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MEMOIRS
OF THE
MUSEUM OF COMPARATIVE ZOOLOGY
AT
HARVARD COLLEGE.

EIGHTY-THREE PLATES TO ACCOMPANY.

VOLUMES XX. AND XXI.

CAMBRIDGE, U. S. A.
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FRANK SPRINGER.

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Memoirs of the Museum of Comparative Zoölogy

AT HARVARD COLLEGE.

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THE NORTH AMERICAN
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By CHARLES WACHSMUTH AND FRANK SPRINGER.

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MAY, 1897.

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(All specimens are in the collection of Wachsmuth and Springer.)

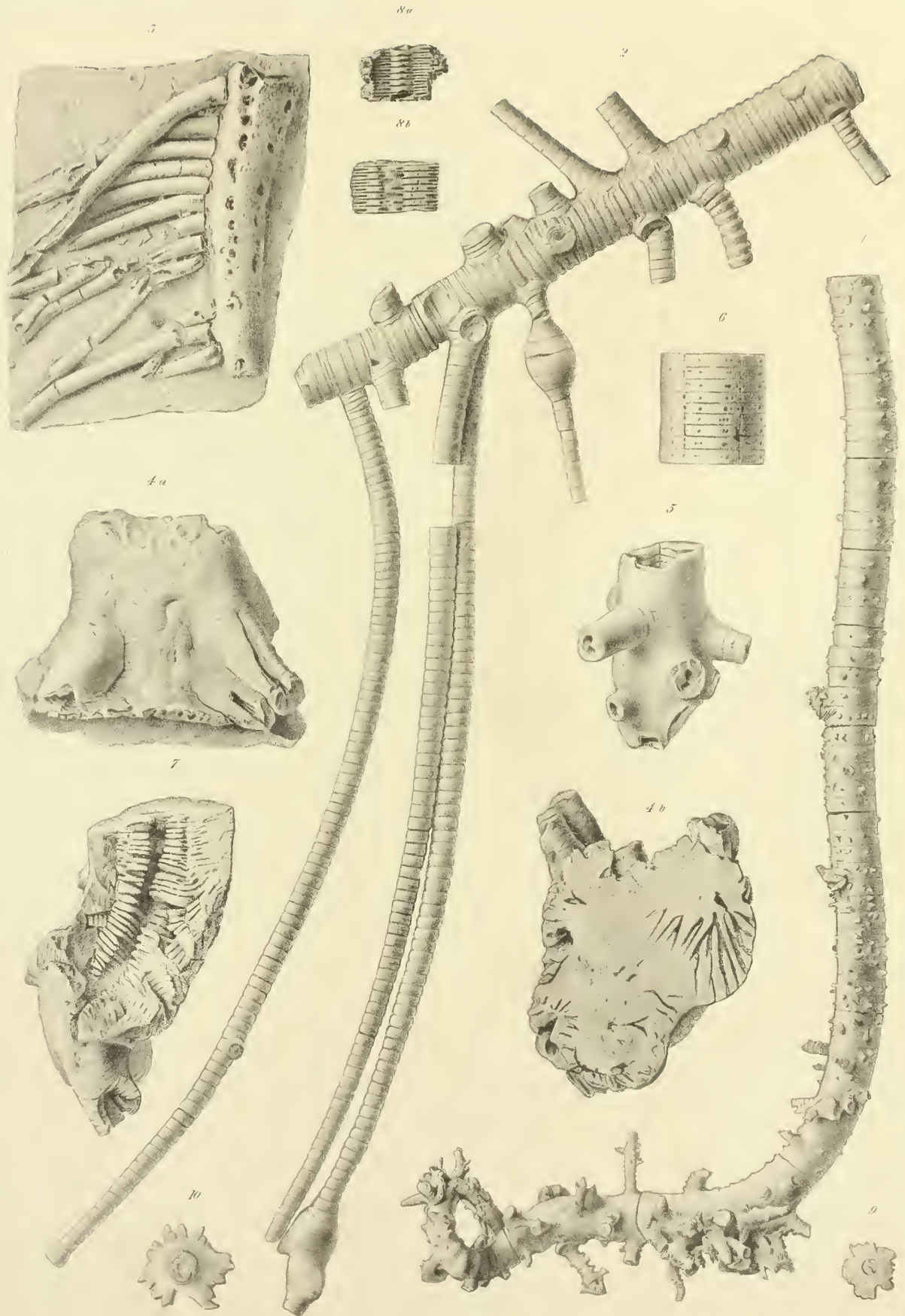


PLATE II.

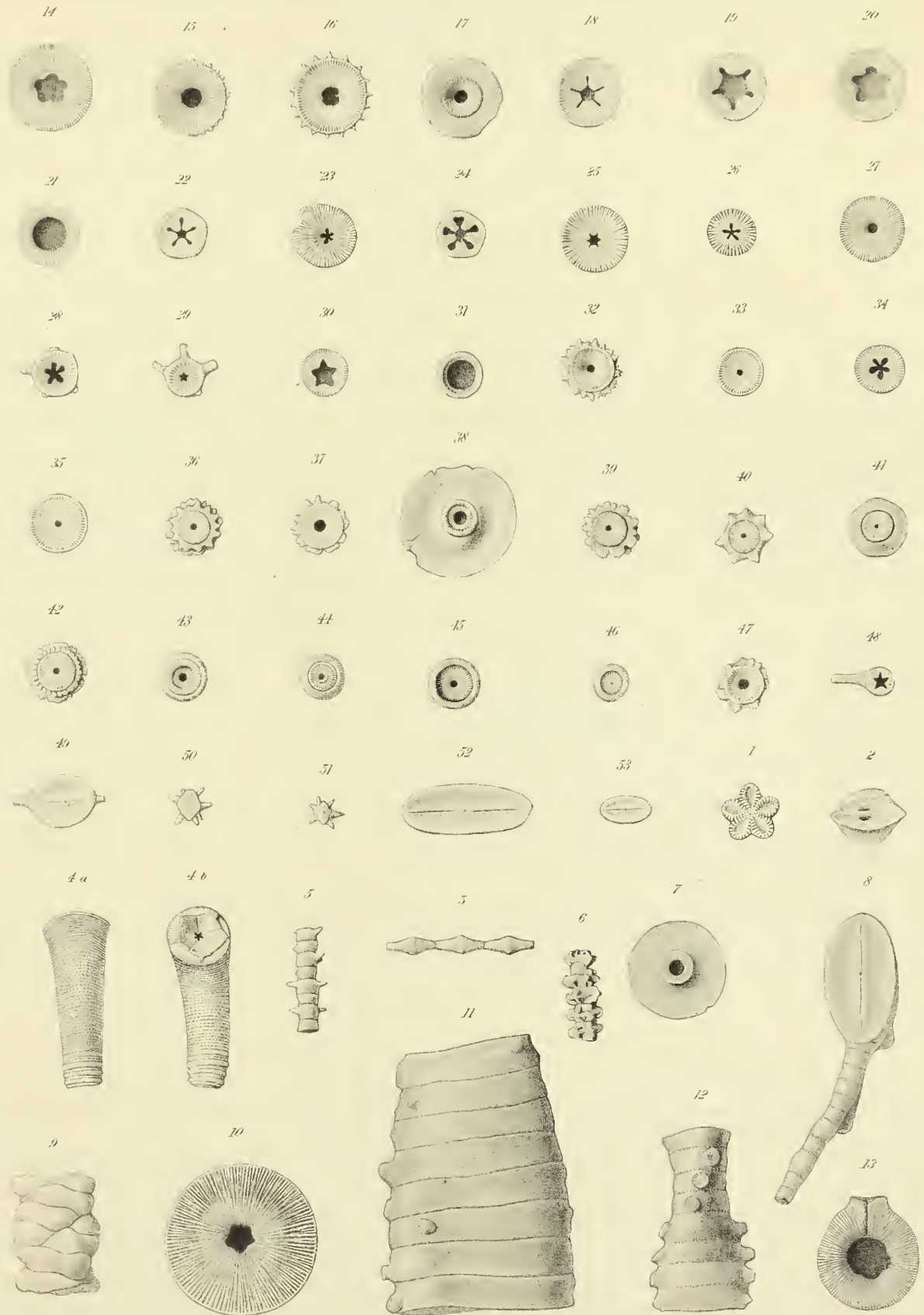
DETACHED STEM JOINTS OF VARIOUS FOSSIL CRINOIDS.

Fig. 1 is a joint of *Pentacrinus*; fig. 2 of *Rhizocrinus*. The stem fragment, fig. 3, belongs to *Mespilocrinus*; figs. 5, 8, 9, 11, and 12 to *Platycrinus*; fig. 6 to *Teleocrinus*, and fig. 7 to *Cactocrinus*. The specimen fig. 10, which probably belongs to an *Actinocrinus*, shows beautifully the striations at its upper face, and fig. 13 the connection of the cirrus canal with the stem canal.

4a and b represent the proximal end of the stem of an *Onychocrinus*, — 4b showing the infrabasals coalesced with the top stem joint (pp. 62, 65).

17 and 38 represent wide nodal joints to which extremely narrow internodal ones are attached. Figs. 39 to 41 are nodal joints, with or without internodals; figs. 42 to 48 nodals, followed by internodals resting wholly or partly between the projecting margins of the nodals. Traces of new joints occur in figs. 33 and 35. The joints in figs. 14 and 20 probably belong to *Megistocrinus Evansi*; fig. 21 to *Periechocrinus Whitei*; figs. 32, 36, and 39 to *Cactocrinus*; fig. 40 to *Teleocrinus*; to the five oval pieces shown by figs. 49 to 53 to *Platycrinus*.

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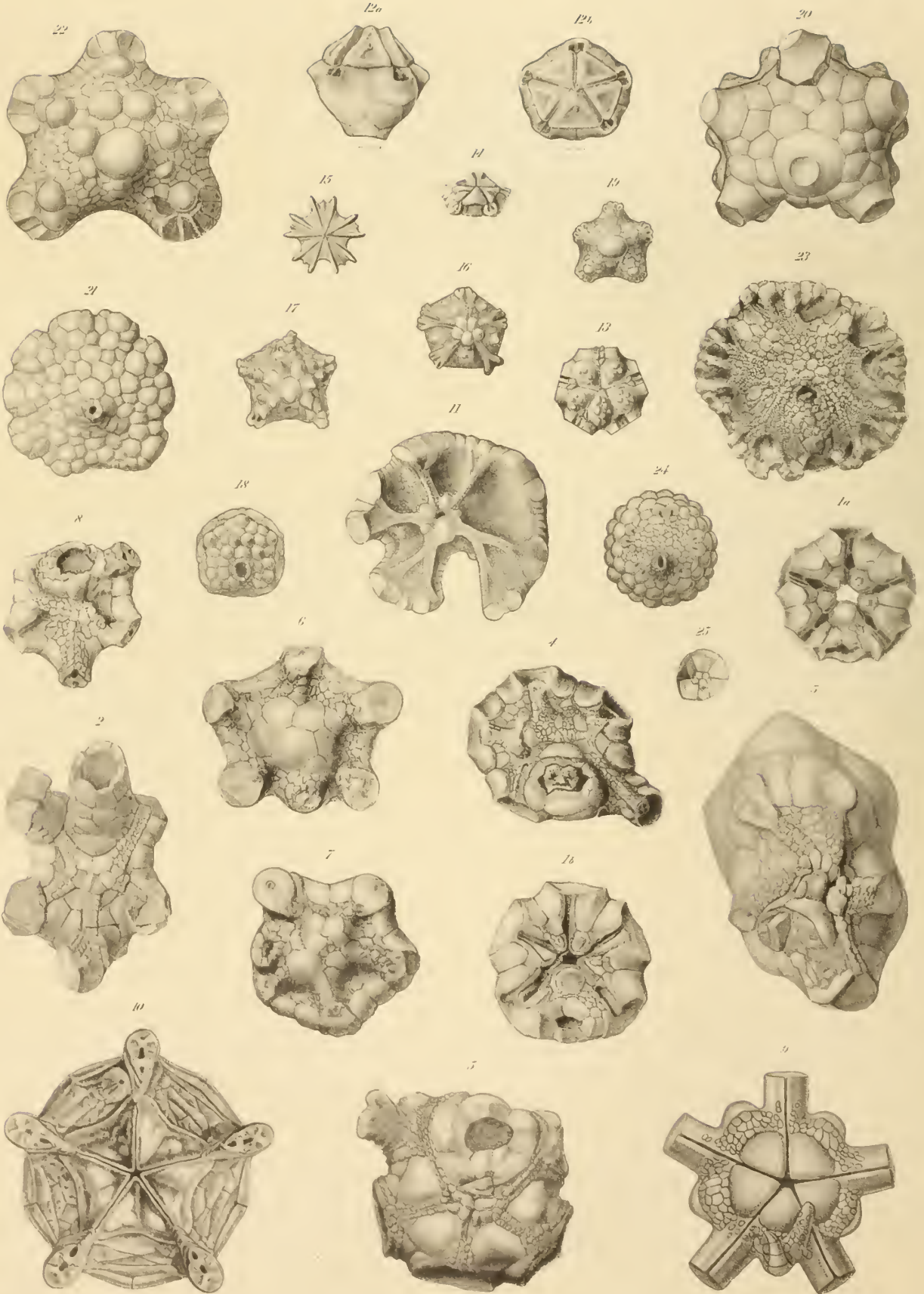


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(All specimens are in the collection of Wachsmuth and Springer, except that of Fig. 6, which is in the collection of Mr. R. R. Rowley.)

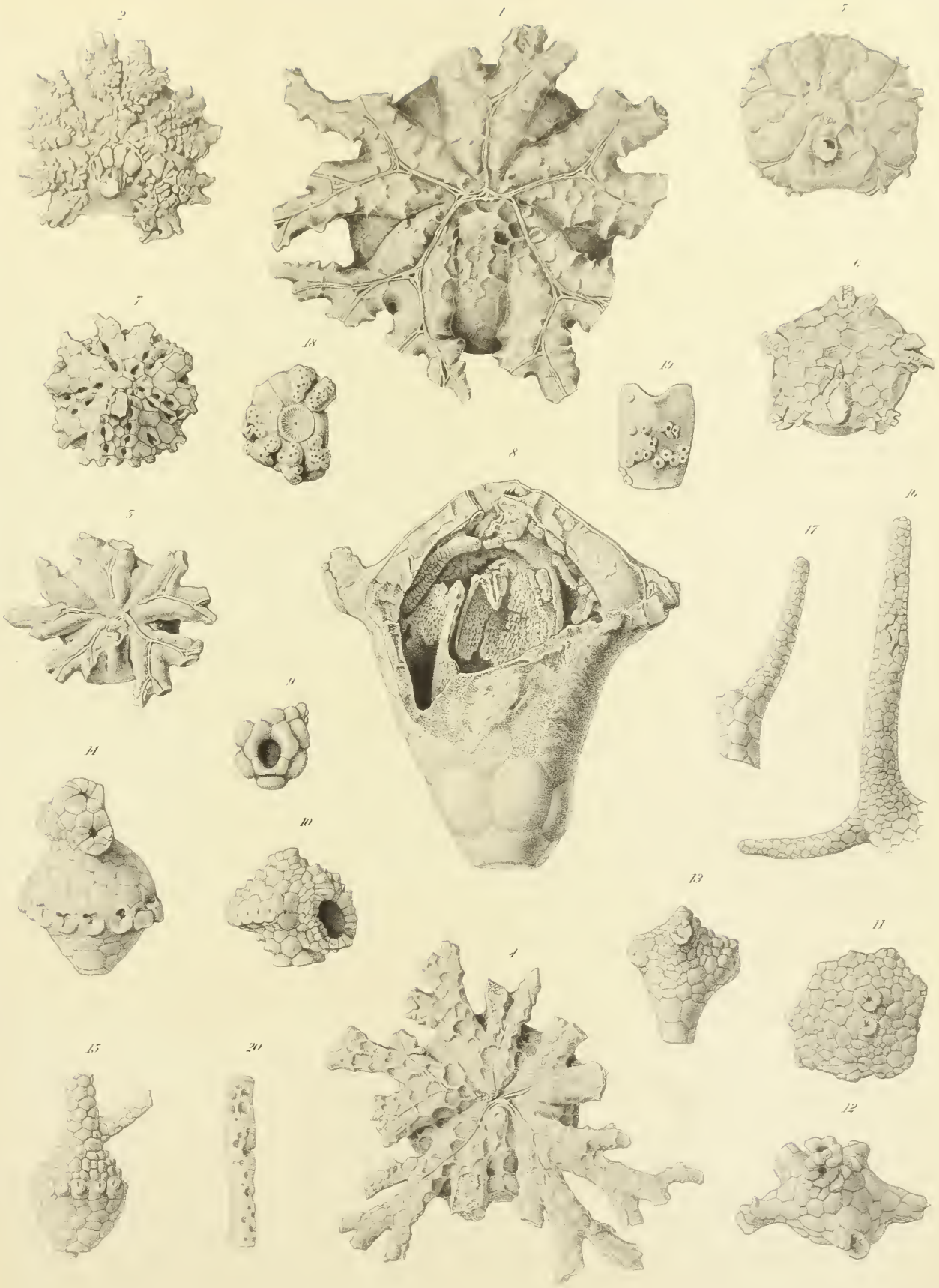


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(All specimens are in the collection of Wachsmuth and Springer, except those of Figs. 10, 11, and 15, which are in the Museum of Comparative Zoölogy.)





PLATE VI.

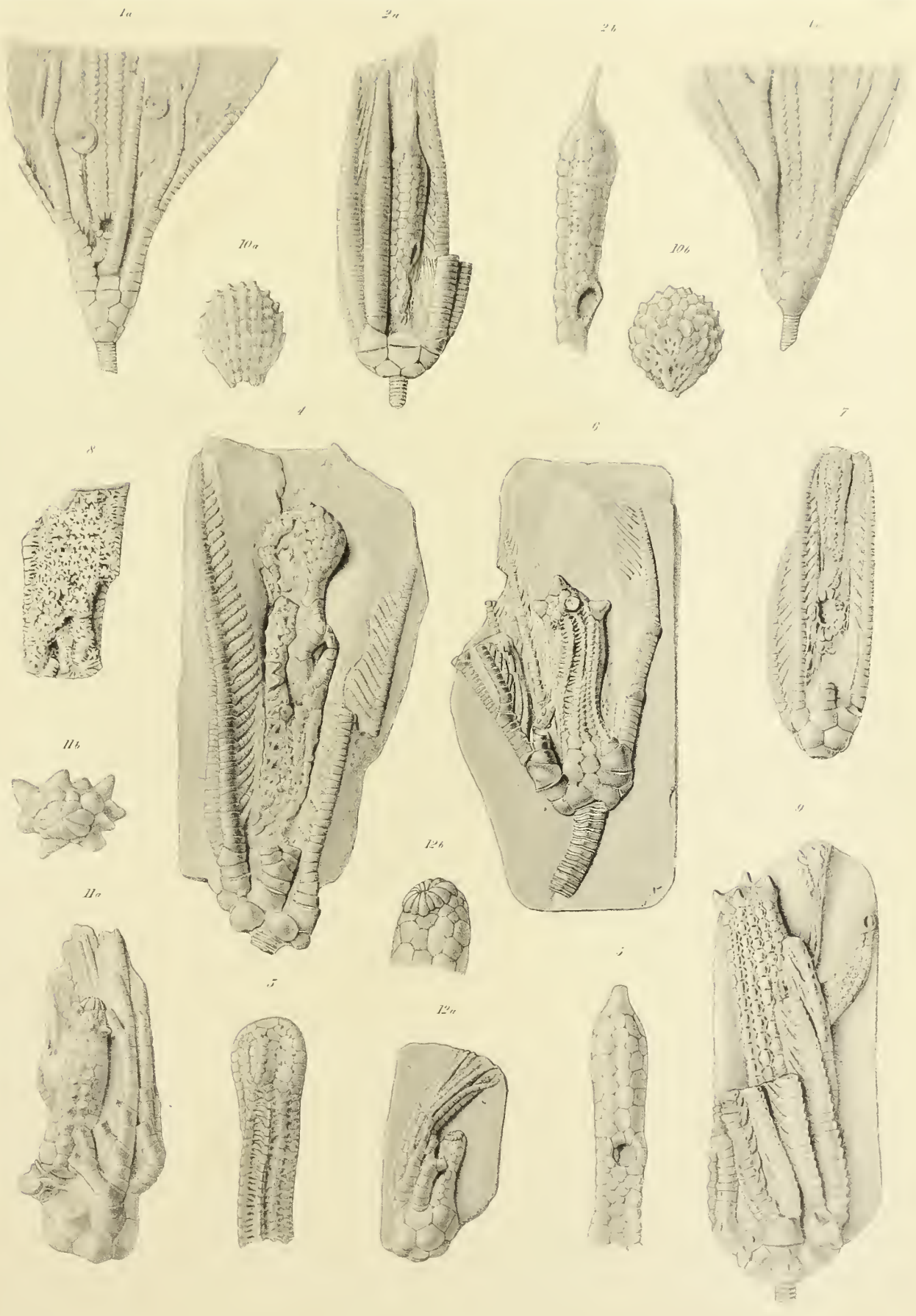
(Figs. 1 to 12 are represented to show the orientation of the stem and axial canal among Neozoic Crinoids; figs. 13 to 20 the close affinities between the Ichthyocrinidæ and Comatulæ.)

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(All specimens are in the collection of Wachsmuth and Springer.)	



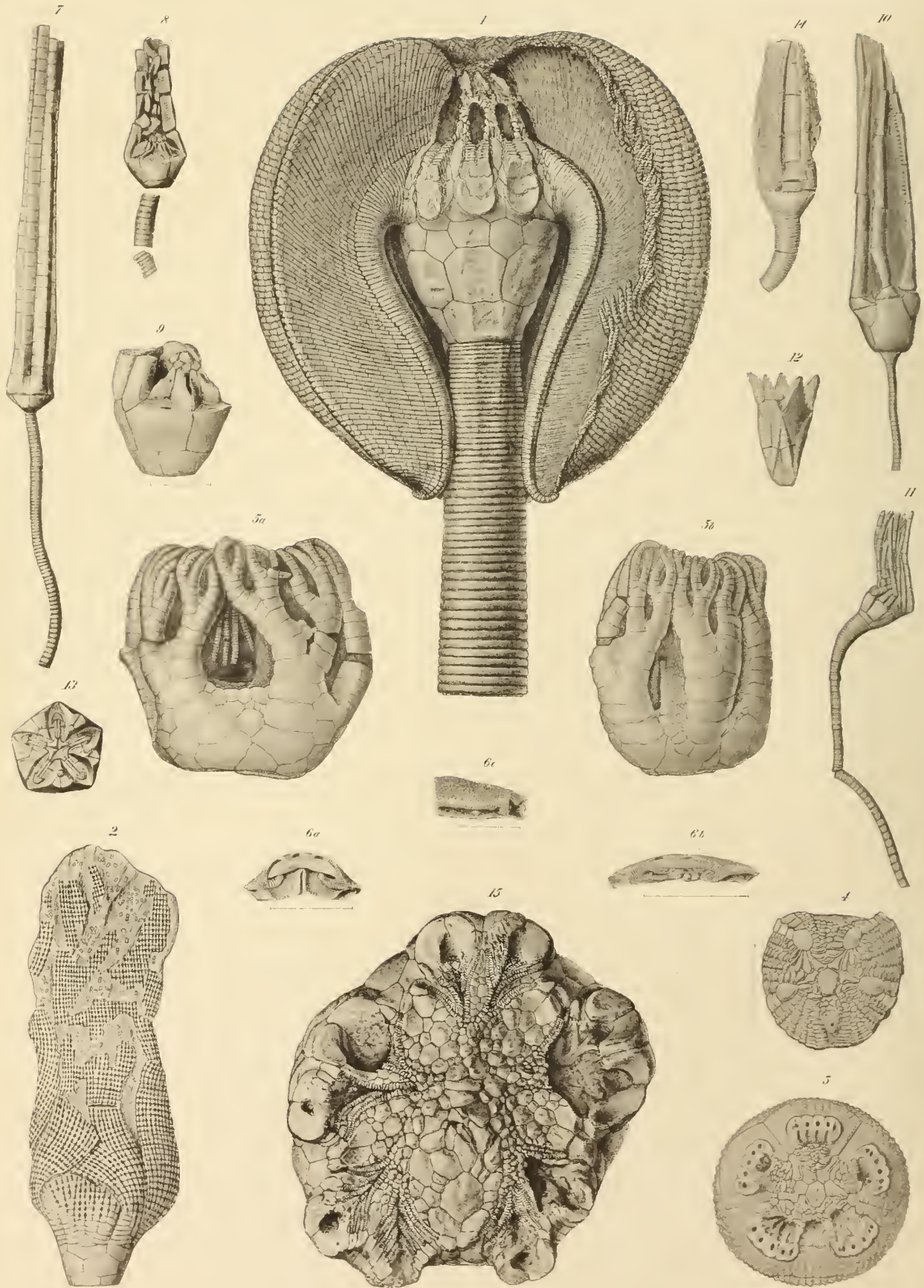


PLATE VIII.

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the Indiana Geological Survey for 1891, p. 637, took the liberty of stating, most unwarrantably, that we had described, in the third part of the Revision of the Palæocrinoidea, p. 173 (1885) the arms of *Pisocrinus*, which we "knew nothing whatever about." The tone of his article was such as to preclude any notice from us, except to publish this figure in refutation of his statement. Angelin figured the arms of *Pisocrinus* as early as 1877.)

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PLATE IX.

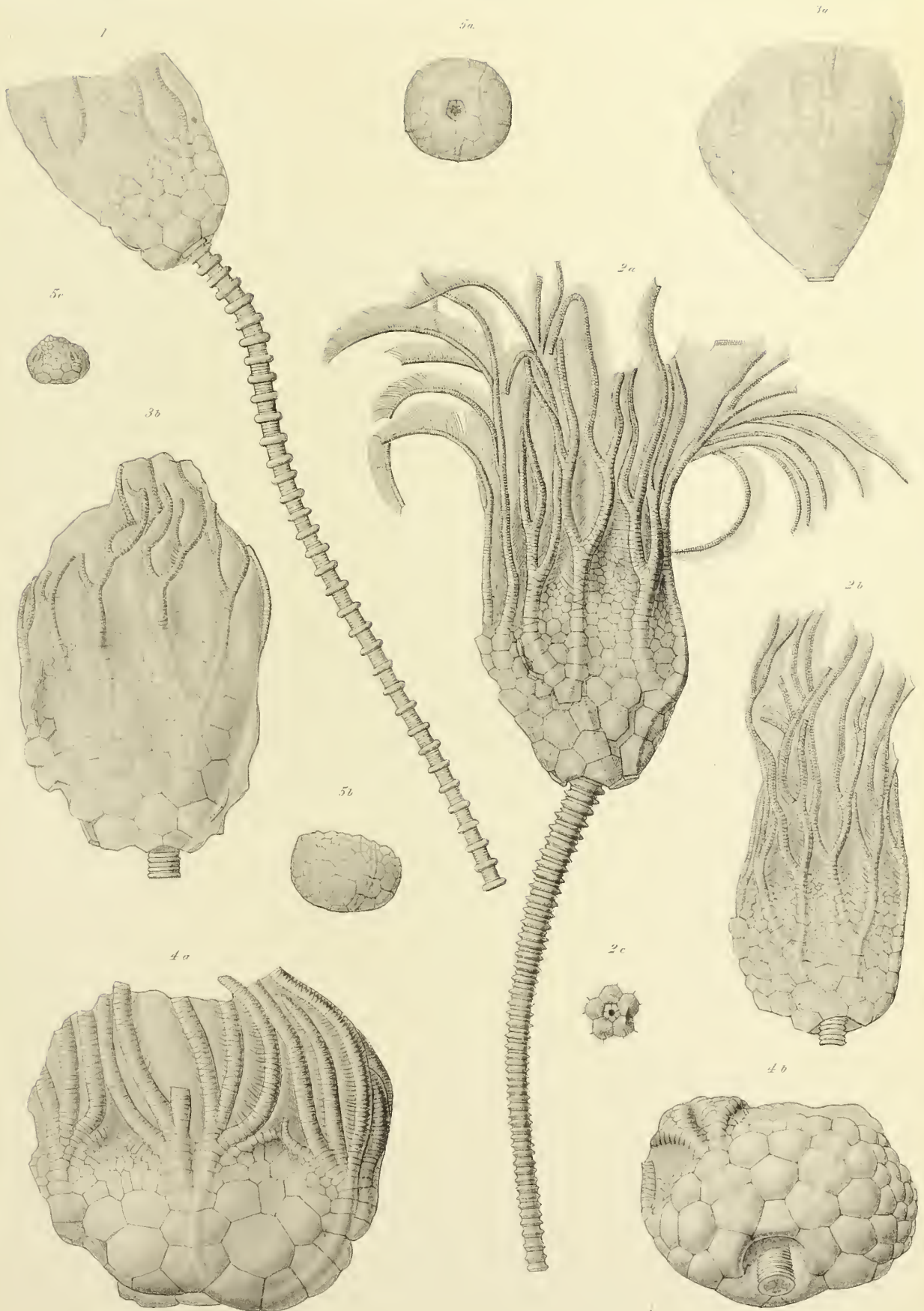
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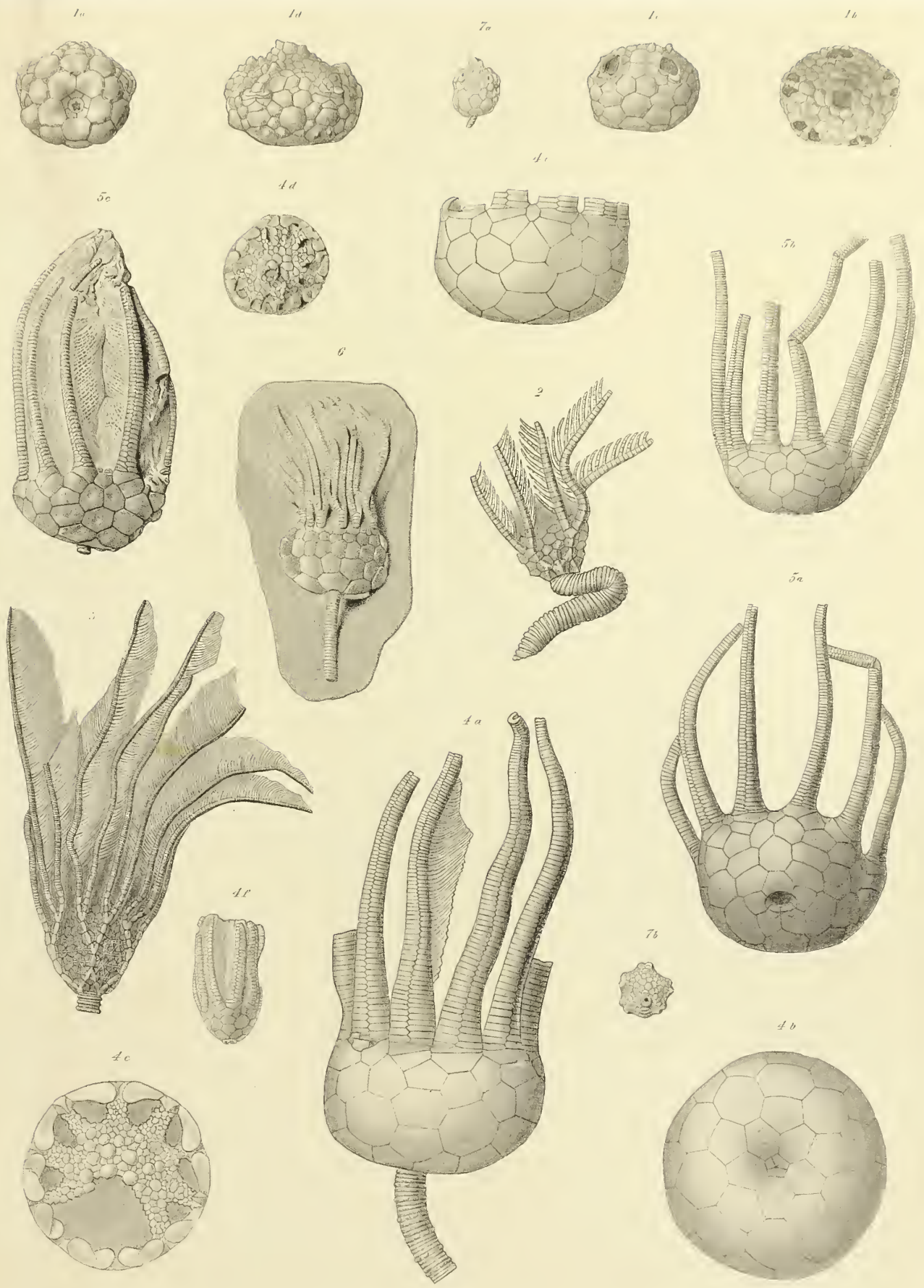
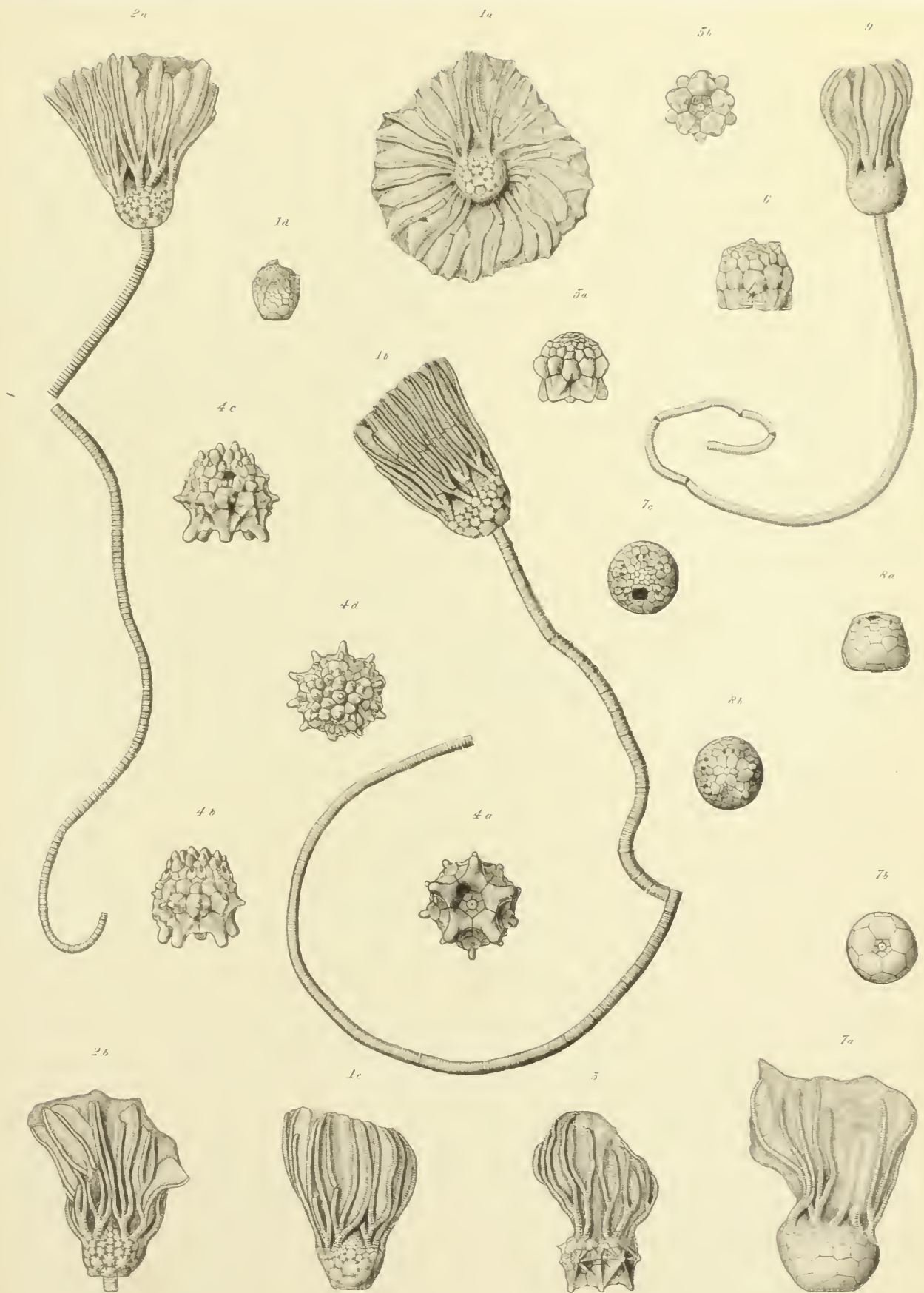


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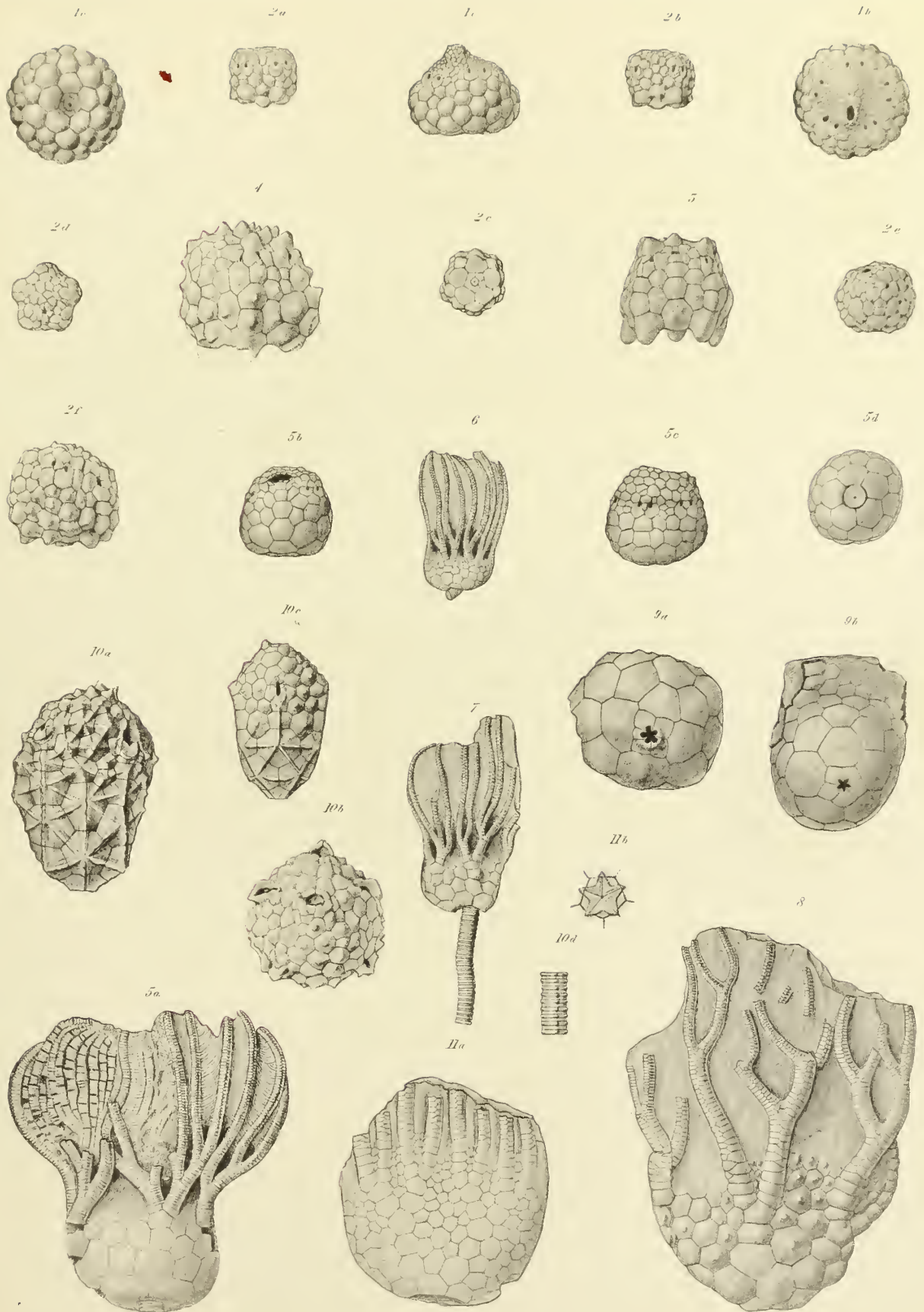
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(All specimens in the collection of Wachsmuth and Springer.)

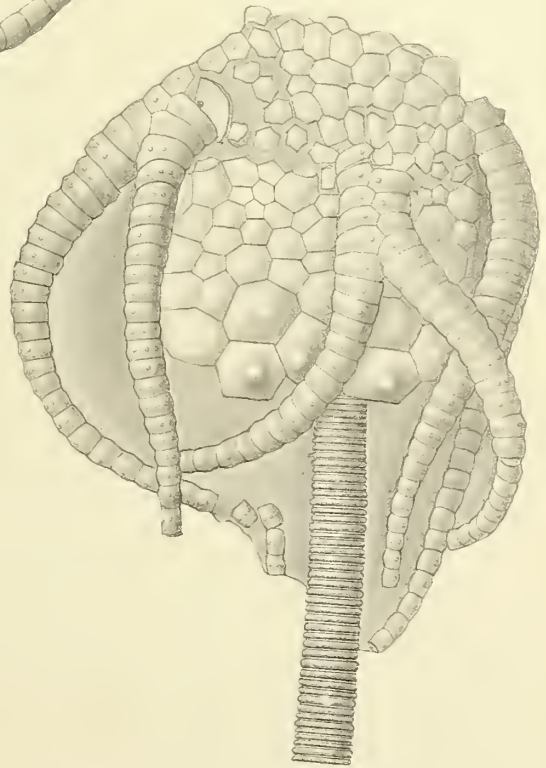
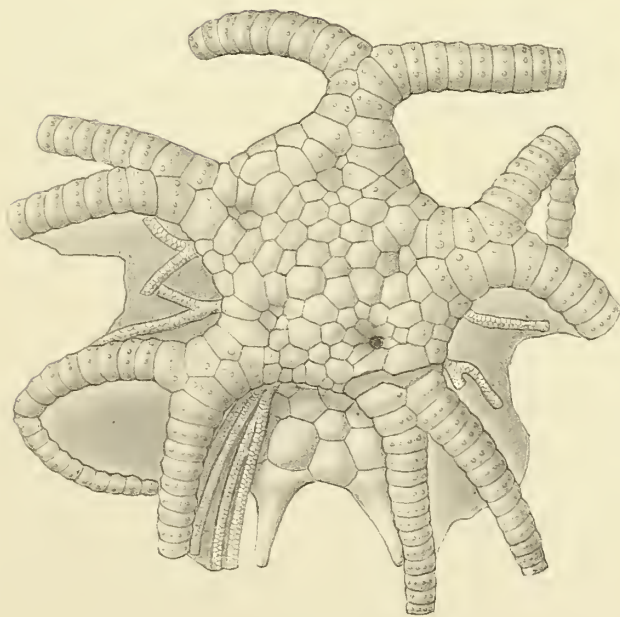
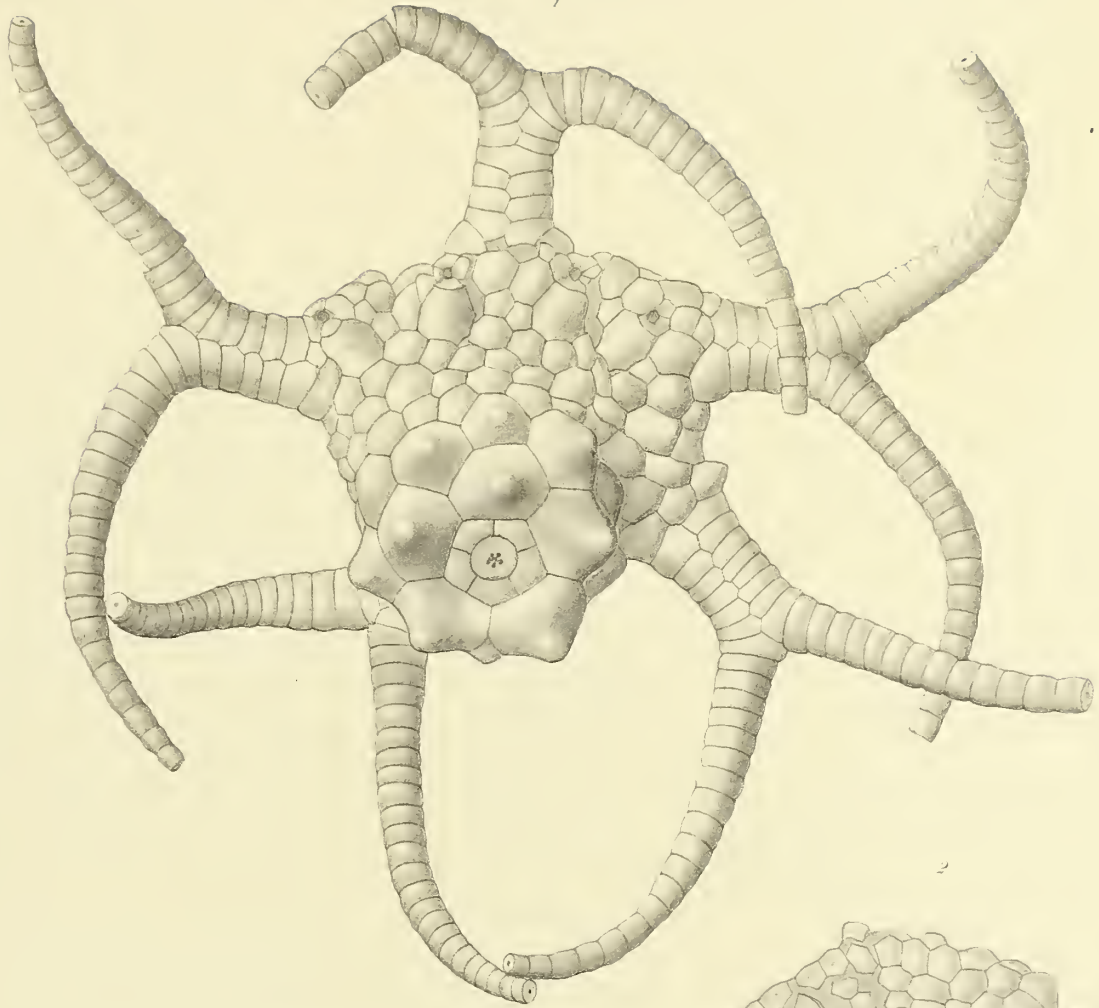


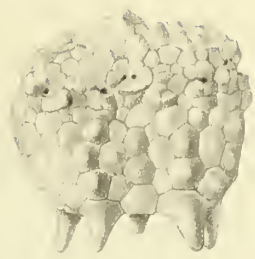
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(All the specimens are in the collection of Wachsmuth and Springer except that illustrated by figs. 3 <i>a</i> , <i>b</i> , <i>c</i> , which is in the Canada Survey Museum at Ottawa.)	

2a



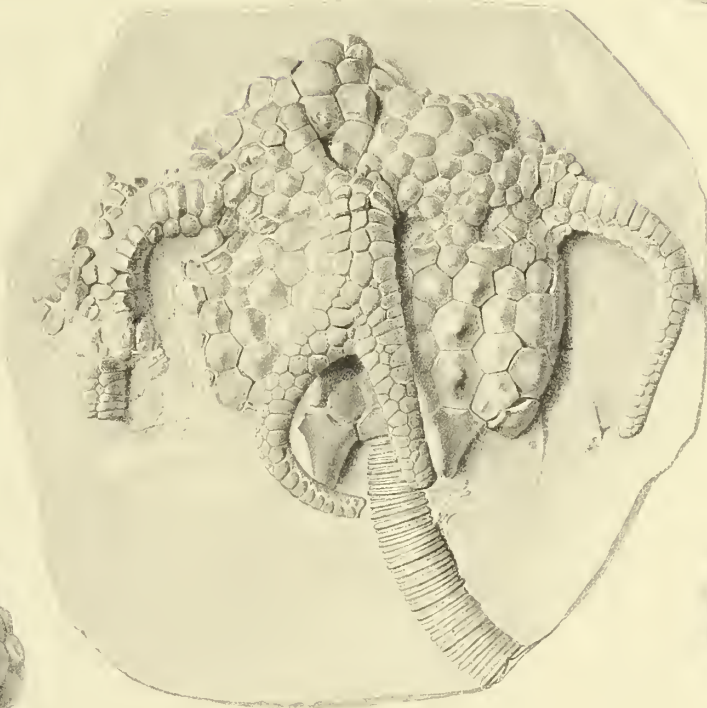
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2b



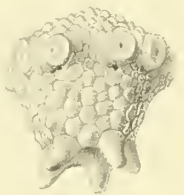
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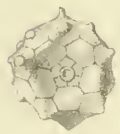
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5



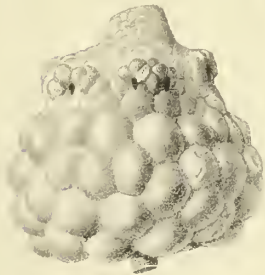
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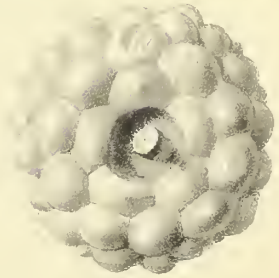
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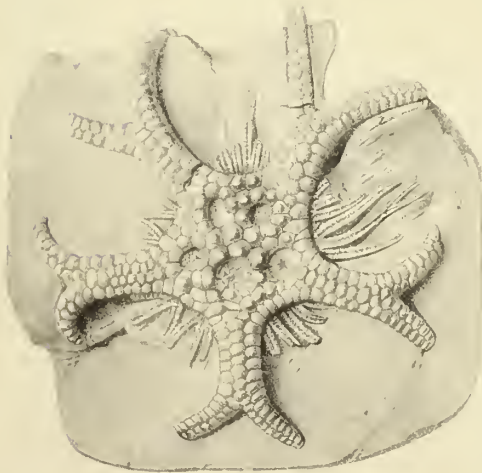
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6b



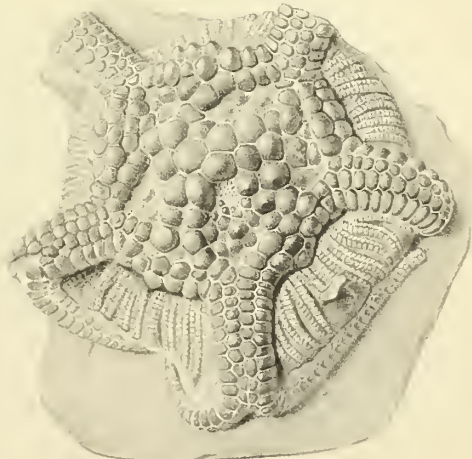
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7



1b



3c

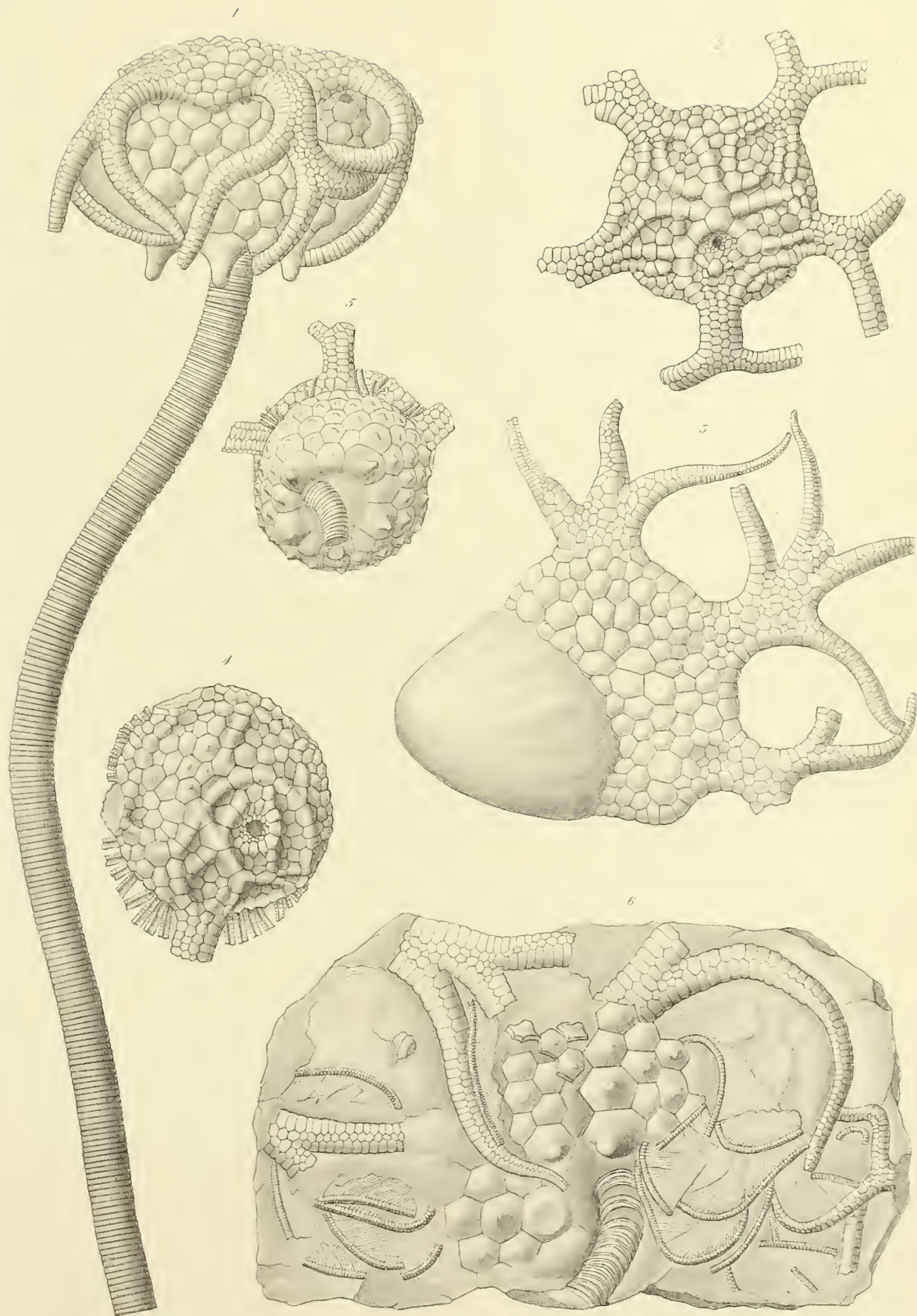


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(All specimens in the collection of Wachsmuth and Springer.)

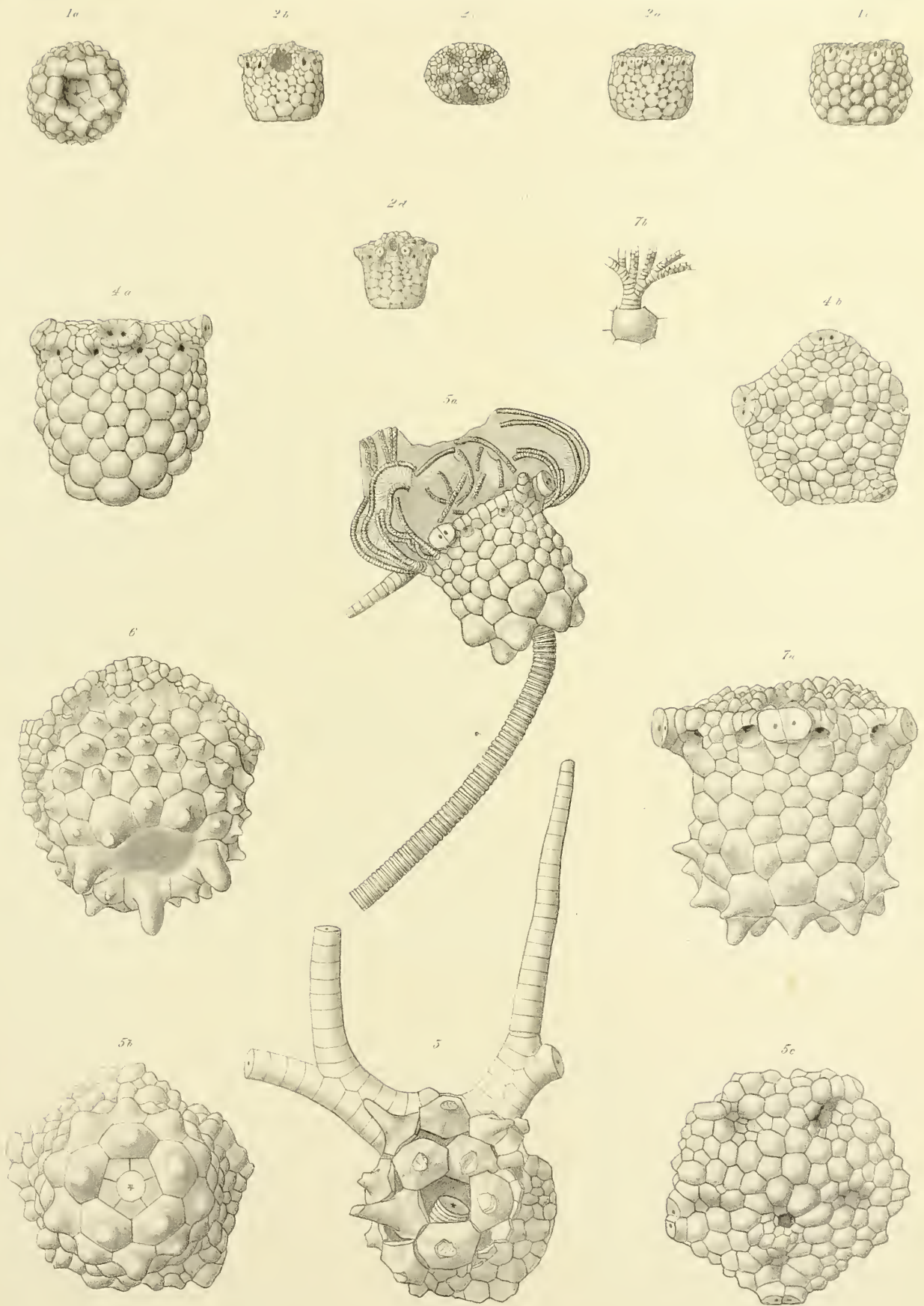


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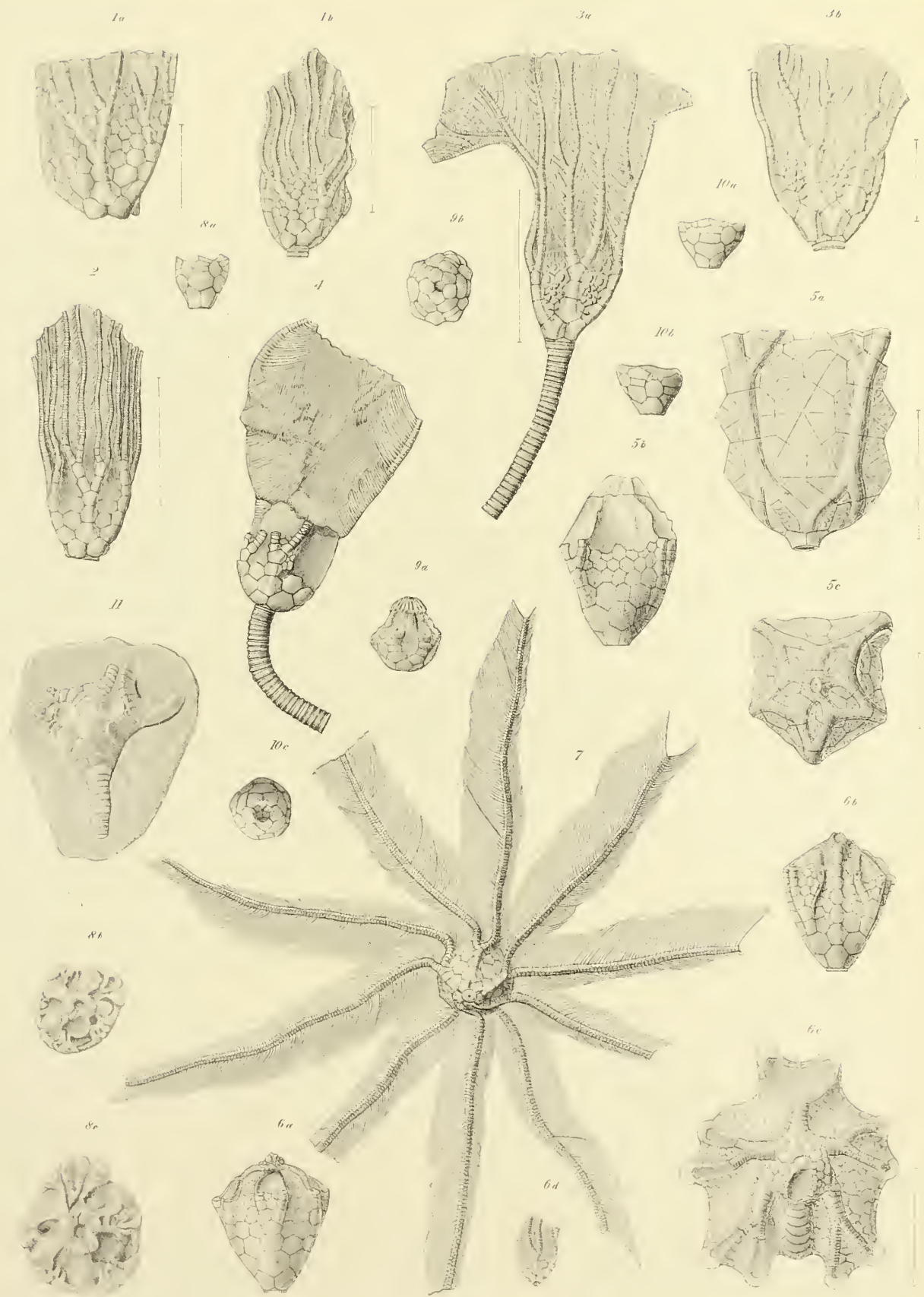
(All specimens in the collection of Wachsmuth and Springer.)



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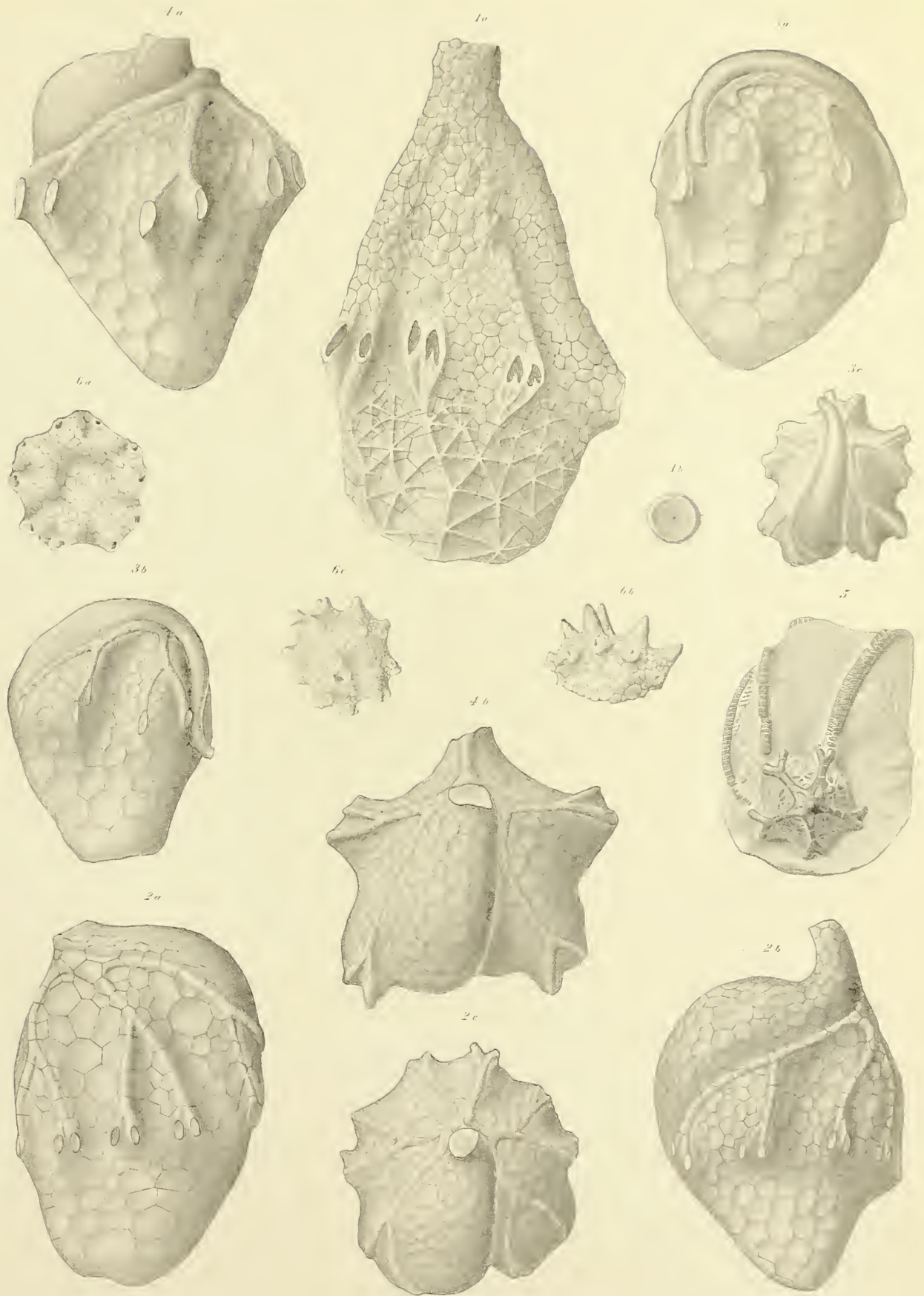
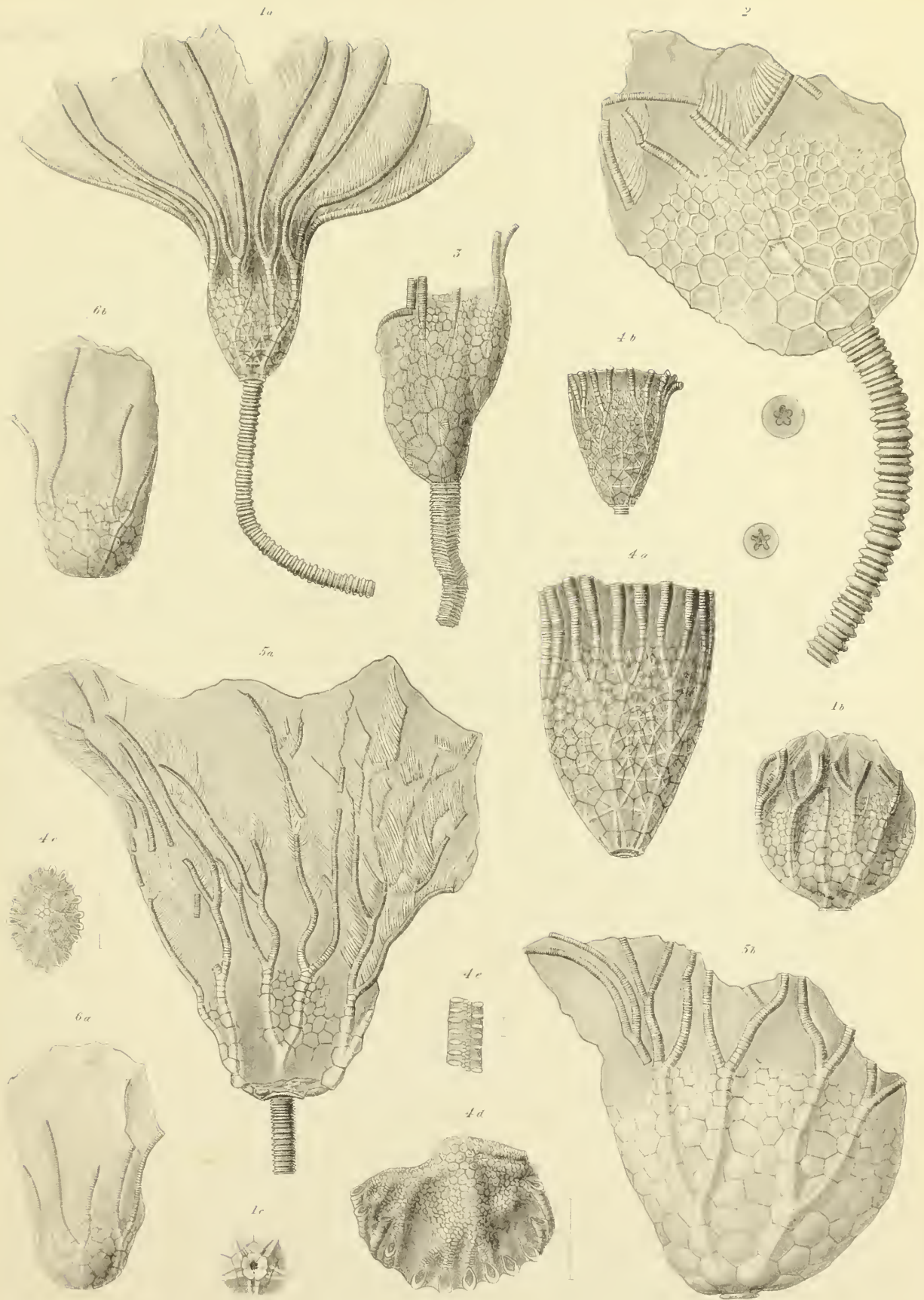


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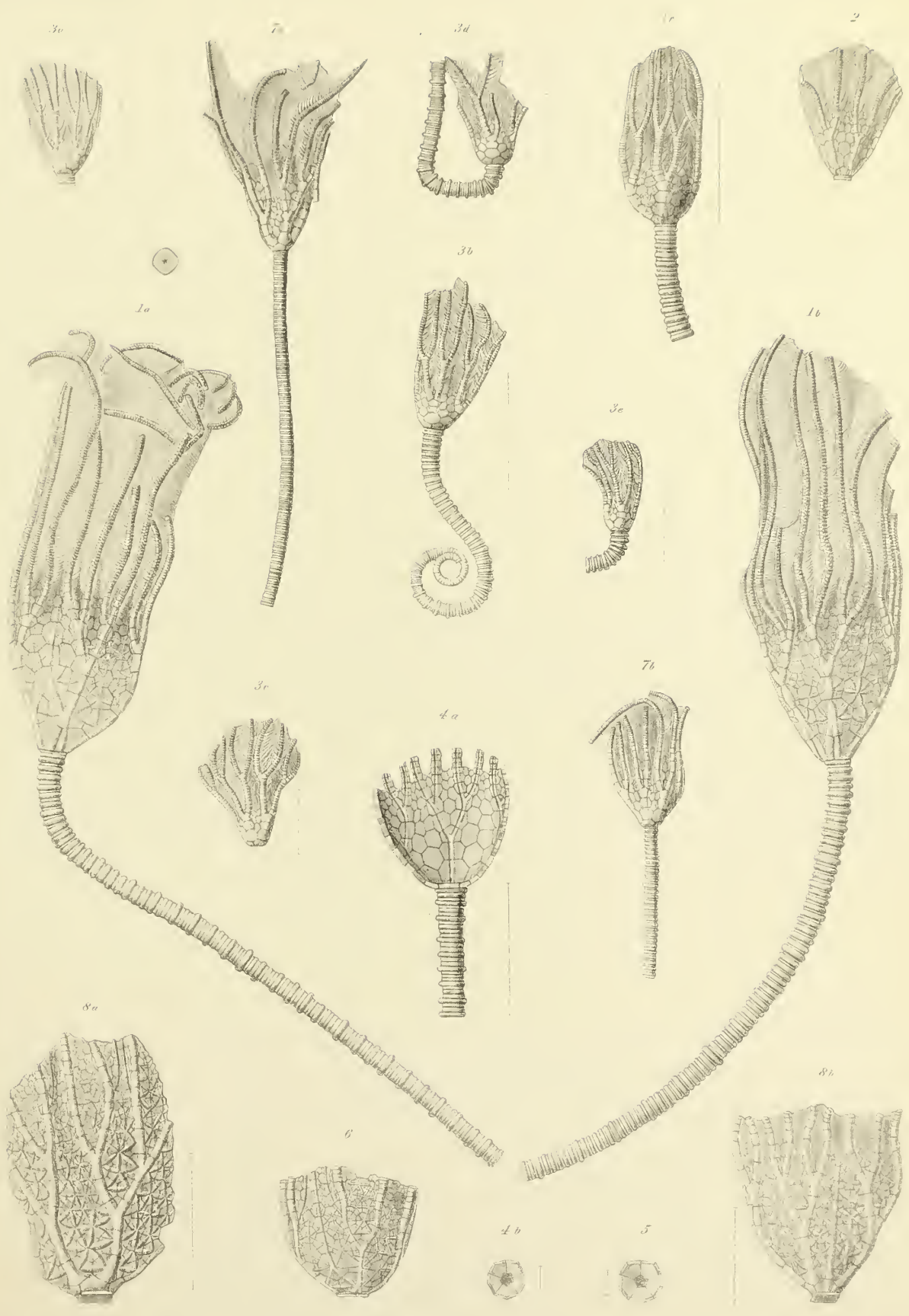


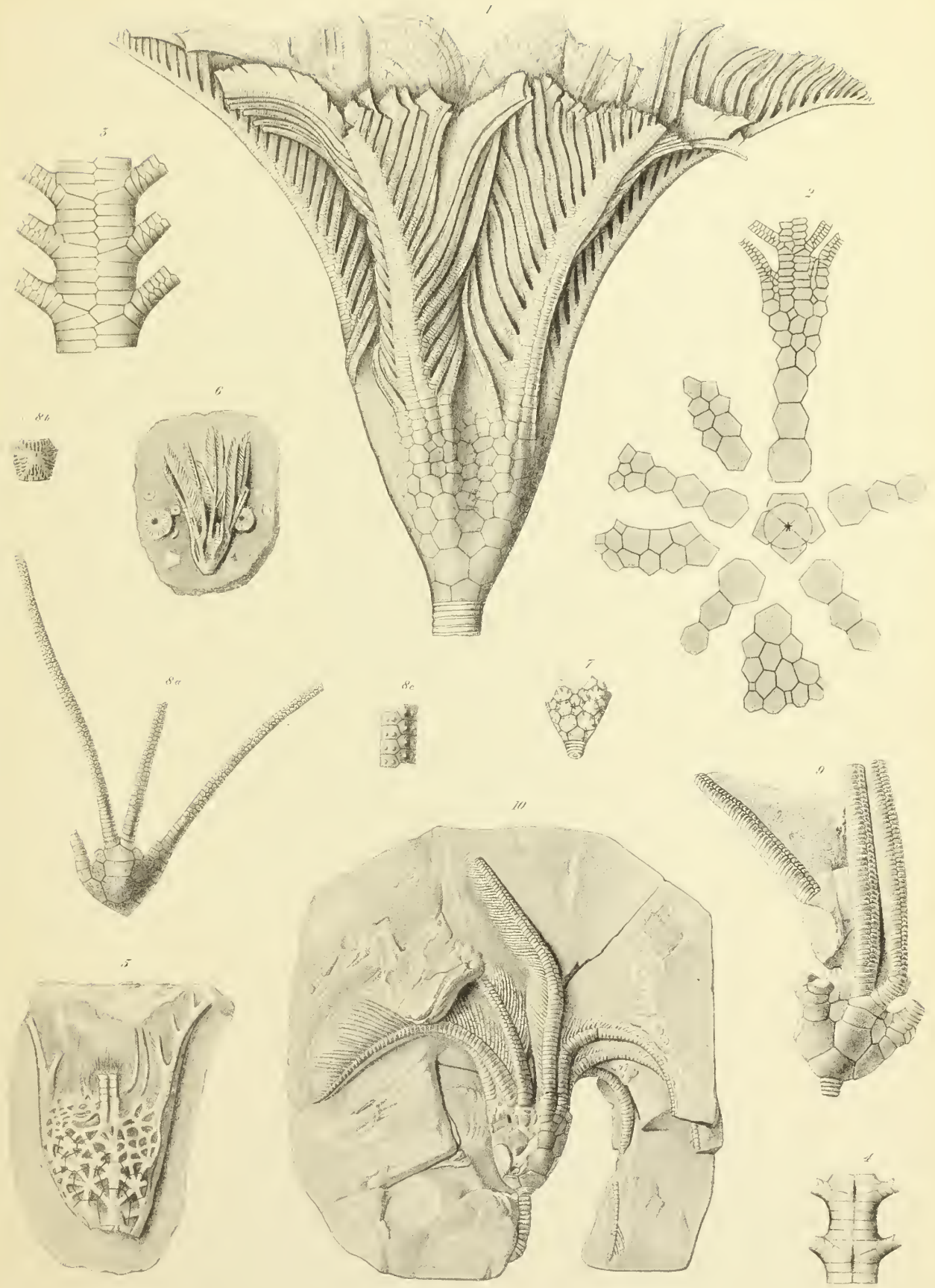
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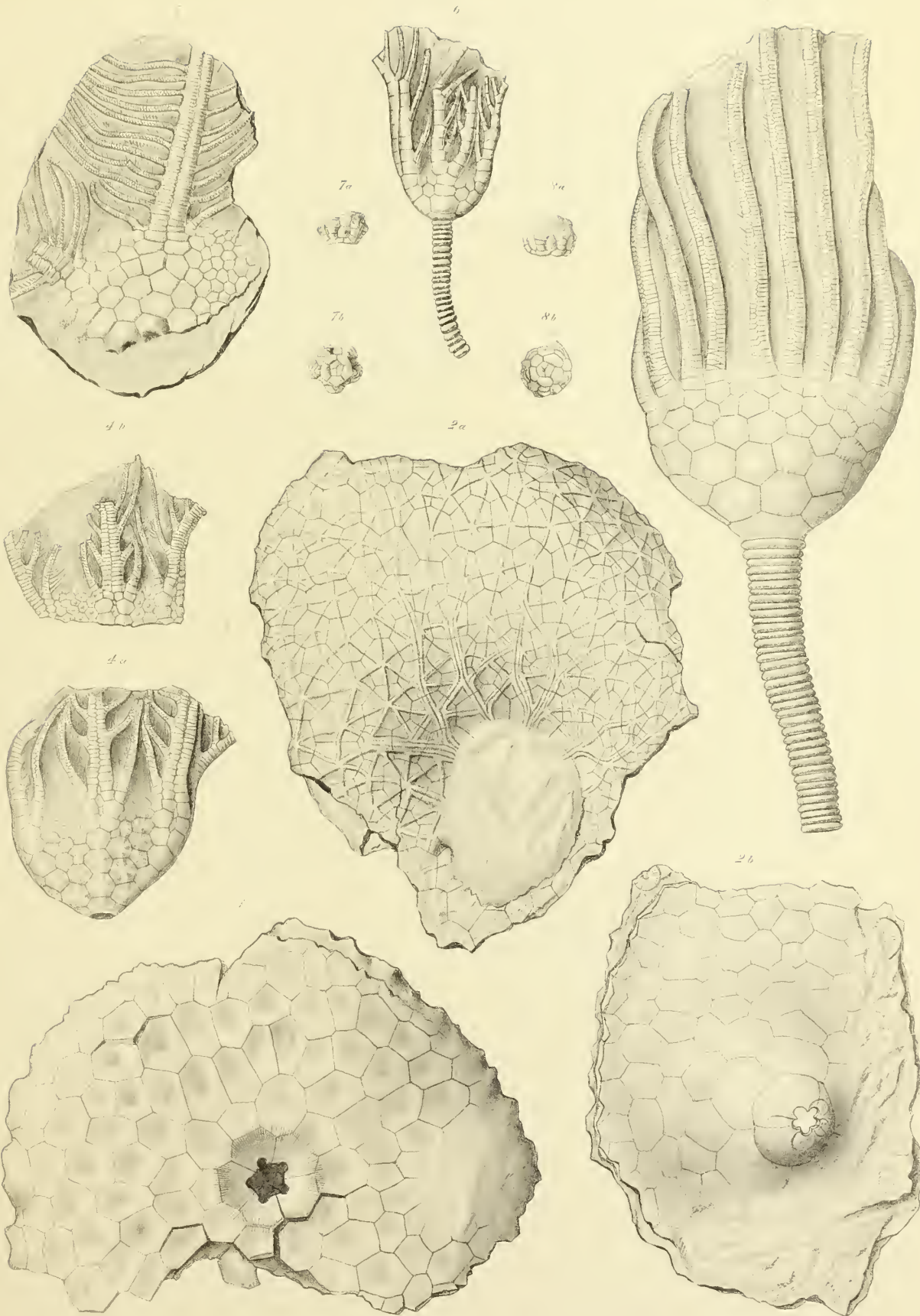
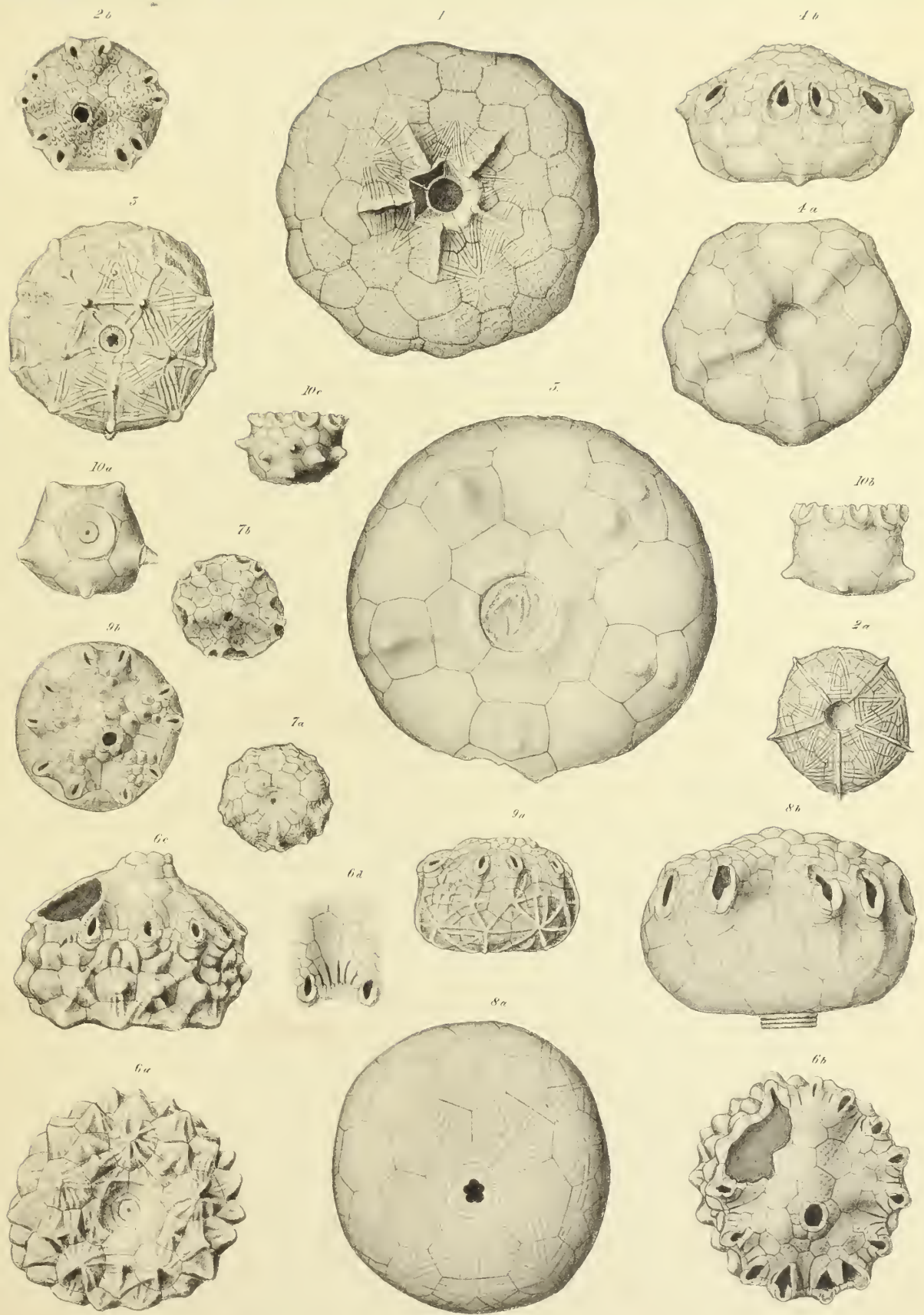


PLATE XXV.

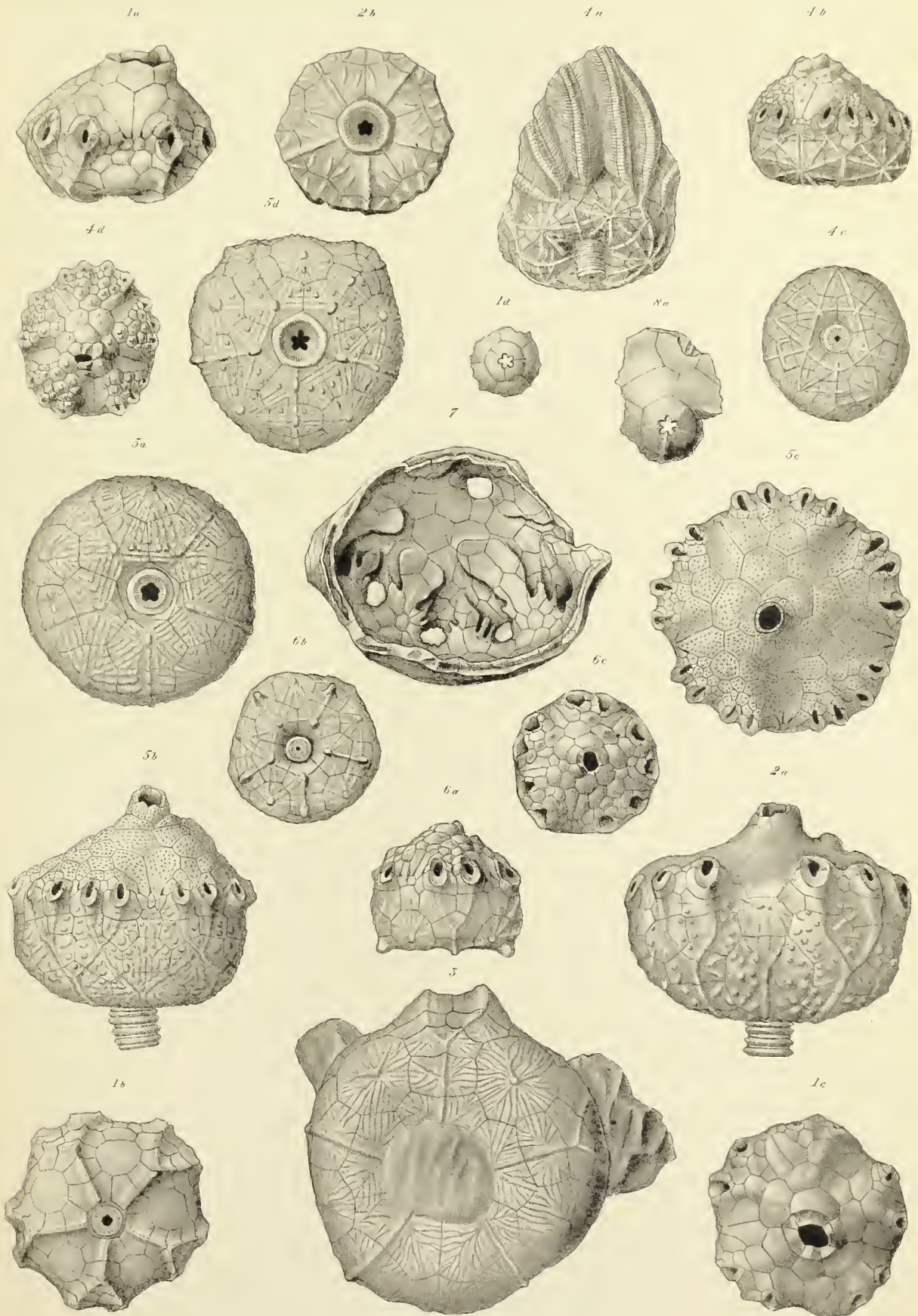
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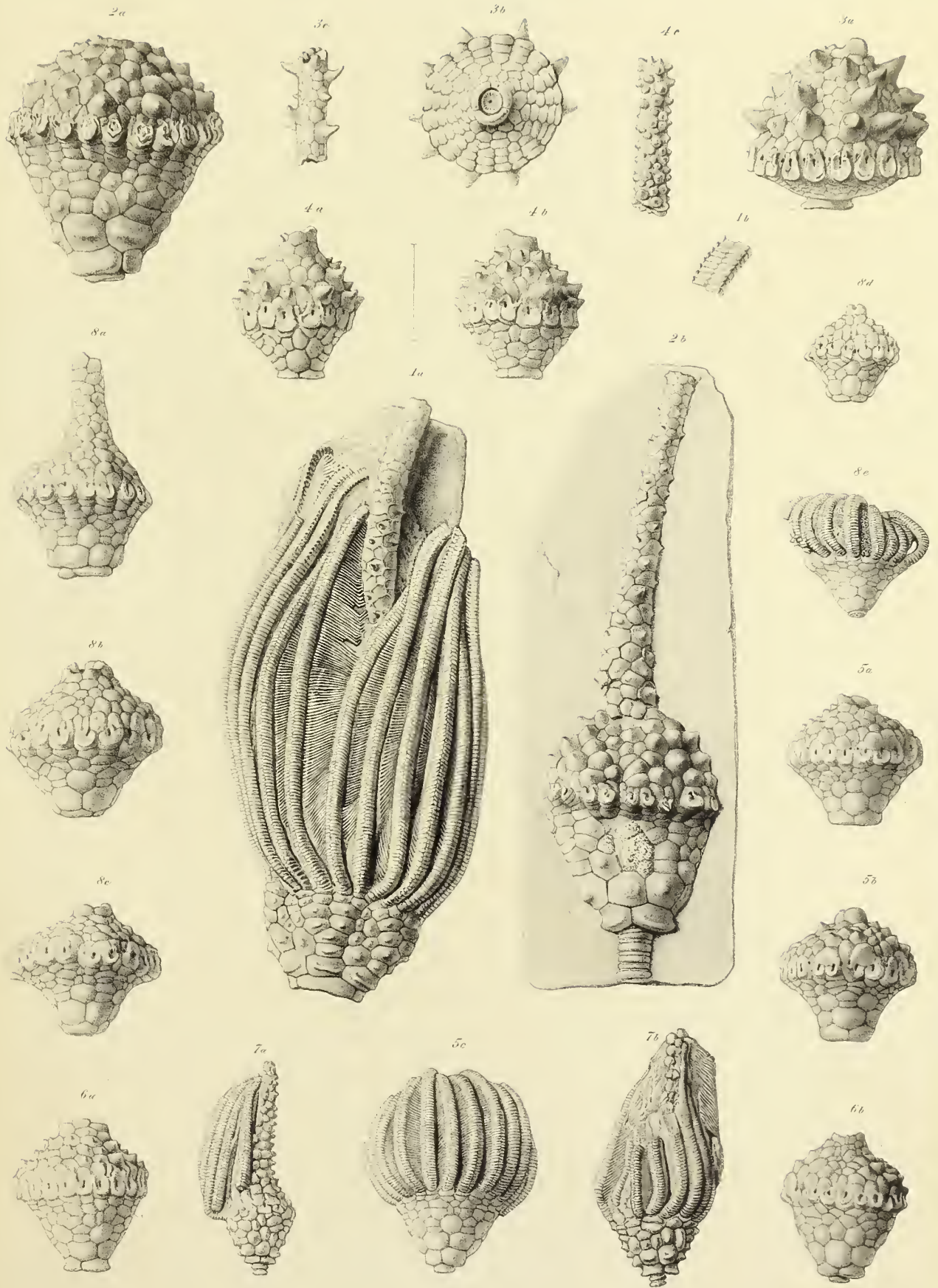


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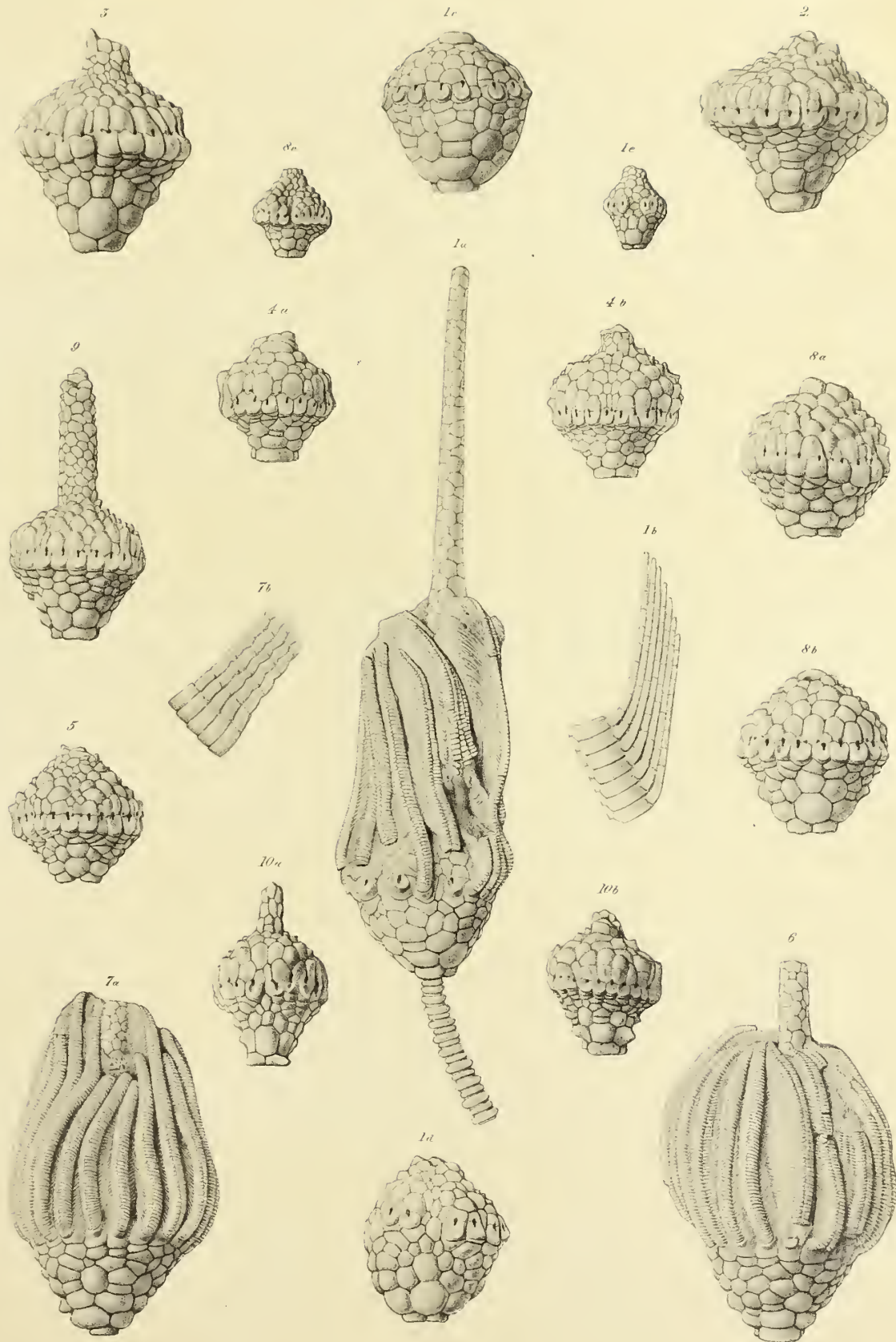
(All the specimens are in the collection of Wachsmuth and Springer, except that of Fig. 1*a*, which is in the Lyon collection.)



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(All specimens in the collection of Wachsmuth and Springer.)

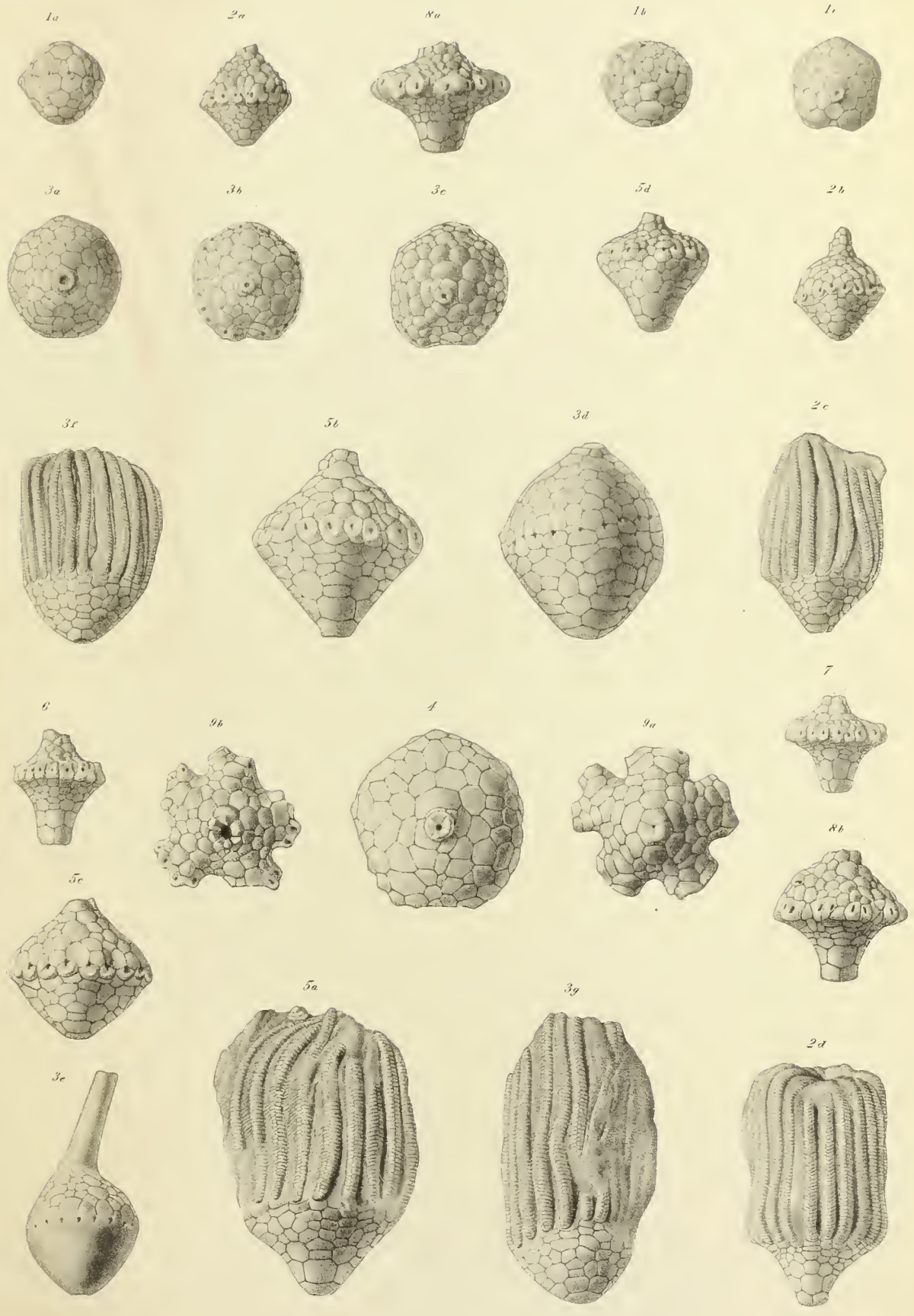
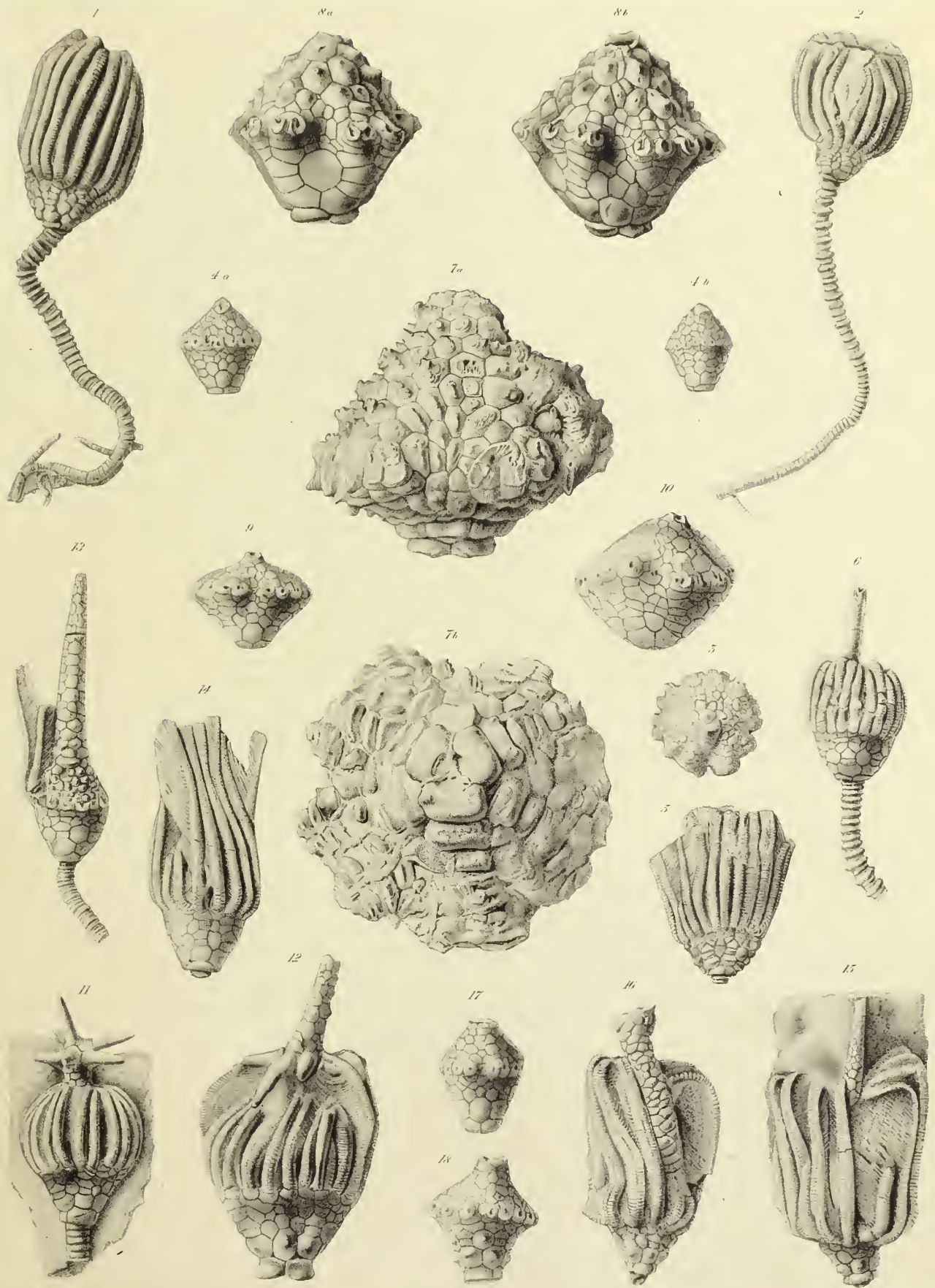


PLATE XXX.

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17. Posterior side of the calyx; the plates but little convex.	
18. Anterior side of the calyx; a very large, nodose specimen.	

(All the specimens in the collection of Wachsmuth and Springer, except that of Fig. 7, which is in the Lyon collection.)

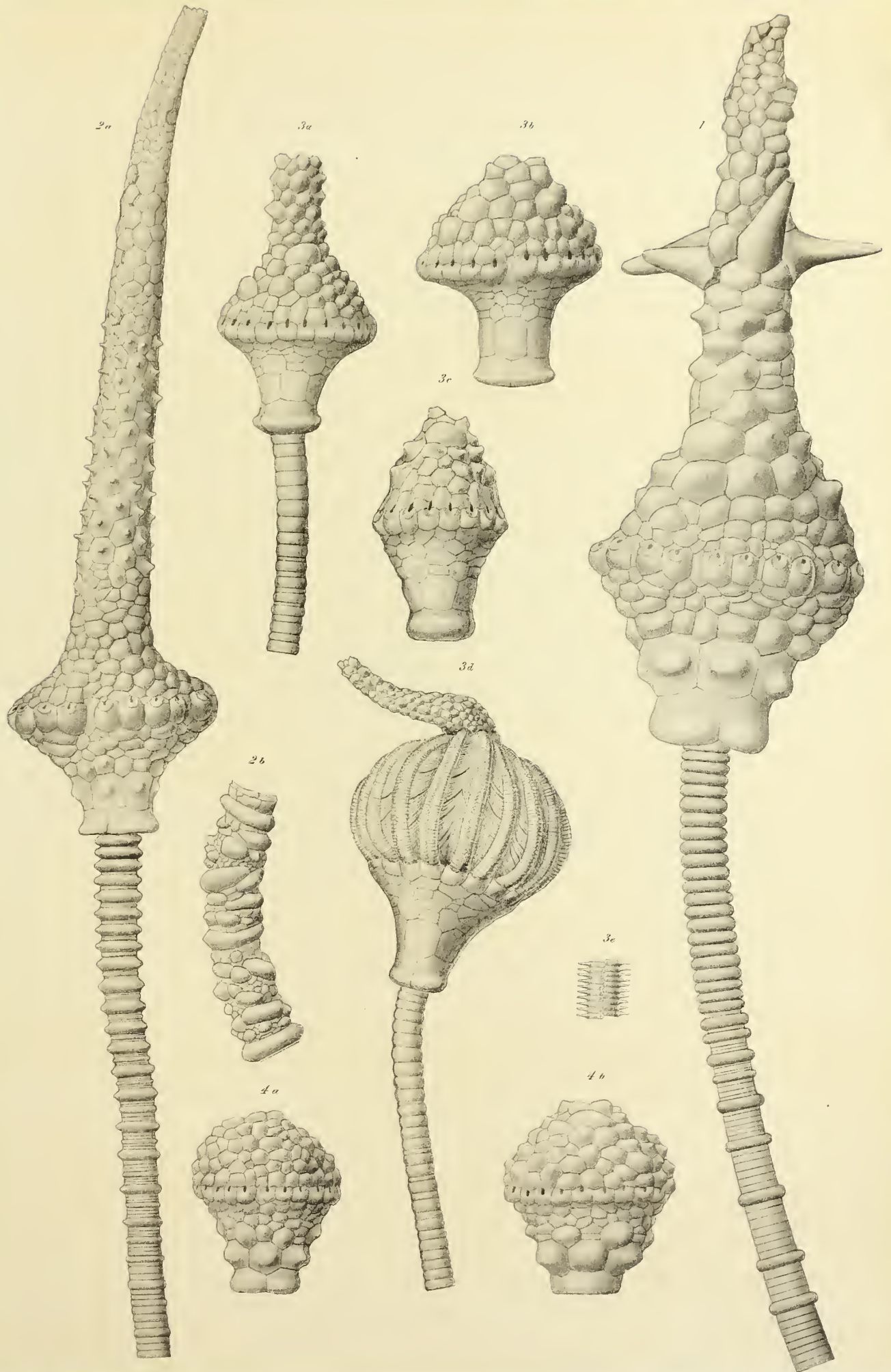


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(All the specimens in the collection of Wachsmuth and Springer.)



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PLATE XXXII.

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(All specimens in the collection of Wachsmuth and Springer.)	

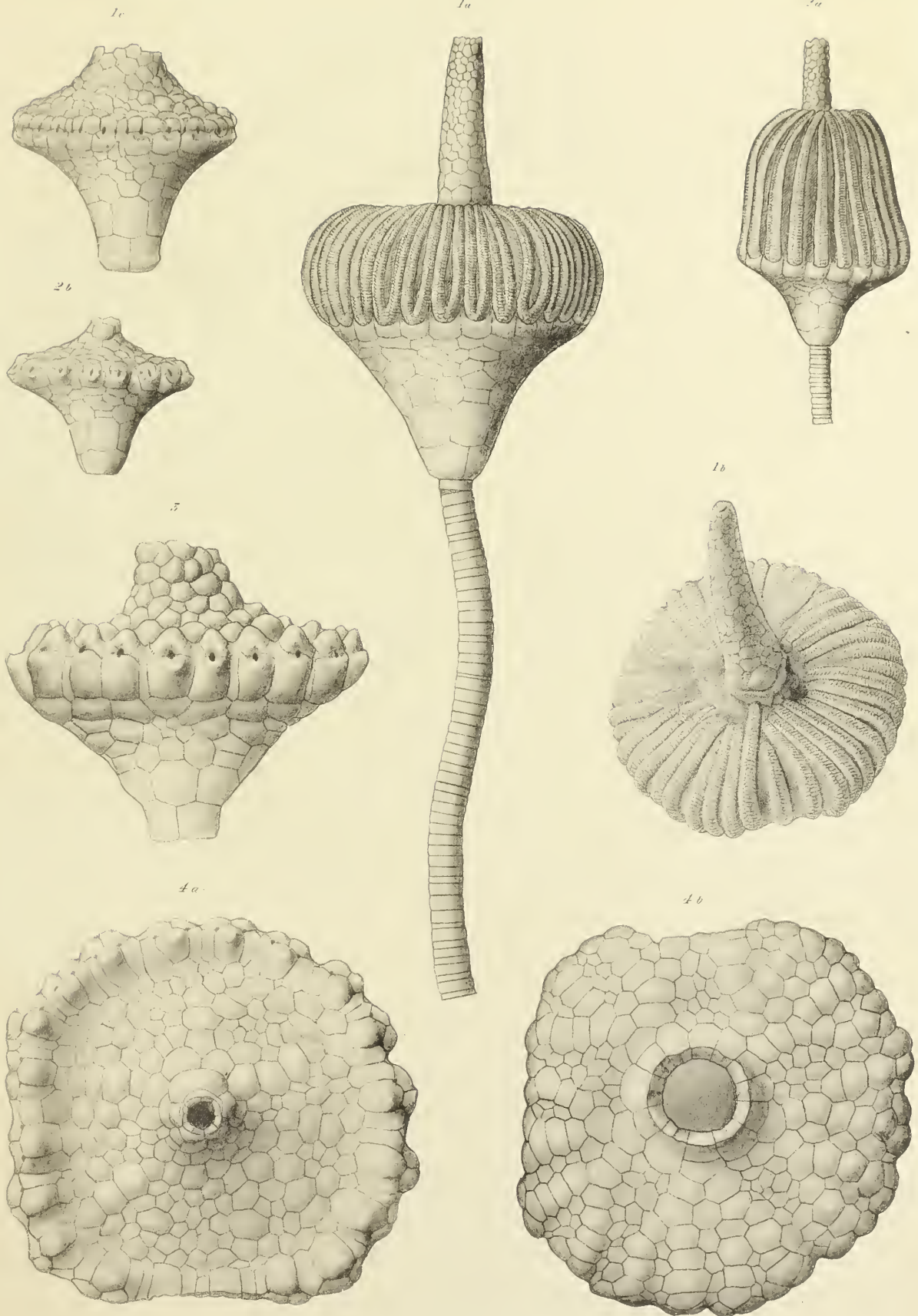
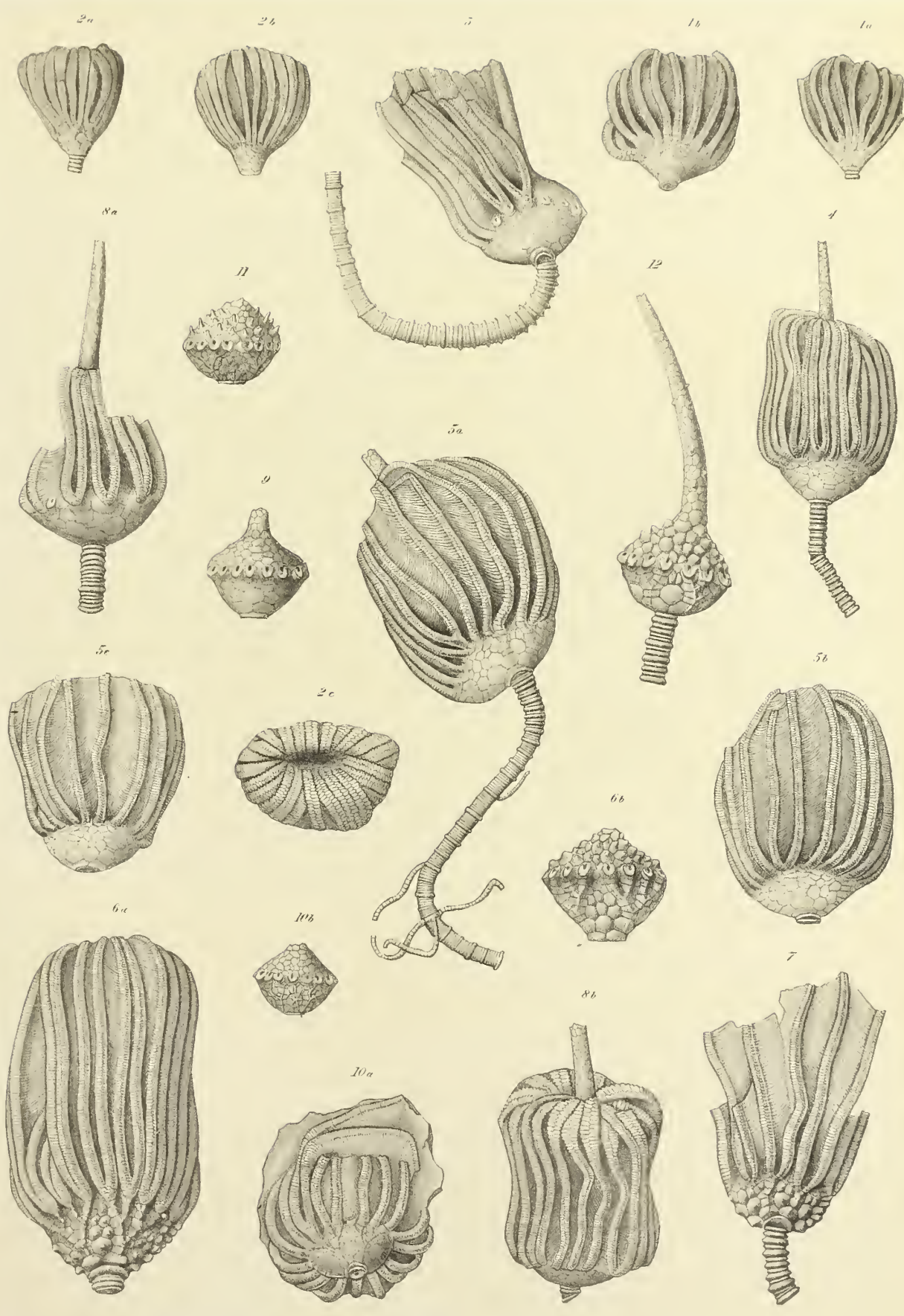


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(All specimens in the collection of Wachsmuth and Springer, unless otherwise stated.)



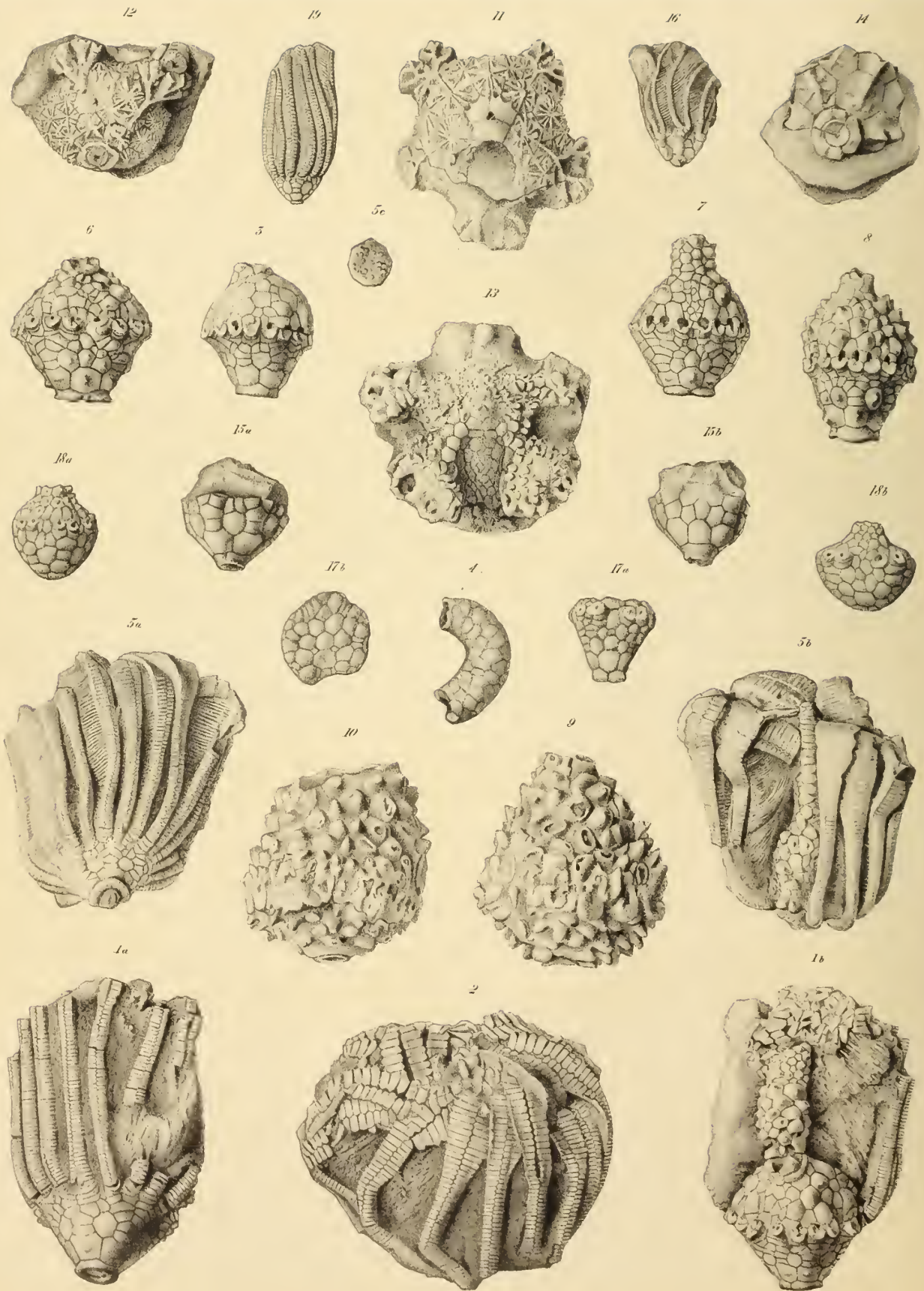


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18 <i>a</i> . Anterior view of the type specimen.	
18 <i>b</i> . Lateral view of the specimen described by Rowley and Hare as <i>Batocrinus bulbosus</i> .	
DIZYGOCRINUS GURLEYI (S. A. Miller)	422
19. The type specimen.	

(All the specimens are in the collection of Wachsmuth and Springer, except those represented by Figs. 18*a* and 18*b*, which are in the possession of Mr. R. R. Rowley, and Fig. 19, which is owned by Mr. F. A. Sampson.)

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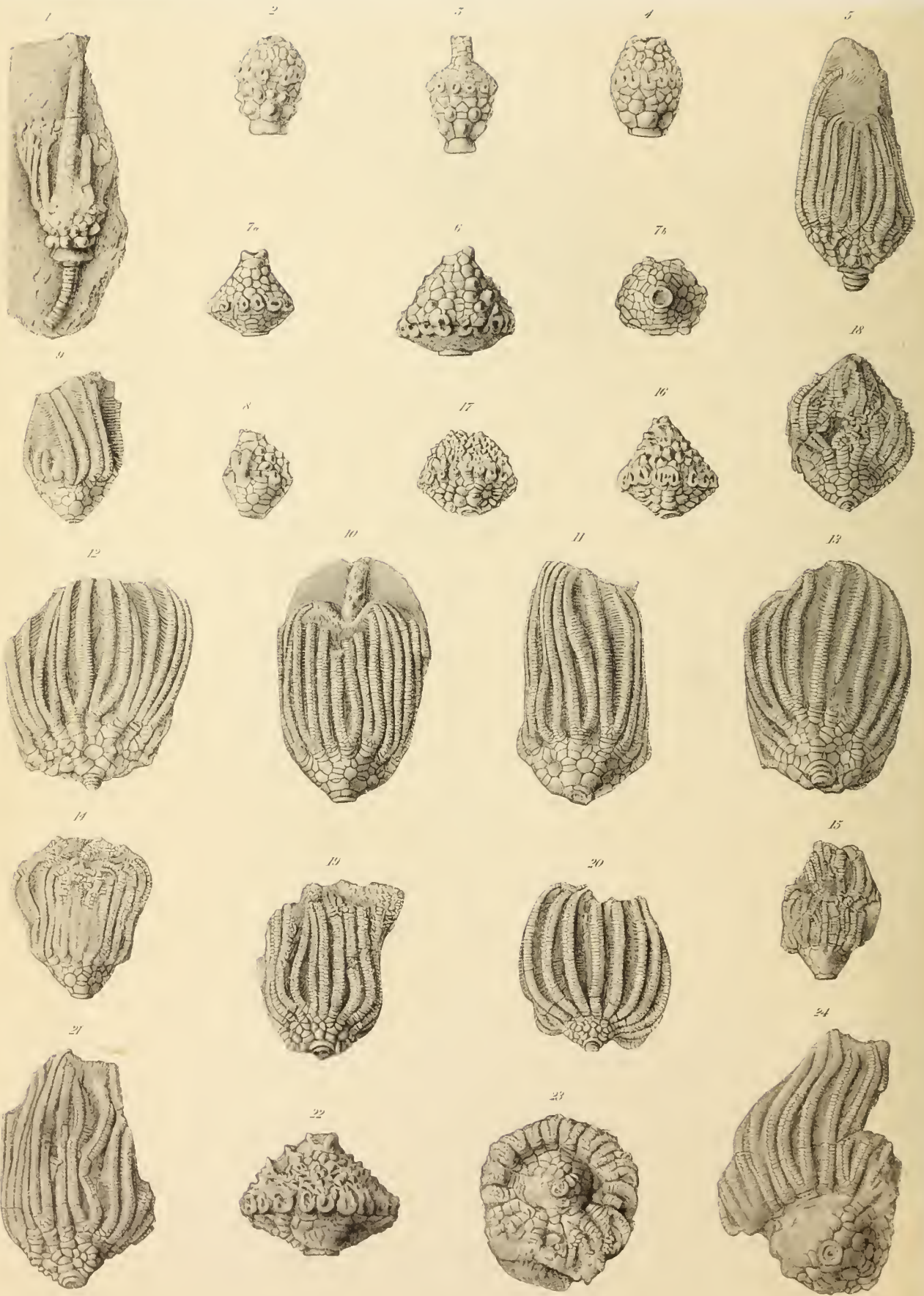


PLATE XXXV.

	PAGE
MACROCRINUS KONINCKI (Shumard)	447
Fig. 1. Specimen with anal tube, arms, and stem. (Mus. Comp. Zoöl.)	
2. Calyx, showing anal side.	
3. Another specimen, showing anterior side.	
MACROCRINUS LAGUNCULUS (Hall)	453
4. Calyx, postero-lateral side.	
DIZYGOCRINUS INDIANENSIS (Lyon).	415
5. The arms of the two posterior rays nearly all paired; those of the three anterior rays mostly single in the specimen.	
DIZYGOCRINUS DECORIS (Miller)	420
6. Calyx, in a side view.	
DIZYGOCRINUS EUCONUS (Meek and Worthen).	430
7a. Calyx, showing the postero-lateral ray, and the anal interradius. (A specimen from Taylor Co., Ky.)	
7b. Dorsal aspect of the same specimen.	
DIZYGOCRINUS MUTABILIS W. and Sp.	429
8. Anterior side of the calyx.	
9. Specimen with arms in a side view.	
10. Specimen with anal tube, and most of the arms paired.	
11. Specimen in which one half of the arms are single.	
DIZYGOCRINUS WHITEI var. DIDACTYLUS W. and Sp.	420
12. Specimen with the arms all paired.	
13. Specimen in which most of the arms are single.	
DIZYGOCRINUS ORIGINARIUS var. ADULTUS W. and Sp.	422
14. Specimen with most of the arms paired.	
15. Another in which most of the arms are single.	
DIZYGOCRINUS UNIONENSIS (Worthen).	424
16. Anterior side of calyx.	
17. Anal side of a crushed specimen.	
18. Side view of another specimen.	
19. Posterior side of a specimen with arms.	
20. Another specimen, showing posterior side.	

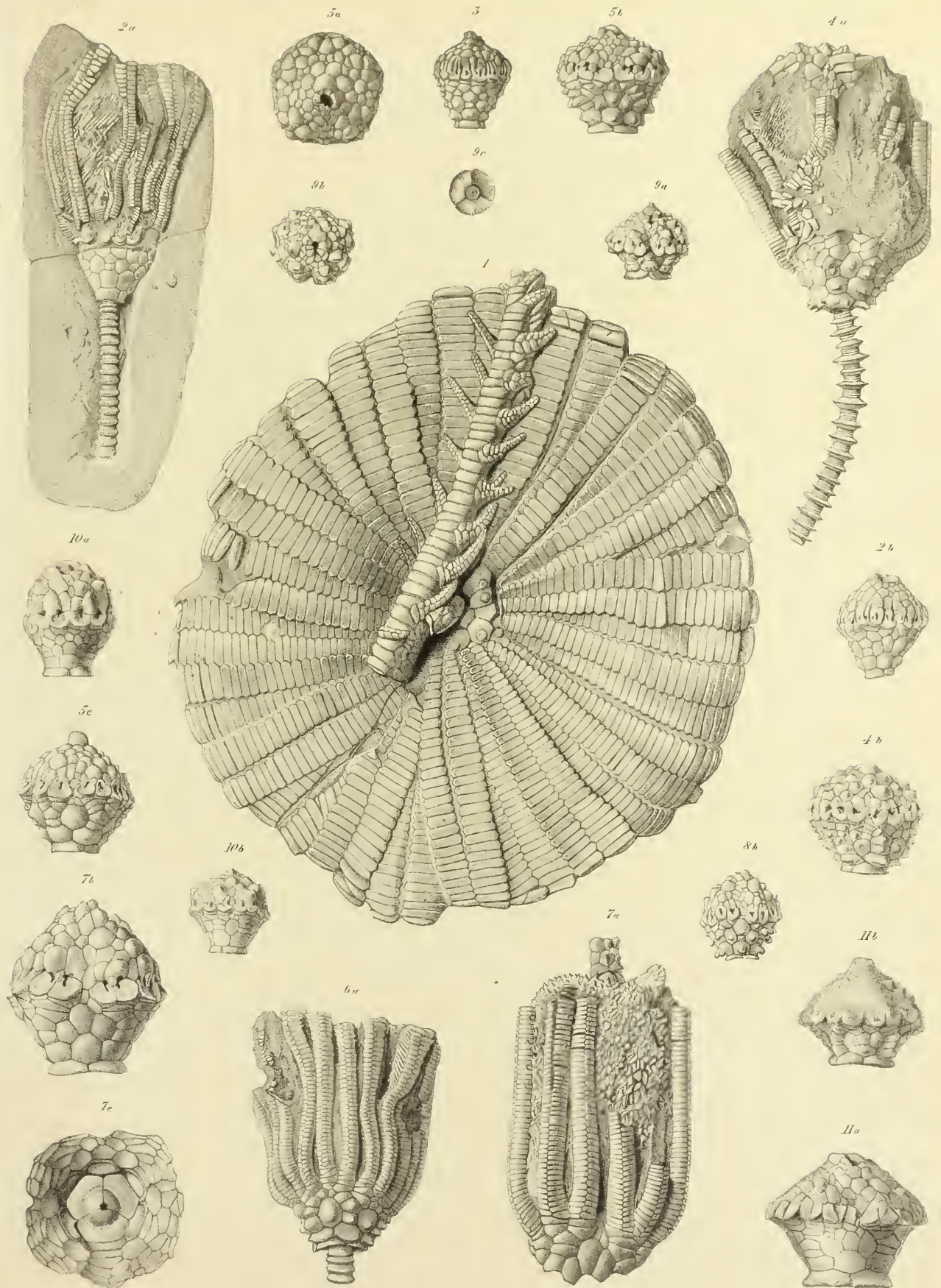
- Fig. 21. Specimen with arms, showing anterior side; the arms alternately paired.
22. Side view of the calyx.
23. Dorsal aspect of a specimen in which all the arms are paired.
24. Specimen with some of the arms paired.

(All specimens in the collection of Wachsmuth and Springer, unless otherwise stated.)

PLATE XXXVI.

	PAGE
ERETMOCRINUS REMIBRACHIATUS var. EXPANSUS W. and Sp.	390
Fig. 1. Ventral aspect of a large specimen, showing the folding of the arms. The radial trunk of an <i>Eucladocrinus millebrachiatus</i> lying on top.	
ERETMOCRINUS CLIO (Hall).	393
2a. Specimen with arms and column.	
2b. Posterior side of the calyx.	
ERETMOCRINUS NEGLECTUS (Meek and Worthen)	394
3. Anterior side of the calyx.	
ERETMOCRINUS CLÆLIA (Hall)	398
4a. Specimen with arms and column.	
4b. Side view of a somewhat crushed specimen.	
ERETMOCRINUS CORBULIS (Hall)	399
5a. Ventral aspect of the calyx.	
5b. Dorsal aspect of the same.	
5c. Lateral view of another specimen.	
6. Fine specimen with arms.	
ERETMOCRINUS LEUCOSIA (Hall)	401
7a. Specimen with part of arms (basals and radials not preserved).	
7b. Posterior side of the calyx.	
7c. Dorsal aspect of the same.	
MACROCRINUS GEMMIFORMIS (Hall)	449
8. Posterior side of the calyx.	
ERETMOCRINUS RUGOSUS W. and Sp.	402
9a. Posterior side of the type specimen.	
9b. Ventral aspect of the calyx. (Same specimen.)	
9c. The base of the same specimen.	
ERETMOCRINUS MINOR W. and Sp.	391
10a. Posterior side of the type specimen.	
10b. Antero-lateral side of another specimen.	
ERETMOCRINUS DEPRESSUS W. and Sp.	392
11a. Posterior side of the type specimen.	
11b. Posterior side of a smaller specimen, with more convex plates.	

(All the specimens in the collection of Wachsmuth and Springer.)



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PLATE XXXVII.

	PAGE
ERETMOCRINUS REMIBRACHIATUS var. EXPANSUS W. and Sp.	390
Fig. 1a. Specimen from the Burlington and Keokuk transition bed; dorsal aspect.	
1b. Side view of the calyx; from same bed.	
ERETMOCRINUS REMIBRACHIATUS (Hall).	388
2a. Lateral view of a specimen from the Upper Burlington Limestone.	
2b. Another example from the same bed.	
ERETMOCRINUS MAGNIFICUS Lyon and Cass	386
3. A large specimen, with rows of angular nodes following the rays and their subdivisions.	
ERETMOCRINUS RAMULOSUS (Hall)	387
4a. Posterior side of a large calyx from Tennessee.	
4b. Dorsal aspect of a highly ornamented specimen from Iowa.	
5a. Arm fragment, probably belonging to this species (from Tennessee).	
5b. Cross-section of it.	
5c. Upper portion of another arm fragment from the same locality.	
5d. The cross-section.	
ERETMOCRINUS MATUTA (Hall)	396
6a. Specimen with arms; the anal tube bent outward.	
6b. Specimen showing the natural curving of the anal tube.	
6c. A large calyx.	
ERETMOCRINUS CORONATUS (Hall)	403
7a. Dorsal aspect of the calyx.	
7b. Anterior side of same.	
7c. Ventral aspect of another specimen.	
MACROCRINUS CARICA (Hall)	448
8. Anterior side of the calyx.	
ERETMOCRINUS CLIO (Hall).	393
9a. Anterior side of the calyx.	
9b. Ventral aspect of a more lobate specimen.	

(All specimens in the collection of Wachsmuth and Springer.)

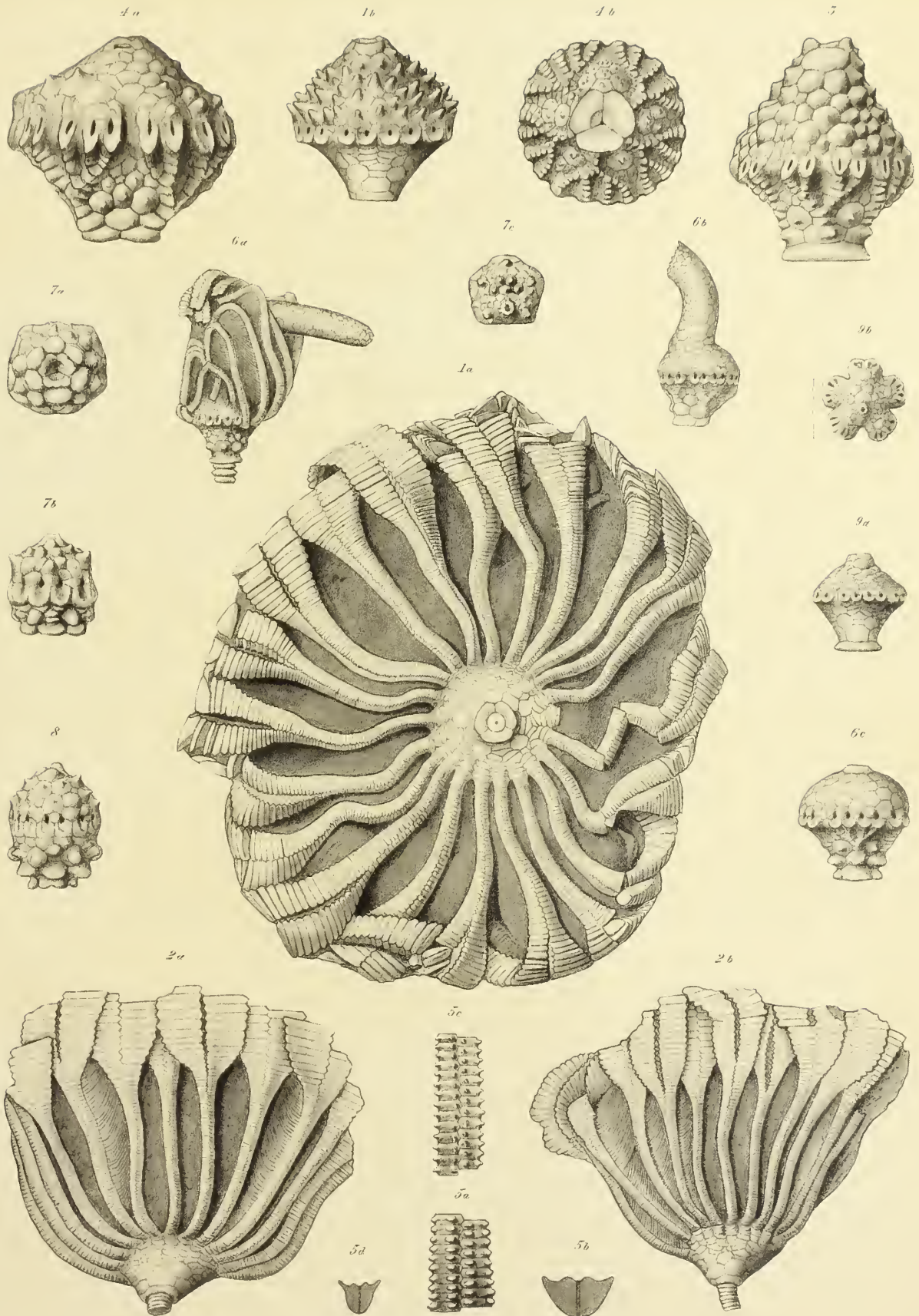


PLATE XXXVIII.

	PAGE
AGARICOCRINUS CONVEXUS (Hall)	508
Fig. 1 <i>a</i> . Side view of the calyx, and portions of the arms.	
1 <i>b</i> . Ventral aspect of the calyx.	
AGARICOCRINUS BREVIS (Hall)	511
2 <i>a</i> . A fine specimen with arms.	
2 <i>b</i> . Ventral aspect of the calyx.	
2 <i>c</i> . Posterior side of the calyx.	
2 <i>d</i> . Dorsal aspect of the calyx.	
2 <i>e</i> . Side view of the calyx.	
AGARICOCRINUS FISCELLUS (Hall)	512
3 <i>a</i> . Dorsal view of the calyx.	
3 <i>b</i> . Ventral aspect of the same specimen.	
3 <i>c</i> . Postero-lateral side of same.	
AGARICOCRINUS PYRAMIDATUS (Hall)	512
4 <i>a</i> . Specimen with arms.	
4 <i>b</i> . Dorsal aspect of the calyx.	
4 <i>c</i> . Ventral aspect of the calyx.	
5 <i>a</i> . Posterior side of a young specimen.	
5 <i>b</i> . Dorsal view of same.	
5 <i>c</i> . Ventral aspect of same.	
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AGARICOCRINUS STELLATUS Hall	508
7 <i>a</i> . Dorsal view of a specimen with arms.	
7 <i>b</i> . A small specimen with arms.	
7 <i>c</i> . Dorsal aspect of the calyx.	
7 <i>d</i> . Another specimen, showing the anal side.	
7 <i>e</i> . The same, showing the ventral aspect of the calyx.	

(All figures from specimens in the collection of Wachsmuth and Springer.)

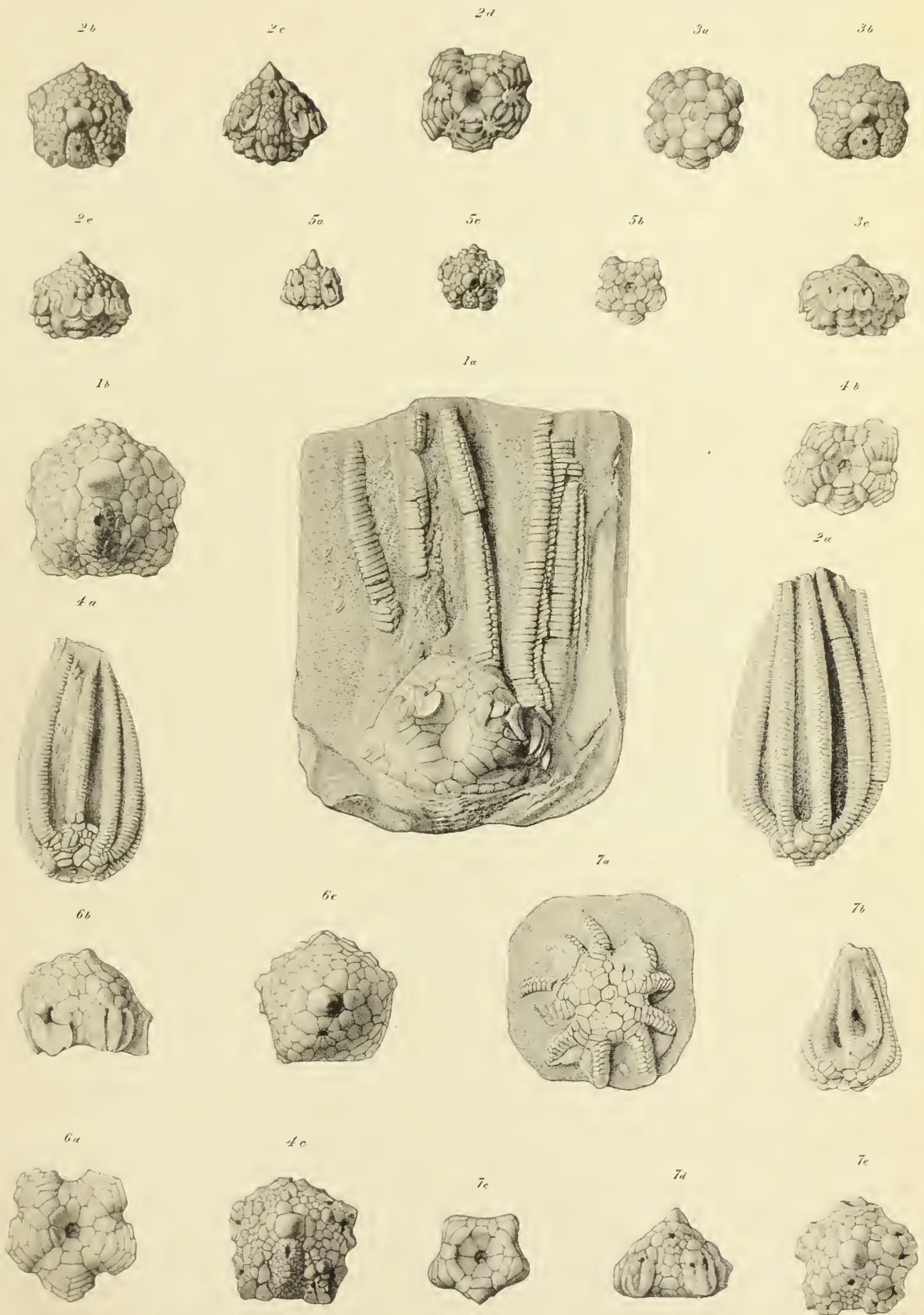
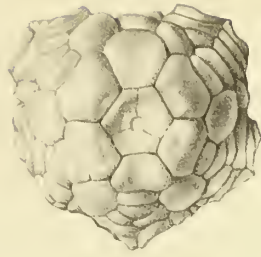


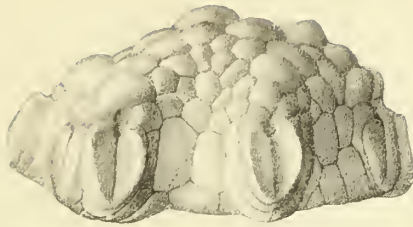
PLATE XXXIX.

	PAGE
AGARICOCRINUS COREYI (L. and C.)	510
Fig. 1 <i>a</i> . Basal view of the type specimen. (Lyon collection.)	
1 <i>b</i> . Side view of the same.	
AGARICOCRINUS CRASSUS Wetherby	499
2 <i>a</i> . Side view of a large specimen. (Coll. L. A. Cox.)	
2 <i>b</i> . Dorsal aspect of the same specimen.	
AGARICOCRINUS EXCAVATUS Hall	491
3. Side view of a specimen with greatly protruding anus. (Coll. W. and Sp.)	
4. Dorsal aspect of another specimen. (Same collection.)	
5. Dorsal aspect of another. (Same collection.)	
AGARICOCRINUS NODULOSUS, var. MACADAMSI Worthen	498
6. Side view of a large specimen. (Same collection.)	
AGARICOCRINUS CONICUS W. and Sp.	501
7. A fine specimen with <i>Myzostoma</i> (?) cysts on two arms.	
8. Posterior view of the calyx. (Both specimens in the coll. W. and Sp.)	
AGARICOCRINUS WORTHENI Hall	490
9. Dorsal aspect of a specimen in which the second costals are produced into large nodes. (Coll. L. A. Cox.)	

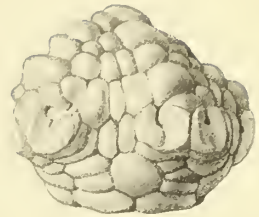
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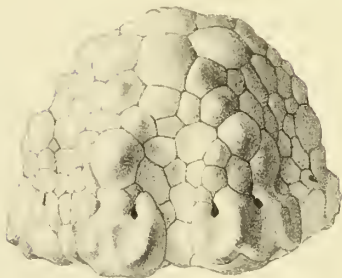
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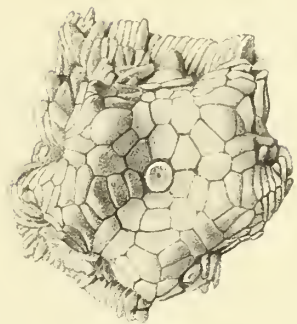
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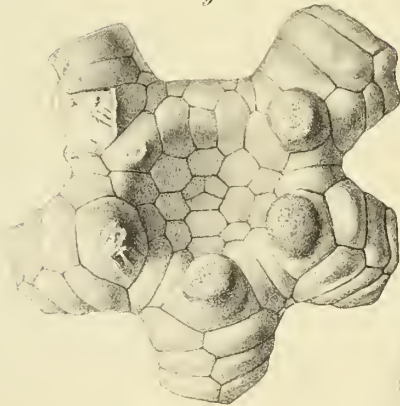
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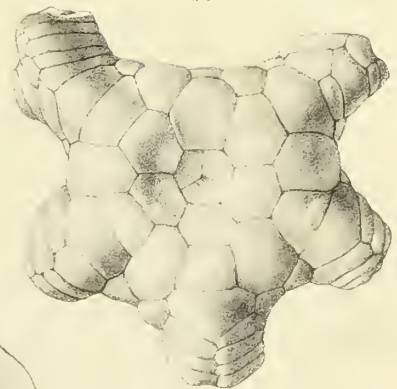
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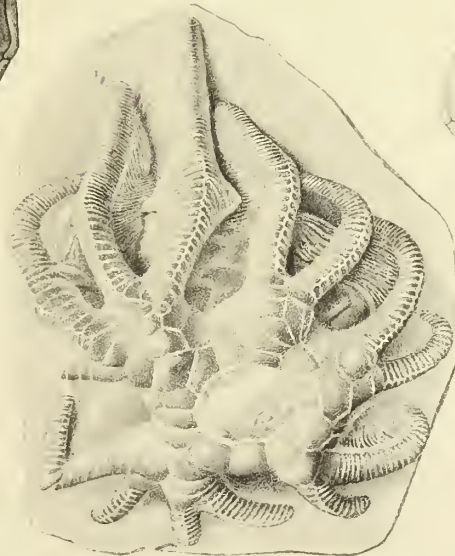
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2b



7



8



4

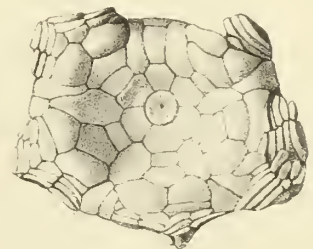
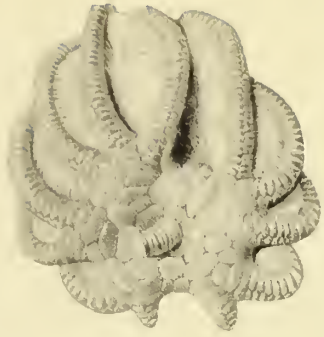


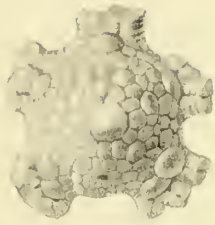
PLATE XL.

	PAGE
AGARICOCRINUS SPLENDENS S. A. Miller	495
Fig. 1 <i>a</i> . A large specimen with arms and stem.	
1 <i>b</i> . Dorsal aspect of another specimen.	
1 <i>c</i> . Ventral aspect of the calyx.	
(?) AGARICOCRINUS NODULOSUS Worthen	497
2. Dorsal aspect of a very smooth specimen with portions of the arms, from Canton, Ind.	
AGARICOCRINUS ELEGANS Wetherby	500
3 <i>a</i> . Dorsal aspect of a specimen from Hamilton, Ill.	
3 <i>b</i> . Ventral aspect of the same.	
AGARICOCRINUS CRASSUS Wetherby	499
4. Tegmen of a small specimen from Tennessee; the food grooves of the posterior rays covered by large alternate plates.	
AGARICOCRINUS WORTHENI Hall	490
5 <i>a</i> . Posterior side of a large specimen.	
5 <i>b</i> . Anterior side of the same.	
5 <i>c</i> . Dorsal aspect of same.	
5 <i>d</i> . Ventral aspect of same.	
AGARICOCRINUS AMERICANUS, var. TUBEROSUS (Hall)	489
6. Dorsal aspect of the calyx.	
(All the specimens in the collection of Wachsmuth and Springer, except that of Fig. 5, which is in the Museum of Comparative Zoölogy.)	

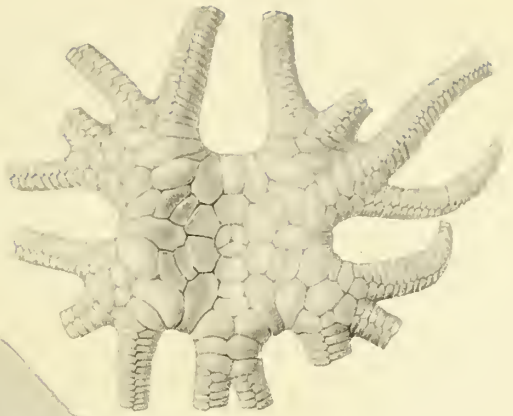
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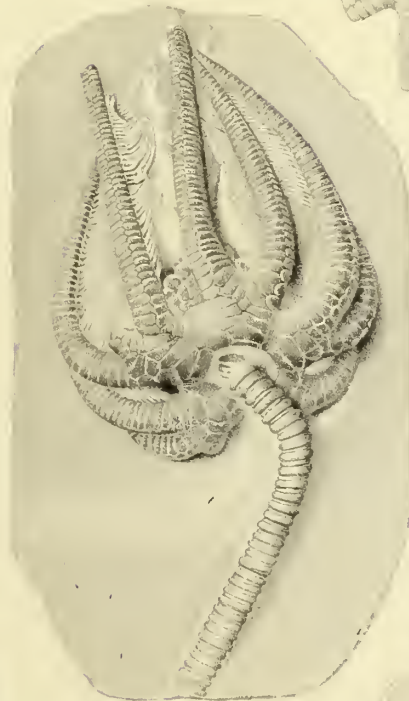
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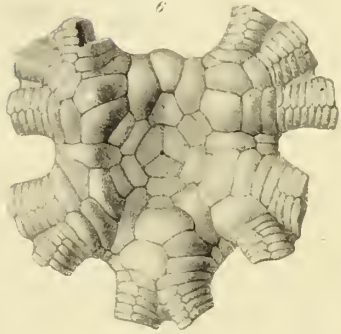
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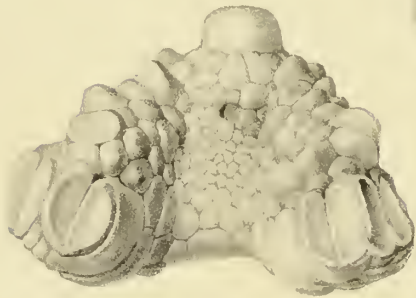
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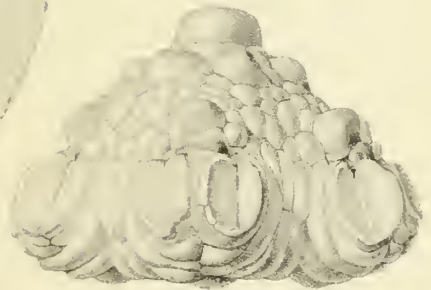
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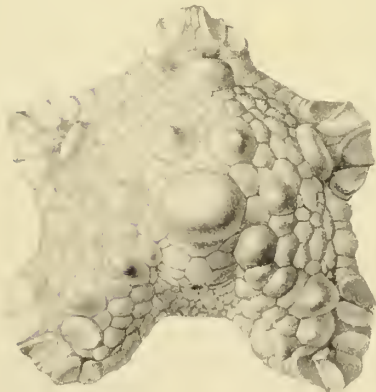
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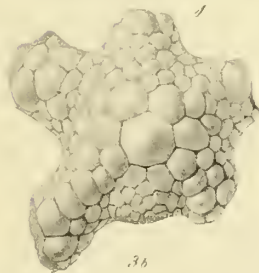
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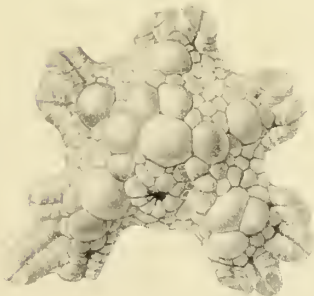
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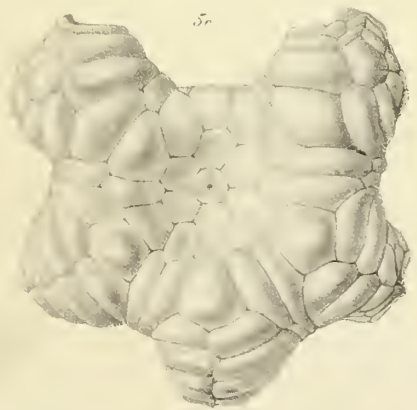
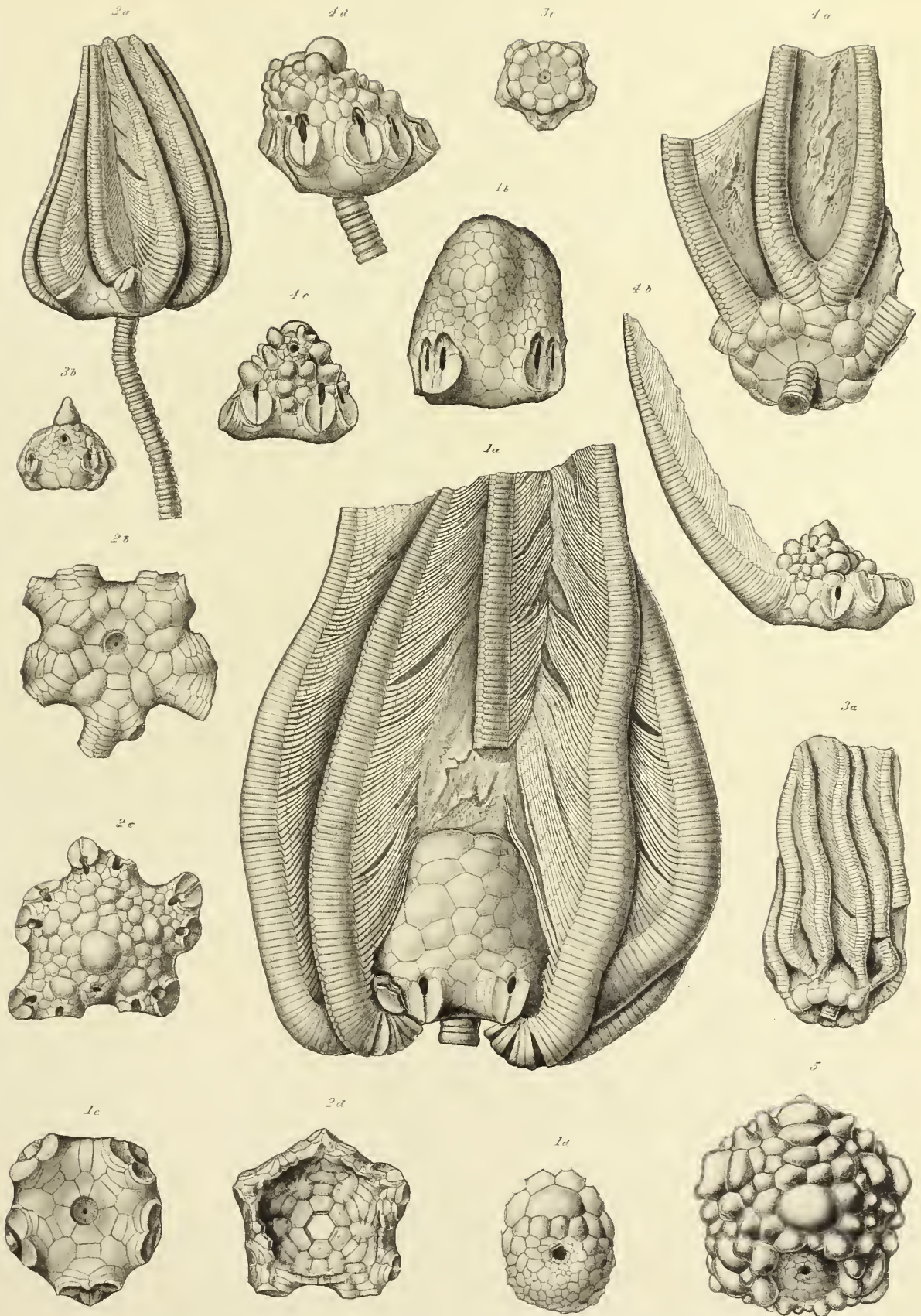


PLATE XLI.

	PAGE
AGARICOCRINUS INFLATUS Hall	502
Fig. 1 <i>a</i> . A large specimen with arms (the arms slightly restored.)	
1 <i>b</i> . Posterior side of the calyx.	
1 <i>c</i> . Dorsal aspect of another specimen.	
1 <i>d</i> . The summit of the tegmen.	
AGARICOCRINUS BULLATUS Hall	493
2 <i>a</i> . Specimen with arms and stem.	
2 <i>b</i> . Dorsal aspect of a large calyx.	
2 <i>c</i> . Ventral aspect of same.	
2 <i>d</i> . Inner floor of dorsal cup.	
AGARICOCRINUS GRACILIS M. and W.	513
3 <i>a</i> . A large specimen with arms	
3 <i>b</i> . Posterior side of calyx.	
3 <i>c</i> . Dorsal aspect of same.	
AGARICOCRINUS BELLATREMA Hall	506
4 <i>a</i> . A specimen with portions of the arms.	
4 <i>b</i> . Posterior side of the calyx with one arm attached.	
4 <i>c</i> . Posterior side of a smaller specimen.	
4 <i>d</i> . Side view of a large specimen.	
AGARICOCRINUS BELLATREMA, var. MAJOR W. and Sp.	507
5. Ventral aspect of a very nodose specimen.	

(All specimens in the collection of Wachsmuth and Springer.)



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PLATE XLII.

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AGARICOCRINUS AMERICANUS (Rømer)	488
Fig. 1. Specimen with arms, from Indiana.	
2a. Posterior side of the calyx (specimen from Tennessee).	
2b. Anterior side of another specimen (from the same locality).	
AGARICOCRINUS WHITFIELDI Hall	496
3. Ventral aspect of the calyx. (Illinois State collection.)	
AGARICOCRINUS AMERICANUS, var. TUBEROSUS (Hall)	489
4. Dorsal aspect of the calyx.	
DORYCRINUS CORNIGERUS (Hall)	458
5. Specimen with arms and stem.	
6. Postero-lateral view of calyx.	
DORYCRINUS QUINQUELOBUS Hall	460
7. Side view of the calyx; the spines broken away.	
8. Lateral view of a specimen with arms.	
9. Posterior side of calyx; the spines intact.	
DORYCRINUS SUBTURBINATUS Meek and Worthen	466
10a. Antero-lateral view of the calyx.	
10b. Posterior view of the calyx.	
AOROCRINUS CASSEDAYI (Lyon)	483
11a. Ventral aspect of the type specimen. (Lyon collection.)	
11b. Posterior side of the same.	
12. Side view of a specimen from Alpena, Mich.	
AOROCRINUS CONCAVUS (Meek and Worthen)	482
13a. Dorsal aspect of the type specimen. (Mus. Comp. Zool.)	
13b. Ventral aspect of the same.	
13c. Side view of same.	
ALLOPROSALLOCRINUS CONICUS Lyon and Cass.	407
14a. Anterior view of the calyx.	
14b. Posterior view of the same.	
14c. Dorsal aspect of same.	

(All specimens in the collection of Wachsmuth and Springer, unless otherwise stated.)

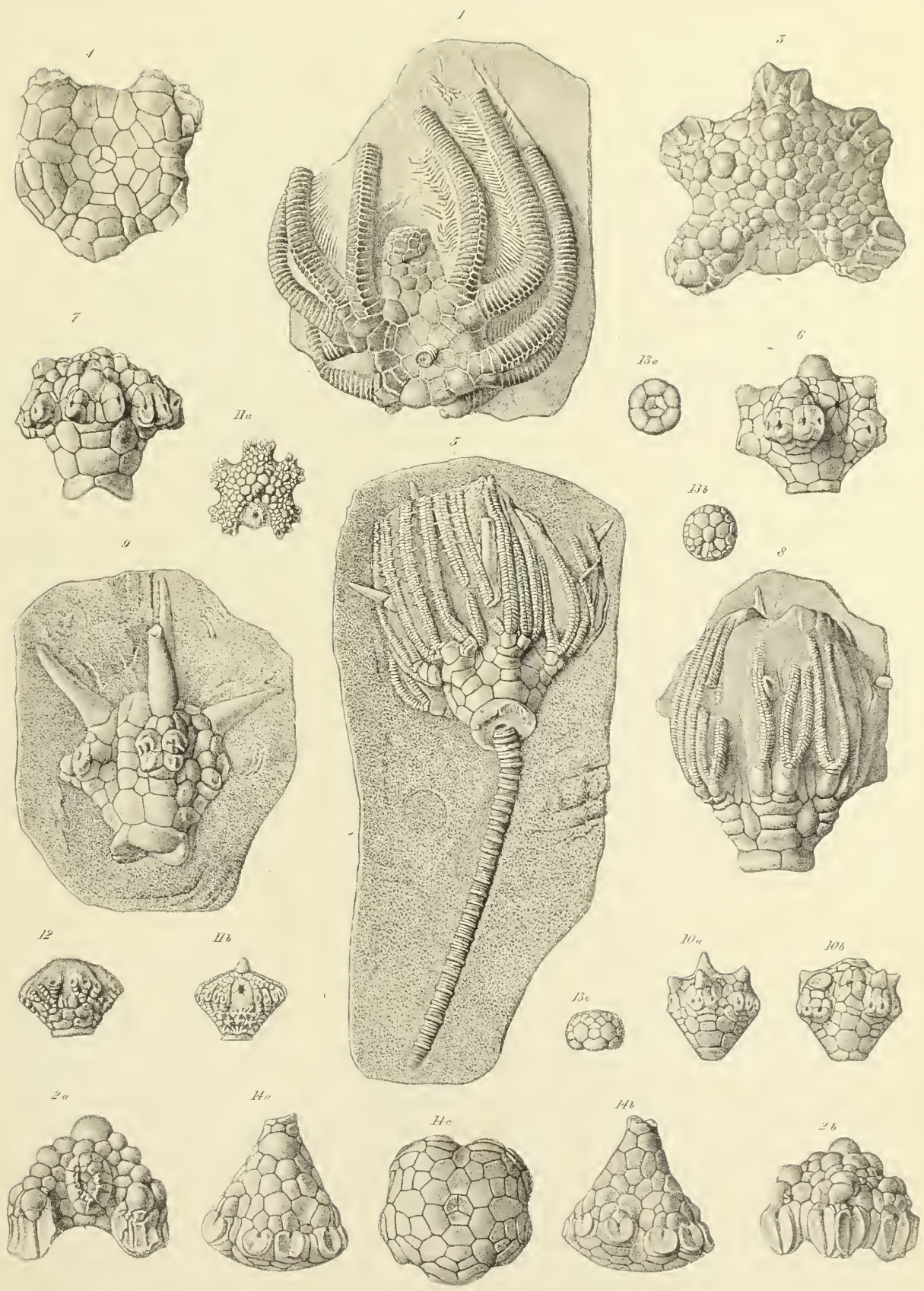


PLATE XLIII.

	PAGE
DORYCRINUS MISSISSIPPIENSIS F. Røemer	455
Fig. 1. Specimen with arms and stem. (Coll. Lisbon A. Cox.)	
DORYCRINUS GOULDI (Hall)	456
2. Large specimen with arms and stem. (Coll. W. and Sp.)	
3. A young specimen with arms. (Same collection.)	
AOROCRINUS SPINOSULUS (Hall)	478
4. Specimen with arms. (Coll. L. A. Cox.)	
DORYCRINUS CORNIGERUS (Hall).	458
5. Calyx, showing the anal side. (Coll. W. and Sp.)	
DORYCRINUS MISSOURIENSIS (Shumard)	463
6. Posterior side of the calyx with most of the spines intact. (Same collection.)	
AGARICOCRINUS NODULOSUS Worthen	497
7a. Dorsal aspect of the calyx. (Same collection.)	
7b. Ventral aspect of the calyx.	
AGARICOCRINUS WHITFIELDI Hall	496
8a. Dorsal aspect of the type specimen. (Illinois State collection.)	
8b. Ventral aspect of the same specimen.	
AGARICOCRINUS NODOSUS Meek and Worthen	493
9. Calyx and portion of the arms. (Coll. W. and Sp.)	

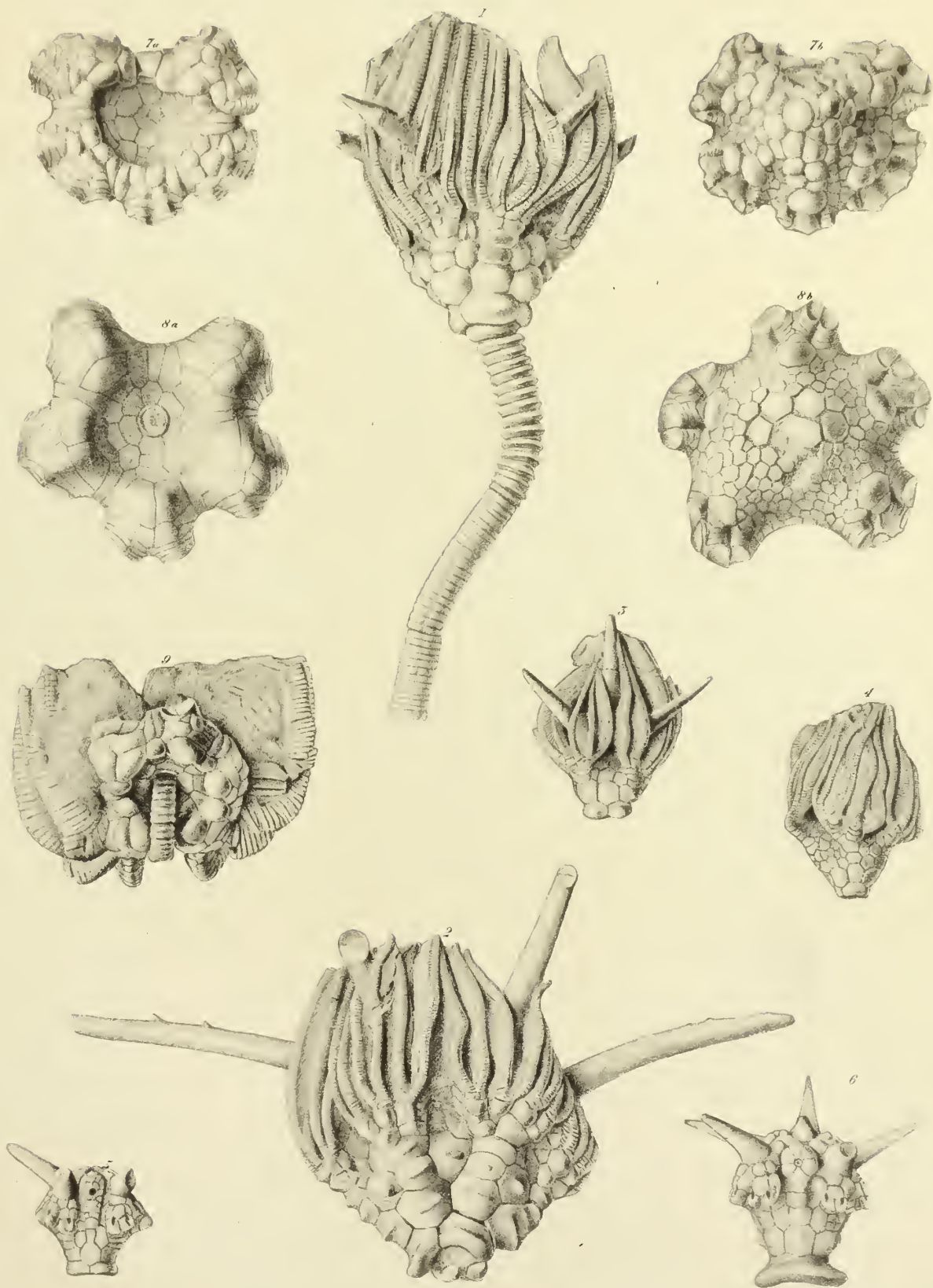
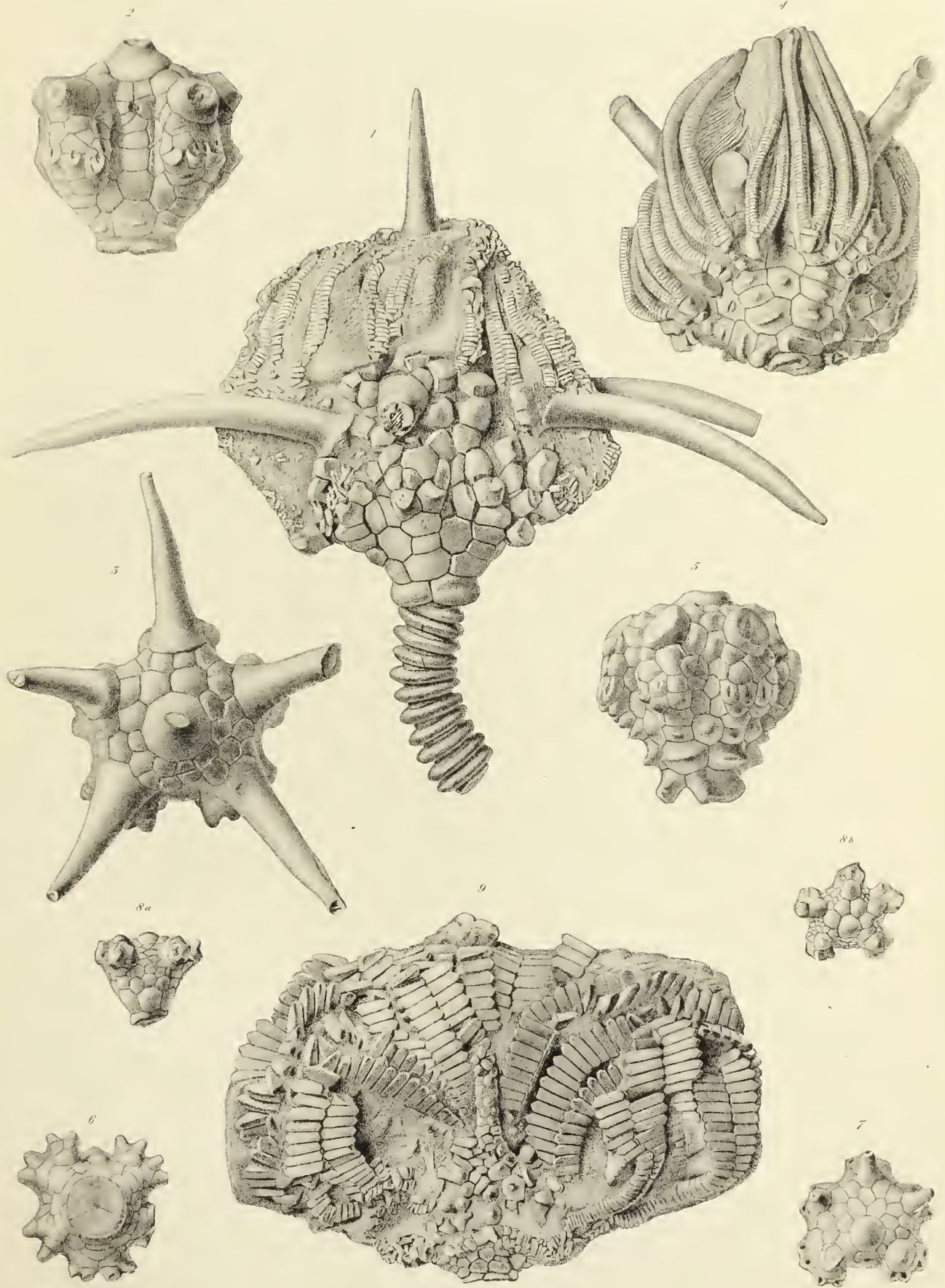


PLATE XLIV.

	PAGE
DORYCRINUS INTERMEDIUS Meek and Worthen	461
Fig. 1. Specimen with arms, spines, and stem.	
DORYCRINUS MISSISSIPPIENSIS Rømer	455
2. Posterior side of the calyx.	
3. Ventral aspect of a specimen with long spines.	
DORYCRINUS GOULDI (Hall)	456
4. A specimen having the arms and portions of the spines preserved (from Indian Creek, Ind.)	
5. Anterior view of the calyx. (Specimen from Kentucky.)	
DORYCRINUS CORNIGERUS (Hall)	458
6. Dorsal aspect of the calyx.	
7. Ventral aspect of another specimen.	
AOROCRINUS SPINOSULUS (Hall)	478
8a. Posterior side of the calyx.	
8b. Ventral aspect of the same specimen.	
ERETMOCRINUS REMIBRACHIATUS, var. EXPANSUS W. and Sp.	390
9. A large specimen, showing the calyx, anal tube, and the infolding of the arms.	
(All the specimens in the collection of Wachsmuth and Springer.)	



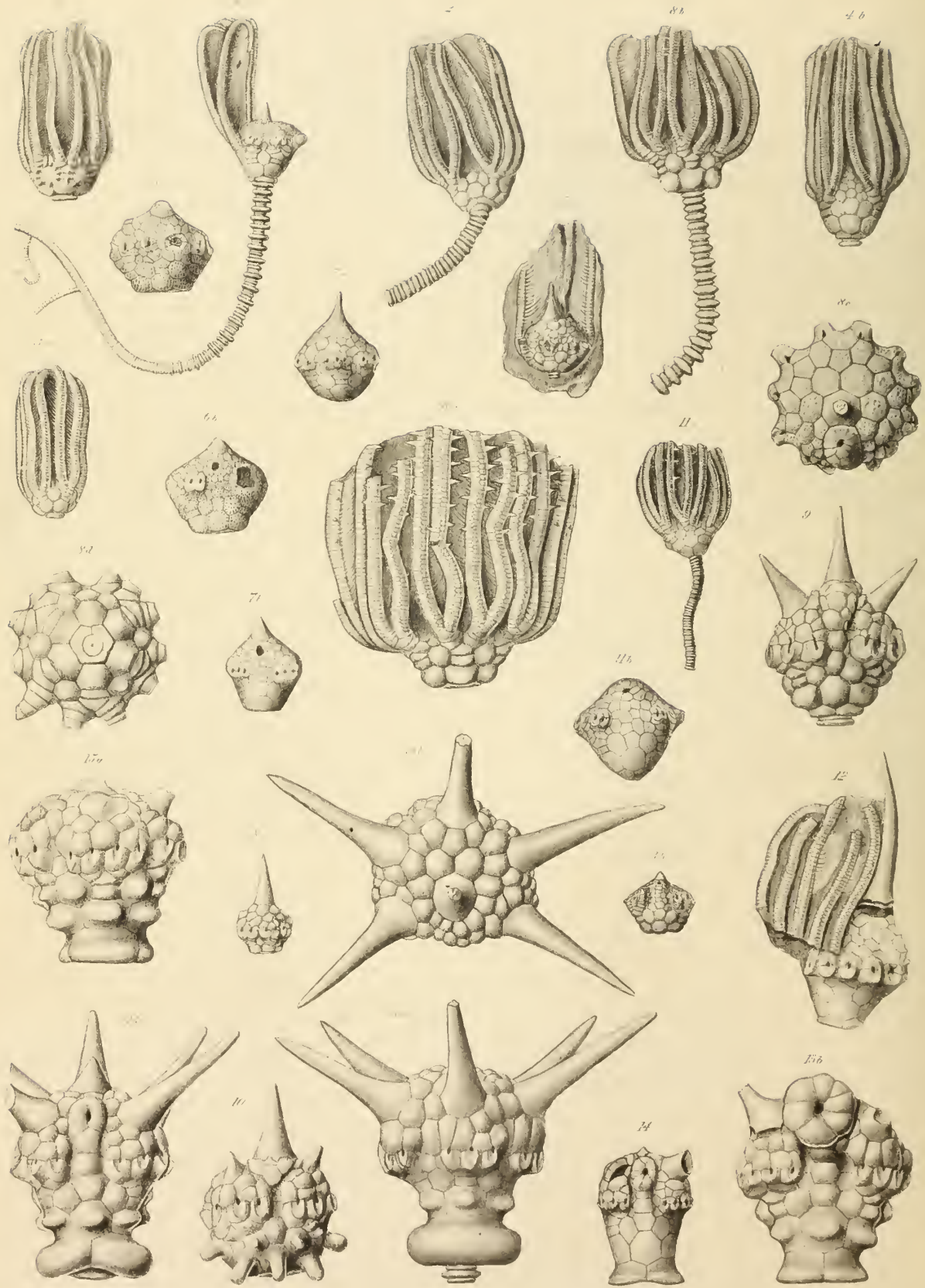


PLATE XLV.

	PAGE
AOROCRINUS RADIATUS W. and Sp.	472
Fig. 1. A specimen with arms; anterior side.	
AOROCRINUS HELICE (Hall).	481
2. Posterior view of the type specimen. (After Hall.)	
AOROCRINUS PARVIBASIS W. and Sp.	473
3a. Specimen with arms from the anterior side.	
3b. Posterior view of the calyx.	
AOROCRINUS IMMATURUS W. and Sp.	471
4a. Lateral view of specimen with part of the arms, and portions of stem and cirri preserved.	
4b. Posterior view of another specimen.	
AOROCRINUS HELICE (?).	481
5. Anterior view; from a gutta-percha cast made in the natural mould.	
AOROCRINUS CANALICULATUS M. and W.	475
6a. Anterior view of the type specimen. (After Meek and Worthen.)	
6b. Posterior view of the same. (After Meek and Worthen.)	
AOROCRINUS SUBACULEATUS (Hall)	476
7a. Anterior view of the calyx.	
7b. Posterior side of the same. (After Hall.)	
DORYCRINUS UNICORNIS (O. and Sh.)	468
8a. Anterior view of a specimen with arms.	
8b. The same view of a smaller specimen with part of the stem.	
8c. Ventral aspect of a large calyx.	
8d. Dorsal aspect of another large calyx.	
8e. Anterior view of a young specimen.	
9. Posterior view of the form described by Hall as <i>Actinocrinus tricornis</i> .	
10. The form described by Hall as <i>Actinocrinus pendens</i> ; anal side.	
AOROCRINUS PARVUS (Shumard)	477
11a. Specimen with arms and stem.	
11b. Posterior side of calyx of a large specimen.	

	PAGE
DORYCRINUS UNISPINA (Hall)	467
Fig. 12. Specimen with an unusually large spine and portions of the arms.	
DORYCRINUS MISSOURIENSIS (Shumard)	463
13 <i>a</i> . Anterior view of the calyx with spines intact.	
13 <i>b</i> . Ventral aspect of the same specimen.	
13 <i>c</i> . Posterior view of another specimen.	
14. An abnormal specimen; posterior side.	
DORYCRINUS RÆMERI M. and W..	464
15 <i>a</i> . Anterior view of the calyx.	
15 <i>b</i> . Posterior view of another specimen.	

(All specimens, except 6 and 7*b*, in the collection of Wachsmuth and Springer.)

PLATE XLVI.

	PAGE
(?) <i>PERIECHOCRINUS WHITEI</i> (Hall)	530
Fig. 1. A very large specimen from the Upper Burlington limestone. (Coll. W. and Sp.)	
2. A smaller specimen from the same bed. (Same collection.)	
3. Side view of the calyx. (Same horizon, and same collection.)	
(?) <i>PERIECHOCRINUS TENUIDISCUS</i> (Hall)	531
4. Lateral view of the dorsal cup. (Same collection.)	
<i>AGARICOCRINUS SAMPSONI</i> S. A. Miller	505
5. The type specimen. (Coll. F. A. Sampson.)	
<i>LOBOCRINUS ÆQUIBRACHIATUS</i> McChesney	440
6 <i>a</i> . Specimen with only eighteen arms. (Coll. W. and Sp.)	
6 <i>b</i> . Ventral aspect of the same specimen.	
<i>BATOCRINUS ROTADENTATUS</i> Rowley and Hare	374
7. The type specimen, showing the dorsal cup. (Coll. R. R. Rowley.)	
<i>BATOCRINUS CALVINI</i> Rowley	373
8 <i>a</i> . Side view of the type specimen. (Coll. R. R. Rowley.)	
8 <i>b</i> . Another view of the calyx, showing the anal interradius to the left.	
<i>DIZYGOCRINUS EUCONUS</i> , var. <i>ABSCISSUS</i> (Rowley and Hare)	431
9. Side view of the calyx. (Coll. W. and Sp.)	
<i>DIZYGOCRINUS MONTGOMERYENSIS</i> Worthen	428
10. Type of the synonym " <i>Batocrinus Gurleyi</i> " R. and H. (Coll. R. R. Rowley.)	
<i>ACTINOCRINUS</i> (?) <i>CHOUTEAUENSIS</i> S. A. Miller	570
11 <i>a</i> . Posterior view of the type specimen. (Coll. F. A. Sampson.)	
11 <i>b</i> . Ventral aspect of the same specimen.	

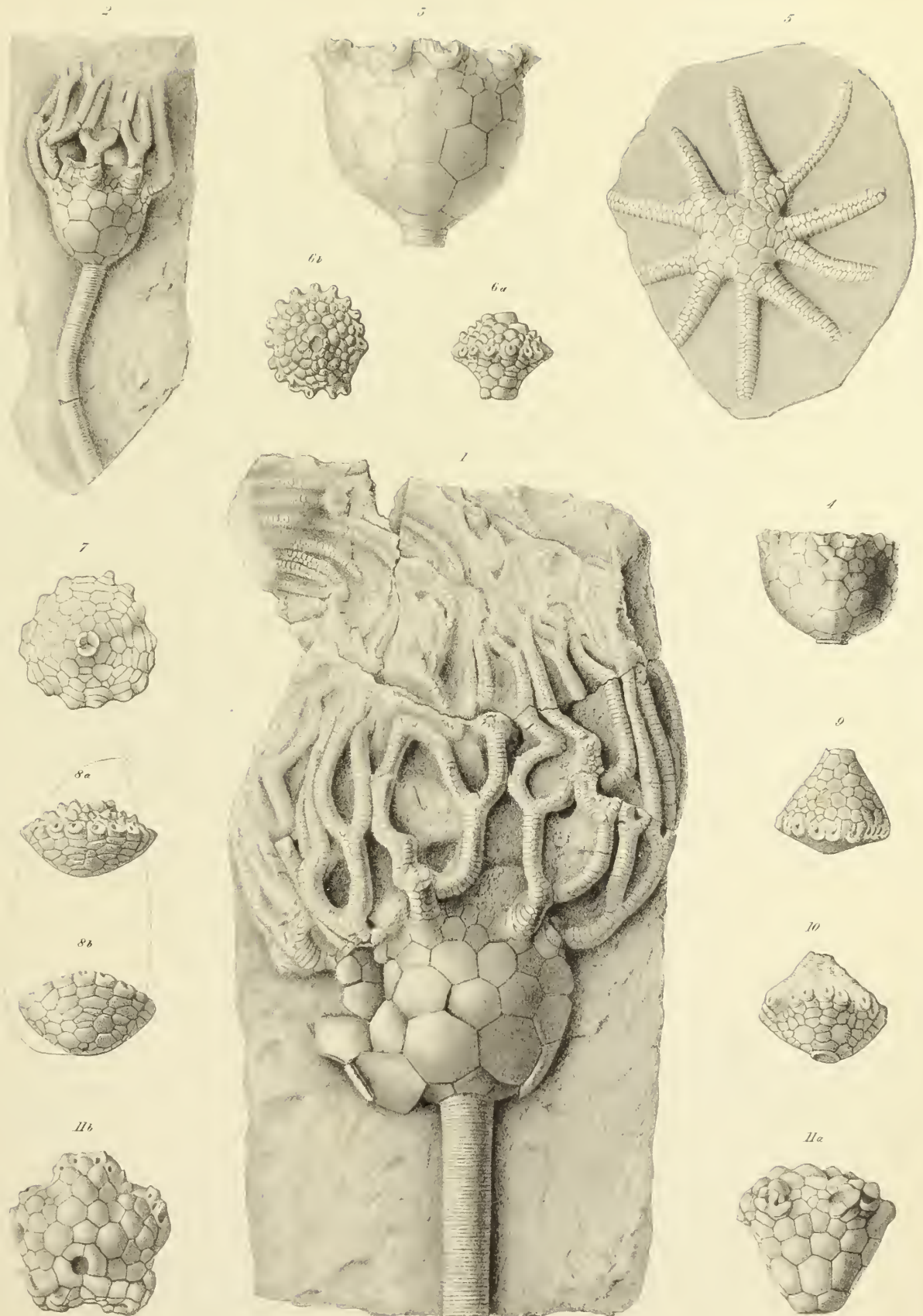


PLATE XLVII.

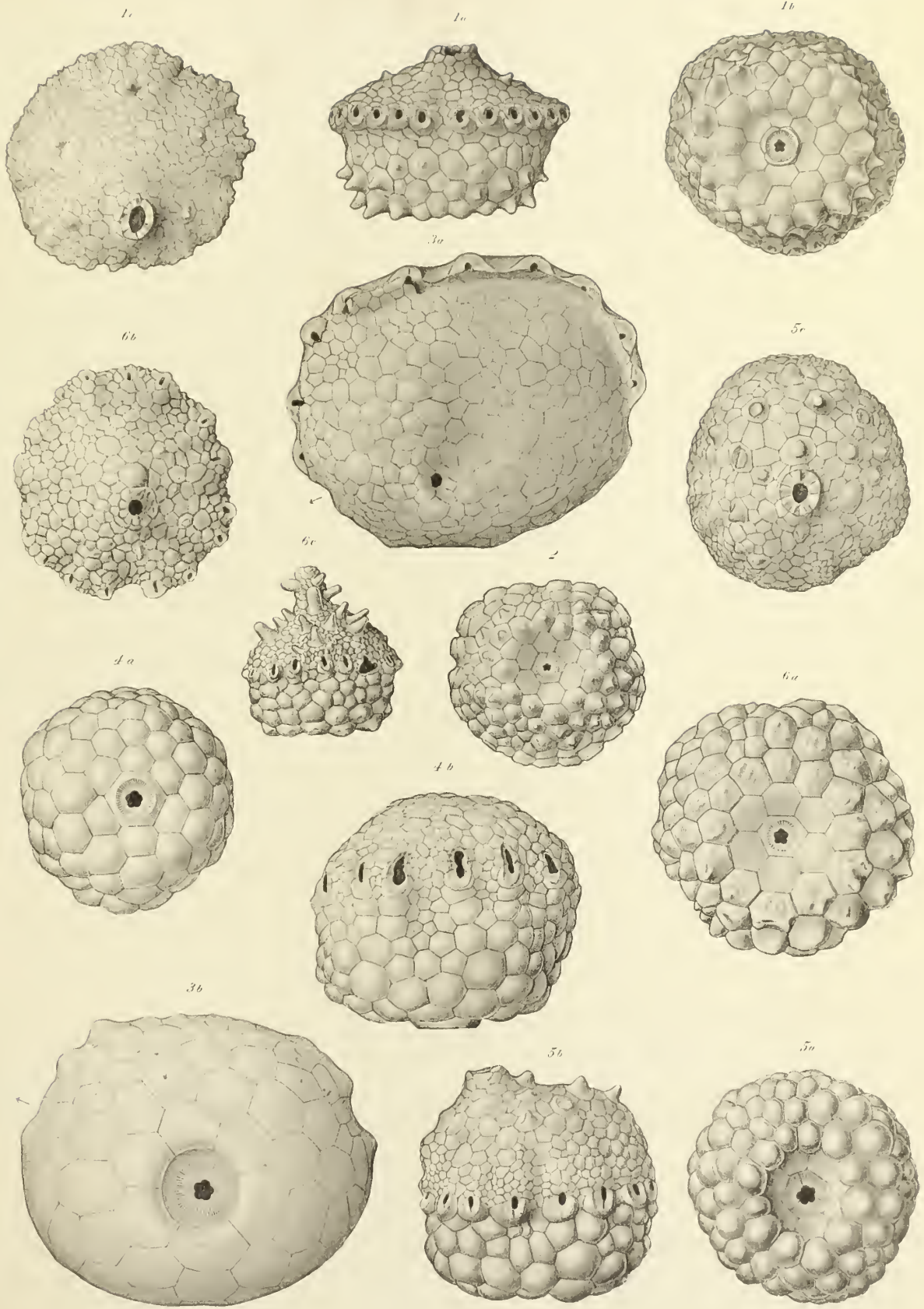
	PAGE
MEGISTOCRINUS EVANSI O. and Sh.	533
Fig. 1 <i>a</i> . Lateral view of a large specimen.	
1 <i>b</i> . Ventral aspect of the same.	
2 <i>a</i> . Basals and radials of a large specimen with corrugated surface.	
2 <i>b</i> . Inner floor of the anchylosed basals.	
3. A medium-sized specimen with the anal opening low down.	
4 <i>a</i> . Upper part of the stem.	
4 <i>b</i> . Its lower part.	
5 <i>a</i> . A rather small specimen of the form described by Hall as <i>Actinocrinus brevicornis</i> ; anterior side.	
5 <i>b</i> . Posterior view of the same specimen.	
5 <i>c</i> . Ventral aspect of same.	
MEGISTOCRINUS NOBILIS W and Sp.	537
6. Posterior side of a large specimen with arms.	
7. Ventral aspect of another specimen with arms, showing side- and covering-plates.	
8 <i>a</i> . Showing the covering-plates and side-pieces as they enter the ventral disk (enlarged).	
8 <i>b</i> . A portion of the same specimen, showing the covering- and side-pieces in profile (still more enlarged).	

(All the specimens are in the collection of Wachsmuth and Springer.)

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PLATE XLVIII.

	PAGE
MEGISTOCRINUS SPINOSULUS Lyon	544
Fig. 1 <i>a</i> . Posterior view of the type specimen; from Louisville. (Lyon collection.)	
1 <i>b</i> . Dorsal aspect of the same specimen.	
1 <i>c</i> . Ventral aspect of same.	
2. A specimen from Columbus, O.; the form described by S. A. Miller as <i>M. pileatus</i> . (Coll. W. and Sp.)	
MEGISTOCRINUS LATUS Hall	538
3 <i>a</i> . Ventral aspect of calyx. (Coll. A. S. Tiffany.)	
3 <i>b</i> . Dorsal view of same. (The orientation of both figures incorrect.)	
MEGISTOCRINUS FARNSWORTHII White	539
4 <i>a</i> . Dorsal view of the calyx. (Coll. W. and Sp.)	
4 <i>b</i> . Side view of another specimen. (Same collection.)	
MEGISTOCRINUS CONCAVUS W. and Sp.	543
5 <i>a</i> . Dorsal view of the calyx. (Coll. W. and Sp.)	
5 <i>b</i> . Lateral view of the type specimen. (Davenport Acad. Sci.)	
5 <i>c</i> . Ventral aspect of the same specimen.	
MEGISTOCRINUS RUGOSUS Lyon and Cass.	542
6 <i>a</i> . Dorsal aspect of the calyx. (Coll. W. and Sp.)	
6 <i>b</i> . Ventral aspect of the type specimen. (Lyon collection.)	
6 <i>c</i> . Anterior view of a smaller specimen, showing portion of the anal tube. (Same collection.)	



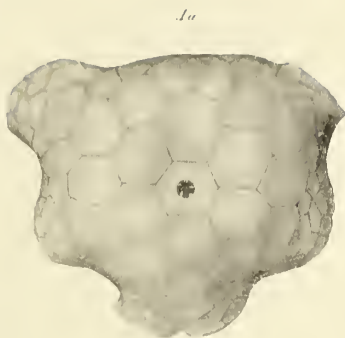
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PLATE XLIX.

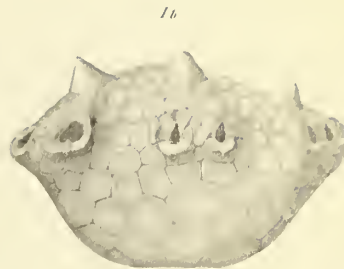
	PAGE
MEGISTOCRINUS ABNORMIS Lyon	546
Fig. 1 <i>a</i> . Dorsal aspect of the calyx. (Coll. W. and Sp.)	
1 <i>b</i> . Lateral view of the same specimen.	
1 <i>c</i> . Ventral aspect of another specimen. (Same collection.)	
MEGISTOCRINUS DEPRESSUS Hall	540
2. A specimen from New York. (Coll. A. S. Tiffany.)	
3. Side view of a specimen from Louisville. (Coll. W. and Sp.)	
4 <i>a</i> . Dorsal aspect of a specimen from New York. (State Mus. Nat. Hist. N. Y.)	
4 <i>b</i> . Ventral aspect of another specimen. (Same collection.)	
4 <i>c</i> . Portion of the arms. (Same collection.)	
4 <i>d</i> . Dorsal aspect of a small specimen from New York, showing the ornamentation. (Coll. W. and Sp.)	
MEGISTOCRINUS NODOSUS Barris	541
5 <i>a</i> . Lateral view of the type specimen. (Mus. Davenport Acad. Nat. Sci.)	
5 <i>b</i> . Ventral aspect of another specimen. (Same collection.)	
MEGISTOCRINUS MULTIDECORATUS Barris	542
6. Lateral aspect of the type specimen. (Same collection.)	



3



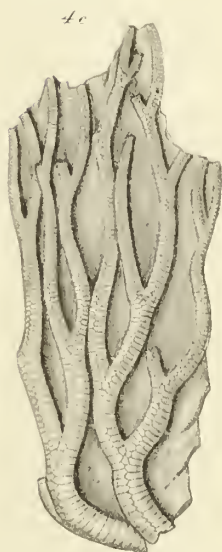
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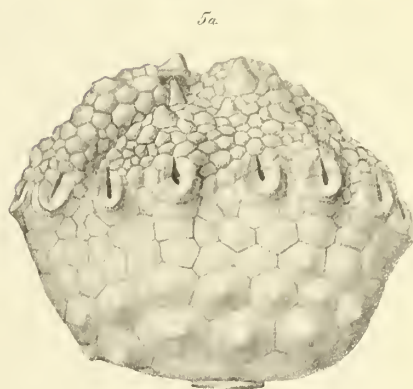
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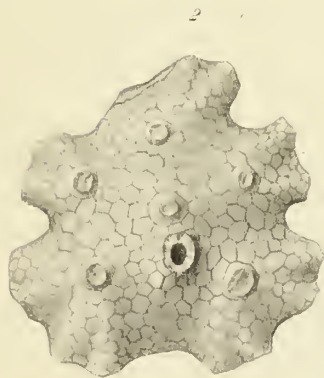
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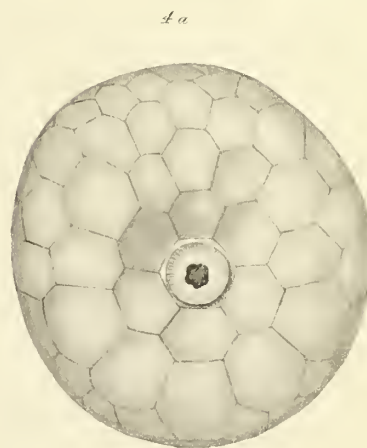
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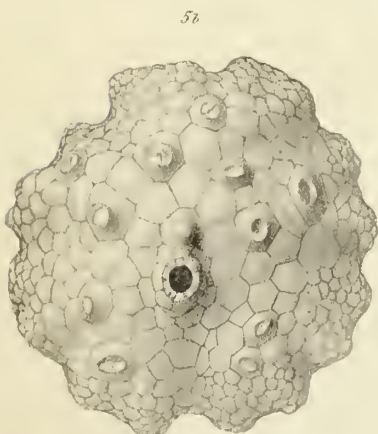
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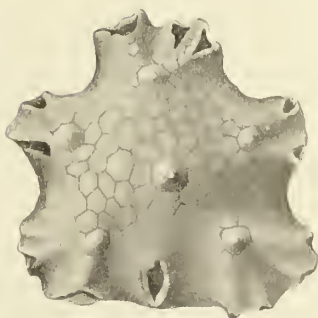
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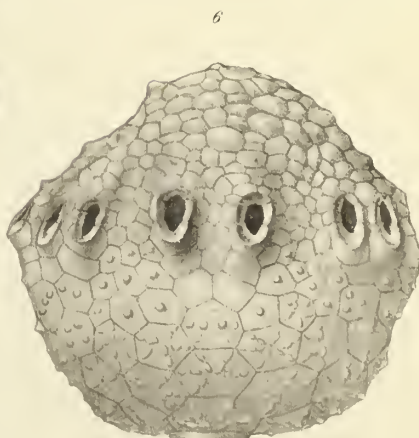
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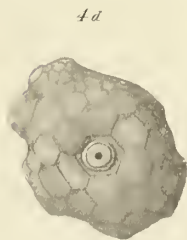
5b



1c



6



4d

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PLATE L.

	PAGE
PERIECHOCRINUS NECIS (Winch. and Marcy)	524
Fig. 1a. Posterior side of an internal cast. (Coll. W. C. Egan.)	
1b. Ventral aspect of another cast. (Same collection.)	
PERIECHOCRINUS INFELIX W. and M.	525
2a. An interior cast in a side view. (Same collection.)	
2b. Ventral aspect of an internal cast. (Same collection.)	
2c. Lateral view of a specimen figured by S. A. Miller as <i>Saccocrinus Egani</i> . (Same collection.)	
2d. Ventral aspect of another cast, figured as <i>S. Egani</i> . (Same collection.)	
PERIECHOCRINUS ORNATUS Hall and Whitf.	527
3a. Gutta-percha cast from a mould in the rock, showing surface markings; posterior side. (After Hall and Whitfield.)	
3b. Anterior view of an internal cast. (After Hall and Whitfield.)	
PERIECHOCRINUS TENNESSEENSIS (Hall)	528
4. Posterior view of Røemer's type specimen. (After Røemer.)	
PERIECHOCRINUS URNIFORMIS (S. A. Miller)	526
5a. Posterior view of an internal cast. (Coll. W. C. Egan.)	
5b. Ventral aspect of another cast. (Same collection.)	
PERIECHOCRINUS SPECIOSUS (Hall)	521
6a. The type specimen. (After Hall.)	
6b. Part of an arm enlarged. (After Hall.)	
PERIECHOCRINUS MARCOUANUS (Winch. and Marcy)	523
7a. Side view of an internal cast; anal side to the left. (Coll. W. C. Egan.)	
7b. Anterior view of the dorsal cup. (Same collection.)	

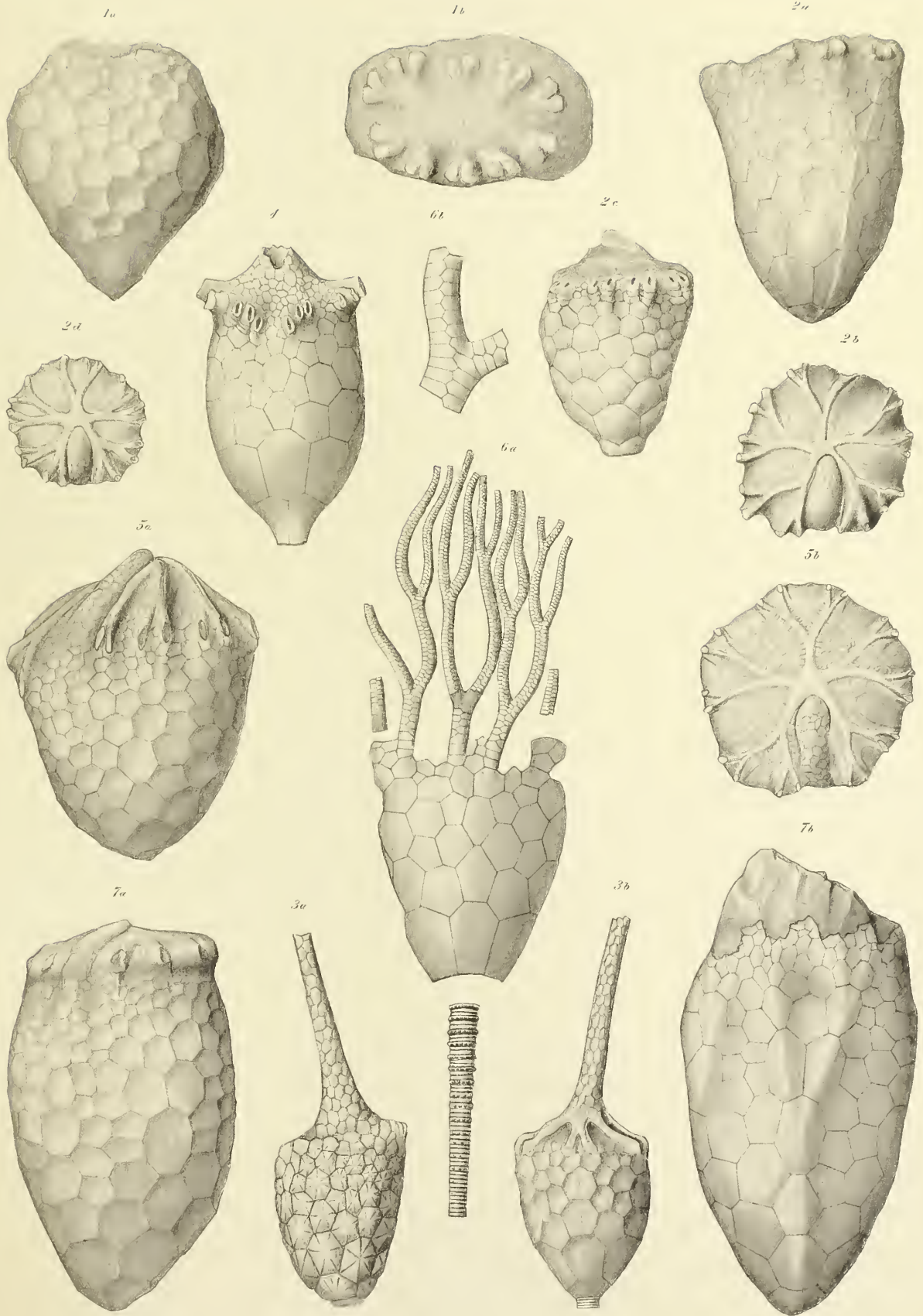
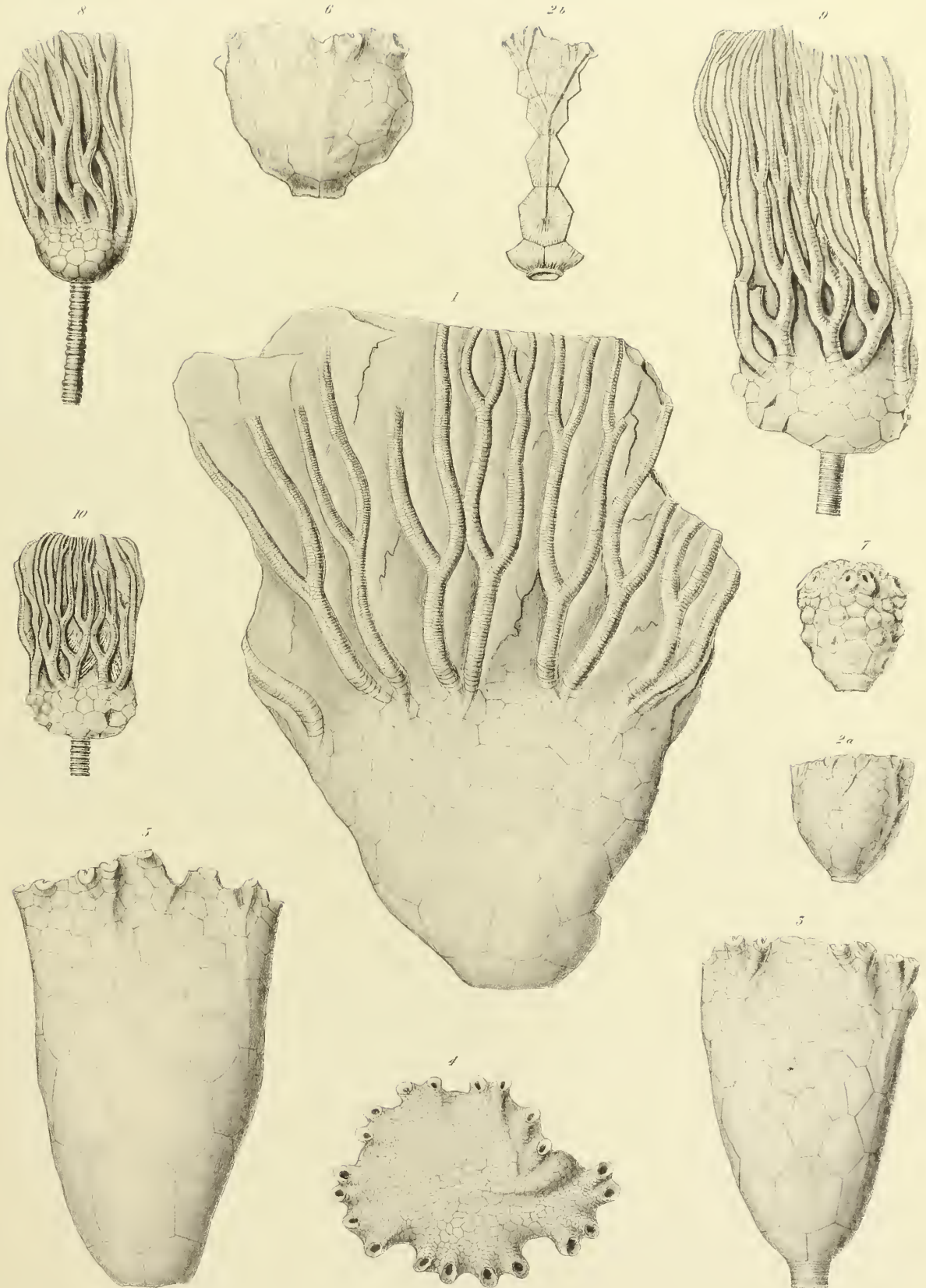


PLATE LI.

	PAGE
PERIECHOCRINUS WHITFIELDI (Hall)	522
Fig. 1. A very large and unique specimen with arms.	
2a. Side view of the dorsal cup. (After Hall.)	
2b. The plates of one ray, showing ornamentation. (After Hall.)	
3. Posterior view of a large elongate specimen.	
4. Ventral aspect of another specimen.	
PERIECHOCRINUS MARCOUANUS (Winch. and Marcy)	523
Side view of the dorsal cup.	
PERIECHOCRINUS TENUIDISCUS (Hall)	531
6. Antero-lateral view of the dorsal cup.	
PERIECHOCRINUS ORNATUS (Hall)	527
7. Side view of the calyx; from St. Paul, Ind.	
MEGISTOCRINUS NOBILIS W. and Sp.	537
8. A young specimen. (Type of <i>Megistocrinus parvus</i> .)	
PERIECHOCRINUS WHITEI (Hall)	530
9. Anterior view of a large specimen with arms from the Lower Burlington group.	
10. A specimen from the Kinderhook group of Marshall Co., Iowa.	
(All specimens, except 2a and b, in the collection of Wachsmuth and Springer.)	



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PLATE LII.

	PAGE
ACTINOCRINUS LOBATUS Hall	557
Fig. 1 <i>a</i> . Ventral aspect of a large specimen.	
1 <i>b</i> . Anterior view of the same.	
ACTINOCRINUS VERRUCOSUS Hall	558
2 <i>a</i> . A large specimen with anal tube, and portions of the arms.	
2 <i>b</i> . Posterior view of the calyx.	
2 <i>c</i> . Ventral aspect of the calyx.	
ACTINOCRINUS MULTIRADIATUS Shum.	555
3. Large specimen with arms.	
4 <i>a</i> . Posterior view of the calyx.	
4 <i>b</i> . Ventral aspect of the same specimen.	
5. Lateral view of another specimen.	
6. Another specimen with arms.	
ACTINOCRINUS GRIFFITHI W. and Sp.	568
7. Anterior view of the calyx.	
ACTINOCRINUS TUBERCULOSUS W. and Sp.	573
8 <i>a</i> . Posterior side of the type specimen.	
8 <i>b</i> . The structure at the upper part of the arms.	
8 <i>c</i> . The proximal arm plates (enlarged.)	

(All the specimens in the collection of Wachsmuth and Springer.)

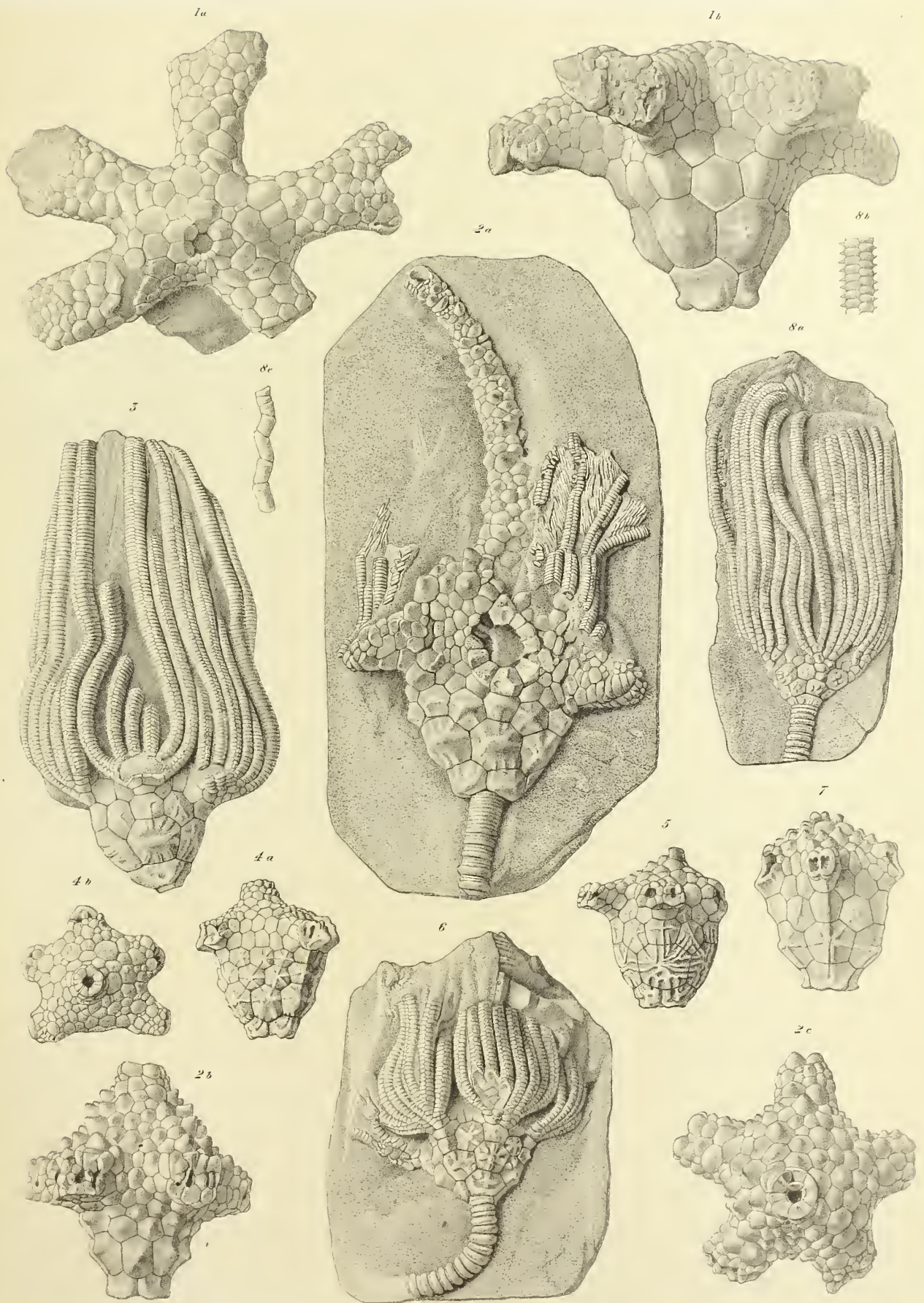
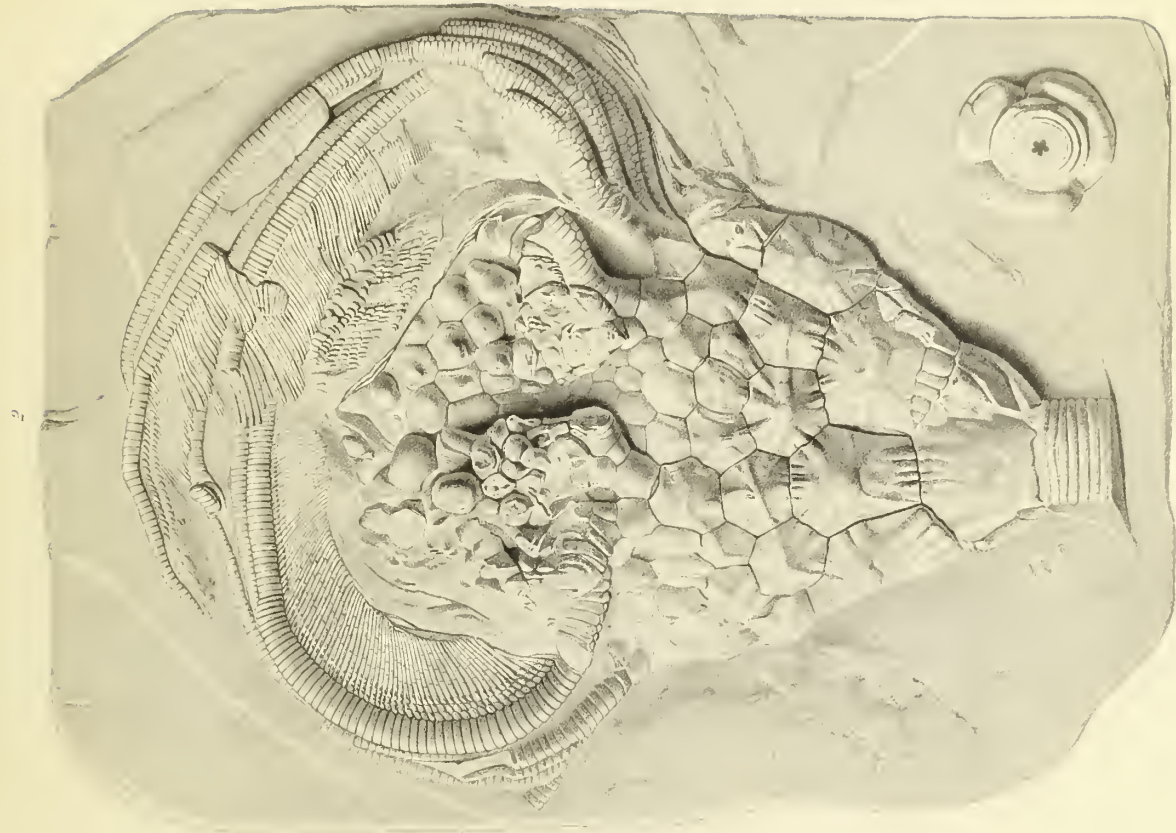
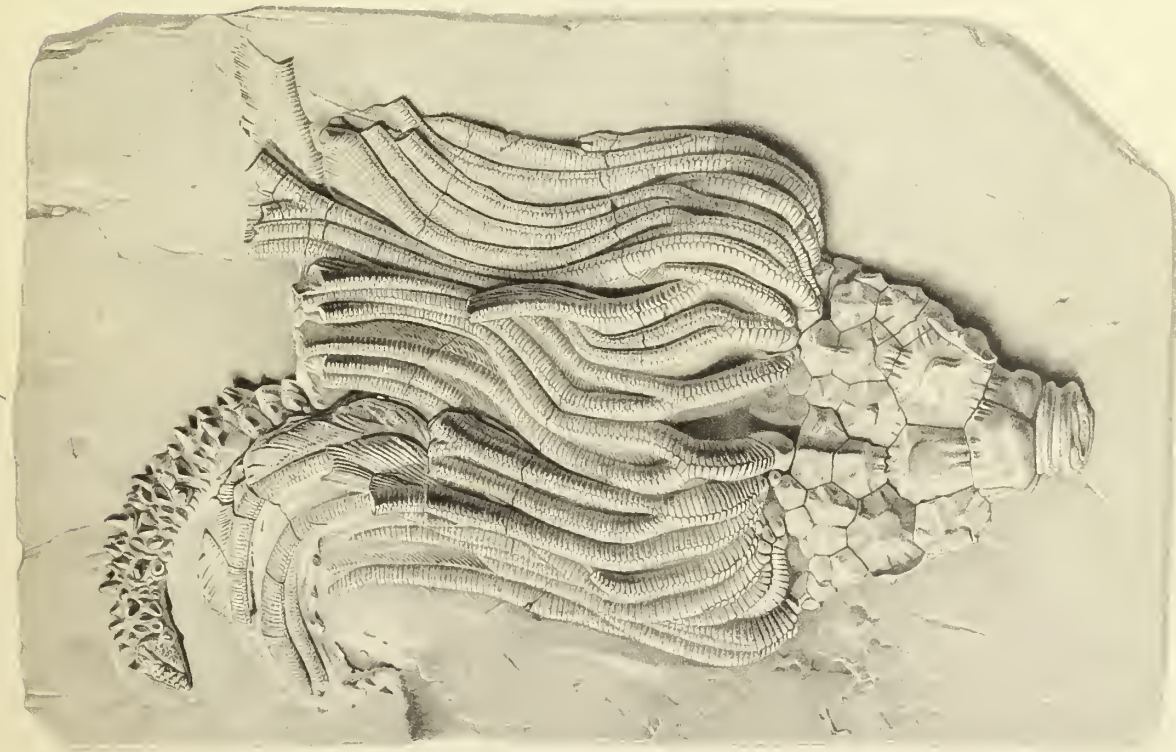


PLATE LIII.

	PAGE
ACTINOCRINUS MULTIRAMOSUS W. and Sp.	564
Fig. 1. A magnificent specimen with arms and anal tube.	
ACTINOCRINUS MAGNIFICUS W. and Sp.	567
2. A very large specimen with arms.	

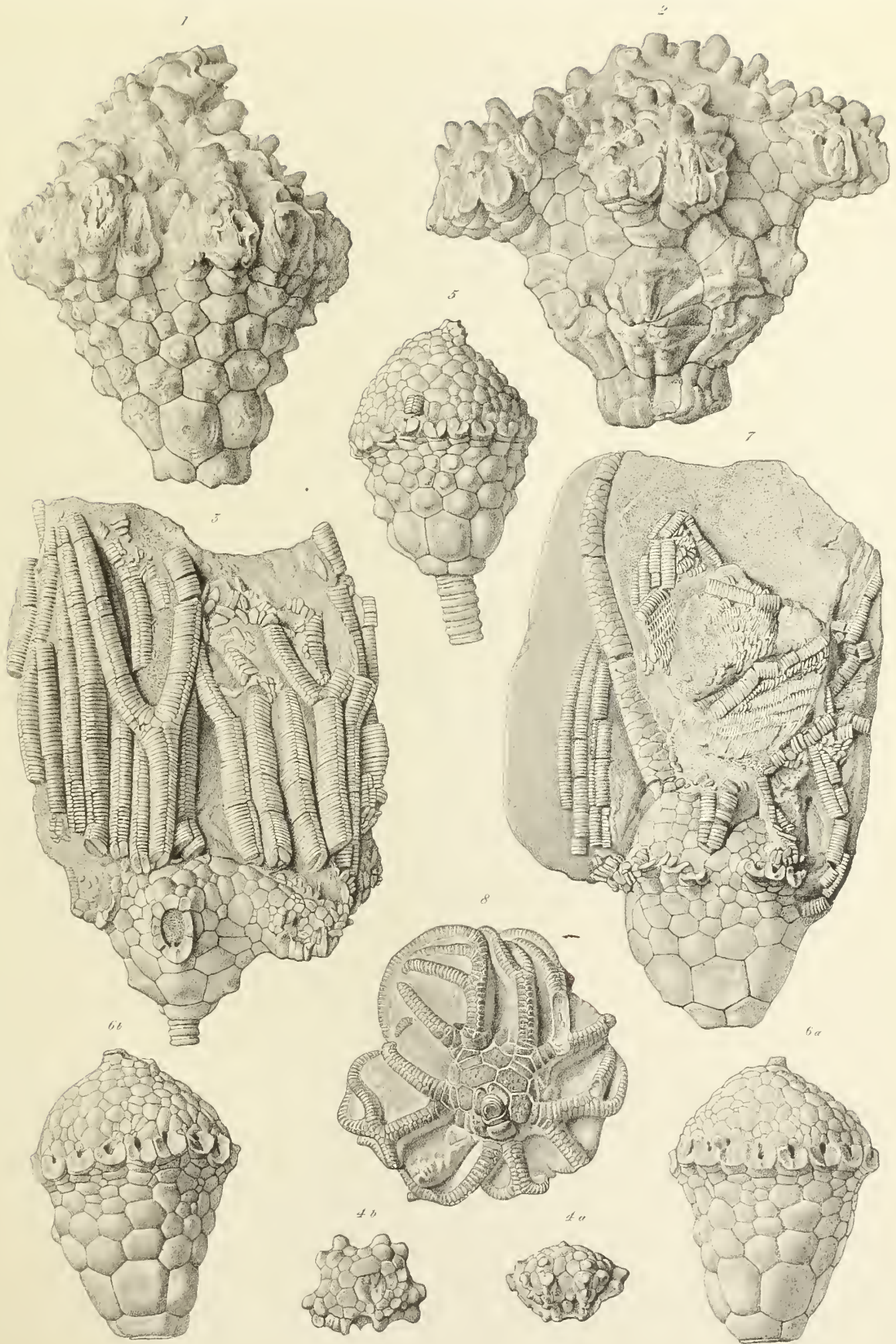
(Both in the collection of Wachsmuth and Springer.)



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PLATE LIV.

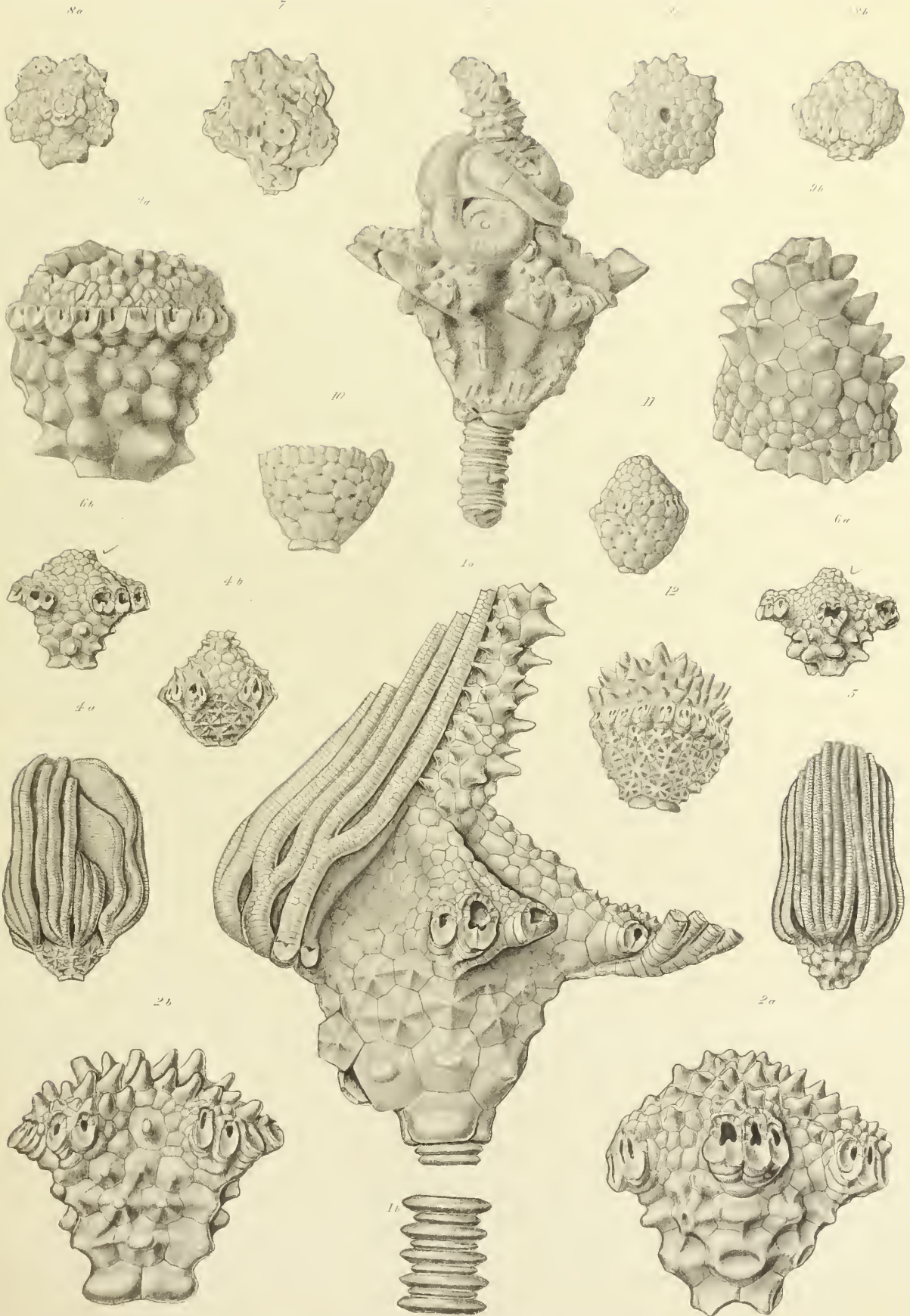
	PAGE
ACTINOCRINUS JUGOSUS Hall	563
Fig. 1. Posterior side of a large calyx. (Coll. L. A. Cox.)	
ACTINOCRINUS LOWEI Hall	562
2. Lateral view of the calyx. (Same collection.)	
ACTINOCRINUS LOBATUS Hall	557
3. Anterior view of a specimen with arms. (Mus. Comp. Zoöl.)	
ACTINOCRINUS TRIJUGIS (S. A. Miller)	576
4a. Posterior view of the calyx. (One of the type specimens; in the Coll. of F. A. Sampson.)	
4b. Ventral aspect of the same specimen.	
CACTOCRINUS GLANS (Hall)	625
5. Posterior view of the calyx. (Coll. W. and Sp.)	
6a. Lateral view of a less nodose specimen. (Same collection.)	
6b. Another view of the same specimen.	
7. Hall's type of <i>Actinocrinus eryx</i> . (Mus. Comp. Zoöl.)	
AMPHORACRINUS VIMINALIS (HALL)	590
8. Specimen with arms. (Coll. W. and Sp.)	



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PLATE LV.

	PAGE
ACTINOCRINUS LOBATUS Hall	557
Fig. 1 <i>a</i> . Posterior view of a fine specimen; showing portions of anal tube and arms. (Coll. W. and Sp.)	
1 <i>b</i> . Stem near the calyx.	
ACTINOCRINUS PERNODOSUS Hall	561
2 <i>a</i> . Anterior view of the calyx. (Same collection.)	
2 <i>b</i> . Posterior view of another specimen. (Same collection.)	
ACTINOCRINUS MULTIRAMOSUS W. and Sp.	564
3. The calyx with an <i>Onychaster</i> fastened to the anal tube. (Same collection.)	
ACTINOCRINUS TENUISCUPTUS McChesney	571
4 <i>a</i> . Anterior side of a specimen with arms. (Same collection.)	
4 <i>b</i> . Posterior side of the calyx. (Same collection.)	
ACTINOCRINUS SCITULUS M. and W.	559
5. Anterior side of a specimen with arms. (Same collection.)	
6 <i>a</i> . Side view of the calyx. (Same collection.)	
6 <i>b</i> . Posterior view of the same specimen.	
ACTINOCRINUS ARROSUS (S. A. Miller)	577
7. One of the type specimens. (Coll. F. A. Sampson.)	
8 <i>a</i> . Dorsal aspect of the calyx. (Same collection.)	
8 <i>b</i> . Side view of the same specimen.	
8 <i>c</i> . Ventral aspect of same.	
CACTOCRINUS OBESUS (Keyes)	613
9 <i>a</i> . Side view of the type specimen. (Coll. Missouri Surv.)	
9 <i>b</i> . Ventral aspect of the same. (Coll. W. and Sp.)	
CACTOCRINUS SEXARMATUS (Hall)	615
10. Left postero-lateral side of the dorsal cup. (Coll. W. and Sp.)	
11. Posterior view of the calyx. (Same collection.)	
CACTOCRINUS FOSSATUS (S. A. Miller)	620
12. The type specimen, showing the posterior side of the calyx. (After Miller.)	



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PLATE LVI.

	PAGE
ACTINOCRINUS DAPHNE (Hall)	574
Fig. 1. Posterior view of a large specimen. (Coll. W. and Sp.)	
CACTOCRINUS THALIA (Hall)	604
2. Specimen with arms, described by Hall as <i>Actinocrinus infrequens</i> . (Mus. Comp. Zoöl.)	
CACTOCRINUS THETIS (Hall)	614
3. Posterior view of the calyx and anal tube. (Coll. W. and Sp.)	
4. A large specimen with arms. (Same collection.)	
CACTOCRINUS OPUSCULUS (Hall)	607
5a. Specimen with arms. (Mus. Comp. Zoöl.)	
5b. Calyx, showing the left posterior ray and the anal interradius. (Coll. W. and Sp.)	
CACTOCRINUS MULTIBRACHIATUS (Hall)	617
6. Antero-lateral view of the calyx. (Coll. W. and Sp.)	
7. Posterior view of another specimen. (Same collection.)	
CACTOCRINUS LUCINA (Hall)	603
8. Anterior view of a specimen with arms. (Mus. Comp. Zoöl.)	
9. Posterior side of the calyx; from near Louisiana, Mo., described by Rowley and Hare as <i>Actinocrinus puteatus</i> . (Coll. R. R. Rowley.)	
CACTOCRINUS ECTYPUS (Meek and Worthen)	611
10. Side view of a large specimen. (Coll. W. and Sp.)	
ACTINOCRINUS GRACILIS W. and Sp.	572
11. A specimen with arms (†). (Mus. Comp. Zoöl.)	

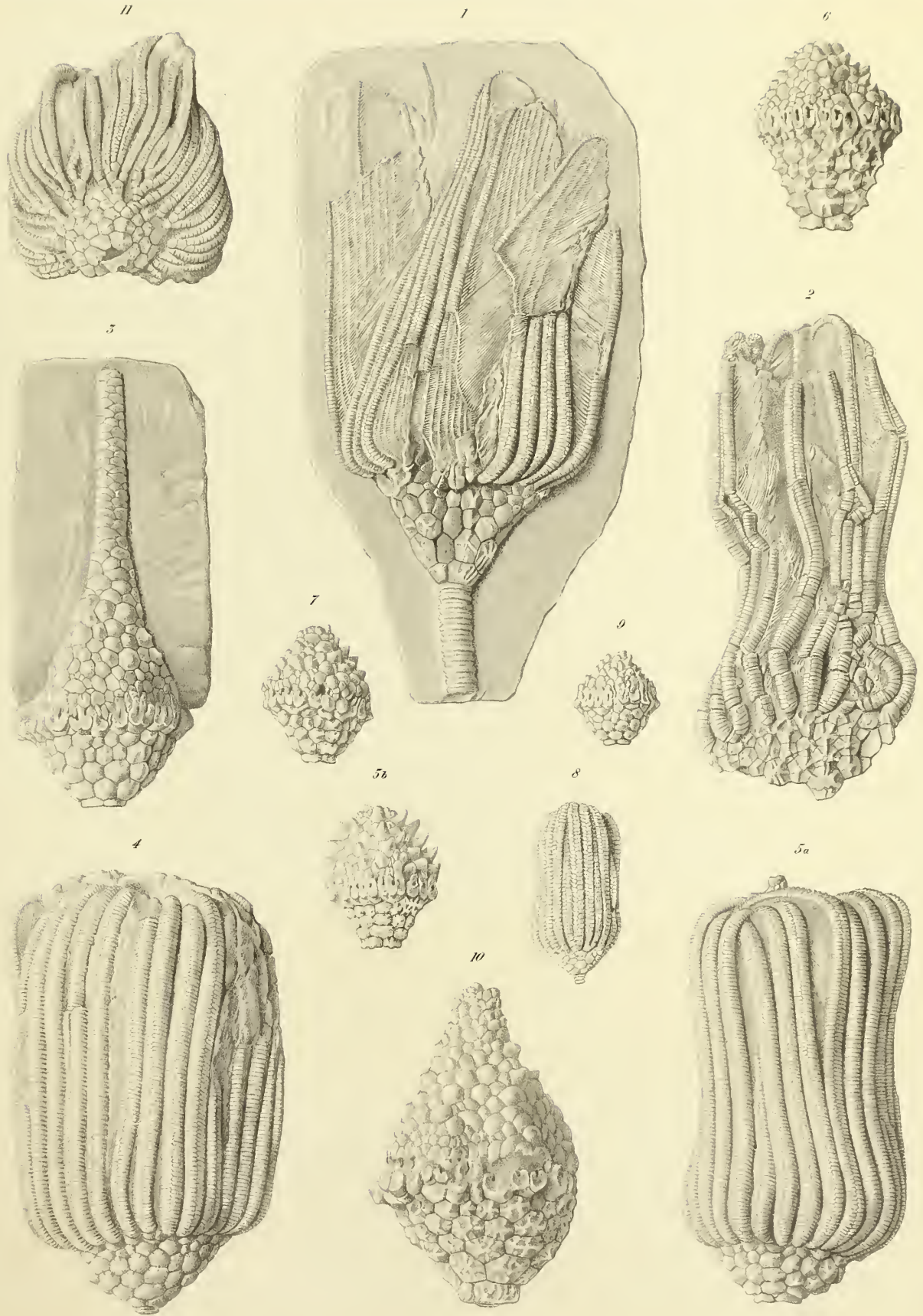


PLATE LVII.

	PAGE
CACTOCRINUS NODOBRACHIATUS W. and Sp.	622
Fig. 1. Posterior side of a fine specimen with arms; the arms incurving and touching the summit of the disk.	
2. Anterior view of another specimen.	
CACTOCRINUS ORNATISSIMUS W. and Sp.	621
3. Posterior view of the type specimen.	
CACTOCRINUS ARNOLDI W. and Sp.	624
4a. Specimen with arms and pinnules (the nodes upon the arms are not preserved.*)	
4b. Side view of the calyx, showing the left antero-lateral ray.	
CACTOCRINUS DENTICULATUS W. and Sp.	606
5a. The type specimen, showing the right posterior ray.	
5b. Portion of an arm from near the upper end (enlarged).	
CACTOCRINUS EXTENSUS W. and Sp.	616
6. Lateral view of the calyx.	
7. Specimen with arms, anal tube, and column.	
CACTOCRINUS LONGUS (Meek and Worthen)	609
8. Anterior view of an unusually fine and large calyx.	
CACTOCRINUS CLARUS (Hall)	612
9. Lateral view of a large dorsal cup with almost smooth plates.	
10. Anterior view of a specimen with ornamented plates.	
CACTOCRINUS RETICULATUS, var. OVATUS (Hall)	606
11. Anterior view of the calyx.	
CACTOCRINUS THALIA (Hall)	604
12. Anterior view of the dorsal cup.	
13. Another specimen, showing the left posterior ray and anal interradius.	

(All the specimens in the collection of Wachsmuth and Springer.)

* This figure is misleading in giving the appearance of spines to some arm-fragments lying upon the disk.

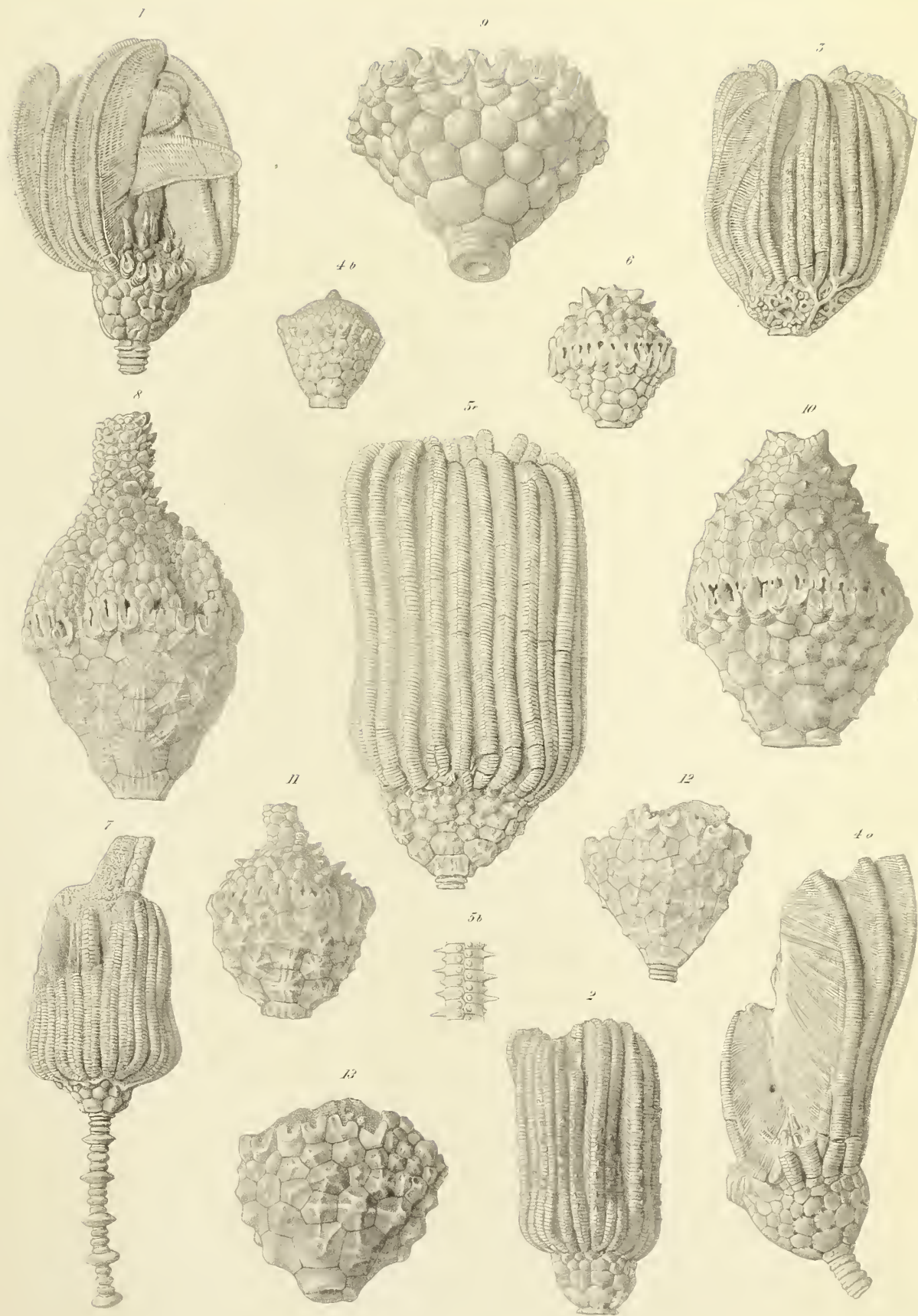


PLATE LVIII.

	PAGE
CACTOCRINUS CLARUS (Hall)	612
Fig. 1. Showing the arm structure, and the arrangement of the hooks along the pinnules.	
CACTOCRINUS RETICULATUS (Hall)	605
2a. Anterior view of the calyx.	
2b. Posterior view of the calyx.	
CACTOCRINUS PROBOSCIDALIS (Hall)	601
3. A large specimen with arms.	
4. Another specimen with arms.	
5. Posterior view of the calyx.	
6. Lateral view of a specimen, showing a portion of the anal tube.	
7a. Portion of an arm, showing the dorsal side of the pinnules and the hooks; the food grooves open at places, and closed at others, †.	
7b. The ventral side of the pinnules still more enlarged, showing the arrangement of the covering plates and side pieces, and also at intervals the bottom of the food grooves.	
7c. Dorsal aspect of three adjoining pinnules greatly enlarged.	
7d. A single pinnule joint, greatly enlarged.	
CACTOCRINUS MULTIBRACHIATUS (Hall)	617
8. Anterior side of a fine specimen with arms.	
CACTOCRINUS LIMABRACHIATUS (Hall)	608
9. Lateral view of the calyx (one of the rays abnormal, having but one costal).	
10a. Specimen with arms.	
10b. Arm joints, much enlarged.	

(All the specimens in the collection of Wachsmuth and Springer.)

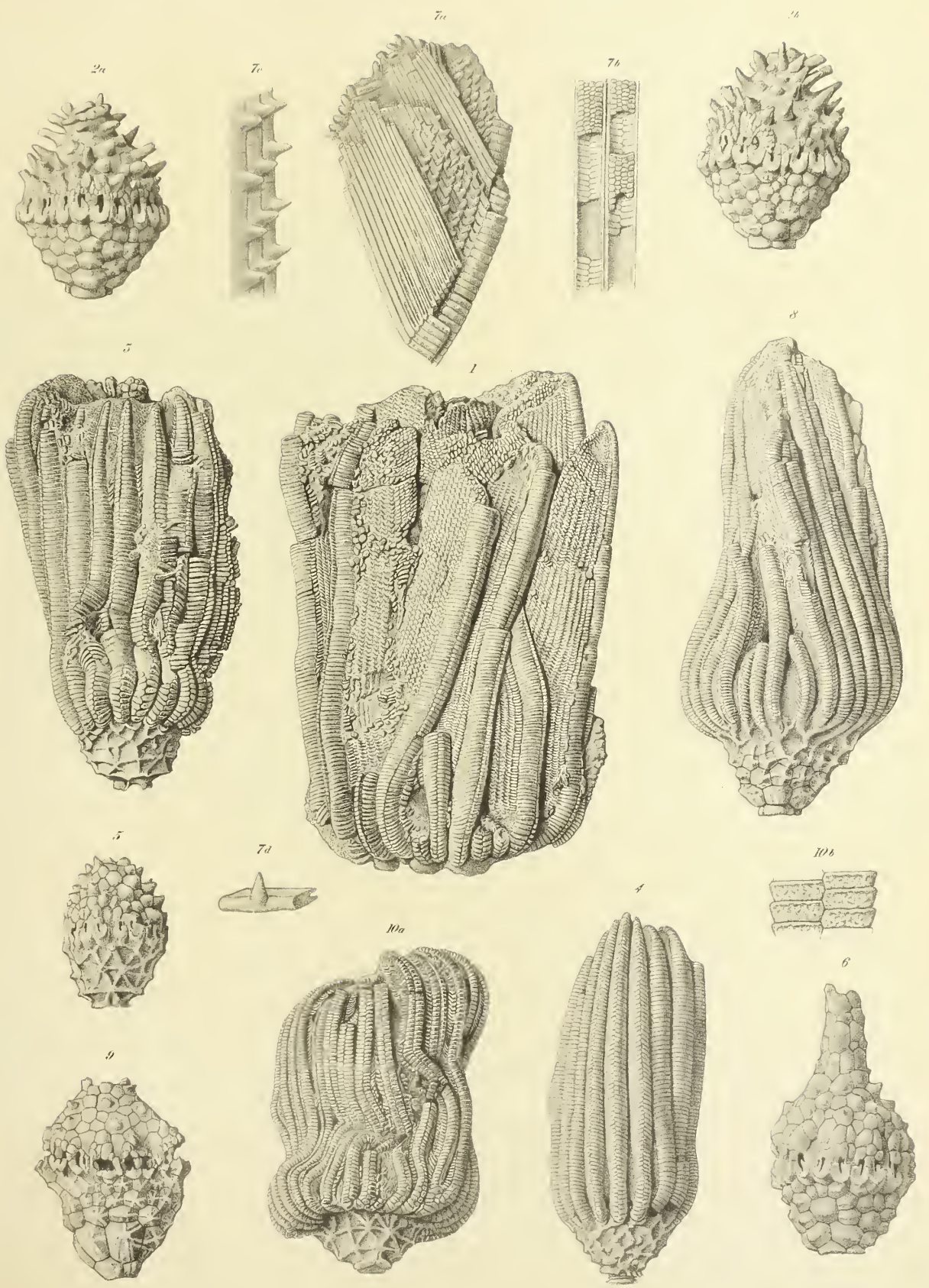


PLATE LIX.

	PAGE
TELEIOCRINUS RUDIS (Hall)	630
Fig. 1. Specimen with arms and stem.	
2. Anterior view of a specimen with arms, anal tube, and stem.	
3. Lateral view of the calyx (a very large specimen).	
TELEIOCRINUS ADOLESCENS W. and Sp.	635
4. Side view of the type specimen.	
TELEIOCRINUS TENUIRADIATUS (Hall)	634
5. Dorsal aspect of a specimen with arms.	
6. Anterior side of a large calyx.	
TELEIOCRINUS UMBROSUS (Hall)	628
7. Portion of the stem.	
CACTOCRINUS CÆLATUS (Hall)	618
8. Lateral view of the calyx; typical form.	
9. Posterior view of a slightly lobed specimen.	
CACTOCRINUS CÆLATUS, var. SPINOTENTACULUS (Hall)	619
10. Anterior view of the calyx.	

(All specimens in the collection of Wachsmuth and Springer.)

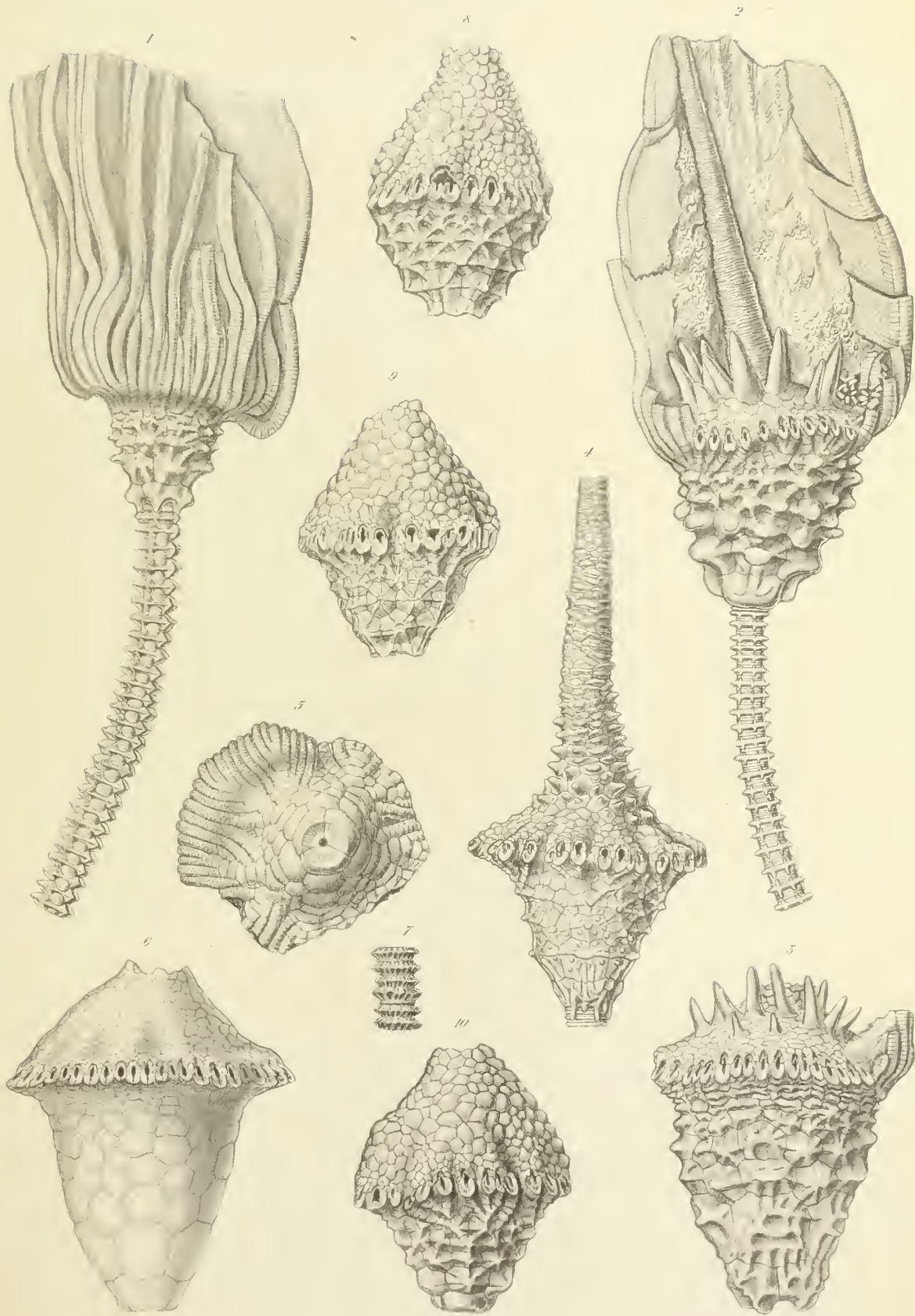
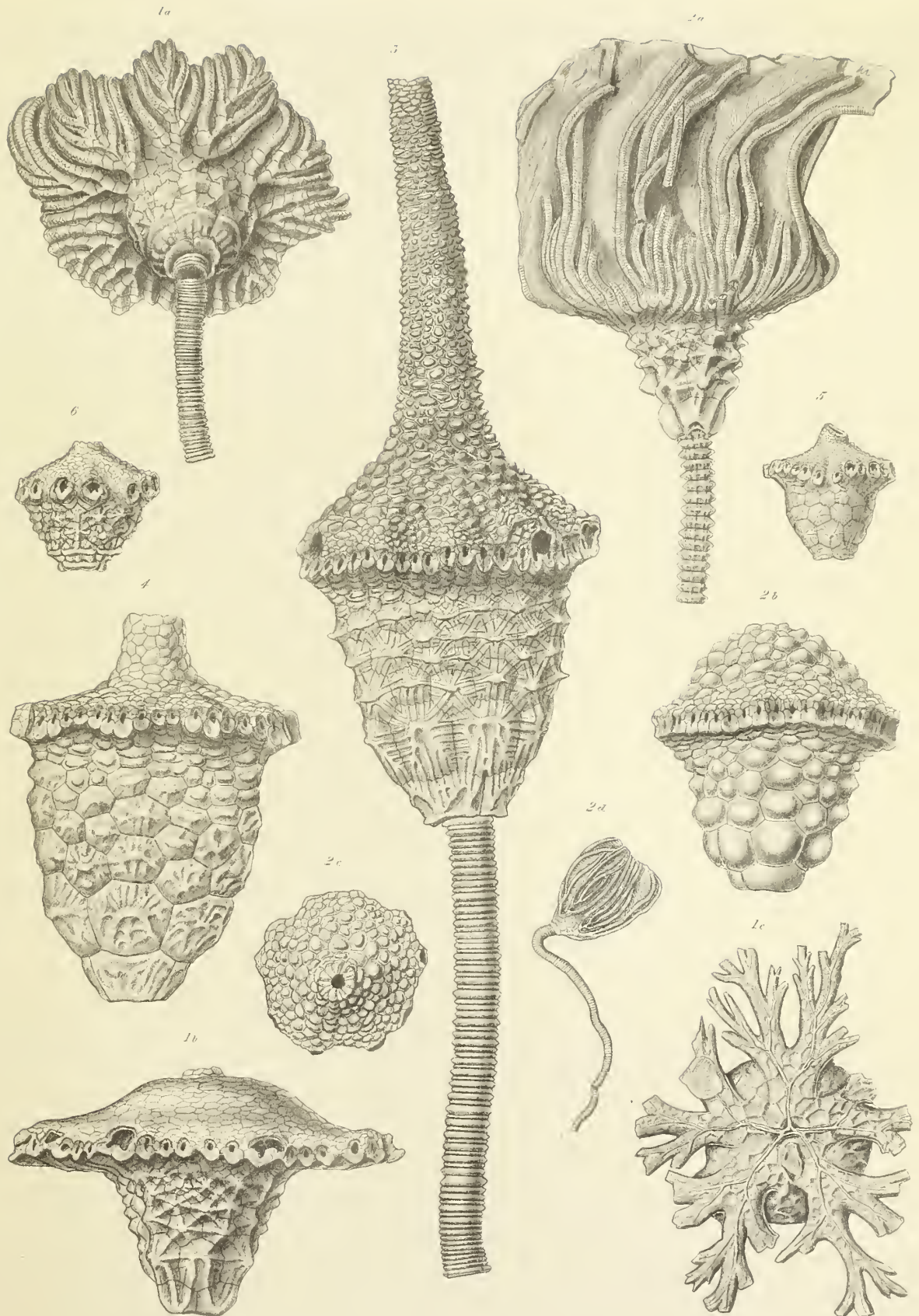


PLATE LX.

	PAGE
STROTOCRINUS GLYPTUS (Hall)	640
Fig. 1 <i>a</i> . Specimen with arms and stem.	
1 <i>b</i> . Posterior view of a very large specimen.	
1 <i>c</i> . Ventral aspect of a natural cast.	
TELEIOCRINUS UMBROSUS (Hall)	628
2 <i>a</i> . A fine specimen with arms and stem.	
2 <i>b</i> . Anterior view of the calyx (typical form).	
2 <i>c</i> . Ventral aspect of another specimen.	
2 <i>d</i> . A very young specimen; the rays free above the distichals.	
TELEIOCRINUS LIRATUS (Hall)	633
3. A large specimen with anal tube and stem.	
TELEIOCRINUS ALTHEA (Hall)	632
4. Anterior view of a large calyx.	
ACTINOCRINUS ASPERRIMUS M. and W.	575
5. Posterior view of the calyx.	
6. Anterior side of the calyx (specimen with unusually strong ridges).	

(All the specimens in the collection of Wachsmuth and Springer.)



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PLATE LXI.

	PAGE
STEGANOCRINUS SCULPTUS (Hall)	583
Fig. 1 <i>a</i> . Posterior view of a large specimen with arms, anal tube, and stem.	
1 <i>b</i> . Lateral view of a very large calyx.	
1 <i>c</i> . Posterior view of another calyx.	
1 <i>d</i> . Young specimen with arms and column.	
1 <i>e</i> . Portion of one of the tubular appendages, showing the bases of the arms (½).	
1 <i>f</i> . Cross-section of the same (¼).	
 STEGANOCRINUS ARANEOLUS M. and W.	 581
2 <i>a</i> . Dorsal aspect of a specimen with arms.	
2 <i>b</i> . Lateral view of the calyx, and the lower end of the anal tube.	
 STEGANOCRINUS PENTAGONUS (Hall)	 579
3 <i>a</i> . Ventral aspect of a specimen, showing portions of the arms.	
3 <i>b</i> . Anterior view of a large calyx.	
3 <i>c</i> . Ventral aspect of the same specimen.	
3 <i>d</i> . Distal face of the first distichal (enlarged).	
3 <i>e</i> . Posterior view of a smaller specimen with more regularly arranged covering pieces.	
4 <i>a</i> . Posterior view of a specimen from New Mexico.	
4 <i>b</i> . Ventral aspect of the same specimen.	
 STEGANOCRINUS CONCINNUS (Shumard)	 582
5 <i>a</i> . Lateral view of the calyx.	
5 <i>b</i> . Ventral aspect of a small specimen.	
 STEGANOCRINUS GLOBOSUS W. and Sp.	 585
6. Lateral view of the type specimen.	

(All specimens in the collection of Wachsmuth and Springer.)

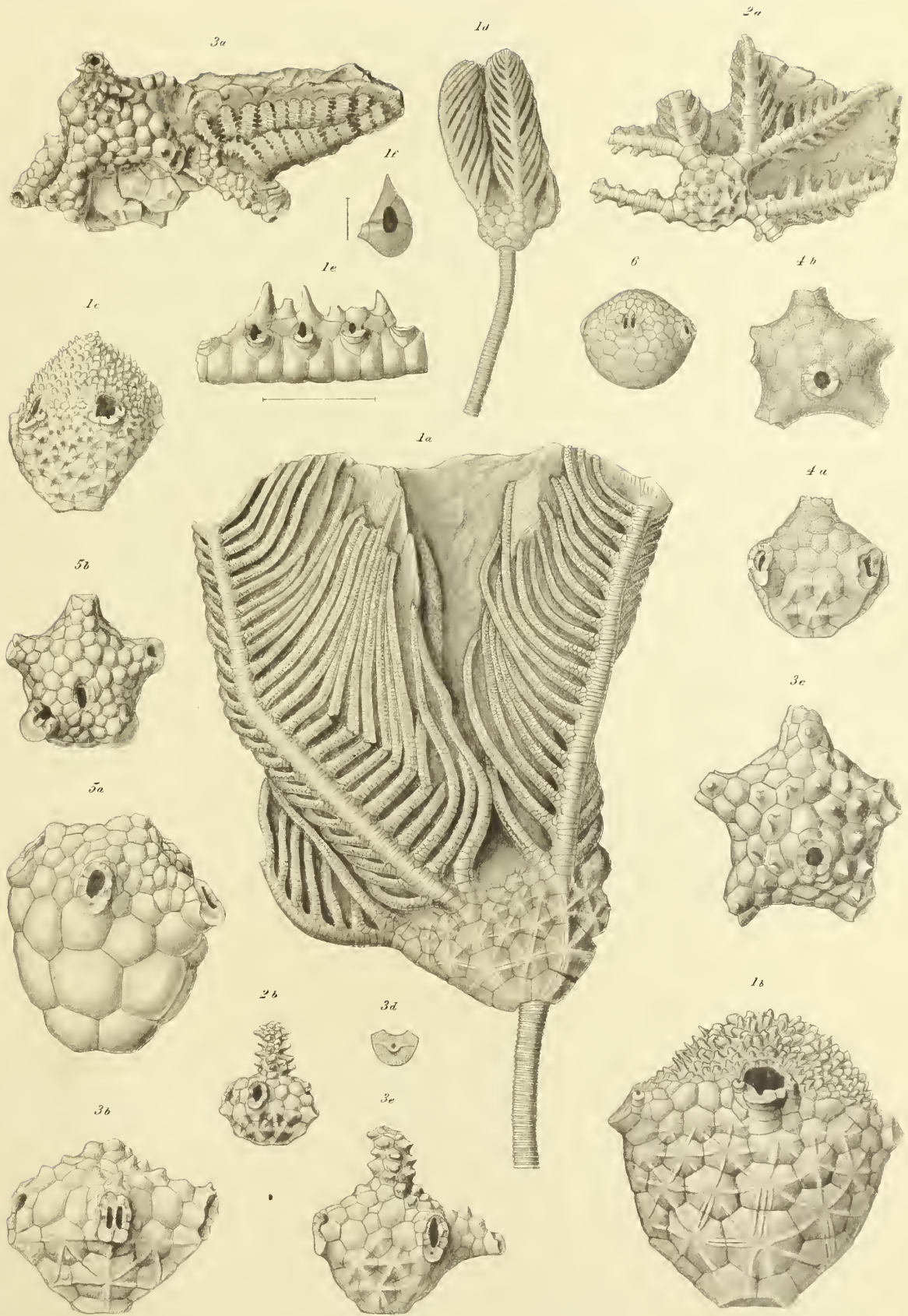


PLATE LXII.

	PAGE
AMPHORACRINUS SPINOBRACHIATUS (Hall)	591
Fig. 1. Dorsal aspect of a specimen with a portion of the arms.	
2. Side view of a specimen with arms.	
3. Lateral view of the calyx.	
4. Dorsal aspect of the calyx, showing the ornamentation.	
AMPHORACRINUS DIVERGENS (Hall)	588
5. Dorsal aspect of a somewhat distorted specimen with arms.	
6 <i>a</i> . Dorsal aspect of a fine specimen with spreading arms.	
6 <i>b</i> . A forked oral spine of this specimen.	
7 <i>a</i> . Posterior view of a fine specimen, showing the arms and spines surrounding the anus. (The specimen was described by Meek and Worthen as <i>A. divergens</i> , var. <i>multiramosus</i> .)	
7 <i>b</i> . Ventral aspect of the same specimen, showing the oral and anal spines.	
8 <i>a</i> . Side view of a very small specimen, showing the oral spines.	
8 <i>b</i> . Dorsal aspect of the same specimen.	
8 <i>c</i> . Ventral aspect of the same, showing the oral and anal spines.	
9. Posterior view of the calyx.	
10. Lateral view of the calyx, showing lower part of anal tube.	

(Figs. 5, 7*a*, and 7*b* were made from specimens in the collection of the Mus. Comp. Zoöl.; the others are in the collection of Wachsmuth and Springer.)

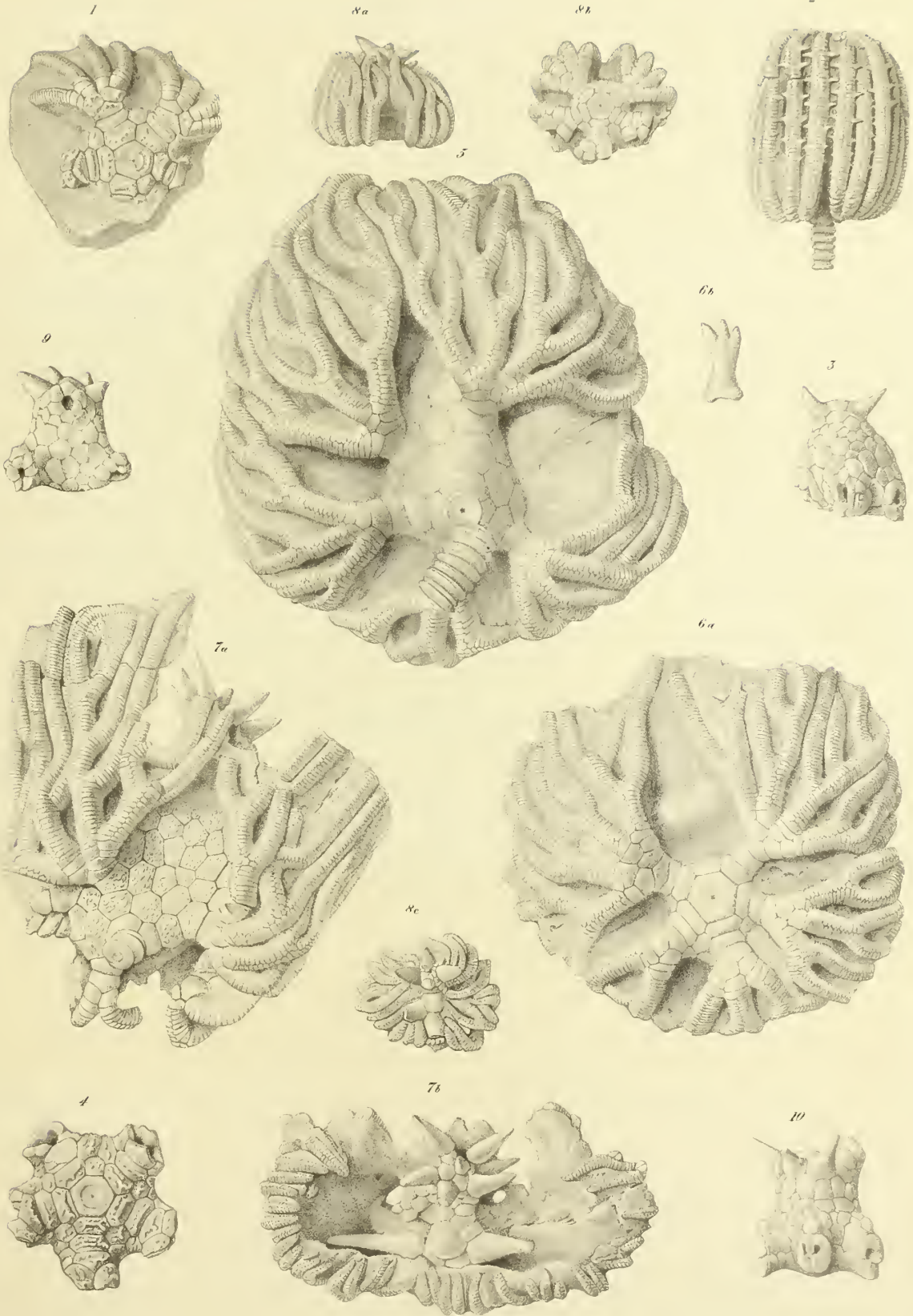


PLATE LXIII.

	PAGE
PHYSETOCRINUS ORNATUS (Hall)	597
Fig. 1. Antero-lateral view of a specimen with arms. (Coll. W. and Sp.)	
2. Posterior view of the calyx. (Same collection.)	
3. Ventral aspect, showing annular impression made by a <i>Capula</i> , which covered the anal opening. (Same collection.)	
4. Anterior view of a large, slightly crushed specimen. (Same collection.)	
PHYSETOCRINUS COPEI (Miller)	598
5. Side view of large specimen. (Same collection.)	
PHYSETOCRINUS VENTRICOSUS (Hall)	593
6. Type of the variety <i>internodius</i> Hall. (Mus. Comp. Zoöl.)	
PHYSETOCRINUS ASPER Meek and Worthen	596
7a. Posterior view of the type specimen. (Mus. Comp. Zoöl.)	
7b. Ventral aspect of the same.	
PHYSETOCRINUS LOBATUS W. and Sp.	599
8a. Side view of the calyx. (Coll. W. and Sp.)	
8b. Ventral aspect of the calyx. (Same collection.)	
TELEIOCRINUS ALTHEA (Hall)	632
9. Lateral view of the type specimen. (Mus. Comp. Zoöl.)	

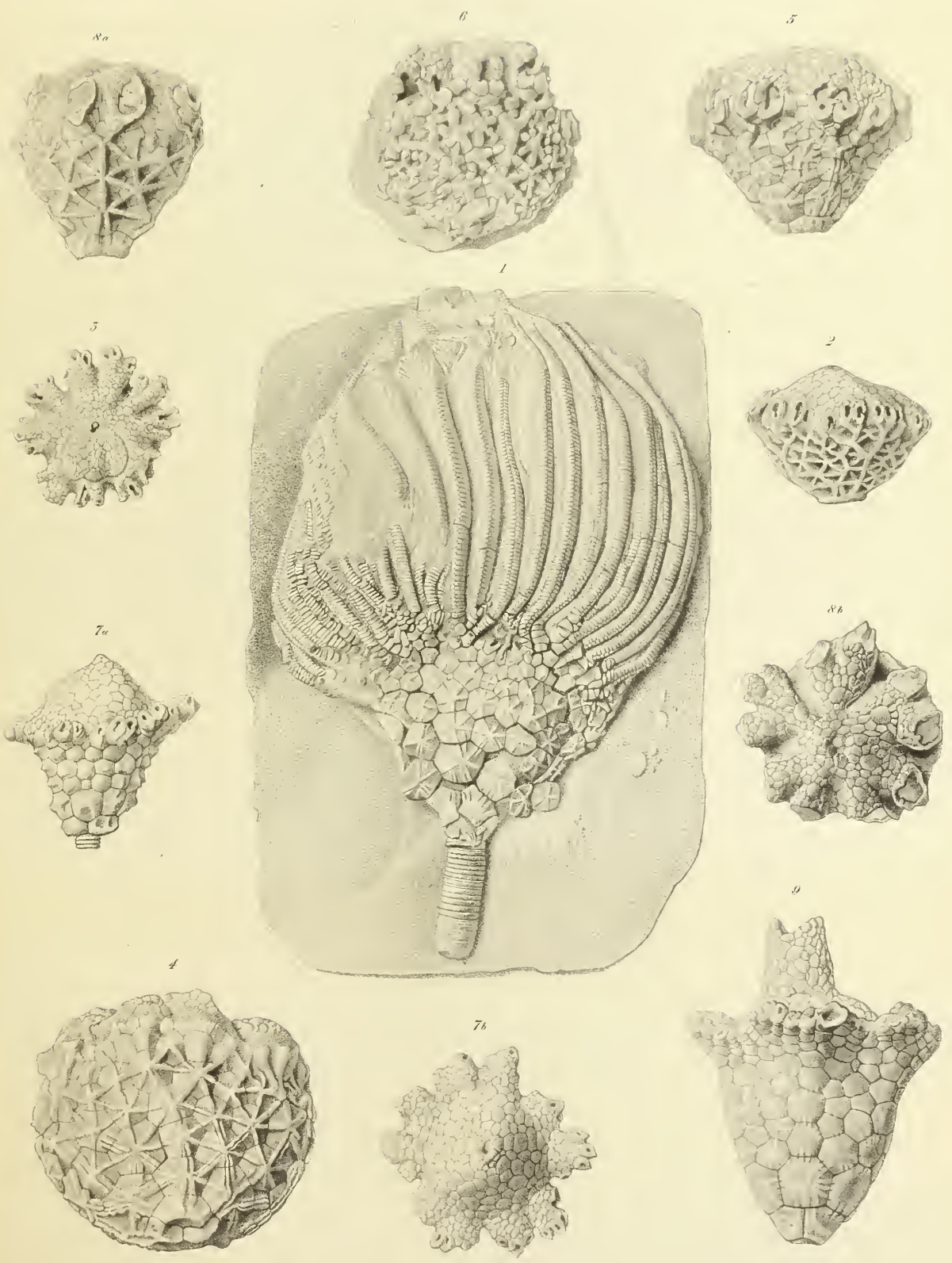
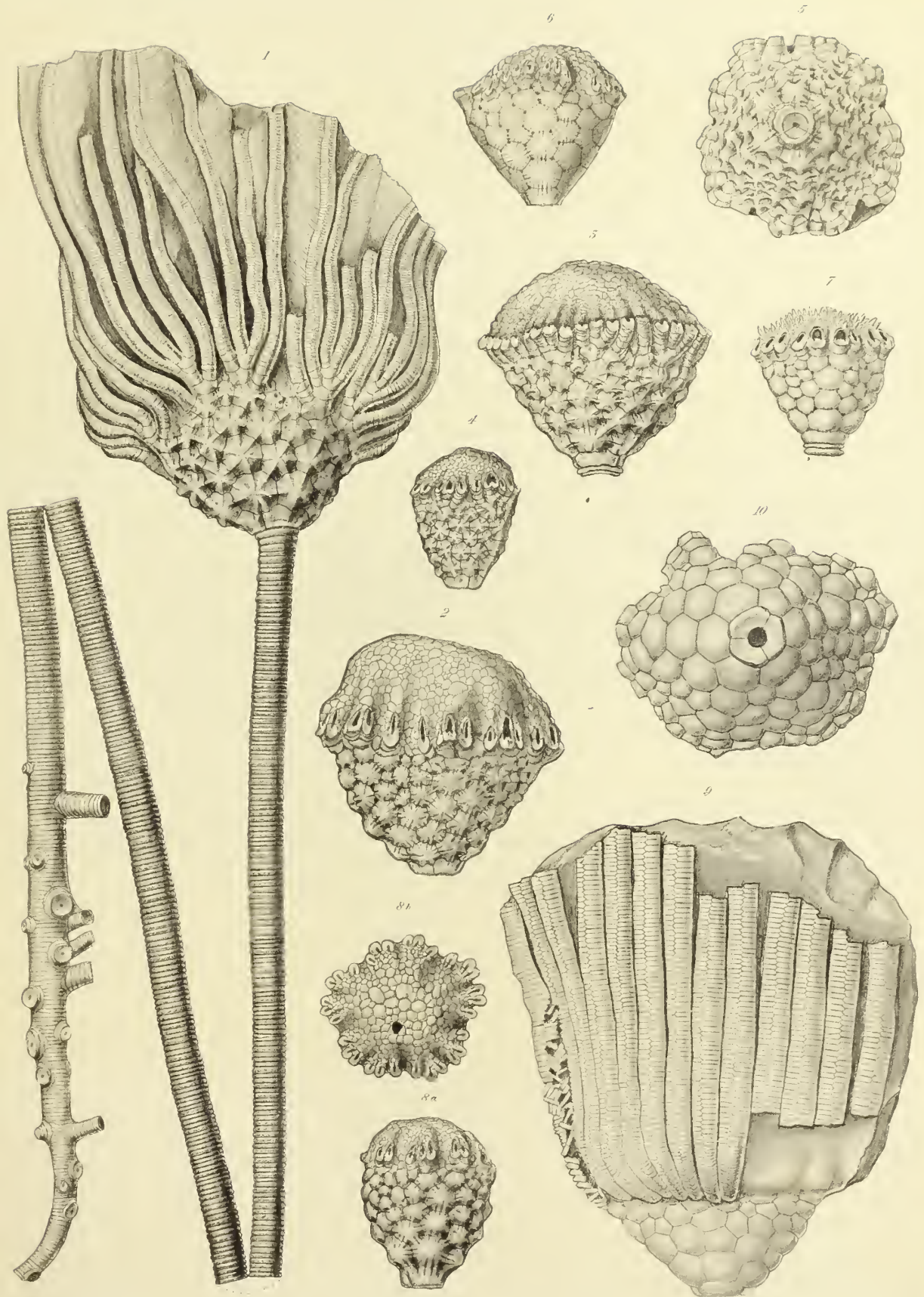


PLATE LXIV.

	PAGE
PHYSETOCRINUS VENTRICOSUS (Hall)	593
Fig. 1. Specimen with arms, stem, and root.	
2. Lateral view of the calyx.	
3. Anterior view of the calyx.	
4. Posterior view of a small elongate specimen.	
5. Dorsal aspect of a depressed specimen of Hall's variety " <i>Actinocrinus</i> " <i>reticulatus</i> .	
6. Anterior view of the calyx.	
7. Anterior view of a specimen of the type of McChesney's " <i>Actinocrinus</i> " <i>subventricosus</i> .	
8 <i>a</i> . Specimen from the Lower Burlington limestone.	
8 <i>b</i> . Ventral aspect of the same specimen.	
PHYSETOCRINUS DILATATUS M. and W.	595
9. The type specimen. (After Meek and Worthen.)	
10. Dorsal aspect of another specimen.	

(All specimens, except Fig. 9, in the collection of Wachsmuth and Springer.)

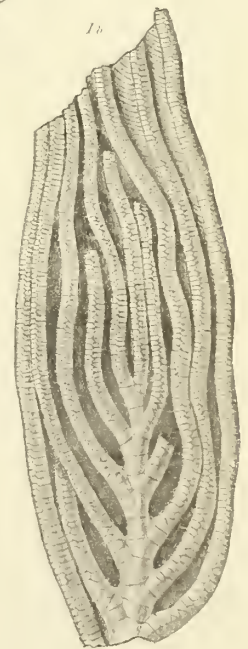
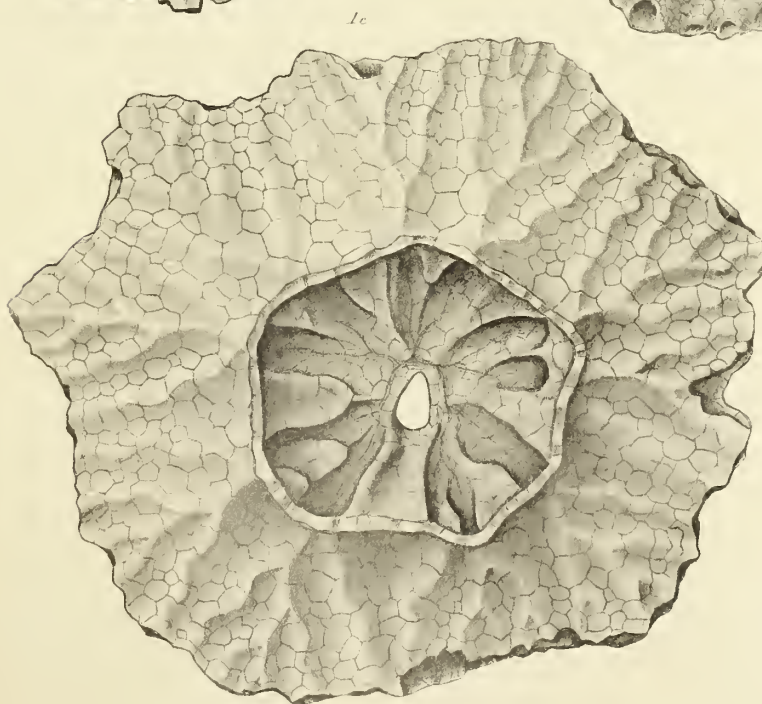
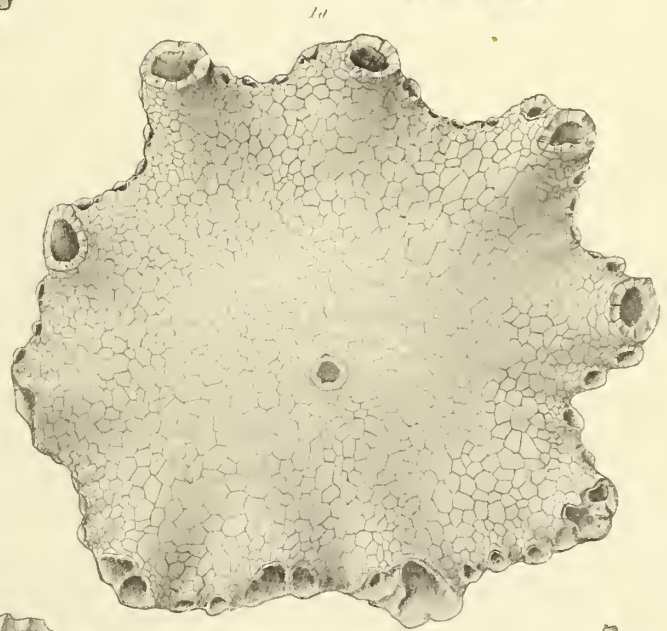
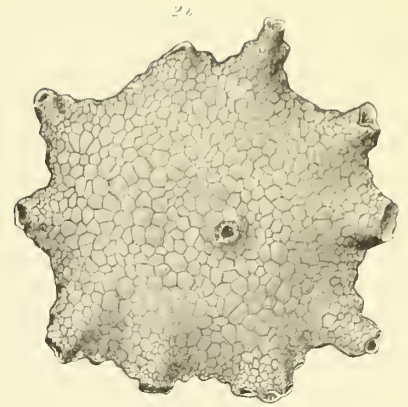


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PLATE LXV.

	PAGE
STROTOCRINUS REGALIS (Hall)	638
Fig. 1 <i>a</i> . Lateral view of the calyx.	
1 <i>b</i> . Half of a ray to the fifth bifurcation, drawn from a large specimen.	
1 <i>c</i> . The extended rim of a large specimen, having portions of the dorsal cup broken away, exposing the subtegmina galleries at the inner floor of the tegmen, and the grooves passing out from the centre and diverging to the arms.	
1 <i>d</i> . Specimen showing the outer face of the tegmen.	
STROTOCRINUS GLYPTUS (Hall)	640
2 <i>a</i> . Dorsal aspect of a medium sized specimen.	
2 <i>b</i> . Tegmen of another specimen.	

(All specimens in the collection of Wachsmuth and Springer.)



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PLATE LXVI.

	PAGE
PLATYCRINUS HEMISPHERICUS M. and W.	703
Fig. 1 <i>a</i> . Specimen showing arms and stem.	
1 <i>b</i> . Dorsal aspect of another specimen with arms spreading, and a <i>Platyceras infundibulum</i> covering anal opening.	
1 <i>c</i> . Lateral view of the calyx; also a <i>Platyceras infundibulum</i> attached.	
1 <i>d</i> . Ventral aspect of another specimen.	
PLATYCRINUS SUBSPINULOSUS Hall	684
2 <i>a</i> . Lateral view of the dorsal cup; a very large specimen.	
2 <i>b</i> . Base of the same specimen.	
PLATYCRINUS VERRUCOSUS White	705
3 <i>a</i> . Lateral view of the dorsal cup.	
3 <i>b</i> . Dorsal aspect of the same.	
PLATYCRINUS EXCAVATUS Hall	718
4. A specimen with arms. (The figure does not show sufficiently the abrupt depressions on the radials just below their facets.)	
PLATYCRINUS NODO-STRIATUS W. and Sp.	698
5 <i>a</i> . Dorsal aspect.	
5 <i>b</i> . Side view of a somewhat depressed specimen.	
PLATYCRINUS YANDELLI O. and Sh.	706
6 <i>a</i> . Dorsal aspect of a specimen with arms.	
6 <i>b</i> . Posterior view of calyx.	
6 <i>c</i> . Ventral aspect of the same specimen.	
PLATYCRINUS SPINIFER W. and Sp.	708
7. The type specimen with arms.	
PLATYCRINUS ORNIGRANULUS McChesney	701
8. A specimen with arms.	
PLATYCRINUS SUBSPINOSUS Hall	717
9 <i>a</i> . Dorsal aspect of a perfect specimen with arms. (Mus. Comp. Zoöl.)	
9 <i>b</i> . Ventral aspect of the calyx.	
PLATYCRINUS DISCOIDEUS O. and Sh.	713
10 <i>a</i> . Dorsal aspect of a specimen with arms, the outer parts of the latter slightly restored in two rays.	
10 <i>b</i> . Ventral aspect of the calyx.	
10 <i>c</i> . Posterior side of the same specimen.	

(All specimens, except Fig. 9*a*, in the collection of Wachsmuth and Springer.)

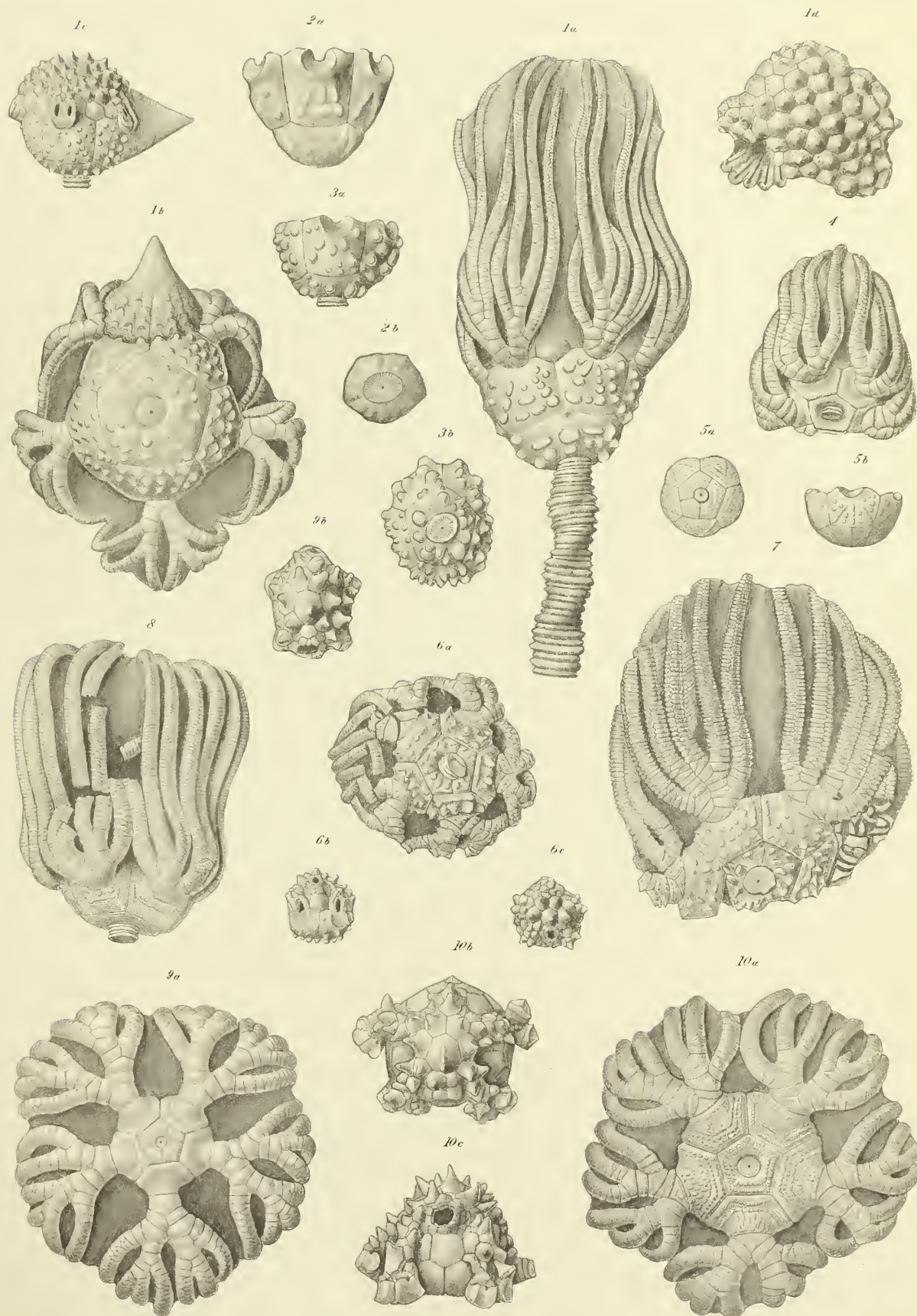
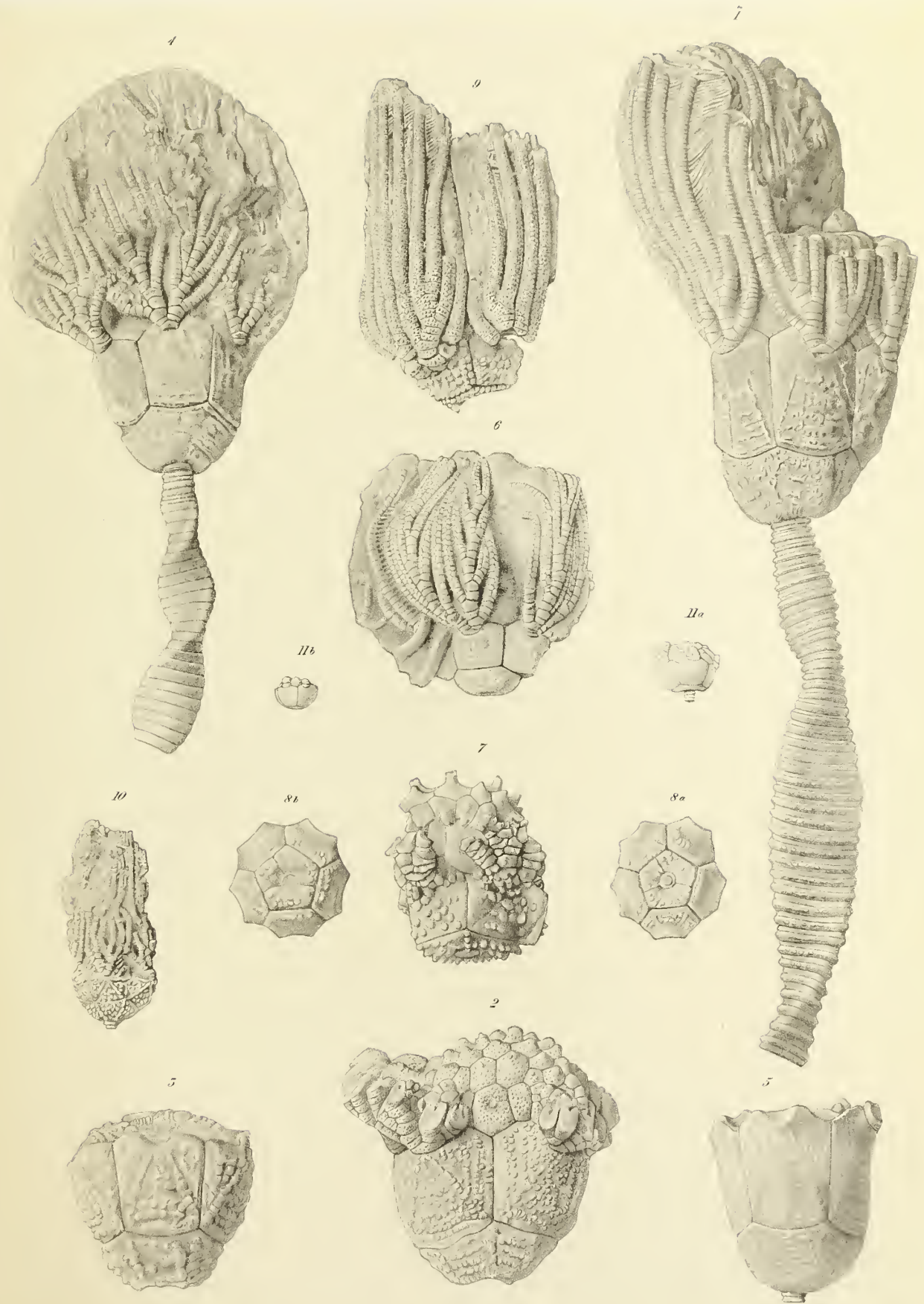


PLATE LXVII.

	PAGE
PLATYCRINUS SAFFORDI Hall	694
Fig. 1. A fine specimen with arms and column, from Indian Creek, Ind. (Coll. W. and Sp.)	
2. Side view of the calyx. (Same collection.)	
3. Dorsal cup of a specimen from Burlington. (Same collection.)	
PLATYCRINUS GLYPTUS M. and W.	693
4. Specimen with arms and column. (Coll. W. and Sp.)	
5. Dorsal cup of a large, elongate specimen. (Same collection.)	
PLATYCRINUS INCOMPTUS White	664
6. A young specimen with arms, showing the numerous bifurcations of the rays, and a faint rugose ornamentation.	
PLATYCRINUS SPINIFER, var. ELONGATUS W. and Sp.	709
7. Lateral view of the calyx, showing portions of the arms. (Same collection.)	
PLATYCRINUS CAVUS Hall	715
8 <i>a</i> and <i>b</i> . Dorsal cup of two specimens. (Same collection.)	
PLATYCRINUS WORTHENI Hall	702
9. The type specimen. (Illinois State collection.)	
PLATYCRINUS GEOMETRICUS W. and Sp.	697
10. The type specimen. (Mus. Comp. Zoöl.)	
PLATYCRINUS TRUNCATULUS Hall	675
11 <i>a</i> . Side view of the calyx, showing the bases of the arms (enlarged).	
11 <i>b</i> . Side view of another specimen.	



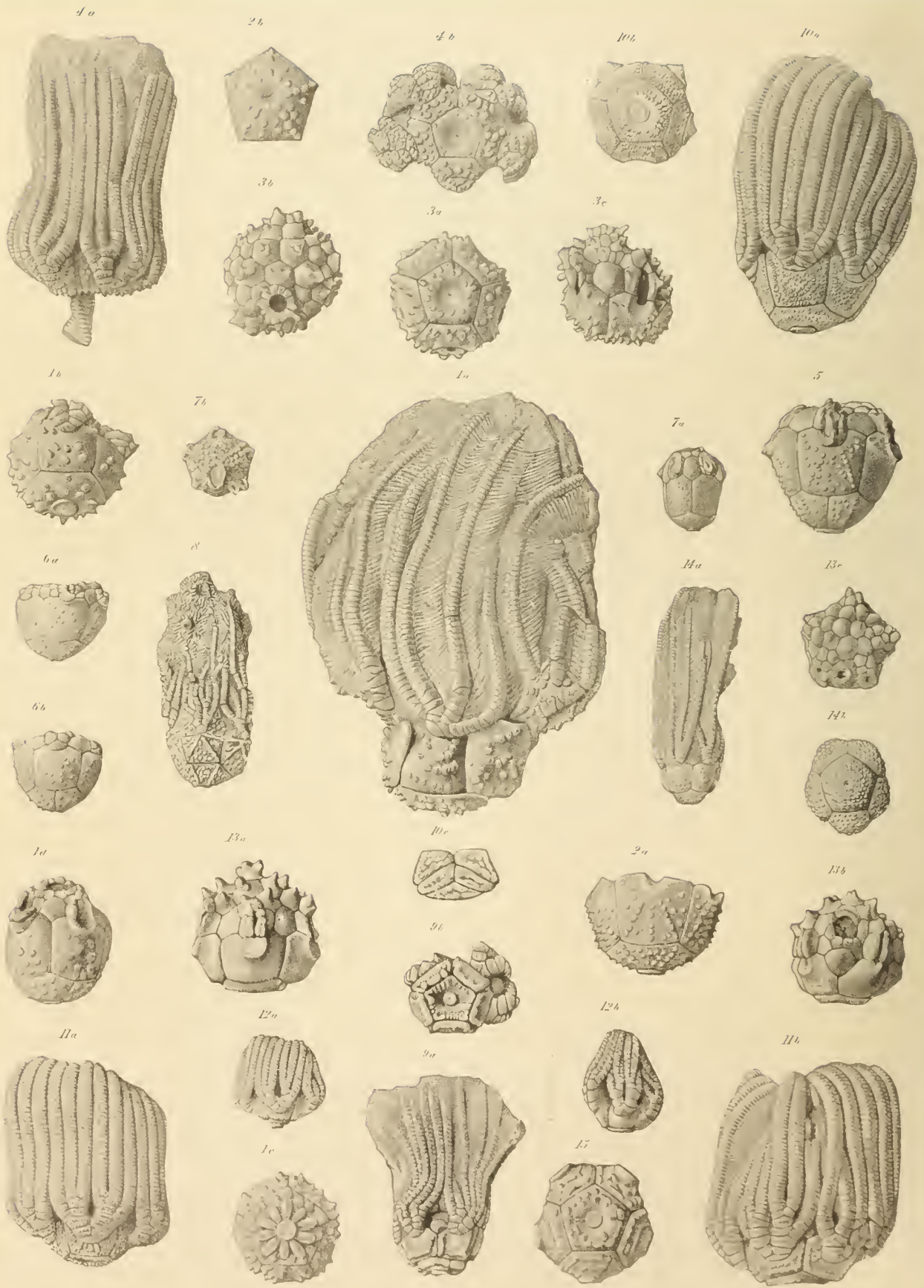


PLATE LXVIII.

	AGE
PLATYCRINUS VERRUCOSUS White	705
Fig. 1 <i>a</i> . The type specimen. (Mus. Comp. Zoöl.)	
1 <i>b</i> . Oblique view of the dorsal cup. (Coll. W. and Sp.)	
1 <i>c</i> . Another specimen; dorsal aspect of the calyx. (Same collection.)	
1 <i>d</i> . Lateral aspect of a variety from New Mexico, showing the anal opening. (Same collection.)	
PLATYCRINUS POCILLIFORMIS Hall	706
2 <i>a</i> . Lateral aspect of the dorsal cup (the ornamentation from another specimen). (Coll. W. and Sp.)	
2 <i>b</i> . Base of a specimen with larger nodes. (Coll. W. and Sp.)	
PLATYCRINUS YANDELLI O. and Sh.	706
3 <i>a</i> . Dorsal aspect of the calyx; a very mature specimen. (Same collection.)	
3 <i>b</i> . Ventral aspect of the same specimen.	
3 <i>c</i> . Posterior view of same.	
PLATYCRINUS YANDELLI, var. PERASPER	708
4 <i>a</i> . Lateral view of a specimen with arms. (Mus. Comp. Zoöl.)	
4 <i>b</i> . Dorsal aspect of the same specimen (the stem removed).	
PLATYCRINUS SCULPTUS Hall	691
5. Specimen from New Mexico, lateral view of the calyx. (Coll. W. and Sp.)	
PLATYCRINUS PARVINODUS Hall	696
6 <i>a</i> . Side view of the type, the specimen somewhat flattened. (Mus. Comp. Zoöl.)	
6 <i>b</i> . Anterior view of another specimen less distorted. (Coll. W. and Sp.)	
PLATYCRINUS PECULIARIS W. and Sp.	700
7 <i>a</i> . Posterior view of the calyx; the nodes partly eroded by weathering. (Coll. W. and Sp.)	
7 <i>b</i> . Ventral aspect of the same specimen.	
PLATYCRINUS GEOMETRICUS W. and Sp.	697
8. Another type specimen. (Coll. W. and Sp.)	

	PAGE
PLATYCRINUS ASPER M. and W.	690
Fig. 9 <i>a</i> . The type specimen. (Mus. Comp. Zoöl.)	
9 <i>b</i> . Basal view of another specimen. (Mus. Comp. Zoöl.)	
PLATYCRINUS ORNIGRANULUS McCh.	701
10 <i>a</i> . A fine specimen with arms, representing the typical form. (Mus. Comp. Zoöl.)	
10 <i>b</i> . Dorsal aspect of a very short calyx; showing the ornamentation. (Coll. W. and Sp.)	
10 <i>c</i> . A costal and two pairs of distichals.	
11 <i>a</i> . A specimen with coarser ornamentation. (Same collection.)	
11 <i>b</i> . A specimen with a somewhat different ornamentation. (Same collection.)	
12 <i>a</i> . A young specimen. (Coll. W. and Sp.)	
12 <i>b</i> . A still smaller specimen ($\frac{1}{2}$). (Same collection.)	
PLATYCRINUS EMINULUS Hall	712
13 <i>a</i> . Anterior view of calyx. (Mus. Comp. Zoöl.)	
13 <i>b</i> . Posterior view of another specimen. (Same collection.)	
13 <i>c</i> . Ventral aspect of the calyx. (Coll. W. and Sp.)	
PLATYCRINUS SCOBINA M. and W.	695
14 <i>a</i> . The type specimen. (Mus. Comp. Zoöl.)	
14 <i>b</i> . Dorsal aspect of the calyx. (Coll. W. and Sp.)	
PLATYCRINUS GORBYI S. A. Miller	716
15. Dorsal aspect of the calyx. (Mus. Comp. Zoöl.)	

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PLATE LXIX.

	PAGE
PLATYCRINUS SYMMETRICUS W. and Sp.	655
Fig. 1 <i>a</i> . Specimen with arms and column.	
1 <i>b</i> . Ventral aspect of the calyx; a large specimen.	
1 <i>c</i> . Ventral aspect of a young specimen; the orals almost symmetrical.	
PLATYCRINUS PLANUS O. and Sh.	668
2 <i>a</i> . A large specimen with arms.	
2 <i>b</i> . Lateral view of the dorsal cup.	
2 <i>c</i> . A portion of the arms enlarged.	
2 <i>d</i> . A young specimen, apparently of this species.	
PLATYCRINUS BURLINGTONENSIS O. and Sh.	653
3 <i>a</i> . A medium sized specimen with arms. (After Meek and Worthen.)	
3 <i>b</i> . Lateral view of a large calyx.	
3 <i>c</i> . Ventral aspect of another large specimen, showing the anal tube.	
3 <i>d</i> . Posterior view of a smaller specimen.	
3 <i>e</i> . Ventral aspect of another small specimen.	
3 <i>f</i> . Dorsal cup of a young specimen. (Inadvertently drawn with left antero-lateral interradius at the top.)	
3 <i>g</i> . A very young specimen with zigzag arms, composed of single joints.	
3 <i>h</i> . Portion of an arm showing the lateral processes (enlarged).	
3 <i>i</i> . Portion of an arm in a dorsal aspect (enlarged).	
PLATYCRINUS AGASSIZI W. and Sp.	669
4. A very large specimen with arms.	
PLATYCRINUS PILEIFORMIS Hall	656
5. A specimen with arms (slightly restored).	
PLATYCRINUS BONÆNSIS White	683
6. A specimen having six arms to the ray.	
PLATYCRINUS SARÆ Hall	677
7. The type specimen. (After Hall.) Somewhat flattened.	

(All specimens in the collection of Wachsmuth and Springer, except that of 3*a*, which is in the Museum of Comparative Zoölogy, and Fig. 7, which is in the Illinois State Museum.)

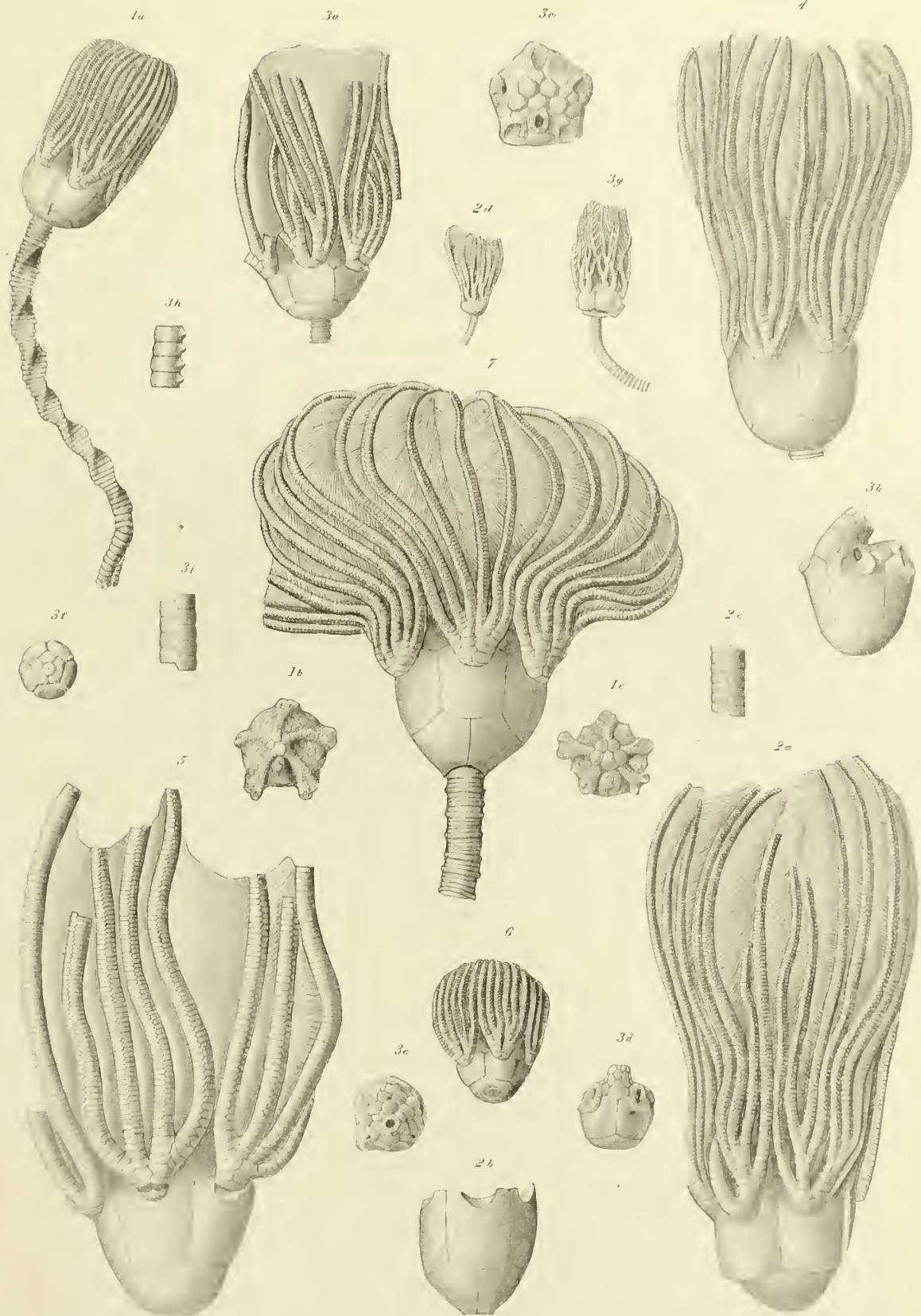
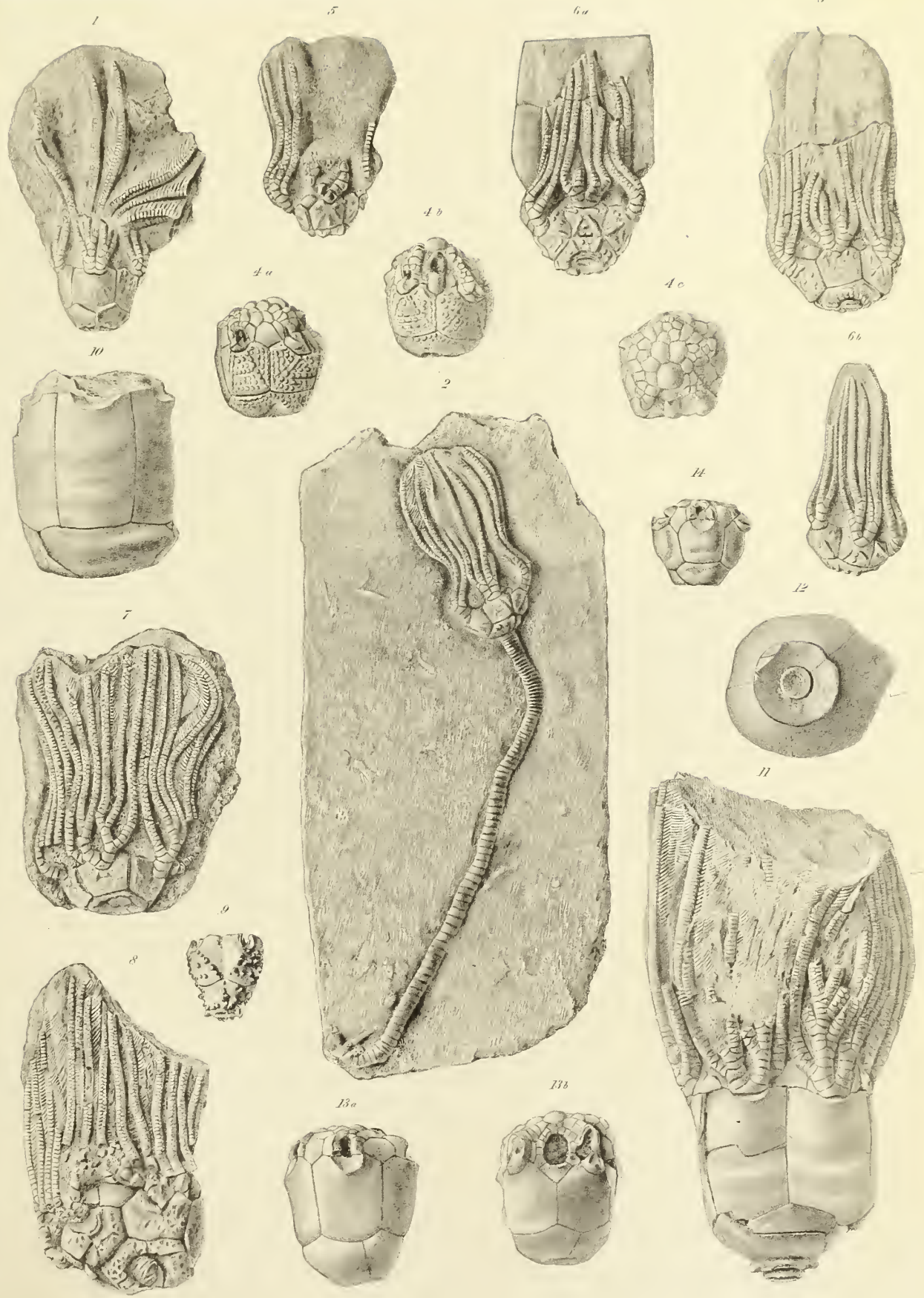


PLATE LXX.

	PAGE
PLATYCRINUS SARÆ Hall	677
Fig. 1. Specimen with faintly ornamented plates.	
PLATYCRINUS NODO-STRIATUS W. and Sp.	698
3. Specimen with six to the ray, the most frequent number.	
4 <i>a</i> . Lateral view of the calyx; an older specimen.	
4 <i>b</i> . Anal side of the same specimen.	
4 <i>c</i> . Ventral aspect of same.	
PLATYCRINUS BREVINODUS Hall	688
2. Specimen from the upper part of the Burlington limestone; with column, root, and four arms to the ray.	
5. Specimen from same horizon with six arms to the ray.	
6 <i>a</i> and <i>b</i> . Two specimens from the Keokuk group of Indian Creek, Ind.	
PLATYCRINUS TENUIBRACHIATUS Meek and Worth.	687
7. A specimen with arms.	
8. Another specimen, slightly differing in ornamentation.	
PLATYCRINUS SUBSPINULOSUS Hall	684
9. A highly ornamented calyx.	
PLATYCRINUS SAMPSONI S. A. Miller	673
10. Lateral view of the calyx.	
PLATYCRINUS PRATTENI Worthen	671
11. A specimen with arms.	
12. The basal disk.	
PLATYCRINUS PILEIFORMIS Hall	656
13 <i>a</i> . Lateral view of the calyx.	
13 <i>b</i> . Posterior side of the calyx.	
PLATYCRINUS DAVISI W. and Sp.	684
14. Lateral view of the type specimen.	

(All the specimens in the collection of Wachsmuth and Springer.)



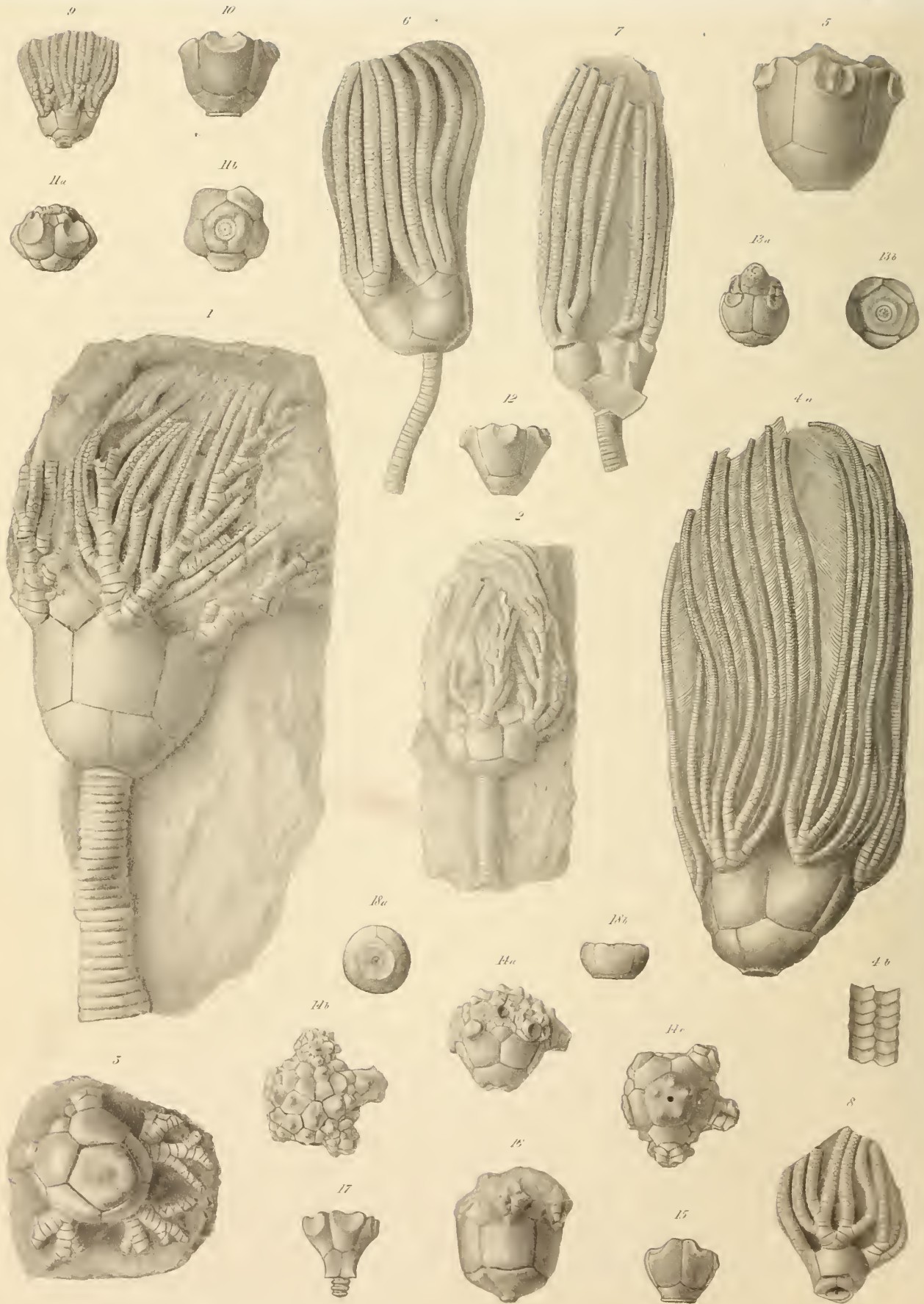


PLATE LXXI.

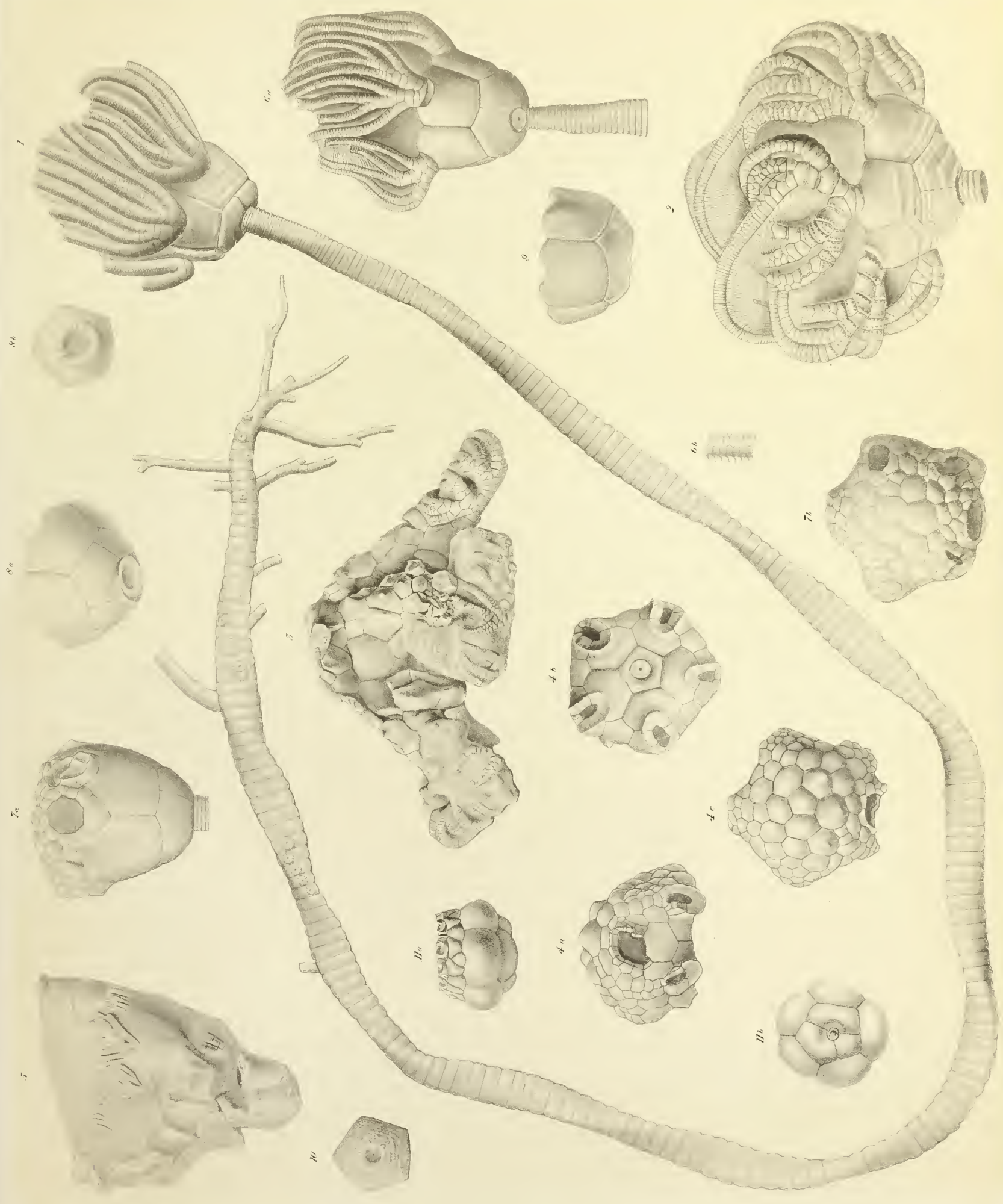
	PAGE
PLATYCRINUS INCOMPTUS White	664
Fig. 1. A very large specimen, showing the numerous ramifications of the arms. (Coll. W. and Sp.)	
2. A small specimen, showing the same. (Same collection.)	
3. The type specimen. (Mus. Comp. Zoöl.)	
PLATYCRINUS ÆQUALIS Hall	674
4a. A very large specimen with arms. (Same collection.)	
4b. Portion of an arm (enlarged).	
5. The calyx, showing the radial facets and the small first costal. (Coll. W. and Sp.)	
PLATYCRINUS LODENSIS Hall and Whitf.	666
6. The type specimen. (After Hall and Whitfield.)	
PLATYCRINUS GRAPHICUS Hall and Whitf.	672
7. The type specimen. (After Hall and Whitfield.)	
PLATYCRINUS CONTRITUS Hall and Whitf.	667
8. The type specimen. (After Hall and Whitfield.)	
PLATYCRINUS NIOTENSIS Meek and Worthen	682
9. Specimen with arms (from Indiana).	
PLATYCRINUS BRITTSI S. A. Miller	659
10. The type specimen. (Coll. F. A. Sampson, Sedalia).	
PLATYCRINUS CORBULIFORMIS Rowley and Hare	657
11a. Dorsal cup in a side view.	
11b. Dorsal aspect of the same specimen. (Coll. R. R. Rowley.)	
PLATYCRINUS ÆQUITERNUS S. A. Miller	658
12. The type specimen. (Coll. F. A. Sampson.)	
PLATYCRINUS PISUM Rowley and Hare	660
13a. The type specimen; posterior view. (Coll. R. R. Rowley.)	
13b. Dorsal aspect of same.	

	PAGE
PLATYCRINUS QUINQUENODUS White	661
Fig. 14 <i>a</i> . The type specimen; lateral view of calyx. (Mus. Comp. Zoöl.)	
14 <i>b</i> . Ventral aspect of same.	
14 <i>c</i> . Dorsal aspect of same.	
PLATYCRINUS INSOLENS Rowley and Hare	659
15. The type specimen. (Coll. R. R. Rowley.)	
PLATYCRINUS PECULIARIS W and Sp.	700
16. The type, a rather large example. (Coll. W. and Sp.)	
PLATYCRINUS ALLOPHYLUS S. A. Miller	685
17. The type specimen. (Coll. F. A. Sampson.)	
PLATYCRINUS TRUNCATULUS Hall	675
18 <i>a</i> . Dorsal aspect of the calyx. (Coll. W. and Sp.)	
18 <i>b</i> . Side view of the dorsal cup.	

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PLATE LXXII.

	PAGE
PLATYCRINUS REGALIS Hall	710
Fig. 1. Specimen with arms, stem, and root. The calyx of this specimen is much distorted by pressure, and the surface ornamentation obscure, so that in some of the characters it gives an incorrect impression, and does not represent a typical example of the species. (Coll. W. and Sp.)	
2. The type specimen. (Mus. Comp. Zool.)	
EUCLADOCRINUS TUBEROSUS (Hall)	728
3. Specimen, showing the small branching arms given off from the tubular appendages. (Coll. W. and Sp.)	
4a. Posterior side of the calyx. (Same collection.)	
4b. Dorsal aspect of the same specimen.	
4c. Ventral aspect of same.	
EUCLADOCRINUS MONTANENSIS Meek	723
5. The type specimen. (National Museum at Washington.)	
PLATYCRINUS HALLI Shumard	662
6a. Specimen with arms and stem. (Coll. W. and Sp.)	
6b. Portion of an arm, enlarged.	
7a. Posterior side of the calyx. (Same collection.)	
7b. Ventral aspect of the same specimen.	
PLATYCRINUS BOONVILLENSIS S. A. Miller	681
8a. The type specimen, showing the dorsal cup. (After Miller.)	
8b. Dorsal aspect of the base. (Coll. W. and Sp.)	
9. Another specimen. (Coll. F. A. Sampson.)	
PLATYCRINUS ORNIGRANULUS McCh.	701
10. Basal disk, showing the ornamentation.	
MARSUPIOCRINUS PRÆMATURUS (Hall and Whitf.).	734
11a. Side view of the type specimen.	
11b. Dorsal aspect of the same. (After Hall and Whitfield.)	



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PLATE LXXIII.

	PAGE
EUCLADOCRINUS MILLEBRACHIATUS W. and Sp.	720
Fig. 1. A large specimen; the tubular appendages hanging over the calyx.	
EUCLADOCRINUS MILLEBRACHIATUS, var. IMMATURUS W. and Sp.	722
2. Dorsal view of a small specimen; the tubular appendages directed horizontally.	
3. Ventral aspect of a larger specimen, showing the bases of the arms.	
EUCLADOCRINUS PLEUROVIMINEUS (White)	724
4. A large specimen, showing the dorsal side of the calyx.	
EUCLADOCRINUS PRÆNUNTIUS W. and Sp.	726
5. One of the type specimens, showing calyx and portions of the arms.	
PLATYCRINUS HUNTSVILLE (Troost) W. and Sp.	678
6. A large specimen with inflated arms; the plates of the calyx not ornamented.	
7a. Another mature specimen with ornamented calyx plates, the arms gradually tapering.	
7b. A portion of one ray enlarged, showing the spinous processes at the sides of the arm plates, the waving suture lines between the lower brachials, and the arrangement of the pinnules ($\frac{2}{3}$).	
8b. An immature specimen; the arms uniserial to nearly one half of their length ($\frac{1}{3}$).	
9. A more mature specimen ($\frac{1}{3}$).	
10. A very young specimen, the arms composed of comparatively elongate plates, and uniserial almost to their tips ($\frac{3}{4}$).	
11. The base of a highly ornamented specimen.	
12. The base of a smooth specimen.	

(All the specimens in the collection of Wachsmuth and Springer.)

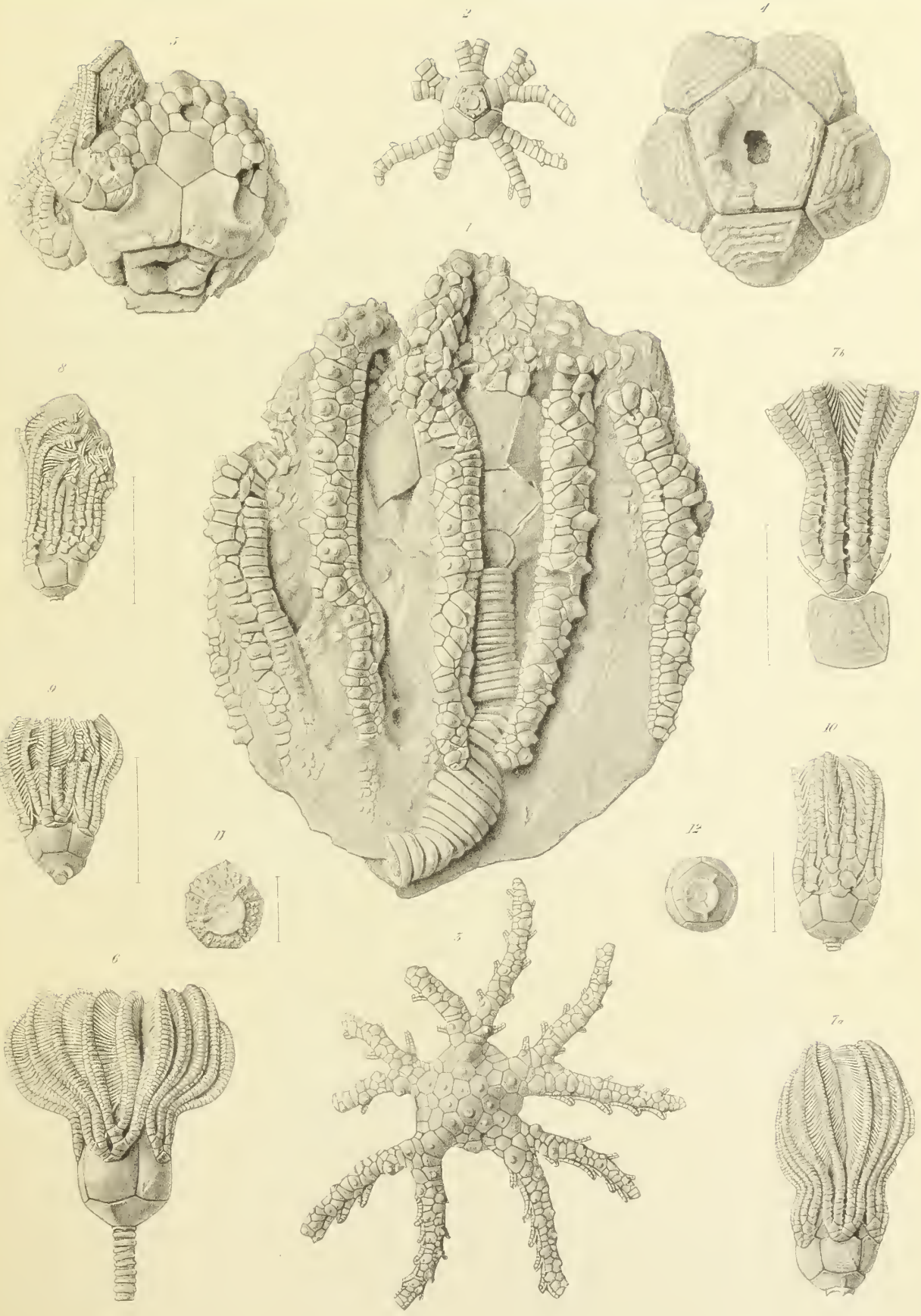
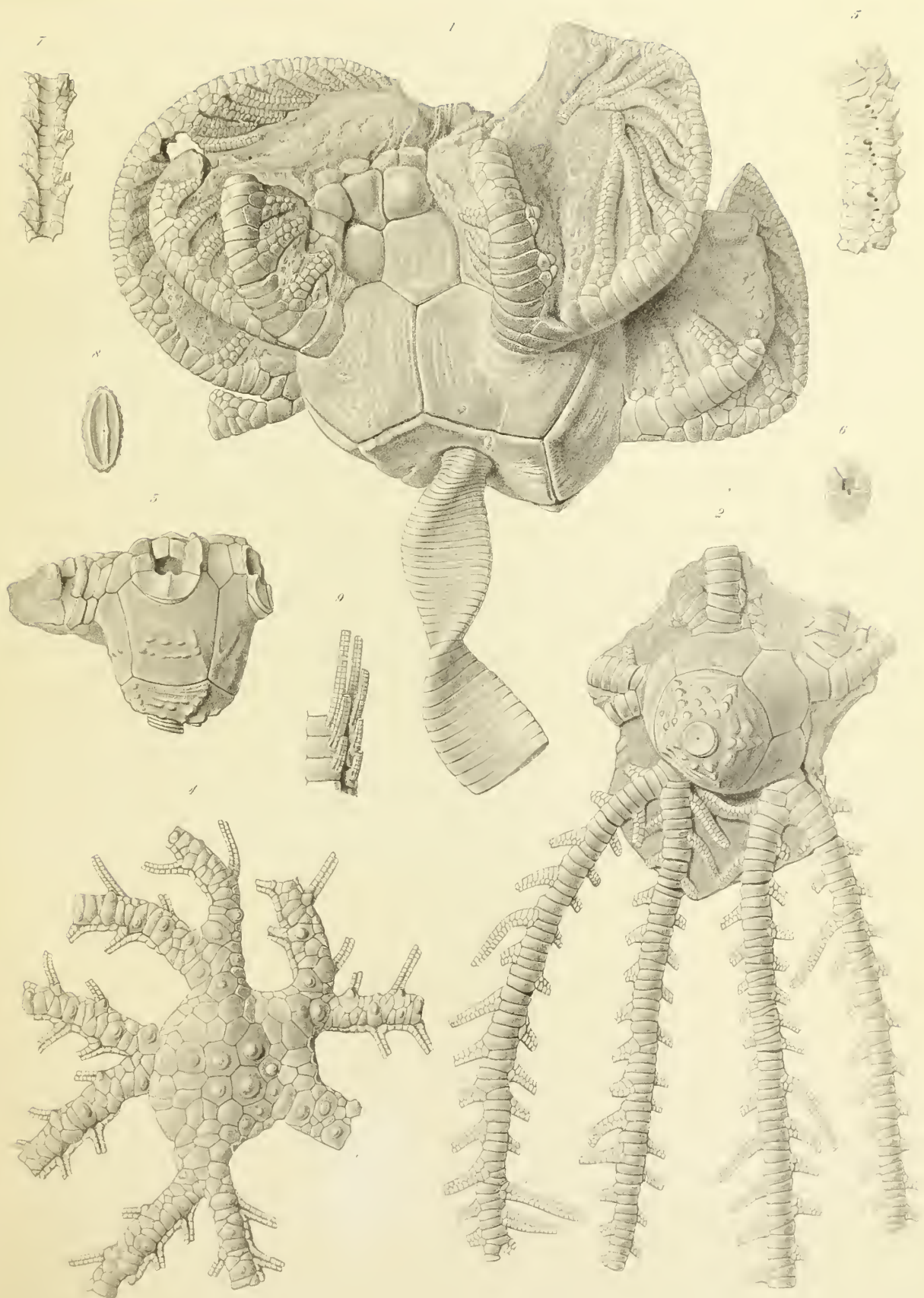


PLATE LXXIV.

	PAGE
EUCLADOCRINUS PLEUROVIMINEUS (White)	724
Fig. 1. A magnificent specimen, showing the calyx, the tubular appendages, arms, and column.	
EUCLADOCRINUS MILLEBRACHIATUS W. and Sp.	720
2. A moderately large specimen, showing the dorsal side of the calyx, tubular appendages, and arms.	
3. Side view of the calyx.	
4. Ventral aspect of a fine specimen, showing the rigid covering pieces of the tubular appendages, and the ventral furrows along the arms.	
5. Lateral view of one of the tubular appendages, showing the arm openings, and the respiratory pores at the base of the arms.	
6. Cross section of an appendage, showing the central cavity.	
7. The appendage with the covering pieces removed.	
8. Distal face of a stem joint from near the calyx, showing the transverse ridge, and the minute axial canal.	
9. Portion of an arm enlarged, showing the pinnules.	

(All the specimens in the collection of Wachsmuth and Springer.)



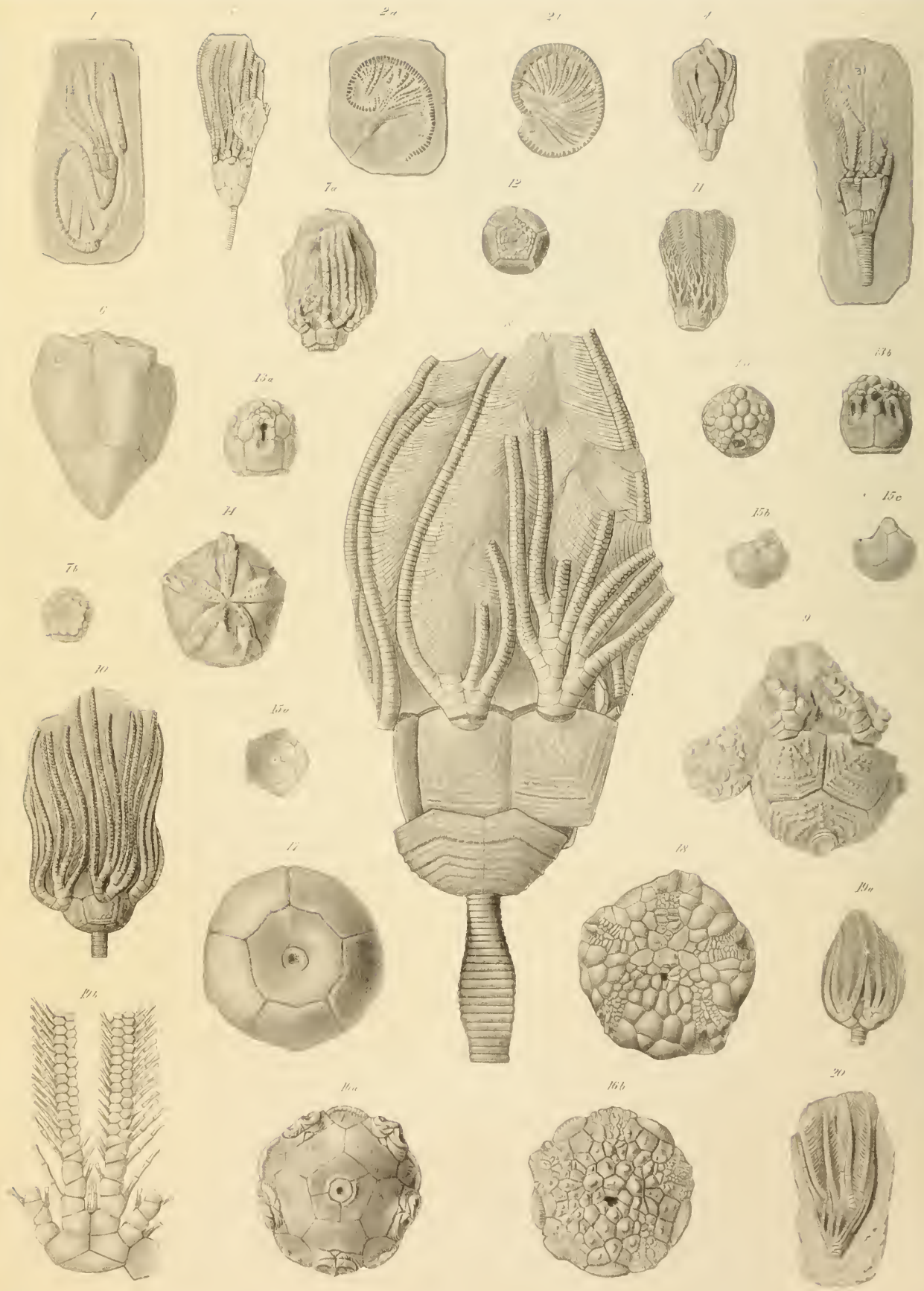


PLATE LXXV.

	PAGE
CAMPTOCRINUS MYELODACTYLUS W. and Sp.	779
Fig. 1. A specimen with stem and cirri. (Coll. W. and Sp.)	
2 <i>a</i> and <i>b</i> . Portions of the coiled stem in different specimens, showing the cirri.	
DICHOOCRINUS BLAIRI S. A. Miller	778
3. The type specimen. (After Miller.)	
DICHOOCRINUS HUNTSVILLE W. and Sp.	773
4. The type specimen. (Coll. W. and Sp.)	
DICHOOCRINUS CINCTUS S. A. MILLER	764
5. Specimen with arms. (Same collection.)	
DICHOOCRINUS CONUS Meek and Worthen	770
6. The type specimen. (Illinois State collection.)	
PLATYCRINUS CANALICULATUS Hall	689
7 <i>a</i> . Specimen with arms. (Coll. W. and Sp.)	
7 <i>b</i> . Dorsal aspect of the calyx. (Same collection.)	
PLATYCRINUS SCULPTUS Hall	691
8. A large specimen with arms. (Same collection.)	
9. A smaller specimen. (Mus. Comp. Zoöl.)	
PLATYCRINUS AMERICANUS O. and Sh.	686
10. A mature specimen with arms; the latter biserial from above the last bifurcation. (Coll. W. and Sp.)	
11. A young specimen; the arms uniserial and zigzag, the joints elongate, and the pinnules far apart. (Same collection.)	
12. Dorsal aspect of the calyx. (Same collection.)	
13 <i>a</i> . Side view of the calyx of a large specimen. (Same collection.)	
13 <i>b</i> . Anal side of the same specimen.	
13 <i>c</i> . Ventral aspect of the same.	
14. Natural cast, probably of CULICOCRINUS	735
From the Niagara group of Iowa. (Same collection.)	

	PAGE
COCCOCRINUS BACCA F. Røemer	739
Fig. 15a. Dorsal aspect of the calyx (drawn with the anal interradius at the lower left side).	
15b. Right anterior side of the same specimen.	
15c. Posterior side of same. (Same collection.)	
MARSUPIOCRINUS TENNESSEENSIS (F. Røemer)	731
16a. Dorsal view of the calyx. (Coll. W. and Sp.)	
16b. Ventral aspect of the same specimen.	
MARSUPIOCRINUS STRIATUS W. and Sp.	732
17. Dorsal view of a rather small specimen. (Same collection.)	
18. Ventral aspect of another specimen.	
MARSUPIOCRINUS TENTACULATUS (Hall)	733
19a. The type specimen. (After Hall.)	
19b. Enlargement of one of its rays. (After Hall.)	
CORDYLOCRINUS PLUMOSUS (Hall)	737
20. The type specimen. (After Hall.)	

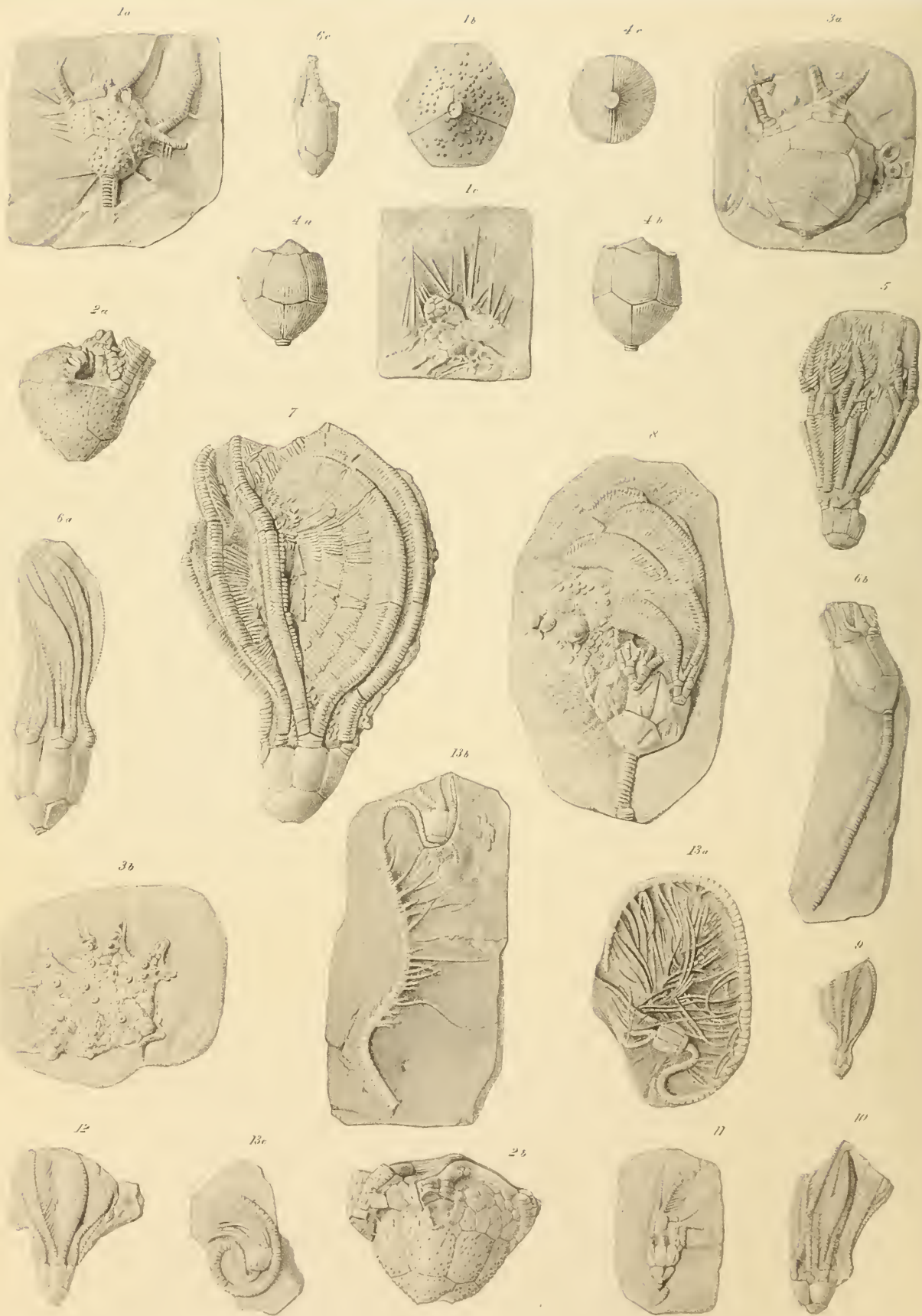


PLATE LXXVI.

	PAGE
ARTHACANTHA ITHACENSIS Williams	749
Fig. 1 <i>a</i> . Lateral view of a specimen with arms. (Museum Cornell University.)	
1 <i>b</i> . Basal disk.	
1 <i>c</i> . The movable spines upon the tegmen.	
ARTHACANTHA PUNCTOBRACHIATA Williams	750
2 <i>a</i> . Specimen showing spine bases. (Coll. W. and Sp.)	
2 <i>b</i> . Another specimen with some spines attached. (Coll. Prof. S. Calvin.)	
ARTHACANTHA DEPRESSA W. and Sp.	751
3 <i>a</i> . Dorsal aspect of the type specimen. (Coll. W. and Sp.)	
3 <i>b</i> . Ventral aspect of the same specimen.	
DICHOCRINUS LINEATUS Meek and Worthen	761
4 <i>a</i> . The type specimen; posterior view of the calyx. (Mus. Comp. Zoöl.)	
4 <i>b</i> . Anterior view of the same specimen.	
4 <i>c</i> . Dorsal aspect of same.	
DICHOCRINUS PISUM Meek and Worthen	763
5. Specimen with arms. (Mus. Comp. Zoöl.)	
DICHOCRINUS CRASSITESTUS White	769
6 <i>a</i> . The type specimen; the anterior side exposed. (Same collection.)	
6 <i>b</i> . Another specimen with part of the column attached. (Coll. W. and Sp.)	
6 <i>c</i> . Posterior view of the calyx and anal tube. (Same collection.)	
DICHOCRINUS OVATUS Owen and Shumard	760
7. A fine specimen with arms. (Mus. Comp. Zoöl.)	
DICHOCRINUS LIRATUS Hall	759
8. Specimen with arms and part of column. (Same collection.)	
DICHOCRINUS COXANUS Worthen	763
9. The type specimen. (Coll. L. A. Cox.)	
DICHOCRINUS HAMILTONENSIS Worthen	772
10. The type specimen. (Same collection.)	

	PAGE
DICHOCRINUS ANGUSTUS White	768
Fig. 11. Posterior view of a specimen with arms. (Coll. W. and Sp.)	
DICHOCRINUS SUPERSTES W. and Sp.	766
12. Side view of the type specimen. (Same collection.)	
CAMPTOCRINUS CIRRIFER W. and Sp.	780
13a. The type specimen, showing the curved cirrus-bearing stem; from the Kaskaskia group of Kentucky. (Coll. W. and Sp.)	
13b. Another specimen from the Kaskaskia group. (Same collection.)	
13c. A specimen from the St. Louis group of Huntsville, Ala. (Same collection.)	



PLATE LXXVII.

	PAGE
DICHOCHRINUS POLYDACTYLUS Cass. and Lyon	756
1 <i>a.</i> A large specimen with arms.	
1 <i>b.</i> Posterior view of calyx, showing the elevated dome and disk ambulacra.	
DICHOCHRINUS LACHRYMOSUS Hall	754
2 <i>a.</i> Specimen with arms and stem.	
2 <i>b.</i> Posterior view of calyx.	
2 <i>c.</i> Ventral aspect of same.	
DICHOCHRINUS LIRATUS Hall	759
3 <i>a.</i> Specimen showing the arms and stem.	
3 <i>b.</i> Posterior view of the dorsal cup.	
DICHOCHRINUS CINCTUS Miller and Gurley	764
4 <i>a.</i> Posterior view of specimen with arms.	
4 <i>b.</i> Ventral aspect of the calyx.	
4 <i>c.</i> Distal face of first distichal ($\frac{1}{2}$).	
DICHOCHRINUS PLICATUS Hall	758
5 <i>a.</i> A small specimen with arms and stem.	
5 <i>b.</i> Another specimen, giving a side view of the dorsal cup.	
DICHOCHRINUS ORNATUS W. and Sp.	762
6. Specimen with arms and stem, from near Mt. Pleasant, Iowa.	
DICHOCHRINUS LÆVIS Hall	765
7 <i>a.</i> Specimen with arms. (Coll. Mr. Fultz of Burlington.)	
7 <i>b.</i> Another specimen. (Same collection.)	
7 <i>c.</i> Portion of an arm with pinnules (enlarged).	
DICHOCHRINUS OVATUS O. and Sh.	760
8 <i>a.</i> A specimen with arms.	
8 <i>b.</i> Posterior view of the dorsal cup.	
DICHOCHRINUS OBLONGUS W. and Sp.	759
9. Posterior view of the type specimen.	

	PAGE
DICHOCRINUS PISUM M. and W.	763
Fig. 10. Posterior side of the dorsal cup. (After Meek and Worthen.)	
DICHOCRINUS STRIATUS O. and Sh.	757
11 <i>a</i> . Posterior side of the dorsal cup.	
11 <i>b</i> . Side view of another specimen.	
DICHOCRINUS INORNATUS W. and Sp.	770
12 <i>a</i> . Posterior view of a specimen with arms.	
12 <i>b</i> . Another specimen.	
DICHOCRINUS DELICATUS W. and Sp.	766
13. The type specimen.	
(All the specimens, except 7 <i>a</i> , <i>b</i> and 10, are in the collection of Wachsmuth and Springer.)	

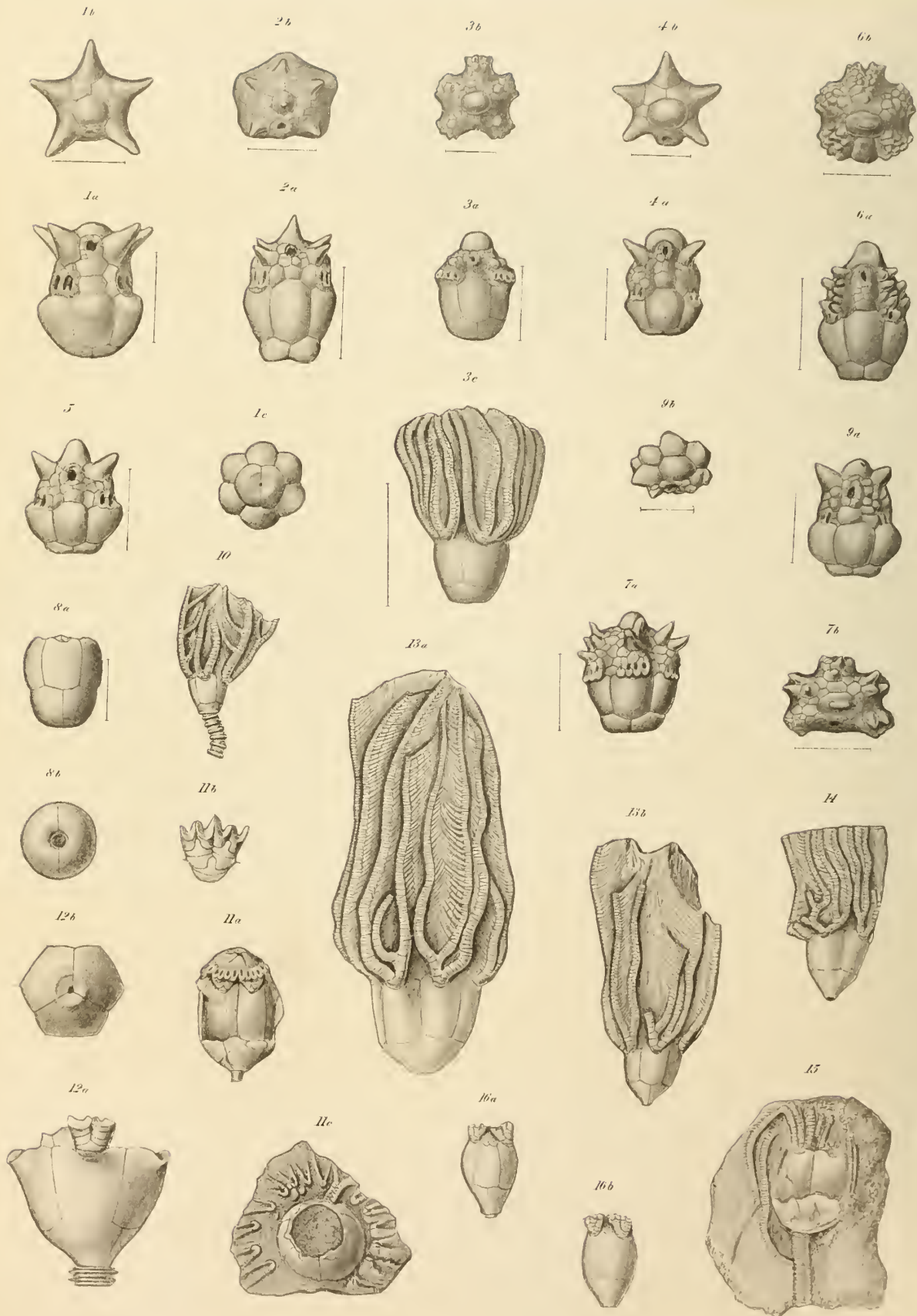


PLATE LXXVIII.

	PAGE
TALAROCRINUS SEXLOBATUS (Shumard)	784
Fig. 1 <i>a</i> . Posterior view of a specimen from Flagpont, Va. ($\frac{1.5}{1}$). (Coll. W. and Sp.)	
1 <i>b</i> . Ventral aspect of the same specimen ($\frac{1.5}{1}$).	
1 <i>c</i> . Dorsal view of the calyx. (Coll. W. and Sp.)	
TALAROCRINUS OVATUS Worthen	787
2 <i>a</i> . Posterior view of the type specimen ($\frac{1.5}{1}$). (Illinois St. Coll.)	
2 <i>b</i> . Ventral aspect of the same specimen ($\frac{1.5}{1}$).	
TALAROCRINUS DECORNIS W. and Sp.	788
3 <i>a</i> . Posterior view of the type specimen ($\frac{1.5}{1}$). (Coll. W. and Sp.)	
3 <i>b</i> . Ventral aspect of the same ($\frac{1.5}{1}$).	
3 <i>c</i> . Specimen with arms ($\frac{1.5}{1}$). (Same collection.)	
TALAROCRINUS SYMMETRICUS (Cass. and Lyon)	786
4 <i>a</i> . Posterior view of the calyx ($\frac{1.5}{1}$). (Coll. W. and Sp.)	
4 <i>b</i> . Ventral aspect of the same specimen ($\frac{1.5}{1}$).	
5. Posterior view of type ($\frac{1.5}{1}$). (Coll. S. S. Lyon.)	
TALAROCRINUS CORNIGERUS (Shumard)	783
6 <i>a</i> . Posterior view of a specimen from Pulaski Co., Ky. (Coll. W. and Sp.)	
6 <i>b</i> . Ventral aspect of the same specimen ($\frac{1.5}{1}$).	
7 <i>a</i> . Anterior view of the type specimen, from Alabama ($\frac{1.5}{1}$). (Mus. Washington University, St. Louis.)	
7 <i>b</i> . Ventral aspect of the same ($\frac{1.5}{1}$).	
TALAROCRINUS SIMPLEX (Shumard)	790
8 <i>a</i> . Anterior view of the dorsal cup ($\frac{1.5}{1}$). (Coll. W. and Sp.)	
8 <i>b</i> . Dorsal aspect of a larger specimen. (Same collection.)	
TALAROCRINUS sp. (?)	
9 <i>a</i> . Posterior view of a specimen from Pulaski Co., Ky. ($\frac{1.5}{1}$). Perhaps an abnormal specimen of <i>T. sexlobatus</i> . (Coll. W. and Sp.)	
9 <i>b</i> . Oral plates of the same ($\frac{1.5}{1}$).	
HEXACRINUS OCCIDENTALIS W. and Sp.	745
10. Anterior view of the type specimen. (Mus. Davenport Acad. Nat. Sci.)	

	PAGE
DICHOCRINUS PENTALOBUS (Cass. and Lyon)	775
Fig. 11 <i>a</i> . Lateral view of the type specimen; somewhat crushed. (Coll. S. S. Lyon.)	
11 <i>b</i> . The fixed brachials, enlarged (¶).	
11 <i>c</i> . An imperfect specimen, showing parts of the pendant arms. (Coll. S. S. Lyon.)	
HEXACRINUS LEAI (Lyon)	746
12 <i>a</i> . Anterior view of type; the lower brachials and a few joints of the stem restored from another specimen. (Coll. S. S. Lyon.)	
12 <i>b</i> . Basal cup of same specimen.	
DICHOCRINUS SCITULUS Hall	767
13 <i>a</i> . Side view of a large specimen with arms, from the Lower Burlington limestone. (Coll. W. and Sp.)	
13 <i>b</i> . A small specimen from the Upper Burlington limestone. (Same collection.)	
14. Side view of a specimen with arms from the same horizon. (Same collection.)	
DICHOCRINUS PENDENS W. and Sp.	774
15. Specimen with pendent arms from the Upper Burlington limestone. (Coll. W. and Sp.)	
DICHOCRINUS FICUS Cass. and Lyon	774
16 <i>a</i> . Posterior view of the calyx. (Coll. W. and Sp.)	
16 <i>b</i> . Side view of another specimen. (Same collection.)	

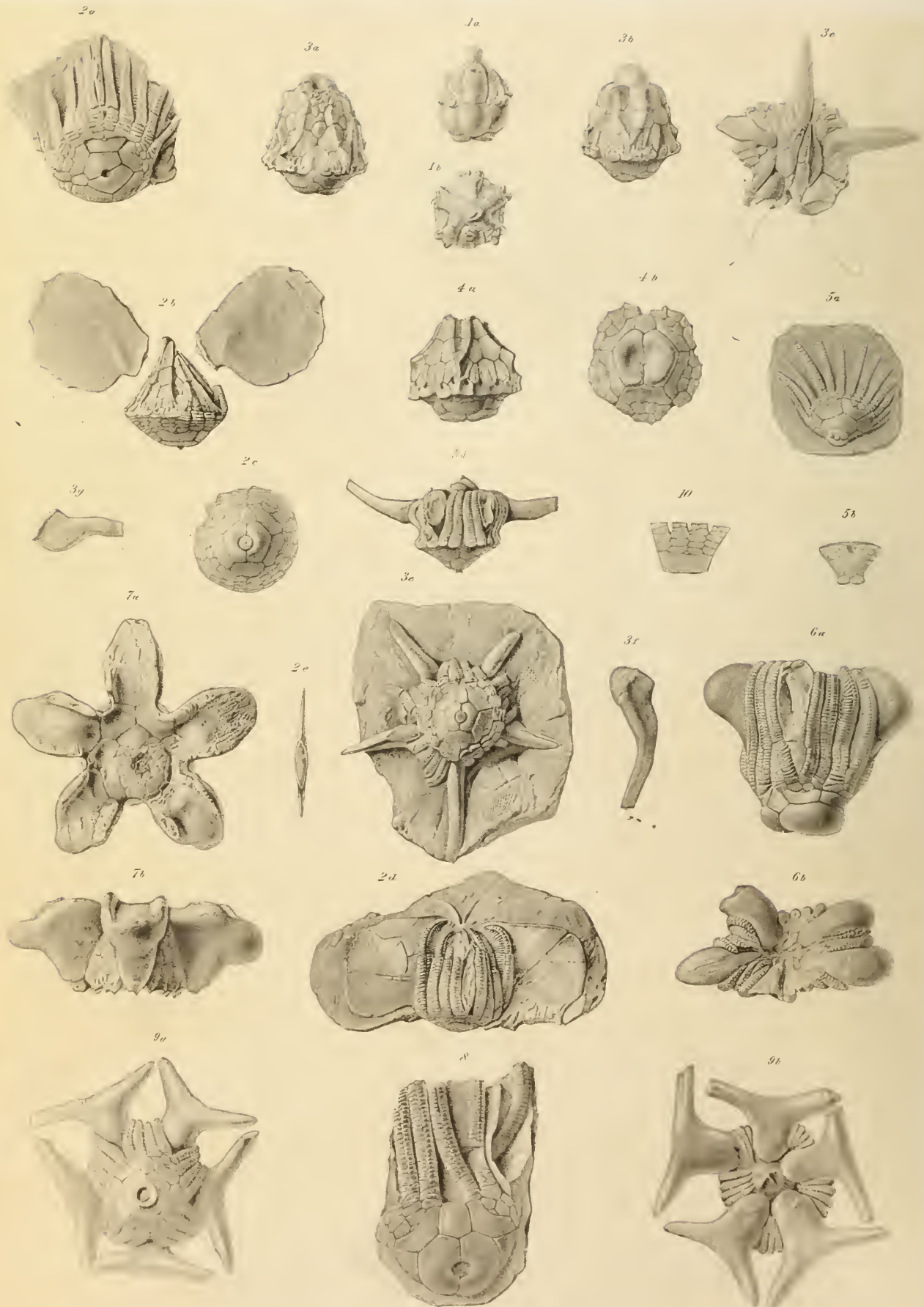


PLATE LXXIX.

	PAGE
<p style="text-align: center;">TALAROCRINUS SUBGLOBOSUS W. and Sp.</p> <p>Fig. 1<i>a</i>. Posterior view of the calyx. (Coll. W. and Sp.)</p> <p>1<i>b</i>. Ventral aspect of the same specimen.</p>	789
<p style="text-align: center;">PTEROTOCRINUS DEPRESSUS Lyon and Cass.</p> <p>2<i>a</i>. Lateral view of the type specimen. (Coll. S. S. Lyon.)</p> <p>2<i>b</i>. Lateral view of the calyx, showing two of the wings. (Coll. W. and Sp.)</p> <p>2<i>c</i>. Dorsal aspect of the calyx. (Same collection.)</p> <p>2<i>d</i>. Another type specimen, showing the wings in position. (Coll. S. S. Lyon.)</p> <p>2<i>e</i>. A wing, showing the face of attachment.</p>	796
<p style="text-align: center;">PTEROTOCRINUS ACUTUS Wetherby</p> <p>3<i>a</i>. Posterior view of the calyx. (Coll. W. and Sp.)</p> <p>3<i>b</i>. Anterior view of the same specimen.</p> <p>3<i>c</i>. Ventral aspect of a specimen with two of the wings preserved, and the anus covered by a Gasteropod. (Same collection.)</p> <p>3<i>d</i>. Another specimen, showing the wings in a side view. (Same collection.)</p> <p>3<i>e</i>. Dorsal aspect of a fine specimen with arms and wings. (Same collection.)</p> <p>3<i>f</i> and <i>g</i>. 2 wings of a different species. (Same collection.)</p>	799
<p style="text-align: center;">PTEROTOCRINUS PYRAMIDALIS Lyon and Cass.</p> <p>4<i>a</i>. The type specimen; lateral view of the calyx. (Coll. S. S. Lyon.)</p> <p>4<i>b</i>. Dorsal aspect of the same specimen.</p>	798
<p style="text-align: center;">PTEROTOCRINUS CHESTERENSIS Meek and Worthen</p> <p>5<i>a</i>. One of the type specimens; lateral aspect. (After Meek and Worthen.)</p> <p>5<i>b</i>. Another type specimen, showing the posterior side of the calyx. (After Meek and Worthen.)</p>	802
<p style="text-align: center;">PTEROTOCRINUS CAPITALIS Lyon</p> <p>6<i>a</i>. Postero-lateral view of the type specimen. (Coll. S. S. Lyon.)</p> <p>6<i>b</i>. Ventral aspect of the same.</p>	794
<p style="text-align: center;">PTEROTOCRINUS CORONARIUS Lyon</p> <p>7<i>a</i>. Ventral aspect of the type specimen. (Same collection.)</p> <p>7<i>b</i>. Side view of the same; the dorsal cup not preserved.</p>	795

	PAGE
PTEROTOCRINUS CRASSUS Meek and Worthen	801
Fig. 8. Posterior view of the type specimen. (After Meek and Worthen.)	
PTEROTOCRINUS ACUTUS, var. BIFURCATUS Wetherby	801
9a. Dorsal aspect of the type specimen. (After Wetherby.)	
9b. Ventral aspect of the same.	
10. Diagram, showing the arrangement of the lower brachials in <i>Pterotocrinus</i> .	

PLATE LXXX.

	PAGE
ACROCRINUS SHUMARDI Yandell	806
Fig. 1. Lateral view of the type specimen. (Dr. Yandell's collection.)	
2. Fragmentary specimen from Huntsville, Ala. (Coll. W. and Sp.)	
3. The lower part of the dorsal cup; from Pulaski Co., Ky. (Coll. W. and Sp.)	
ACROCRINUS AMPHORA W. and Sp.	808
4. A large specimen with portions of the arms and stem.	
5. A smaller specimen, enlarged ($\frac{2}{1}$).	
6. The calyx somewhat flattened and enlarged ($\frac{2}{1}$).	
The right posterior ray forming the median line of figure; the anal inter-radius occupying the left side.	
7. Another specimen showing calyx and lower part of the arms ($\frac{2}{1}$).	
8. Ventral aspect of a large specimen ($\frac{2}{1}$).	
9. A specimen showing the calyx, the pendent arms, the turned up pinnules, and the stem.	
(All in the collection of W. and Sp.)	
ACROCRINUS WORTHENI Wachsmuth	807
10a. Diagram made from the type specimen in the Illinois State Museum.	
10b. Showing the outlines of the specimen.	

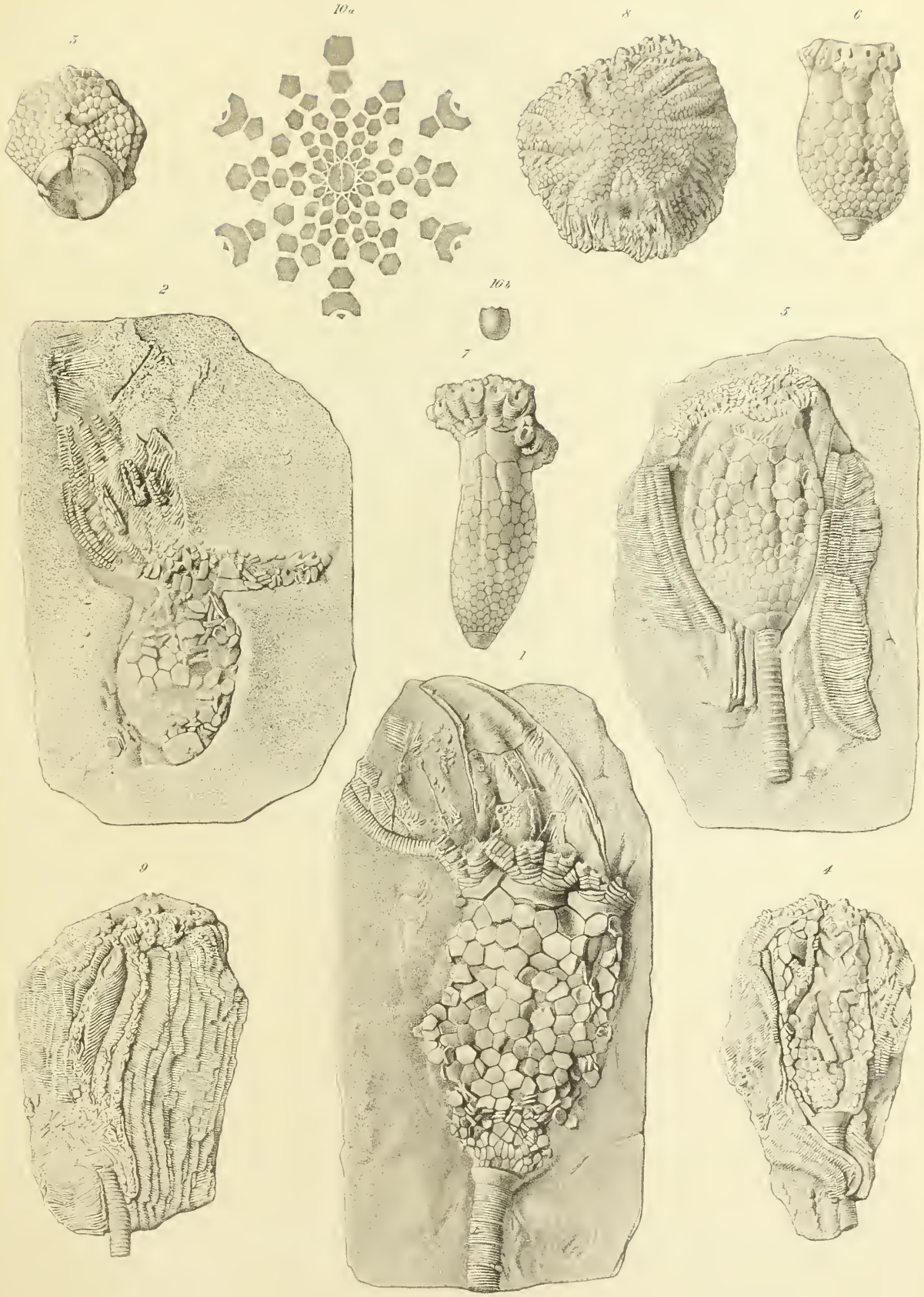


PLATE LXXXI.

	PAGE
EUCALYPTOCRINUS CRASSUS Hall	342
Fig. 1. A very large specimen with arms. (Coll. W. and Sp.)	
2. A smaller specimen with arms. (Same collection.)	
3. Calyx with arms removed, leaving the partitions enclosing the arms. (Same collection.)	
4. A specimen with an unusually broad base. (Same collection.)	
5. Ventral view of calyx with arms and partitions removed, showing the places for the attachment of the arms. (Same collection.)	
6. Showing the inner floor of the disk. (Same collection.)	
14. Inner floor of the third ring of plates in the disk, enlarged. (After Hall.)	
15. One of the plates of the third ring, enlarged.	
EUCALYPTOCRINUS ELRODI S. A. Miller	339
7a. A perfect specimen with arms, from Waldron, Ind. (Mus. Comp. Zool.)	
7b. Basal aspect of the same.	
8. A specimen from Hartsville, Ind., covered with elongate nodules. (Coll. W. and Sp.)	
9. Another specimen, showing the calyx and partition walls. (Same collection.)	
10. Another, showing the plates which form the partitions. (After Hall.)	
11. The plates covering and surrounding the anus. (Coll. W. and Sp.)	
12. The plates constituting the ventral disk. Those forming the two lower rings showing the inner floor, those of the two upper the outer surface. (After Hall.)	
13. Inner floor of basals and radials. (After Hall.)	

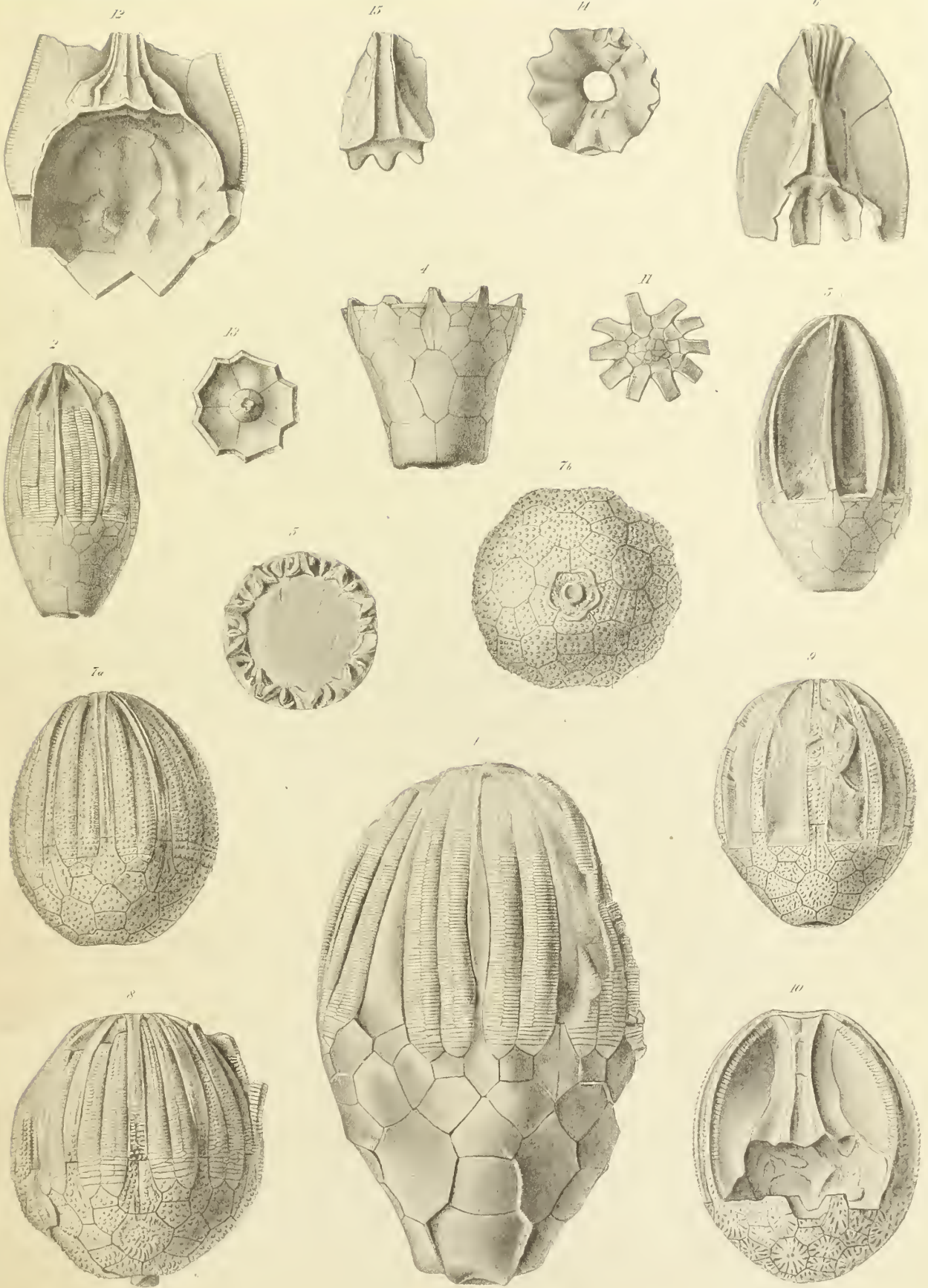


PLATE LXXXII.

	PAGE
EUCALYPTOCRINUS OVALIS Hall	344
Fig. 1. Stem and root. (Coll. W. and Sp.)	
2. Specimen with arms and part of stem. (Same collection.)	
3. Another specimen showing the partition walls. (Same collection.)	
4. A specimen with arms. (Same collection.)	
5. Showing the arm facets. (Same collection.)	
6. Showing the basals. (Same collection.)	
EUCALYPTOCRINUS MAGNUS Worthen	348
7. Dorsal aspect of the calyx. (After Worthen, the basals corrected.)	
8. Side view of Miller's type of <i>E. Gorbyi</i> . (After Miller.)	
EUCALYPTOCRINUS LINDAHLI W. and Sp.	347
9. A fine specimen with arms. (Illinois State Collection.)	
EUCALYPTOCRINUS ORNATUS Hall	340
10. Internal cast of the dorsal cup. (Coll. W. and Sp.)	
EUCALYPTOCRINUS EGANI S. A. Miller	352
11. Internal cast of the calyx. (Coll. W. and Sp.)	
12. The anal tube. (Coll. W. C. Egan.)	
EUCALYPTOCRINUS TURBINATUS S. A. Miller	351
13. Internal cast of calyx. (Coll. W. and Sp.)	
EUCALYPTOCRINUS PROBOSCIDALIS Miller	352
14. Internal cast; the type specimen. (After Miller.)	
EUCALYPTOCRINUS DECORUS Phillips.	
15. A specimen from Dudley, England. (Coll. W. and Sp.)	
Figured for comparison with <i>E. decorus</i> Hall.	

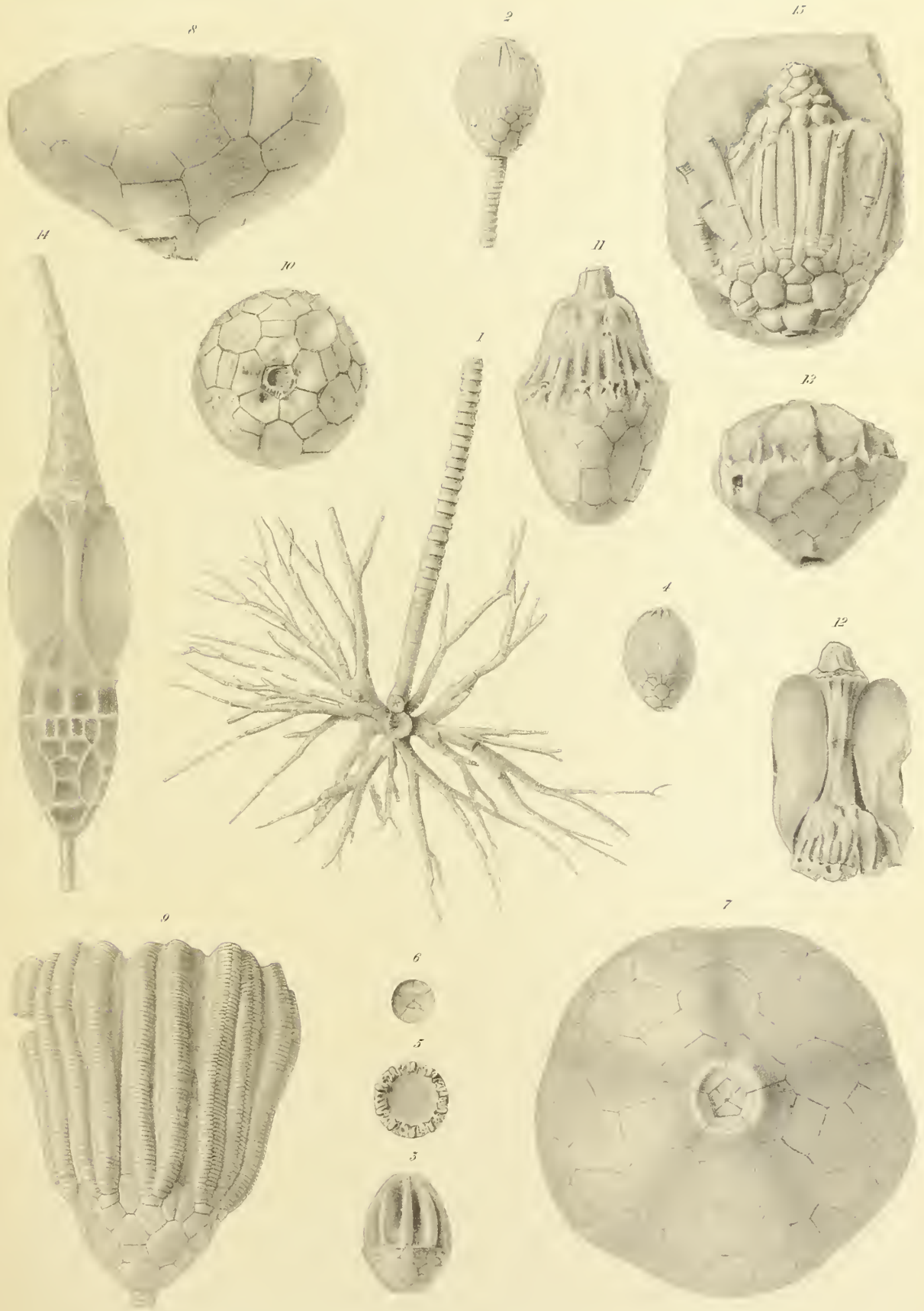
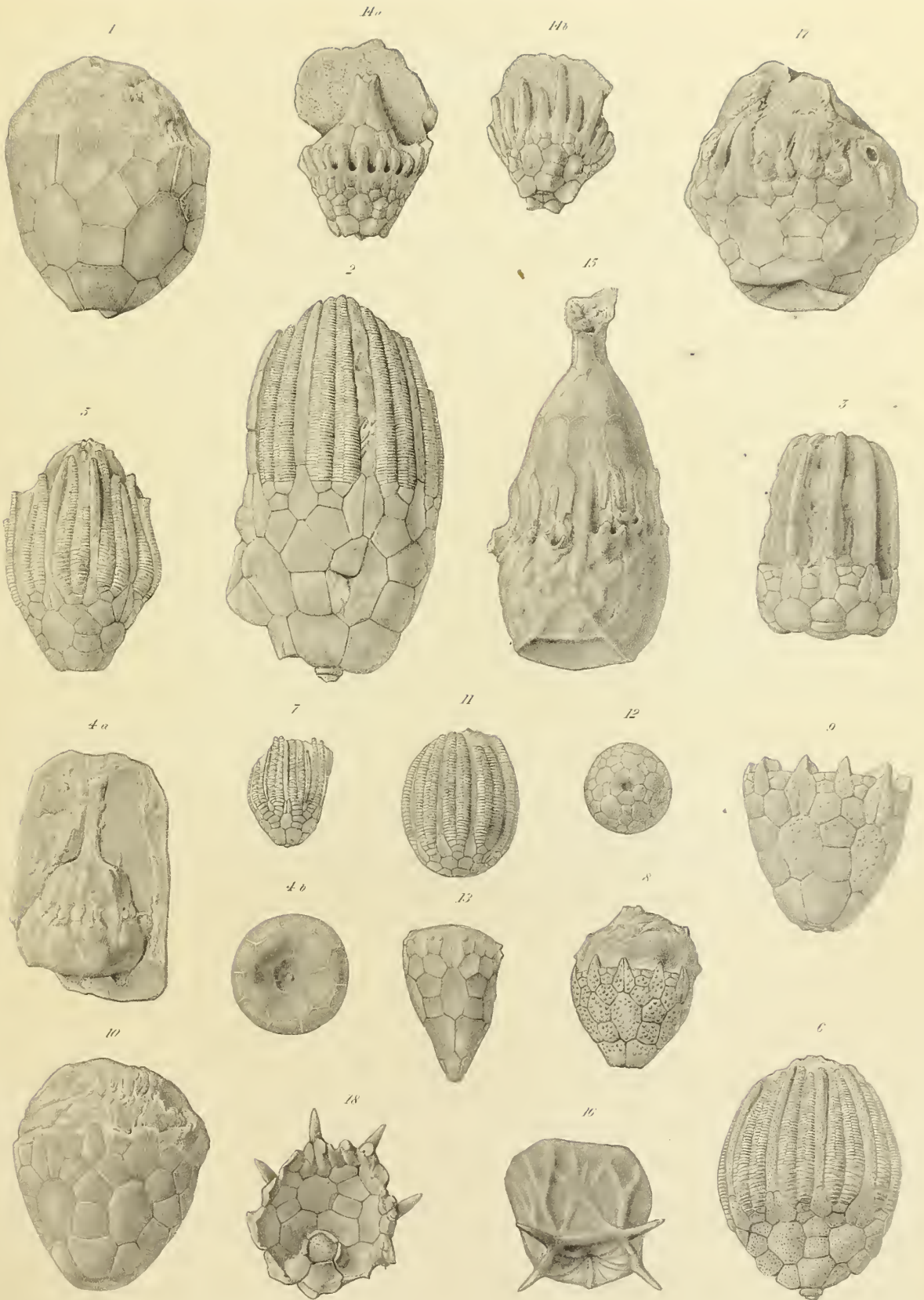


PLATE LXXXIII.

	PAGE
EUCALYPTOCRINUS INCONSPICUUS Ringueberg	346
Fig. 1. The type specimen. (Coll. Dr. Ringueberg.)	
2. A specimen with arms. (Same collection.)	
EUCALYPTOCRINUS DEPRESSUS S. A. Miller	349
3. The calyx and the partition walls enclosing the arms. (Coll. W. C. Egan.)	
4 <i>a</i> . A natural cast of another specimen; lateral view. (Same collection.)	
4 <i>b</i> . Basal aspect of another specimen. (Same collection.)	
EUCALYPTOCRINUS CÆLATUS Hall	336
5. A plump specimen from Rochester. (Coll. W. and Sp.)	
6. A crushed specimen from Lockport, showing the ornamentation. (Coll. Dr. Ringueberg.)	
7. A very young specimen referred to this species with some doubt (‡). (Mus. Comp. Zoöl.)	
EUCALYPTOCRINUS TUBERCULATUS S. A. Miller	337
8. One of the type specimens. (Mus. Comp. Zoöl.)	
9. Another type specimen. (Same collection.)	
10. Type of <i>E. muralis</i> Ringueberg (from his collection).	
EUCALYPTOCRINUS VENTRICOSUS W. and Sp.	341
11. Specimen with arms. (Mus. Comp. Zoöl.)	
12. Dorsal aspect of the calyx. (Coll. W. and Sp.)	
EUCALYPTOCRINUS OBCONICUS Hall	353
13. Natural cast of the dorsal cup. (Coll. Thomas A. Greene.)	
CALLICRINUS BEACHLERI W. and Sp.	355
14 <i>a</i> . Lateral view of the calyx. (Coll. W. and Sp.)	
14 <i>b</i> . Another view of the same specimen, showing the partition walls to their full length.	
CALLICRINUS CORNUTUS Hall	357
15. Natural cast of the calyx. (Coll. Thomas A. Greene.)	
16. Impression from a natural mould. (Same collection.)	
17. Probably an undescribed variety of <i>C. cornutus</i> . (Same collection.)	
CALLICRINUS ACANTHINUS Ringueberg	356
18. Inner aspect of the dorsal cup; the type specimen. (Coll. Dr. Ringueberg.)	







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