

PLATES

ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 1

Stuertzaster utroquecognitus sp. n. 11

Radiate spicules from aboral surface of the arms and swollen part of central disc.

Fig. 1. GIUS 4-584 Mrz./183/1, Late Givetian, Marzysz II/13, lateral view.

Fig. 2. GIUS 4-561 Mrz./322/3, Late Givetian, Marzysz Ic/5, lateral view.

Fig. 3. GIUS 4-561 Mrz./322/2, Late Givetian, Marzysz Ic/5, lateral view.

Fig. 4. GIUS 4-561 Mrz./322/1, Late Givetian, Marzysz Ic/5, oblique view.

Fig. 5. GIUS 4-561 Mrz./323/1, Late Givetian, Marzysz Ic/5, side view.

Fig. 6. GIUS 4-561 Mrz./324/3, Late Givetian, Marzysz Ic/5, aboral view.

Fig. 7. GIUS 4-561 Mrz./324/2, Late Givetian, Marzysz Ic/5, aboral view.

Fig. 8. GIUS 4-561 Mrz./324/1, Late Givetian, Marzysz Ic/5, aboral view.

Fig. 9. GIUS 4-764 Jaź./1010/1, Mid (Late?) Givetian, set B of Jaźwica, aboral view.

Spines, lateral views.

Fig. 10. GIUS 4-584 Mrz./115/6, Late Givetian, Marzysz II/13; *a* end of spine, *b* the same, fragment.

Fig. 11. Base of spine GIUS 4-575 Mrz./313/5, Late Givetian, Marzysz II/4.

Fig. 12. Fragmentary specimen GIUS 4-584 Mrz./115/5, Late Givetian, Marzysz II/13.

Fig. 13. GIUS 4-584 Mrz./115/7, Late Givetian, Marzysz II/13; *a* fragmentary specimen, *b* base of the same spine enlarged.

Crossed spine from central disc.

Fig. 14. Asymmetrical form GIUS 4-604 Las./1129/1, Middle Givetian, set B of Laskowa Góra, aboral view.

Weigeltura beckeri sp. n. 25

Late Emsian, set V of Grzegorzwice.

Fig. 15. Ambulacral plate GIUS 4-792 Grz./817/1 from the middle part of the arm, outer (lateral) view.

Fig. 16. Lateral plate GIUS 4-792 Grz./817/2 from the middle part of the arm, outer view.

Eospondylus ingens sp. n. 38

Early Givetian, set XXV of Skały.

Fig. 17. Ambulacral plate GIUS 4-708 Ska./920/1 from the middle part of the arm, dorsal view.

Fig. 18. Lateral plate GIUS 4-708 Ska./928/1 from the middle part of the arm, outer view.

Fig. 19. Lateral plate GIUS 4-708 Ska./928/2 from the distal part of the arm, dorsal view.

Umerophiura umera sp. n. 13

Adambulacral plates from the Early Givetian, set XXV of Skały.

Fig. 20. Plate GIUS 4-708 Ska./736/1 from the proximal part of the arm, ventral view.

Fig. 21. Plate GIUS 4-708 Ska./736/2 from the distal part of the arm, ventral view.

Umerophiura opiparia sp. n. 12

Fig. 22. Adambulacral plate GIUS 4-584 Mrz./182/5, Late Givetian, Marzysz II/13, ventral view.

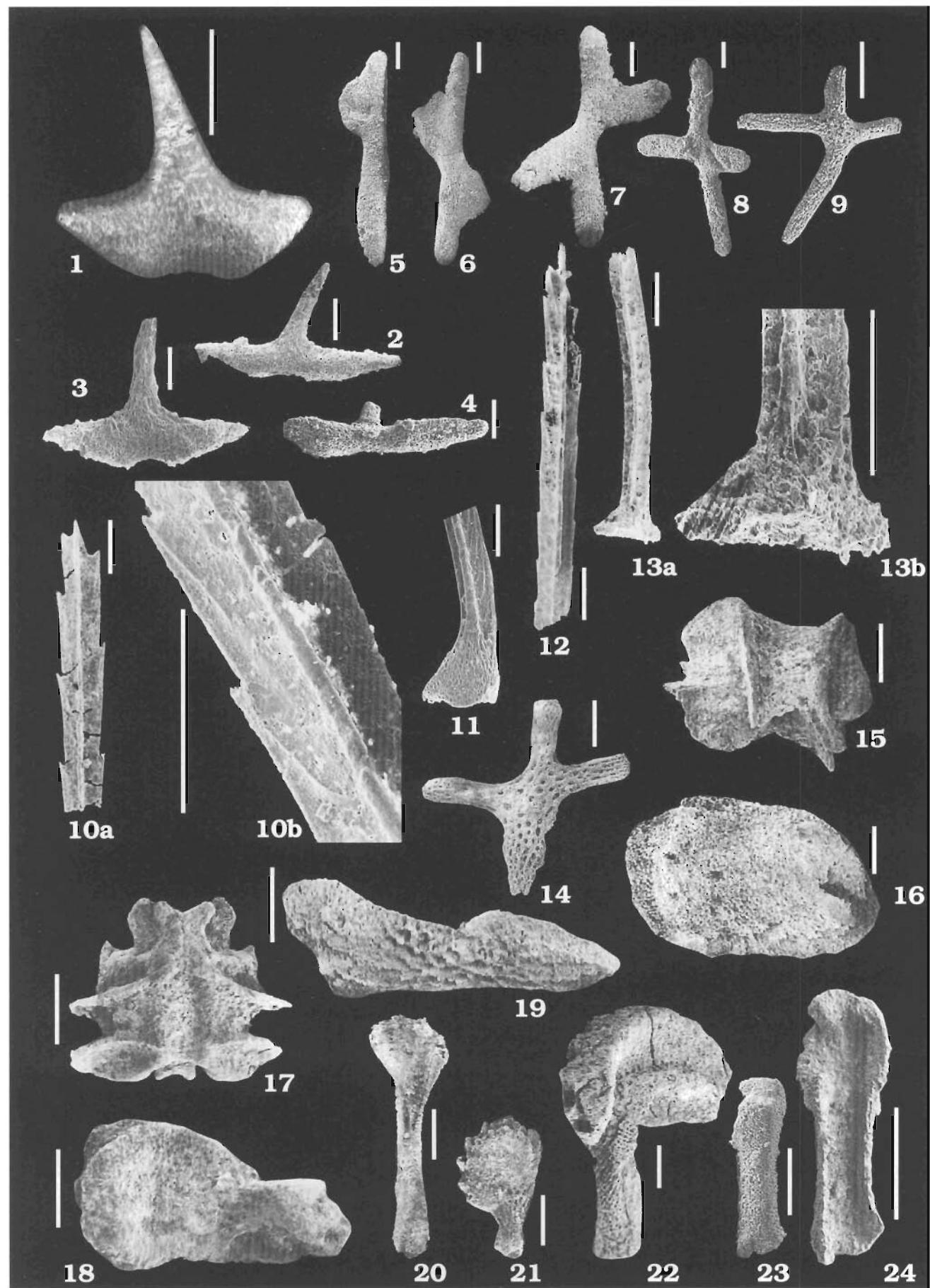
Chattaster loculus sp. n. 27

Lateral plates from the Late Givetian of Marzysz.

Fig. 23. Specimen GIUS 4-575 Mrz./258/1, Marzysz II/4 from the middle part of the arm, outer view.

Fig. 24. Specimen GIUS 4-584 Mrz./159/6, Marzysz II/13 from the middle part of the arm, inner view.

Scale bar 200 µm



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 2

Ophiothrix sp. 13

Recent specimen from Samui Island, Thailand showing spine hooks (to compare with those of *Pectenura*).

Fig. 1. Spine hooks in articulation GIUS 12-805 Sam./1138/1; *a* spine hook, *b* fragment of the arm with the spine hooks, *c* close up of the same arm with natural position of hooks.

Fig. 2. Hook GIUS 12-805 Sam./1138/2, lateral view.

Fig. 3. Hook GIUS 12-805 Sam./1138/3, oblique view.

Pectenura hamata sp. n. 17

Late Eifelian set XVIII of Skaly.

Fig. 4. Ventral view of the lateral plate GIUS 4-671 Ska./772/1 from the middle part of the arm.

Fig. 10. Hook GIUS 4-671 Ska./779/1.

Fig. 11. Hook GIUS 4-671 Ska./779/2.

Pectenura excubitor sp. n. 15

Late Givetian of Marzysz.

Fig. 6. Lateral plate GIUS 4-584 Mrz./169/10 from the proximal part of the arm, Marzysz II/13, dorsal view.

Fig. 7. Lateral plate GIUS 4-578 Mrz./259/2 from the proximal part of the arm, Marzysz II/7, dorsal view.

Fig. 8. Lateral plate GIUS 4-578 Mrz./259/1 from the proximal part of the arm, Marzysz II/7, ventral view.

Fig. 9. Hook GIUS 4-584 Mrz./173/1, Marzysz II/13.

Pectenura formosa sp. n. 15

Early Frasnian, set F of Góra Zamkowa in Chęciny.

Fig. 5. Sublateral plate GIUS 4-785 Gza./1109/3 from the middle part of the arm, ventral view.

Fig. 15. Hook, holotype GIUS 4-785 Gza./1109/1.

Fig. 16. Hook GIUS 4-785 Gza./1109/2.

Pectenura pecten sp. n. 20

Middle Givetian set B of Laskowa Góra.

Fig. 12. Hook GIUS 4-604 Las./1047/4; *a* whole specimen, *b* details of the middle part, *c* details of the base.

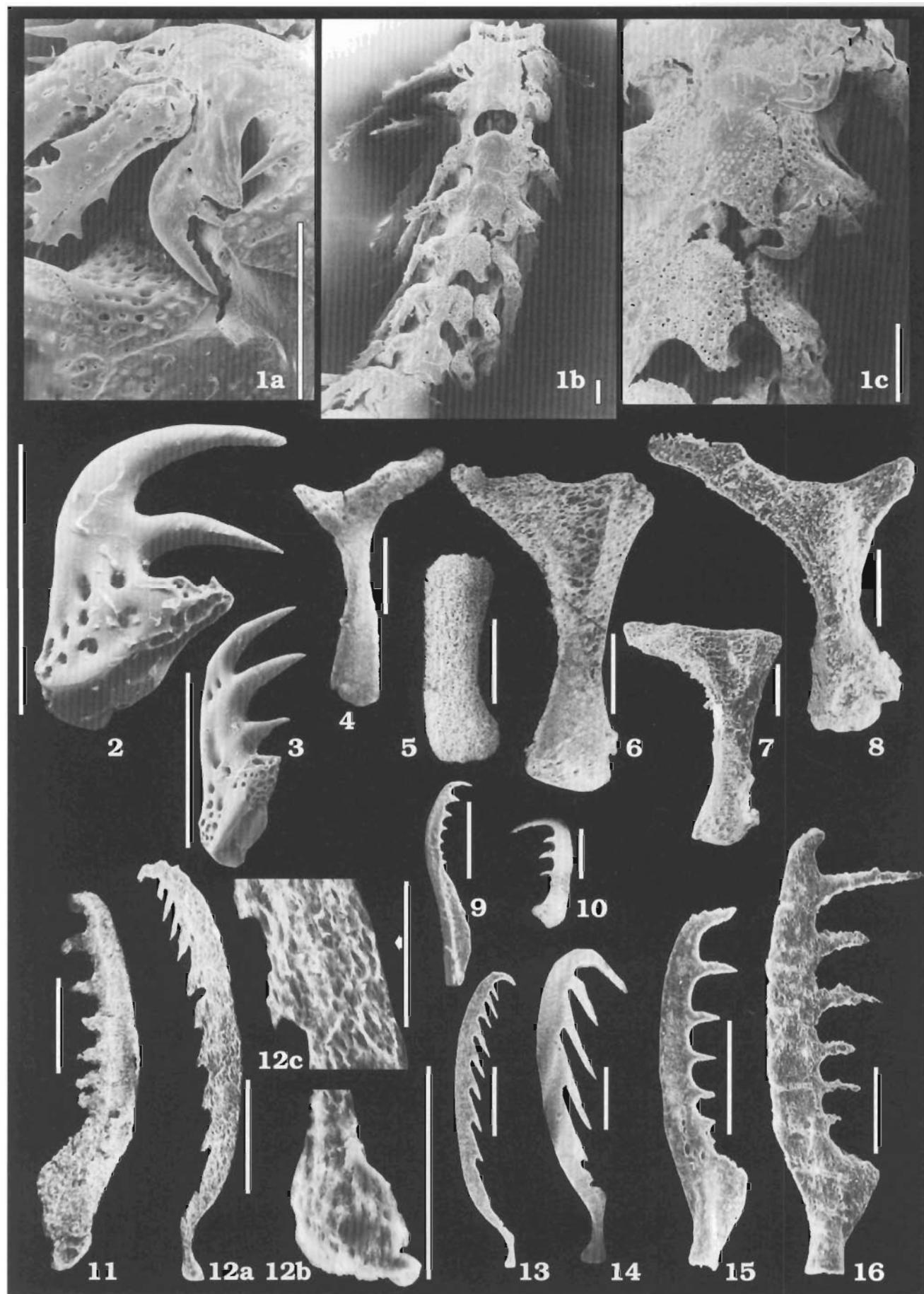
Fig. 13. Hook GIUS 4-604 Las./1047/3.

Pectenura senta sp. n. 20

Middle Frasnian, set C of Górnō.

Fig. 14. Hook, holotype GIUS 4-607 Grn./536/20.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 3

Ophiactis sp. 29

Fig. 1. Recent specimen GIUS 12-805 Sam./1139/1 from Samui Island, Thailand (to compare with *Furcaster*);
a oral view of the central disc with fragments of arms, *b* fragment of the mouth with teeth, *c* tentacle scales.

Furcaster cataphractus sp. n. 31

Elements of the ophiuroid skeleton from the Late Givetian of Marzysz.

Fig. 2. Aggregate GIUS 4-584 Mrz./177/5, Marzysz II/13.

Fig. 3. Mouth-angle plate GIUS 4-575 Mrz./859/8, Marzysz II/4, adradial view.

Fig. 4. Mouth-angle plate GIUS 4-575 Mrz./859/11, Marzysz II/4; *a* abradial view, *b* oblique view.

Fig. 5. Fragment of mouth frame, half of the first ambulacral plate is joined with the mouth-angle plate GIUS 4-575 Mrz./859/2, Marzysz II/4, inner view.

Fig. 6. First ambulacral plate GIUS 4-584 Mrz./178/2, Marzysz II/13, inner view.

Fig. 7. First ambulacral plate GIUS 4-584 Mrz./178/1, Marzysz II/13, outer-oblique view.

Fig. 8. Second ambulacral plate GIUS 4-584 Mrz./181/1, Marzysz II/13, distal view.

Fig. 9. Arm vertebra from the middle part of the arm GIUS 4-584 Mrz./154/6, Marzysz II/13, distal view.

Fig. 10. Arm vertebra from the middle part of the arm GIUS 4-584 Mrz./154/1, Marzysz II/13, dorsal view.

Fig. 11. Arm vertebra from the middle part of the arm GIUS 4-584 Mrz./154/2, Marzysz II/13, proximal view.

Fig. 12. Arm vertebra from the middle part of the arm, ventral view, GIUS 4-584 Mrz./154/5, Marzysz II/13.

Fig. 15. Arm vertebra from the distal part of the arm GIUS 4-584 Mrz./154/3, Marzysz II/13, dorsal view.

Fig. 16. Arm vertebra from the distal part of the arm GIUS 4-584 Mrz./154/4, Marzysz II/13, ventral view.

Furcaster aequoreus sp. n. 29

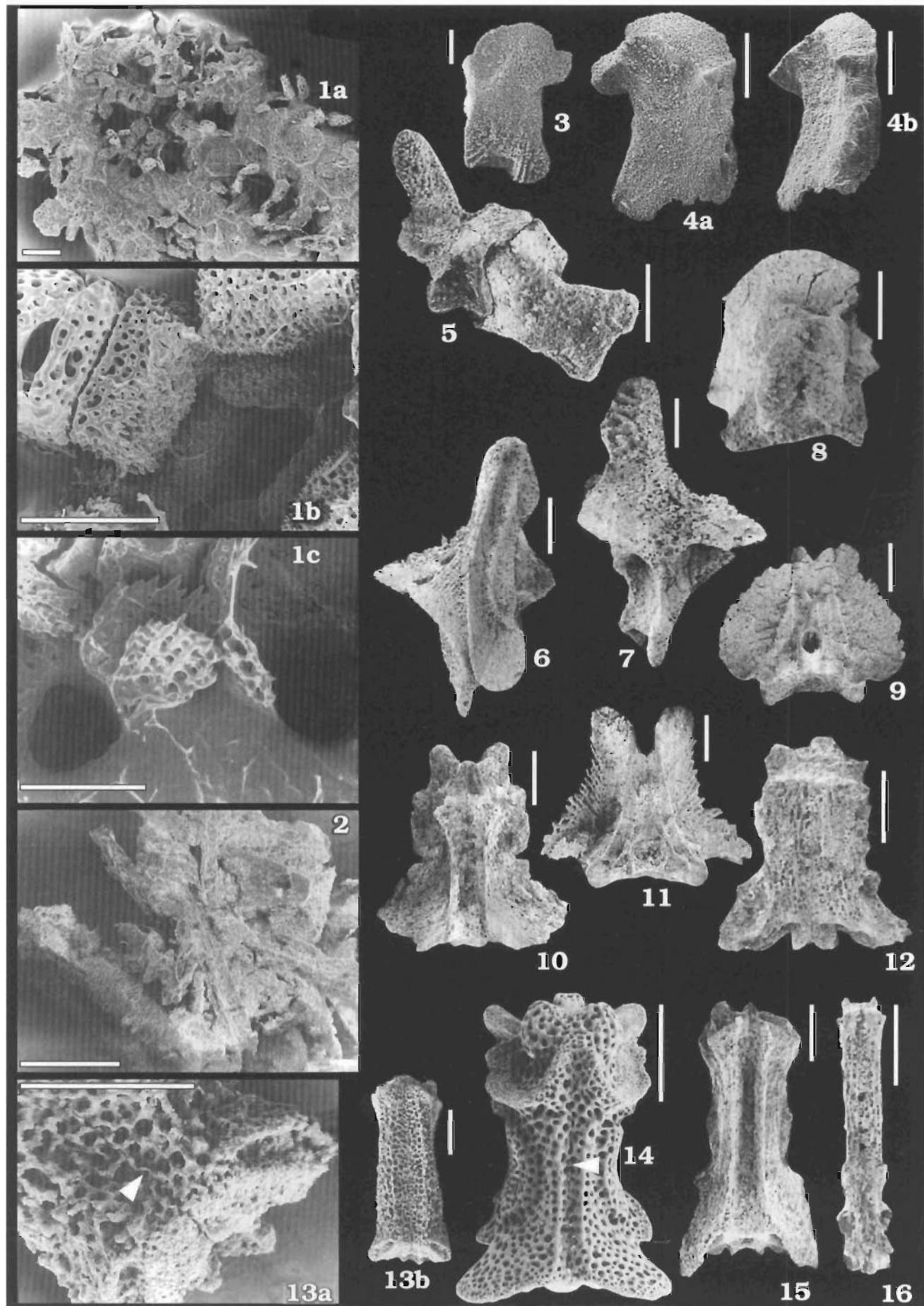
Early Givetian, outcrop III, Śniadka.

Fig. 13. Arm vertebra GIUS 4-439 Śni./917/6 from the distal part of the arm of dorsal view; *a* fragment, white arrow indicates suture between halves of vertebra, *b* whole specimen.

Ophiura albida 29

Fig. 14. Arm vertebra of Recent specimen GIUS 12-804 Spi./1140/1 from Spitsbergen, dorsal view, white arrow indicates suture between halves of vertebra (to compare with *Furcaster*).

Scale bar 200 µm except for figure 1b, 1c where it is 100 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 4

Ophiothrix sp. 13

Lateral plates of a Recent specimen from Samui Island, Thailand (to compare with *Furcaster*).

Fig. 1. Plate from proximal part of the arm GIUS 12-805 Sam./1138/4, outer view.

Fig. 2. Plate from distal part of the arm GIUS 12-805 Sam./1138/5, inner view.

Fig. 3. Plate from distal part of the arm GIUS 12-805 Sam./1138/6, outer view.

Furcaster cataphractus sp. n. 31

Middle Givetian.

Fig. 4. Lateral plate from the middle part of the arm GIUS 4-604 Las./1127/1 set B of Laskowa Góra, distal-oblique view.

Late Givetian

Fig. 5. Lateral plate GIUS 4-584 Mrz./153/2 from the proximal part of the arm, Marzysz II/13, inner view.

Fig. 6. Lateral plate GIUS 4-584 Mrz./153/7 from the proximal part of the arm, Marzysz II/13, outer view; *a* fragment of the outer surface with the characteristic crescent-shaped depressions, *b* the same, whole specimen.

Fig. 7. Lateral plate GIUS 4-584 Mrz./153/1 from the middle part of the arm, Marzysz II/13, outer view.

Fig. 8. Lateral plate GIUS 4-575 Mrz./859/7 from the middle part of the arm, Marzysz II/4, outer view.

Fig. 9. Lateral plate GIUS 4-584 Mrz./153/5 from the middle part of the arm, Marzysz II/13, inner view.

Fig. 10. Lateral plate GIUS 4-584 Mrz./153/6 from the middle part of the arm, Marzysz II/13, outer view.

Fig. 11. Lateral plate GIUS 4-584 Mrz./153/4 from the distal part of the arm, Marzysz II/13, outer view.

Fig. 12. Spine GIUS 4-584 Mrz./163/12, Marzysz II/13; *a* long spine, side view, *b* fragment of surface with the characteristic tresslike calcite structure of the edge, *c* base of spine.

Fig. 13. Cross section of the spine GIUS 4-747 Sow./1131/1, set C of Sowie Górkı.

Fig. 14. Fragment of spine GIUS 4-747 Sow./1131/2, set C of Sowie Górkı, lateral view.

Fig. 15. Base of the spine GIUS 4-747 Sow./1131/4, set C of Sowie Górkı.

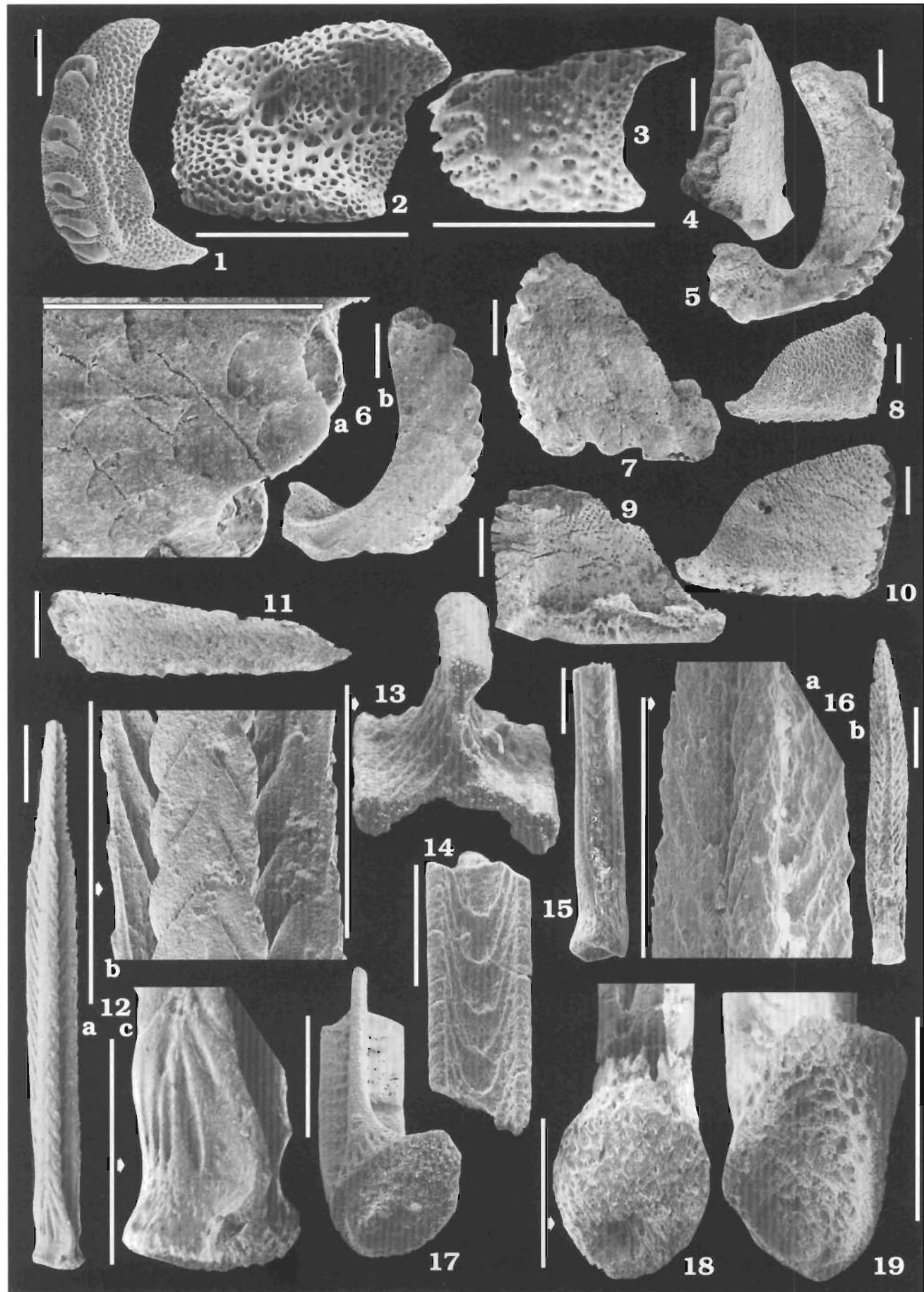
Fig. 16. Short spine GIUS 4-584 Mrz./163/10, Marzysz II/13, side view; *a* fragment of *b*.

Fig. 17. Base of spine GIUS 4-747 Sow./1131/3, set C of Sowie Górkı.

Fig. 18. Base of spine GIUS 4-584 Mrz./163/11, Marzysz II/13.

Fig. 19. Base of spine GIUS 4-584 Mrz./163/13, Marzysz II/13.

Scale bar 200 µm



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 5

Furcaster cataphractus sp. n. 31

Lyre-like scales, Givetian.

Fig. 1. Specimen with broken base GIUS 4-578 Mrz./264/1, Late Givetian, Marzysz II/7.

Fig. 2. GIUS 4-575 Mrz./452/5, Late Givetian, Marzysz II/4.

Fig. 3. GIUS 4-604 Las./1128/1, Middle Givetian set B of Laskowa Góra; *a* whole specimen, *b* base.

Furcaster sp. A. 35

Middle Frasnian, set C of Górn.

Fig. 4. Lyre-like scale of GIUS 4-607 Grn./1062/5.

Furcaster cataphractus sp. n. 31

Leaf-like scales from the Late Givetian.

Fig. 5. GIUS 4-578 Mrz./263/2 abradial side, Marzysz II/7.

Fig. 6. GIUS 4-578 Mrz./263/3 abradial side, Marzysz II/7.

Fig. 7. GIUS 4-578 Mrz./263/7 abradial side, Marzysz II/7.

Fig. 8. GIUS 4-578 Mrz./263/5 abradial side, Marzysz II/7.

Fig. 9. GIUS 4-747 Sow./162/31 abradial side, set C of Sowie Górk.

Fig. 10. GIUS 4-578 Mrz./263/4 abradial side, Marzysz II/7.

Fig. 11. GIUS 4-575 Mrz./452/14 abradial side, Marzysz II/4.

Fig. 12. GIUS 4-575 Mrz./452/1 abradial side, Marzysz II/4.

Fig. 13. GIUS 4-575 Mrz./452/12 abradial side, Marzysz II/4.

Fig. 14. GIUS 4-575 Mrz./452/10 abradial side, Marzysz II/4.

Fig. 15. GIUS 4-578 Mrz./263/1 abradial side, Marzysz II/7.

Fig. 16. GIUS 4-575 Mrz./452/9 abradial side, Marzysz II/4.

Fig. 17. GIUS 4-584 Mrz./162/24 abradial side, Marzysz II/13.

Fig. 18. GIUS 4-584 Mrz./162/29 abradial side, Marzysz II/13.

Fig. 19. GIUS 4-575 Mrz./452/3 abradial side, Marzysz II/4.

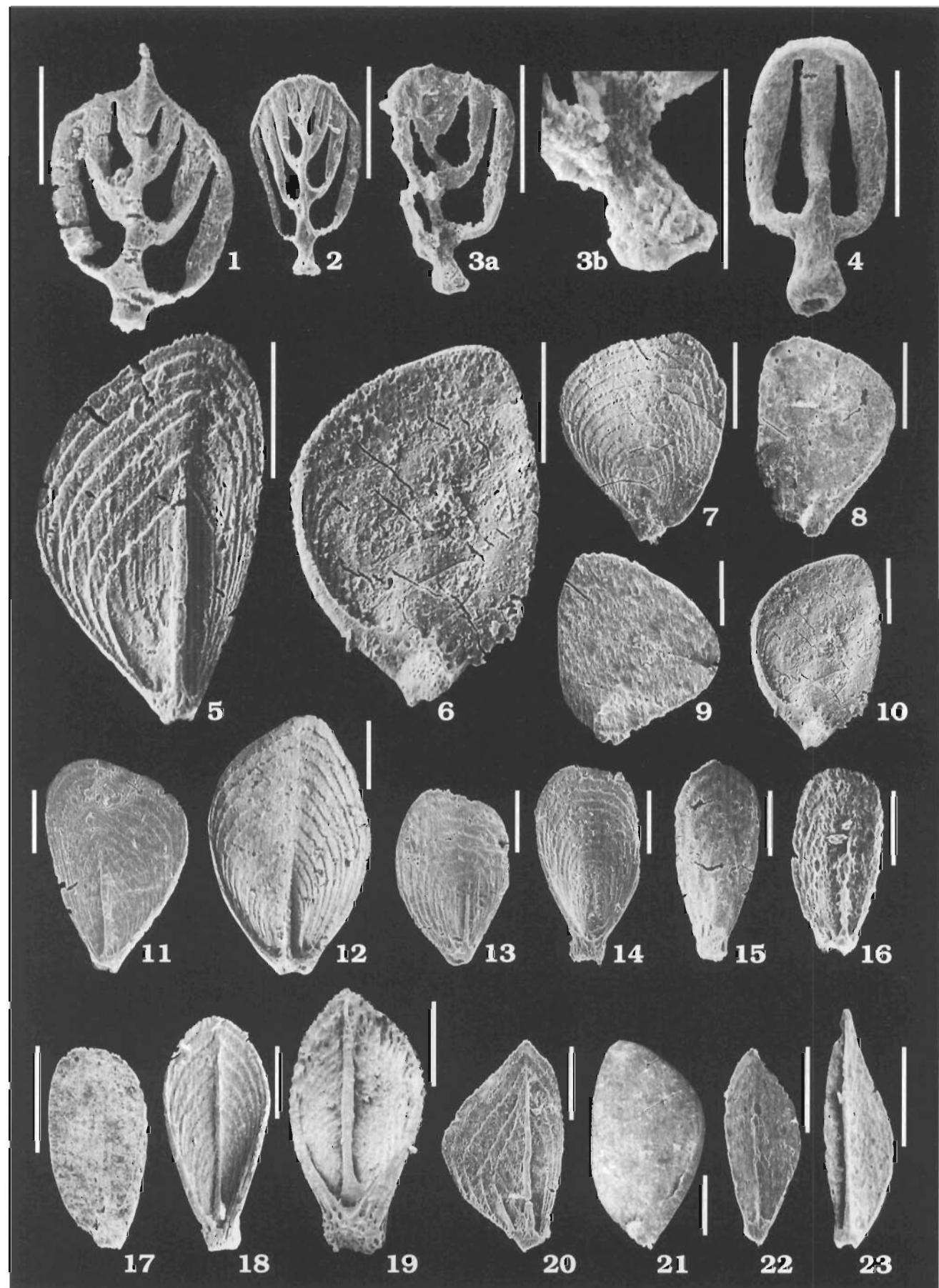
Fig. 20. GIUS 4-575 Mrz./452/11 abradial side, Marzysz II/4.

Fig. 21. GIUS 4-584 Mrz./162/20 abradial side, Marzysz II/13.

Fig. 22. Plate intermediate in form between spine and scale from the corner of lateral plate GIUS 4-575
Mrz./452/8 abradial side, Marzysz II/4.

Fig. 23. Same plate form GIUS 4-584 Mrz./162/30, Marzysz II/13.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 6

Ophiothrix sp. 13

Disc stumps.

Fig. 1. GIUS 12-805 Sam./1138/8 from Samui Island, Thailand Recent; *a* aboral surface of the disc, *b* fragment, disc stumps (to compare with those of Givetian ophiuroids).

Givetian ophiuroids. 39

Disc stumps.

Fig. 2. Type A-1, ovate form with the multilamellate clavate process GIUS 4-439 Śni./954/1, Early Givetian outcrop III Śniadka, lateral view.

Type A-2 form with trilamellate processes.

Fig. 3. GIUS 4-568 Mrz./90/6, Late Givetian, Marzysz II/W/6, adoral view.

Fig. 4. GIUS 4-568 Mrz./90/7, Late Givetian, Marzysz II/W/6, aboral view.

Fig. 5. GIUS 4-568 Mrz./90/5, Late Givetian, Marzysz II/W/6, oblique view.

Fig. 6. GIUS 4-568 Mrz./90/4, Late Givetian, Marzysz II/W/6, aboral view.

Fig. 7. Ovate form with a trilamellate clavate process GIUS 4-568 Mrz./90/8, Late Givetian, Marzysz II/W/6, oblique view.

Type C-1, ossicle with crocus-shaped calyx.

Fig. 8. GIUS 4-708 Ska./737/1, Early Givetian, set XXV of Skały, oblique view.

Type B-1 retiform disc stumps with knob.

Fig. 9. GIUS 4-671 Ska./789/1, Late Eifelian, set XVIII of Skały.

Type B-1 perforate disc stumps with knob, Late Eifelian, set XVIII of Skały.

Fig. 10. GIUS 4-671 Ska./789/2; *a* aboral view, *b* lateral view.

Type B-2, retiform disc stumps with smooth clavate processes from the Early Givetian, outcrop III, Śniadka.

Fig. 11. GIUS 4-439 Śni./955/1, aboral view; *a* enlargement of *b*.

Fig. 12. GIUS 4-439 Śni./955/2, aboral view.

Fig. 13. GIUS 4-439 Śni./955/3, aboral view.

Type C-2, ossicle with a crocus-shaped calyx from the Late Givetian, set C of Sowie Górkı.

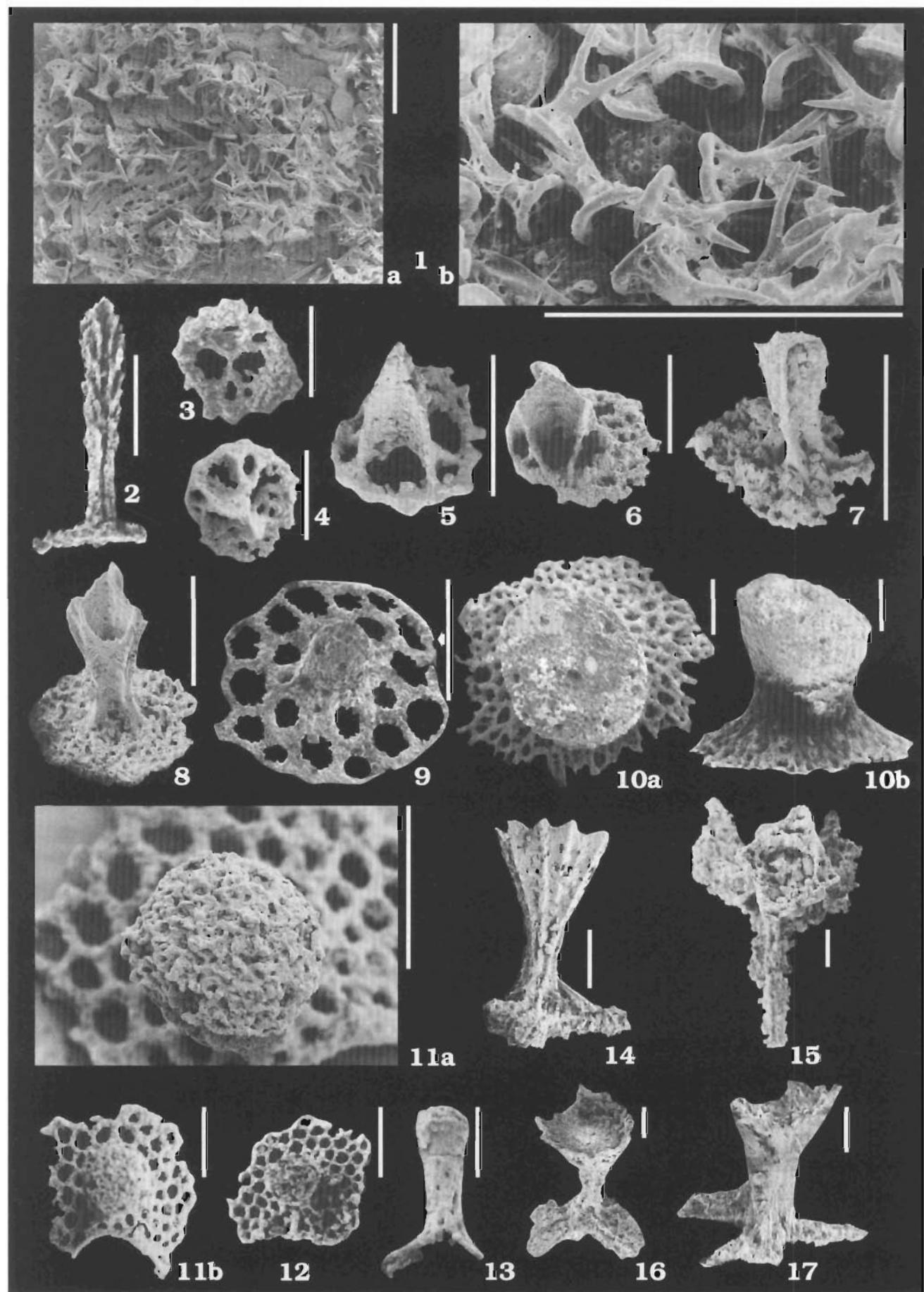
Fig. 14. GIUS 4-747 Sow./667/2, lateral view.

Fig. 15. GIUS 4-747 Sow./667/1, aboral view.

Fig. 16. GIUS 4-747 Sow./667/3, lateral-oblique view.

Fig. 17. GIUS 4-747 Sow./667/4, lateral view.

Scale bar 100 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 7

Eifelian and Givetian ophiuroids 39

Ossicles from the central disc.

- Fig. 1. Type A, GIUS 4-578 Mrz./278/2, Late Givetian, Marzysz II/7.
 Fig. 2. Type A, GIUS 4-578 Mrz./278/1, Late Givetian, Marzysz II/7.
 Fig. 3. Type A, GIUS 4-584 Mrz./189/12, Late Givetian, Marzysz II/13; *a* lateral view, *b* aboral view.
 Fig. 4. Type A, GIUS 4-708 Ska./749/1, Early Givetian, set XXV of Skały, lobate form.
 Fig. 5. Type D, GIUS 4-439 Śni./953/1, Early Givetian of outcrop III, Śniadka.
 Fig. 6. Type E-1, GIUS 4-779 Zba./342/2, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, Zbrza, side view.
 Fig. 7. Type E-1, GIUS 4-779 Zba./342/3, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, Zbrza, side view.
 Fig. 8. Type E-1, GIUS 4-779 Zba./342/4, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, Zbrza, side view.
 Fig. 9. Type E-1, GIUS 4-779 Zba./342/5, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, Zbrza, side view.
 Fig. 10. Type E-2, GIUS 4-439 Śni./961/1, Early Givetian, outcrop III at Śniadka.
 Fig. 11. Type E-2, GIUS 4-439 Śni./961/2, Early Givetian, outcrop III at Śniadka.
 Fig. 12. Type F-1, GIUS 4-615 Grz./384/1, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.
 Fig. 13. Type E-3, one-ply plate similar to *Eocaudina* GIUS 4-617 Grz./804/1, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.
 Fig. 14. Type E-3, one-ply plate with secondary perforations GIUS 4-617 Grz./804/2, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.
 Fig. 15. Type E-3, two-ply plate with secondary perforations GIUS 4-617 Grz./804/3, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.
 Fig. 16. Type E-3, multilayered plate with secondary perforations GIUS 4-617 Grz./804/5, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.
 Fig. 17. Type E-3, multilayered plate with secondary perforations GIUS 4-617 Grz./804/4, earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Amphiura (Amphiura) dejectoides H.L. Clark, 1939 39

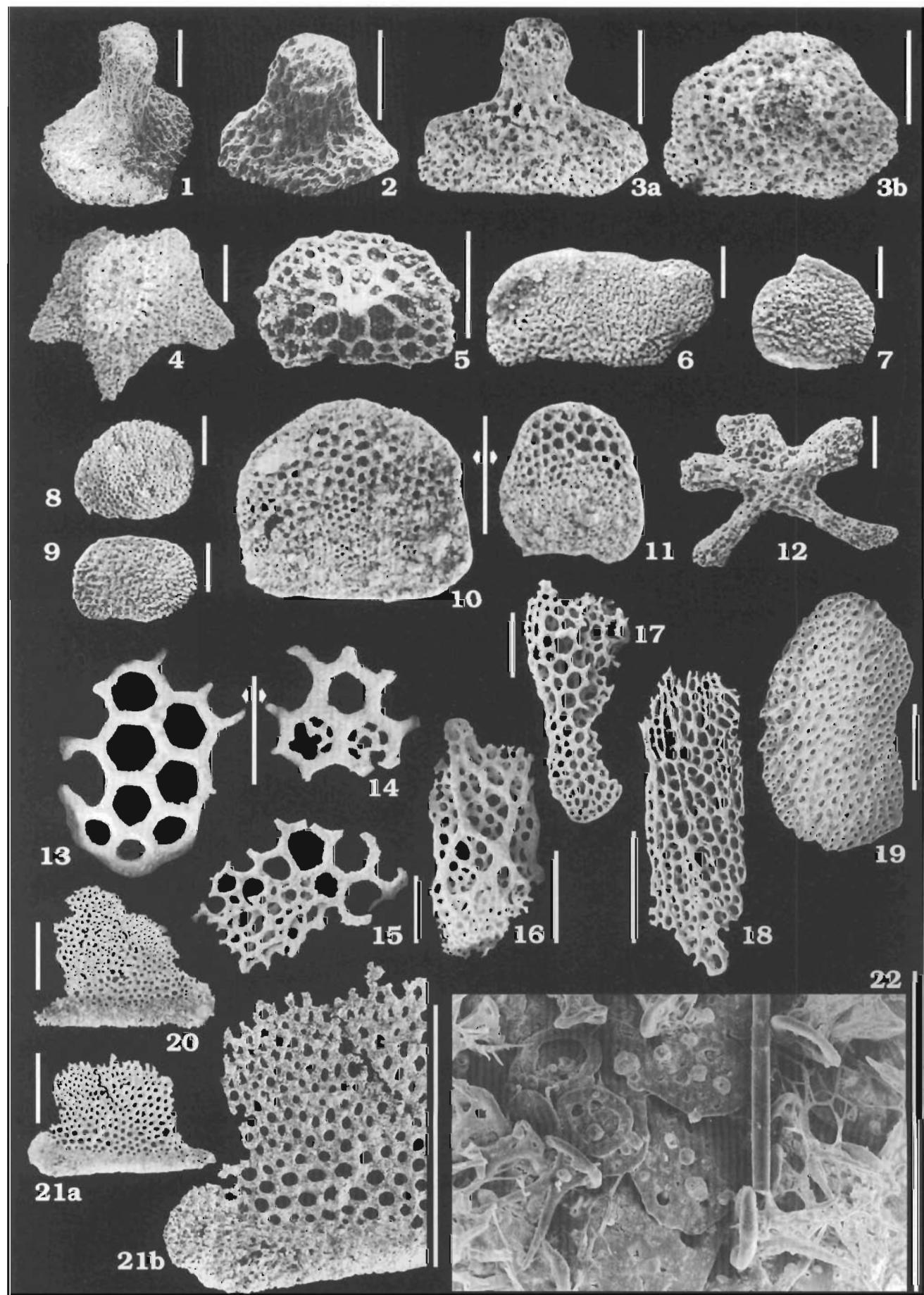
Ossicles from central disc, Red Sea, Recent.

- Fig. 18. GIUS 12-803 Red./1141/1, side view.
 Fig. 19. GIUS 12-803 Red./1141/2, side view.
 Type G from the Early Givetian, set XXV of Skały.
 Fig. 20. GIUS 4-708 Ska./730/3, side view.
 Fig. 21. GIUS 4-708 Ska./730/2; *a* whole specimen, side view, *b* fragment of *a*.

Ophiothrix sp. 13

- Fig. 22. Plate and stumps from central disc GIUS 12-805 Sam./1138/9, Samui Island, Thailand, Recent (to compare with those of Givetian ophiuroids; Pl. 6).

Scale bar 200 µm



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 8

Fig. 1. Spine GIUS 12-805 Sam./1138/7 of Recent from Samui Island, Thailand, side view (to compare with Eifelian and Givetian ophiuroids).

Eifelian and Givetian ophiuroids 39

Various kinds of ophiuroid spines.

Fig. 2. Spine of set G GIUS 4-617 Grz./785/1, earliest Eifelian, *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice, lateral view.

Fig. 3. Spine of set H GIUS 4-439 Śni./909/11, Early Givetian of outcrop III at Śniadka, lateral view.

Fig. 4. Spine of set H GIUS 4-439 Śni./909/12, Early Givetian of outcrop III at Śniadka, lateral view.

Fig. 5. Fragment of spine of set A-4 GIUS 4-439 Śni./913/4, Early Givetian of outcrop III at Śniadka, lateral view.

Fig. 6. Ophiuroid or crinoid spine (?) of set I, element as a segment of crinoid arm with fan, GIUS 4-439 Śni./910/11, Early Givetian of outcrop III at Śniadka; *a* side view, *b* detail of *a*, base.

Fig. 7. GIUS 4-584 Mrz./1142/3, Late Givetian, Marzysz II/13; *a* side view of spine of set F,
Fig. 8. Spine of set F, GIUS 4-764 Jaź./1126/4, Mid (Late?) Givetian, set B of Jaźwica, side

Fig. 9. Spine of set F GIUS 4-584 Mrz./174/3, Late Givetian, Marzysz II/13, side view.

Fig. 10. Spine of set A-2 GIUS 4-578 Mrz./1121/2, Late Givetian, Marzysz II/7, lateral view.

Fig. 11. Spine of set A-2 GIUS 4-578 Mrz./1121/1, Late Givetian, Marzysz II/7, lateral

Fig. 12. Spine of set A-1 GIUS 4-439 Śni./921/9, Early Givetian of outcrop III at Śniadka, lateral view.

Fig. 13. Spine of set A-5 GIUS 4-607 Grn./1061/5, Middle Frasnian, set C of Górnio, side view.

Fig. 14. Spine of set A-2 GIUS 4-568 Mrz./29/2, Late Givetian, Marzysz II/W/6, lateral view.

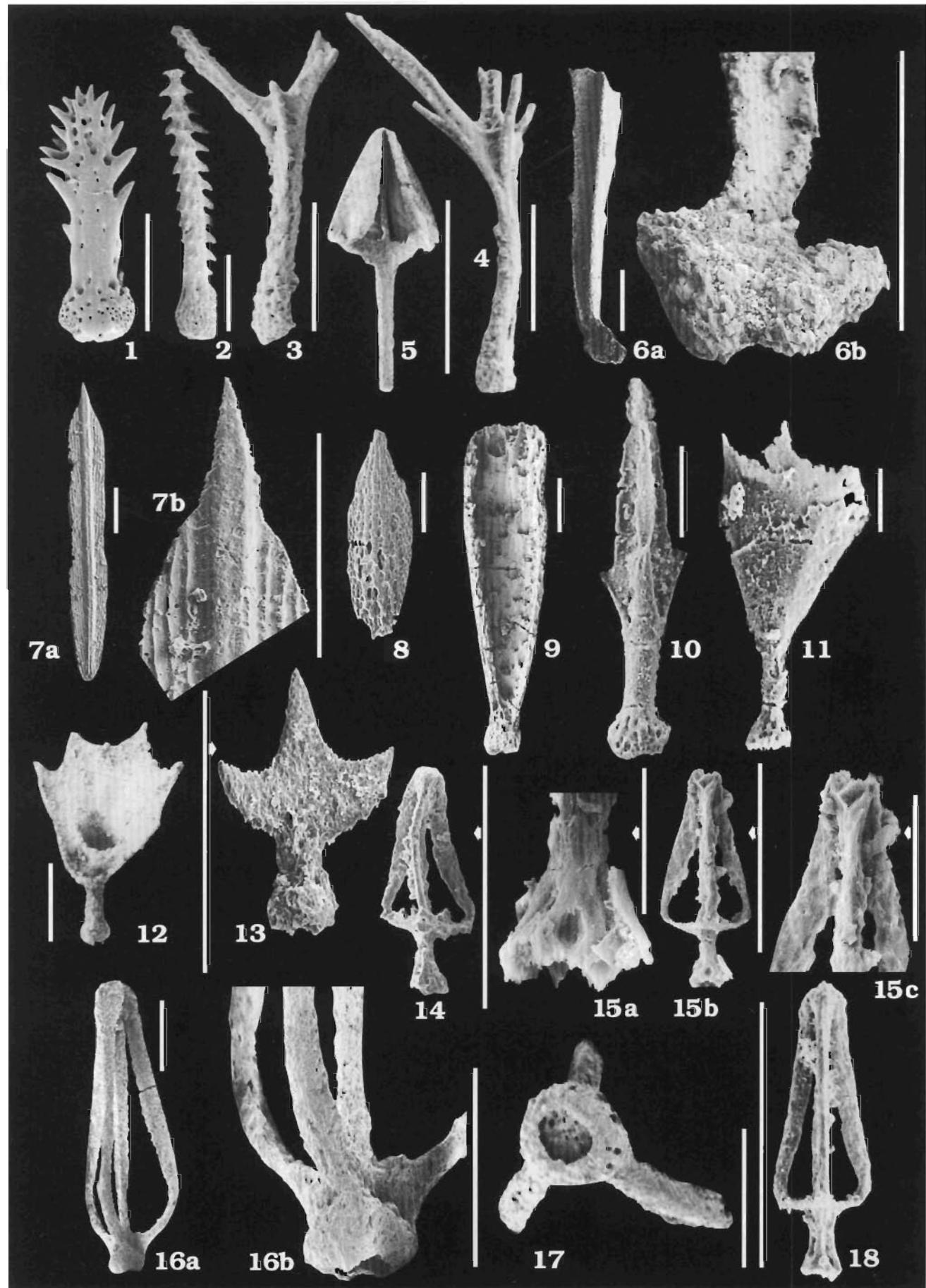
Fig. 15. Spine of set A-2 GIUS 4-604 Las./1130/1, Middle Givetian, set B of Laskowa Góra,

Fig. 16. Spine of set A-1 GIUS 4-671 Ska./783/1, Late Eifelian, set XVIII of Skály, lateral view; *a* whole specimen, *b* base, *c* top.

Fig. 17. Spine of set A-1 GIUS 4-671 Ska./783/2, Late Eifelian, set XVIII of Skaly, base.

Fig. 18. Spine of set A-5 GIUS 4-607 Grn./1062/6, Middle Frasnian, set C of Górnio, later

Scale bar 200 μ m, except for 13*b*, *c*, where it is 50 μ m.

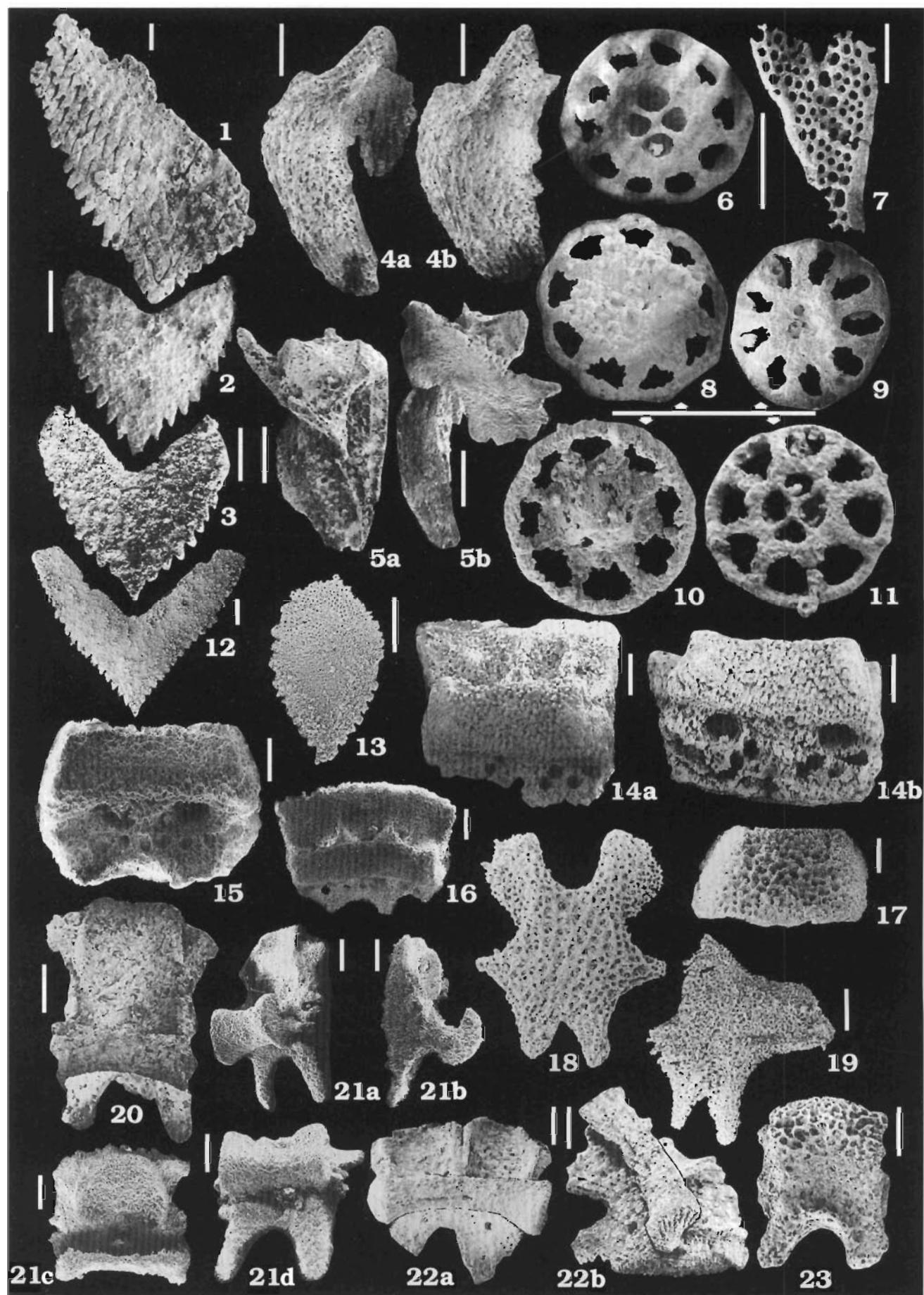


ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 9

<i>Sollasina minima</i> (Romanek, 1984)	74
Fig. 1. Battery of goniodonts GIUS 4-792 Grz./811/1, Late Emsian, set V of Grzegorzowice, inner view.	
<i>Eriisserra romaneki</i> sp. n.	81
Fig. 2. Goniodont, holotype GIUS 4-618 Grz./378/10 from the earliest Eifelian, <i>Chimaerothyris dombrowiensis</i> horizon, set VIII of Grzegorzowice, outer view.	
Fig. 3. Goniodont GIUS 4-618 Grz./378/11 from the Early Eifelian, <i>Chimaerothyris dombrowiensis</i> horizon, set VIII of Grzegorzowice, inner view.	
Fig. 4. Half jaw GIUS 4-648 Ska./847a/1, Late Eifelian, set XVII of Skały; <i>a</i> interpyramidal face, oblique view, <i>b</i> external face.	
Fig. 5. Half jaw GIUS 4-671 Ska./792/1, Late Eifelian, set XVIII of Skały; <i>a</i> inner face, <i>b</i> interpyramidal face.	
<i>Microantyx praedulcis</i> sp. n.	76
Fig. 6. Holotype GIUS 4-671 Ska./791/2, Late Eifelian, set XVIII of Skały, wheel from body wall.	
Fig. 7. Paratype GIUS 4-648 Ska./847b/2, Late Eifelian, set XVII of Skały, sieve plate from tube foot with Y-shaped end and marginal callosity.	
<i>Rotasaccus praedentifer</i> sp. n.	79
Fig. 8. Holotype GIUS 4-708 Ska./741/1, Early Givetian, set XXV of Skały, wheel from body wall.	
<i>Rotasaccus haudei</i> sp. n.	80
Fig. 9. Holotype GIUS 4-708 Ska./745/1, Early Givetian, set XXV of Skały, wheel from body wall.	
<i>Protocaudina dulcis</i> sp. n.	78
Fig. 10. Button side GIUS 4-577 Mrz./95/1, Late Givetian, Marzysz II/6.	
Fig. 11. Central porous side GIUS 4-577 Mrz./95/4, Late Givetian, Marzysz II/6.	
Fig. 12. Goniodont GIUS 4-764 Jaź./1014/1, Mid (Late?) Givetian, set B of Jaźwica, outer view.	
<i>Linguaserra ligula</i> Langer, 1991	86
Fig. 13. Goniodont GIUS 4-584 Mrz./223/1, Late Givetian, Marzysz II/13, outer view.	
<i>Linguacycloides trapes</i> sp. n.	56
Marginal ossicles.	
Fig. 14. GIUS 4-744 Sow./686/1, Late Givetian, set C of Sowie Górk; <i>a</i> ventral view, <i>b</i> proximal view.	
Fig. 15. GIUS 4-763 Jaź./1005/2, Mid (Late?) Givetian, set B of Jaźwica, proximal view.	
Fig. 16. GIUS 4-763 Jaź./1005/5, Mid (Late?) Givetian, set B of Jaźwica, ventral view.	
Fig. 17. GIUS 4-763 Jaź./1005/4, Mid (Late?) Givetian, set B of Jaźwica, dorsal view.	
<i>Concavocycloides givetiensis</i> sp. n.	68
Fig. 18. Radial plate GIUS 4-763 Jaź./1012/2, Mid Givetian set B of Jaźwica, dorsal view.	
Fig. 19. Interradial plate GIUS 4-763 Jaź./1012/1, Mid Givetian set B of Jaźwica, dorsal view.	
Marginal ossicles.	
Fig. 20. GIUS 4-744 Sow./717/10, Late Givetian, set C of Sowie Górk, ventral view.	
Fig. 21. GIUS 4-763 Jaź./1123/4, Mid (Late?) Givetian, set B of Jaźwica; <i>a</i> oblique view, <i>b</i> lateral view, <i>c</i> distal view, <i>d</i> proximal view.	
<i>Smithocycloides paulii</i> sp. n.	63
Mid Frasnian of Szczukowskie Górk.	
Fig. 22. Marginal ossicle GIUS 4-610 Szg./1153/3, W6; <i>a</i> ventral view, <i>b</i> oblique view.	
<i>Concavocycloides frasnensis</i> sp. n.	68
Marginal ossicle.	
Fig. 23. GIUS 4-610 Szg./548/8, Mid Frasnian of Szczukowskie Górk, W6, dorsal view.	

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 10

Albertechinus devonicus sp. n. 87

Late Givetian of Marzysz.

Fig. 1. Madreporite plate GIUS 4-568 Mrz./49/2, Marzysz II/W/6, outer view.

Fig. 2. Genital plate GIUS 4-561 Mrz./856/3, Marzysz Ic/5, outer view.

Fig. 3. Genital plate GIUS 4-562 Mrz./855/1, Marzysz II/W/0, outer view.

Fig. 4. Ocular plate GIUS 4-568 Mrz./49/3, Marzysz II/W/6, outer view.

Fig. 12. Ambulacral plate from the apical part of the test GIUS 4-584 Mrz./238/4, Marzysz II/13, inner view.

Fig. 13. Ambulacral plate from the middle part of the test GIUS 4-584 Mrz./853a/13, Marzysz II/13, inner view.

Meekechinus sp. A 87

Late Givetian of Marzysz.

Fig. 5. Ambulacral plates GIUS 4-584 Mrz./853b/12, Marzysz II/13, outer view.

Fig. 6. Ambulacral plates GIUS 4-564 Mrz./857/6, Marzysz II/W/2, outer view.

Fig. 7. Ambulacral plates GIUS 4-564 Mrz./857/7, Marzysz II/W/2, outer view.

Fig. 8. Ambulacral plates GIUS 4-562 Mrz./855/2, Marzysz II/W/0, inner view.

Fig. 9. Apical interambulacral plate GIUS 4-564 Mrz./857/5, Marzysz II/W/2, outer view.

Fig. 11. Interambulacral plate GIUS 4-564 Mrz./857/2, Marzysz II/W/2, outer view.

Fig. 16. Interambulacral plate GIUS 4-561 Mrz./856/1, Marzysz Ic/5, outer view; *a* perforate tubercle, *b* plate surface with secondary spine attached, *c* whole specimen.*Lepidechinoides* sp. A 94

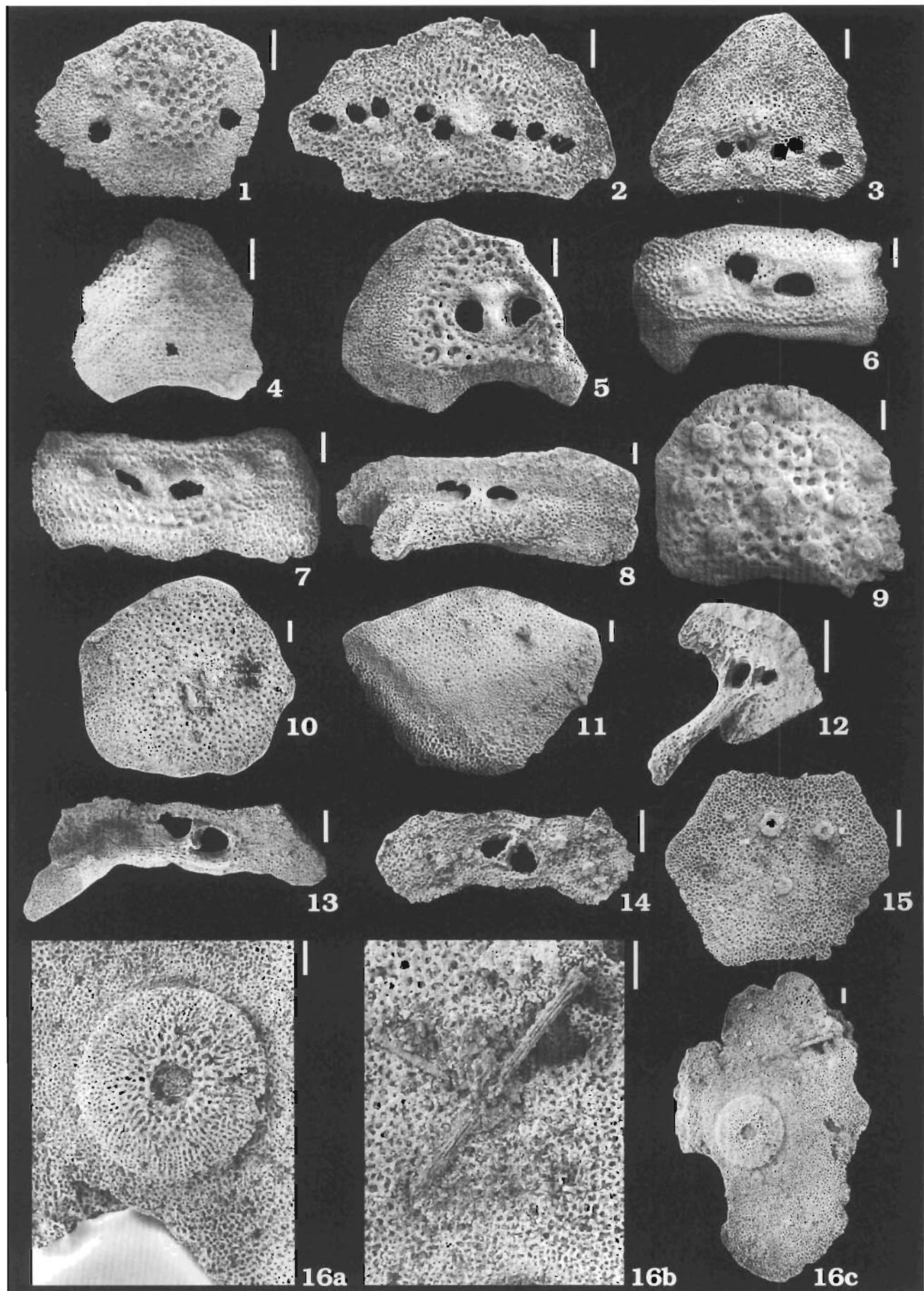
Late Givetian of Marzysz.

Fig. 10. Interambulacral plate GIUS 4-561 Mrz./856/2, Marzysz Ic/5, outer view.

Fig. 14. Ambulacral plate GIUS 4-584 Mrz./853c/14, Marzysz II/13, outer view.

Fig. 15. Interambulacral plate GIUS 4-584 Mrz./853c/9, Marzysz II/13, outer view.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 11

Albertechinus devonicus sp. n. 87

Elements of the Aristotle's lantern from the Late Givetian of Marzysz.

Fig. 1. Demipyramid Internal face, view from the pyramidal suture, GIUS 4-584 Mrz./853a/18, Marzysz II/13.

Fig. 2. Demipyramid GIUS 4-561 Mrz./852/2, Marzysz Ic/5, internal face, view from the pyramidal suture.

Fig. 3. Demipyramid GIUS 4-561 Mrz./852/3, Marzysz Ic/5, interpyramidal face, radial surface, view from the interpyramidal muscles area.

Fig. 4. Demipyramid GIUS 4-561 Mrz./852/4, Marzysz Ic/5, external face, interambulacral side.

Fig. 5. Rotula GIUS 4-568 Mrz./7/1, Marzysz II/W/6, apical surface, adaxial end is at the top of figure.

Fig. 6. Rotula GIUS 4-568 Mrz./7/2, Marzysz II/W/6, oral surface, adaxial end is at the top of figure.

Fig. 7. Left epiphysis GIUS 4-584 Mrz./853a/2, Marzysz II/13, apical surface (outside view), adaxial end is at the top of figure.

Fig. 8. Right epiphysis GIUS 4-584 Mrz./853a/1, Marzysz II/13, oral surface (inside view), adaxial end is at the top of figure.

Fig. 9. Compass GIUS 4-584 Mrz./241/2, Marzysz II/13, oral surface, adaxial end is at the top of figure.

Fig. 10. Well preserved serrate tooth GIUS 4-584 Mrz./853a/5, Marzysz II/13, abaxial view (outer).

Fig. 11. Oral part of serrate tooth GIUS 4-584 Mrz./853a/3, Marzysz II/13h, abaxial view (outer).

Fig. 12. Apical fragment of serrate tooth GIUS 4-584 Mrz./853a/6, Marzysz II/13, adaxial view (inner).

Fig. 13. Oral fragment of serrate tooth GIUS 4-568 Mrz./5/1, Marzysz II/W/6, adaxial view (inner).

Specimen lacking calcite cortex.

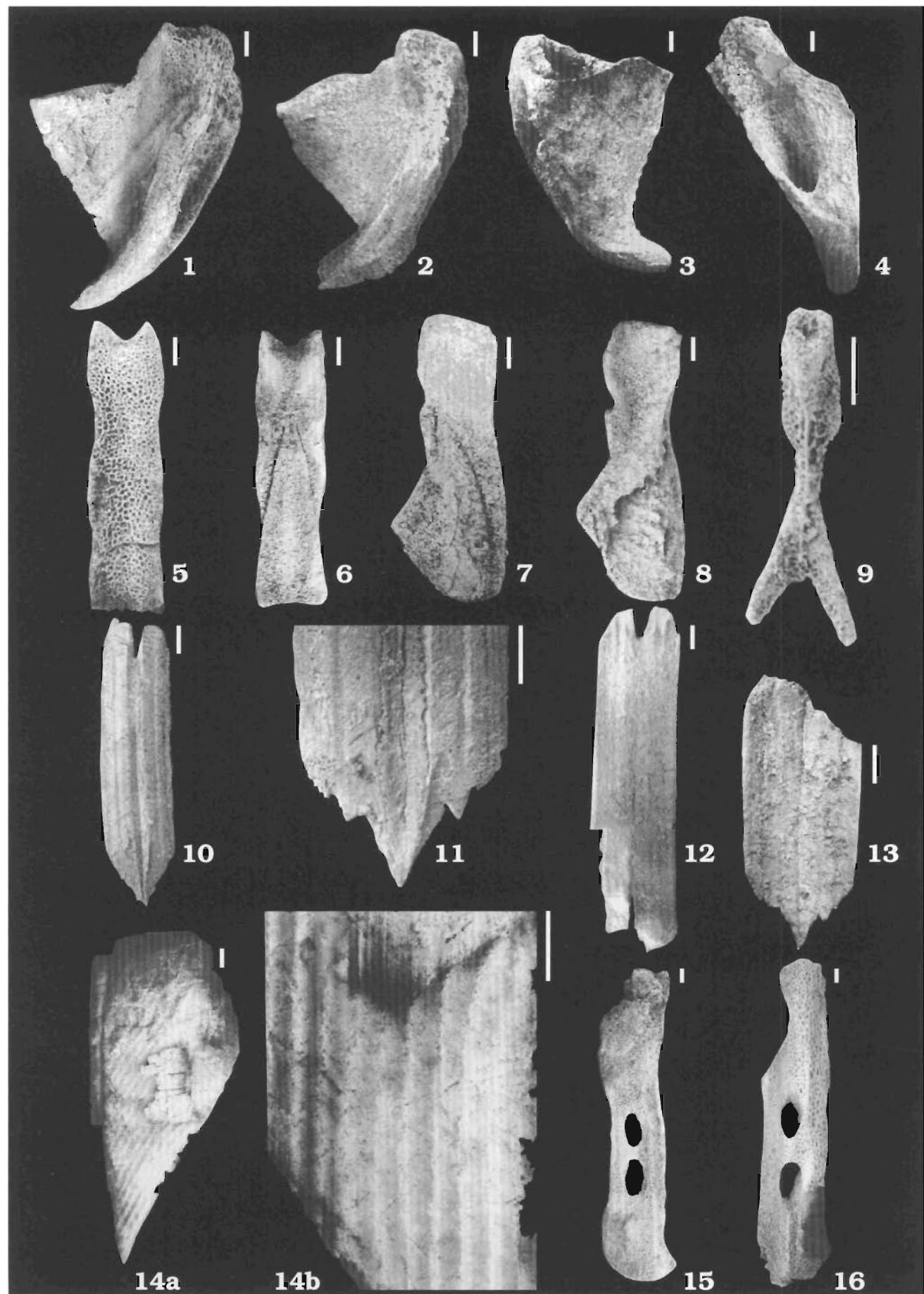
Fig. 14. Oral part of multilamellar tooth GIUS 4-584 Mrz./853d/7, Marzysz II/13, adaxial view (inner); *a* whole specimen, *b* enlargement.

Ambulacral plates from the oral part of the test of Marzysz from the Late Givetian.

Fig. 15. GIUS 4-584 Mrz./238/2, Marzysz II/13, outer view.

Fig. 16. GIUS 4-584 Mrz./238/3, Marzysz II/13, inner view.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 12

Devonian echinoid pedicellaria morphotype IVb 115

Globiferous pedicellaria.

Fig. 1. GIUS 4-584 Mrz./236/1, Marzysz II/13, Late Givetian, inner view of the single valve.

Tridentate pedicellaria from the Mid Frasnian of Szczukowskie Górkı.

Fig. 2. GIUS 4-610 Szg./543/1, inner-oblique view.

Fig. 3. GIUS 4-610 Szg./543/2, inner view.

Fig. 4. Specimen with crooked blade GIUS 4-610 Szg./543/3, lateral view.

Albertechinus devonicus sp. n. 87

Pedicellarian morphotype I from the Late Givetian of Marzysz.

Fig. 5. Tridentate pedicellaria GIUS 4-584 Mrz./975/1 with valves joined, Marzysz II/13.

Fig. 6. Single valve of an ophicephalous pedicellaria GIUS 4-584 Mrz./240/2, Marzysz II/13, inner view.

Fig. 7. Ophicephalous pedicellaria GIUS 4-584 Mrz./240/1 with valves joined, Marzysz II/13, lateral view.

Pedicellarian morphotype II

Fig. 8. Single valve of a tridentate pedicellaria GIUS 4-671 Ska./797/1, Late Eifelian set XVIII of Skały.

Spines.

Fig. 9. Perforate base of a primary spine GIUS 4-568 Mrz./854/1, Marzysz II/W/6.

Fig. 12. Primary spine GIUS 4-584 Mrz./239a/2, Marzysz II/13.

Fig. 13. Secondary spine GIUS 4-584 Mrz./239a/3, Marzysz II/13.

Fig. 14. Fragment of primary spine GIUS 4-584 Mrz./239a/4, Marzysz II/13, longitudinal section of the skeleton, cortex layer and radiating layer have been partially removed, *a* whole specimen, *b* enlargement.

Meekechinus sp. A? 87

Spines from the Late Givetian of Marzysz.

Fig. 10. Secondary spine GIUS 4-584 Mrz./239b/5, Marzysz II/13.

Fig. 11. Primary spine GIUS 4-584 Mrz./239b/1, Marzysz II/13.

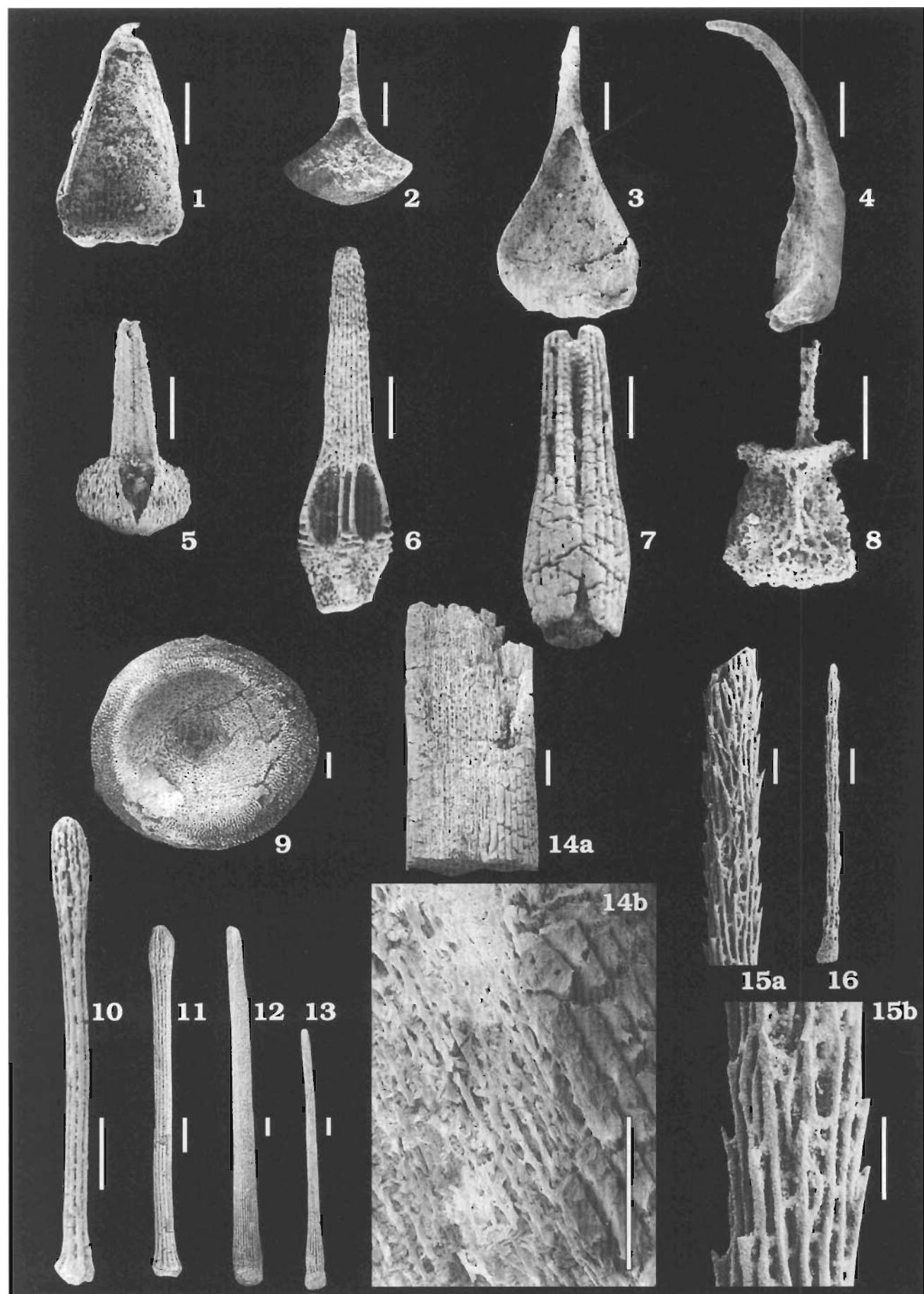
Archaeocidaris? sp. 94

Spines from the Early Givetian outcrop III at Śniadka.

Fig. 15. Fragment of the primary spine GIUS 4-439 Śni./915/2, showing septa; *a* whole specimen, *b* enlargement.

Fig. 16. Primary spine GIUS 4-439 Śni./915/1.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 13

Pedicellariae of Devonian echinoids 106

Ophicephalous pedicellariae of bursulella type.

Fig. 1. Morphotype IIIa, GIUS 4-671 Ska./803/1, Late Eifelian, set XVIII of Skaly; *a* inner view, *b* specimen showing microstructure typical for echinoderms, inner-oblique view, *c* details.

Fig. 2. Morphotype IIIc, complete bivalved pedicellaria GIUS 4-578 Mrz./293/2, Late Givetian, Marzysz II/7, outer-oblique view from proximal side.

Fig. 3. Morphotype IIIc, complete bivalved pedicellaria GIUS 4-578 Mrz./293/3, Late Givetian, Marzysz II/7, outer-oblique view from distal side.

Fig. 4. Morphotype IIIc, complete bivalved pedicellaria, specimen with partially disarticulated valves, GIUS 4-578 Mrz./293/1, Late Givetian, Marzysz II/7, outer view.

Fig. 5. Morphotype IIIb, GIUS 4-604 Las./1004/1, Middle Givetian, set B of Laskowa Góra, inner view.

Fig. 6. Morphotype IIIc, GIUS 4-578 Mrz./293/4, Late Givetian, Marzysz II/7, outer view.

Fig. 7. Morphotype IIIc, GIUS 4-584 Mrz./235d/3, Late Givetian, Marzysz II/13, outer view.

Fig. 8. Morphotype IIIc, GIUS 4-584 Mrz./235d/2, Late Givetian, Marzysz II/13, outer view.

Fig. 9. Morphotype IIIc, GIUS 4-584 Mrz./235d/1, Late Givetian, Marzysz II/13.

Globiferous pedicellariae of ladle type, outer view.

Fig. 10. Morphotype IIIc, GIUS 4-584 Mrz./234/3, Late Givetian, Marzysz II/13, detail of the valve with simple perforate stereom, inner view.

Fig. 11. Morphotype IIIc, GIUS 4-584 Mrz./234/5, Late Givetian, Marzysz II/13, base of the blade and central blade septum, inner-oblique view.

Fig. 12. Morphotype IIIc, GIUS 4-575 Mrz./462/2, Late Givetian, Marzysz II/4, base of the blade with laminar stereom (prepared), outer view; *a* whole specimen, *b* enlarged.

Fig. 13. Morphotype IIIc, GIUS 4-584 Mrz./234/1, Late Givetian, Marzysz II/13, valve with simple perforate stereom, outer view.

Fig. 14. Morphotype IIIc, GIUS 4-584 Mrz./234/7, Late Givetian, Marzysz II/13, complete specimen, outer view.

Fig. 15. Morphotype IIIc, GIUS 4-584 Mrz./234/4, Late Givetian, Marzysz II/13, complete specimen, inner view.

Fig. 16. Morphotype IIIc, GIUS 4-584 Mrz./234/2, Late Givetian, Marzysz II/13, fragment of blade with the simple perforated central blade septum.

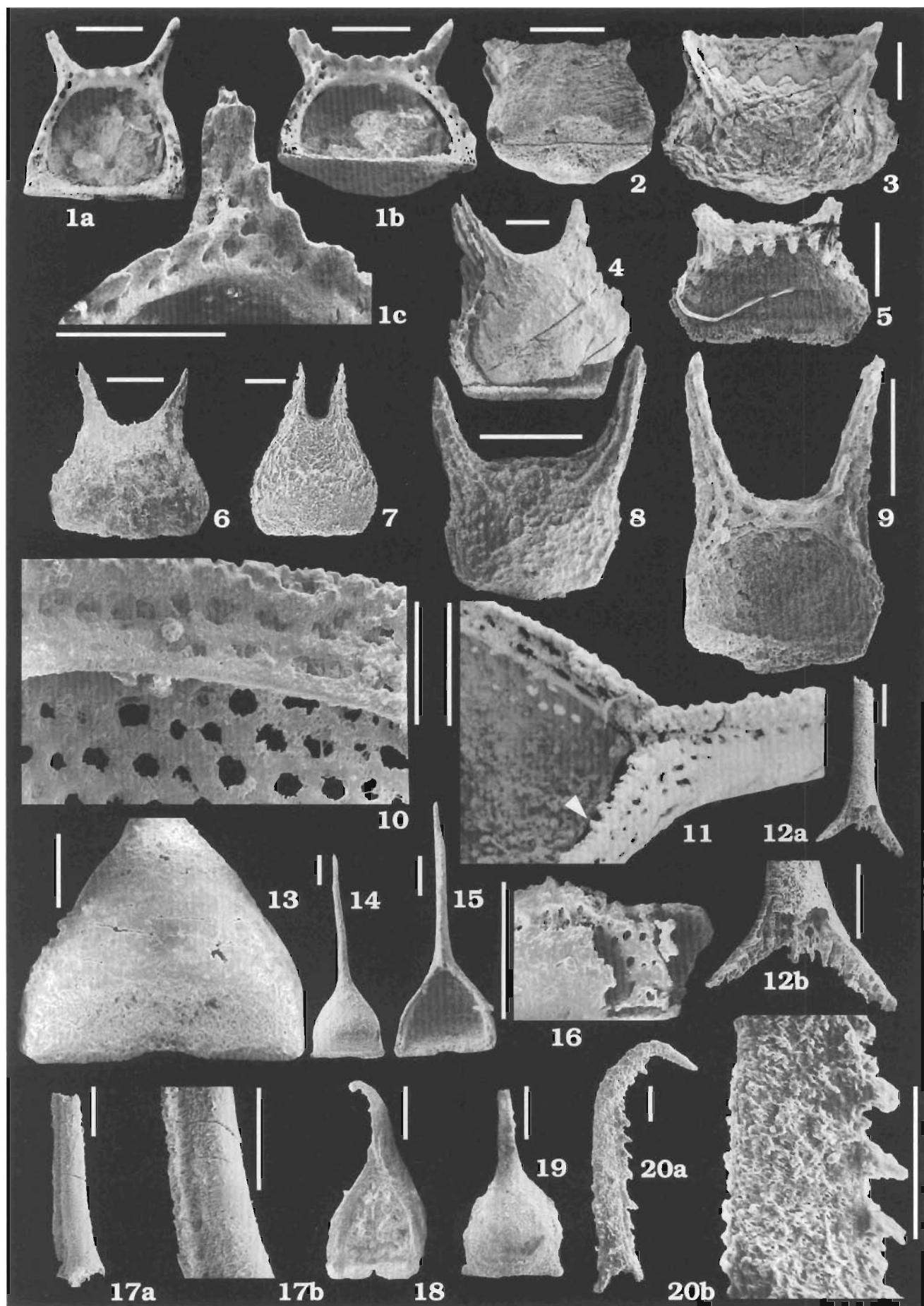
Fig. 17. Morphotype IIIc, GIUS 4-584 Mrz./234/6, Late Givetian, Marzysz II/13; *a* lateral view of the blade, *b* enlargement.

Fig. 18. Morphotype IIIb, GIUS 4-604 Las./1003c/3, Mid Givetian, set B of Laskowa Góra, inner-oblique view.

Fig. 19. Morphotype IIIc, GIUS 4-763 Jaź./1003d/2, Mid (Late?) Givetian, set B of Jaźwica, outer view.

Fig. 20. Morphotype IIIc, GIUS 4-763 Jaź./1003d/1, Mid (Late?) Givetian, set B of Jaźwica; *a* lateral view of the blade, *b* enlargement.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 14

Holothuria (Thymiosycia) arenicola Semper, 1868 118

Recent specimen from the Red Sea (to compare with *Palaeocucumaria*).

Fig. 1. Sclerite from podia GIUS 12-803 Red./2000/1.

Fig. 2. Tube foot endplates GIUS 12-803 Red./2000/2.

Palaeocucumaria ancile sp. n. 118

Late Eifelian to Early Givetian.

Fig. 3. Arch from tentacle GIUS 4-802 Ska./826/7, Late Eifelian, set XVII of Skały, outer view.

Fig. 4. Arch from tentacle GIUS 4-802 Ska./826/6, Late Eifelian, set XVII of Skały, inner view.

Fig. 5. Arch from tentacle GIUS 4-802 Ska./826/2, Late Eifelian, set XVII of Skały, inner view.

Fig. 6. Main plate from tentacle, holotype GIUS 4-802 Ska./826/4, Late Eifelian, set XVII of Skały, outer view.

Fig. 7. Main plate from tentacles GIUS 4-802 Ska./826/3, Late Eifelian, set XVII of Skały, inner view.

Fig. 8. Plate from body wall GIUS 4-802 Ska./826/8, Late Eifelian, set XVII of Skały, outer view.

Fig. 9. Plate from body wall GIUS 4-802 Ska./826/5, Late Eifelian, set XVII of Skały, outer view.

Fig. 10. Plate from body wall GIUS 4-802 Ska./826/1, Late Eifelian, set XVII of Skały.

Fig. 11. Arch from tentacle GIUS 4-439 Śni./967/4, Early Givetian of outcrop III at Śniadka, lateral view.

Fig. 12. Big spiculate sclerite from body wall GIUS 4-802 Ska./846/1, Late Eifelian, set XVII of Skały.

Fig. 13. Perforate plate from body wall GIUS 4-439 Śni./967/1, Early Givetian of outcrop III at Śniadka.

Fig. 14. Perforate plate from body wall GIUS 4-439 Śni./967/2, Early Givetian of outcrop III at Śniadka.

Fig. 15. Perforate plate from body wall GIUS 4-439 Śni./967/3, Early Givetian of outcrop III at Śniadka.

Palaeocucumaria delicata sp. n. 119

Late Givetian of Marzysz.

Fig. 16. Plate from tube foot (?) GIUS 4-584 Mrz./229/2, Marzysz II/13.

Fig. 17. Sclerite from base of tentacle GIUS 4-584 Mrz./228/6, Marzysz II/13; *a* whole specimen, *b* details of grow zone.

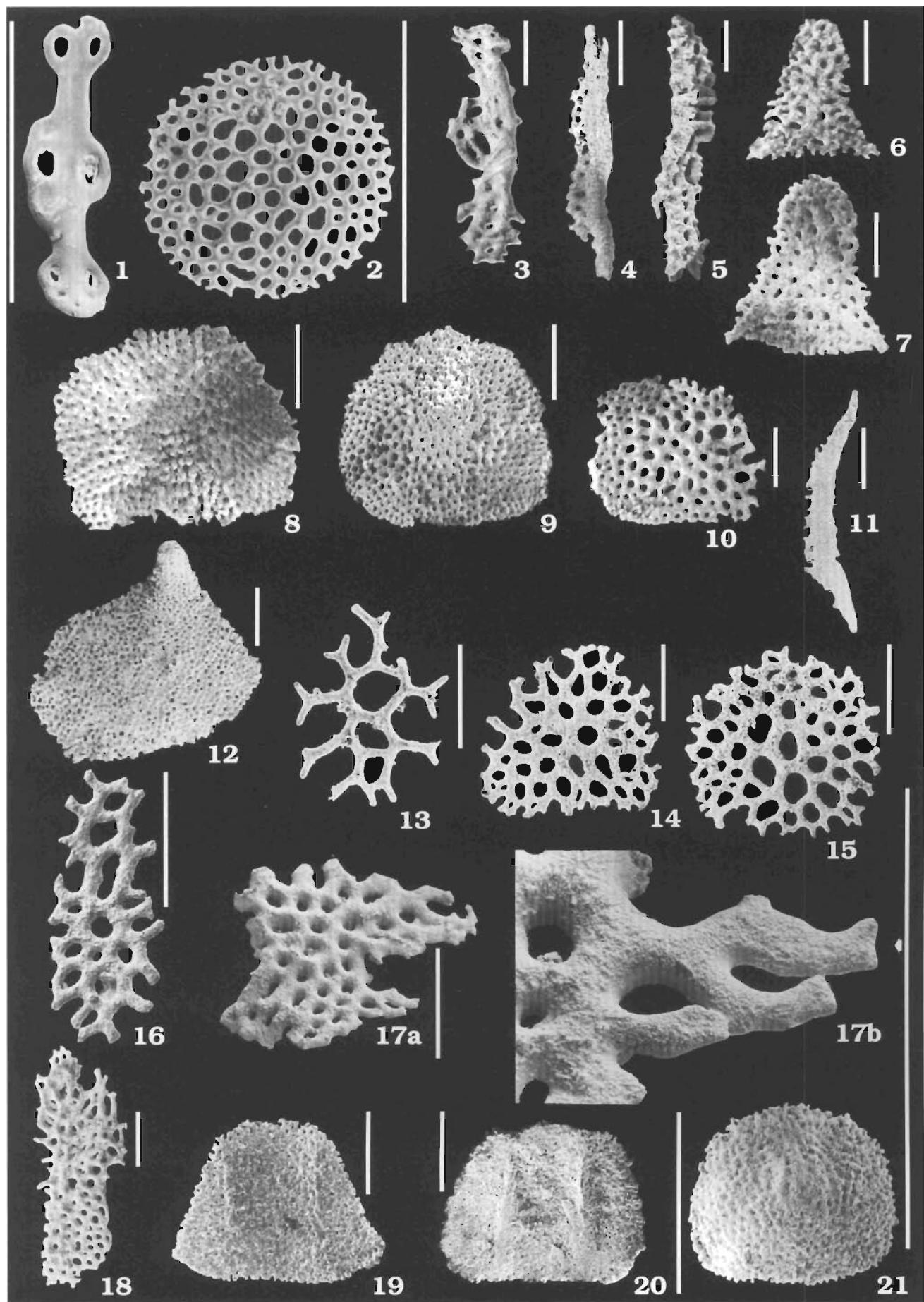
Fig. 18. Arch from tube foot GIUS 4-584 Mrz./229/1, Marzysz II/13.

Fig. 19. Main plate from tube foot GIUS 4-573 Mrz./476/4, Marzysz II/2, inner view.

Fig. 20. Main plate from tube foot GIUS 4-584 Mrz./228/5, Marzysz II/13, inner view.

Fig. 21. Main plate from tube foot GIUS 4-573 Mrz./476/5, Marzysz II/2, outer view.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

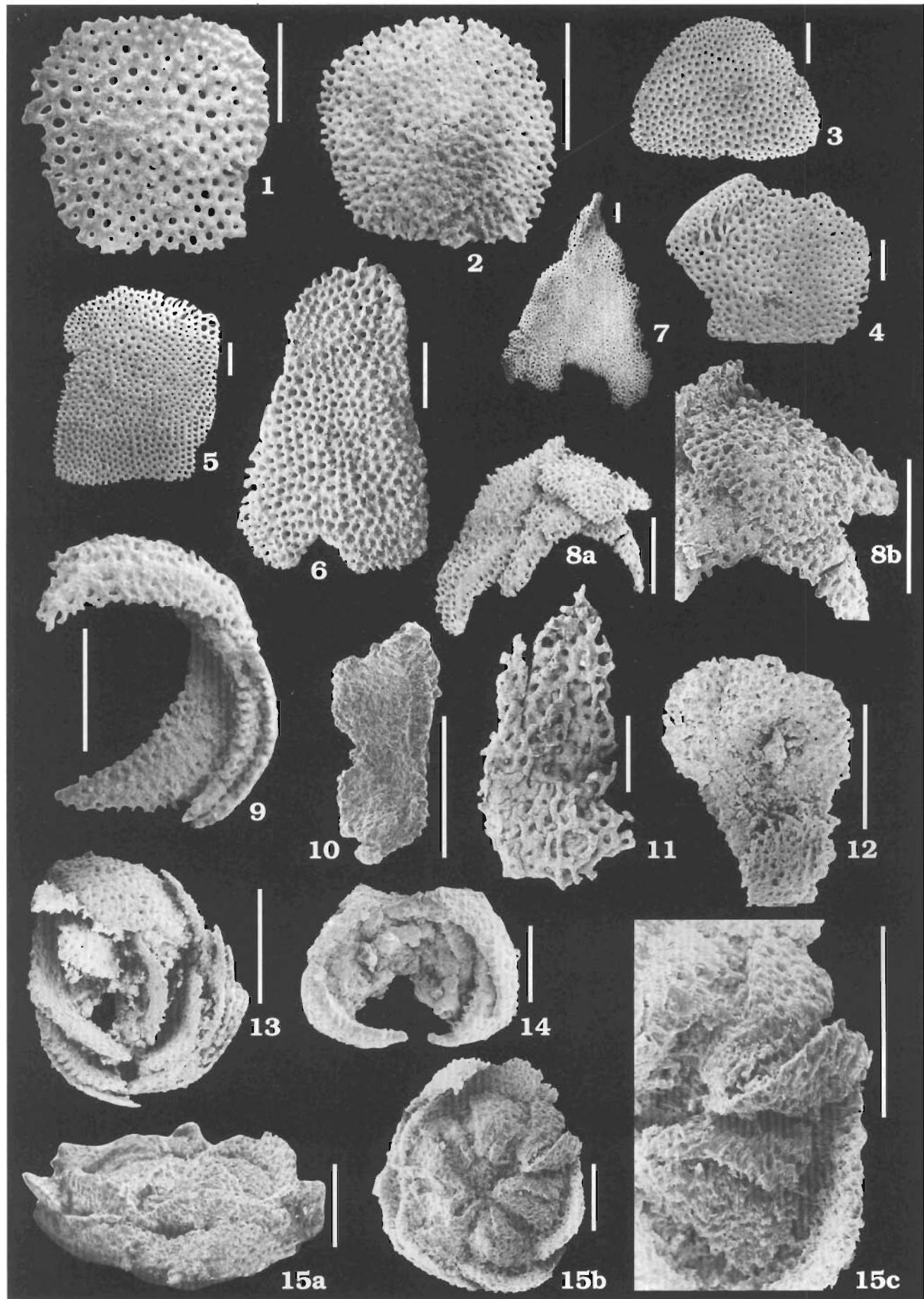
PLATE 15

Palaeocucumaria delicata sp. n. 119

Late Givetian of Marzysz.

- Fig. 1. Sclerite GIUS 4-584 Mrz./228/1 from body wall, Marzysz II/13, outer view.
Fig. 2. Sclerite GIUS 4-584 Mrz./228/9 from body wall, Marzysz II/13, outer view.
Fig. 3. Sclerite GIUS 4-564 Mrz./488/2 from body wall, Marzysz II/W/2, outer view.
Fig. 4. Fragment of sclerite GIUS 4-564 Mrz./488/4 from body wall with frame, Marzysz II/W/2, inner view.
Fig. 5. Sclerite GIUS 4-564 Mrz./488/3 from body wall, Marzysz II/W/2, outer view.
Fig. 6. Sclerite GIUS 4-584 Mrz./228/10 from body wall, Marzysz II/13, outer view.
Fig. 7. Sclerite GIUS 4-564 Mrz./488/1 from body wall, Marzysz II/W/2.
Fig. 8. Articulated sclerites GIUS 4-573 Mrz./476/2 from tentacle, Marzysz II/2, outer view; *a* whole specimen,
b detail of main plate.
Fig. 9. Articulated sclerites GIUS 4-584 Mrz./229/5 from tentacle, Marzysz II/13, lateral view of the arches.
Fig. 10. Articulated sclerites GIUS 4-564 Mrz./476/1 from tentacle, Marzysz II/W/2, inner view of main plates.
Fig. 11. Articulated sclerites from tentacles (?) GIUS 4-578 Mrz./286/4, Marzysz II/7.
Fig. 12. Articulated sclerites from tentacles GIUS 4-578 Mrz./286/3, Marzysz II/7, inner view of main plate and
single arch.
Fig. 13. Fragment of calcified tentacle GIUS 4-575 Mrz./472/1 with arches and main plates, Marzysz II/4.
Fig. 14. Fragment of calcified tentacle GIUS 4-578 Mrz./286/2 with arches, Marzysz II/7.
Fig. 15. Fragment of calcified tentacle, holotype GIUS 4-578 Mrz./286/1, Marzysz II/7, in the central part plates
of calcareous articulated axial skeleton; *a* oblique view, *b* adoral view, *c* detail with well preserved
axial plates.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 16

Devonothyonites accipitris sp. n. 121

Earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Fig. 1. Annal tooth GIUS 4-618 Grz./375/2.

Fig. 2. Annal tooth GIUS 4-618 Grz./375/1.

Devonothyonites avis sp. n. 121

Fig. 3. Anal teeth GIUS 4-764 Jaż./1011/1, Middle (Late?) Givetian, set B of Jaźwica; *a* whole specimen, *b* detail of the centre.

Fig. 4. Anal teeth GIUS 4-577 Mrz./10/1, Late Givetian, Marzysz II/6.

Devonothyonites exporrigus sp. n. 123

Early Givetian set XXV of Skaly.

Fig. 5. Anal tooth GIUS 4-708 Ska./738/1 with thick processes.

Devonothyonites avis sp. n. 121

Late Givetian.

Fig. 6. Annal tooth GIUS 4-577 Mrz./9/1, Marzysz II/6.

Fig. 7. Annal tooth GIUS 4-584 Mrz./211/8, Marzysz II/13.

Fig. 8. Annal tooth GIUS 4-747 Sow./692/1, set C of Sowie Górkı.

Devonothyonites accipitris sp. n. 121

Earliest Eifelian, *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Fig. 9. Anal tooth GIUS 4-618 Grz./377/1.

Devonothyonites exporrigus sp. n. 123

Early Givetian, set XXV of Skały.

Fig. 10. Anal tooth GIUS 4-708 Ska./739/1.

Devonothyonites avis sp. n. 121

Late Givetian.

Fig. 11. Anal tooth GIUS 4-584 Mrz./211/9, Marzysz II/13.

Fig. 12. Anal tooth GIUS 4-584 Mrz./211/6, Marzysz II/13.

Fig. 13. Anal tooth GIUS 4-746 Sow./691/2, set C of Sowie Górkı.

Fig. 14. Anal tooth GIUS 4-746 Sow./691/1, set C of Sowie Górkı.

Ocellothuria binoculata sp. n. 163

Fig. 15. Sclerite GIUS 4-584 Mrz./221/3, Late Givetian, Marzysz II/13.

Propinquohshimella remigia sp. n. 149

Fig. 16. Sclerite GIUS 4-439 Śni./950/7, Early Givetian of outcrop III at Śniadka.

Devonothyonites avis sp. n. 121

Late Givetian of Marzysz.

Fig. 17. Sclerite GIUS 4-584 Mrz./209/3, Marzysz II/13.

Fig. 18. Sclerite GIUS 4-575 Mrz./316/5, Marzysz II/4; *a* whole sclerite, *b* detail.

Fig. 20. Form without head GIUS 4-584 Mrz./215/4, Marzysz II/13.

Devonothyonites spiritus sp. n. 124

Fig. 19. Sclerite GIUS 4-801 Kos./534/7, Late Frasnian, set H of Kostomłoty IV.

Bracchithuria ancora sp. n. 152

Late Givetian of Marzysz.

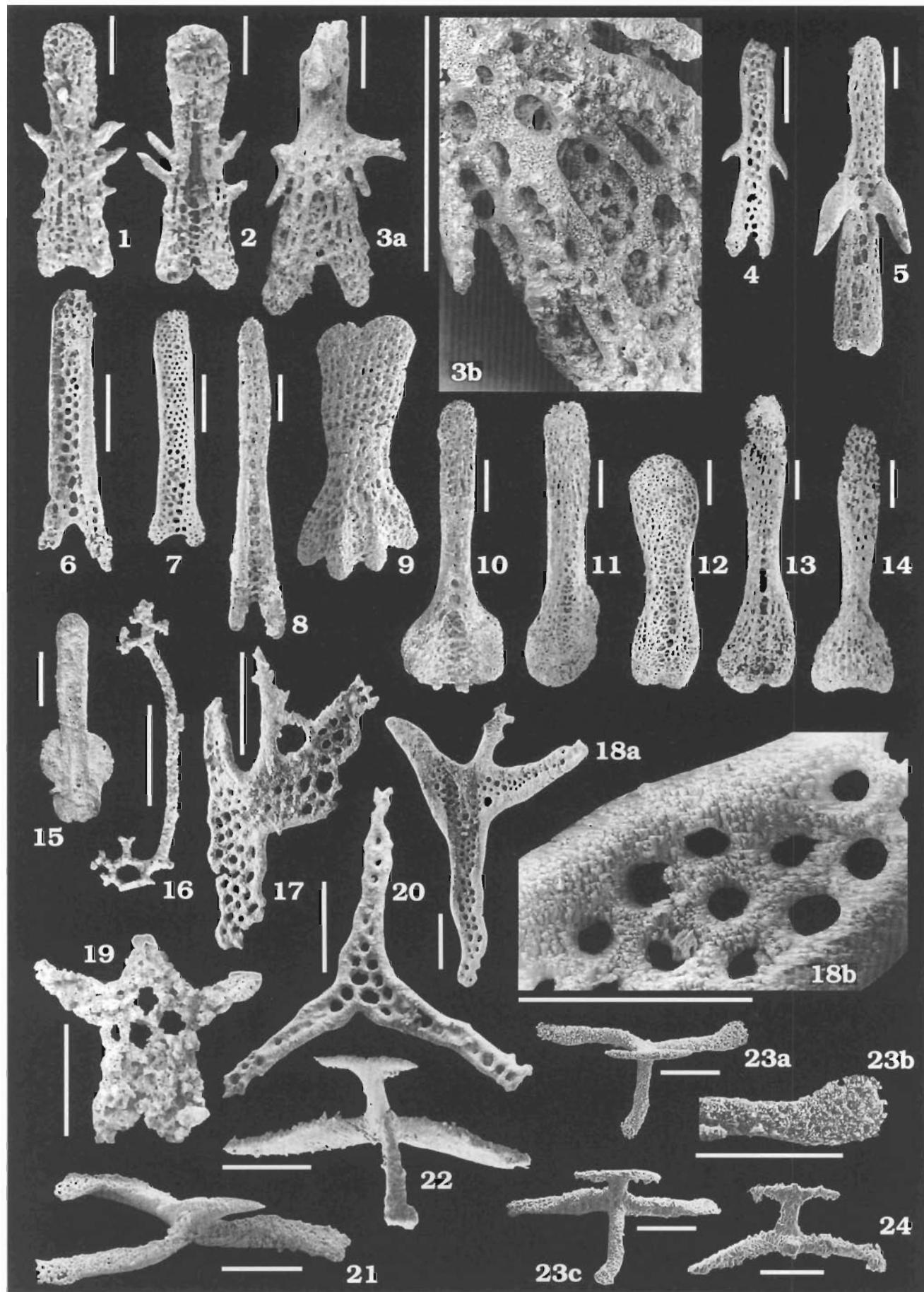
Fig. 21. Sclerite GIUS 4-584 Mrz./208/4, Marzysz II/13, oblique view.

Fig. 22. Sclerite GIUS 4-584 Mrz./208/5, Marzysz II/13, lateral view.

Fig. 23. GIUS 4-561 Mrz./320/1, Marzysz Ic/5; *a* whole sclerite, view from anchor, *b* detail of the perforate ending, *c* oblique view.

Fig. 24. GIUS 4-561 Mrz./320/3, Marzysz Ic/5, Late Givetian, lateral view.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 17

Eocaudina plaga sp. n. 140

Sieve plates from the earliest Eifelian, *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Fig. 1. GIUS 4-618 Grz./371/4.

Fig. 2. GIUS 4-618 Grz./371/1.

Fig. 3. GIUS 4-618 Grz./371/3.

Fig. 4. GIUS 4-618 Grz./371/2.

Eocaudina septaforminalis Martin, 1952 142

Sclerites from the Late Givetian, Marzysz II/13.

Fig. 5. GIUS 4-584 Mrz./203/6.

Fig. 6. GIUS 4-584 Mrz./203/3; *a* whole specimen, *b* detail with typical holothurian microstructure.

Fig. 7. Aggregation of different kinds of sclerites GIUS 4-584 Mrz./203/1; *a* detail of aggregate with *Eocaudina "gornensis"*, *b* whole specimen, *c* detail of aggregate with some young specimens.

Fig. 8. Specimen GIUS 4-584 Mrz./203/10 with stirrups.

Fig. 9. Specimen GIUS 4-584 Mrz./203/11 with process.

Fig. 10. Triangular specimen GIUS 4-584 Mrz./203/5.

Fig. 11. Specimen GIUS 4-584 Mrz./203/12 with partially cicatrised pores.

Fig. 12. Radial plate GIUS 4-584 Mrz./220/1, outer view.

Fig. 13. Radial plate GIUS 4-584 Mrz./220/2, inner view.

Propinquohshimella remigia sp. n. 149

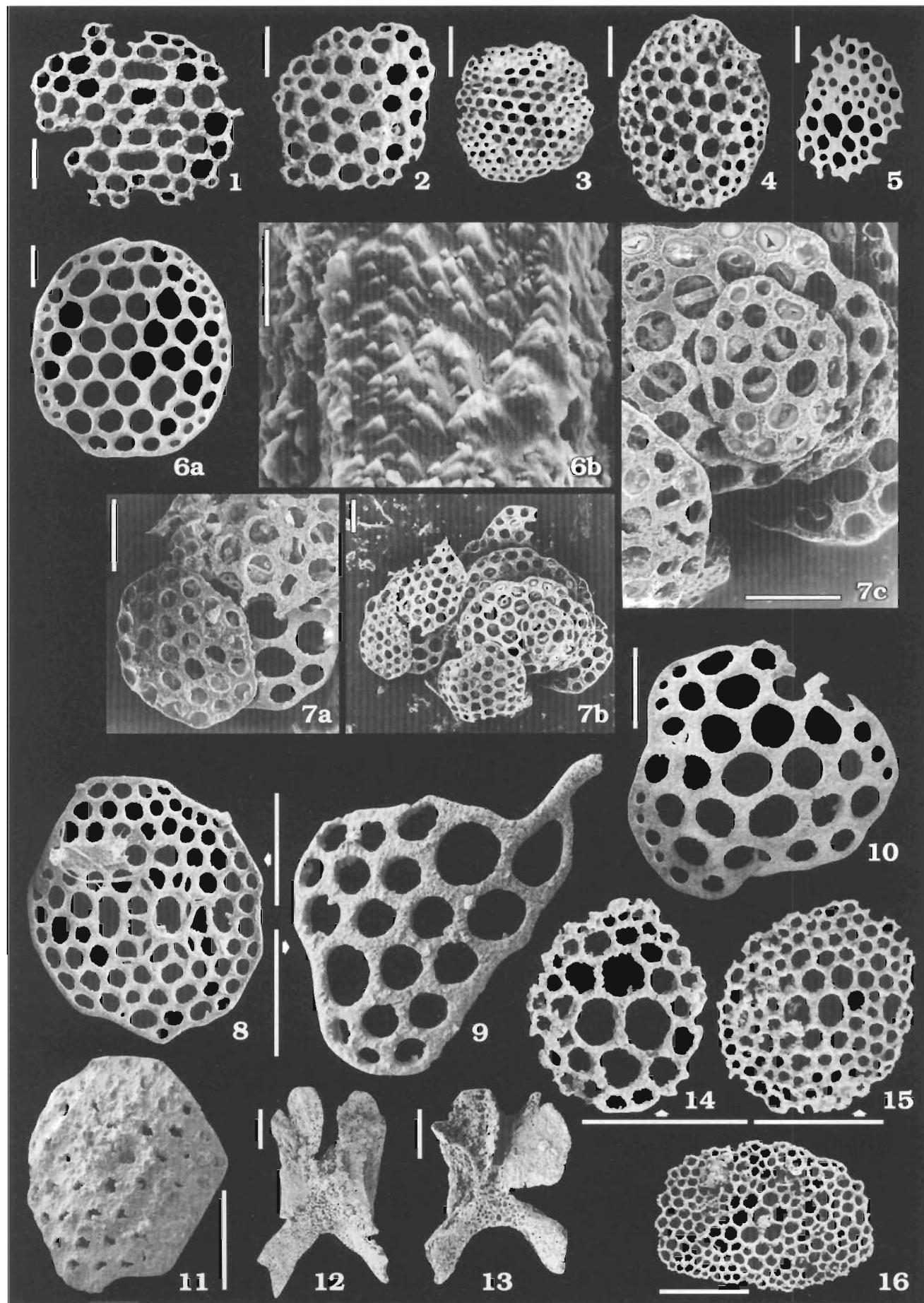
Sieve plates from the Early Givetian of outcrop III at Śniadka.

Fig. 14. GIUS 4-439 Śni./957/4.

Fig. 15. GIUS 4-439 Śni./957/3.

Fig. 16. GIUS 4-439 Śni./957/1.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 18

Eocaudina ovalis Matyja, Matyja et Szulczewski, 1973 137

Mid Frasnian, set D of Wietrzna II in Kielce.

Fig. 1. *E. "gornensis"* form GIUS 4-793 Wie./1030/2.

Fig. 2. GIUS 4-793 Wie./1030/1.

Fig. 3. GIUS 4-793 Wie./1030/4.

Fig. 4. GIUS 4-793 Wie./1030/3.

Mid (Late?) Frasnian of Tudorów.

Fig. 5. GIUS 4-790 Tud./505/2.

Fig. 6. GIUS 4-790 Tud./505/5.

Fig. 7. GIUS 4-790 Tud./505/6.

Fig. 8. GIUS 4-790 Tud./505/4.

Fig. 9. GIUS 4-790 Tud./505/3.

Fig. 10. GIUS 4-790 Tud./505/8.

Fig. 11. Specimen with cicatrised pores GIUS 4-790 Tud./505/7.

Fig. 12. Aggregate of sieve plates, GIUS 4-790 Tud./505/1.

Priscocaudina crucensis sp. n. 146

Fig. 13. Sclerite GIUS 4-790 Tud./502/2, Mid (Late?) Frasnian, Tudorów.

Eocaudina patella sp. n. 137

Fig. 14. Sclerite GIUS 4-747 Sow./696/7, Late Givetian, set C of Sowie Górkı.

Staurocaudina dombrowiana sp. n. 132

Earliest Eifelian *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Fig. 15. GIUS 4-618 Grz./372/1.

Fig. 16. GIUS 4-618 Grz./428/2.

Fig. 17. GIUS 4-618 Grz./428/3.

Palaeocaudina regia sp. n. 151

Fig. 18. Holotype GIUS 4-671 Ska./801/1, Late Eifelian set XVIII of Skaly.

Meredescaudina langeri sp. n. 133

Late Givetian, Marzysz II/13.

Fig. 19. GIUS 4-584 Mrz./216/4.

Fig. 20. GIUS 4-584 Mrz./217/27.

Fig. 21. GIUS 4-584 Mrz./216/3.

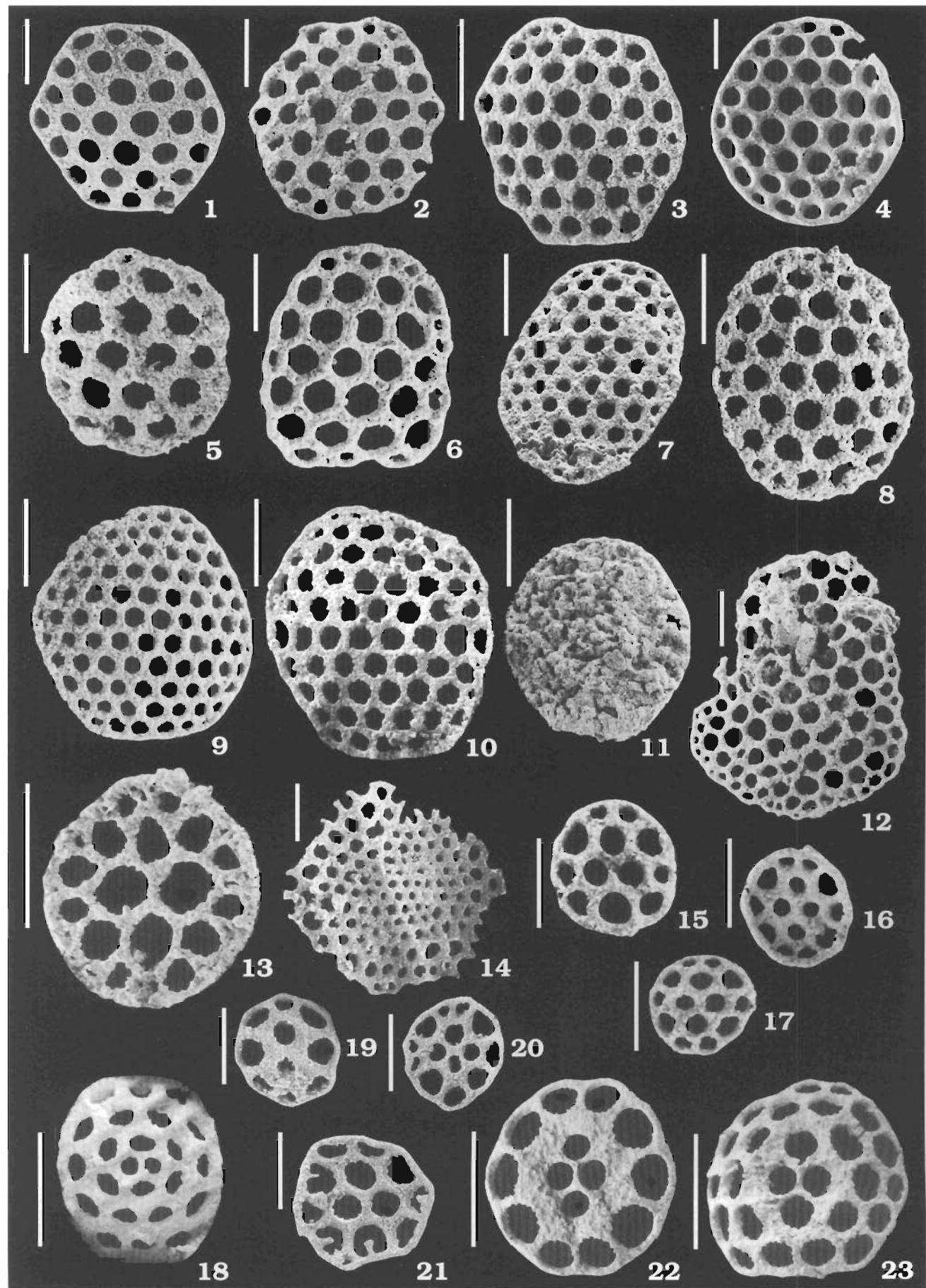
Staurocaudina canina sp. n. 131

Late Frasnian, set G1 of Psie Górkı.

Fig. 22. GIUS 4-601 Psi./518/3.

Fig. 23. GIUS 4-601 Psi./517/12.

Scale bar 200 µm.



ISOLATED SCLERITES OF DEVONIAN NON-PELMATOZOAN ECHINODERMS

PLATE 19

Achistrum tuto sp. n. 158

Elements of calcareous rings from the earliest Eifelian, *Chimaerothyris dombrowiensis* horizon, set VIII of Grzegorzowice.

Fig. 1. Radial plate GIUS 4-618 Grz./428/4, inner view.

Fig. 2. Radial plate GIUS 4-618 Grz./428/1, outer view.

Fig. 3. Interradial plate GIUS 4-618 Grz./373/1, inner view.

Achistrum multiperforatum Beckmann, 1965 156

Elements of calcareous rings.

Fig. 4. Radial plate GIUS 4-763 Jaź./1007/1, Mid (Late?) Givetian, set B of Jaźwica, oral-oblique view.

Fig. 5. Radial plate GIUS 4-763 Jaź./1007/2, Mid (Late?) Givetian, set B of Jaźwica, oral view.

Fig. 6. Radial plate GIUS 4-763 Jaź./1007/3, Mid (Late?) Givetian, set B of Jaźwica, outer view.

Fig. 7. Radial plate GIUS 4-584 Mrz./205/14, Late Givetian, Marzysz II/13, outer-oblique view.

Fig. 8. Radial plate GIUS 4-763 Jaź./1007/4, Mid (Late?) Givetian, set B of Jaźwica, inner view.

Fig. 9. Radial plate GIUS 4-763 Jaź./1007/8, Mid (Late?) Givetian, set B of Jaźwica, lateral view.

Fig. 10. Narrow radial plate GIUS 4-763 Jaź./1007/5, Mid (Late?) Givetian, set B of Jaźwica, outer view.

Fig. 11. Interradial plate GIUS 4-763 Jaź./1007/6, Mid (Late?) Givetian, set B of Jaźwica, inner view.

Fig. 12. Narrow interradial plate GIUS 4-763 Jaź./1007/7, Mid (Late?) Givetian, set B of Jaźwica, inner view.

Fig. 13. Interradial plate GIUS 4-584 Mrz./207b/13, Late Givetian, Marzysz II/13, lateral-oblique view.

Fig. 14. Interradial plate GIUS 4-763 Jaź./1007/9, Middle (Late?) Givetian, set B of Jaźwica, lateral view.

Fig. 15. Two articulated pieces of the calcareous ring interradial plate on the left and radial plate on the right
GIUS 4-584 Mrz./206/2, Late Givetian, Marzysz II/13, inner view.

Fig. 16. Two articulated pieces of the calcareous ring associated with an "achistrid hook" GIUS 4-584 Mrz./206/3,
Late Givetian, Marzysz II/13, outer view; *a* whole specimen, *b* detail, white arrow indicates a hook.

Fig. 17. Hook GIUS 4-577 Mrz./86/4, Late Givetian, Marzysz II/6.

Fig. 18. Radial plate associated with hooks GIUS 4-596 Świ./862/1, Late Eifelian, Błonia Sierzawskie, Święto-
marz; *a* oral view of whole specimen, *b* outer view of whole specimen, *c* detail, outer view, white arrow
indicates a hook, *d* detail, oral view, arrows indicate hooks.

Scale bar 200 µm.

