscent to a certain degree of the representatives of the subgenus *Actinopteria* Hall, 1883. The imperfect preservation of the cast surface, however, does not permit a correct systematic classification of the described specimen.

Distribution and Occurrence: Budňany Limestones — eß — Chuchle.

„*Avicula*“ *invisa* Barrande, 1881.

(Pl. I. fig. 5, 6.)

1881 — *Avicula invisă* Barr., Vol. VI., pl. 222, fig. I, 13.

1881 — *Avicula imperfecta* Barr. Vol. VI. pl. 222, fig. I, 12.

Locus typicus: Koněprusy.

Stratum typicum: Upper Koněprusy Limestones. — f. (Lower Devonian.)

Lectotype: Here described left valve figured by J. Barrande on pl. 222, as fig. I, 13.

Material: Besides the lectotype one right syntypic valve is known.

Description: Lectotype is a tiny left valve, strongly vaulted elongated to the posterior side. The middle portion of the anterior margin as well as the lower part of the posterior margin is incomplete. Height of the valve is 14 mm, length about 16 mm. The axis of maximum convexity encloses with the posterior part of the hinge margin an angle of about 50 degrees. The maximum vaulting is formed by a curve which attains the maximum curvature in more than one third of the valve height. Out of this point it descends by an uninterrupted moderately vaulted curve to the inferior margin of the valve. Towards the hinge margin it slopes more abruptly producing thus the vaulting of the beak. The beak is pointed, moderately prosogyric, nearly straight, situated near the anterior margin of the valve. It does not extend over the hinge margin. The anterior part of the hinge margin forms with the posterior part an angle of about 130 degrees. The anterior ear is minute, separated from the valve proper by a fairly deep depression in the convexity and by a shallow furrow which projects closely under the beak. The ear proper is moderately vaulted and it's vaulting descends towards the anterior hinge margin. Together with the latter it is elongated into a tiny lobe. The inferior part of the ear as well as the place where the ear border passes into the margin of the valve are broken off. The inferior part of the valve is formed by uninterrupted tonguelike curve which turns sharply towards the posterior hinge margin. The posterior ear is relatively large, subtriangular. From the body proper of the valve it is separated by a large depression in the convexity which forms a fairly deep furrow visible only in the apex portion. Otherwise the transition between the ear and the body proper of the valve is uninterrupted. The posterior ear is moderately bent with regard to it's borders, sets in sharply in the hinge margin and coalesces with the margin proper of the valve. On the posterior end of the ear near the hinge margin a rounded lateral tooth is present. We were able to ascertain neither the muscle scars nor the cardinal teeth.

The valve is preserved as a cast. It's surface is smooth except for two tonguelike, flatly outstanding concentric ribs.

The less vaulted right valve described by J. Barrande as *Avicula imperfecta* corresponds to the above described specimen in all important features. Likewise the lectotype it is fragmentary, preserved as a smooth cast.

Remarks and Observations: An exact classification of the described specimen cannot be made on the basis of Barrande's material. It would be necessary to wait for a find of a better preserved specimen.

By the convexity of both valves, by the lobe-like elongated sharply separated anterior ear and by the rounded lateral tooth the described specimen is considerably reminiscent of the representants of the genus *Leiopteria* Hall, 1882, *emend.* Spriesterbach, 1909, and we believe that a find of a better preserved specimen will confirm our opinion.

Distribution and Occurrence: Upper Koněprusy Limestones — f — Koněprusy.

"Avicula" trunca Barrande, 1881.

(Pl. I. fig. 7.)

1881 — *Avicula trunca* Barr. Vol. VI. pl. 229, fig. II.

Locus typicus: Dvorce.

Stratum typicum: Budňany Limestones — eβ. (Ludlow.)

Holotype: Right valve figured by J. Barrande 1881) on pl. 229 as fig. II.

Material: As far only the holotype is known.

Description: A tiny right valve laterally elongated to the posterior side. The height is 12 mm, length 17 mm. The axis of maximum convexity forms with the posterior part of the hinge margin an angle of about 30 degrees. The maximum vaulting is formed by a curve which attains the maximum curvature at about one half of the height. Out of this point it descends similarly to the inferior margin of the valve and towards the hinge margin. The beak together with the whole umbonal portion is lacking. The anterior, hinge margin is moderately bent. The posterior part of the hinge margin, which is twice as long as the anterior part, is even, and with regard to the anterior part it is straight. The anterior ear is formed by an uninterrupted transition in the convexity of the valve proper. On the hinge margin it sets in by a minute arch and coalesces in a very moderate notch with the margin proper of the valve. The posterior ear is large, triangular, separated from the valve proper by a greater depression in the convexity without any distinct furrow. The line which forms the posterior border of the ear encloses with the posterior border of the hinge margin an angle of about 140 degrees. The ear proper is moderately vaulted, nearly flat and in the place, where it's basis touches the body proper of the valve, it is moderately bent. We were not able to ascertain the muscle scars.

The valve is preserved as a sculptured cast bearing close, flat, in places somewhat moderately bent, regularly arranged concentric ribs. 7 ribs fall on 4 mm.

Remarks and Observations: By the character of the costation the described specimen resembles some representants of the genus *Leiopteria* Hall, 1882, *emend.* Spriesterbach, 1909, but it is lacking the sharp separation of the anterior ear from the body proper of the valve. We consider an exact generic determination of the described specimen as far impossible.

Distribution and Occurrence: Budňany Limestones — eβ — Dvorce.

"Avicula" lingua Barrande, 1881.

(Pl. II. fig. 1.)

1881 — *Avicula lingua* Barr. Vol. VI, pl. 225, fig. II, 1—2.

Locus typicus: Dvorce.

Stratum typicum: Budňany Limestones — eβ. (Ludlow.)

Holotype: Right valve figured J. Barrande (1881) on pl. 225, fig. II, 1.

Material: As far only the holotype is known.

Description: A tiny right valve, vaulted, strongly elongated. It's height is 11 mm, length 5 mm. The maximum convexity is approximately in the anterior third of the valve height. The valve is nearly incessantly vaulted, tonguelike elongated. Only on the posterior side of

the valve, near it's margin, there is a depression in the convexity which forms along the margin a collarlike brim, which passes gradually into the vaulting of the valve. The beak is situated on the anterior side of the valve. It is vaulted, pointed, strongly opisthogyric. The above described specimen is preserved as a sculptured cast, bearing flat, irregular concentric striae which are more prominent in the umbonal portion of the valve. These concentric striae are intersected by close, threadlike outstanding radial ribs, which are more expressive along the margin of the valve. We were able to ascertain neither the muscle scars nor the hinge type.

Remarks and Observations: An exact systematic delimitation of the described specimen could not be made only on the basis of the external aspect of the valve. It would be necessary to study closer the internal structure of the valve, which is impossible in our specimen. Nevertheless we believe that the described specimen does not belong to the genus *Pteria* Scopoli, 1777.

Distribution and Occurrence: Budňany Limestones — eβ — Dvorce.

"Avicula" manulia Barrande, 1881.

(Pl. II, fig. 2, 3.)

1881 — *Avicula manulia* Barr. Vol. VI, pl. 229, fig. V, 1—2.

Lotus typicus: Butovice.

Stratum typicum: Budňany Limestones — eβ. (Ludlow.)

Lectotype: Here described right valve was found on the same piece as the syntype figured by J. Barrande (1881) on pl. 229, fig. V, 1, but the former was not figured by J. Barrande.

Material: Besides the lectotype one left and three right valves are known.

Description: Valve very tiny, well vaulted, moderately elongated to the posterior side. The height of the lectotype is 2,5 mm, length 3 mm. The axis of maximum convexity forms with the posterior part of the margin an angle of about 65 degrees. The maximum vaulting is formed by a curve, which attains the maximum curvature at about the anterior third of the valve height. Out of this point it falls down abruptly by a moderately vaulted, uninterrupted curve to the inferior margin of the valve. Towards the hinge margin it descends nearly vertically by an undulate moderately vaulted curve. The beak is orthogyric, bluntly terminated. It is situated near the middle of the hinge margin, somewhat nearer to the anterior side. The beak does not extend over the hinge margin, which is even and straight. Syntypes figured by J. Barrande are not sufficiently freed by preparation and therefore it seems that the hinge margins form an angle of about 100 degrees. We were able to ascertain neither the muscle scars nor the hinge type.

The substance of the valve proper is on some places preserved. It bears, likewise the sculptured casts of the syntypic valves, seven strong, rounded, very expressively prominent radial ribs. These ribs open on the concentric ridge which is present in the umbonal portion of the valve and are running uninterrupted and straight to the inferior margin of the valve. The interspaces are moderately bent and on the inferior margin

slightly notched. The costation is wanting on the superior part of the anterior side of the valve.

The left valve agrees in all principal characters with the right one.

Remarks and Observations: The above described specimen would merit special attention because of its frequent occurrence in $e\beta$ beds. Unfortunately we have not been able to ascertain anything more particular about the internal structure of the valve on the documentary material and therefore we leave the question of the systematic position of this type open.

Distribution and Occurrence: Budňany Limestones - $e\beta$ -Butovice.

"Avicula" Jacens Barrande, 1881.

(Pl. II. fig. 4.)

1881 — *Avicula Jacens* Barr. Vol. VI, pl. 223, fig. 1, 1—2.

Locus typicus: Dvorce.

Stratum typicum: Budňany Limestones, $e\beta$. (Ludlow.)

Material: Besides the lectotype one syntypic valve is known.

Description: Lectotype is a tiny, strongly vaulted left valve. Its height is 12 mm, length about 18 mm. The axis of maximum vaulting encloses with the posterior part of the hinge margin an angle of about 50 degrees.

The maximum vaulting is formed by a curve which attains the maximum curvature in about a third of the height of the valve. Out of this point it is sloping by a moderately vaulted arch to the inferior side of the valve. It descends towards the hinge margin by a strongly vaulted arch, which turns abruptly to the hinge margin. The beak of the valve is not sufficiently freed by preparation. It is rounded, broad, situated in the anterior third of the straight hinge margin. The anterior ear is small. The vaulting of the valve proper passes uninterrupted in it. The ear is terminated by a broad arch. The posterior ear is separated from the body proper of the valve by a deep uninterrupted depression. Its posterior margin is broken off.

The right valve is coincident with the left one except for its being less vaulted and the depression separating the posterior wing from the valve proper being more moderate.

Both valves are preserved as sculptured casts bearing coarse, irregular, obscure concentric ridges which are more prominent on the anterior side of the valve and disappear on the posterior side. Slight growth lines are visible only on the anterior side of the left valve. The ornamentation of the posterior ear is not visible. The substance proper of the valve is visible neither on the lectotype nor on the syntypic valve.

Remarks and Observations: We leave open the exact systematic classification of the described specimen, because the material which was to our disposal is lacking all important features, necessary for the systematic classification.

Distribution and Occurrence: Budňany Limestones - $e\beta$ -Dvorce.

"Avicula" complanans Barrande, 1881.

(Pl. II. fig. 6, 7.)

1881 — *Avicula complanans* Barr. Vol. VI., pl. 218, fig. 1—2.

Locus typicus: Loděnice.

Stratum typicum: Motol beds — $e\alpha_2$ (Wenlock.)

Lectotype: Here described right valve figured by J. Barrande (1881) on pl. 218 as fig. 2.

Material: Besides the lectotype one syntypic valve is known.

Description: Lectotype is a tiny right valve, convex, laterally elongated to the posterior side. The height of the lectotype is 13 mm, length about 15 mm. The axis of maximum convexity encloses with the posterior part of the hinge margin an angle of about 50 degrees. The maximum convexity is formed by a curve which attains maximum curvature in about the first superior third of the valve height. Out of this point it is sloping in a moderately convex curve towards the inferior margin of the valve. It is turning in a minute, slightly convex arch towards the hinge margin. The beak is minute, sharp, vaulted, prosogyric. It is situated close to the anterior margin of the valve. The hinge margin is even and straight. The anterior ear is slightly marked, separated from the valve proper by a depression without a distinct furrow. It ends sharply on the hinge margin and coalesces in a very moderate notch with the anterior margin of the valve. Close before the beak, nearer to the hinge margin, a tiny elliptical anterior muscle scar is visible. The posterior ear is relatively large, subtriangular, moderately bent. The posterior margin of the ear is broken off. An obscure, branched lateral tooth runs along the hinge margin. We were not able to ascertain the posterior muscle scar.

The lectotype is preserved as a smooth cast. Also the syntypic right valve is preserved as a smooth cast and a little fragment of the substance proper of the valve, preserved near the anterior margin, shows no traces of costation.

Remarks and Observation: The above described specimen definitely does not belong to the genus *Pteria* Scopoli, 1777. The anterior muscle scar and the branchy lateral tooth speak against it. Without knowing any traces of costation we do not dare to make a more exact systematic classification.

Distribution and Occurrence: Motol beds $e\alpha_2$ — Loděnice, Lochkov.

"Avicula" incumbens Barrande, 1881.

(Pl. II. fig. 8, 9.)

1881 — *Avicula incumbens* Barr. Vol. VI, pl. 225, fig. VI, 1—2.

Locus typicus: Zadní Kopanina.

Stratum typicum: Budňany Limestones — $e\beta$. (Ludlow.)

Lectotype: Here described left valve figured by J. Barrande (1881) on pl. 225, as fig. VI, 1.

Material: Besides the lectotype one left syntypic valve is known.

Locus typicus: Dvorce.

Description: Lectotype is a medium-sized, strongly convex valve, pearshaped, laterally elongated to the posterior side. The height of the lectotype is 26 mm, length 25 mm. The axis of maximum convexity encloses with the posterior part of the hinge margin an angle of about

45 degrees. The maximum vaulting is formed by a curve, which attains the maximum curvature at a point situated in a little more than one third of the height. Out of this point it slopes by a moderate arch towards the inferior border of the valve. It falls down more abruptly towards the hinge margin, making thus the vaulting of the beak. The latter is vaulted, well terminated, moderately prosogyric and slightly extending over the hinge margin. It is situated on the anterior side in about one fifth of the length of the hinge margin.

The hinge margin is even straight. The anterior part of the hinge margin as well as the anterior part of the ear are lacking. The posterior, relatively large ear is formed by the gradual decrease of the convexity of the valve proper and therefore is not distinctly separated from it. It is subtriangular and sets in sharply in an angle of about 130 degrees on the hinge margin, from which it passes in an uninterrupted arch into the margin proper of the valve. The muscle scars are effaced.

The lectotype is preserved as a cast. The substance of the valve proper is known only from fragments, the larger of which covers a great part of the posterior ear. The costation of this fragment is effaced. A second, smaller fragment is present near to the inferior margin of the valve and bears traces of irregular, flat, radial ribs. 2 ribs fall on 2 mm. The remaining surface of the valve is smooth.

The syntypic valve, rather postmortally pelomorphously deformed, is preserved as a cast with the valve proper partly preserved. The anterior ear of this valve is only partly preserved. It is separated from the body proper of the valve by a deep depression without a distinct furrow.

The end of the ear is lacking but from the course of the growthlines can be supposed that it was ending by a small spur. The costation of the syntypic valve is more distinct. It is formed by radial ribs, which are intersected by equally strong concentric ridges so, that there arises a netstructure.

Remarks and Observations: Owing to the incomplete state of preservation of the documentary material we consider a more exact systematic classification of the described specimen impossible.

Distribution and Occurrence: Budňany Limestones — eß, Zadní Kopanina, Velká Chuchle.

Conclusions

As we mentioned above the here described "*aviculoid*" forms were established by J. Barrande on the basis of incomplete casts or molds of one valve and therefore a closer generic determination is impossible. For this reason we leave as far the cumulative generic designation "*Avicula*" though we are fully aware that we cannot — and we do not want to express their appertenance to the genus *Avicula* Klein, 1753, as a precisely established and determined generic taxon. Therefore we write this designation in inverted comas.

The forms are as follows:

"Avicula" urbana Barrande,
1881.

"Avicula" insolita Barrande,
1881.

"Avicula" impotens Barrande,
1881.

"Avicula" victima Barrande,
1881.

"Avicula" invisа Barrande,
1881.

"Avicula" trunca Barrande,
1881.

"Avicula" lingua Barrande,
1881.

"Avicula" manulia Barrande,
1881.

"Avicula" jacens Barrande,
1881.

"Avicula" incumbens Barrande,
1881.

"Avicula" complanans Barrande,
1881.

In addition we have assigned to the form *"Avicula" invisа* also a less vaulted right valve designed by J. Barrande (1881) as *"Avicula" imperfecta*. This form agrees in all important features with the form *"Avicula" invisа*.

Finally we dare to draw attention to one fact which is little known but ecologically and paleontologically significant. The Lamellibranchs of the Silurian and Devonian of Central Bohemia, in spite of their rich specific and generic differentiation, belong as a whole to the relatively rare fossils. Some are known only in a very small number of specimens. Therefore it could be supposed that biological conditions of their existence were often not very favourable or that the found forms, mostly preserved as isolated valves, represent thanatocenoses, that is the valves of single species postmortally and mechanically washed away from their biotope proper into the deeper parts of the Silurian and Devonian sedimentary area of Central Bohemia.

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EXPLANATION OF PLATES

Pl. VI.

- Fig. 1. „*Avicula*“ *urbana* Barrande, lectotype-left valve, X2.
- Fig. 2. „*Avicula*“ *insolita* Barrande, lectotype-right valve, X1,7.
- Fig. 3. „*Avicula*“ *impotens* Barrande, lectotype-left valve, X4.
- Fig. 4. „*Avicula*“ *victima* Barrande, lectotype-right valve, X2,6.
- Fig. 5. „*Avicula*“ *invisa* Barrande, lectotype-left valve, X3.
- Fig. 6. „*Avicula*“ *invisa* Barrande, syntype-right valve, X3.
- Fig. 7. „*Avicula*“ *trunca* Barrande, lectotype-right valve, X3,3.

Pl. VII.

- Fig. 1. „*Avicula*“ *lingua* Barrande, lectotype-left valve, X5.
- Fig. 2. „*Avicula*“ *manulia* Barrande, lectotype-right valve, X9.
- Fig. 3. „*Avicula*“ *manulia* Barrande, syntype-left valve, X9.
- Fig. 4. „*Avicula*“ *jacens* Barrande, syntype-right valve, X4.
- Fig. 5. „*Avicula*“ *jacens* Barrande, lectotype-left valve, X2,6.
- Fig. 6. „*Avicula*“ *complanans* Barrande, lectotype-right valve, X2,4.
- Fig. 7. „*Avicula*“ *complanans* Barrande, syntype-right valve, X2,5.
- Fig. 8. „*Avicula*“ *incubens* Barrande, syntype-left valve, X1,6.
- Fig. 9. „*Avicula*“ *incumbens* Barrande, lectotype-left valve, X1,2.

The stratigraphic occurrence and the locality of all the types figured here is mentioned in the text.

SBORNÍK NÁRODNÍHO MUSEA V PRAZE — ACTA MUSEI NATIONALIS PRAGAE

XIII. 1957 - B (PŘÍRODOVĚDNÝ) No. 1—2

REDAKTOR ALBERT PILÁT

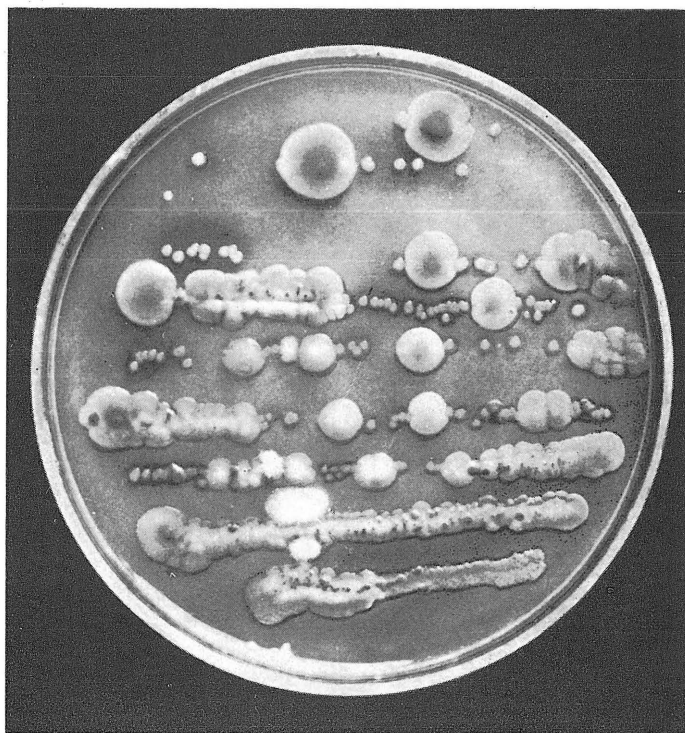
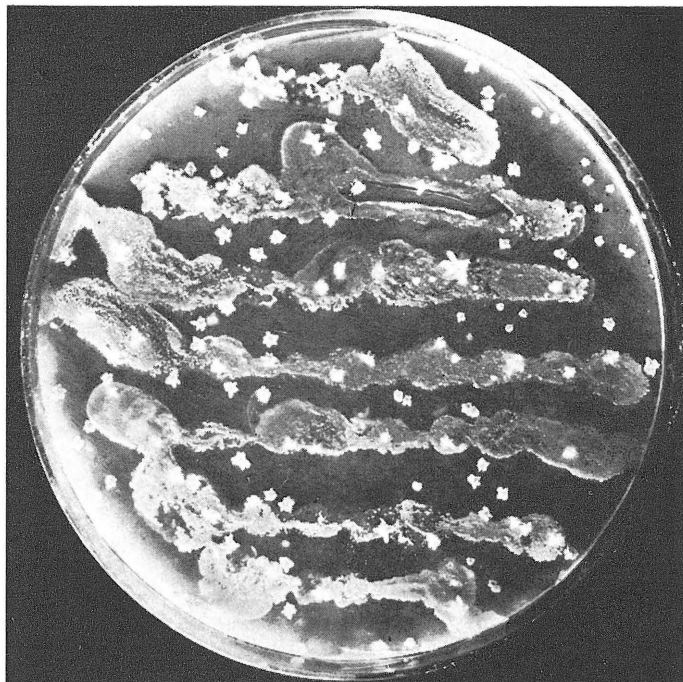
Gerhard Färber—Olga Hovězová—Vondrová: Symbiosy a metabiosy nahnilého ovoce — Symbiosen und Metabiosen in faulendem Obst

Gerhard Färber—Olga Vondrová—Eva Štreiblová: O morfológických a metabolických vlastnostech zon mikrobiálních makrokolonií (bakt.) na tuhých živných médiích — Über die morphologische und metabolistische Eigenart der Zonenbildung mikrobieller Makrokolonien (bakt.) auf festen Nährböden

Bohuslav Růžička a Ferdinand Prantl: O nedokonalé známých „aviculoidních“ mlžích českého siluru a devonu — Some imperfectly known „aviculoid“ Pelecypode from the Silurian and Devonian of Bohemia.

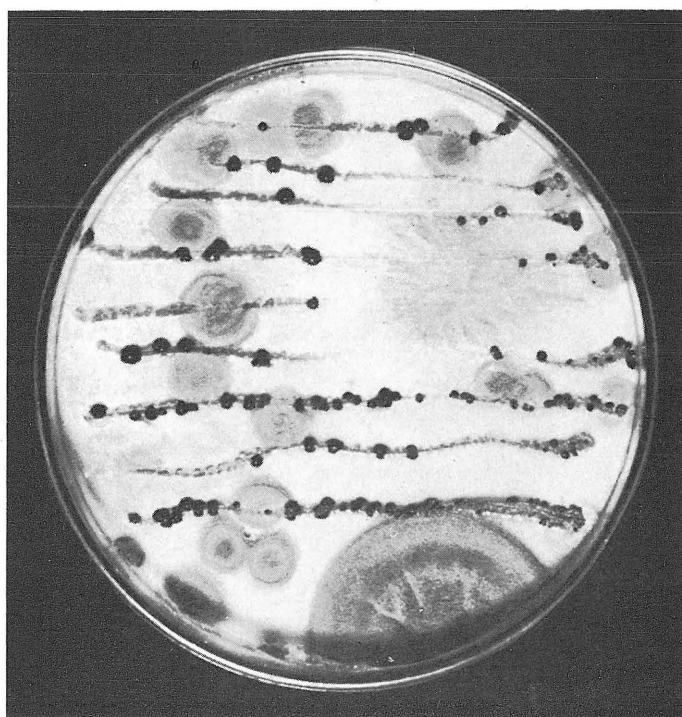
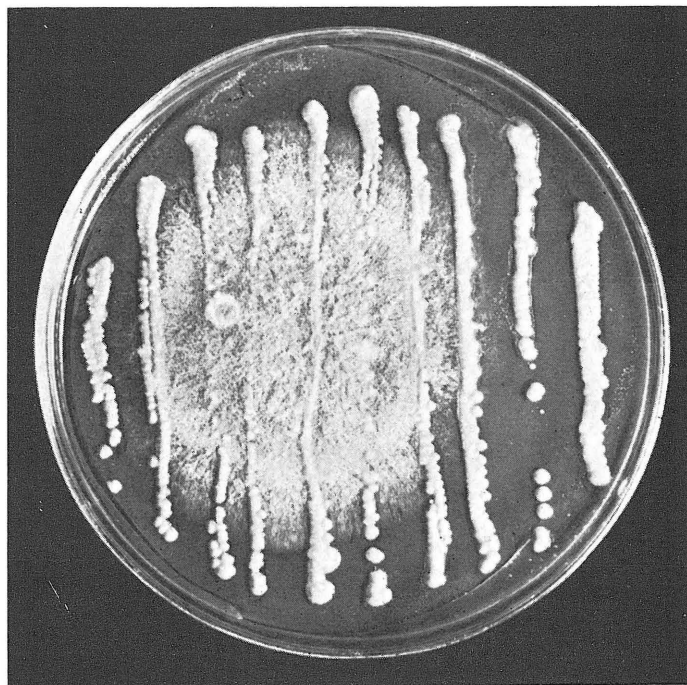
V březnu 1957 vydalo svým nákladem v počtu 1100 výtisků Národní museum v Praze Vytiskl Knihtisk, n. p., zákl. záv. 01 v Praze III — Cena brožovaného výtisku 15,— Kčs

A-28100



Tab. I-a. Symbiose, geimpft n. 24 h in flüss. Med. Die Platte ist n. 24 h angelegt. Alter der Platte 4 Tage. Sehr viel β -Ketokristalle.

Tab. I-b. Symbiose, geimpft n. 48 h in flüss. Medium. Die Platte ist nach 48 Stunden angelegt und selbst 72 Stunden alt. Viel oxydred. Stämme [kleine Kolonien, aufgelöste Kreide (Höfe)].



Tab. II-a. Symbiose, geimpft, n. 72 Stunden in flüssigen Medium. Die Platte ist nach 72 Stunden angelegt und 8—10 Tage alt (es melden sich Schimmel).

Tab. II-b. Symbiose, geimpft. Eine ältere Kultur. Die Platte ist etwa 8 Tage alt.

G. Färber, O. Vondrová & E. Streiblová: Über die morphologische und metabolistische Eigenart der Zonenbildung mikrobieller Makrokolonien (bakt.) auf festen Nährböden.

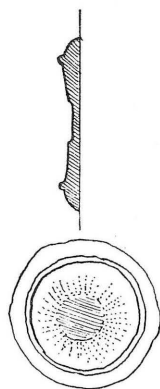
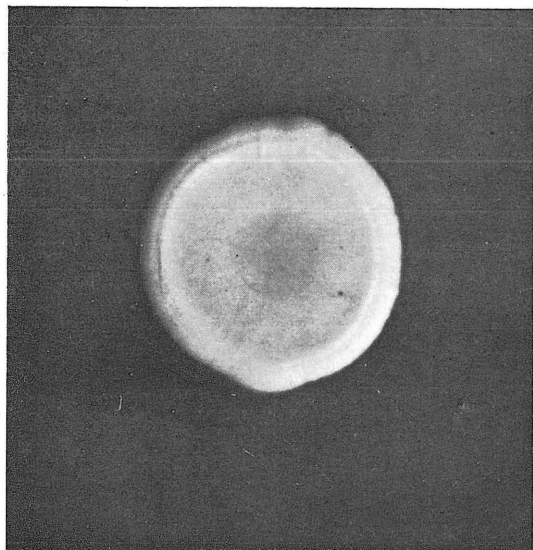
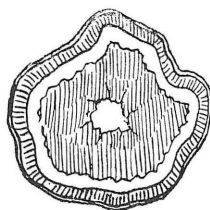
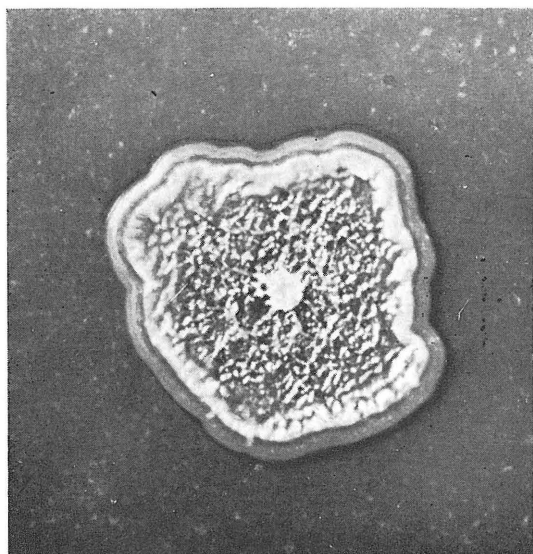


Fig. a. *Pseudomonas „cycho“*.

72 Stunden alte Kolonie mit 4 Zonen. Siehe auch Skizze.

Fig. b. *Chromobacterium jodanum*.

48 Stunden alt. 4 Zonen. Enger, erhöhter Vicin. Siehe auch Skizze.

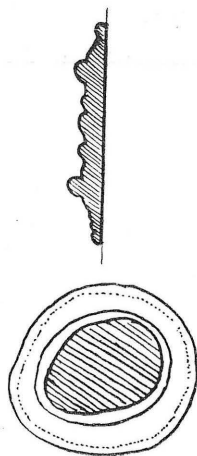
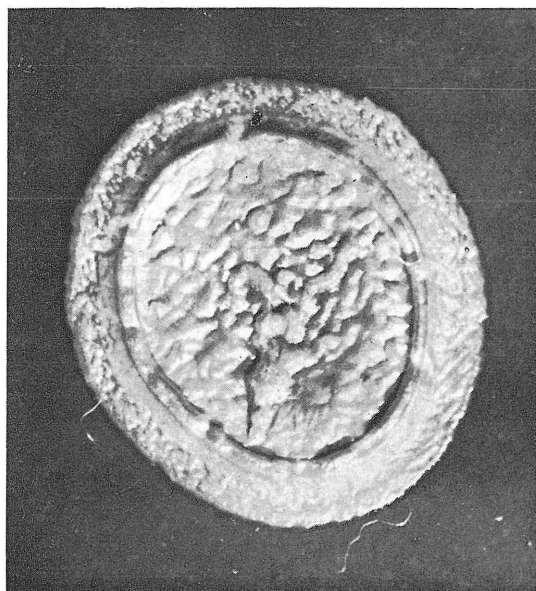
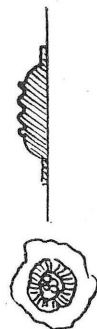
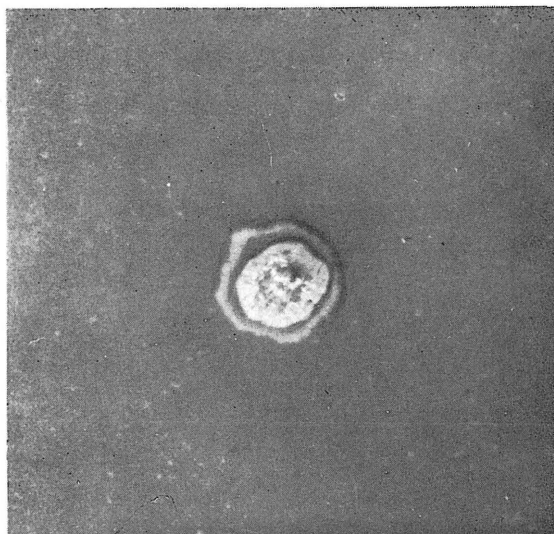


Fig. a. *Pseudomonas* „cythro“.

24 Stunden alt. 3 Zonen deutlich erkennbar. Siehe auch Skizze.

Fig. b. *Pseudomonas* „cythro“.

Nach 72 Stunden sind die Zonen sehr stark profiliert und differenziert. Bei diesem Beispiele sind die neu abgeteilten Zonen sehr schmal. Das Zentrum ist stark gekörnt.

(Alle Fotografien: Prof. Fiala, Kubec und Jelínek, BŮ-ČSAV.)

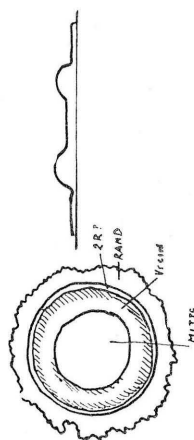
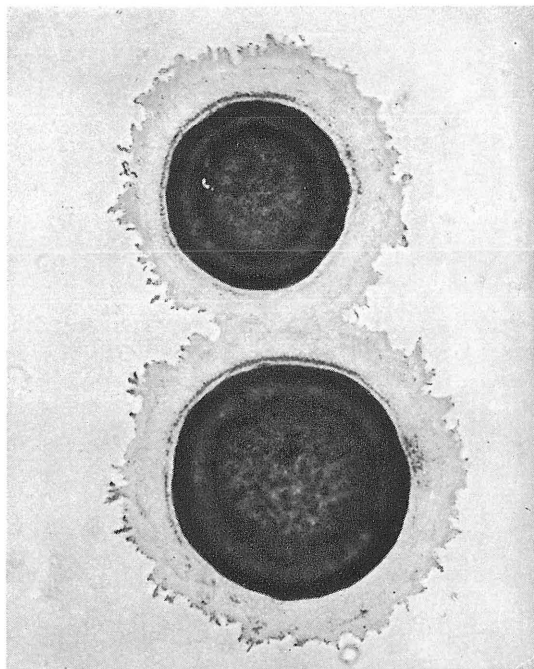
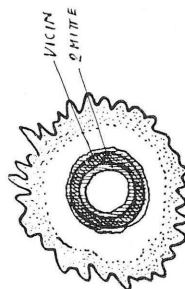
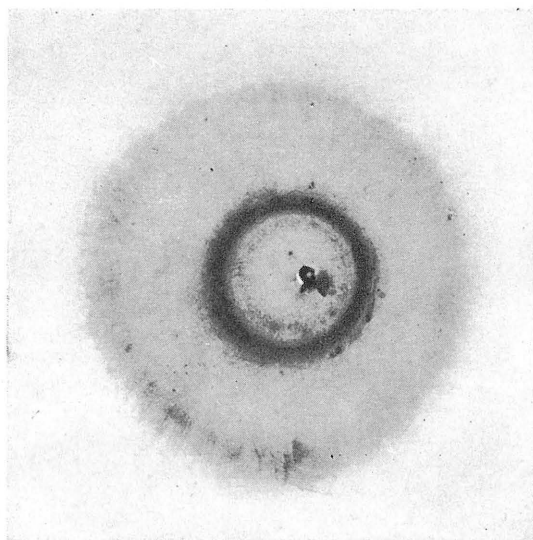


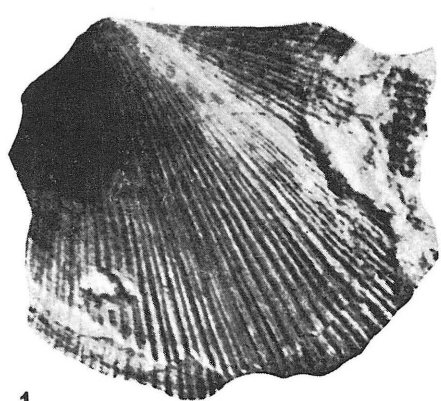
Fig. a. *Pseudomonas „cythro“*.

48 Stunden alt. Trotz schwacher Foto ist der „Vicin“ und auch die weitere Abteilung der Zonen zu erkennen.

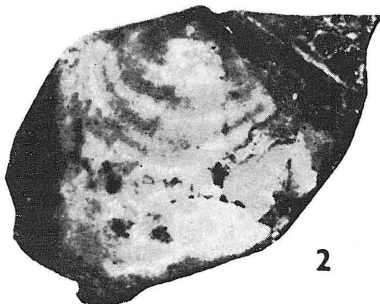
Fig. b. *Pseudomonas „cythro“*.

72 Stunden alte Mikrokolonie unter dem Mikroskop (5—10X vergr.) Selbst bei diesem Mikroskop ist die gleiche zonale Gliederung zu beobachten, wie bei den Makrokolonien.

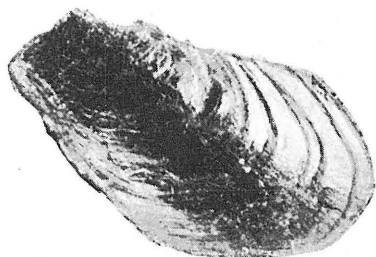
(Alle Fotografien: Prof. Fiala, Kubec und Jelinek, BÜ-ČSAV)



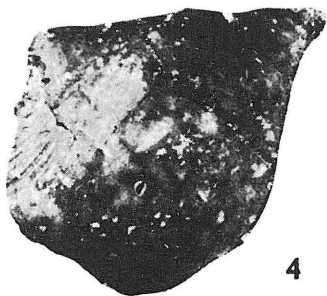
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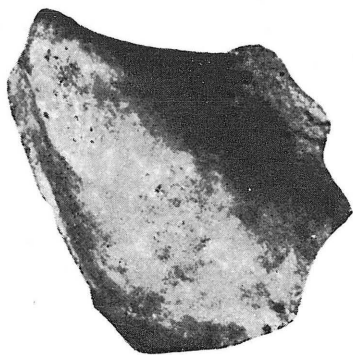
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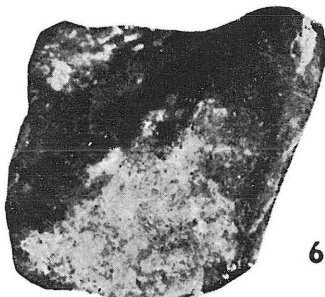
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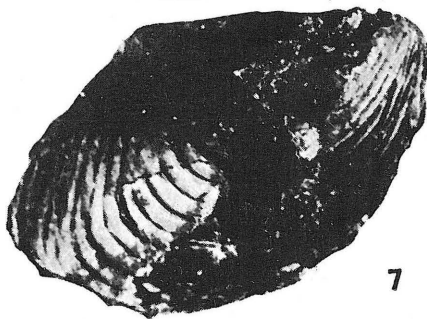
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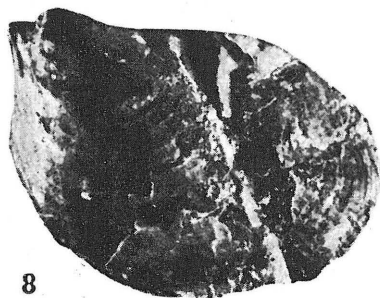
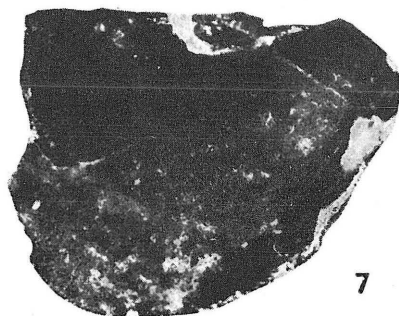
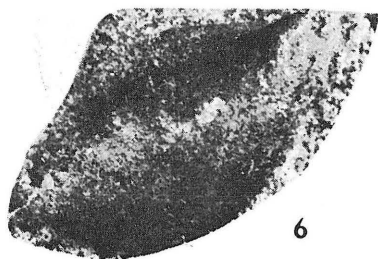
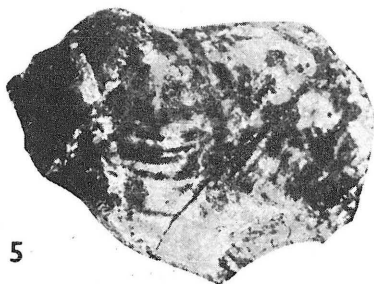
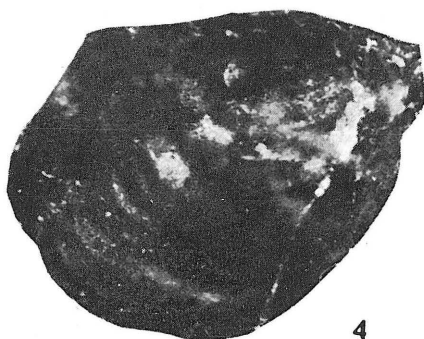
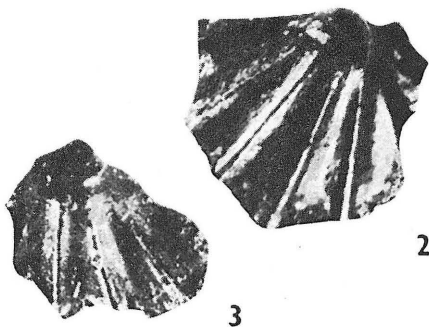
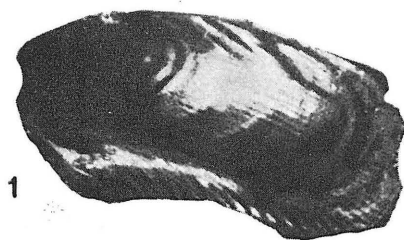
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