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New representatives of *Radioscutellum* and *Cornuscutellum* (Trilobita) from the Pragian of the Barrandian area (Lower Devonian, Czech Republic)

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Abstract. New scutelluid species *Radioscutellum sternbergi* n. sp. and *Radioscutellum effrenatum* n. sp. are described from two accumulations of organic remains found within the Koněprusy Limestone in the quarry of Čertovy schody-East (VČS-E) situated S of the village of Koněprusy. The third new scutelluid species described, *Cornuscutellum ? hartli* n. sp., comes from the Loděnice Limestone extracted in the "Čeřinka" Quarry near the village of Bubovice.

Abstrakt. Nové druhy skutelluidů *Radioscutellum sternbergi* n. sp. a *Radioscutellum effrenatum* n. sp. jsou popsány ze dvou akumulací organických zbytků nalezených v koněpruských vápencích v lomu Čertovy schody-východ (VČS-E), ležícím jižně od Koněprus. Třetím nově popsaným druhem je *Cornuscutellum ? hartli* n. sp., který pochází z loděnických vápenců těžených v lomu Čeřinka u Bubovic.

Key words: Trilobita, Corynexochida, Lower Devonian, Pragian, new taxa, taxonomy, fossiliferous localities, Barrandian, Prague basin

Introduction

The genus *Radioscutellum* Šnajdr, 1972 has been so far reported exclusively from the Pragian of central Bohemia. Despite the fact that the occurrence of *Radioscutellum* has been limited to limestones of the Koněprusy Reef Complex and its vicinity, about five or six species and subspecies have already been erected (Šnajdr 1972, Chlupáč 1983, Pek and Vaněk 1989). Majority of them come from the Koněprusy Limestone. The only exception is *R. intermixtum pseudopaliferum* (Šnajdr, 1960) that is known by a single cranidium found in the Vinařice Limestone. In the Koněprusy Limestone, the representatives of *Radioscutellum* were formerly encountered predominantly in accumulations of organic remains in the area of the reef core exposed in the quarries at Zlatý Kůň Hill S of the village of Koněprusy (Chlupáč 1955, 1983). New sites with these accumulations are probably not accessible any more in this area.

At greater distances from the core of the Koněprusy Reef, finds of the predominantly trilobite/phyllocarid accumulations are exceptional. This situation is also encountered in the large VČS-E quarry (for its position see Chlupáč 1996, Fig. 1). Two such bodies of bioclastic limestone, discovered in this quarry in the late 1990s, yielded rich fossil fauna that has encompassed, besides a number of previously assigned species, also two new taxa of *Radioscutellum* Šnajdr, i.e. *R. sternbergi* n. sp. and *R. effrenatum* n. sp. Their descriptions are given in this paper. Each species comes from one of the accumulations denoted herein A and B.

The genus *Cornuscutellum* Šnajdr, 1960 was based, until recently, on a single representative – the type species *C. rhinoceros* (Barrande, 1872). It has been described from the Vinařice Limestone (Pragian) exposed in the small abandoned quarry at the gamekeeper's lodge W of the village of Měňany. In this work, a second likely representative of the genus, *C.? hartli* n. sp., is introduced. The latter species has been found in lower beds of the Loděnice Limestone (Pragian) extensively extracted in the "Čeřinka" quarry near the village of Bubovice. The new material allows to discuss the likely phylogenetic relationship between the genera *Decoroscutellum* Šnajdr, 1958 and *Cornuscutellum* Šnajdr, 1960.

Systematic part

Family Styginidae Vogdes, 1890
Subfamily Scutelluinae R. et E. Richter, 1955

Radioscutellum Šnajdr, 1972

Type species: *Bronteus intermixtus* Hawle et Corda, 1847; Pragian, Bohemia.

Radioscutellum sternbergi n. sp.
Pl. I, figs 1–7; Pl. III, fig. 11; Pl. IV, figs 2–5; text-fig. 1c

Name: in honour of Kaspar Maria, the Count of Sternberg (1761–1838), the outstanding scientist and founder of the National Museum in Prague.

Holotype: Nearly complete pygidium with remains of original exoskeleton (NM L36673), figured herein on Pl. I, fig. 4.

Type horizon: Koněprusy Limestone, Praha Formation, Pragian, Lower Devonian.

Type locality: northern slope of Voskop Hill near Koněprusy, active quarry Čertovy schody-East (VČS-E

Quarry), Barrandian area, Bohemia.

Material: 1 incomplete cephalon, 33 cranidia and 46 pygidia, preserved in light grey biomicritic limestone.

Description: Cranidium moderately vaulted. Glabella of rounded pentagonal outline, at the level of frontal lobe 2.3 to 2.6 times broader than at basal lobes L1. Median part of occipital ring curved anteriorly; posterior margin bearing small median spine. Occipital furrow shallower at occipital ring than at L1. Occipital impressions wide (sag.). L1 vaulted, arched posteriorly, with basal lateral impressions. S1 horseshoe in outline, deepening posteriorly. S2 impressions elliptical, convergent posteriorly. Blunt median glabellar node distinct between S2. L2+3 vaulted. Anterior paired glabellar impressions (S3) represented as narrow (sag.) transversal depressions. Frontal glabellar lobe narrow (sag.), weakly vaulted. Preglabellar depression narrow, well defined. Axial furrows shallow, deepening posteriorly. Fixigenae narrow, flattened anteriorly, their width and convexity increasing toward palpebral lobes. Palpebral lobes small, with minute spines at their anterior and posterior margins. Lateral impressions oval in outline, flat. Librigenae large, concave laterally.

Pygidium semielliptical, gently convex in the median part and concave in abaxial parts of ribs. Length/width ratio around 0.8 for large individuals and 0.7 for young holaspid specimens [NM L36676, 9.3 mm long (sag.)]. Rhachis subtriangular, wider (tr.) than long (sag.), trilobate owing to presence of two longitudinal furrows. Median lobe with small median node at posterior margin, markedly more convex than lateral lobes. In addition, small triangular lobe at anterolateral end of each lateral lobe (approx. at the level of the adaxial end of the first interpleural furrow) separated by a shallow furrow. Seven paired ribs of unequal width (tr.), vaulted in the central part of pygidium, becoming flattened and broadened toward the pygidial margin. Seventh paired rib as well as seventh and sixth interpleural furrows in the convex central part of pygidium conspicuously narrowed; contrary to this, sixth and fifth ribs are broader than the others. The pygidial ribs are bent away radially from the rhachis towards the pygidial margin, but their course is usually not straight. Distal parts of the first and second paired ribs are directed more posteriorly in comparison with their course in the central pygidial part. In contrast to this, the third to seventh pairs are more laterally orientated in their distal parts. Occasionally, the third to fifth paired ribs are straight (NM L36677, NM L36678±). Slight posterior orientation of the distal parts of all paired ribs has also been exceptionally observed (NM L36679). Median pygidial furrow very narrow and shallow, nearly imperceptible. Non-bifurcate part of median unpaired rib occupies about 73 percent of postrhachial length. In addition, a short shallow rudiment of median furrow is perceptible on some specimens between rhachis and bifurcation. This rudiment is located at a distance corresponding to 65 percent of postrhachial length from the rhachis. Pygidial doublure developed characteristically for the genus (see Pl. IV, fig. 4). Ribs (elevations) on doublure situated below interpleural furrows, causing its very close proximity to dorsal exoskeleton; they are less prominent in convex central part of pygidium. Doublure extends inward nearly as far as to the rhachis.

Sculpture: Cephalon surface bears coarse ridges and fine granulation. Dorsal exoskeleton of pygidium covered by prominent ridges orientated approx. perpendicular to pygidial axis (sag.); about 4–5 lines per 1 mm on distal part of fifth paired rib for large individuals and 6–7 lines for young holaspid specimens; granulation is also developed in young individuals (see Pl. I, fig. 7 and Pl. IV, fig. 3).

Parameters: The largest known cranidium (NM L36683) is 29 mm long (sag.), the smallest one (NM L36684) 11 mm long. Majority of collected cranidia are 17–25 mm long. The largest known pygidium (NM L36685) is about 47 mm long, the smallest one (NM L36676) 9.3 mm long. Pygidial length (sag.) reaches usually 32–44 mm.

Remarks: *Radioscutellum sternbergi* n. sp. possesses closest resemblance to *R. effrenatum* n. sp. The different characters follow from the diagnosis. *R. sternbergi* n. sp. differs from the type species and other representatives of the genus by a narrow (sag.) and flattened frontal glabellar lobe, narrow (exsag.) lateral furrow S3, unequal width of paired ribs, very weakly developed and short bifurcation of median unpaired pygidial rib and rather coarse sculpture on pygidium.

Occurrence: Abundant at the type locality in the accumulation of organic remains A mentioned in the introduction of the paper.

Radioscutellum effrenatum n. sp.
Pl. II, figs 1–6; Pl. IV, figs 1, 6, 7; text-fig. 1b

Name: effrenatus (Lat.) – untamable, indomitable, free; according to the type locality, relatively distant from the reef core where representatives of *Radioscutellum* have usually been found.

Holotype: Negative counterpart of complete pygidium – imprint of dorsal (external) exoskeleton (NM L36687); cast figured herein on Pl. II, figs 3, 4.

Type horizon: Koněprusy Limestone, Praha Formation, Pragian, Lower Devonian.

Type locality: northern slope of Voskop Hill near Koněprusy, active quarry Čertovy schody-East (VČS-E Quarry), Barrandian area, Bohemia.

Material: 1 incomplete cephalon, 9 cranidia and 9 pygidia, preserved in light grey biomicritic limestone.

Diagnosis: Species of *Radioscutellum* closely related to *Radioscutellum sternbergi* n. sp. from which it differs in the following features:
– Preglabellar depression shallower, less conspicuous.
– Frontal glabellar lobe more vaulted.
– Lateral glabellar furrows S3 wider (exsag.).
– Posterior margin of basal glabellar lobes L1 less arched posteriorly.

– Sculpture on dorsal side of exoskeleton considerably finer. a) Cephalon bearing fine ridges and granulation. b) Rhachis and ribs of pygidium covered with fine ridges (about 10 per 1 mm on the distal part of fifth paired rib) and fairly dense equally-sized fine granulation; exceptionally ridges prevail at pygidial margin (Pl. IV, fig. 1). Interpleural furrows covered, as a rule, only by granulation, while ridges are present at pygidial margin. Granulation dominates in young holaspid specimens; ridges are present at pygidial margin, central part of pygidium and rhachis. Size of granules and fine ridges and density of their distribution are close to the sculpture of large holaspid specimens.
– Pygidium less elongated in shape; outline of posterior margin more potbellied.
– Paired pygidial ribs, with the exception of seventh pair, are relatively equally broad.
– Seventh paired rib less narrowed (tr.).
– Sixth and seventh interpleural furrows wider.
– Non-bifurcated part of median unpaired rib on pygidium longer (sag.), occupying about 86 percent of postrhachial area. Median furrow weakly impressed, nearly imperceptible. [In addition, similar to *Radioscutellum sternbergi* n. sp., some specimens of *R. effrenatum* n. sp. bear short, shallow rudiment of median furrow reaching a distance from rhachis corresponding to 73 percent of postrhachial area (see Pl. II, figs 3, 5 and text-fig.1b). On the other hand, some specimens may lack the median furrow completely (see Pl. II, fig. 6, and Pl. IV, fig. 6)].

Parameters: The largest (NM L36688) and smallest (ZČM S-2712) known cranidia are 22 mm and 16.5 mm long (sag.), respectively. The largest (NM L36687) and smallest (NM L36689±) known pygidia are 31 mm and 14 mm long (sag.), respectively.

Remarks: *Radioscutellum effrenatum* n. sp. bears close resemblance to *R. sternbergi* n. sp. Both species can be distinguished by very faintly indicated median furrow on the unpaired pygidial rib. Seventh paired rib tapered in both species, although less markedly in *R. effrenatum* n. sp. These features are absent in other known representatives of *Radioscutellum*. The above two species can, therefore, be regarded as closely related. The progressively tapered seventh paired rib and broadened sixth and fifth paired ribs on pygidia of *R. sternbergi* n. sp. classify this species as likely descendant of *Radioscutellum effrenatum* n. sp.

Both species are also characterized by similar shape of paired pygidial ribs. Their course for *R. sternbergi* n. sp. is given in the description of this species. Distal parts of the second to seventh pair in the case of *R. effrenatum* n. sp. are directed more laterally in comparison with their course in the central part of the pygidium, while the distal part of the first pair is more posteriorly orientated. In contrast to this, the nominal species possesses all paired ribs with the distal parts pointed more posteriorly (cf. text-fig.1a, Pl. II, fig. 7).

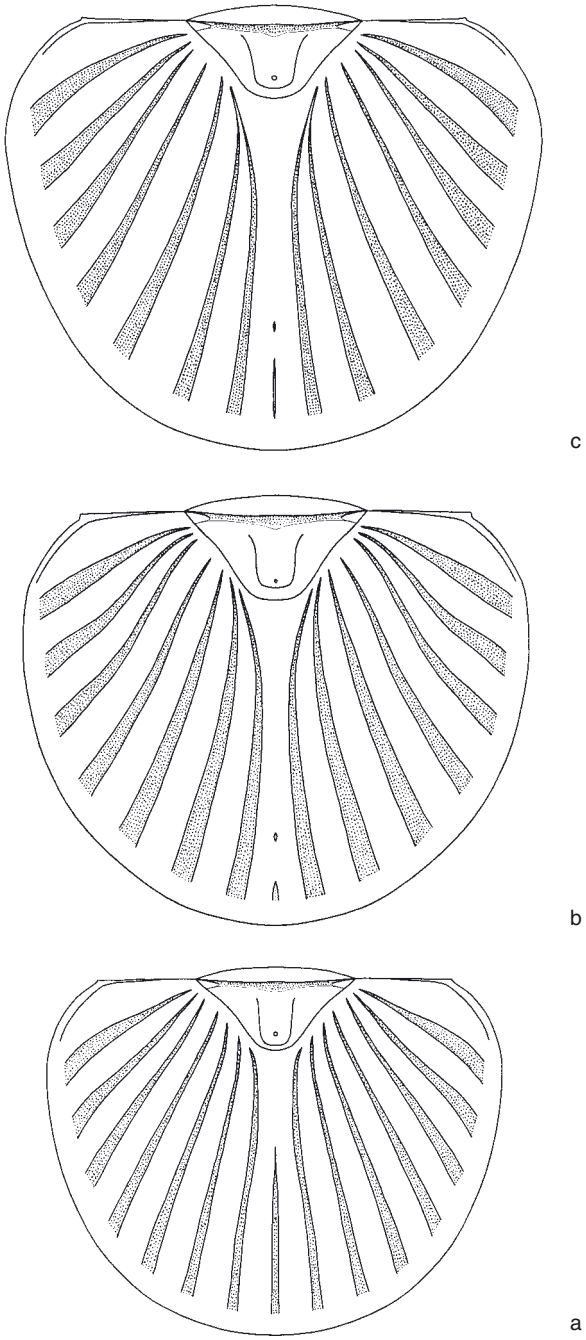

Fig. 1. Schematic reconstruction of pygidia: a) *Radioscutellum intermixtum* (Hawle et Corda, 1847); b) *Radioscutellum effrenatum* n. sp.; c) *Radioscutellum sternbergi* n. sp. Enlarged, sculpture not figured. Based on specimens: a) NM L36693; b) NM L36687, NM L36692 – non-figured pygidium; c) NM L36673, NM L36686 – non-figured rhachis of pygidium.

The counterpart of the holotype of *Radioscutellum effrenatum* n. sp. (i.e. impression of ventral side of pygidial exoskeleton) shows fairly well perceptible irregular depressions in the longitudinal furrows causing trilobed division of pygidial rhachis. These depressions had been known already to Šnajdr (1960, p. 27) especially in *Platyscutellum*; their presence supports the opinion of Whittington (1999, p. 421) that the longitudinal axial furrows are linked up with attachments of ventral ap-

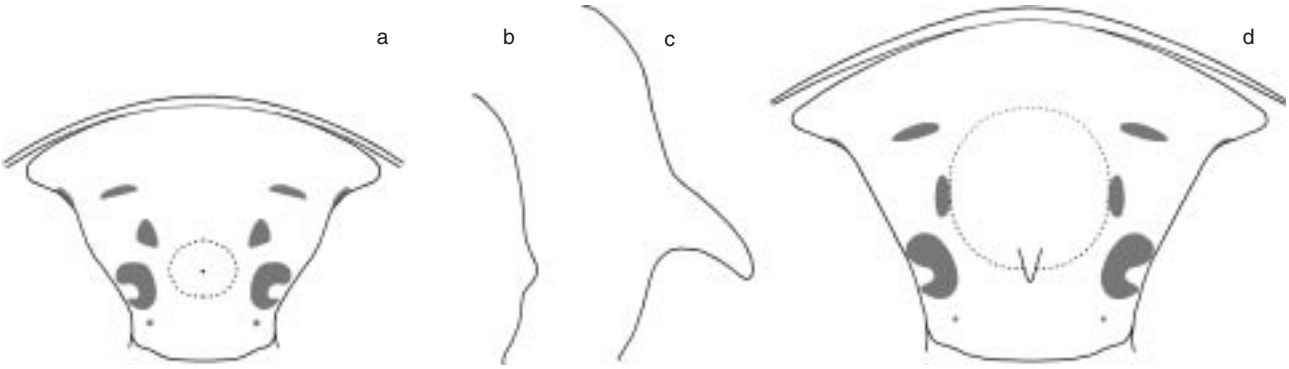

Fig. 2. Contoured drawings of glabellae (occipital ring and occipital furrow omitted; dotted line corresponds to the base of median glabellar spine as defined in the main text; b, c – longitudinal cross-sections along sag. axis): a, b – *Cornuscutellum ? hartli* n. sp.; c, d – *Cornuscutellum rhinoceros* (Barrande, 1872), termination of the median glabellar spine according to Barrande (1872, pl. IX, figs 12, 13). Enlarged, sculpture not depicted. Based on specimens: a, b – ZČM S-2710; c, d – NM L16823 [old ČF732, IT1238 (not 1038 = error)], figured by Horný and Bastl (1970) on pl. IX, fig. 5.

pendages (limbs).

Occurrence: Abundant at the type locality in the accumulation of organic remains B mentioned in the introduction of the text. In addition, it was also found in biomicritic limestone (no accumulation) in the quarry face at the type locality (only NM L36691).

Cornuscutellum Šnajdr, 1960

Type species: Bronteus rhinoceros Barrande, 1872; Pragian, Bohemia.

Cornuscutellum ? hartli n. sp.
Pl. III, figs 1–10; text-figs 2a,b

1999 *Cornuscutellum* n. sp.; Vaněk, p. 43.

Name: after Dr. František Hartl, fossil collector specialized in trilobite family Proetidae.

Holotype: Cranidium (ZČM S-2710); figured herein on Pl. III, figs 1–3, 9.

Type horizon: Lower part of the Loděnice Limestone, Praha Formation, Pragian, Lower Devonian.

Type locality: Eastern face of the active "Čeřinka" quarry SE of the village of Bubovice, Barrandian area, Bohemia.

Material: 14 cranidia and 11 pygidia, preserved in grey biomicritic and biodetrital limestone.

Description: Glabella moderately vaulted, unevenly widening anteriorly, with frontal lobe strongly extended laterally. Compared with L1, frontal lobe is ca. 2.5 times broader. Also L2+3 markedly tr. broadened. Occipital ring narrow, extended posteriorly into mighty occipital spine of yet undetermined total length. Occipital furrow narrow at sag. axis; distinct oval impressions placed distally. L1 curved posteriorly, with well perceptible basal impressions. S1 horseshoe in outline, indistinct. Median glabellar spine conspicuous but short, conical; its top lies approx. at the level of anterior 1/5 of S1 length in dorsal view. Base of median glabellar spine subcircular, its anterior and posterior limits reaching the level of posterior 1/3 of S2 length (sag,.) and posterior 1/3 of S1 length (sag.), respectively. Maximum width of the base equals to 45 percent of the glabellar width at level L1. S2 rounded, trigonal to drop-like in outline. L2+3 gently vaulted. S3 narrow (sag.), elongated (trans.). Preglabellar depression narrow, dying out at sag. axis. Cranidial doublure wide, convex and bent about 90° downwards. Axial furrows deepened regularly, only at S3 level (in dorsal view) well perceptible anterior pits (fossulae). Fixigenae strongly vaulted, with flattened oval lateral impressions. Robust, backward orientated palpebral spines insert on posterior part of palpebral lobes. The total length of the palpebral spines remains unknown; they likely exceeded the posterior margin of cranidium.

Pygidium shortly semi-elliptical in dorsal view, weakly vaulted. Rhachis roundedly trigonal, with median lobe significantly broader and more vaulted than lateral lobes, in particular in its posterior part. Pygidial ribs conspicuous, slightly asymmetric in transverse cross-section, steeper vaulted adax. Median furrow on median unpaired rib narrower (tr.) than interpleural furrows on lateral pygidial lobes. Length of non-bifurcated part of unpaired rib varies between 33–40 percent of postrhachial part; a value of 50 percent found for a young holaspid specimen NM L36701 [11.5 mm long (sag.)].

Sculpture: Cranidium covered by coarse ridges. Pygidium covered by very fine waved ridges; about 14–16 per mm on fifth paired rib in the central part of pygidium (see Pl. III, figs 8, 10).

Parameters: With neglected occipital and palpebral spines, the largest (NM L36699) and smallest (NM L36700) known cranidia are 34 mm and 8 mm long, (sag.), respectively. The largest (NM L36698) and smallest (NM L36701) known pygidia are ca. 58 mm and 11.5 mm long (sag.).

Remarks: *Cornuscutellum? hartli* n. sp. differs from the nominal species *Cornuscutellum rhinoceros* (Barrande, 1872) in particular in a less pronounced median glabellar spine (see description and text-fig. 2a, b). For comparison, in *Cornuscutellum rhinoceros* the median glabellar spine is of horn-like shape, curved backwards. Spin base semicircular in outline, with anterior and posterior margins defined

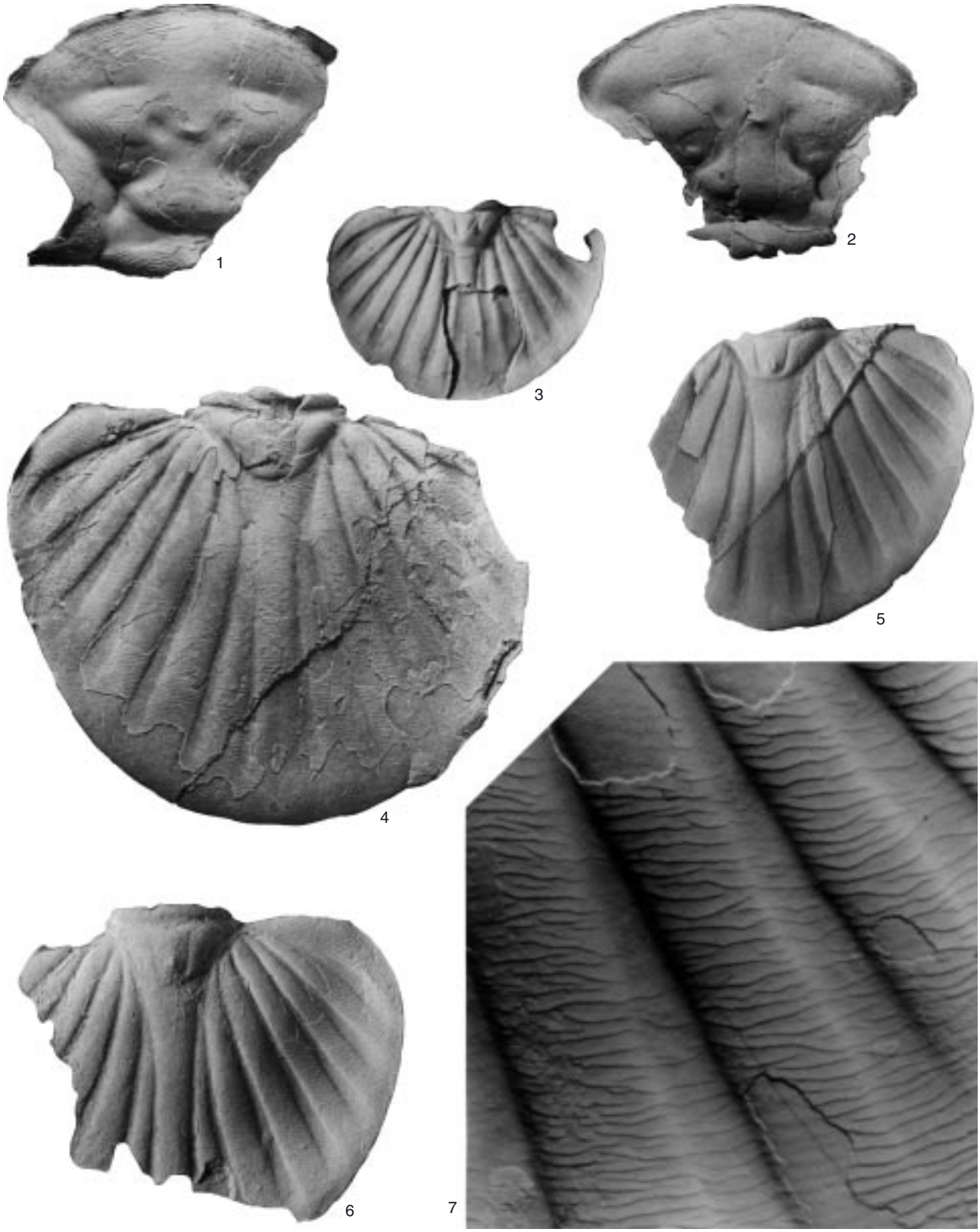

Plate I

1–7. *Radioscutellum sternbergi* n. sp.; Koněprusy Limestone, Pragian, accumulation A, northern slope of Voskop Hill, VČS-E Quarry, Koněprusy. 1 – incomplete cranidium with remains of exoskeleton, × 2.0, NM L36674. 2 – incomplete cranidium with remains of exoskeleton, × 2.8, NM L36675. 3 – young holaspid pygidium with remains of exoskeleton, latex cast of negative, × 4.2, NM L36676; 4 – holotype, pygidium with remains of exoskeleton, × 2.1, NM L36673; 5 – incomplete pygidium with remains of exoskeleton, × 2.9, NM L36677; 6 – incomplete pygidium with exoskeleton, × 2.4, NM L36678+; 7 – detail of pygidium, sculpture on 5R–3R ribs, Lukopren® cast of negative, × 10.4, NM L36678–. Positive of this pygidium (NM L36678+) figured herein on Pl. I, fig. 6.

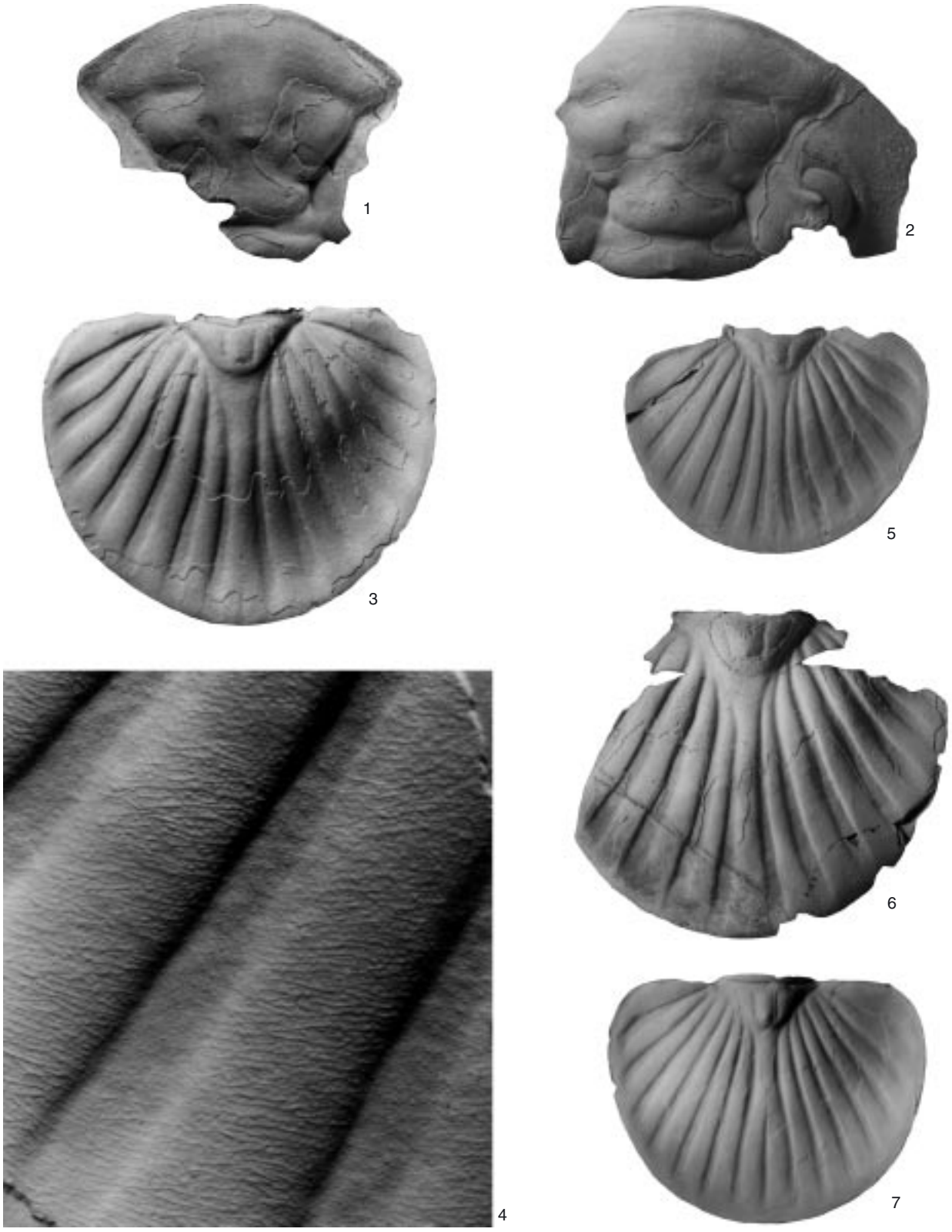

Plate II

1–6. *Radioscutellum effrenatum* n. sp.; Koněprusy Limestone, Pragian, accumulation B, northern slope of Voskop Hill, VČS-E Quarry, Koněprusy.
1 – incomplete cranidium with remains of exoskeleton, × 2.0, NM L36688; 2 – incomplete cephalon with remains of exoskeleton, × 2.9, ZČM S-2712; 3 – holotype, pygidium with remains of exoskeleton, Lukopren® cast of negative, × 1.9, NM L36687; 4 – detail of the same picture, sculpture on 6L – 5L ribs, × 10.7; 5 – small pygidium with exoskeleton, × 2.8, NM L36689+; 6 – incomplete teratologic pygidium with remains of exoskeleton, with the unpaired and 7L ribs fused, × 1.8, NM L36690.
7. *Radioscutellum intermixtum* (Hawle et Corda, 1847); Koněprusy Limestone, Pragian, "Císařský" Quarry, Zlatý kůň Hill, Koněprusy.
7 – pygidium with exoskeleton, Lukopren® cast of negative, × 2.0, NM L36693.

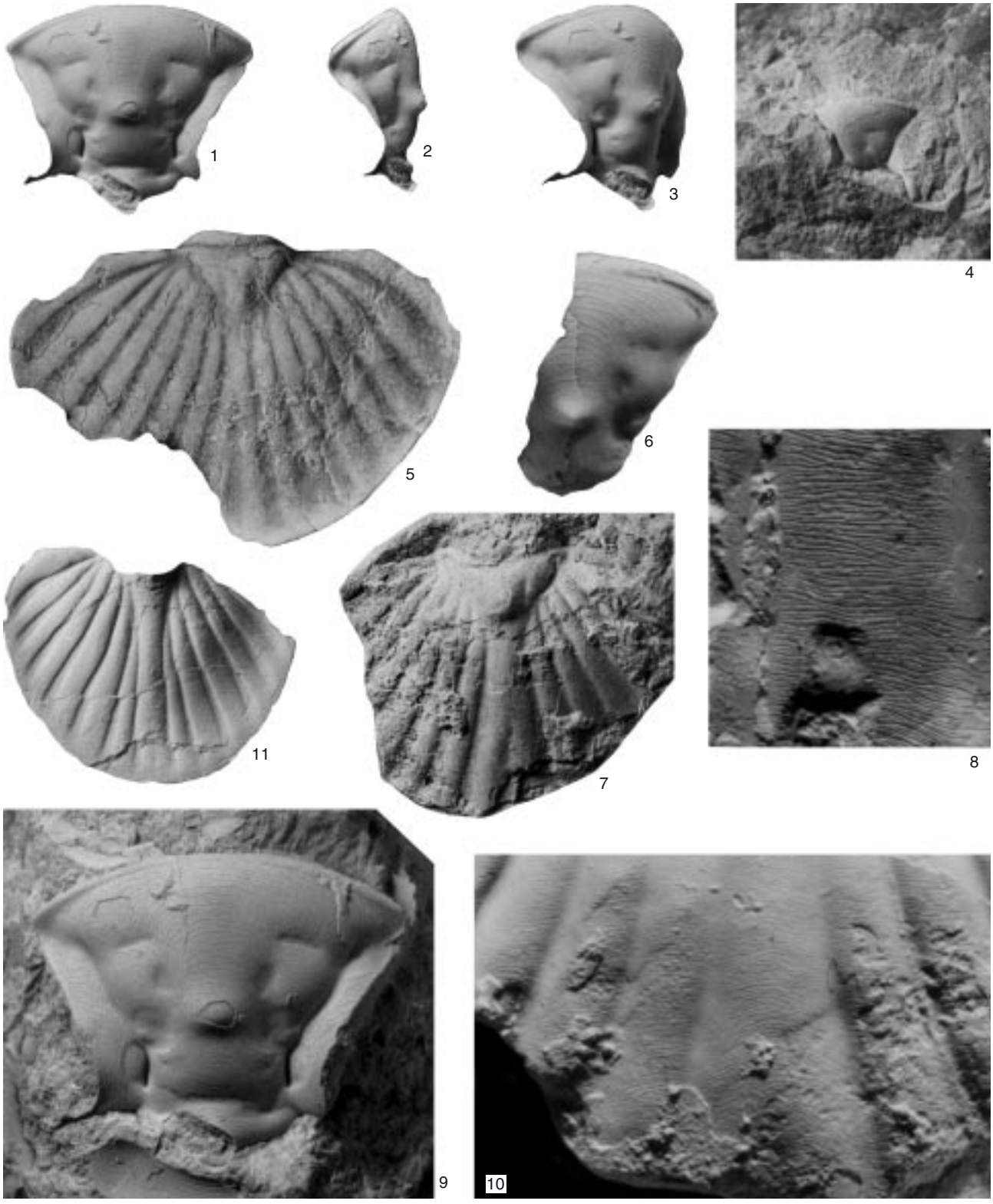

Plate III

1–10. *Cornuscutellum ? hartli* n. sp.; Loděnice Limestone, Pragian, E face of the active "Čeřinka" Quarry S of the village of Bubovice, Barrandian area.
1 – holotype, incomplete cranidium with exoskeleton, dorsal view, × 2.0, ZČM S-2710 (see also fig. 9); 2 – as above, lateral view; 3 – as above, dorsolateral view; 4 – cranidium of a young individual with corroded exoskeleton and palpebral spine preserved, × 2.7, NM L36694; 5 – incomplete small pygidium with remains of exoskeleton, latex cast of negative, × 3.6, NM L36695; 6 – fragment of cranidium with exoskeleton, showing atypical kidney-like shape of S2 (possible teratology), × 4.1, ZČM S-2711; 7 – incomplete pygidium with corroded exoskeleton, × 2.4, NM L36696; 8 – pygidium of a large individual, detail of sculpture on 7R rib, Lukopren® cast, × 10.4, NM L36698; 9 – detail of holotype (see fig. 1), × 3.0; 10 – pygidium of young individual, detail of sculpture on 5L – 6R ribs, Lukopren® cast, × 9.4, NM L36697.
11. *Radioscutellum sternbergi* n. sp.; Koněprusy Limestone, Pragian, accumulation A, northern slope of Voskop Hill, VČS-E Quarry, Koněprusy.
11 – incomplete pygidium with remains of exoskeleton, Lukopren® cast of negative, × 1.6, NM L36679.

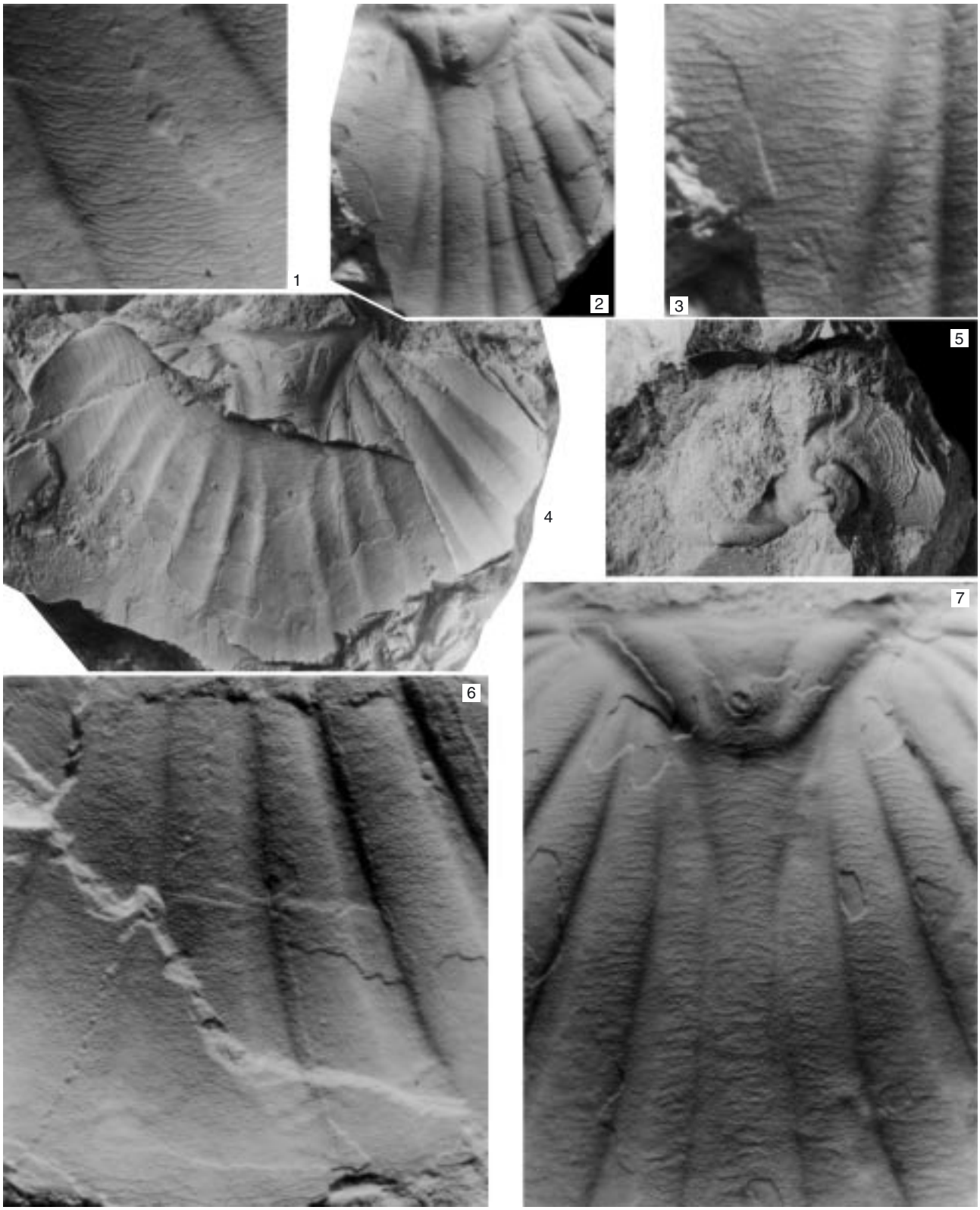

Plate IV

1, 6, 7. *Radioscutellum effrenatum* n. sp.; Koněprusy Limestone, Pragian, accumulation B, northern slope of Voskop Hill, VČS-E Quarry, Koněprusy (figs 1 and 7) and the same locality, quarry face, biomicritic limestone (fig. 6).

1 – pygidium NM L36690 figured herein on Pl. II, fig. 6, detail of sculpture of 4R rib, Lukopren® cast, × 10.4; 6 – pygidium of young individual, detail of sculpture on 7L–6R ribs, Lukopren® cast of negative , × 10.1, NM L36691; 7 – pygidium of young individual, detail of sculpture, Lukopren® cast of negative, × 10.0, NM L36689–. Positive figured herein on Pl. II, fig. 5.

2–5. *Radioscutellum sternbergi* n. sp.; Koněprusy Limestone, Pragian, accumulation A, northern slope of Voskop Hill, VČS-E Quarry, Koněprusy.

2 – incomplete pygidium of a young individual with exoskeleton, Lukopren® cast, × 4.9, NM L36680; 3 – as above, detail of sculpture on 5L–7L ribs, Lukopren® cast, × 14.5; 4 – pygidium with denuded doublure, × 3.1, NM L36681; 5 – incomplete cephalon with exoskeleton, × 2.0, NM L36682.

by the levels of posterior 1/5 of frontal lobe length (sag.) and a half of the S1 length, respectively; the lateral limit is given by the adaxial margins of S2. Maximum width of the base equal to 80 percent of glabellar width at level L1. Median glabellar spine slightly vaulted from level S3 towards the anterior margin of S2; from the latter level the arch becomes steeper. Spine ends at the level of posterior 1/5 of S1 length (sag.) (see text-fig. 2c, d).

Other specific features of *C. hartli* n. sp. concern outline of S2, broadened glabella at level L2+3, longer non-bifurcated part of median unpaired pygidial rib (only ca. 20 percent in *C. rhinoceros*) and different sculptures on cranidium and pygidium. Sculpture on exoskeleton of *C. rhinoceros* is sporadic (wrinkles or ridges) or completely absent (see Šnajdr 1960, pp.110–111). Schematic drawing of cranidium of *C. rhinoceros* (Šnajdr 1960, p. 110, text-fig. 37) is inaccurate. Both representatives of *Cornuscutellum* are characterized by horseshoe outline of S1 (see text-fig. 2; Barrande 1872, pl. IX, fig. 12; Šnajdr 1960, p. 253; pl. XVIII, fig. 3; Horný and Bastl 1970, pl. IX, fig. 5). Holloway (1996, p. 436) described, somewhat differently, the shape of S1 of *Cornuscutellum rhinoceros* as semi-elliptical and enclosing a weak central swelling, which probably does not contradict the present author's observation.

Cornuscutellum ? hartli n. sp. resembles some representatives of the genus *Decoroscutellum,* namely *Decoroscutellum (D.) lepidum lepidum* (Bouček 1933) and *D. (D.) lepidum exoptatum* Šnajdr, 1960, from the underlying Lochkov Formation (Lochkovian, Lower Devonian, Prague Basin; see Šnajdr 1960, text-figs 28, 29; pl. VII, figs 2–6, 9). The common features exhibited by the latter species and *Cornuscutellum ? hartli* n. sp. are subtriangular shape of S2 and relatively short non-bifurcated part of median unpaired pygidial rib (note that pygidium of *Decoroscutellum (D.) lepidum exoptatum* is hitherto unassigned). However, narrow preglabellar depression, wide cranidial doublure, conspicuous median glabellar spine and robust palpebral spines, short non-bifurcated part of median unpaired pygidial rib and markedly vaulted pygidial ribs are all characters that range the new species with the genus *Cornuscutellum.* Nevertheless, the shape of S2, length of median glabellar spine and shape of glabella do not comply with the diagnosis of *Cornuscutellum* according to Šnajdr (1960), and the assignment of *hartli* may, therefore, still be viewed as uncertain. The nominal species *C. rhinoceros* possesses oval S2, with longer exsag. axis; this outline is presumably dictated by the mighty median spine with large base suppressing the adaxial process of subtriangular S2 (see text-fig. 2), well perceptible at expected ancestors of this species (see below). In comparison with *C. ? hartli* n. sp., *Cornuscutellum rhinoceros* exhibits two features developed to extremities, i.e. a longer median glabellar spine and a shorter bifurcation of median unpaired pygidial rib. All these data testify that the phylogeny proceeded from the discussed group of *Decoroscutellum* species through *Cornuscutellum ? hartli* n. sp. to *Cornuscutellum rhinoceros.* This phylogenetic development is in agreement with the opinion presented by Šnajdr (1960), (see also Maximova 1968, Pillet 1972).

Normally sized exoskeleton parts of *Cornuscutellum ? hartli* n. sp. were collected together with remnants of pygidia of young holaspid specimens, 5–12 mm long (sag.), that are, however, strongly vaulted. Owing to poor and fragmentary preservation, their assignment to *C. ? hartli* n. sp. remains unclear.

Occurrence: Rare at the type locality.

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Except the detailed pictures of exoskeletons, all specimens were coated by NH_4Cl before photographing.

Abbreviations: NM L – Department of Paleontology, National Museum, Prague, Czech Republic; ZČM S – West-Bohemian Museum, Pilsen, Czech Republic.

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