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Natural History

OF

NEW YORK.

[Division VI. - Paleontology]
Vol. 3, pt. 2, Plates.]



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CHARLES VAN BENTHUYSEN.

Printer.

ALBANY

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Geological Survey of New-York.

P A L Ä O N T O L O G Y :

VOLUME III.

CONTAINING DESCRIPTIONS AND FIGURES OF THE ORGANIC REMAINS
OF THE LOWER HELDERBERG GROUP AND THE ORISKANY SANDSTONE.

1855 - 1859.

BY JAMES HALL.

PART II : PLATES.

3227
15/2/80

ALBANY:
PRINTED BY C. VAN BENTHUYSEN.
1861.

CORRIGENDA.

PLATE 1, fig. 8. Some of the short spines at the summit of the proboscis are erroneously merged into the branches of the arms, making the latter appear as if continuations from the spines.

PLATE 4. The references of figs. 10 and 11 should be reversed.

PLATE 12, figs. 9, 10, 11 & 12. *Orthis quadrans*, referred to in text as *O. subcarinata*. A study of the interior structure of the valves has shown these forms to be quite distinct from *O. subcarinata*, and a well-marked species.

PLATE 68, p. 341. *Bucania profunda* (*B. profunda*, n. s., by mistake) should be cited *Euomphalus profundus*, VANUXEM, Geol. Report Third District New-York, p. 117, f. 2.

PLATE 72 A. Erroneously referred to in the text, pages 347 and 348, as PL. 62 A. The correction on explanations of plates does not correct the reference.

PLATE 73, fig. 24 a, is an enlargement of a portion of the eye of *P. hudsonicus*.

* * PLATES 79 A and 79 B, containing figures of *Leperditia* and *Beyrichia*, are omitted from this volume, but will be given in a future one.

PLATE 95 A. The reference †, after *Strophodontia magnifica*, should be after *Orthis cumberlandia*.
† This species may be compared with *Orthis hippocionyx*.

PLATE 106. Explanations of figures omitted :

Fig. 3. *Rhynchonella multistriata*, p. 440.

Fig. 4. *Rhynchonella principalis*, p. 443.

PLATE 92, and page 406, change the name *Discina grandis* to *Discina ampla*, n. s.; the former name being preoccupied.

* * In the text of the Introduction, page 8, in the righthand column of names of rocks, the Galena limestone is by mistake placed below the Trenton limestone, when it should be placed above.



PLATE 1.

Fig. 1 - 9.

HOMOCRINUS SCOPARIUS.

Page
102

1. An individual showing the anal side, and the proboscis entire. The extremities of the arms are broken off on a line with the summit of the proboscis.
2. An individual preserving the arms in part, with the proboscis removed.
3. A specimen of limestone with several individuals in different states of preservation.
4. A group exhibiting the mode of growth.
5. A fragment of a column somewhat larger than usual.
- 5 a. Enlargement of a portion of the column, showing the gradual approach to the pentagonal form.
6. Enlargement of a portion of an arm, showing the mode of bifurcation, etc.
7. Enlargement of a radial plate, showing the granulate surface.
8. Enlargement of an individual, showing the structure of the body, arms and proboscis.
9. Diagram showing the structure of the body and arms to the first bifurcation.

(CRINOIDEÆ)



(CRINOIDEA.)

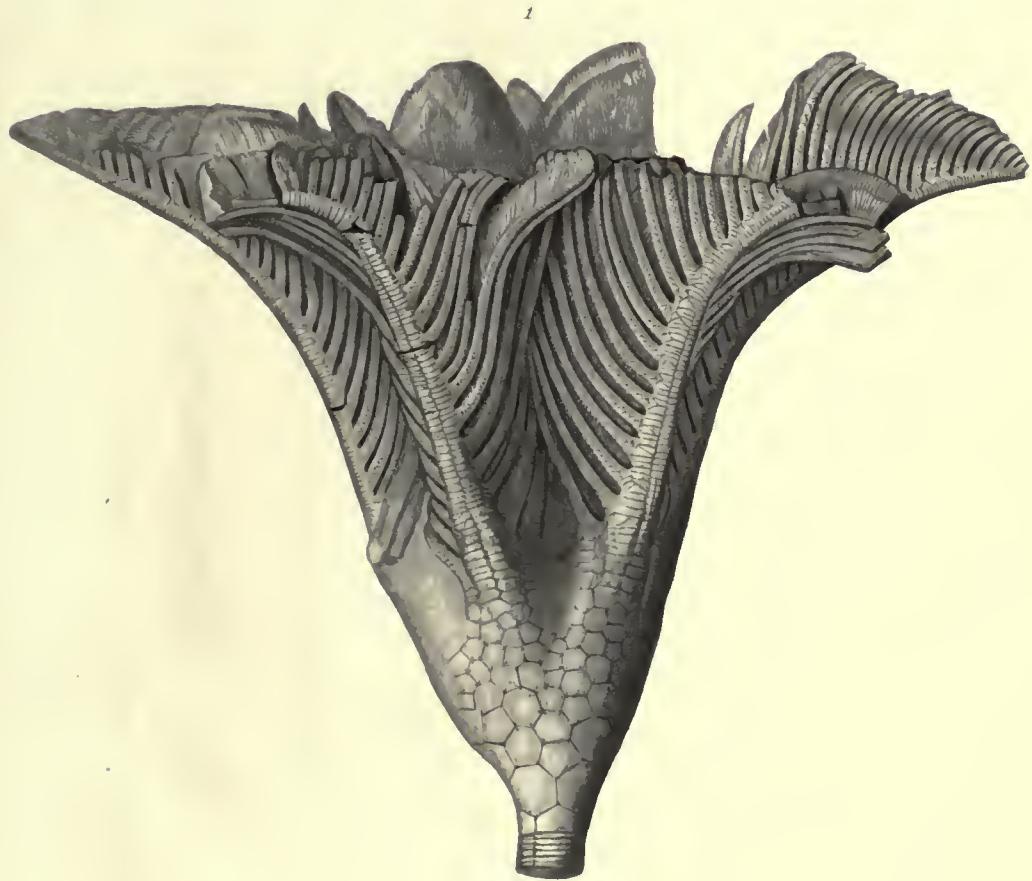


PLATE 2.

Fig. 1 - 5.	MARIACRINUS NOBILISSIMUS.	Page 105
1. An individual nearly entire, showing a few joints of the column. 2. An enlargement of a portion of one of the arms, with the bases of the armlets. 3. An enlargement of a portion of one of the armlets, showing the tentacula. 4. An enlargement of a part of one of the primary tentaeula, with the secondary tentaeula attached. 5. Diagram showing the structure of the body and bases of the arms.		

Fig. 6.	MARIACRINUS RAMOSUS.	Page 147
6 (by error, fig. 2 & 3 of text). Figure of a specimen of the natural size, showing the anal area and postero-lateral rays. The diagram referred to in the text has not been given.		

N. B. This plate has been re-engraved, to correct the error in the drawing of the structure of the body and arms of the erinoid fig. 1 of the preceding Plate 2.

(CRINOIDEA.)

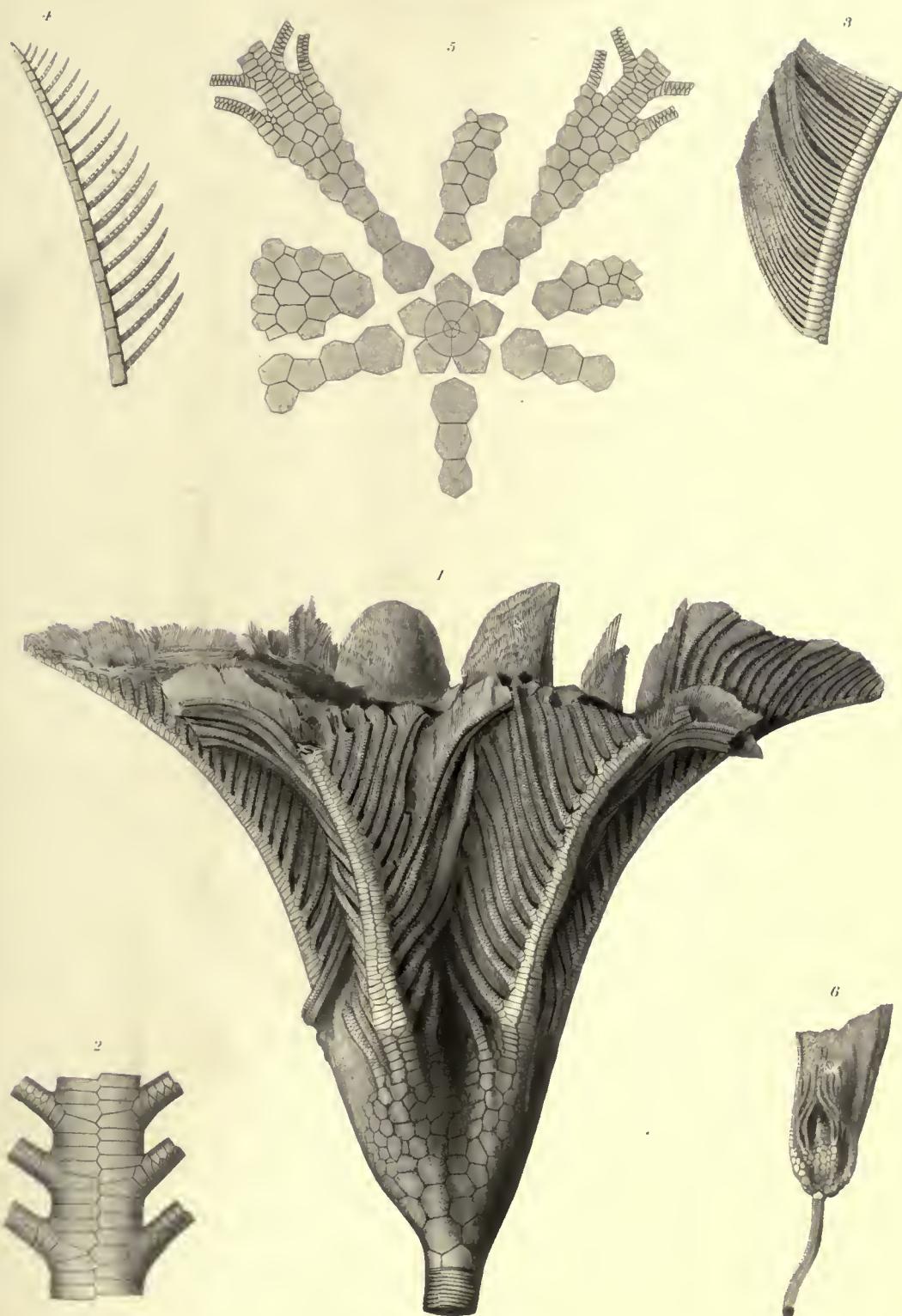


PLATE 2 A.

Fig. 1.

MARIACRINUS NOBILISSIMUS.

Page
105

1. A large individual, showing the anal or irregular side of the specimen, with numerous anal or interbrachial plates, the base of the proboscis, arms, etc. The upper part of the proboscis is covered by adhering stony matter.

(CRINOIDÆ.)

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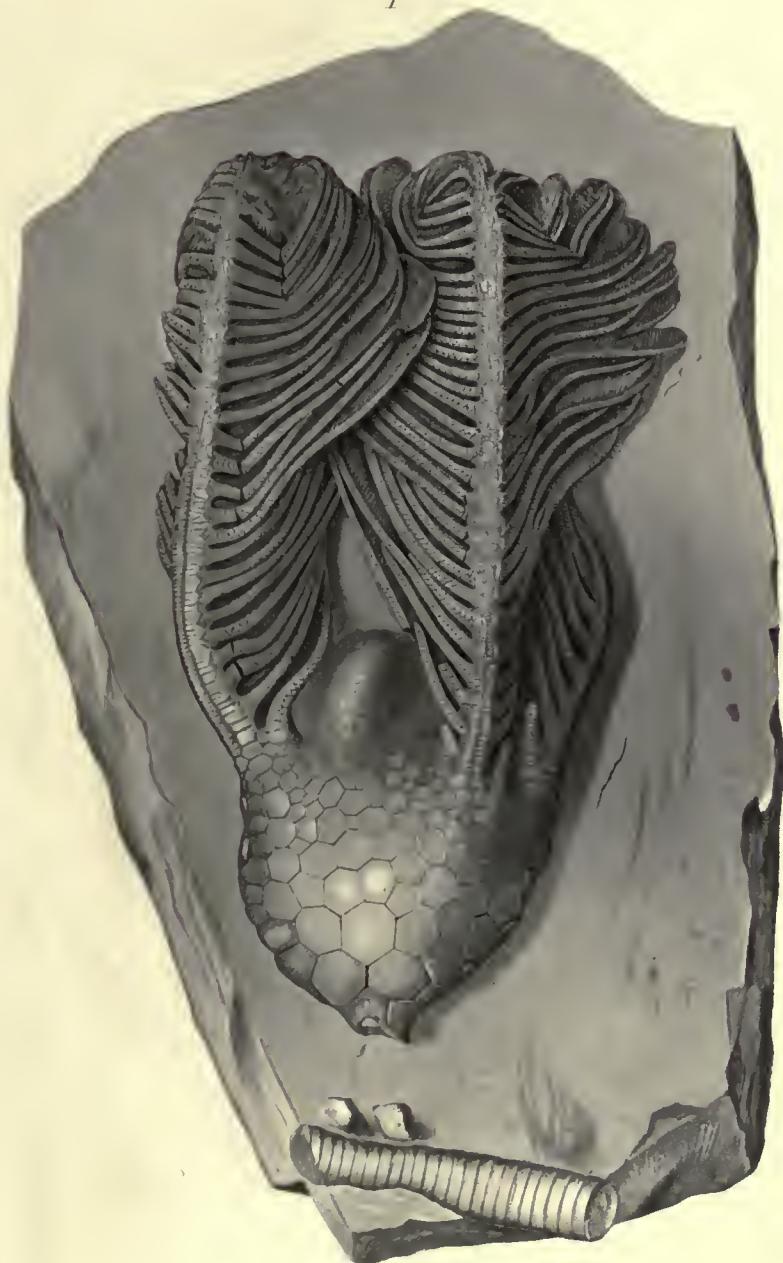


PLATE 3.

Fig. 1 - 4.	MARIACRINUS PACHYDACTYLUS.	Page
		107

1. An individual preserving the body and greater portion of the arms, with several inches of the column.
2. The body and lower part of the arms, showing the surface characters in a good degree of preservation.
3. A specimen with arms, armlets, and tentacula nearly entire.
4. Diagram illustrating the structure of the body and one arm to the second bifurcation of the brachial plates.
- 4 a. Enlargement of a portion of an arm, showing the arrangement of plates and origin of armlets.

Fig. 5.	MARIACRINUS PAUCIDACTYLUS.	109
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5. A specimen preserving the body above the basal plates, and a portion of several of the arms and armlets.

Fig. 6 - 11.	MARIACRINUS PLUMOSUS.	110
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6. A small individual preserving the body and arms nearly entire, with a small portion of the column.
7. A larger individual.
8. Enlargement of the body of fig. 6.
9. Enlargement of the arm-joints and tentacula.
10. A similar enlargement from another specimen.
11. Diagram showing the structure of the body and arrangement of the brachial plates.

(CRINOIDEÆ.)

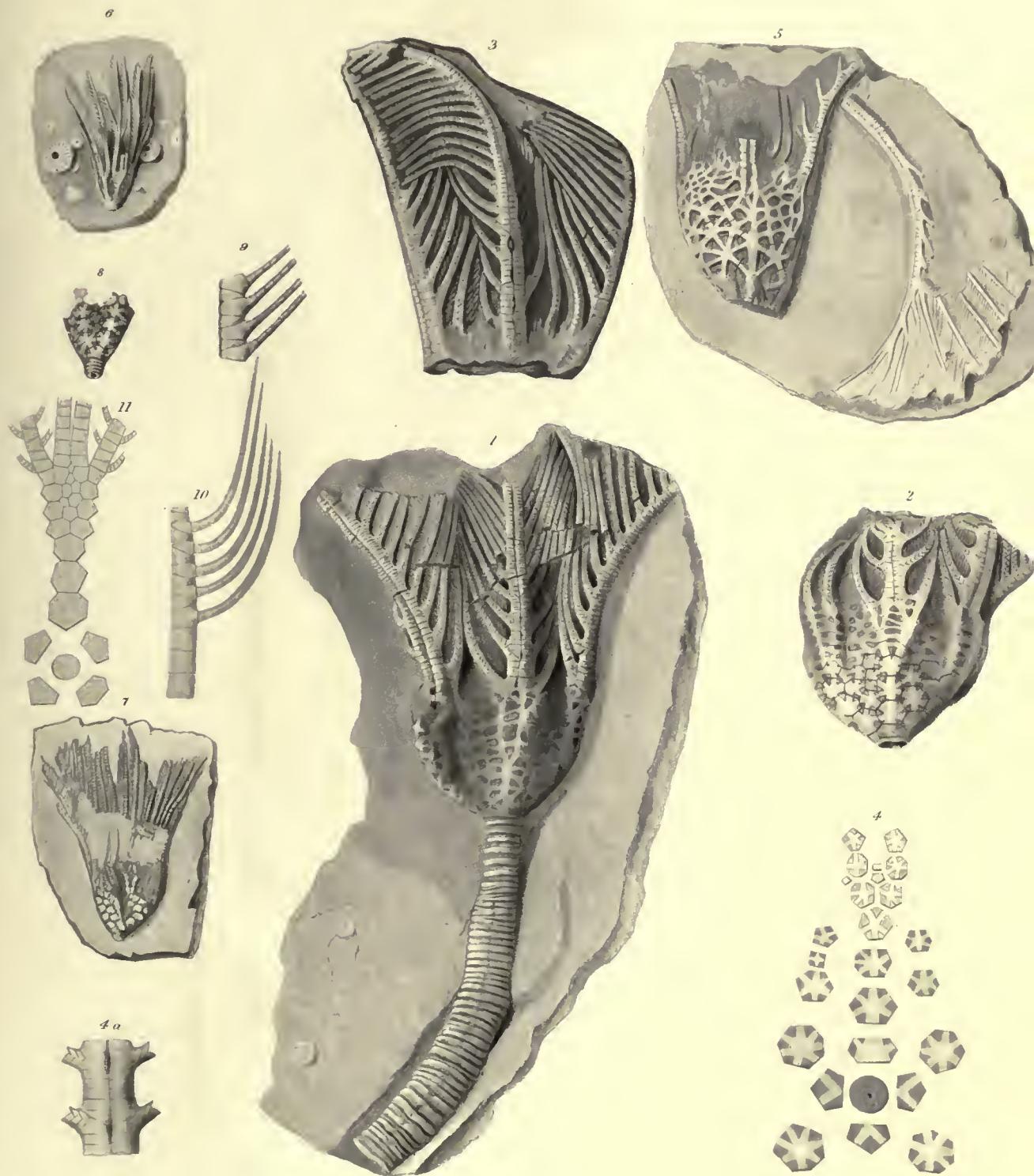


PLATE 3 A.

Fig 1 & 8 - 12. **MARIACRINUS MACROPETALUS.** Page
111

1. A specimen showing the base and a portion of the body.
 10. A fragment of the column with the rootlets attached.
 11. A fragment of the column with the rootlets worn off.
 12. Another fragment with rootlets attached.
- 8 & 9 are detached rootlets of the same species, and should be reversed in position upon the plate.

Fig. 2. **MARIACRINUS STOLONIFERUS.** 112

2. A fragment of the column of this species.
- 3, 4, 5, 6, 7 & 13 are fragments of columns, etc. of undetermined species.

(CRINOIDEA)

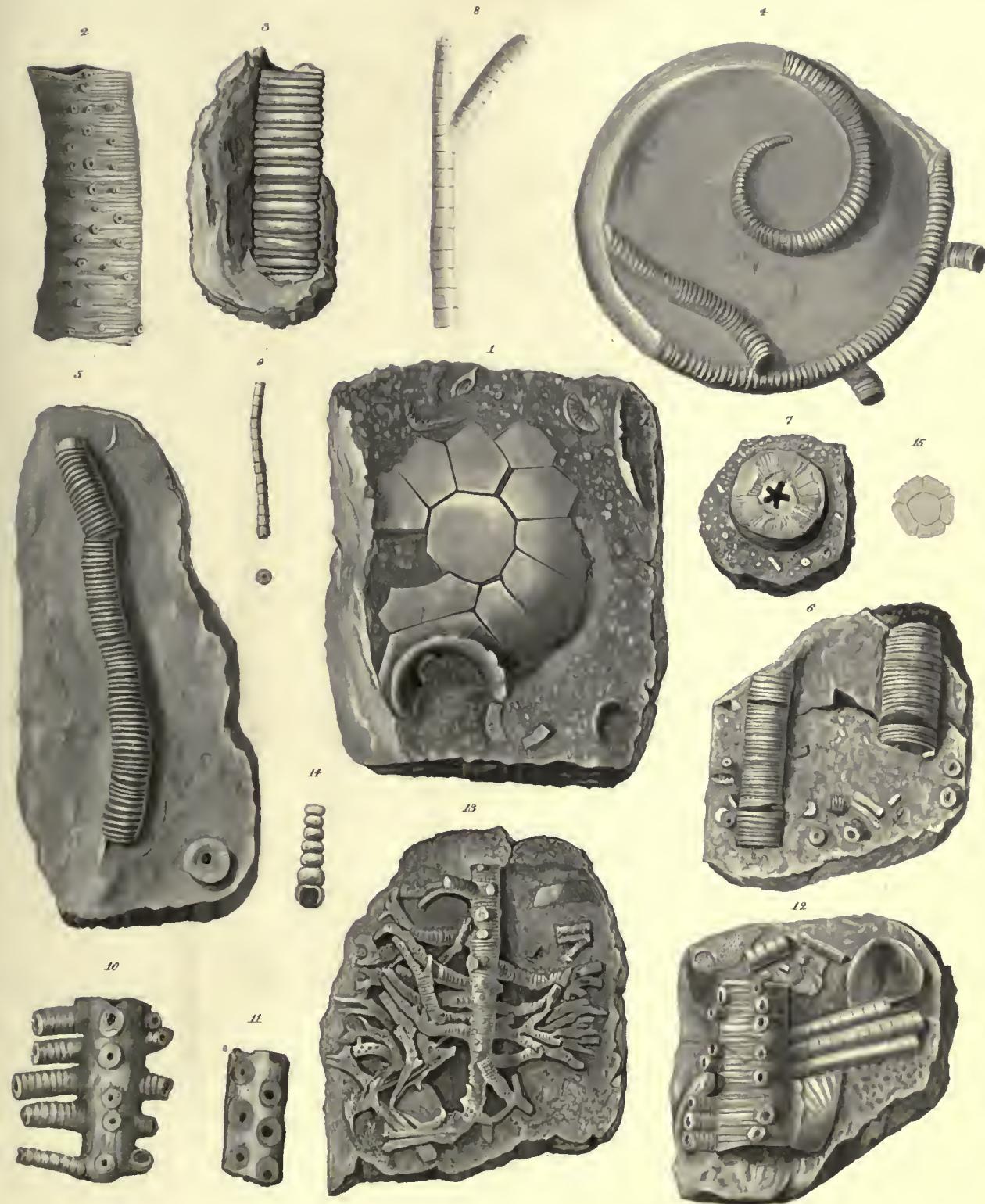


PLATE 3 B.

	Page
Fig. 1 & 2. <i>MARIACRINUS MACROPETALUS.</i>	111
1 & 2. Roots and rootlets of this species.	
Fig. 3 - 7. <i>MARIACRINUS STOLONIFERUS.</i>	112
3, 4, 5, 6 & 7. Several fragments of columns of different size, each showing the small attached rootlets, or the points from which they have been broken.	

(CRINOIDEA)



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PLATE 4.

Fig. 1, 2, 3, 4, 5. PLATYCRINUS PLUMOSUS. Page 113

1. A specimen preserving a part of the column, with the branchlets broken off. The body is too imperfect to be represented in detail, but the arms and tentacula correspond to those of fig. 2.
2. An individual nearly entire, with a small portion of the column and branchlets attached, and nearly covering the body. The arms are preserved nearly to their extremities.
3. An individual much crushed, showing the structure of the body and a portion of the proboscis. The small point for the attachment of the column is well shown in the figure.
4. Enlargement from fig. 2 of the first and second radial plates, the first armjoint, and succeeding plates of the arms and tentacula.
5. Structure of the body and base of arm, from fig. 3.

Fig. 6, 7, 8, 9. PLATYCRINUS PARVUS. 114

6. An individual nearly entire, with a small portion of the column from which originate the numerous branchlets which surround the body and extend beyond the arms.
7. A similar specimen, preserving more of the column, from which most of the branchlets have been removed.
8. Enlargement of a portion of the column (lower part of fig. 7), with the bases of the branchlets attached.
9. Enlargement of a single branchlet.

Fig. 10, 11, 12, 13. PLATYCRINUS RAMULOSUS. 115

10. An individual showing some irregularity in the bifurcation. The same specimen shows also two anal plates.
11. A small individual, preserving the arms above the second bifurcation.
12. Several joints of the arm, with tentacles attached.
13. Enlargement showing the structure from the first radial plate to the extremities of the arms, as far as preserved in the specimen fig. 10.

(CRINOIDEÆ)

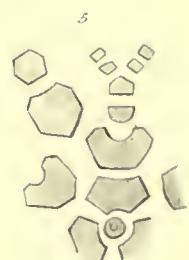
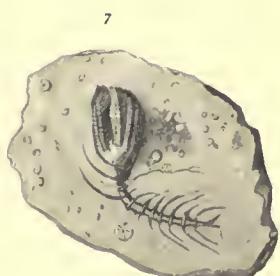
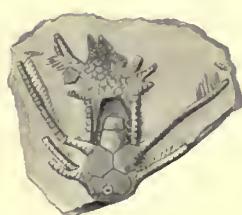
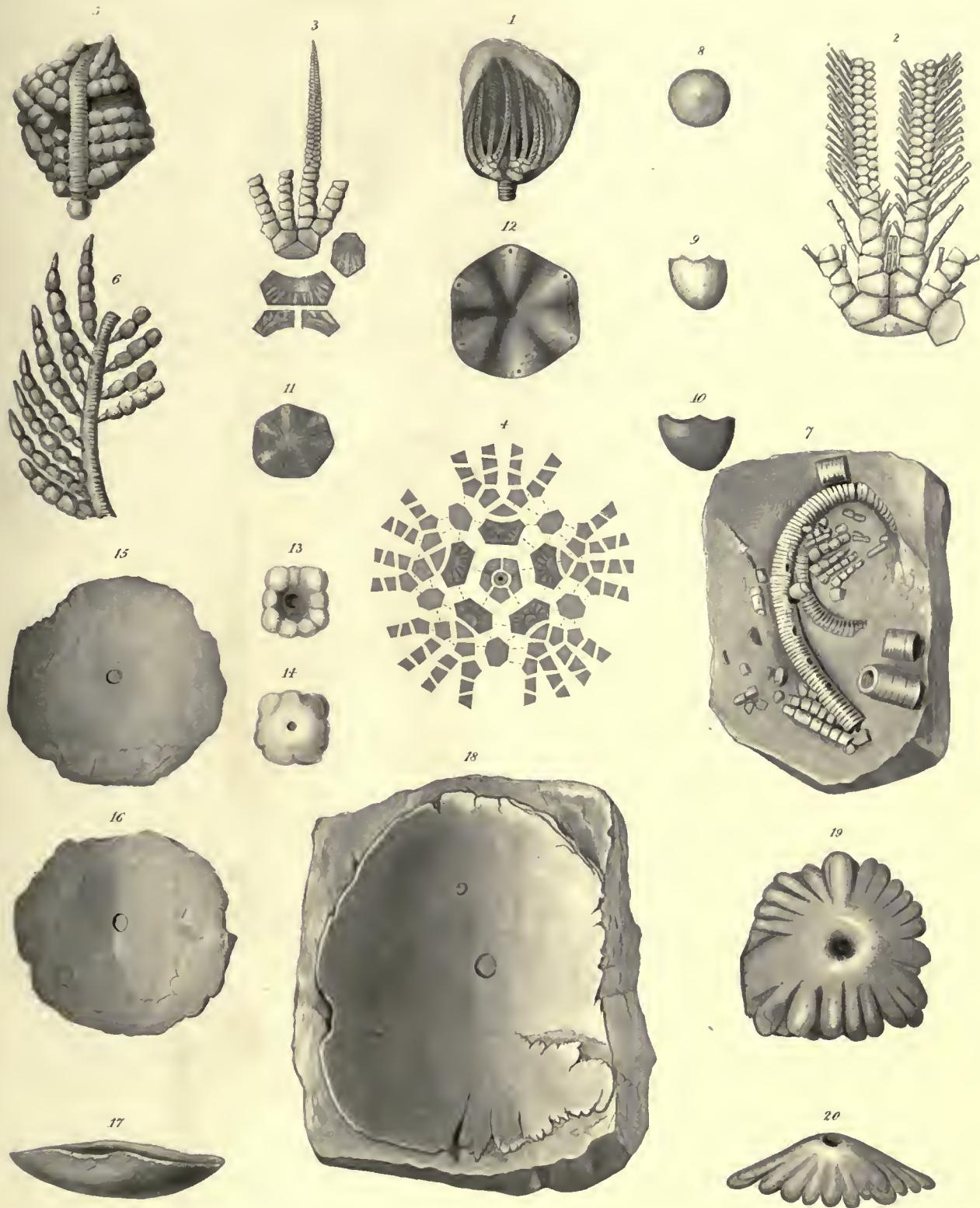


PLATE 5.

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Fig. 1 - 4. <i>PLATYCRINUS TENTACULATUS.</i>	116
1. The individual represented of the natural size.	
2. Enlargement of arms and tentacles from the second radial plate; the two contiguous arms of the two pairs being continued with the tentacles as far as seen in the specimen.	
3. Enlargement of the plates from the basal through the radial and brachial plates, and continuation of a single arm.	
4. Diagram showing the structure.	
Fig. 5, 6, 7. <i>BRACHIOCRINUS NODOSARIUS.</i>	118
5. A specimen with the tentacles more closely arranged than usual, and terminating below in a round condyle-like extremity.	
6. A specimen preserving eight of the tentacles upon one side of the arm, and four upon the other.	
7. An arm coiled, showing the points of attachment, with numerous detached fragments of tentacula.	
Fig. 8 - 12. <i>EDRIOCRINUS POCILLIFORMIS.</i>	121
8. Basal view of a large individual, the proportional length being greater than usual.	
9. Lateral view of the same.	
10. Lateral view of a larger specimen.	
11. Interior of the same.	
12. Enlargement of the concavity of fig. 10, showing the depressions corresponding to the depressions in the margin and the concentrically striated surface. At each angle there is a slight depression or pore, which seems to communicate with the cavity between the basal and inner plate.	
Fig. 13 & 14. <i>ASPIDOCRINUS CALLOSUS.</i>	123
13 & 14. Interior and exterior views of the specimen described.	
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15. The exterior of the base of an individual of this species.	
16. The interior of the same.	
17. Profile or lateral view of the same.	
18. The interior of a large specimen.	
Fig. 19 & 20. <i>ASPIDOCRINUS DIGITATUS.</i>	123
19 & 20. Upper side and profile view of the specimen.	

(CRINOIDEA)



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PLATE 6.

Page

Fig. 1, 2, 3.

BRACHIOCRINUS NODOSARIUS.

118

1. The inner side of an arm with tentacles attached, showing on the right side one at unequal distance from the others.
- 2 & 2 a. Inner side of the base of an arm including the first three joints, with points of attachment for the tentacles, and the same enlarged.
3. Exterior surface of the same enlarged.
- 3 a. Transverse section, showing the form of the arm-joints.

Fig. 4, 5, 6.

CORONOCRINUS POLYDACTYLUS.

124

4. Lateral view of a fragment of the upper part of the body and bases of the arms.
5. View of the summit, showing its structure and the origin of the arms.
6. Enlargement of some plates of the summit.

Fig. 7 - 15.

Columns of undetermined CRINOIDEA.

125

- 7, 8, 9 & 10. Fragments of pentagonal columns, bearing nodes at the angles, which seem to have been the bases of little branchlets.
- 11, 12 & 13. Sections of pentagonal columns, showing varying degrees of angularity, till in the last one the angles project in wing-like expansions.
14. Fragment of Lower Pentameris limestone, with pieces of columns of two or more species.
15. Section of a pentagonal column, showing marks of longitudinal division at the angles.

Fig. 16 - 21.

TENTACULITES ELONGATUS.

136

16. An individual of medium size.
17. An individual of about the same length as the preceding, slightly compressed below, giving it an apparently greater breadth at the base.
18. A large individual having a length of three inches. On one side of the base, the greater distance between the annulations shows the interior structure with more elongate inter-nodes.
19. Enlargement of a portion, showing the striae.
20. An individual from which the exterior shell has been exfoliated, showing smooth annulations whose greatest diameter is near the upper edge.
21. A portion of the same enlarged, showing the appearance of the annulations magnified.

Fig. 22 & 23.

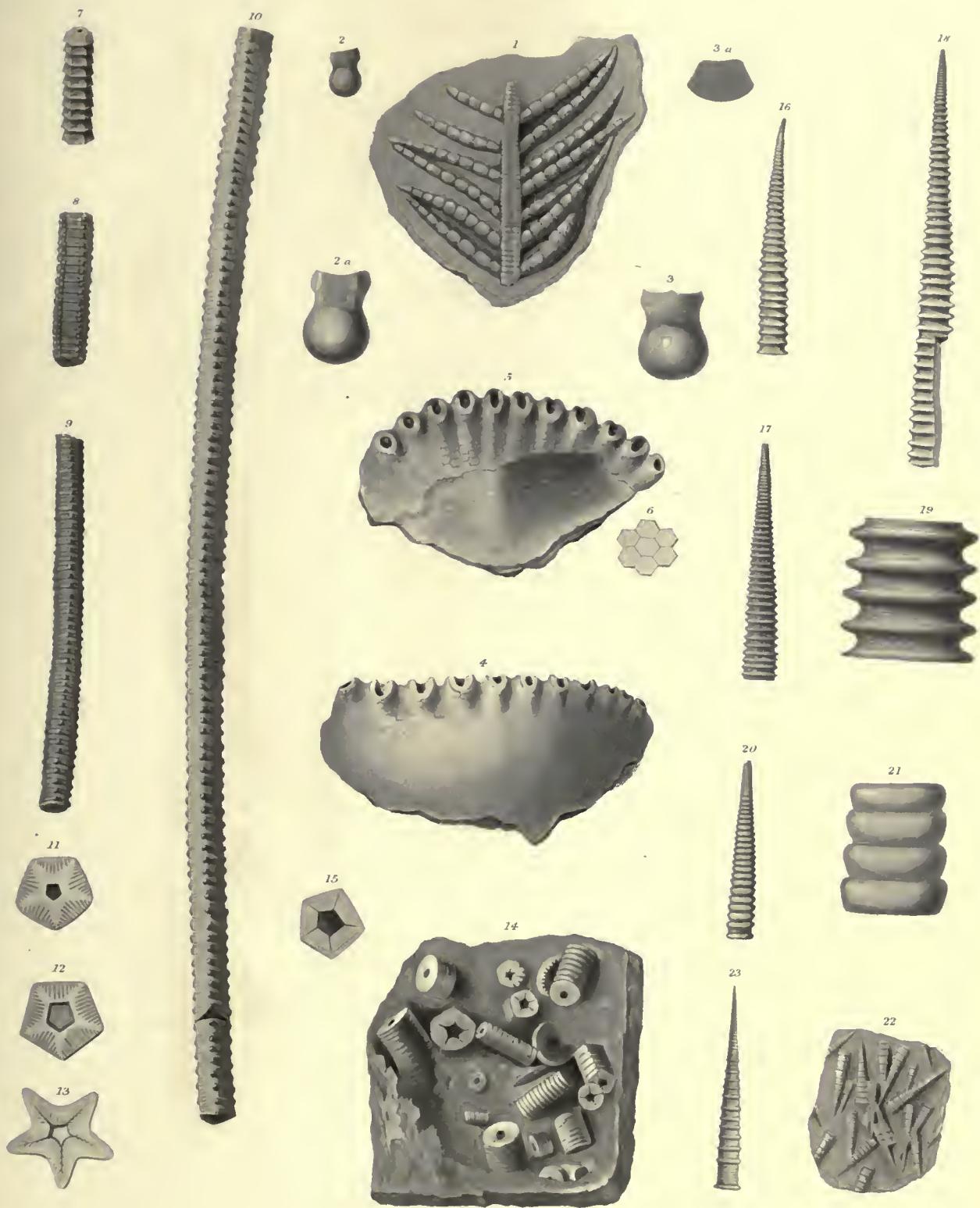
TENTACULITES IRREGULARIS.

137

[*Echinus gyracanthus* : EATON, Geological Text-book, 1832. This name was overlooked in the synonymy, and the specific designation of EATON has precedence over my own.]

22. A small portion of the surface of the stone, showing the abundant distribution of these bodies. On this specimen, which has a length of five inches and an average breadth of a little more than one inch, more than five hundred individuals may be counted; and the layer beneath, for the thickness of a quarter of an inch, is composed almost entirely of these fossils, giving more than ten times as many as can be seen upon the surface.
23. Enlargement of a single individual.

(CRINOIDEÆ, ETC.)



224 (1991)

PLATE 7.

Fig. 1 - 23.	LEPADOCRINUS GEBHARDI.	Page
		127

1. The right side of an individual, showing the arrangement of plates, pectinated rhombs, etc.
2. The anterior side, showing the pectinated rhombs at the base.
3. The posterior side, showing the ovarian aperture with the surrounding plates removed.
4. The left side of the same specimen. The prominence of the ovarian side over the opposite is well seen in 1 & 4.
5. A smaller individual with the column entire and the body mutilated. The base of the column is quite solid, showing no evidence of rings.
6. Another individual preserving the column and plates of the body, the latter somewhat crushed. The articulations are partially visible in the base of the column, which condition is in a measure due to wearing of the surface.
7. A small specimen showing the pectinated rhombs and structure of the body on the right side. The column is nearly entire, showing the articulations from base to summit with almost equal distinctness. The fingers are converged together above the summit of the body, giving it a pointed appearance.
8. The body somewhat broken, but preserving the fingers or pinnules to the length of three-fourths of an inch.
10. The summit of a specimen much crushed, but preserving a portion of the arms and fingers.
11. A single plate of the second range enlarged, showing the character of the surface, the pectinated rhomb, etc.
12. Enlargement of a portion of a plate, showing surface markings.
13. Enlargement of a part of an arm, with the fingers folded down upon the body of the fossil.
- 14, 15, 16. Bases of several columns, the two first showing slight evidences of rings, while the other appears quite solid.
- 17, 18. Enlargements of the surfaces of the solid bases of columns.
19. Transverse section at the top of the solid portion, showing the central canal and the rings within the exterior wall.
- 20, 21, 22. Lateral and sectional views and enlargement of a fragment of a large column, which exhibits characters very similar to the base of *Lepadocrinus*.
23. Diagram showing the structure of the body.

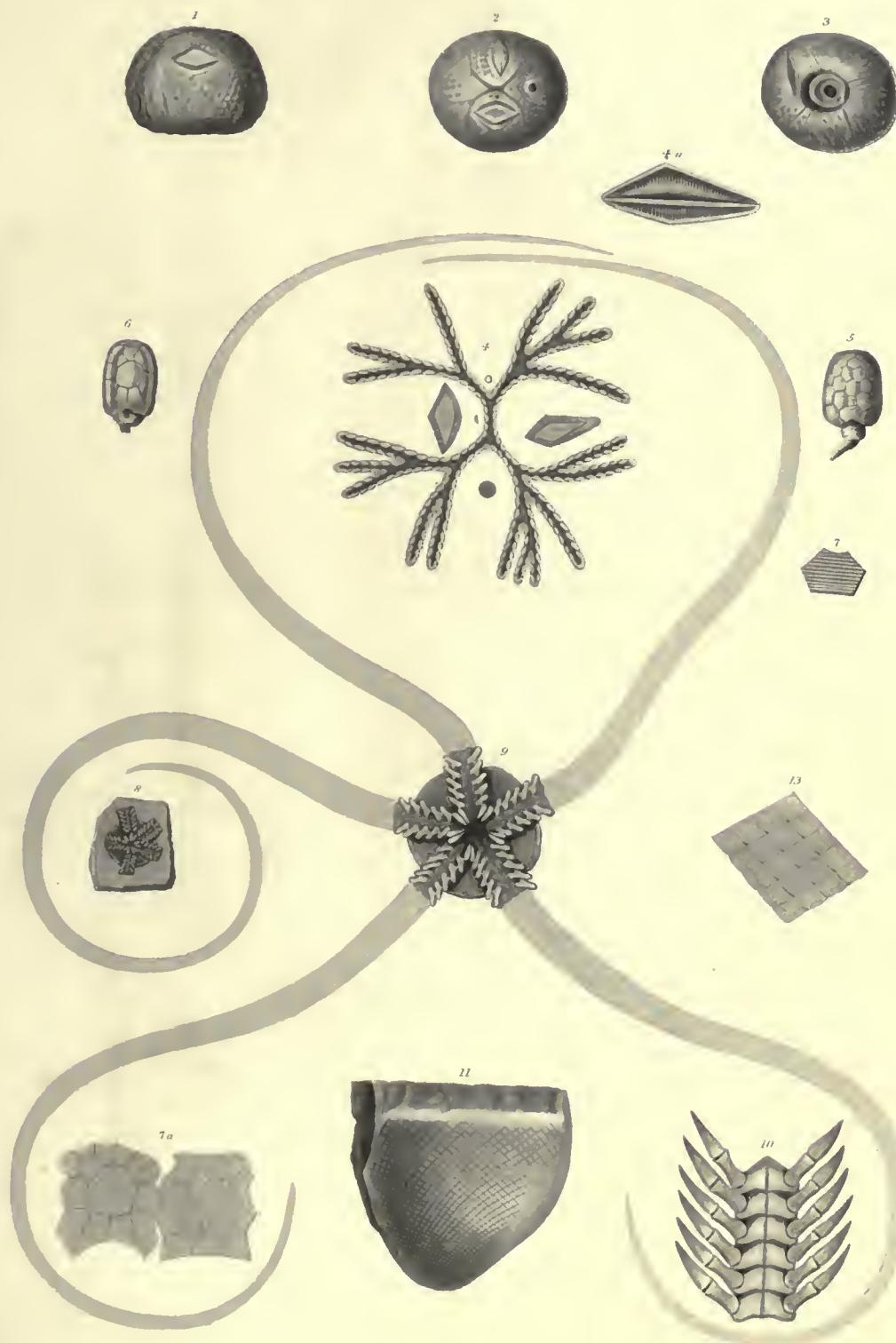
CRINOIDEÆ.



PLATE 7 A.

	Page
Fig. 1 - 5. SPHÆROCYSTITES MULTIFASCIATUS.	130
1. The left side of the specimen, natural size.	
2. The summit, showing the origin and distribution of the arms, the upper pairs of pectinated rhombs, the ovarian and anal orifices, etc.	
3. The base of the same specimen, showing the lower pectinated rhomb, the ramifications of the arms, and the cavity for the insertion of the column.	
4. Diagram illustrating, as far as traced, the distribution of the arms upon the surface of the specimen figured.	
4 a. An enlargement of one of the pectinated rhombs.	
Fig. 5, 6, 7. ANOMALOCYSTITES CORNUTUS.	133
5. The convex side of an individual with a portion of the column attached.	
6. The concave side, showing the two arching basal plates, the large central plate, and the superior range of plates.	
7. A plate enlarged, showing the lamellar structure.	
7 a. Diagram illustrating the structure of the body, and the relative position of the plates on the two sides.	
Fig. 8, 9, 10. PROTASTER FORBESI.	134
8. The fossil, natural size.	
9. Enlargement of the body and arms, with a restoration of the latter in outline beyond the limits of the body.	
10. Enlargement of portions of an arm and tentacles, as seen from the lower side.	
Fig. 11 & 13. DICTYOCRINUS SQUAMIFER.	135
11. The body, natural size.	
13. Enlargement of surface, showing the form and arrangement of scales.	

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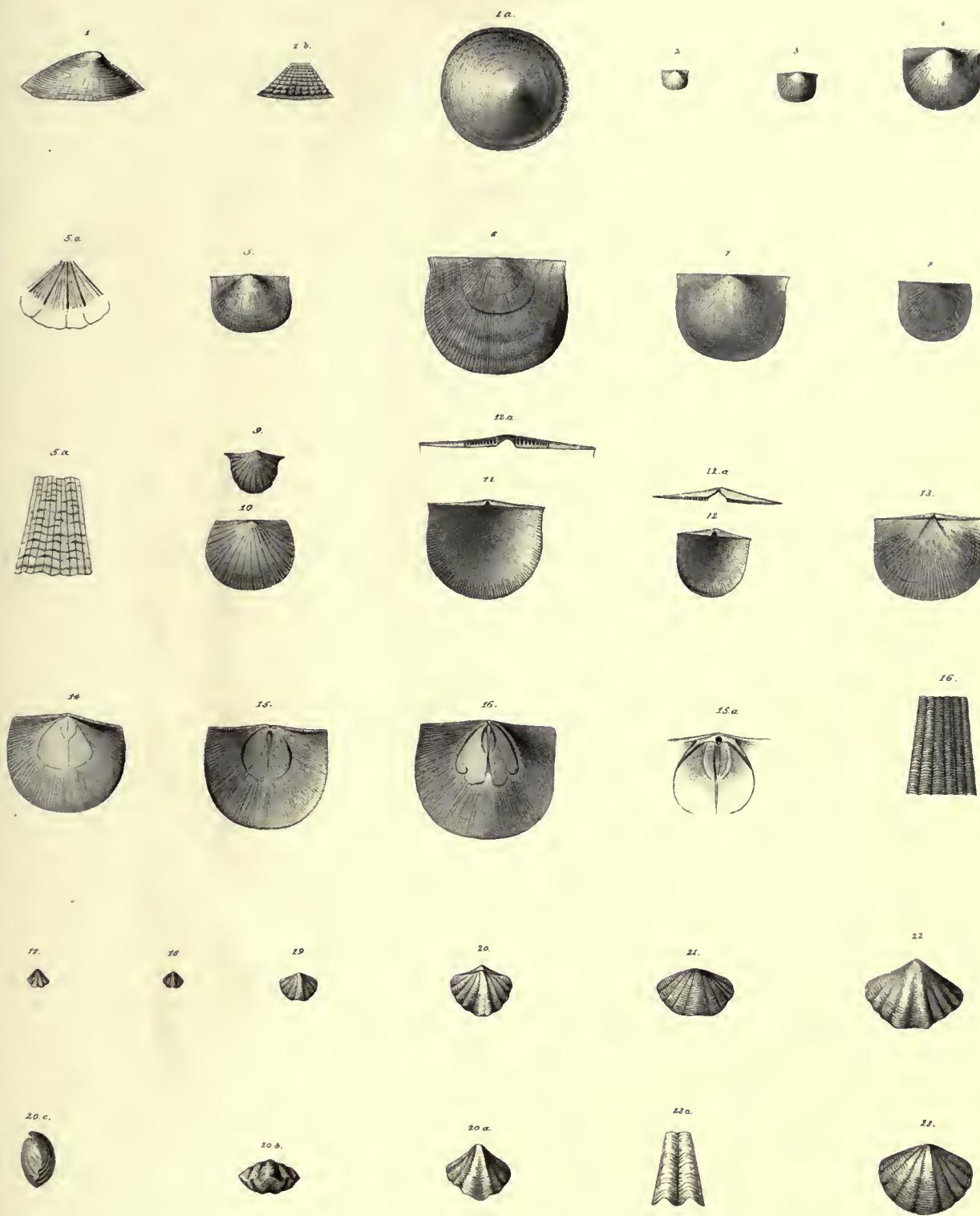


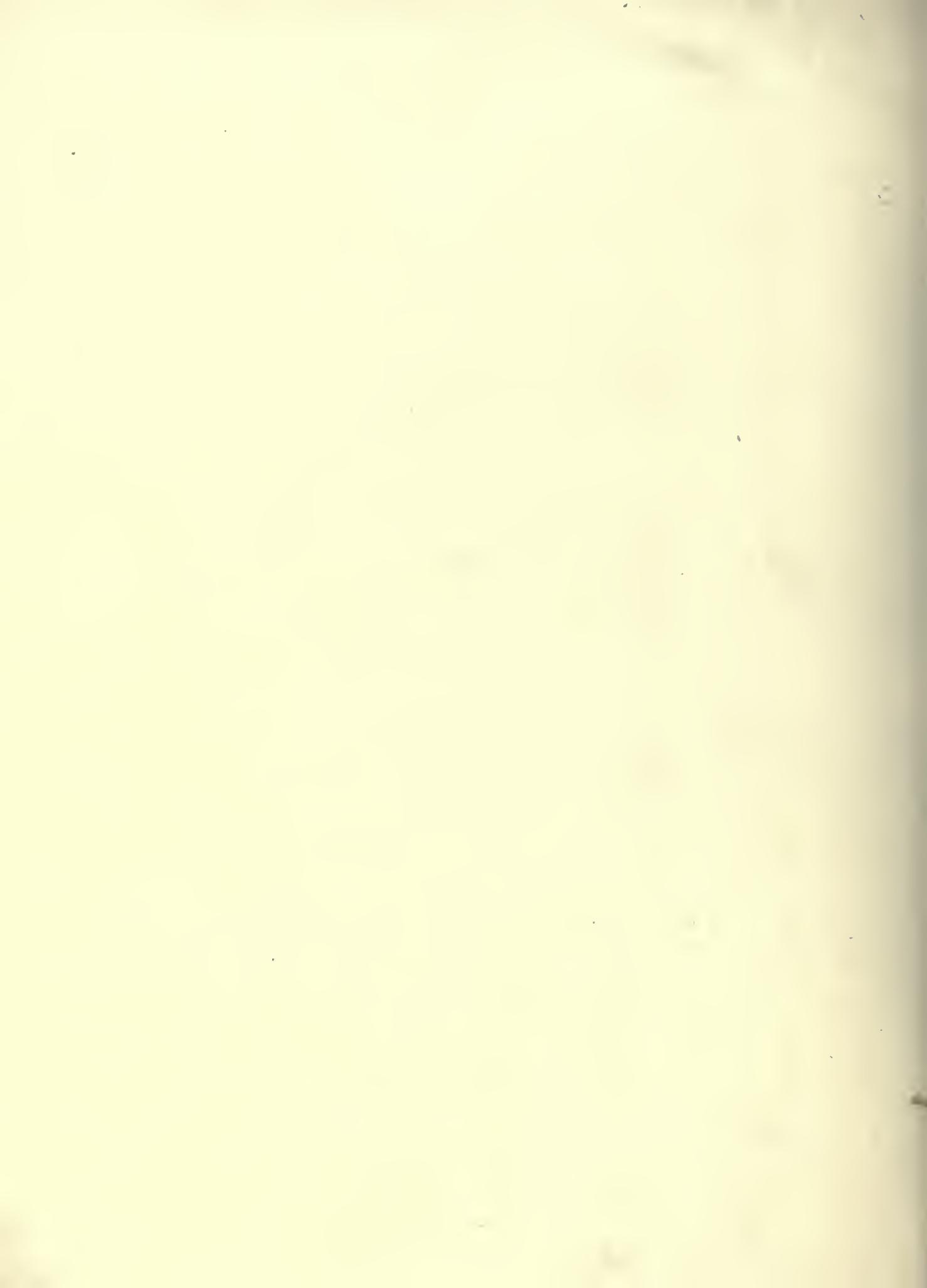
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PLATE 8.

	Page
Fig. 1. <i>DISCINA VANUXEMI.</i>	162
1. Profile view	
1 <i>a.</i> Dorsal view, showing the form of the shell.	
1 <i>b.</i> Enlargement of surface, showing the radiating and concentric striae (the latter are not strong enough in proportion to the others).	
Fig. 2 – 16. <i>STROPHODONTA VARISTRIGATA.</i>	180
2 – 6. Ventral valves, where the striae are nearly equal or alternating in size.	
7 & 8. Individuals presenting some variety in surface characters.	
9. A young shell with salient hinge extremities, and strongly elevated striae separated by fascicles of finer striae between.	
5 <i>a.</i> The upper figure with this number is an enlargement of the surface of fig. 9.	
10. An individual with surface characters similar to the last, having the hinge extremities rounded, and the hinge line a little shorter than the greatest width of the shell below.	
11. Interior of a ventral valve.	
11 <i>a</i> (by error 12 <i>a</i>) above last figure. An enlargement of the area and crenulations.	
12 & 12 <i>a.</i> Interior of ventral valve, and enlargement of area.	
13. Interior of a ventral valve.	
14 & 16. Casts of the interior of the ventral valve, where the shell is but partially exfoliated.	
15 & 15 <i>a.</i> The interior of a ventral valve, and enlargement of a portion of the same.	
16, at right hand of page. A portion of the surface much enlarged, showing the nearly equal striae crossed by finer concentric lines.	
Fig. 17 – 23. <i>SPIRIFER VANUXEMI.</i>	198
17, 18 & 19. Young individuals of this species.	
20. Dorsal view of a medium-sized specimen.	
20 <i>a, b, c.</i> Ventral, profile and front views of the preceding specimen.	
21 & 23. Dorsal views of larger specimens.	
22. Ventral view of another specimen of this species.	
23 <i>a.</i> Enlargement of the surface, showing the concentric lamellæ.	

(Tentaculite Limestone.)
(BRACHIOPODA)



STORY

1. **Lightfoot** — *Lightfoot* was a small, thin, dark-colored dog. He had a very long tail which he wagged all the time. He was always happy and never angry. He liked to play with his master's children and to run around the house. He was very good at catching mice and was often rewarded with a piece of cheese.
2. **Blackie** — *Blackie* was a large, black, shaggy dog. He had a very short tail and a very long coat. He was very lazy and did not like to play. He liked to sit in the sun and sleep. He was not very good at catching mice and was often given a piece of bread.
3. **Reddy** — *Reddy* was a small, red-colored dog. He had a very long tail which he wagged all the time. He was always happy and never angry. He liked to play with his master's children and to run around the house. He was very good at catching mice and was often rewarded with a piece of cheese.
4. **Whitey** — *Whitey* was a large, white, shaggy dog. He had a very short tail and a very long coat. He was very lazy and did not like to play. He liked to sit in the sun and sleep. He was not very good at catching mice and was often given a piece of bread.
5. **Yellowy** — *Yellowy* was a small, yellow-colored dog. He had a very long tail which he wagged all the time. He was always happy and never angry. He liked to play with his master's children and to run around the house. He was very good at catching mice and was often rewarded with a piece of cheese.
6. **Bluey** — *Bluey* was a large, blue-colored dog. He had a very short tail and a very long coat. He was very lazy and did not like to play. He liked to sit in the sun and sleep. He was not very good at catching mice and was often given a piece of bread.
7. **Pinky** — *Pinky* was a small, pink-colored dog. He had a very long tail which he wagged all the time. He was always happy and never angry. He liked to play with his master's children and to run around the house. He was very good at catching mice and was often rewarded with a piece of cheese.
8. **Greeny** — *Greeny* was a large, green-colored dog. He had a very short tail and a very long coat. He was very lazy and did not like to play. He liked to sit in the sun and sleep. He was not very good at catching mice and was often given a piece of bread.
9. **Orangey** — *Orangey* was a small, orange-colored dog. He had a very long tail which he wagged all the time. He was always happy and never angry. He liked to play with his master's children and to run around the house. He was very good at catching mice and was often rewarded with a piece of cheese.
10. **Purpley** — *Purpley* was a large, purple-colored dog. He had a very short tail and a very long coat. He was very lazy and did not like to play. He liked to sit in the sun and sleep. He was not very good at catching mice and was often given a piece of bread.

PLATE 9.

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Fig. 1 & 2. LINGULA CENTRILINEATA.	155
1. A small individual of this species.	
2. A larger specimen of the same.	
Fig. 3, 4 & 5. LINGULA PERLATA.	156
4. An individual of medium size, preserving the two valves. The outer shell is partially exfoliated from the central part of the valve.	
3. Profile of the same specimen, showing the convexity of the valves.	
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8. A large individual of the same species.	
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7 & 11. Two views of a specimen having the base broken off. The convexity of the two valves is more than one-third the greatest width of the shell.	
Fig. 10. LINGULA SPATIOSA.	158
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10 a. A portion of the surface enlarged.	
Fig. 13 - 15, & 16 a. DISCINA DISCUS.	195
13. The lower valve partially exfoliated, and showing radiating striae.	
14. Interior of the lower or ventral valve, showing the lamelloose structure and radiating striae. [In the figure the striae are too regular, and should be represented as bifurcating towards the margin.]	
15. A lower valve (with the margins slightly exfoliated), preserving nearly entire the concentric lamelloose striae.	
16 a (Error for 15 a). Profile of the lower valve, showing the convexity.	
15 b. Enlargement of the lamelloose striae.	
15 a (Error for 14 a). Enlargement of the radiating striae of fig. 14.	
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12. Exterior view of the lower valve (improperly represented without the foramen).	
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16. Dorsal valve having the outer shell exfoliated, and showing radiating striae which bifurcate towards the margins.	
17. Enlargement of the striae.	
17 a. Profile view of the dorsal valve.	

LOWER HELDERBERG GROUP.

(*Delthyris Shaly Limestone.*)
(**BRACHIOPODA.**)

Pl. 9.

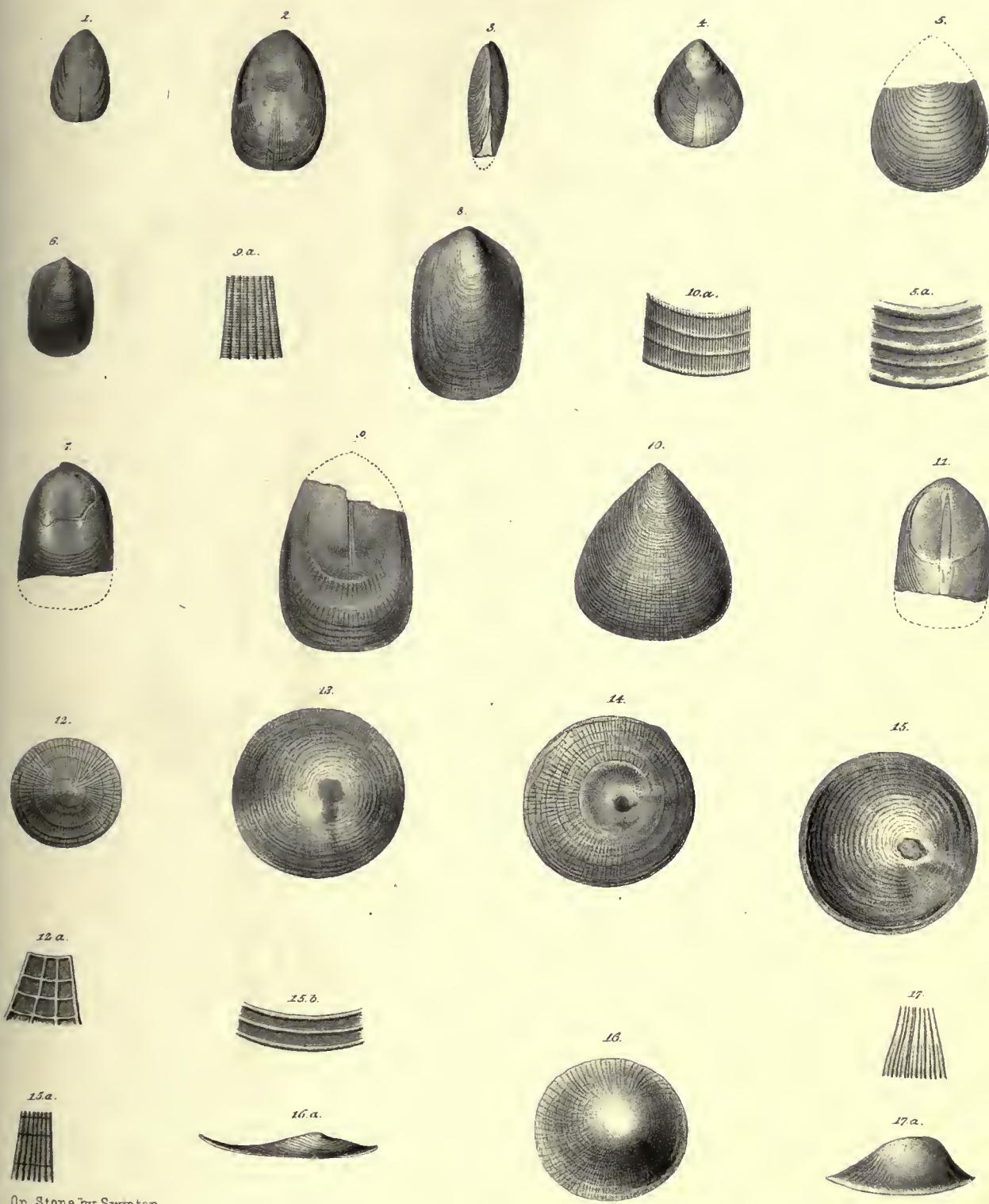


PLATE 10.

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Fig. 1 - 22.	162
	<i>ORTHIS OBLATA.</i>
1, 2, 3.	Individuals showing a gradation of size, from the smallest recognized specimens of the species to the half-grown forms.
4, 5, 6.	Individuals illustrating a more elongate and more gibbous form, which seems scarcely separable from the others, but is still never found of larger size than fig. 6.
7, 8, 9, 10.	Individuals of larger dimensions; the last being a full-grown specimen of the broad variety, one and three-fourths inches wide by one and a quarter long.
11, 12, 13, 11.	The interior of the ventral valves of several specimens, showing some variety in the vascular impressions.
15, 16.	The interior of the dorsal valves of the more elongate and gibbous forms.
17.	The interior of the dorsal valve of the broad variety, having the dimensions of an inch and a half by an inch and a quarter.
19, 20.	Casts of the ventral valve, showing the muscular and vascular impressions.
21, 22.	Casts of the dorsal valve, with impressions of the cardinal and brachial processes.

LOWER HELDERBERG GROUP.

("Delthyris Shaly Limestone..")

PL. X.

(BRACHIOPODA.)



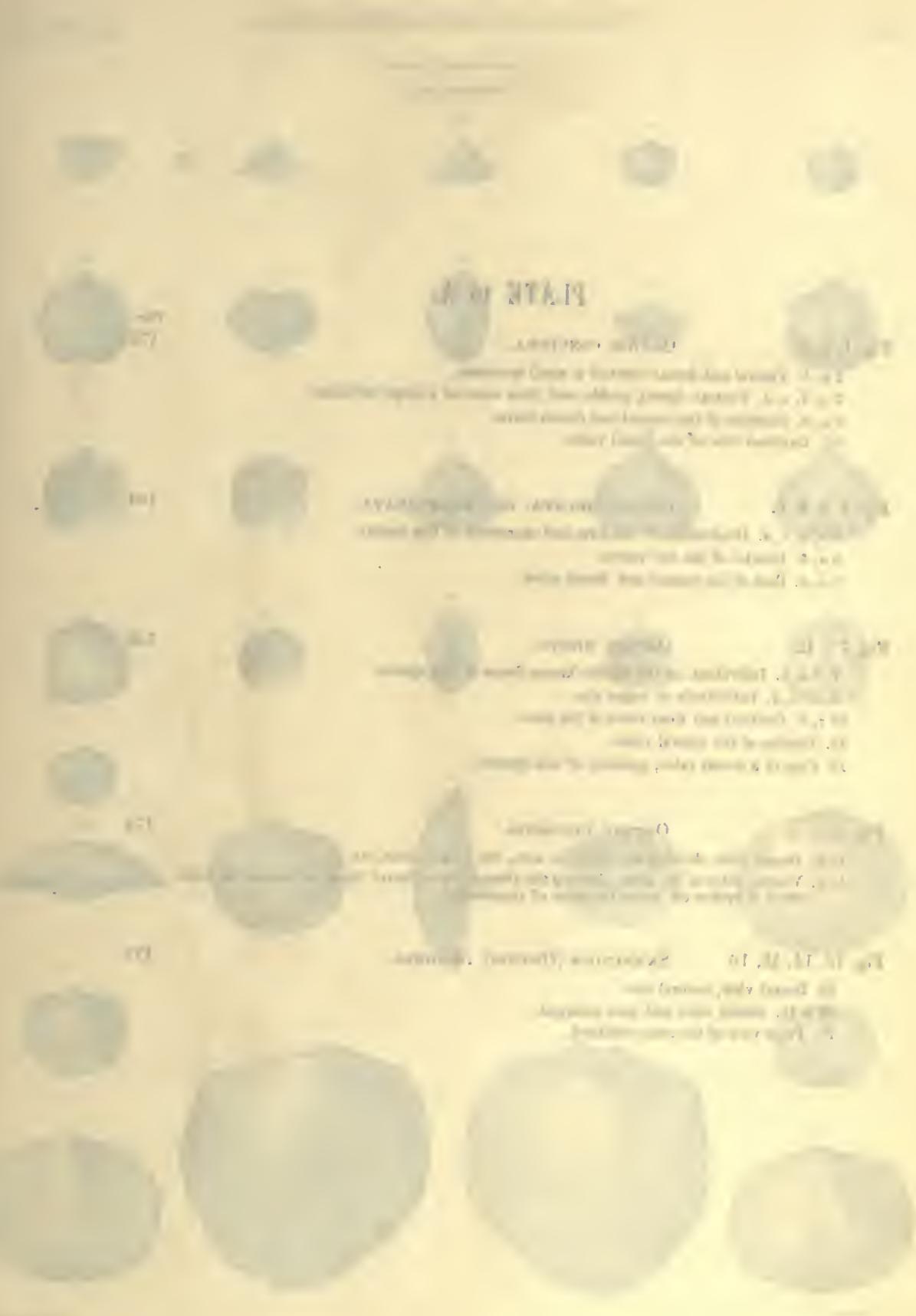
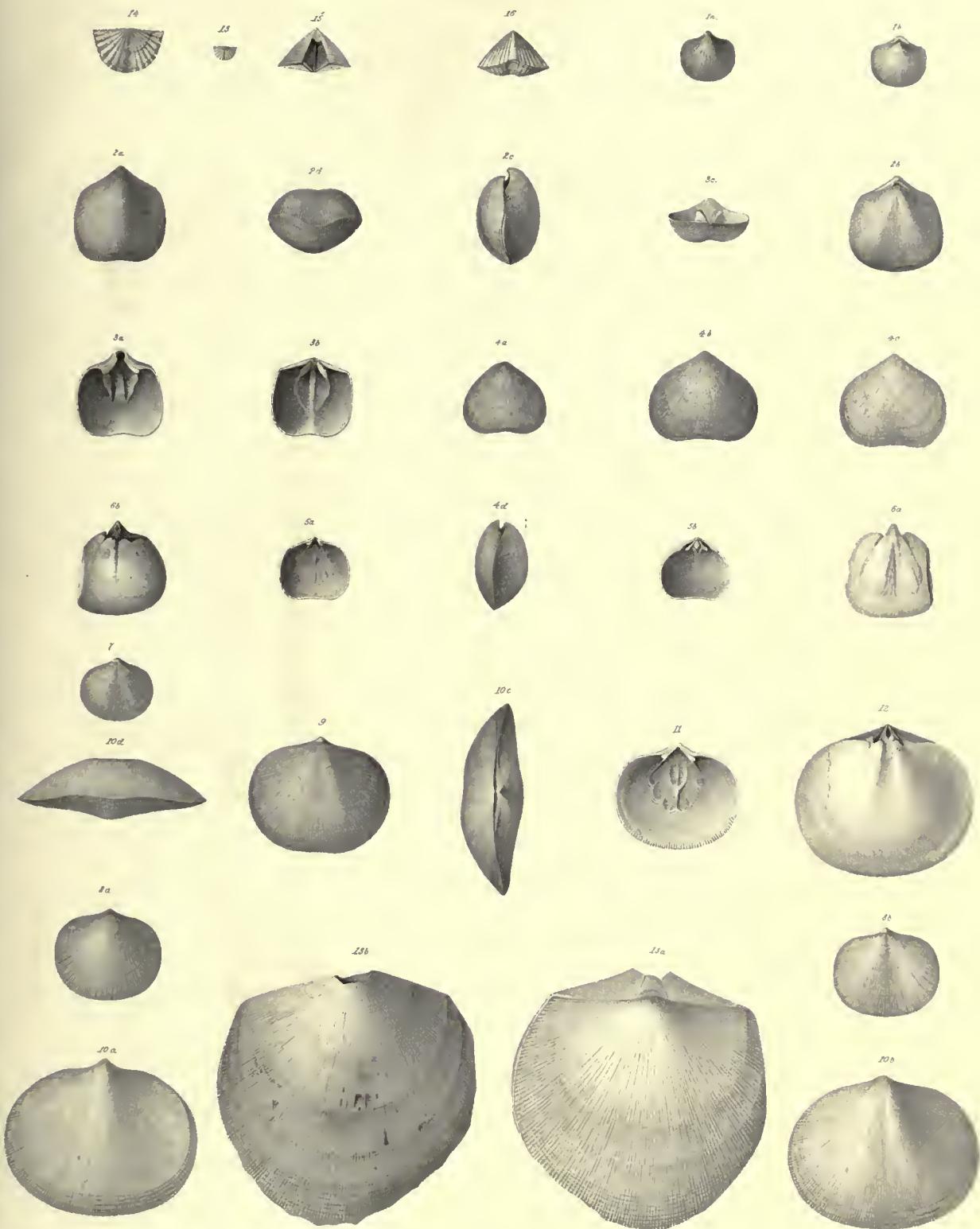
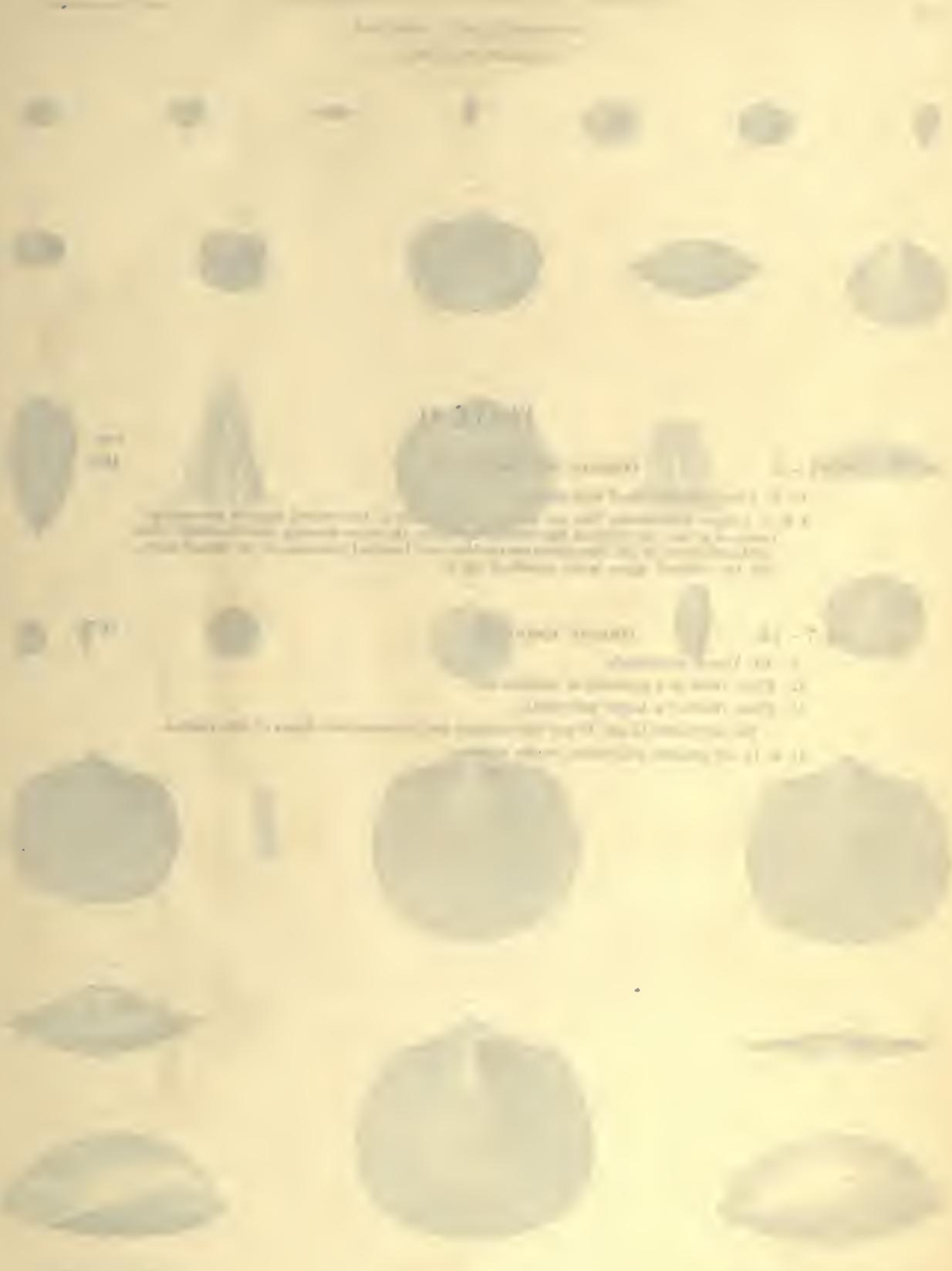


PLATE 10 A.

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1 a, b. Ventral and dorsal views of a small specimen.	
2 a, b, c, d. Ventral, dorsal, profile, and front views of a large individual.	
3 a, b. Interiors of the ventral and dorsal valves.	
3 c. Cardinal view of the dorsal valve.	
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6 a, b. Cast of the ventral and dorsal valve.	
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10 c, d. Cardinal and front views of the same.	
11. Interior of the ventral valve.	
12. Cast of a dorsal valve, probably of this species.	
Fig. 13 a, b. <i>ORTHIIS DEFORMIS.</i>	174
13 a. Dorsal view, showing the extent of area, the broken beak, etc.	
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Fig. 13, 14, 15, 16. <i>SKENIDIUM (ORTHIS) INSIGNIS.</i>	173
13. Dorsal view, natural size.	
14 & 15. Dorsal valve and area enlarged.	
16. Front view of the same enlarged.	

(Shaly Limestone.)
(BRACIOPODA.)



Hohokam Culture
Artifacts

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PLATE 11.

Fig. 1 - 6.	ORTHIS TUBULOSTRIATA.	Page 166
1 - 3. Young individuals of this species.		
4 & 6. Larger individuals. The two figures on each side of the central figure 6 are enlargements of striae; one without the tubular openings, the other showing this character. The righthand figure of the line shows the cardinal and brachial processes of the dorsal valve, and the lefthand figure is the profile of fig. 6.		

Fig. 7 - 14.	ORTHIS EMINENS.	Page 167
7 - 10. Young individuals.		
12. Three views of a specimen of medium size.		
13. Three views of a larger individual.		
The specimens 12 and 13 are well-marked and characteristic forms of this species.		
11 & 14 are referred with doubt to this species.		

(*Delthyris* Shaly Limestone.)
(BRACHIOPODA.)

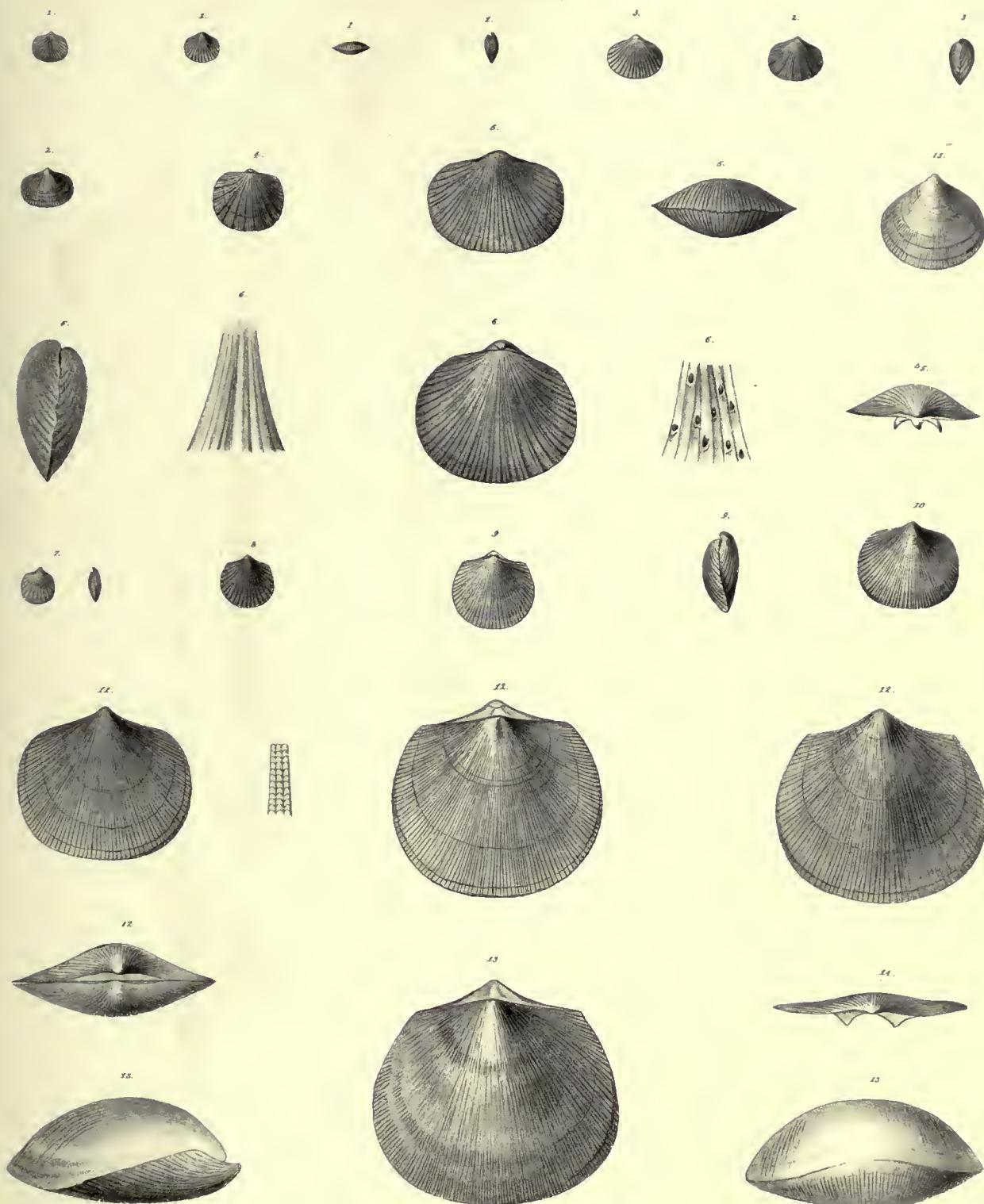


PLATE 12.

Fig. 1 - 6.

ORTHIS PLANOCONVEXA.

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- 1 *a, b.* Views of small individuals of this species, from Maryland.
- 2 *a, b, c, d, & 3.* Larger individuals, from New-York, showing the ventral and dorsal sides, profile and area.
4. The interior of the dorsal valve of a smaller individual.
5. Interior of the ventral valve.
- 6 *a, b.* Dorsal and ventral valves of a cast of the same species.

Fig. 7 - 21.

ORTHIS SUBCARINATA.

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- 7, 8 *a, b, c.* Views of young individuals.
- 9, 10. Views of individuals which have a subquadraangular outline, with the dorsal valve deeply depressed in the centre and much elevated on each side, and the front margin strongly sinuate.
- 11, 12. Interior of the valves of the preceding specimens.
- 13, 14, 15. Individuals showing gradation in size, and some slight modification in proportions.
- 16, 17. Full-grown individuals of this species.
18. Interior of the ventral valve.
- 19 *a, b.* Interior of the dorsal valve, showing the muscular and vascular impressions, and cardinal view of the same.
- 20, 21 *a, b, c.* Ventral, dorsal, and profile views of casts, the vascular impressions, etc.

(Shaly Limestone.)

(BRACHIOPODA.)

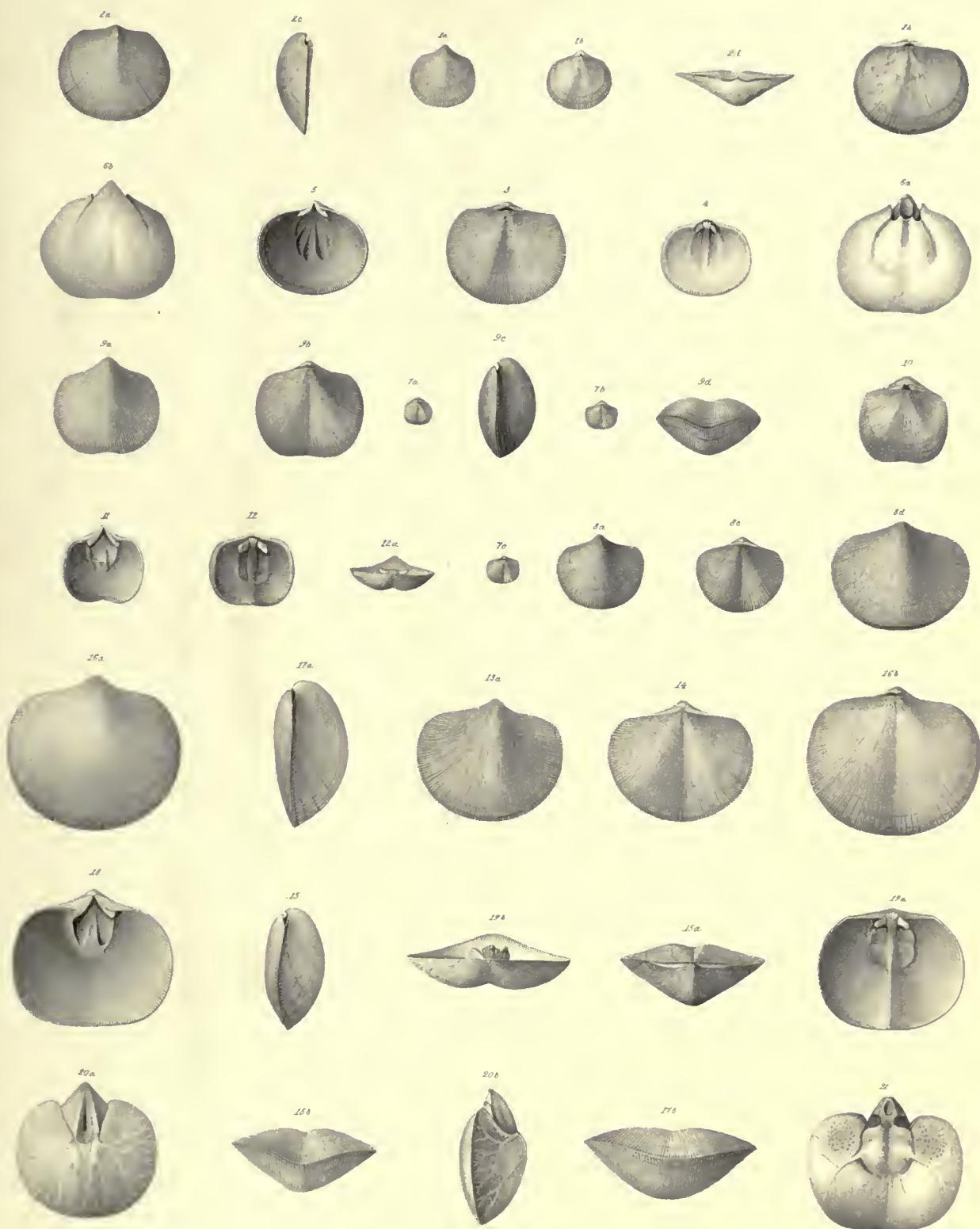


PLATE 13.

Fig. 4 - 12.

ORTHIS PERELEGANS.

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- 4 *a, b, c*, etc. Views of small individuals, which appear to be the young of this species, but may prove distinct.
- 5 *a, b, c*. Small individuals, authentic forms of this species.
- 6 *a, b, c*. Specimens intermediate in size.
- 7 *a, b, c, d & e*. Specimens of the ordinary size.
- 8. A large individual of this species.
- 9 *a, b*. Interiors of the ventral valve.
- 10 *a, b, c*. Interiors of the dorsal valve.
- 11 *d*. Profile showing the comparative elevation of the cardinal and brachial processes.
- 11 *a, b, c*. Casts of the ventral valve.
- 12 *a, b*. Casts of the dorsal valve.

Fig. 16.

ORTHIS PEDUNCULARIS.

174

- 16 *a*. Exterior of an imperfect valve.
- 16 *b*. Interior of the same.

It is possible that this one may prove identical with *O. eminens*.

LOWER HELDERBERG GROUP.

(“*Delthyris Shaly Limestone*,”)

(BRACHIOPODA.)

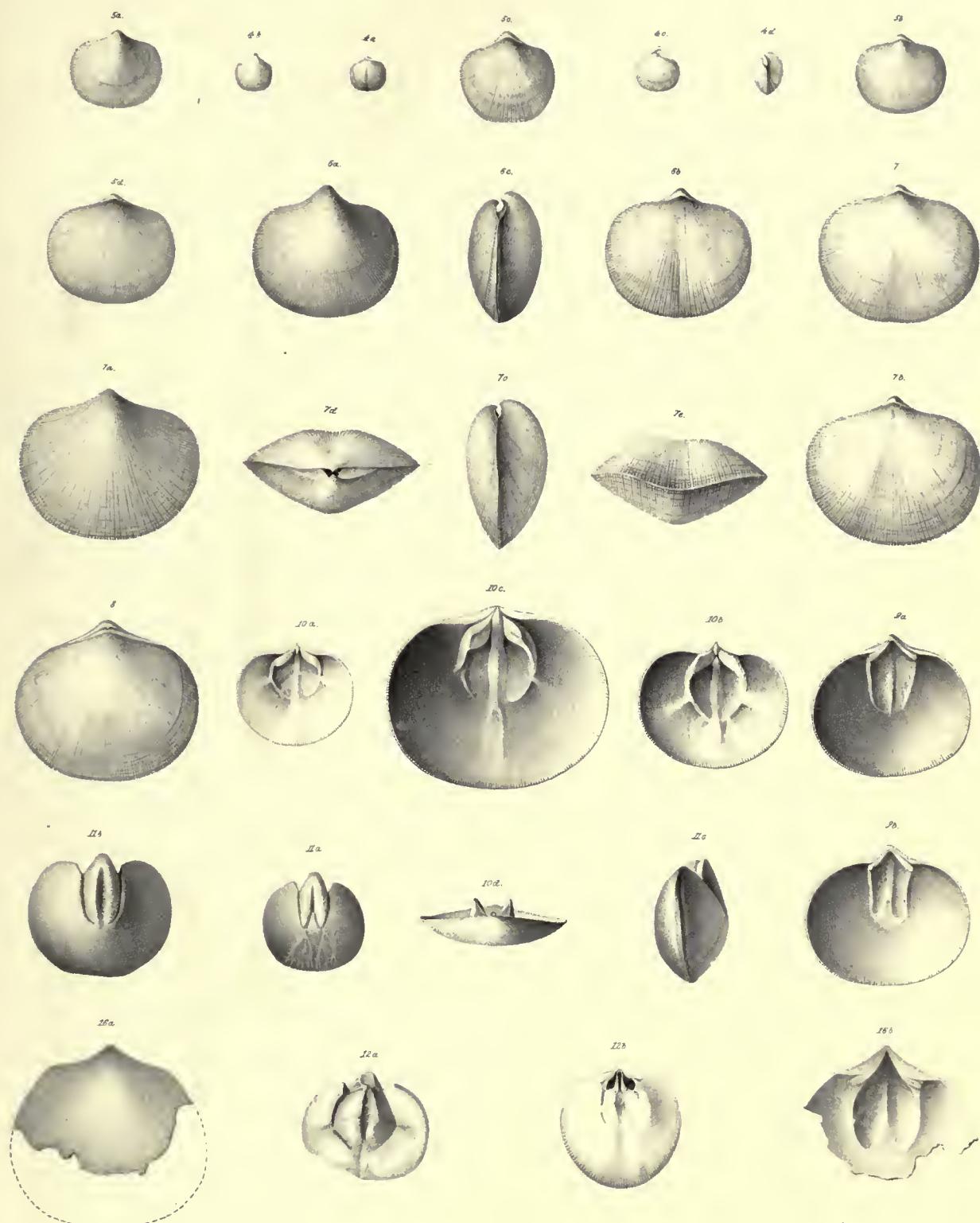
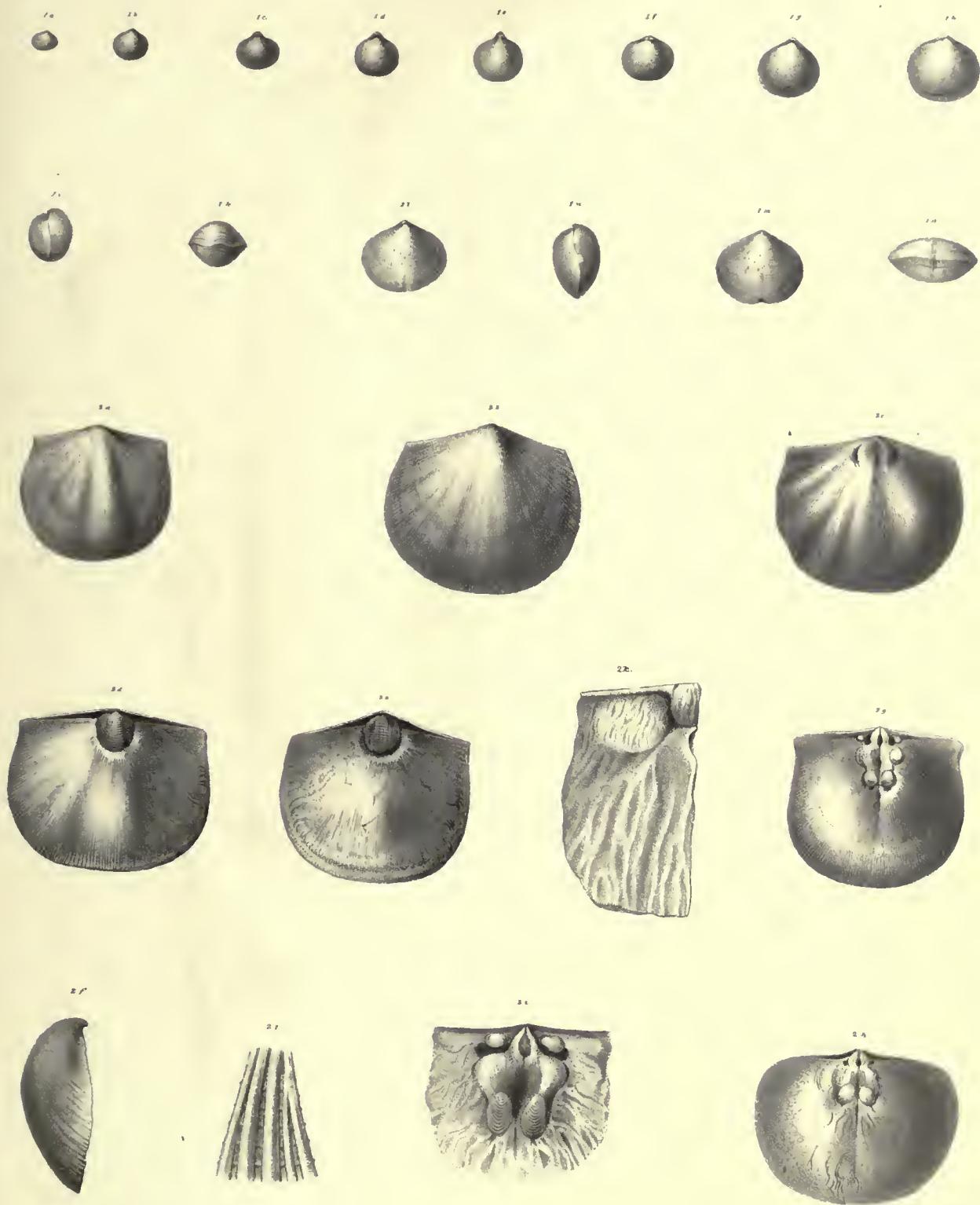


PLATE 14.

Fig. 1 <i>a - h.</i>	NUCLEOSPIRA VENTRICOSA.	Page
1 <i>a, b, c.</i>	Individuals of small size.	220
1 <i>d, e.</i>	Casts of larger forms.	
1 <i>f, g, h.</i>	Specimens of large size.	
The figures 1 <i>i - o</i>	are of MERISTELLA. See <i>M. bella.</i>	

Fig. 2 <i>a - l.</i>	ORTHIS STROPHOMENOIDES.	177
2 <i>a, b, c.</i>	The ventral valves of several specimens which are more or less exfoliated, so that the surface characters are not fully preserved.	
2 <i>d, e.</i>	Casts of the ventral valve, showing the muscular and vascular impressions.	
2 <i>f.</i>	Profile of a dorsal valve from which the shell is partially exfoliated.	
2 <i>g, h.</i>	Two specimens of the dorsal valve, showing the muscular and vascular impressions.	
2 <i>i.</i>	Enlargement of the muscular and vascular impressions, cavities of cardinal and brachial processes, etc. of part of a dorsal valve.	
2 <i>k.</i>	A farther enlargement of one side of the cast of a dorsal valve.	
2 <i>l.</i>	Enlargement of the striae, showing in the depressions some fine concentric striae.	



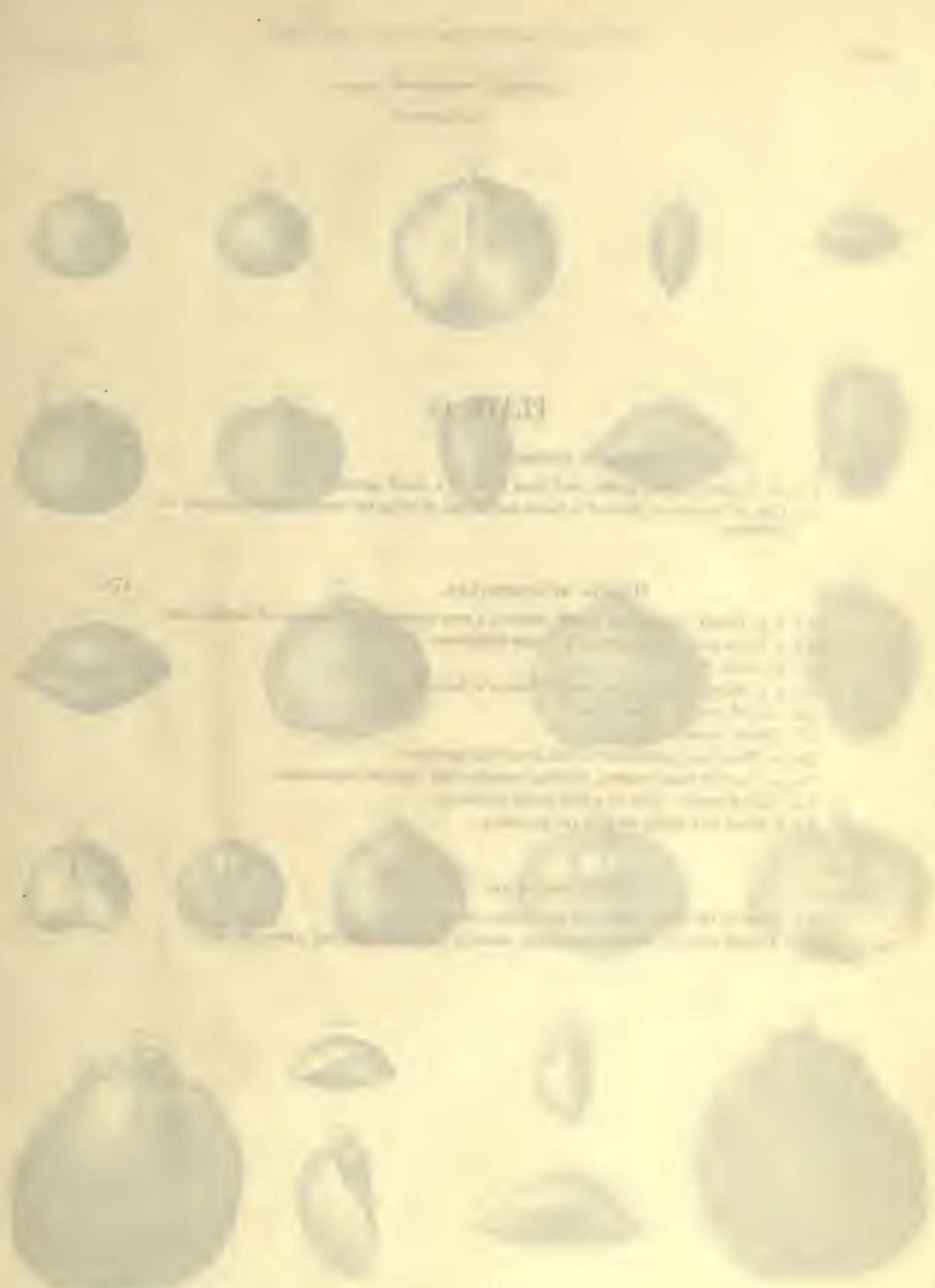


PLATE 15.

Fig. 1. ORTHIS ASSIMILIS. 175

- 1 *a - d.* Ventral, dorsal, profile, and front views of a small specimen.
1 *e.* Cast of the ventral valve of a larger individual, showing the vascular and muscular impressions.

Fig. 2. ORTHIS MULTISTRIATA. 176

- 2 *a, b, c.* Dorsal, ventral and profile views of a very symmetrical specimen of medium size.
2 *d, e.* Front and profile views of a larger individual.
2 *f.* Cardinal view.
2 *g, h, i.* Dorsal, ventral, and profile views of a large individual.
2 *k.* Cast of ventral valve.
2 *l.* Cast of dorsal valve of 2 *k.*
2 *m, n.* Front and profile view of the preceding specimen.
2 *o, p.* Casts of dorsal valves, showing muscular and vascular impressions.
2 *r.* Cast of ventral valve of a full-grown individual.
2 *s, t.* Front and profile view of the preceding.

Fig. 3. ORTHIS DEFORMIS. 174

- 3 *a.* View of the dorsal valve and area of the ventral valve.
3 *b.* Ventral valve of the same specimen, showing the contracted and distorted beak.

upper Pentamerus Limestone.

BRACHIOPODA

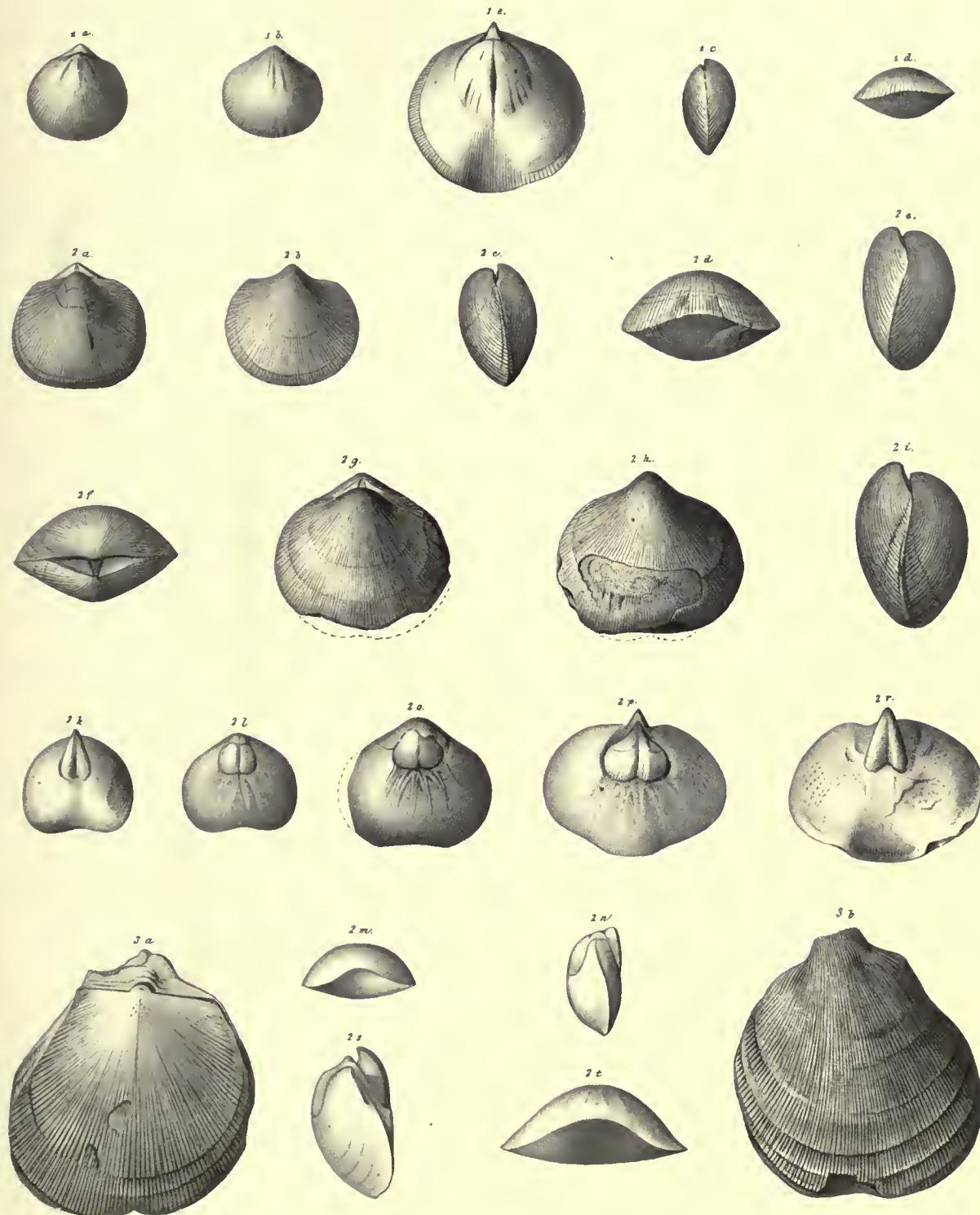


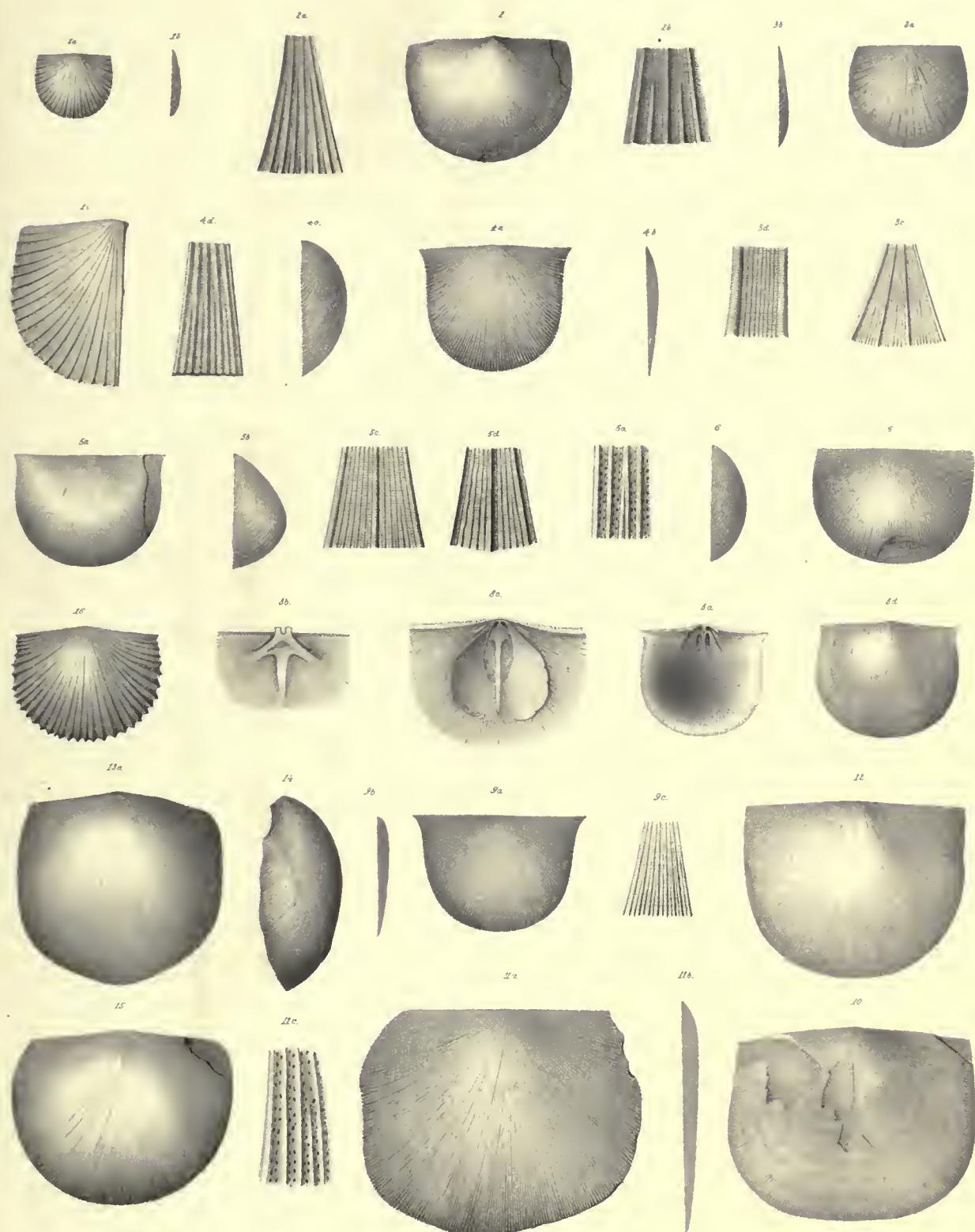
PLATE 16.

Fig. 1 – 8, & 16.	STROPHODONTA VARISTRATA.	Page 180
1 a.	A young individual slightly convex in the centre towards the beak, and flat at the sides.	
1 b.	Profile showing the outline from beak to base.	
1 c.	Enlargement showing the stronger elevated striae with the finer intermediate ones, and the commencement of other stronger ones in the midst of the finer striae.	
2.	An individual of the same character, having a greater convexity near the beak.	
3 a.	A similar form where the beak orumbo is not elevated, and the whole shell nearly flat.	
3 b.	Profile showing the curvature of the shell near the base.	
3 c.	Enlargement of striae, showing the fasciculate character.	
3 d.	A farther enlargement of the surface, showing the concentric striae.	
4 a.	An individual having the character of <i>S. rectilateris</i> .	
4 b.	Profile of the same.	
4 c.	Profile of an individual having similar characters of surface, with a greater convexity.	
4 d.	Enlargement of striae of 4 a., showing the alternating size and frequent bifurcation.	
5 a.	The <i>S. impressa</i> of CONRAD, natural size.	
5 b.	Profile of same, showing the abrupt bending or geniculation towards the base.	
5 c.	Enlargement of striae, showing the coarser ones with intermediate fascicles of smaller ones.	
5 d.	A portion of the surface enlarged where partially exfoliated on an impression of the exterior surface, showing the impressed lines made by the stronger striae; which is merely a reverse of fig. 5 d., or of fig. 3c & 3 d.	
6.	An individual with coarser striae than usual, the surface partially exfoliated, and profile of same.	
6 a.	The striae enlarged, showing the punctate character of the surface when partially exfoliated.	
7 a, b.	Illustrations of the surface of " <i>Leptæna indentata</i> ".	
8 a, c.	Illustration of the hinge-line, arca, vascular impression, etc. of the ventral valve, showing the apparent foramen, which is due to fracture, and has not the regular triangular form of <i>Strophomena</i> .	
8 b.	Enlargement of hinge-line, teeth, etc. of the dorsal valve.	
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9 b.	Profile view of the same.	
9 c.	Enlargement of the surface, showing the character of the radiating and concentric striae.	
10.	An individual showing some faint concentric undulations.	
11 a.	A large individual nearly entire, having the exterior surface slightly weathered, and showing the puncta along the striae.	
11 b.	Profile of the preceding specimen.	
11 c.	Enlargement of the surface, showing the character of the striae and arrangement of the puncta.	
12.	An individual in which the shell is partially removed, showing obscurely the form of the vascular impressions.	

Fig. 13 – 15.	STROPHOMENA CONRADI.	194
13 a.	The ventral valve.	14. Profile view of the same.
15.	Ventral view of another individual.	

(BRACHIOPODA.)



卷之三

PLATE 17.

Fig. 1 & 2.

STROPHOMENA WOOLWORTHANA.

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- 1 *a*. Ventral valve of an individual of medium size.
- 1 *b*. Dorsal valve of a larger individual, showing the area of the opposite valve and the closed foramen.
- 1 *c*. Ventral valve of the same.
- 1 *d*. Profile view of the same.
- 1 *e*. Ventral valve of a large individual.
- 1 *f*. View of area of 1 *e*.
- 1 *g*. Cardinal view of an entire individual, showing the area of the ventral valve, and the convexity of the dorsal valve.
- 1 *h, i, k, l*. Interior of the ventral valves of several individuals of different size, and showing some variety in form of the muscular impressions.
- 1 *m*. A cast of the ventral valve.
- 1 *n, o*. Interior of dorsal valves, showing the cardinal processes, with some difference in the strength of the muscular impressions and proportional length of the hinge-line.
- 1 *p, r*. Cardinal view of ventral valve, shewing the cardinal processes and the same enlarged.
- 1 *s, t*. Enlargement and profile of the striae.
- 2 *a, b, c*. Casts of the interior of the dorsal valves of several individuals.

LOWER HELDERBERG GROUP.

Delthyria Shaly Limestone.

(BRACHIOPODA.)

Pl. 17.

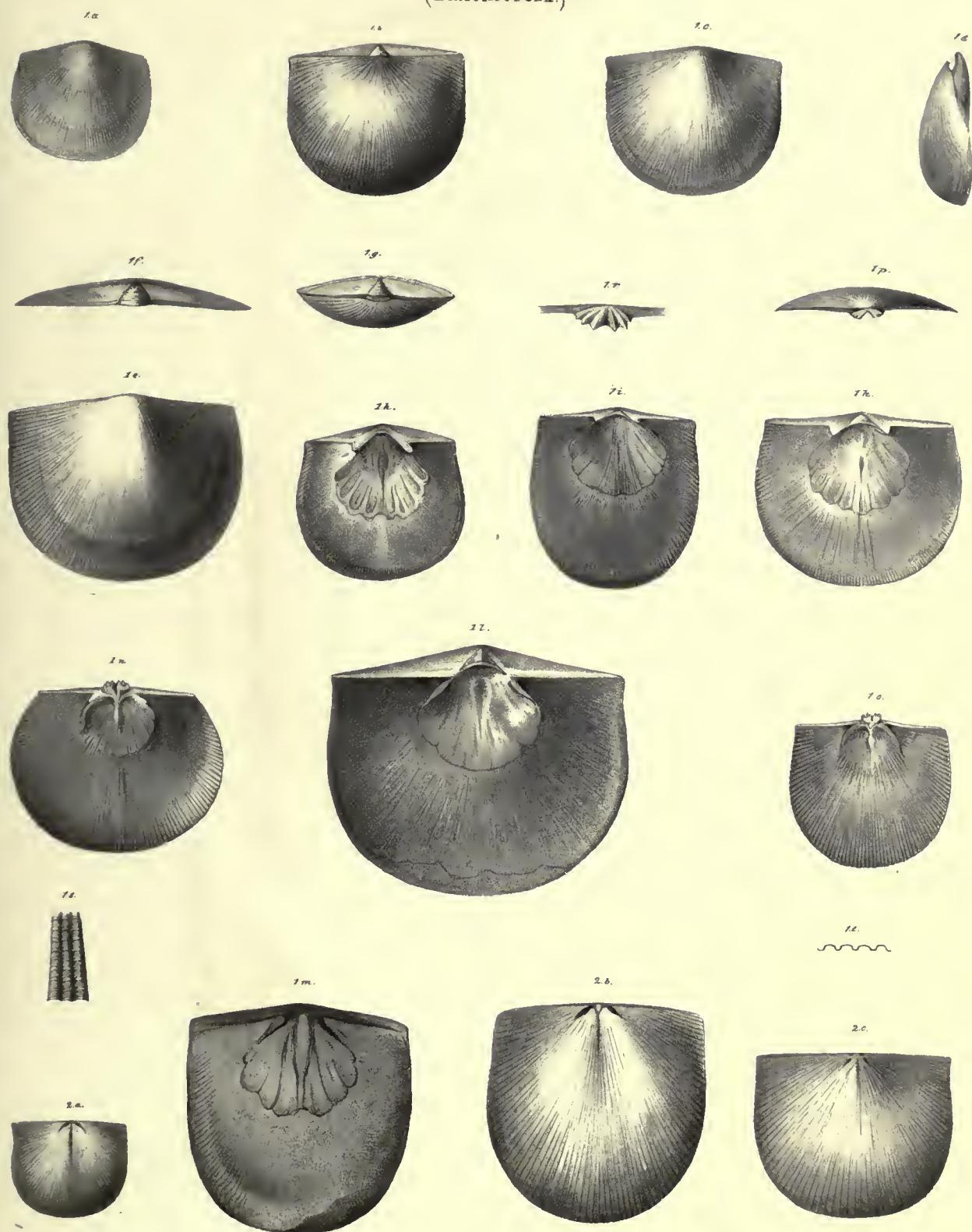


PLATE 18.

	Page
Fig. 1 <i>a - i.</i>	<i>STROPHODONTA VARISTRIATA, var. ARATA.</i>
	183
1 <i>a - d.</i>	Ventral valves of several specimens where the shell is more or less exfoliated, the last one being almost free from adhering shell.
1 <i>e, f, g.</i>	Profile views, showing the convexity of several individuals.
1 <i>h.</i>	The surface showing the ridges and striae.
1 <i>i.</i>	A portion of a cast of the interior, which preserves the ridges, but shows no intermediate striae.
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	197
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3 <i>a.</i>	The ventral valve.
3 <i>b, c, d, e.</i>	Casts of specimens of this species.

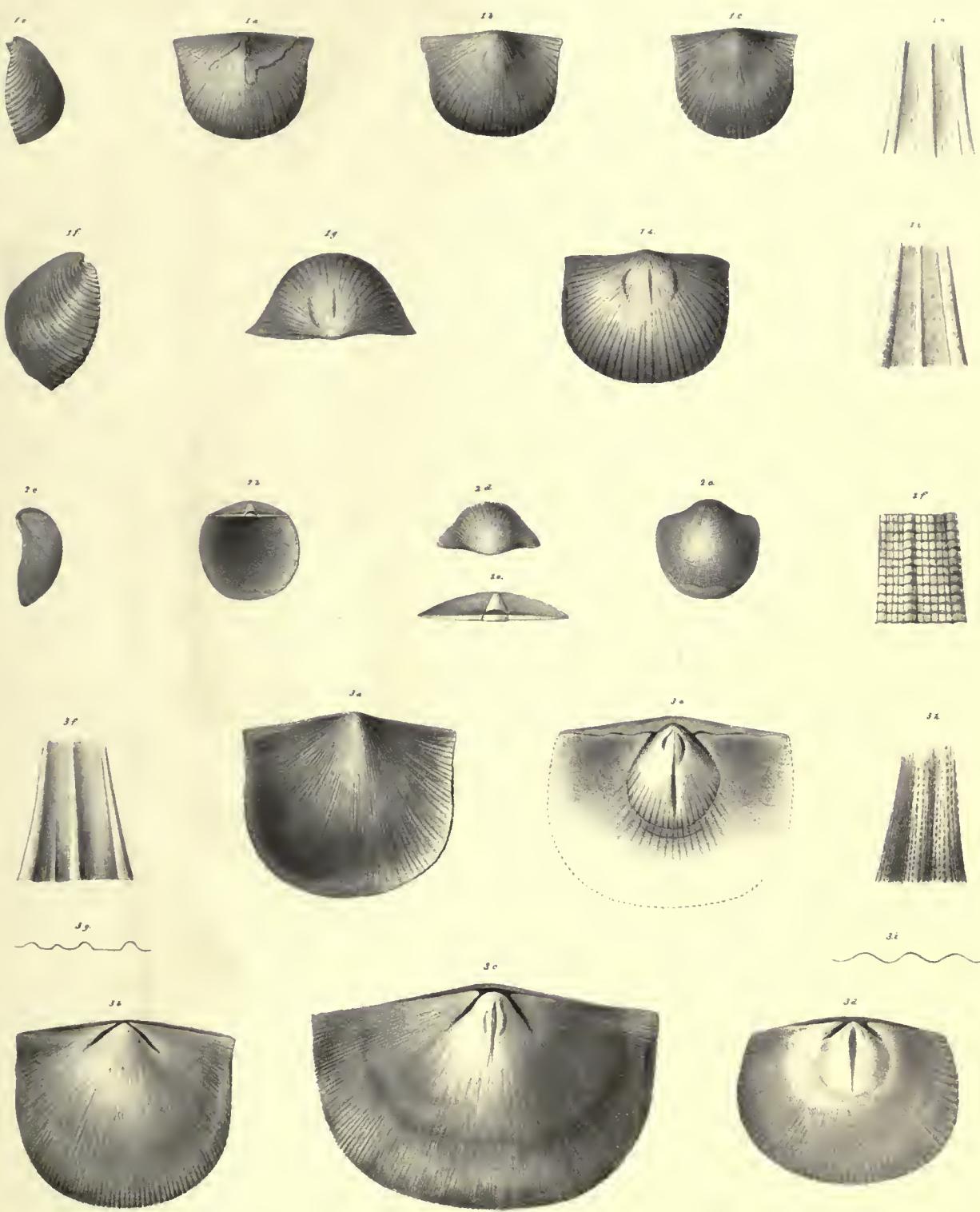




PLATE 19.

Fig. 1 *a* - *y*.

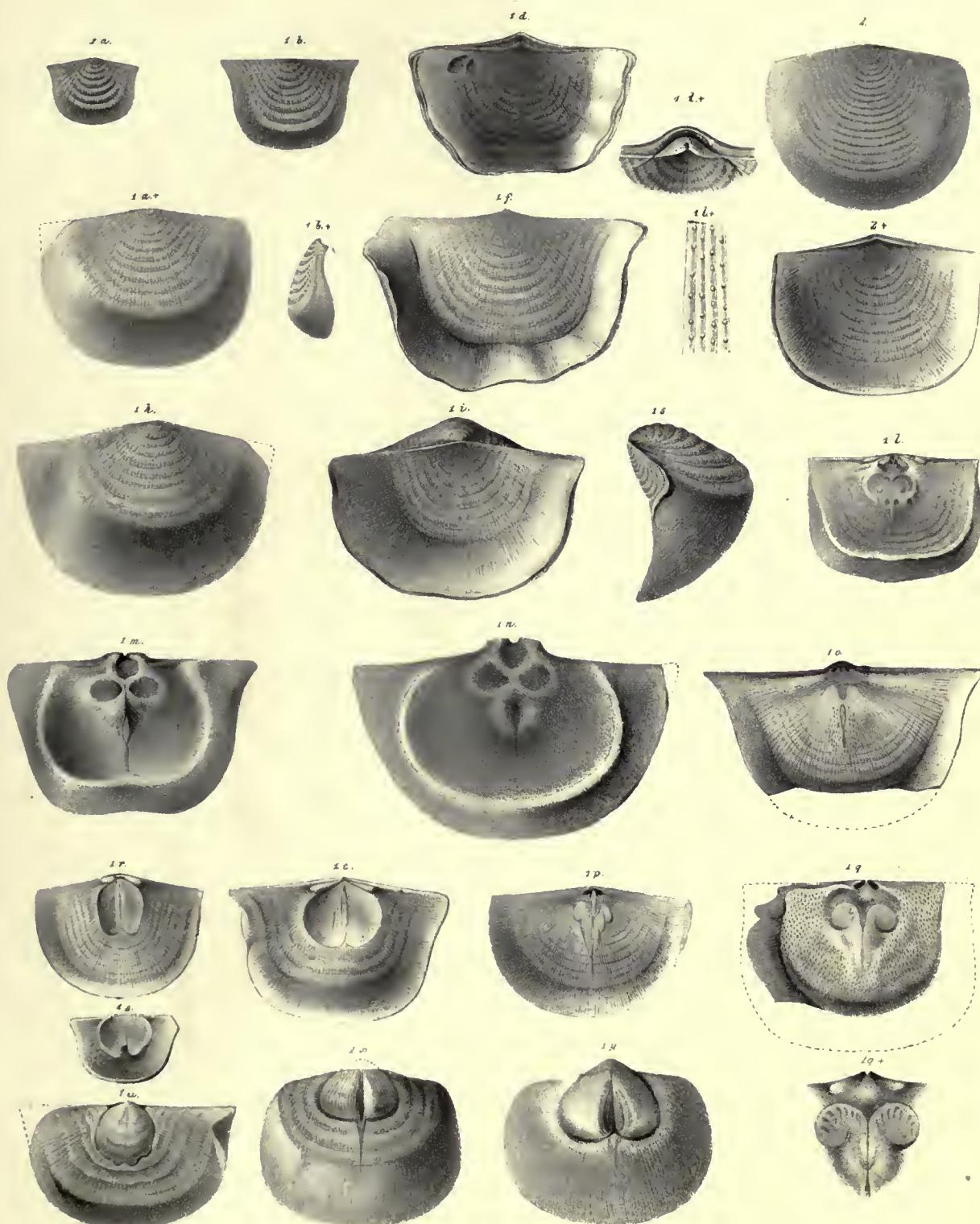
STROPHOMENA RUGOSA.

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- 1 *a* - *i*. Figures illustrating the usual characters presented by shells of this species.
- 1 *k* (by error marked 1 *s*). Profile showing the great extent of the deflected portion of the shell. Between this one and 1 *b* †, there are every possible gradation.
- 2 & 2 †. Specimens which are slightly curved, and showing a larger number of corrugations than usual, which extend nearly to the base of the shell.
- 1 *l*, *m*, *n*. Interiors of dorsal valves, showing some variety of characters.
- 1 *l* †. Enlargement of the striæ on the interior.
- 1 *o*, *p*, *q*. Casts or moulds left in the stone by the dorsal valves of several individuals.
- 1 *q* †. Enlargement of the muscular imprints, etc.
- 1 *r*, *s*, *t*. Interior of the ventral valve of several individuals.
- 1 *u*, *x*, *y*. Casts of the interior of the ventral valve, 1 *u* still retaining a portion of the shell.

Shaly Limestone.

BRACHIOPODA



THE STYLUS

BY JAMES M. COOK, JR., OF THE STYLUS

The Stylus is a monthly magazine of the arts and sciences, literature and philosophy, politics and economics, history and geography, science and technology, and all other fields of knowledge and inquiry. It is published by the University of California Press, Berkeley, California.

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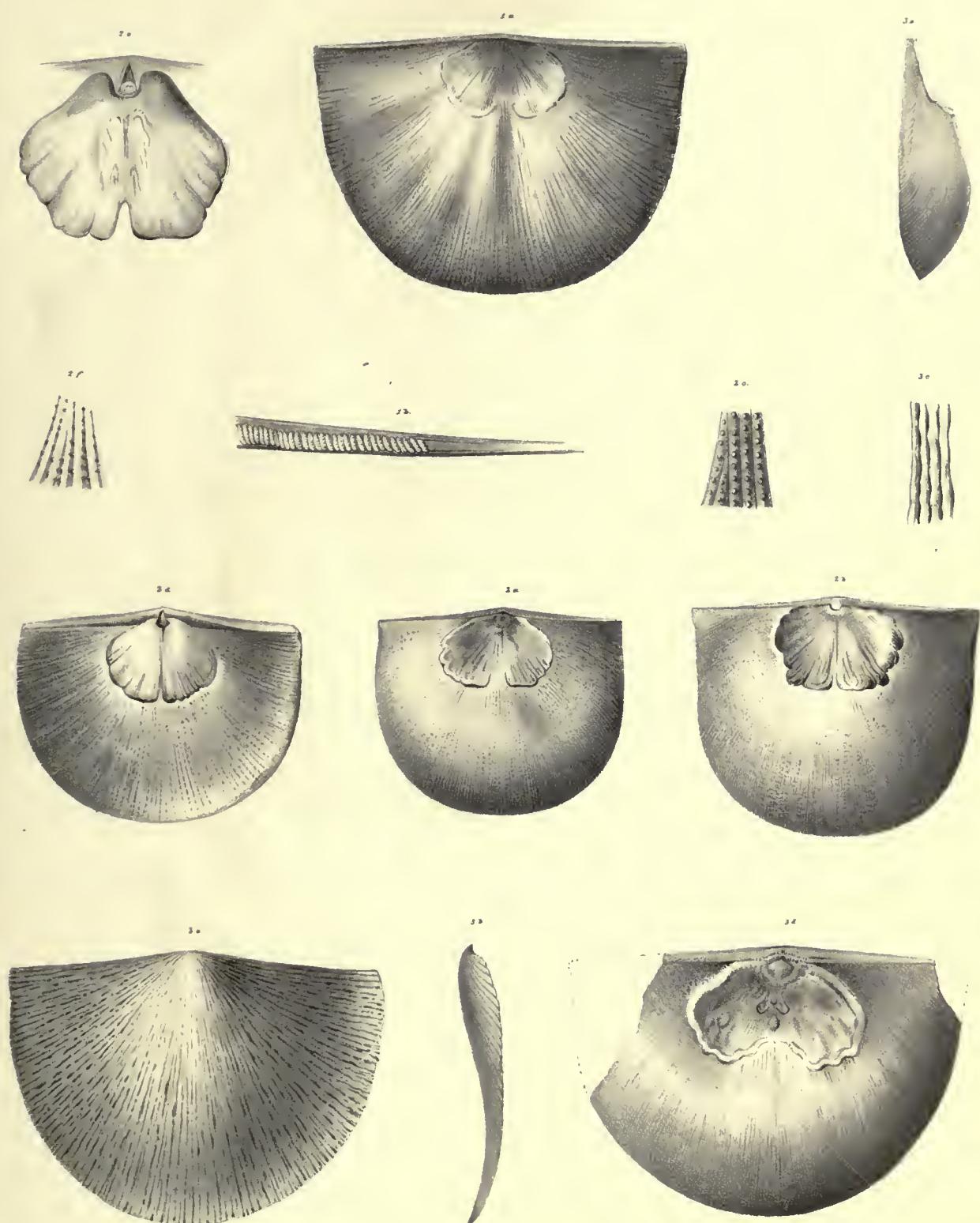
PLATE 20.

Fig. 1, 2 & 3.

STROPHODONTA HEADLEYANA.

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185

- 1 *a*. Interior of the ventral valve, where the surface is marked by strong rounded striae, and the muscular area striate. The hinge, along its line of junction with the opposite valve, presents a linear groove from the termination of the crenulations to the cardinal extremities : crenulations extending little more than one-third the length of the hinge-line on either side of the centre.
- 1 *b*. Enlargement of a portion of the hinge-line and area of 1 *a*.
- 2 *a, b*. Interior of the ventral valve of two specimens which present some variation in the form of the muscular impressions.
- 2 *c*. Enlargement of the papillose interior surface.
- 2 *e*. Enlargement of the cast of the muscular area.
- 2 *d*. Cast of a ventral valve, showing the narrow callosity which fills the foramen.
- 2 *f*. Enlargement of the punctate casts of striae.
- 3 *a*. Exterior of a ventral valve, showing the peculiar interrupted striation.
- 3 *b*. Profile showing the concavity of the ventral valve.
- 3 *c*. Enlargement of a portion of the striae.
- 3 *d*. Interior of a valve having similar characters to 3 *a*, but more deeply concave.
- 3 *e*. Profile of 2 *b*, showing the convexity of the interior of the valve.



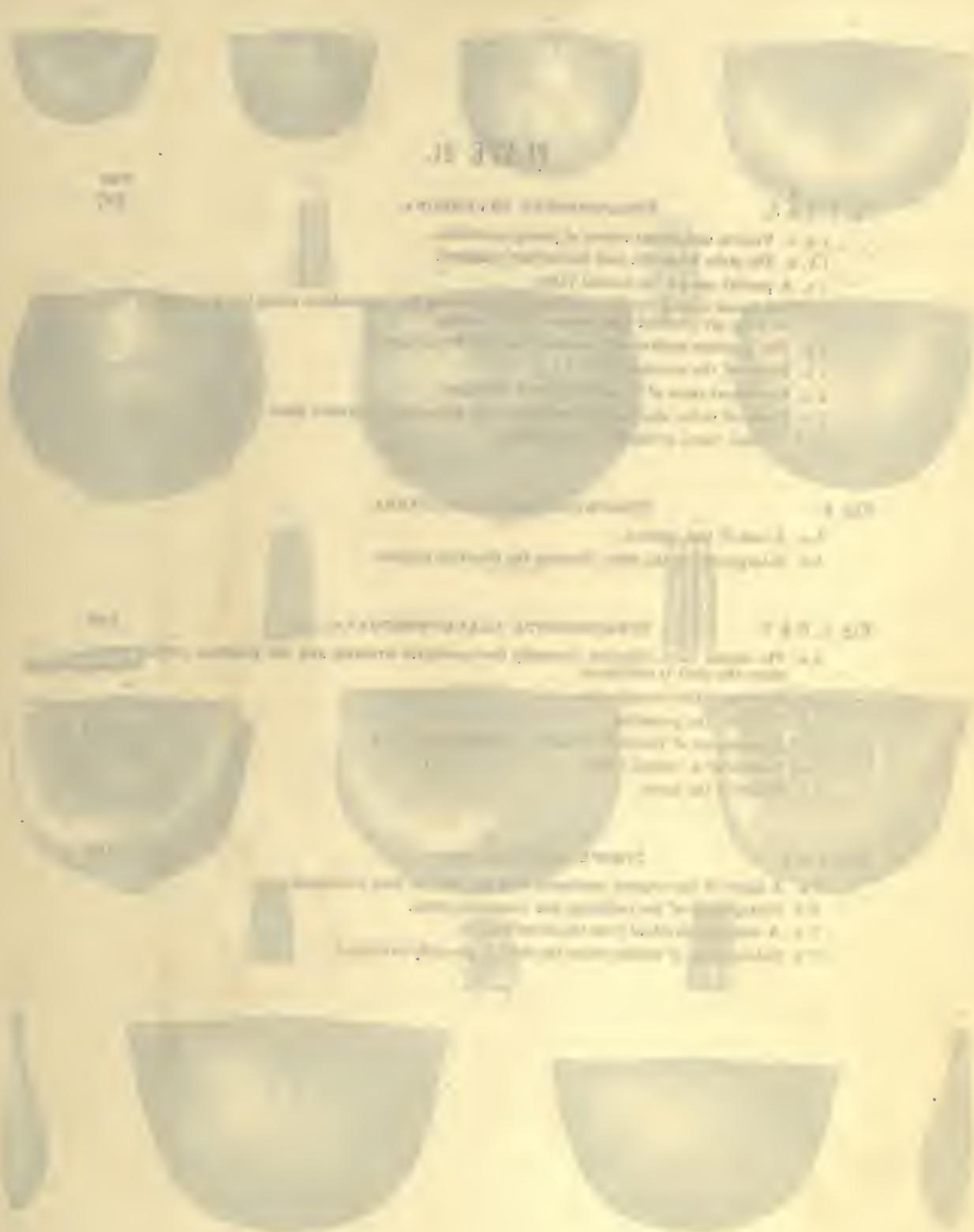


PLATE 21.

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Fig. 1, 2 & 3. <i>STROPHODONTA CAVUMBONA.</i>	187
1 <i>a, c.</i> Ventral and dorsal valves of young specimens. 1 <i>b, d.</i> The striae in profile, and the surface enlarged. 1 <i>e.</i> A partial cast of the ventral valve. 1 <i>f.</i> The dorsal valve partially exfoliated, and showing the crenulations along the hinge-line : the striae are rounded and frequently bifurcating. 1 <i>g.</i> The punctate surface shown where the shell is exfoliated. 1 <i>h.</i> Profile of the rounded striae of 1 <i>f.</i> 2 <i>a.</i> The dorsal valve of a well-preserved specimen. 2 <i>c.</i> Profile of striae, showing the elevations and flat surfaces between them. 3. A ventral valve, probably of this species.	
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5 <i>a.</i> The dorsal valve, showing obscurely the concentric wrinkles and the punctate surface where the shell is exfoliated. 6 <i>a.</i> Interior of the ventral valve. 6 <i>b.</i> Profile of the preceding. 6 <i>c.</i> Enlargement of the crenulations of the hinge-line of 6 <i>a.</i> 7 <i>a.</i> Interior of a ventral valve. 7 <i>b.</i> Profile of the same.	
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8 <i>a.</i> A figure of the original specimen, with the shell in part exfoliated. 8 <i>b.</i> Enlargement of the radiating and concentric striae. 9 <i>a.</i> A smaller individual from the same locality. 9 <i>b.</i> Enlargement of surface when the shell is partially exfoliated.	

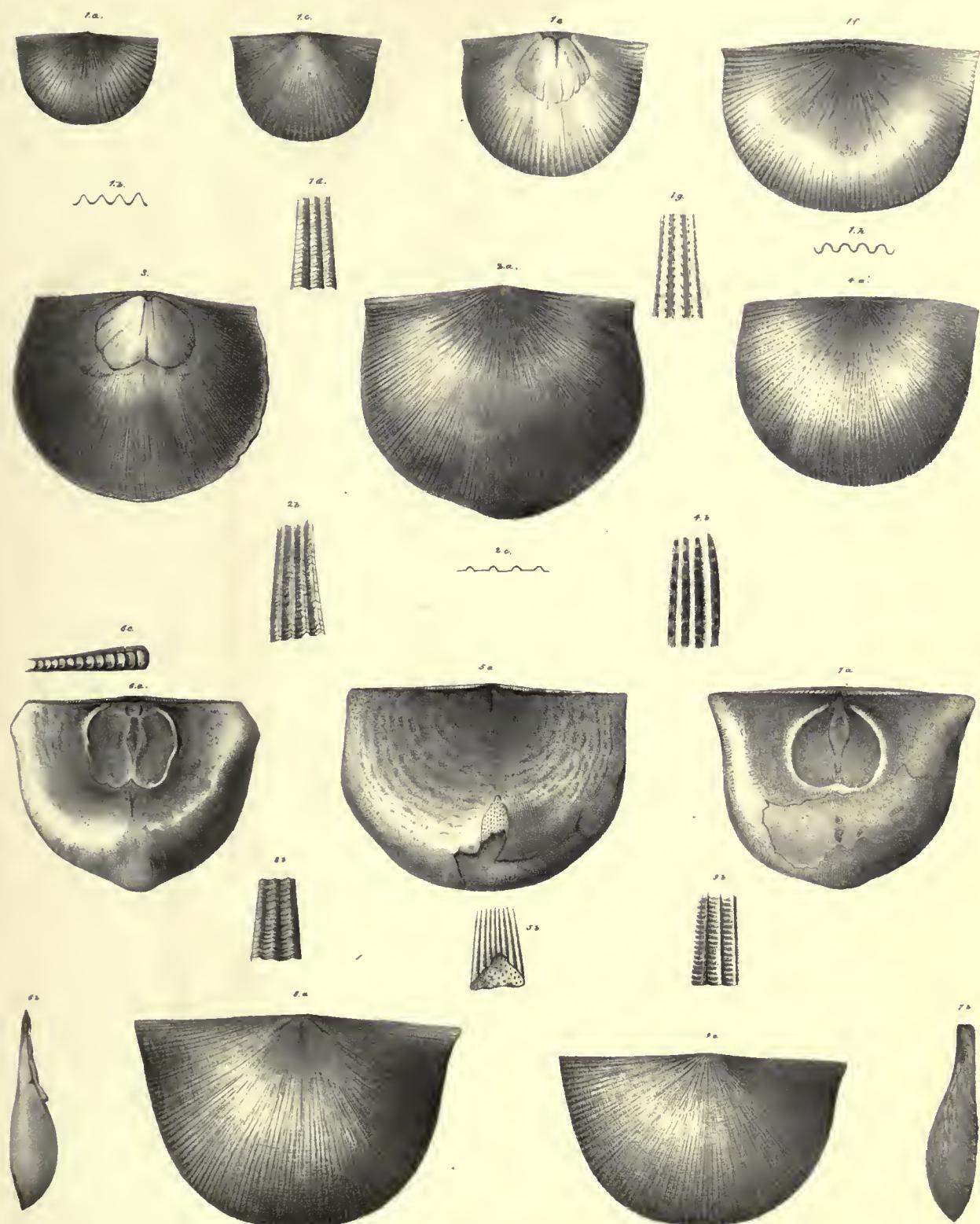


PLATE 22.

Fig. 1 *a - t.*

STROPHODONTA BECKII.

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191

- 1 *a.* A young individual in which no corrugations are developed.
- 1 *b, c.* Two specimens exhibiting the extremes of form in the extension of the hinge-line, and showing the beginning of the development of the corrugations.
- 1 *d.* A specimen showing the corrugations more strongly.
- 1 *e.* An individual of full size, in which the corrugations are well developed.
- 1 *f, g.* Dorsal and ventral sides of an entire individual.
- 1 *h.* Profile view of the preceding specimen.
- 1 *i.* An old specimen where the corrugations are much stronger and closer than usual.
- 1 *k, l, m.* The interiors of several ventral valves, showing the area, crenulated hinge-line, muscular and vascular impressions, etc.
- 1 *n.* Area of the ventral valve.
- 1 *o, p.* Enlargement and profile of the striae.
- 1 *r.* A portion of the area enlarged, showing the striated surface and crenulated margin.
- 1 *s, t.* Portions of the easts of the ventral valves of two different individuals, showing some slight difference in the character and strength of the impressions.

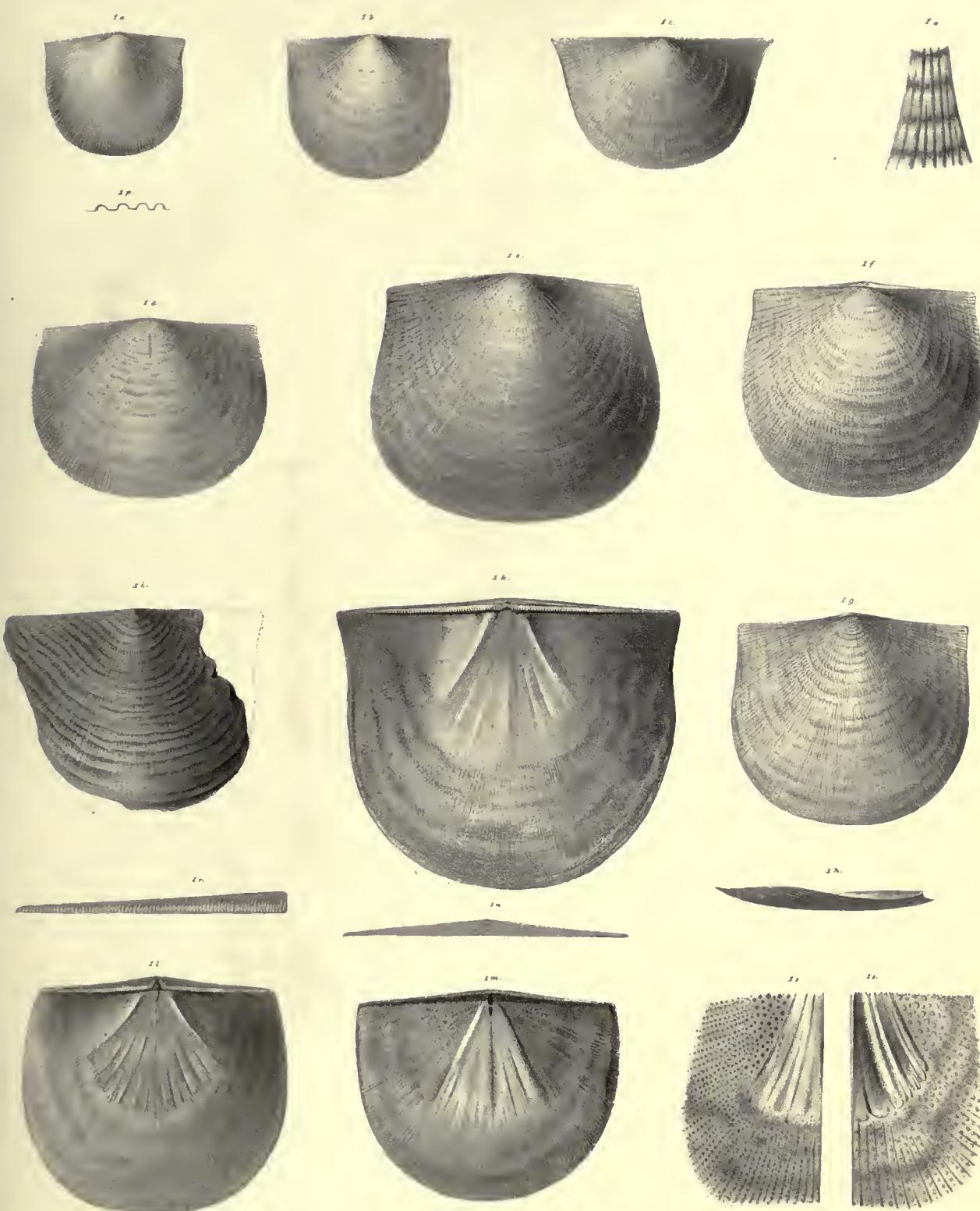


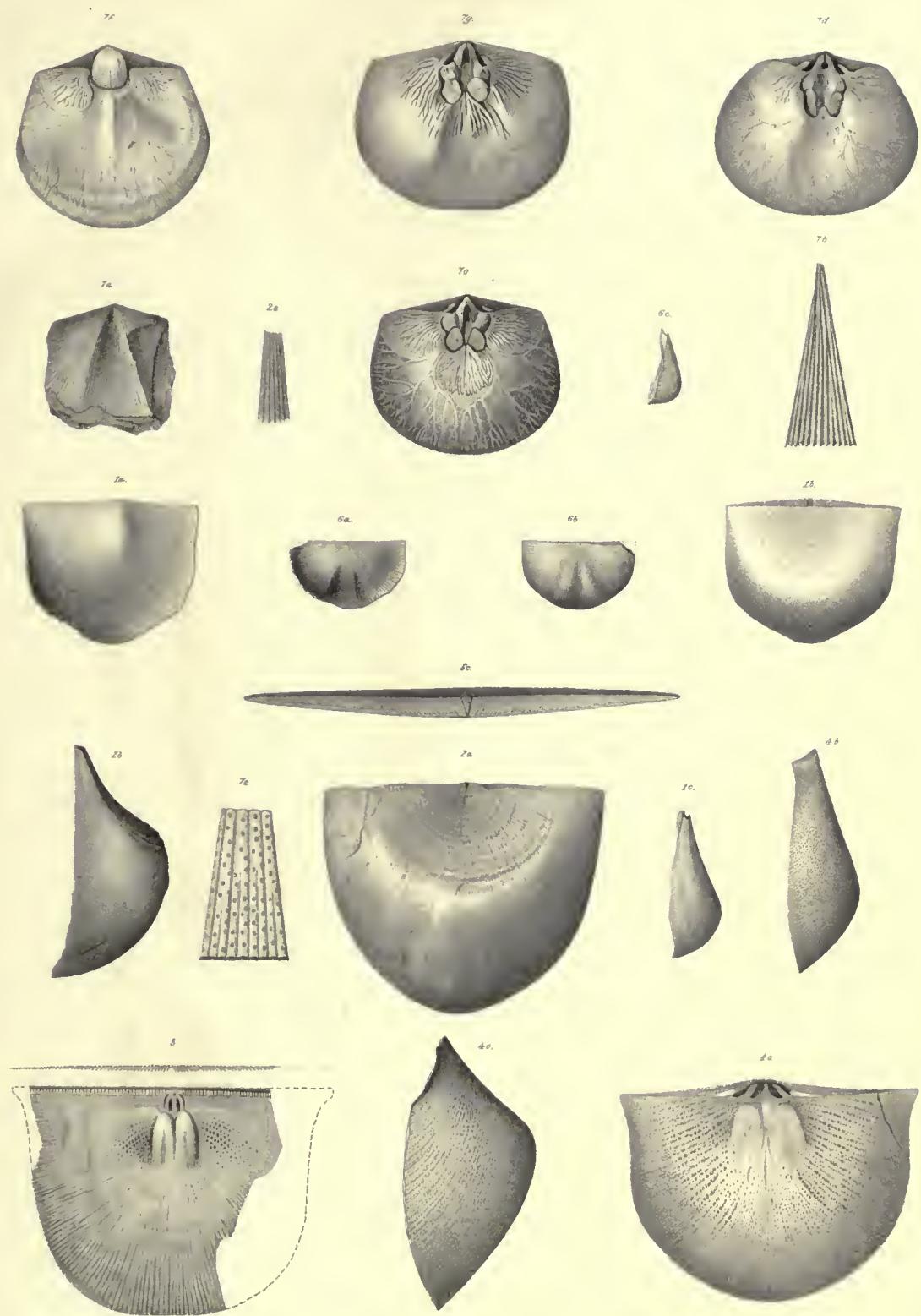
PLATE 23.

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Fig. 1 & 2. STROPHODONTA LEAVENWORTHANA.	189
1 a, b, c. Ventral, dorsal, and profile views of an entire specimen.	
2 a, b. Dorsal and profile views of a full-grown individual.	
2 e. Enlargement of the fine equal striae.	
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4 c. Profile view of a more gibbous specimen.	
5 c. Cardinal view, showing the area enlarged.	
7 e. Enlargement of striae which are scarcely exfoliated, showing pustulose points, some of which are punctate at their extremities.	
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7 a. An imperfect dorsal valve of this species.	
7 b. Enlargement of the surface striae from 7 a.	
7 c. A cast of the dorsal valve, showing the vascular and muscular impressions in a great degree of perfection.	
7 d. A similar specimen, showing variations in the markings.	
7 g. A similar cast, showing the muscular impressions, and the vascular impressions of the ovarian spaces.	
7 f. A cast of the ventral valve, showing the muscular and vascular impressions.	

Figures 2 a, b and e, and fig. 3, were drawn by Mr. F. B. MEEK; the remainder, by Mr. WHITFIELD.

The upper figure of 3 was intended as a correction (subsequently added) of the erroneous form of crenulations in the hinge of the one below.

(BRACHIOPODA.)



MEMPHIS

1. *Pyramis*

Pyramis, son of Menes, was the first king of Egypt. He built the great pyramid at Gizeh.

2. *Menes*

Menes, son of the god Horus, was the second king of Egypt. He built the great pyramid at Gizeh.

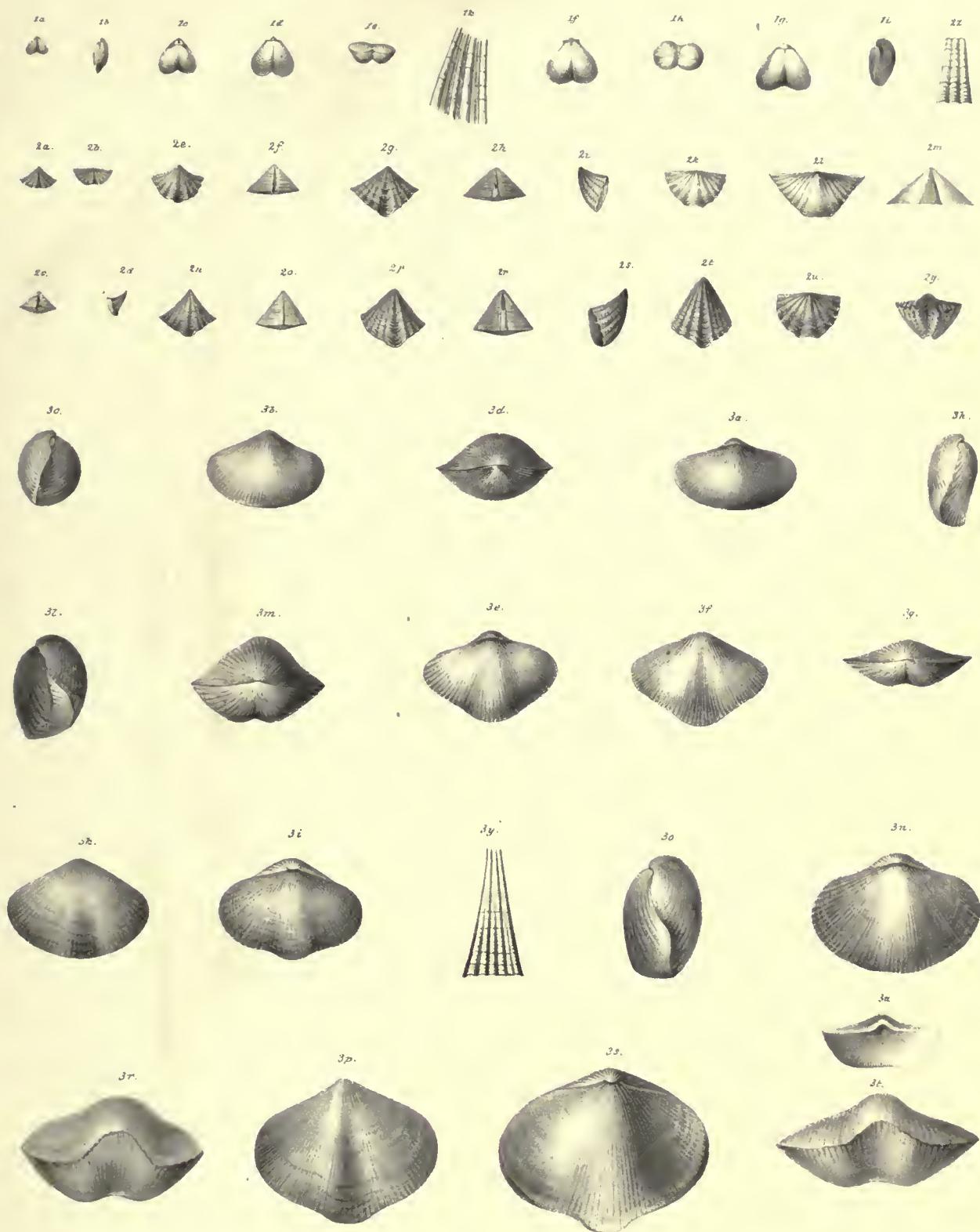
3. *Khufu*

Khufu, son of Menes, was the third king of Egypt. He built the great pyramid at Gizeh.

PLATE 24.

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1 <i>k.</i> Enlargement of the radiating striae.	
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2 <i>a - y.</i> Illustrations of the ventral, dorsal, profile, and cardinal views of this species, representing the principal varieties of form and size.	
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3 <i>a - t.</i> Illustrations showing gradations of size, variety of form, etc.	
3 <i>y.</i> Enlargement of the striae.	

(BRACHIOPODA)



EXPLANATION

of the figures in the plate.

The following figures represent the different stages of development of the embryo and foetal membranes, and the corresponding changes in the placenta, in the same animal. The first figure shows the early stage of the embryo, and the second figure shows the corresponding stage of the placenta. The third figure shows the later stage of the embryo, and the fourth figure shows the corresponding stage of the placenta. The fifth figure shows the final stage of the embryo, and the sixth figure shows the corresponding stage of the placenta.

FIGURE 1. Early stage of the embryo.

The embryo is small and compact, and is situated in the upper part of the uterus. The placenta is large and well developed, and is situated in the lower part of the uterus. The membranes are thin and transparent, and are situated between the embryo and the placenta.

PLATE 25.

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Fig. 1 <i>a - z.</i>	199
	<i>SPIRIFER CYCLOPTERUS.</i>
1 <i>a - s.</i>	Figures of several individuals, showing gradations in size, modifications of form, etc.
1 <i>u.</i>	Interiors of ventral valves.
1 <i>w.</i>	Enlargement of surface where the edges of the lamellæ are ornamented with little granules, giving the appearance in profile as represented in 1 <i>x.</i>
1 <i>y.</i>	The surface where the granules are worn off, and the lamellæ are seen to be finely striated.
1 <i>z.</i>	Profile of the imbricating concentric striae.

Fig. 2 <i>a - i.</i>	<i>SPIRIFER CONCINNUS.</i>	200
2 <i>a - e.</i>	Views of a single large specimen from the shaly limestone.	
2 <i>f.</i>	Enlargement of the surface.	
2 <i>g, h, i.</i>	Ventral and front views of specimens from the Upper Pentamerus limestone.	

BRACHIOPODA.

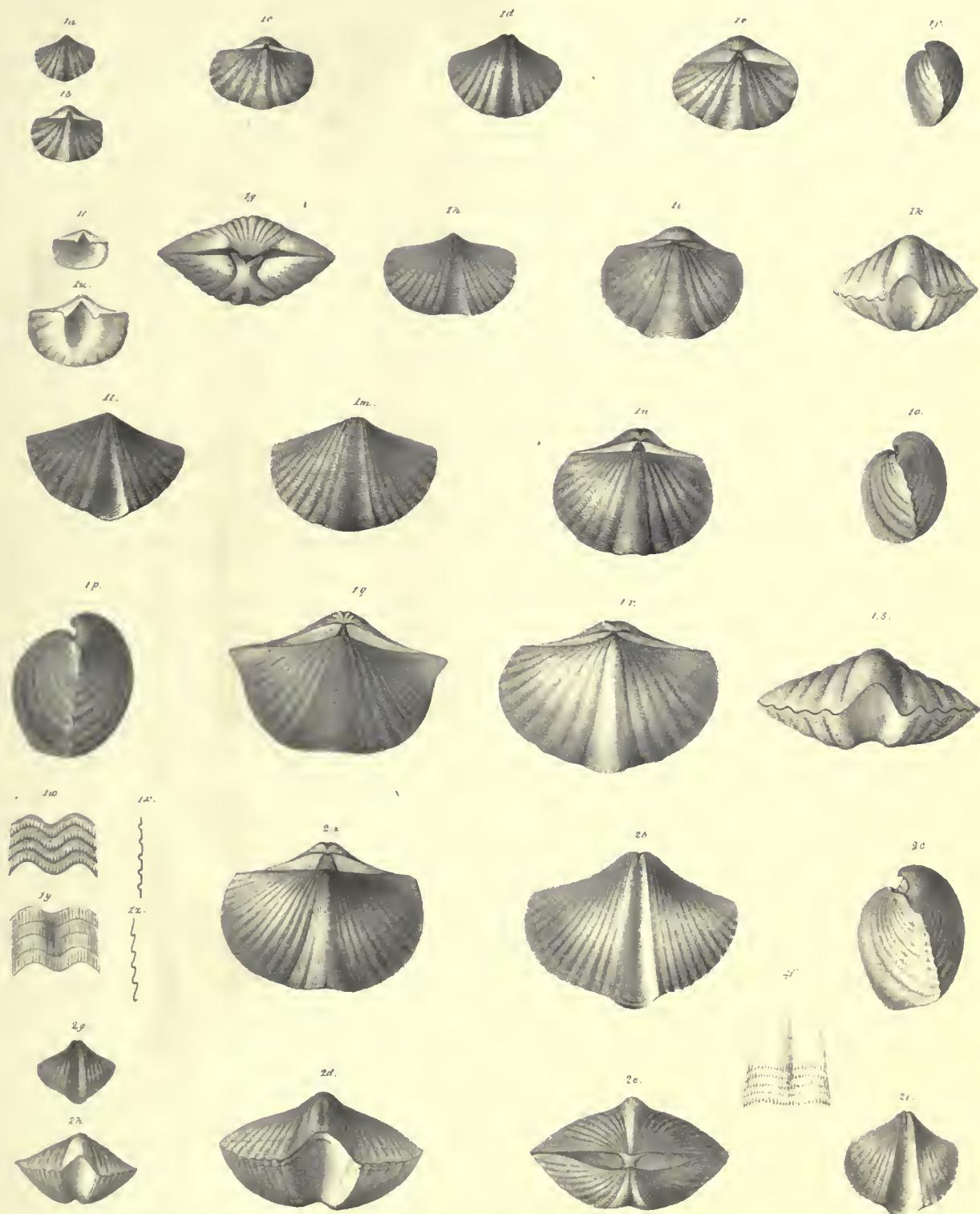




PLATE 26.

Fig. 1 & 2.

SPIRIFER PERLAMELOSUS.

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- 1 *a - s.* Illustrations of gradations of size and differences of form presented by this species.
- 1 *t.* Enlargement of surface, showing the concentric lamellæ [which are not strong enough in the figure] and the fine longitudinal striæ.
- 2 *a, b.* Interiors of ventral valves.
- 2 *c, d.* Casts of the ventral and dorsal valves.
- 2 *e.* Enlargement of a portion of 2 *d*, showing the cavities left by the decomposition of the dental lamellæ.
- 2 *f, f.* Cast of the ventral valve, and enlargement showing the papillose surface.
- 2 *g.* Cardinal view of a cast of this species.

BRACHIOPODA.



PLATE 27.

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Fig. 1 *a - p.*

SPIRIFER MACROPLEURUS.

- 1 *a.* A young shell in which the plications are but faintly developed.
- 1 *b, c.* Dorsal and profile views of a specimen of medium size.
- 1 *d & h.* Front and cardinal views of the same.
- 1 *e, f, g.* Dorsal, front and cardinal views of a very symmetrical form of medium size.
- 1 *i.* Ventral valve of a specimen of larger size.
- 1 *k.* Ventral view of a larger individual, which is nearly of the maximum size observed.
- 1 *l.* A cast which is somewhat crushed from the base.
- 1 *m, n.* Interior of the ventral valve, and cast of the same.
- 1 *o.* Part of the exterior of a slightly weathered specimen, showing the extremity of the spire.
- 1 *p.* Enlargement of the radiating striae as seen under a lens upon the surface of ordinary specimens.

Shaly Limestone.

BRACHIOPODA.

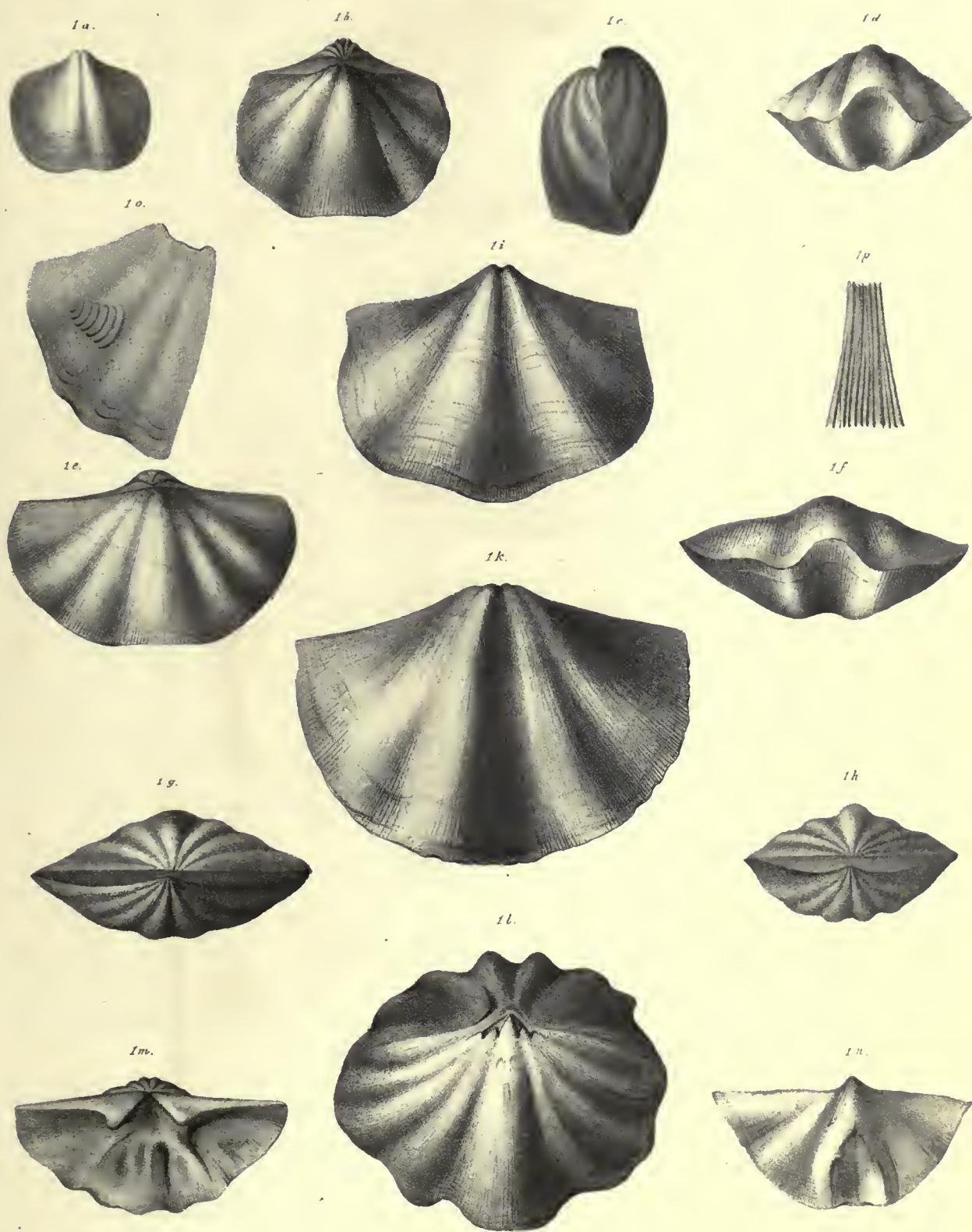


PLATE 28.

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1 a. Dorsal view of a specimen of ordinary size.	
1 b., c, d. Ventral, dorsal and profile views of a larger individual.	
1 e. The interior of the ventral valve.	
1 f. Front view of 1 a.	
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2 e. Front view of the same.	
2 f. Enlargement of the surface.	
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3 a, b, c. Ventral, dorsal, and profile views.	
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4 d. Cardinal view of 4 c †, showing the foramen.	
4 e. Interior of the ventral valve.	
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Fig. 8 a - d. SPIRIFER MACROPLEURUS.	202
8 a, b, c. Casts of the ventral valve, showing some variety in the forms of the muscular im- pressions.	
8 d. Enlargement of the surface striae, taken from an impression of the exterior in the shaly limestone where the shell has decomposed. The concentric striae are rarely preserved on the surface of the shell.	

(BRACHIOPODA)

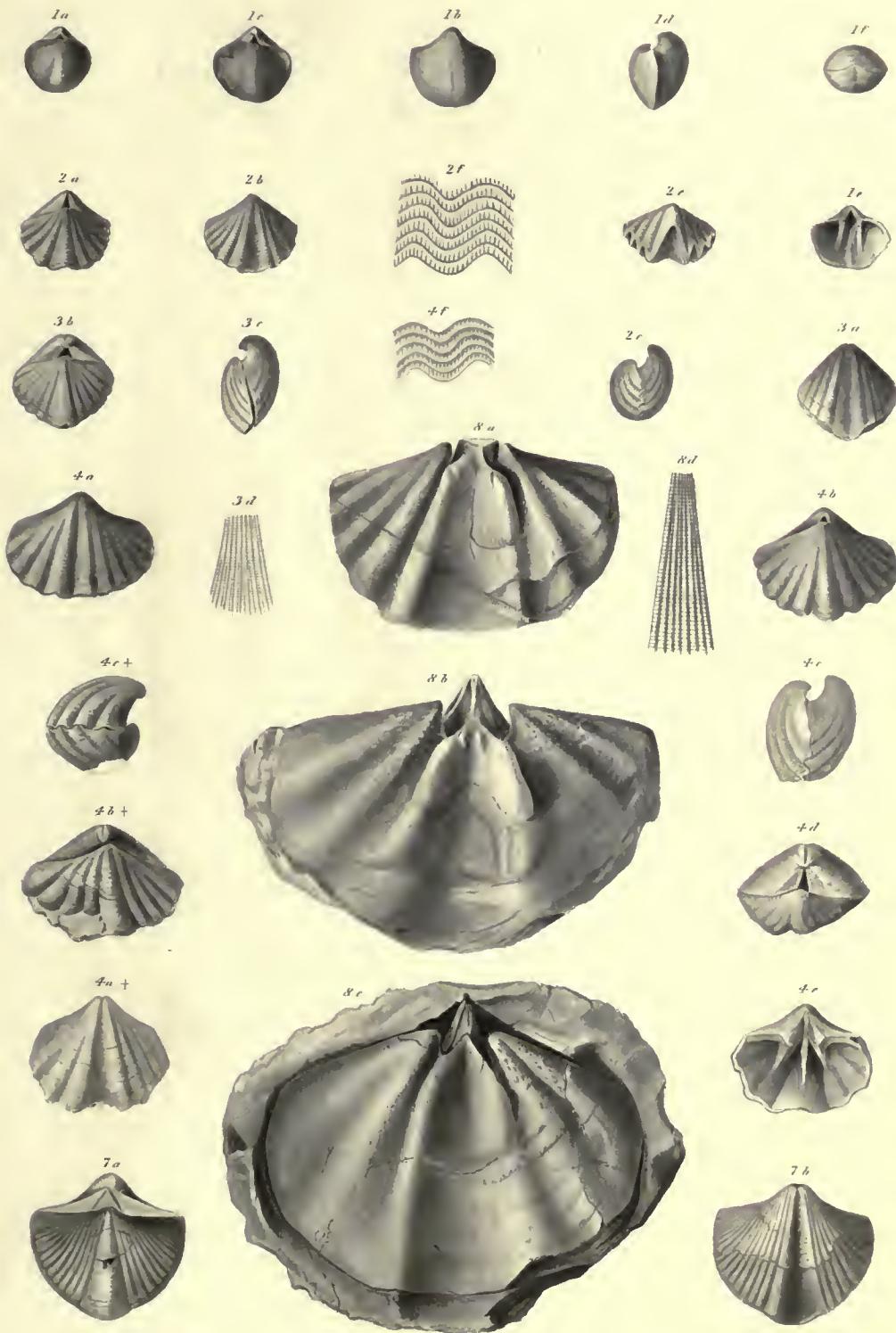


PLATE 28 A.

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Fig. 1 <i>a - h.</i>	TREMATOSPIRA CAMURA (of the Niagara group).	212
1 <i>a.</i>	Dorsal view of a specimen of medium size.	
1 <i>b.</i>	Ventral view of the same, showing a single small plication in the mesial sinus.	
1 <i>b †.</i>	Ventral view of a specimen somewhat different in form.	
1 <i>d.</i>	Profile view of the same.	
1 <i>e.</i>	Enlargement of the beak, foramen and deltidium of the ventral valve, and the upper part of the dorsal valve.	
1 <i>f.</i>	Dorsal view of a shorter specimen, which has been cut transversely to show the internal spires.	
1 <i>g.</i>	Enlargement of plications, showing granulose surface and strong imbricating lines of growth.	
1 <i>h.</i>	Surface of plications enlarged, showing granulose surface without imbricating lines of growth.	
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2 <i>a, b.</i>	Dorsal and ventral views of the specimen, natural size.	
2 <i>c, d.</i>	Front and profile view of the same.	
2 <i>e, f.</i>	Dorsal and ventral views of a larger specimen, the lateral extremities of which are broken off.	
Fig. 3 <i>a - k.</i>	TREMATOSPIRA PERFORATA.	208
3 <i>a.</i>	Dorsal view of a small specimen.	
3 <i>b, c, d.</i>	Dorsal, ventral, and profile views.	
3 <i>e, f.</i>	Dorsal and ventral views of an older specimen with a deep sinus.	
3 <i>g, h.</i>	Front views of a young and an old specimen, showing the shallow and deeper mesial sinus.	
3 <i>i.</i>	Ventral side of an imperfect specimen, showing the internal spire.	
3 <i>k.</i>	Enlargement showing the perforated beak and the junction of the valves.	
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4 <i>a, b.</i>	Dorsal and ventral valves.	
4 <i>c, d.</i>	Profile and front views.	
4 <i>e.</i>	Enlargement of the surface, showing the granulose punctate character, which is obscure from the silicification of the shell.	
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5 <i>a.</i>	An individual of medium size, having the beaks closely incurved, and without indication of an area.	
5 <i>b.</i>	Dorsal view, where the minute perforation in the beak of the ventral valve is barely seen above the summit of the opposite one.	
5 <i>c, d, e.</i>	Ventral, front, and profile views of the same individual.	
5 <i>f.</i>	The interior of a ventral valve, showing the remains of internal spires.	

[BRACHIOPODA]

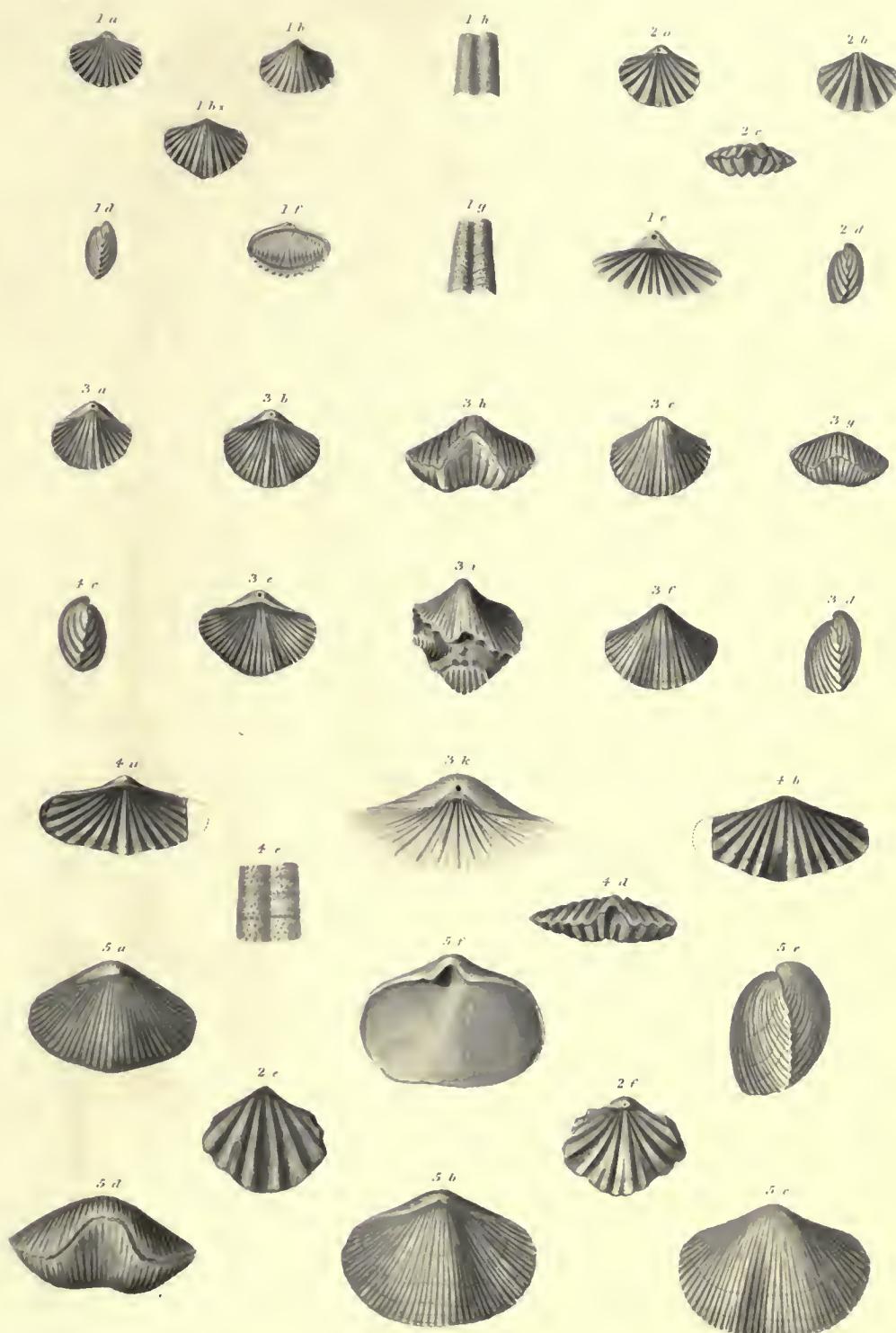


PLATE 28 B.

Fig. 1 *a - d.*

NUCLEOSPIRA PISIFORMIS.

Orthis pisum : Pal. New-York, Vol. ii, p. 250. This species proves, on examination, to belong to the Genus NUCLEOSPIRA. It is a smaller species than that of the Lower Helderberg rocks, while it is larger and more gibbous than the *N. concentrica*.

- 1 *a, b.* Dorsal and ventral views of a specimen, natural size.
- 1 *c.* Profile view of the same.
- 1 *d.* An enlargement of the surface.

Fig. 2 - 9.	NUCLEOSPIRA VENTRICOSA.	Page
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- 2 *a, b, c.* Illustrations of a form having the beak more elevated than usual.
- 3 *c, d.* An individual preserving the remains of the fine hair-like spines which cover the surface of perfect specimens; and an enlargement of the same.
- 4 *a, b.* A cast of the interior.
- 5. The interior of a ventral valve preserving the internal spires, enlarged to three diameters.
- 6 *a.* The dorsal valve, showing the extended cardinal process and the longitudinal septum.
- 6 *b.* Profile of the same.
- 6 *c, d.* Enlargement of the preceding figures.
- 7 *a, b.* Interior of the ventral valve, and profile view of the same : enlarged figures.
- 8. Interior, showing the articulation of the valves : *t, t*, the cardinal teeth; *J*, the cardinal process; *B, B*, the brachial processes.
- 9. Diagram showing a longitudinal section of the valves, the articulating teeth, the cardinal process, spire, and longitudinal septa *s, s*.
- 9 *a.* An enlarged view of the interior of the dorsal valve, showing the crura, the bases of the arms for half a turn, and the connecting process which ascends from the dorsal side towards the centre of the spire as shown in fig. 9.

Fig. 10 - 15.	NUCLEOSPIRA ELEGANS.	Page
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- 10 *a, b.* Dorsal and ventral views of a very symmetrical specimen of the ordinary size, showing slight indications of the central flattening or depression.
- 10 *d.* Profile view.
- 11 *a.* Dorsal view of a specimen which is proportionally broader.
- 12 *c.* Dorsal view of a specimen without mesial depression, and showing an extension in front.
- 13 *a, b.* Dorsal and front views of a large individual which is proportionally very broad and deeply depressed in front.
- 13 *c, and 17 b* (by error for 13 *d*). Dorsal and ventral views of a gibbous specimen, which is produced in front.
- 14. Ventral valve, showing the spire on one side displaced.

Fig. 16 - 19.	NUCLEOSPIRA CONCENTRICA.	Page
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- 16 *a, b, c.* Dorsal, ventral and profile views of a small individual, from which the pilose covering has been removed.
- 16 *d, e.* Enlargement of the dorsal and ventral sides, showing more distinctly the subrhomboidal form and the concentric laminae of growth. The perforation of the beak appears to have been somewhat enlarged by fracture, but this feature is conspicuous in all the specimens of this species.
- 18. Dorsal view of a specimen, natural size.
- 19. A transverse section of a specimen, showing the internal spires.



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ANALYSTIC OF PLATE 26

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PLATE 29.

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Fig. 1 <i>a - o.</i>	<i>RHYNCHONELLA SEMIPLICATA.</i>
	224
1 <i>a, b, c.</i>	Young individuals which are nearly smooth, or with faint undulations towards the front.
1 <i>d, e.</i>	A small individual having the front extremely plicated.
1 <i>f - n.</i>	Illustrations of the prevailing forms, variety of plications, etc.
1 <i>o.</i>	Enlargement of the surface, showing the concentric and longitudinal striae.
Fig. 2 <i>a - i, & 3.</i>	<i>RHYNCHONELLA AÉQUIVALVIS.*</i>
	224
2 <i>a, b, c.</i>	Young individuals of this species.
2 <i>d, e, f & h.</i>	Dorsal, ventral, profile, and front views of a larger individual.
2 <i>i.</i>	Enlargement of the concentric striae.
3 <i>a, b, c.</i>	An individual having a shorter and more rotund form, with a faintly marked sinus in front. This is probably a distinct species.
Fig. 4 <i>a - o.</i>	<i>RHYNCHONELLA MUTABILIS.</i>
	225
4 <i>a, b, c.</i>	Young shells having a more elongate form than the prevailing types.
4 <i>d - k, and p.</i>	The shorter form of this shell in the smaller individuals.
4 <i>l - o.</i>	The ovoid forms of this species.

* This species is probably not a true *RHYNCHONELLA* : its surface-characters and form approach to *RENSSELERIA*, while in other respects it resembles *RHYNCHOSPIRA*.

Pentamerus Limestone.

(BRACHIOPODA.)

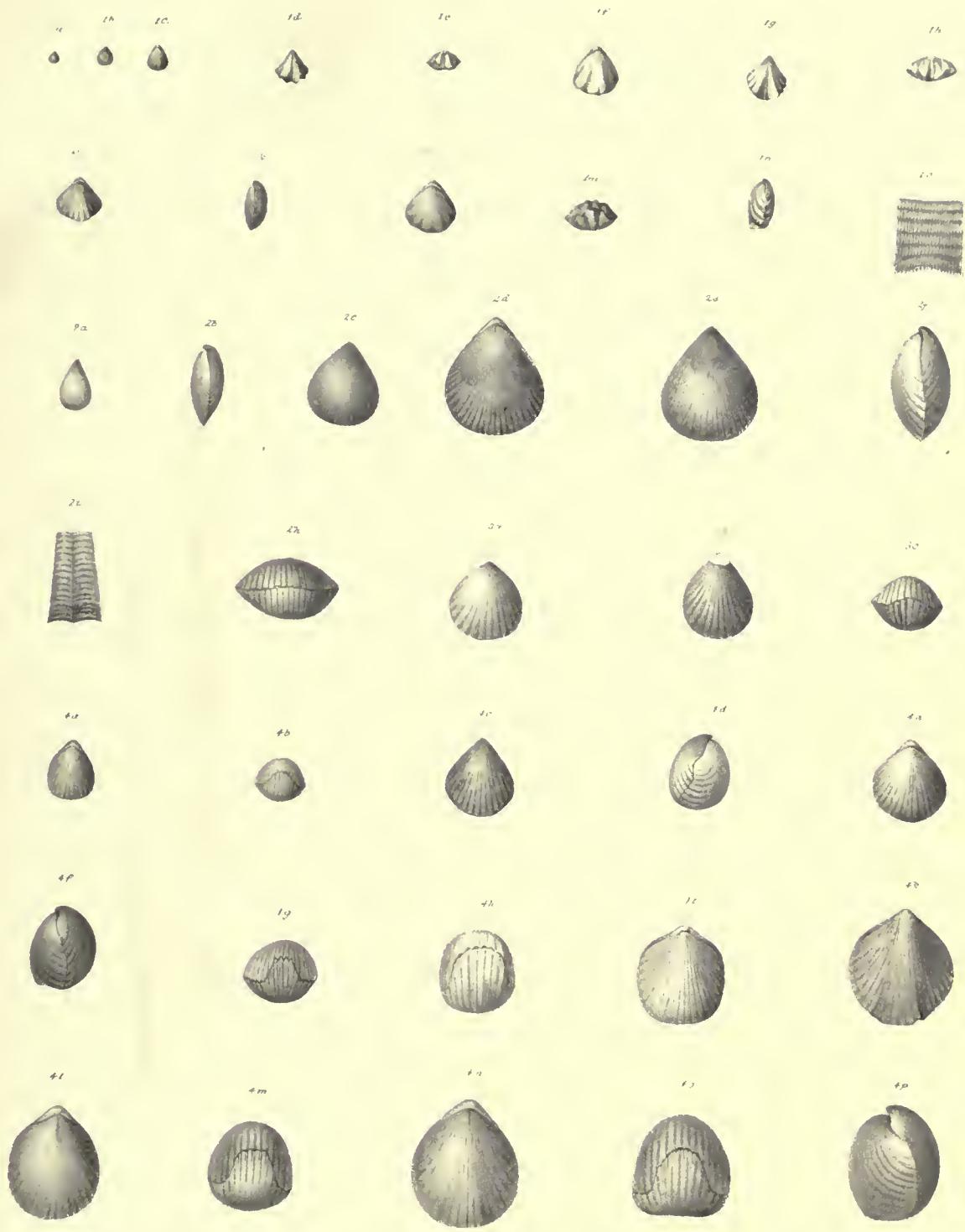
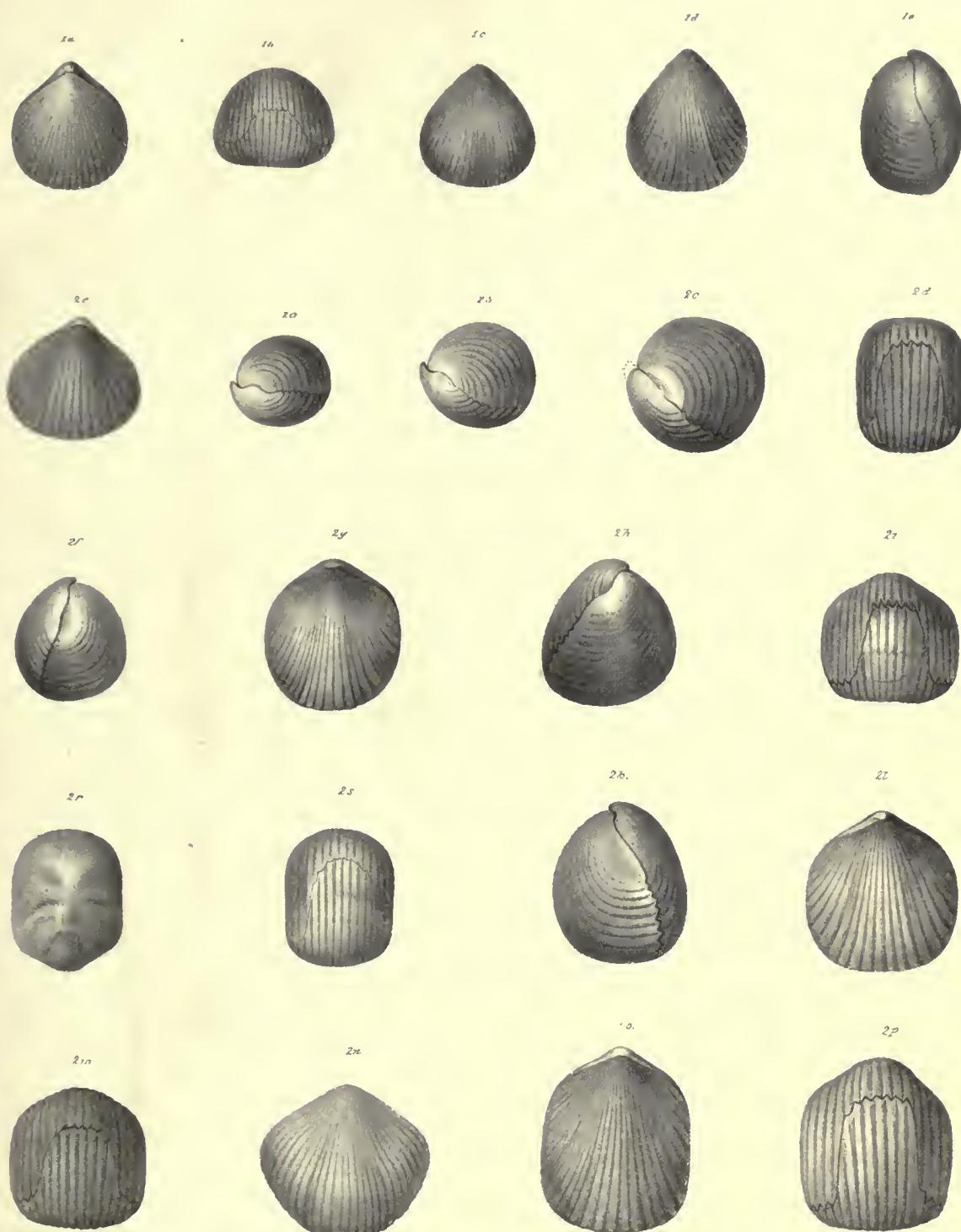


PLATE 30.

	Page
Fig. 1 <i>a - e</i> , & 2 <i>a - r.</i> <i>RHYNCHONELLA MUTABILIS.</i>	225
1 <i>a - e.</i> Ovoid forms of this species.	
2 <i>a, b, c.</i> Profile views of the more gibbous forms, showing the gradual expansion of the dorsal valve.	
2 <i>d, e.</i> Front and dorsal views of a very gibbous form.	
2 <i>f - p</i> , and <i>s.</i> Illustrations of extremely gibbous forms, which sometimes present a sub-quadrangular outline, and some variation in the form of the broad extension of the mesial sinus in front, and in the proportional length and breadth of the dorsal valve as shown in 2 <i>l</i> and 2 <i>o.</i> The form 2 <i>n</i> is rare, but is nevertheless one which the species sometimes assumes.	
2 <i>r.</i> Cardinal view of a cast of this species.	

(BRACHIOPODA.)



ПРЕДІМСТІ

Δ. Οὐαλλιάνος τοῦ Πατρὸς περὶ τῆς θεοφανίας τοῦ Ιησοῦ Χριστοῦ

difficulties in the way of progress. The author has done his best to make the book as interesting as possible.

PLATE 31.

Fig. 1 *a - f*, & 2 *a - y*. *RHYNCHONELLA NUCLEOLATA*.

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- 1 *a, b, c*. A young individual and one of medium size, having smaller plications than usual, and a larger number upon the mesial sinus.
- 1 *d, e, f*. Larger individuals having stronger plications than the preceding, and a larger number upon the mesial fold and sinus than those which follow.
- 2 *a - e*. Figures presenting the ordinary character of the smaller individuals of this species.
- 2 *f - t*. Illustrations of the gradations in size, form, and proportions of this species.
- 2 *u, x, y*. A cast of this species, showing the form of the muscular impression in the ventral valve, the median plate of the dorsal valve, and the alveolar cavities.

Fig. 3 *a - d*.

RHYNCHONELLA ABRUPTA.

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- 3 *a, b*. Dorsal and ventral views of a well-marked individual of this species.
- 3 *c, d*. Front and cardinal views of another individual.

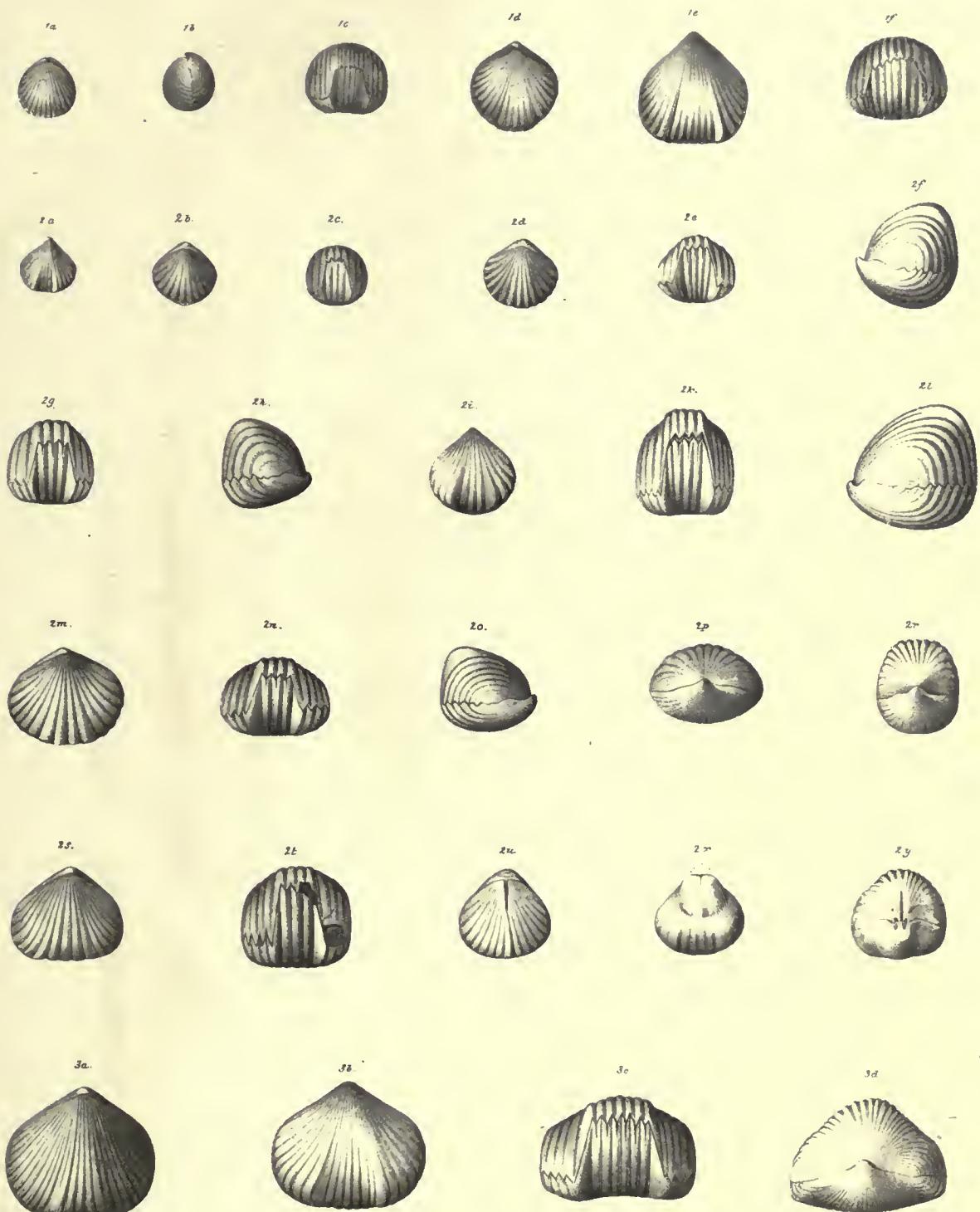
Shaly limestone
(BRACHIOPODA.)



Fig. 77 (cont.)



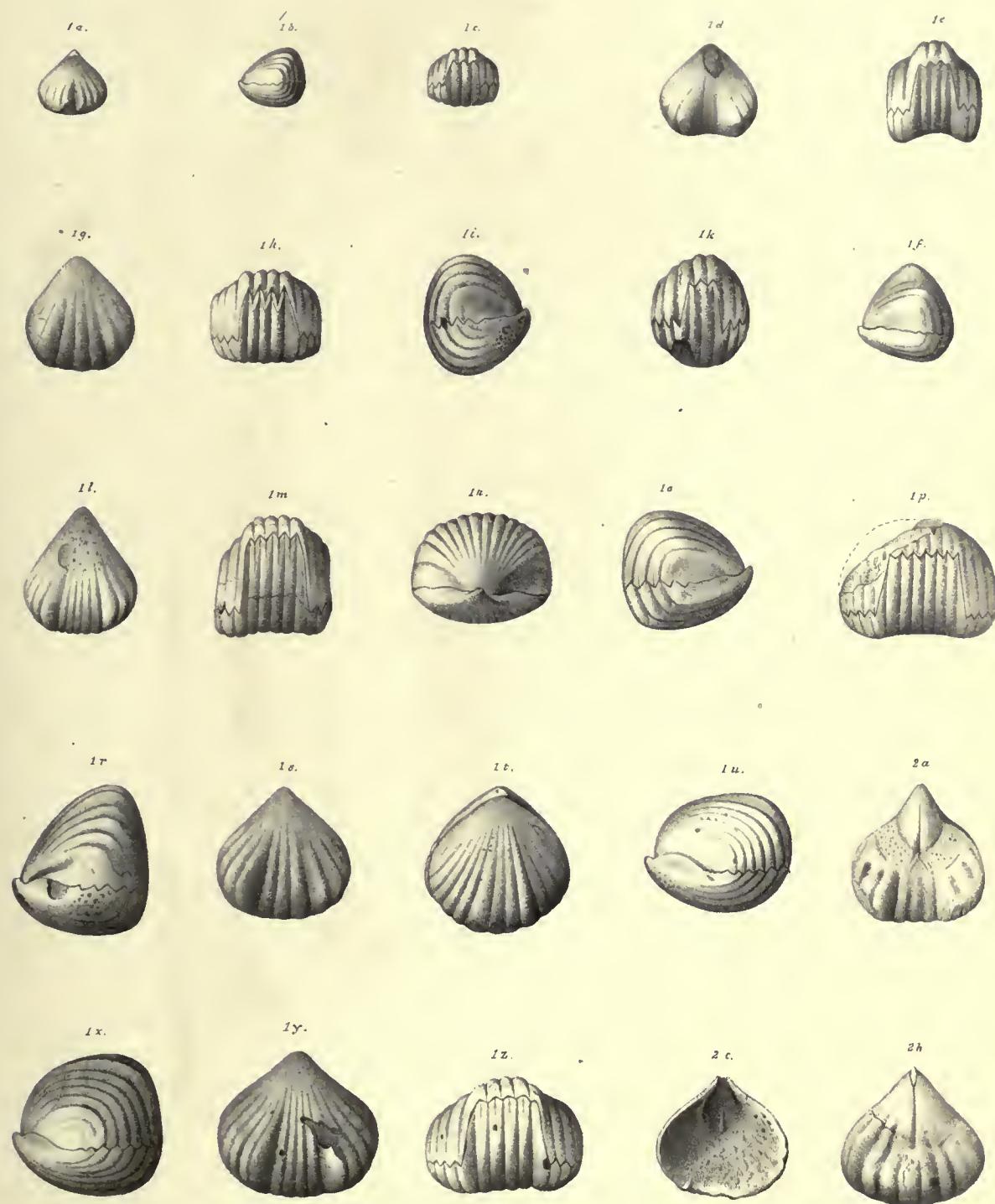
PLATE 32.

Fig. 1 *a - z*, & 2 *a - d*. RHYNCHONELLA PYRAMIDATA.

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- 1 *a - d*. Young individuals of this species.
- 1 *e - z*. Illustrations of the varying forms of this species, from those of medium size to the largest and most gibbous forms that have been observed.
- 2 *a*. A cast of the ventral valve of this species, showing the muscular impression smaller than in *R. nucleolata*, Plate xxxi, fig. 2 *x*.
- 2 *b*. A cast of the dorsal valve of the same species.
- 2 *c*. Interior of the ventral valve, which partially preserves the form of the muscular imprint.

BRACHIOPODA.



All States

Estimated population 1940 - 1945

The following table shows the estimated population of the United States for each state and the District of Columbia for the years 1940 and 1945. The figures are based on the 1940 census and the 1945 estimate.

The population of the United States increased from 132,164,569 in 1940 to 141,670,000 in 1945.

The following table shows the estimated population of the United States for each state and the District of Columbia for the years 1940 and 1945.

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The population of the United States increased from 132,164,569 in 1940 to 141,670,000 in 1945.

PLATE 33.

Fig. 1 *a* – *p*. **RHYNCHONELLA VELLICATA.** 230

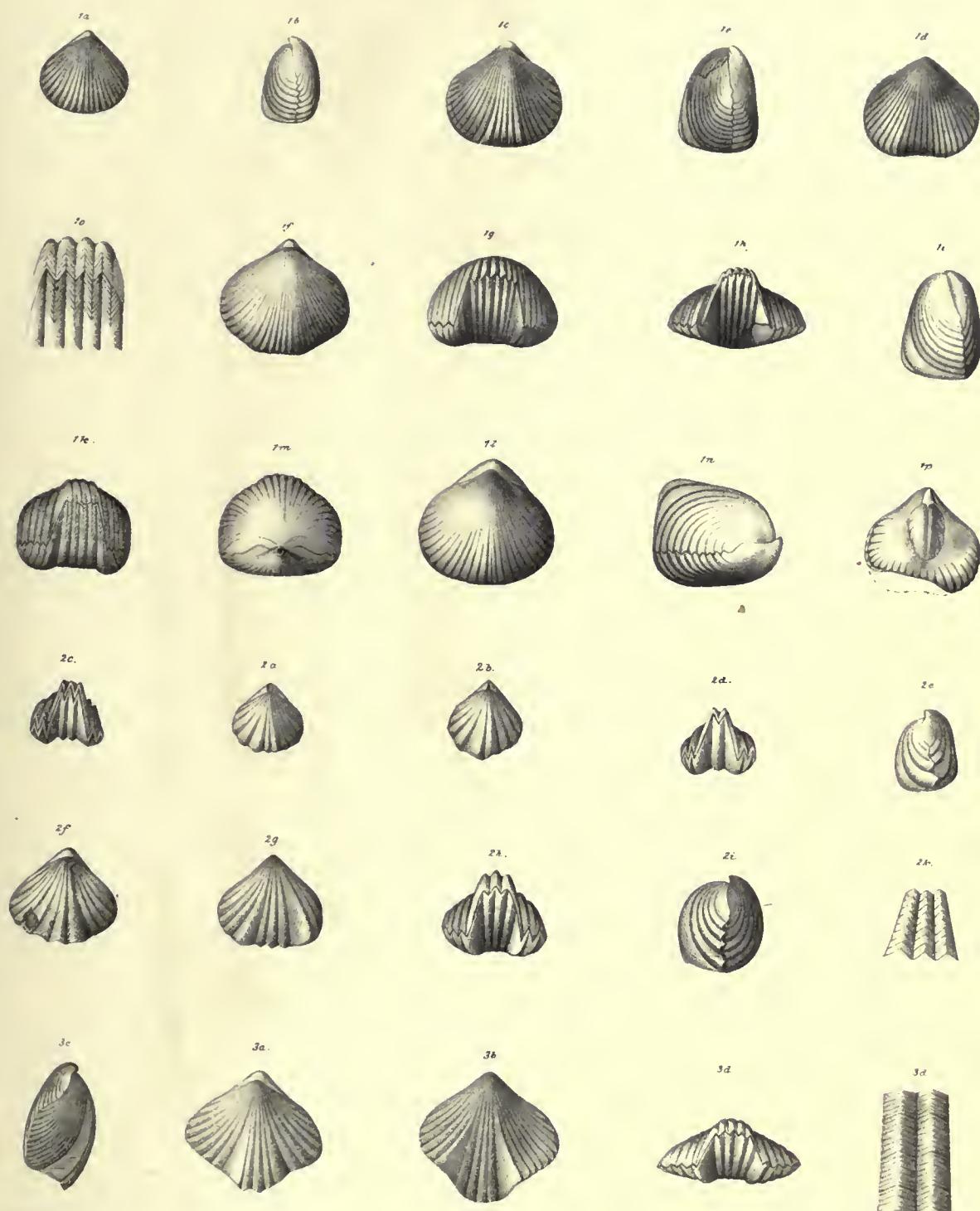
- 1 *a* – *e*. Dorsal, ventral, and profile views of characteristic specimens.
1 *f*, *g*. A form more rotund than usual.
1 *h*. An individual with a strongly marked sinus and much elevated mesial lobe.
1 *i*. Profile view of a gibbous form.
1 *k*, *l*, *m*, *n*. More gibbous forms, which may probably be a variety of *R. abrupta*.
1 *o*. Enlargement of the plications in front, showing the central impressed lines and arching striae.
1 *p*. Cast of the ventral valve, showing the lobed muscular impression.

Fig. 2 *a* – *k*. **RHYNCHONELLA ALTIPLICATA.** 231

- 2 *a*, *b*. Dorsal views of two small individuals.
2 *c*, *d*. Front views of the same.
2 *e*. Profile of one of these.
2 *f*, *g*. Dorsal and ventral views of a larger individual.
2 *h*, *i*. Front and profile of the same.
2 *k*. Enlargement of the surface, showing the angular plications and sharply arching striae, which are more closely arranged than represented in the figure.

Fig. 3 *a* – *e*. **RHYNCHONELLA ACUTIPLICATA.** 232

- 3 *a*, *b*. Dorsal and ventral views of a specimen of this species.
3 *c*, *d*. Profile and front views of the same.
3 *e* (by mistake 3 *d*). Enlargement of the plications and concentric striae.

Shaly Limestone
(BRACHIOPODA)

On Stone by Swinton

lith of Richd H Pease, Albany

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PLATE 34.

Fig. 1 - 6.	RHYNCHONELLA? BIALVEATA.	Page 233
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- 1 *a*, *b*. Dorsal and ventral views of a small individual.
- 2 *a*, *b*, *c*. Dorsal, ventral, and profile views of a less elongate form.
- 3 *a*, *b*, *c*. An individual having the plications nearly equal, and showing scarcely any indication of a sinus in front.
- 4. An enlarged figure of the same species.
- 5 *a*, *b*, *c*, & 6 *a*, *b*, *c*. RHYNCHONELLA SEMIPLICATA?

The forms here figured closely resemble the *R. semiplicata* of the Pentamerus limestone; being a little more rotund, and deeply sinuate. This form is extremely rare in the shaly limestone of the Lower Helderberg group.

Fig. 7 & 8.	RHYNCHONELLA INUTILIS.	Page 233
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- 7 *a*, *b*. Ventral and profile views of a small individual.
- 8 *a*, *b*. Ventral and front views of a more rotund form.

Fig. 9 - 19.	RHYNCHONELLA TRANSVERSA.	Page 234
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- 9 - 14 *a*, *b*, *c*. A series of individuals showing a regular gradation in size, with a gradually increasing depth of sinus.
- 15 & 16 *a*, *b*, *c*. Individuals having a more strongly defined sinus and mesial lobe; a single individual having but two folds in the sinus.
- 17 - 19 *a*, *b*. RHYNCHONELLA TRANSVERSA? var.

These forms present some differences of character from those referred to the species proper; being somewhat more circular, and the lateral plications a little curving.

Fig. 20 & 21.	RHYNCHONELLA RUDIS.	Page 235
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- 20 *a*, *b*, *c*. Ventral, front and profile views.
- 21 *a*, *b*. Profile and front view of a similar form, which varies in some respects.

Fig. 22.	RHYNCHONELLA PLANOCONVEXA.	Page 235
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- 22. A cast of the dorsal valve, preserving the shell upon the margin.

LOWER HELDERBERG GROUP
(SHALY LIMESTONE)
(BRACHIOPODA)





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John C. Scott

Health Policy and the Future of Health Care
John C. Scott



PLATE 35.

Fig. 1 & 2.	RHYNCHONELLA SULCOPLICATA.	Page 236
1 a, b.	Ventral and front views.	
1 c.	Enlargement of the striae.	
2 a, b, c, d.	Undetermined forms of RHYNCHONELLA.	
Fig. 3 - 5, & 6 a - y.	RHYNCHONELLA FORMOSA.	236
3, 4 a b c d e f, & 5,	may be young forms of <i>R. formosa</i> , possessing some characters not observed in authentic specimens of that species, but approaching figures 6 f, g, h.	
6 a - e.	Ventral, dorsal, profile, and front views of several individuals of the typical form, with strong plications.	
6 f - l.	Specimens with finer and more numerous plications.	
6 m - y.	Illustrations of specimens which present the ordinary variations of full-grown individuals, from the Upper Pentamerus limestone.	

(BRACHIOPODA.)

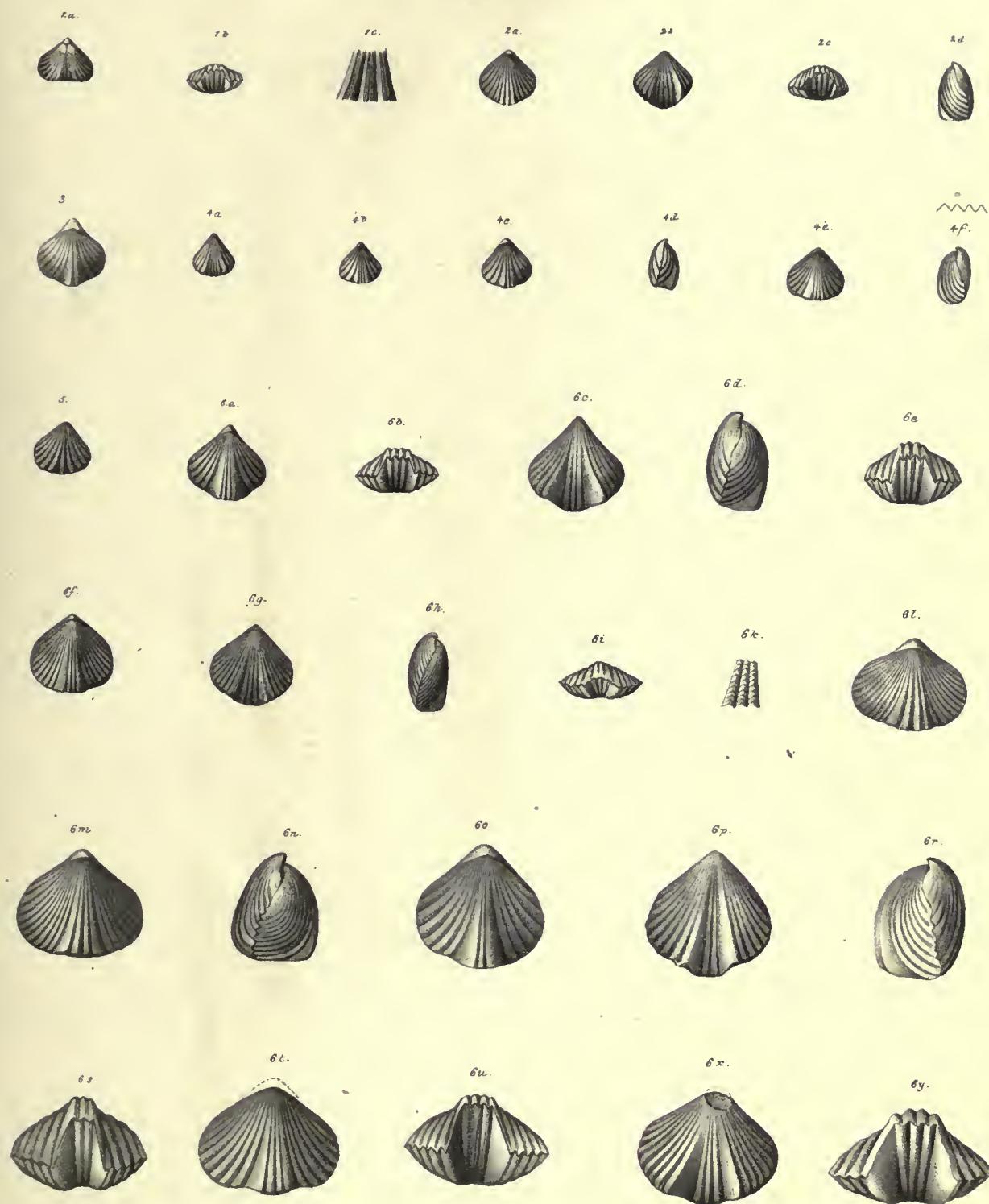




FIG. 10. Correlation coefficient between the observed annual mean surface air temperature

and the annual mean surface air temperature simulated by the GCMs.

PLATE 36.

Fig. 1 *a - p.*

TREMATOSPIRA GLOBOSA.

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1 *a - e.* Dorsal, profile, and front views of young individuals.

1 *f - k.* Individuals of larger size.

1 *l - p.* Individuals of full size, showing some differences in the plications and in the elevation of the beak.

Fig. 2 *a - t.*

TREMATOSPIRA FORMOSA.

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2 *a - e.* Young shells of this species, the plications fine and equal. The foramen is represented as extended below the beak, and having a triangular form from the absence of the deltidium : this, however, is an accidental condition, as the young shells frequently preserve the deltidium entire, and present the round perforation as in the beak of old shells.

2 *f.* An individual having strong angular striae more like the preceding species, but with the elongate form and narrow beak characteristic of this one.

2 *g - k.* Dorsal, profile, and front views of specimens of the ordinary size.

2 *l - t.* Individuals of larger size and very symmetrical form.

Fig. 3 *a - g.*

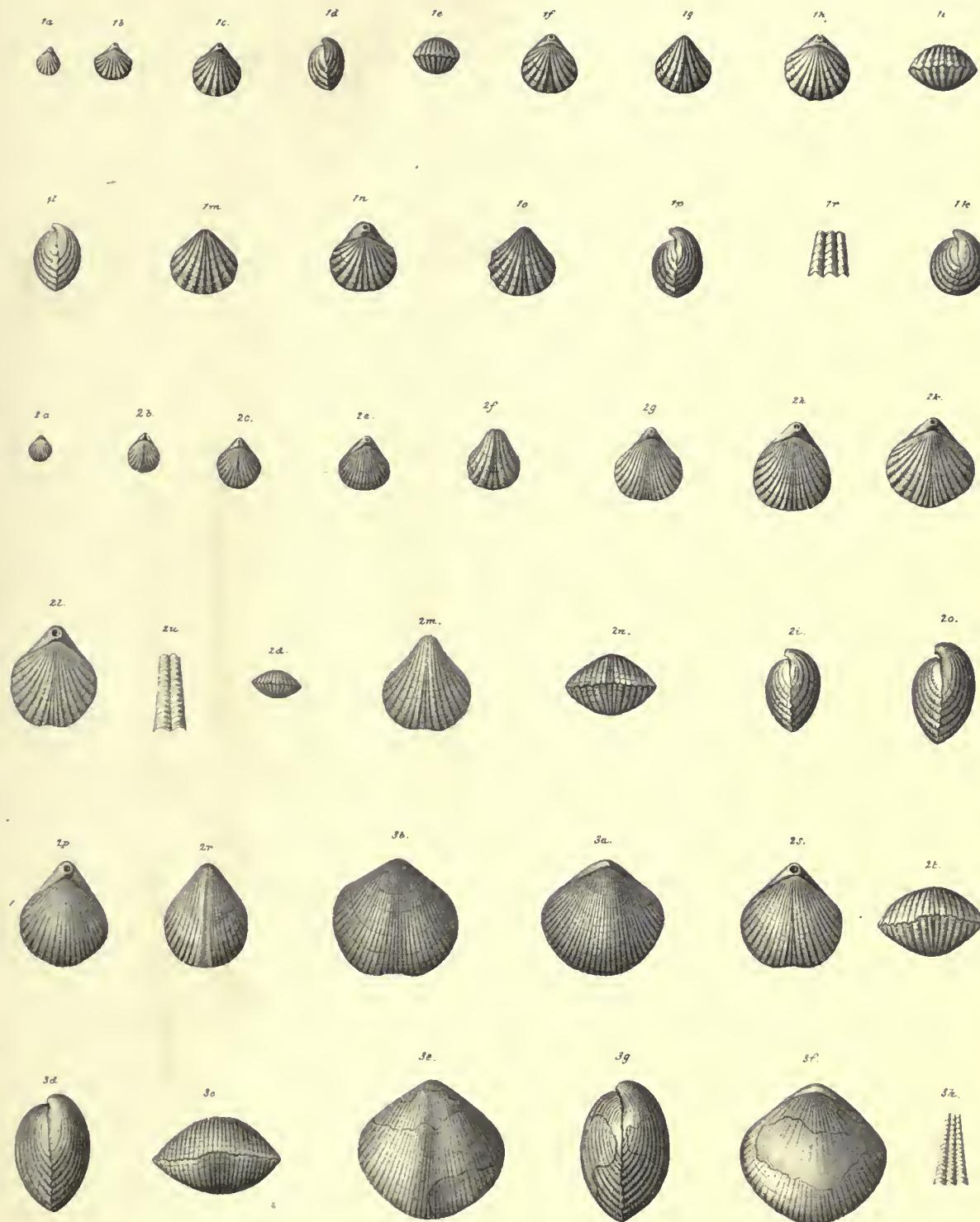
TREMATOSPIRA DEWEYI.

216

3 *a, b, c, d.* Dorsal, ventral, profile, and front views of a very perfect specimen of medium size.

3 *e, f, g.* Ventral, dorsal, and profile views of a larger specimen, the sides of which slope more rapidly from the beak.

For explanations of *Trematospira rectirostra*, see Plate xcv A.

Shaly Limestone
(BRACHIOPODA)



1000

SPECIMEN NO. 1000

Conularia punctata and concentric shell, very widely
scattered, and a few periostracum from the surface, are
the only fossils present.

1000

SPECIMEN NO. 1000

Conularia punctata, and concentric shell, very widely
scattered, and a few periostracum from the surface, are
the only fossils present.

1000

1000

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1000

1000

1000

1000

1000

PLATE 37.

Fig. 1 *a* - *y.* *EATONIA MEDIALIS.* Page
241

- 1 *a, b.* Individuals in which the plications are more numerous than in ordinary specimens.
- 1 *c, d, f, g.* Individuals in which the plications are much subdued, and in 1 *c d* are scarcely marked.
- 1 *e.* An individual more extended on the beak than usual.
- 1 *h - o.* Individuals presenting the usual varieties of form and surface of this species. Fig. 1 *o* preserves the fine longitudinal striae.
- 1 *p, r, s.* Ventral, front, and cardinal views of an unusually large individual, the valves of which are slightly opened.
- 1 *t, u.* Ventral and dorsal views of the cast of a small individual.
- 1 *x, y.* Casts of the ventral valve.

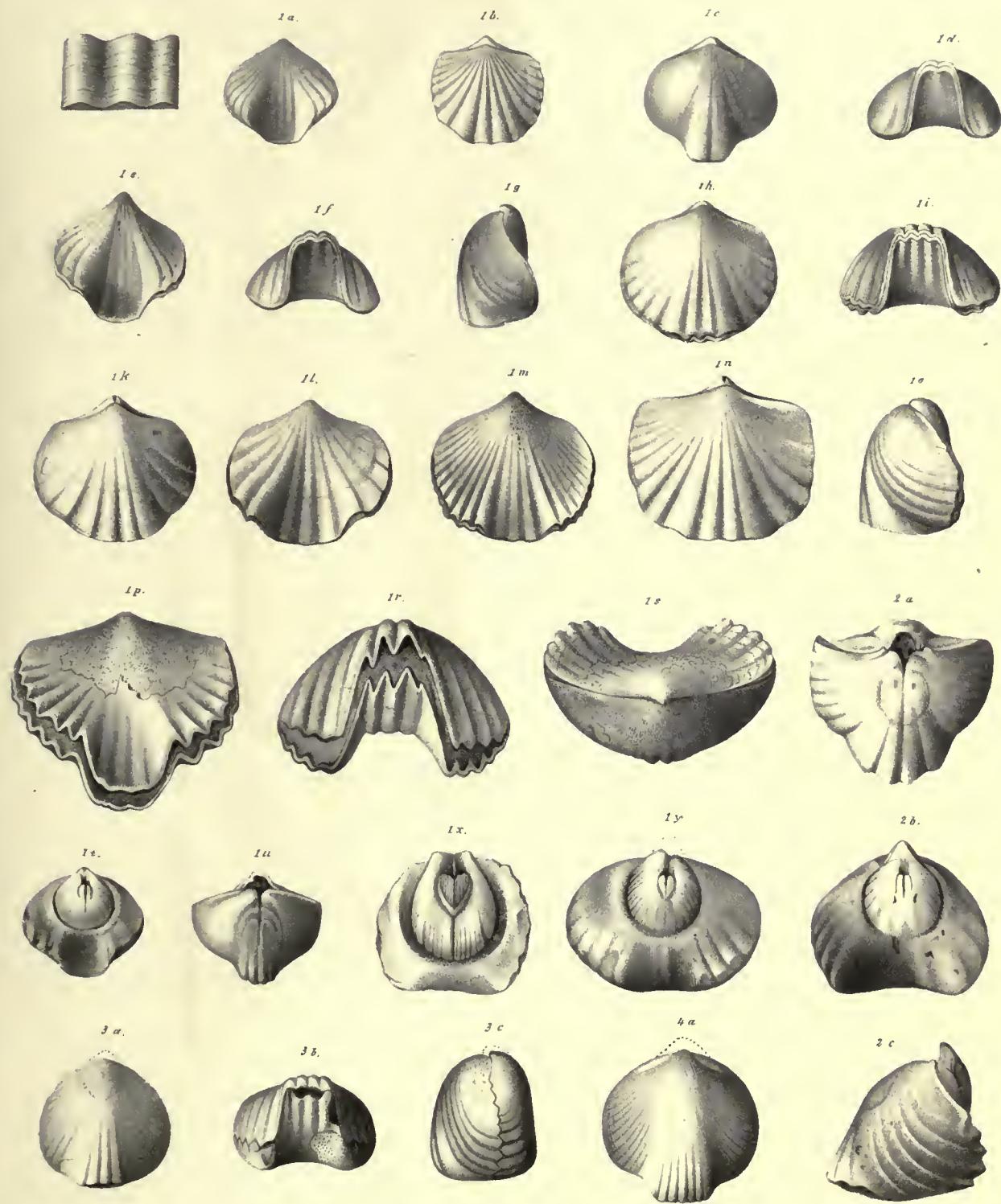
Fig. 2 *a, b, c.* *EATONIA EMINENS.* 242

- 2 *a.* Dorsal valve of the cast.
- 2 *b.* Ventral view of the same.
- 2 *c.* Profile view, showing the great elevation of the dorsal valve.

Fig. 3 & 4. *RHYNCHONELLA EMINENS.* 237

- 3 *a, b, c.* Dorsal, front and profile views of an individual of medium size.
- 4 *a.* Dorsal valve of a larger individual.

BRACHIOPODA.



- MTL19

PLATE 38.

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Fig. 1 - 7. <i>LEPTOCÆLIA CONCAVA.</i>	245
1 <i>a, b, c, d</i> , and 2 <i>a, b, c</i> . Dorsal, ventral, profile, and front views of this species.	
2 <i>d</i> . Enlargement of the beak of the dorsal valve, showing the foramen and false area.	
3 & 4. Specimens with a more extended hinge-line, and which present some slight differences in the striae.	
5 & 6. Interior of a small and of a large ventral valve.	
7. The ventral valve enlarged.	
Fig. 8 - 13. <i>LEPTOCÆLIA IMBRICATA.</i>	246
8, 9 & 10. Illustrations of the dorsal and ventral valves of the ordinary forms of this species.	
11 & 12. Individuals differing somewhat in the plications from the more common forms.	
13. Dorsal view of a specimen much enlarged.	
Fig. 14 - 20. <i>EATONIA SINGULARIS.</i>	243
14 - 16. Ventral, dorsal, and profile views of specimens of the ordinary size.	
17 <i>a, b, c, d</i> . Ventral, front, cardinal, and profile views of larger individuals.	
18. Ventral valve of an unusually large species.	
19 <i>a, b</i> . Ventral and dorsal views of a east of this species.	
20. Enlargement of the surface striae.	
Fig. 21 - 26. <i>EATONIA PECULIARIS.</i>	244
21. Illustration of one of the shorter forms of this species.	
22 <i>a, b</i> . Dorsal and profile views of a specimen of the ordinary form.	
23 <i>a, b</i> . Dorsal and front views of a full-grown specimen, showing the denticulations in front.	
24 <i>a, b, c</i> . Profile, ventral, and front views of a specimen which shows more distinctly the denticulations in front.	
25 <i>a, b</i> . Ventral and dorsal views of a east of this species.	
26. Enlargement of the surface striae.	

WADDEY'S GULF DRILLING GROUP

N.Y. 1875.

SHALY LIMESTONE

PL 38

(BRACHIOPODA)





PLATE 39.

Fig. 1 - 4.

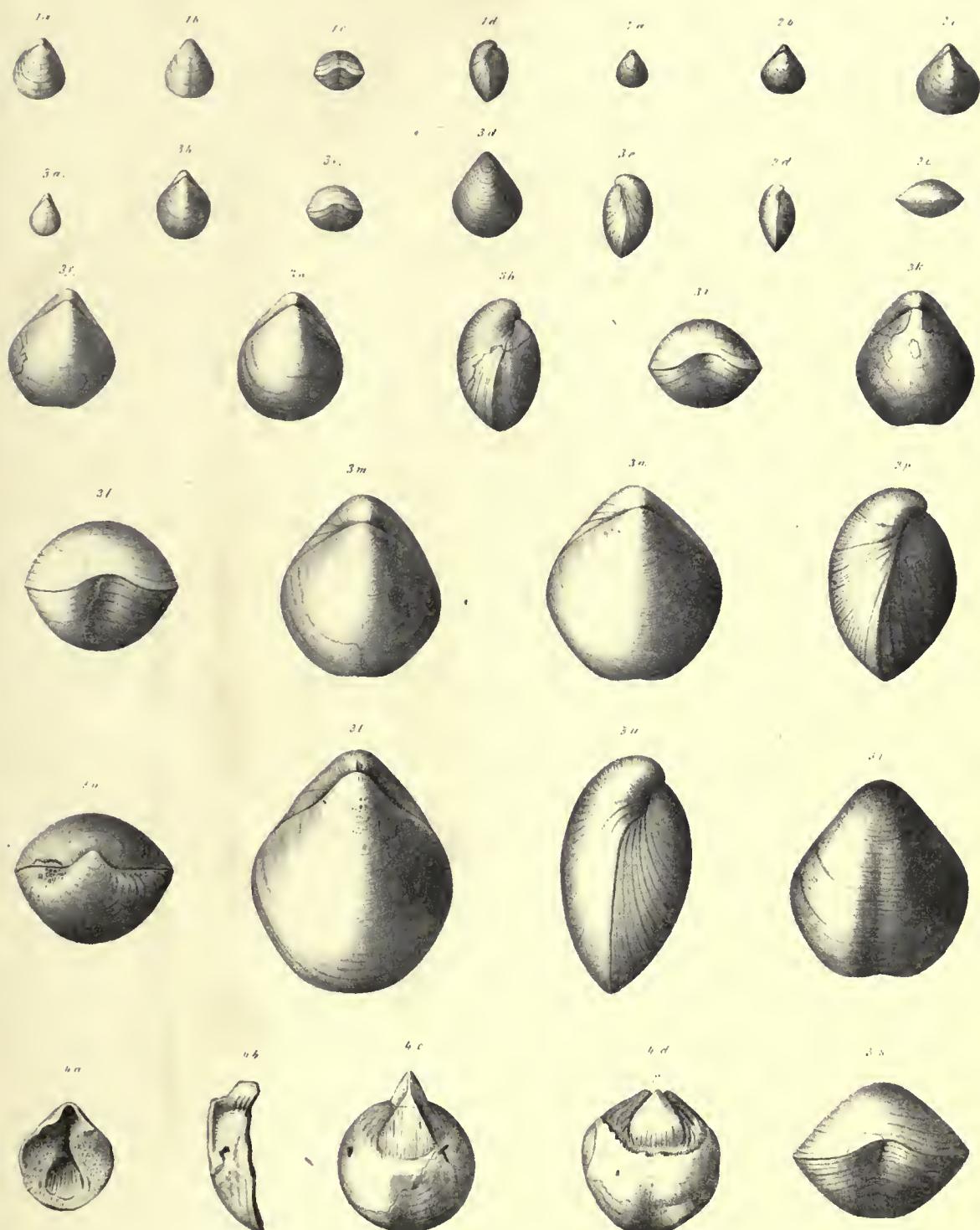
MERISTA (= MERISTELLA) LÆVIS.

Page
247

- 1 *a - d.* Dorsal, ventral, front, and profile views of a young, very gibbons specimen of this species, which shows a small but very deep sinus on the ventral valve.
- 2 *a - e.* Dorsal, profile, and front views of young specimens which are not very gibbons.
- 3 *a - e.* Views of young individuals, only one of which shows any evidence of a mesial sinus.
- 3 *f, g, h, i, k.* Dorsal, ventral, profile, and front views of larger specimens. The specimen fig. 3 *g* presents no emargination in front, as do the others 3 *f - k.*
- 3 *l, m, n.* Front, dorsal, and cardinal views of a full-grown specimen.
- 3 *o, p, r, s.* Dorsal, profile, ventral, and front views of a larger specimen, showing a stronger emargination in front, and a mesial sinus extending nearly to the beak of the ventral valve.
- 3 *t, u.* Dorsal and profile views of a larger individual, which has no sinus or elevation upon the valves. It is possible that this may prove a distinct species.
- 4 *a.* Interior of the ventral valve.
- 4 *b, c, d.* Casts of the ventral valve, and profile of the same.

Pentamerus and D. Shaly Limestone.

BRACHIOPODA.



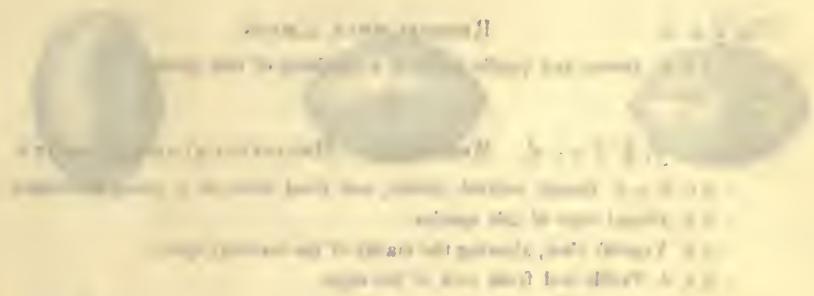
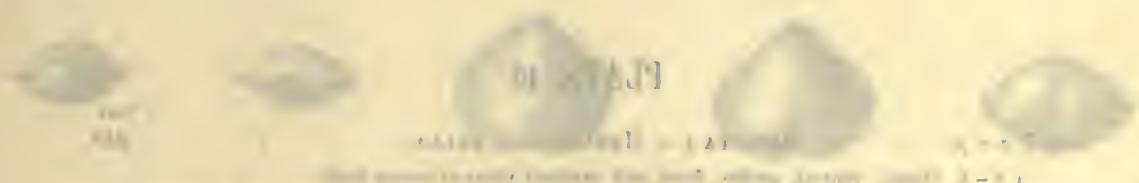
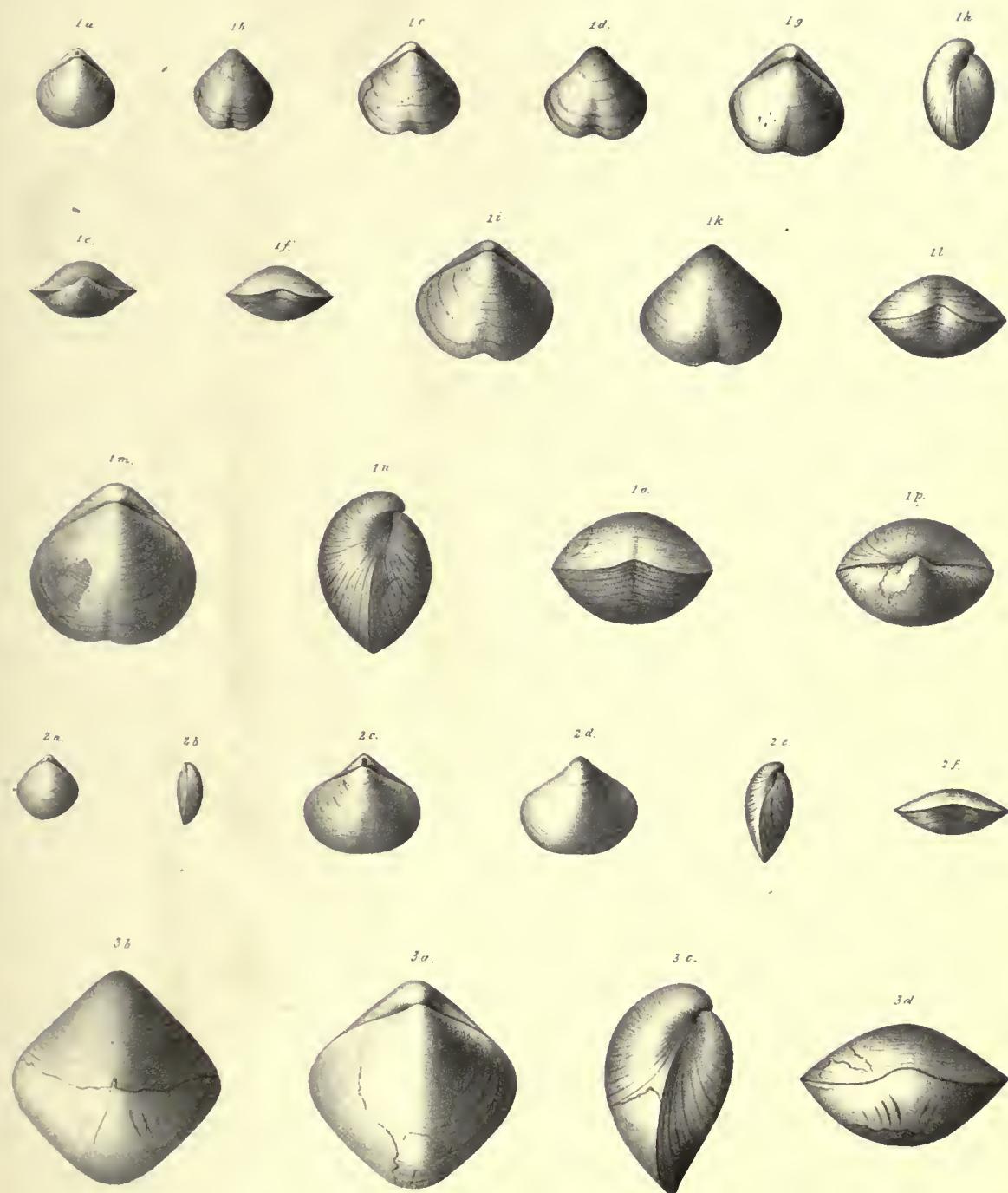


PLATE 40.

	Page
Fig. 1 <i>a - p.</i> <i>MERISTA (= MERISTELLA) BELLA.</i>	248
1 <i>a - h.</i> Dorsal, ventral, profile, front, and cardinal views of young shells.	
1 <i>i, k, l.</i> Views of a larger specimen. The species rarely attains a larger size than these figures.	
1 <i>m - p.</i> Views of an unusually large specimen of this species.	
Fig. 2 <i>a, b.</i> <i>RENSSELÆRIA LÆVIS.</i>	256
2 <i>a, b.</i> Dorsal and profile views of a specimen of this species.	
Fig. 2 <i>c - f</i> , & 3 <i>a - d.</i> <i>MERISTA (= MERISTELLA) SUBQUADRATA.</i>	249
2 <i>c, d, e, f.</i> Dorsal, ventral, profile, and front views of a young individual.	
3 <i>a.</i> Dorsal view of this species.	
3 <i>b.</i> Ventral view, showing the marks of the internal spires.	
3 <i>c, d.</i> Profile and front view of the same.	

BRACHIOPODA.



III. 27. 1919

After the first rain of the year (about 10 mm.)

There was a great increase in the number of small larvae.
The first rain of the year (about 10 mm.) caused the hatching
of many eggs which had been laid during the dry season.
The larvae were very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it. They were also seen to crawl over the surface of
the soil and to burrow into it.

On the second day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

On the third day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

On the fourth day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

On the fifth day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

On the sixth day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

On the seventh day after the first rain (about 10 mm.)

The larvae were still very small (about 1 mm. long) and were
evidently feeding on the surface of the soil. They were
seen to crawl over the surface of the soil and to burrow
into it.

PLATE 41.

Fig. 1 *a - t.* **MERISTA (= MERISTELLA) ARCUATA.** Page
249

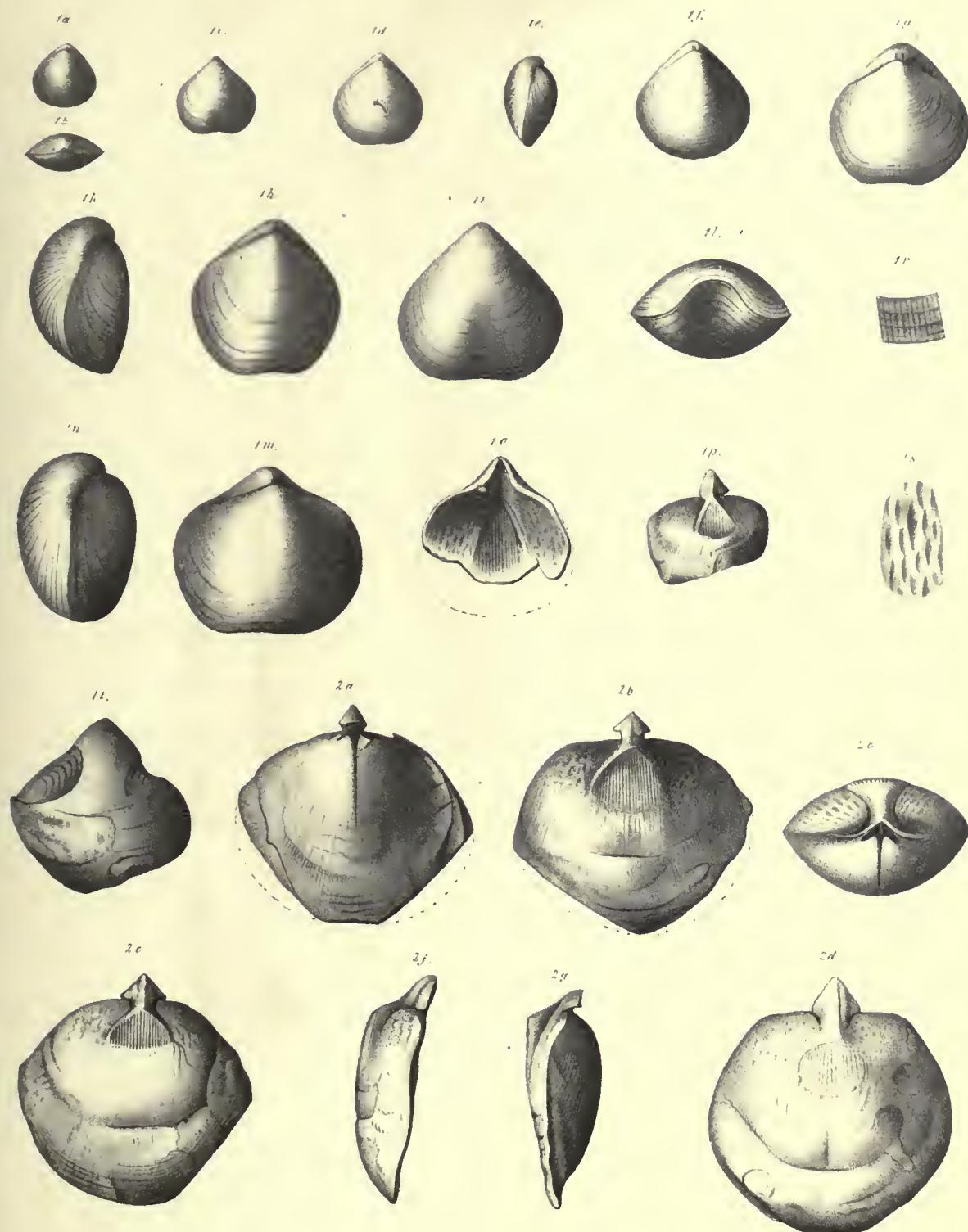
- 1 *a, b.* Dorsal and cardinal views of a young specimen.
- 1 *c, d, e, f.* Dorsal, ventral, and profile views of large specimens.
- 1 *g, h, i, k, l.* Dorsal, ventral, profile, and front views of full-grown individuals, showing the forms of well-preserved specimens.
- 1 *m, n.* Dorsal and profile views of a very gibbous form, which is unusually extended laterally.
- 1 *o.* Interior of a ventral valve.
- 1 *p.* Cast of the beak of the ventral valve.
- 1 *t.* An imperfect specimen which has been eroded at the sides, showing the internal spires.

Fig. 2 *a - g.* **Casts of MERISTA (= MERISTELLA) : Probably of *M. arcuata.*** 250

- 2 *a.* Cast of the dorsal valve.
- 2 *b.* Cast of the ventral valve, showing the muscular impressions and extended process which filled the beak of the shell.
- 2 *c, d.* Casts of the ventral valve, showing some differences in the form of the muscular impressions, and the portions filling the cavity of the beak. The radiating striae are partially preserved on fig. 2 *c.*
- 2 *e.* Cardinal view of a well-preserved cast.
- 2 *f, g.* Profile views of 2 *d* and 2 *c* respectively; the specimens 2 *c, g* preserving the cast of both valves, 2 *d, f* being the ventral valve only.

Shaly Limestone.

BRACHIOPODA.



AB-37649

100% survival group

Received 100 mg/kg/day for 10 days. No mortality observed. At day 10, all animals were healthy and active. No gross or histological changes were observed.

Survived treatment regimen. Received 100 mg/kg/day for 10 days. No mortality observed. Gross and histological examination at day 10 showed no gross or histological changes in any of the animals.

PLATE 42.

Fig. 1 *a - r.*

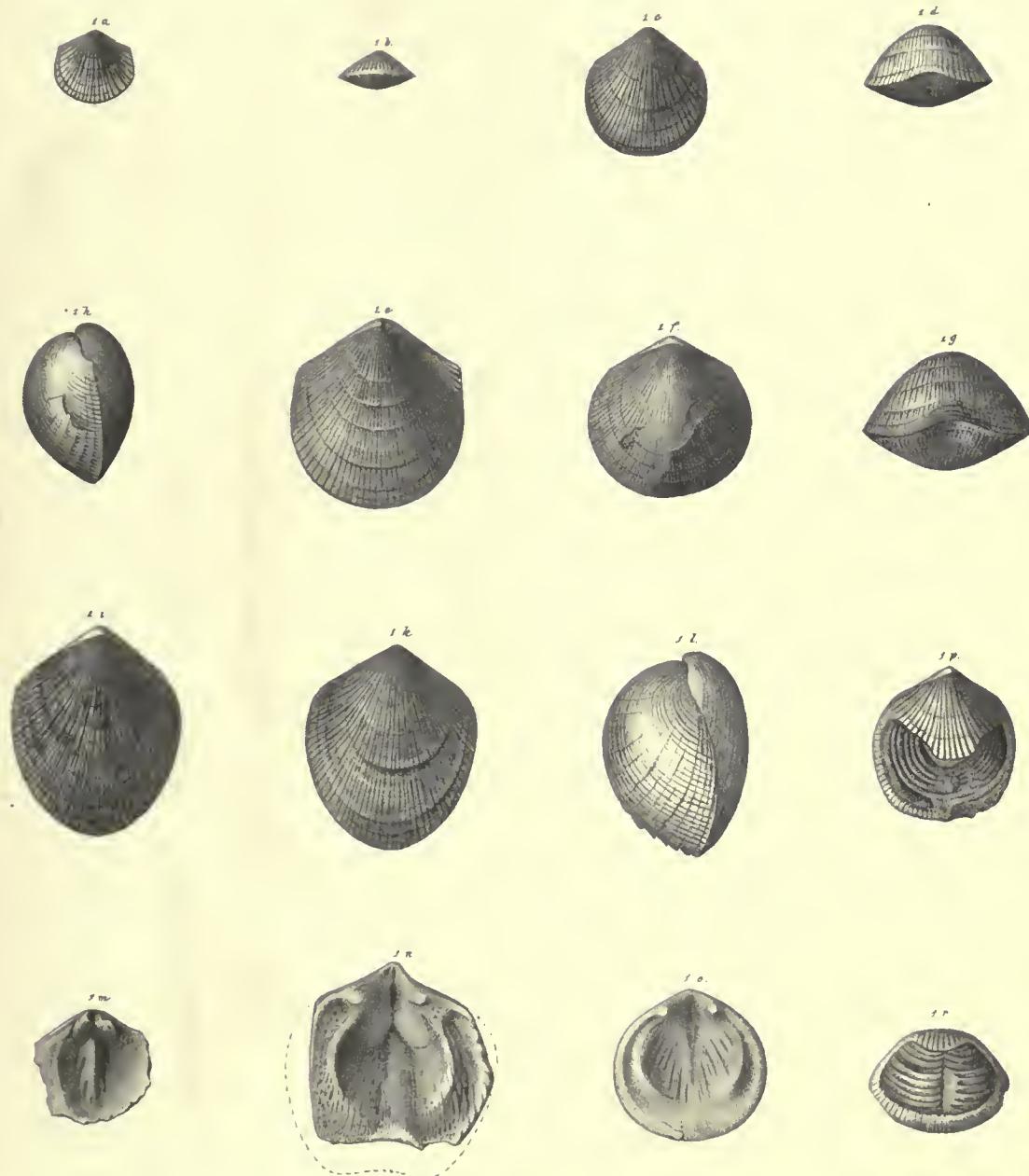
ATRYPA RETICULARIS.

Page
253

- 1 *a, b, c, d.* Ventral and profile views of young specimens.
- 1 *e.* Dorsal view of the ordinary form of large individuals.
- 1 *f, g, h.* Dorsal, front and profile views of a specimen from the Upper Pentamerus limestone.
- 1 *i, k, l.* Dorsal, ventral and profile views of an elongate or ovoid form of this species.
- 1 *m.* Interior of the dorsal valve.
- 1 *n.* Interior of the ventral valve, showing the teeth, muscular area, and the vascular impressions.
- 1 *o.* The ventral valve of a smaller individual.
- 1 *p.* A specimen with the dorsal valve partially broken away, showing the internal spires, which, by mistake of the lithographer, are represented as one.
- 1 *r.* Front view showing the arrangement of the spires.

Shuly Limestone.

BRACHIOPODA



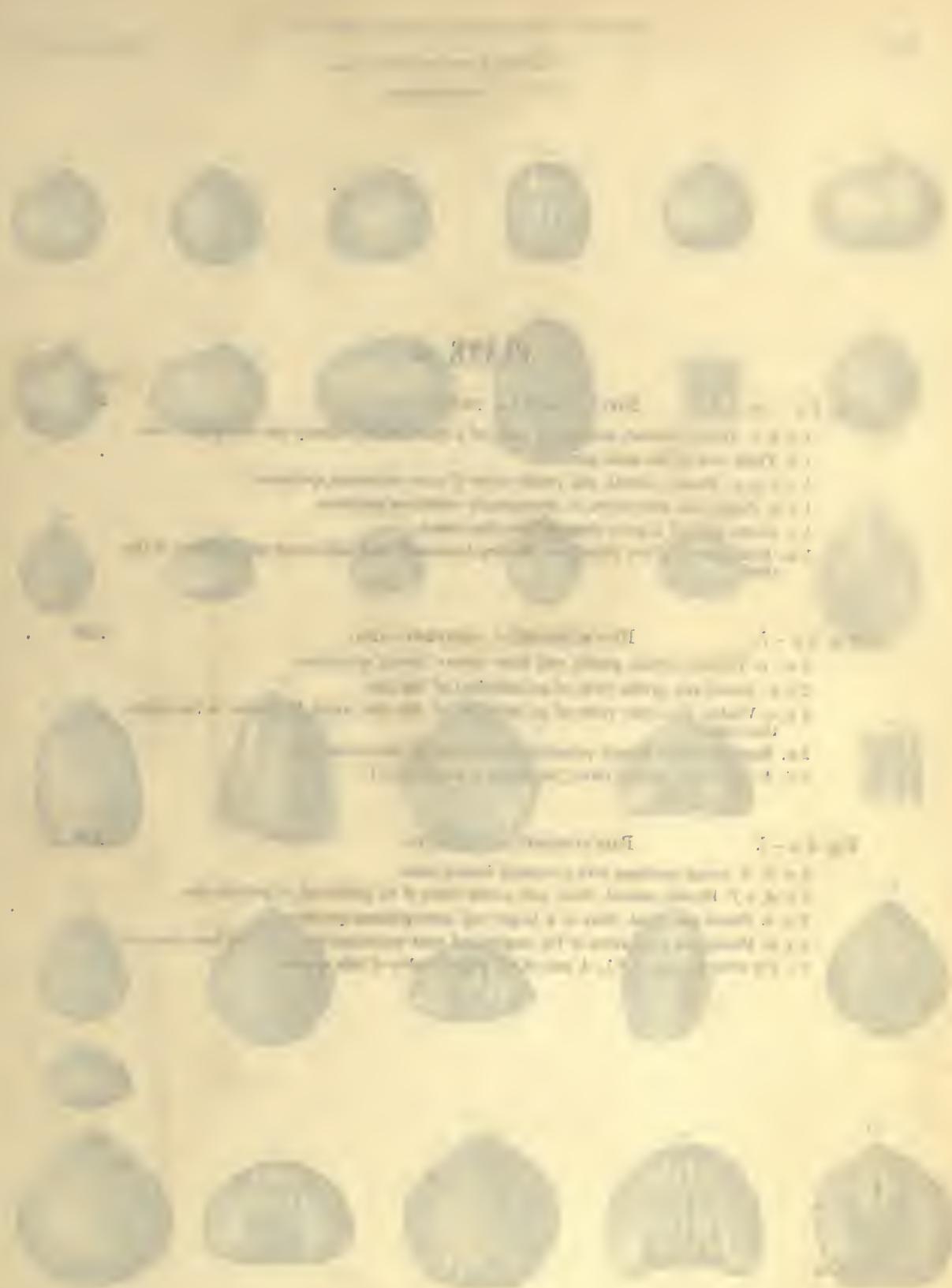


PLATE 43.

Page
238

Fig. 1 *a - m.*

RHYNCHONELLA VENTRICOSA.

- 1 *a, b, c.* Dorsal, ventral, and profile views of a specimen of ordinary size and proportions.
- 1 *d.* Front view of the same specimen.
- 1 *e, f, g, h.* Dorsal, ventral, and profile views of more ventricose specimens.
- 1 *i, k.* Profile and front views of an extremely ventricose specimen.
- 1 *l.* Dorsal view of a more elongate form than usual.
- 1 *m.* Enlargement of the plications, showing impressed lines and strong striae in front of the shell.

Fig. 2 *a - l.*

RHYNCHONELLA CAMPBELLANA.

239

- 2 *a - e.* Ventral, dorsal, profile, and front views of young specimens.
- 2 *f, h.* Dorsal and profile views of an individual of full size.
- 2 *g, i.* Ventral and front views of an individual of full size, which is broader in the middle than usual.
- 2 *k.* Enlargement of several plications of the front of the ventral valve.
- 2 *f.* A cast of the ventral valve [the letter *f* should be *l*].

Fig. 3 *a - l.*

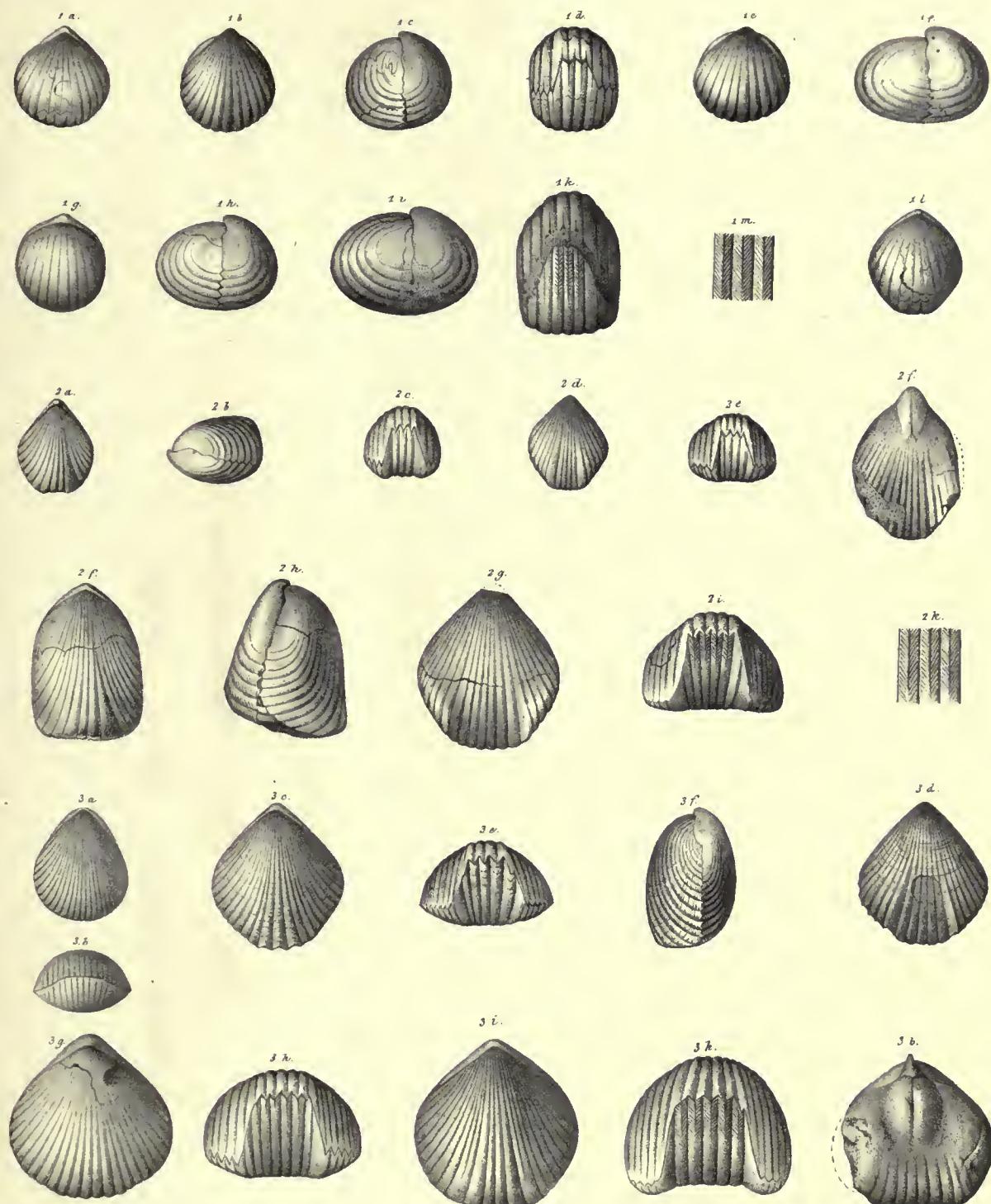
RHYNCHONELLA NOBILIS.

240

- 3 *a, b.* A young specimen with a scarcely defined sinus.
- 3 *c, d, e, f.* Dorsal, ventral, front, and profile views of an individual of medium size.
- 3 *g, h.* Dorsal and front views of a larger and more gibbous specimen.
- 3 *i, k.* Dorsal and front views of the largest and most ventricose form that has been observed.
- 3 *l* [by error marked 3 *b*]. A cast of the ventral valve of this species.

upper Pentamerus Limestone.

BRACHIOPODA



10.0001

10.0002
10.0003

10.0004

10.0005
10.0006

PLATE 44.

Fig. 1 - 5.

MERISTA (= MERISTELLA?) PRINCEPS.

Pl. 44
251

1 *a, b*; 2 *a, b*, and 3 *a, b, c*. Ventral, dorsal, profile, and front views of young individuals, where the sinus is scarcely defined beyond the front, and there is no mesial fold on the dorsal valve. These specimens preserve so much the character of *Merista larvis*, that I have some hesitation in placing them under this species; but they are more extended in front, and the outline less regularly curved.

4 *a, b, c, d*. Dorsal, ventral, profile and front views, in which the characteristic features of the species are fully developed.

4 *e, f, g, h*. Views of a specimen of extremely large size, showing the broad and shallow mesial sinus, and the linguiform extension in front, which is bent abruptly upwards.

5 *a, b, c, d*. Views of a specimen having the form of the two preceding, but with a narrower and more angular sinus.

Fig. 6 *a, b, c, d*.

MERISTA MEEKI.

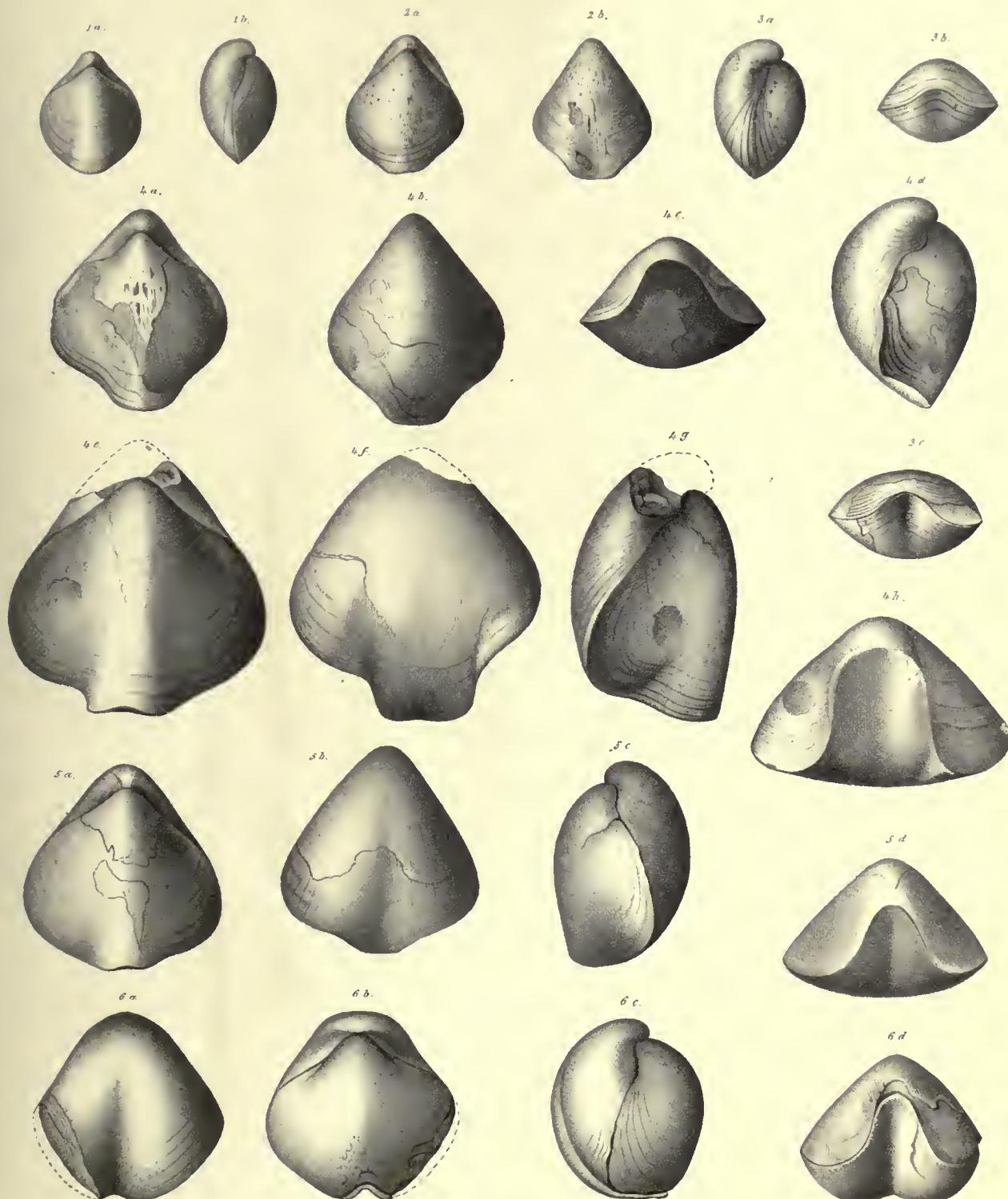
252

6 *a, b*. Ventral and dorsal views of this species.

6 *c, d*. Profile and front views of the same.

Shaly Limestone.

BRACHIOPODA.



40 JULY

1. An uninvited visitor, a blackbird, has arrived.
2. A small bird, possibly a sparrow, has been captured by a large bird, possibly a crow.

3. A small bird, possibly a sparrow, has been captured by a large bird, possibly a crow.
4. A small bird, possibly a sparrow, has been captured by a large bird, possibly a crow.

5. A small bird, possibly a sparrow, has been captured by a large bird, possibly a crow.
6. A small bird, possibly a sparrow, has been captured by a large bird, possibly a crow.

PLATE 45.

	Page
Fig. 1. MERISTA (= MERISTELLA) , species undetermined.	252

This species, of the size of 1 *a* and more rarely of 1 *b*, *c*, occurs in considerable numbers in the Upper Pentamerus limestone, and 1 *d* has the same form and proportions; but I have not been able to determine fully its relations to the other species described, or whether it may be the extreme young of *M. princeps*.

Fig. 2 <i>a</i> - <i>p</i> . RENSSELÆRIA MUTABILIS.	254
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- 2 *a*, *b*. Dorsal and profile views of a young specimen.
- 2 *c*. Dorsal view of a large specimen, where the beak is scarcely incurved.
- 2 *d*, *e*, *f*, *g*. Specimens presenting the ordinary characters of the species.
- 2 *h*, *i*. Dorsal and profile views of a more elongated form, which is slightly wider towards the upper part of the shell.
- 2 *k*, *l*, *m*. Dorsal, profile and front views of a very gibbous specimen.
- 2 *n*, *o*, *p*. Views of specimens which are much broader towards the upper part of the shell, very gibbous, and having the beak closely incurved.

Fig. 3 <i>a</i> - <i>g</i> . RENSSELÆRIA AEQUIRADIATA.	255
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- 3 *a*, *b*, *c*. Dorsal, ventral and profile views of a large specimen, which is proportionally longer than the prevailing forms.
- 3 *d*. Front view of the same.
- 3 *e*, *f*, *g*. Dorsal, ventral and front views of a larger specimen, which has a proportionally greater breadth than the preceding.

Fig. 4. RENSSELÆRIA ELLIPTICA.	256
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- 4 *a*, *b*, *c*. Dorsal, profile and front views of the same specimen.

D. Shaly and upper Pentamerus Limestone.

BRACHIOPODA

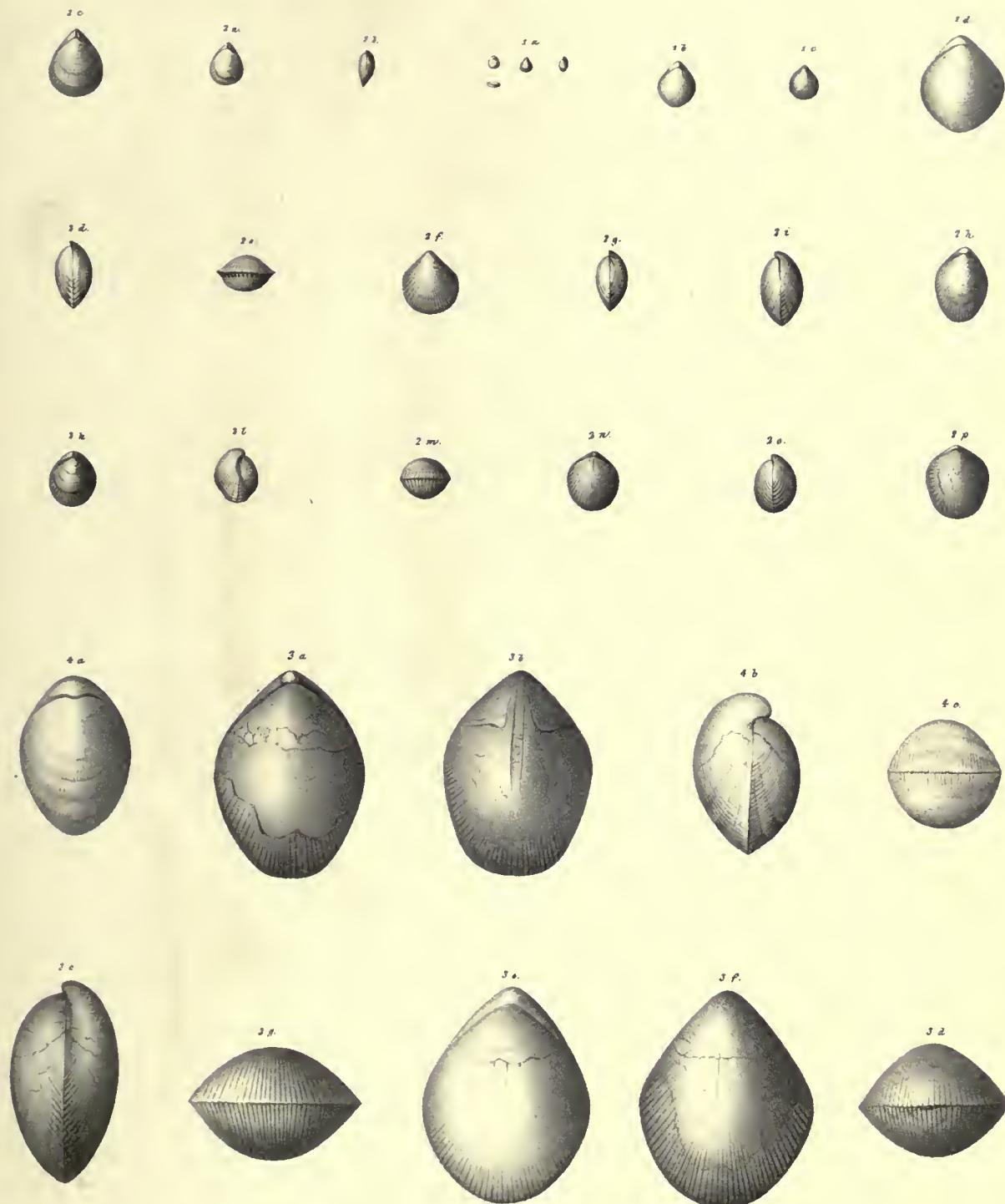


PLATE 46.

Fig. 1 <i>a - z.</i>	PENTAMERUS GALEATUS.	Page
1 <i>a, b, c.</i>	Young shells which are free from plications.	257
1 <i>d, e, f.</i>	Views of a young specimen which has become very gibbous, and with plications strongly developed upou the mesial fold.	
1 <i>g, h, i.</i>	Three figures of half-grown individuals, showing the different degrees of development in the plications.	
1 <i>k, l.</i>	Dorsal and front views of a large specimen, in which no plications are developed. The surface presents well-marked concentric striæ, and obseure longitudinal striæ on the ventral valve.	
1 <i>m.</i>	A dorsal valve which is strongly plicate, but shows no mesial sinus.	
1 <i>n, o.</i>	Specimens showing the plications developed upon the mesial portion of the shell in very different degrees of strength.	
1 <i>p.</i>	Profile of the specimen 1 <i>o.</i>	
1 <i>q, r, s.</i>	Dorsal, profile and front views of a specimen having plications only on the mesial fold and sinus.	
1 <i>t, u.</i>	Dorsal views of specimens with plications developed over the entire surface of the valves; the one with, and the other without a mesial sinus.	
1 <i>w.</i>	An individual showing bifurcating and coalescing striæ.	
1 <i>x.</i>	Profile of the specimen 1 <i>w.</i>	
1 <i>y, z.</i>	Front views of specimens, the one with and the other without a mesial sinus.	

Pentamerus and D. Shaly limestone.

(BRACHIOPODA.



PLATE 47.

Fig. 1 *a - m.*

PENTAMERUS GALEATUS.

Page
257

- 1 *a.* A specimen having the beak of the dorsal valve broken off, showing the triangular cavity beneath the beak of the opposite valve.
- 1 *b, c.* Ventral valves of this fossil : the one filled with stone, showing only the triangular cavity *A*; and the other having the stone removed by weathering, showing the cavity *A* and the septum *n*, presenting the common character of this fossil as seen upon the weathered surface of the Lower Pentamerus limestone of the Lower Helderberg group.
- 1 *d.* Dorsal valve, showing the entire extent of the cavity formed by the dental lamellæ, and the central septum below.
- 1 *e.* Lateral view where portions of both valves are removed, showing the extent of the dental lamellæ or spoonshaped cavity *A* as shown in fig. 1 *d*, the central septum of the ventral valve *B*, and one of the septa *D* of the dorsal valve, which becomes free at its extremity.
- 1 *f.* Interior of the hinge : *E, E*, the line of junction of the two valves. The septa of the upper or dorsal valve correspond to the extension of the dental lamellæ or sides of the spoonshaped cavity in the lower or ventral valve.
- 1 *g.* Dorsal view of a cast, showing the septa *D, D*; the cast of the triangular cavity beneath the beak of the ventral valve *A*.
- 1 *h.* Cardinal view of the same, showing the form of the cast filling the triangular cavity beneath the beak *A*, and its extension below into the central septum, which in the cast divides the valve into two parts. The lines of the two longitudinal septa of the dorsal valve are marked *D, D*, as in the preceding figure.
- 1 *i.* Cast of the ventral valve, showing the longitudinal septum *B*.
- 1 *k, l, m.* Profile, ventral and front views of an extravagant specimen which shows bifurcating plications upon the mesial sinus and fold.

Pentamerus and D. Shaly Limestone.

BRACHIOPODA.

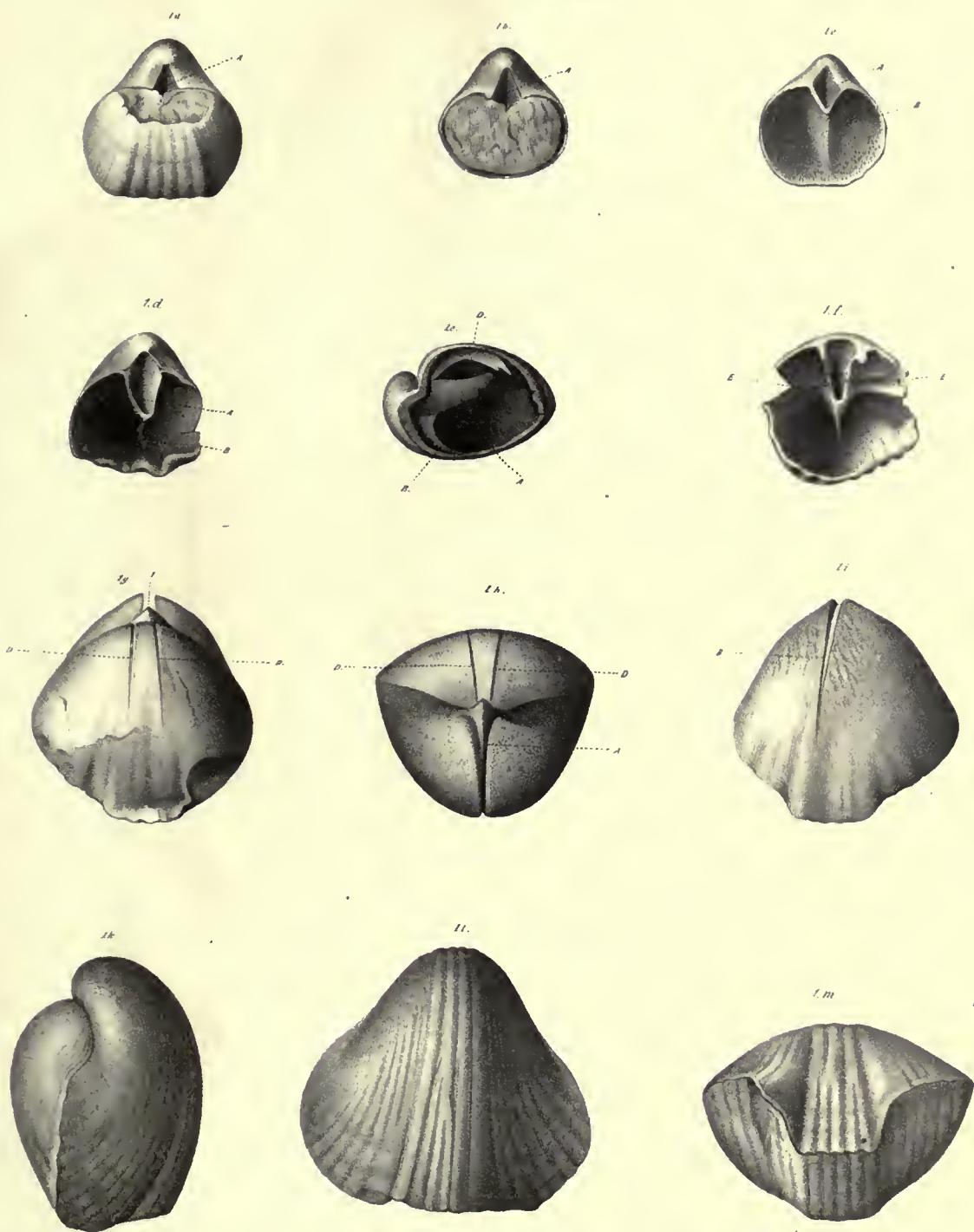


PLATE 48.

Fig. 1 <i>a - y.</i>	PENTAMERUS VERNEUILI (n. s.).	Page
		260

- 1 *a, b.* Ventral and front views of a young specimen.
 1 *c, d.* Dorsal and profile views of a specimen larger than the preceding.
 1 *e.* The cardinal view of 1 *c, d* enlarged, showing the triangular foramen and apparent area.
 1 *f.* Dorsal valve of a finely plicated specimen.
 1 *h.* The same enlarged, to show the regularly intercalated smaller plications.
 1 *g.* Ventral view, showing the bifurcating plications.
 1 *i, k, l.* Ventral, dorsal and profile views of a specimen with simple coarse plications.
 1 *m.* Front view of a specimen similar to the preceding.
 1 *n, o, p.* Ventral, profile and front views of a large specimen which preserves the prevailing character of the species. The profile view shows the incurved dorsal beak, and the nearly straight ventral beak, a little separated.
 1 *r.* Cardinal view, showing the short accessory plications which mark the lateral areas.
 1 *s.* Profile view of another specimen, showing the beaks of the two valves in contact, the usual condition of the shell.
 1 *t.* Interior of the dorsal valve, showing the two longitudinal septa and the broad brachial processes at the hinge line.
 1 *u.* Interior of the ventral valve, showing the elongate spoonshaped cavity, with the lateral lobes and the slight extension of the central septum.
 1 *x.* The same enlarged, showing the muscular imprints at the base of the cavity.
 1 *v.* Interior of the two valves in connexion, showing the triangular cavity and central septum below and the double septa above with the lamellæ, which extend far into the interior of the upper or dorsal valve.
 1 *y.* Longitudinal section of the dorsal valve, showing the comparative extent of the spoon-shaped cavity and the narrow short septum below.

Fig. 2 <i>a - l.</i>	PENTAMERUS PSEUDOGALEATUS (n. s.).	Page
		259

- 2 *a, b, c, d.* Dorsal, profile and front views of young individuals.
 2 *e.* Dorsal view of a specimen of medium size.
 2 *f, g.* Front and profile views of the same specimen.
 2 *h, i.* Profile and front views of a very gibbous specimen, which represents the character of the ordinary full-grown individual.
 2 *k, l.* Dorsal and profile views of an unusually large specimen from which the shell is partially exfoliated, showing the two septa of the dorsal valve.

D. Shaly and upper Pentamerus Limestone
BRACHIOPODA

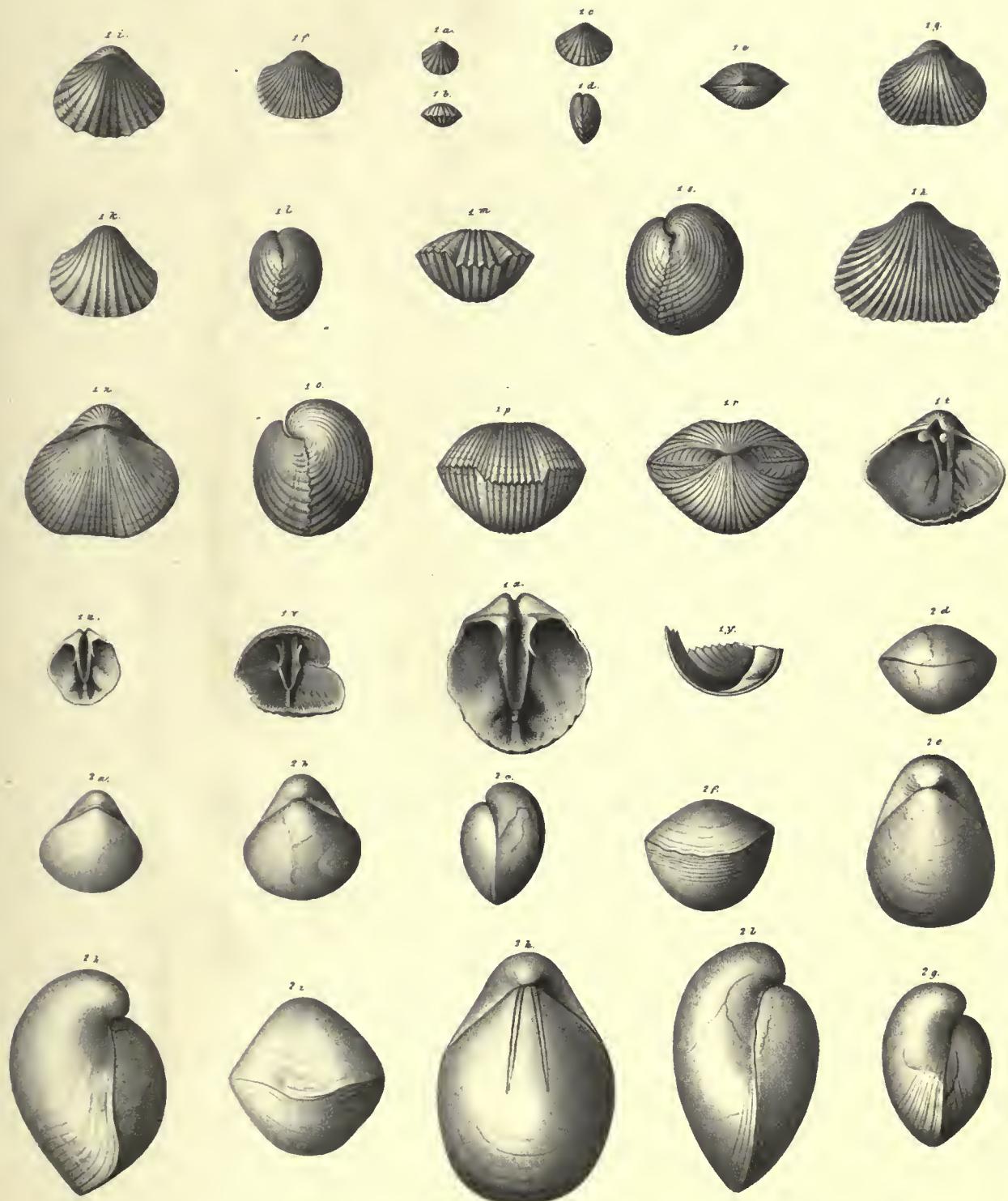


PLATE 48.

Fig. 1 <i>a - y.</i>	PENTAMERUS VERNEUILI (n. s.).	Page 260
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- 1 *a, b.* Ventral and front views of a young specimen.
- 1 *c, d.* Dorsal and profile views of a specimen larger than the preceding.
- 1 *e.* The cardinal view of 1 *c, d.* enlarged, showing the triangular foramen and apparent area.
- 1 *f.* Dorsal valve of a finely plicated specimen.
- 1 *h.* The same enlarged, to show the regularly intercalated smaller plications.
- 1 *g.* Ventral view, showing the bifurcating plications.
- 1 *i, k, l.* Ventral, dorsal and profile views of a specimen with simple coarse plications.
- 1 *m.* Front view of a specimen similar to the preceding.
- 1 *n, o, p.* Ventral, profile and front views of a large specimen which preserves the prevailing character of the species. The profile view shows the incurved dorsal beak, and the nearly straight ventral beak, a little separated.
- 1 *r.* Cardinal view, showing the short accessory plications which mark the lateral areas.
- 1 *s.* Profile view of another specimen, showing the beaks of the two valves in contact, the usual condition of the shell.
- 1 *t.* Interior of the dorsal valve, showing the two longitudinal septa and the broad brachial processes at the hinge line.
- 1 *u.* Interior of the ventral valve, showing the elongate spoonshaped cavity, with the lateral lobes and the slight extension of the central septum.
- 1 *x.* The same enlarged, showing the muscular imprints at the base of the cavity.
- 1 *v.* Interior of the two valves in connexion, showing the triangular cavity and central septum below and the double septa above with the lamellæ, which extend far into the interior of the upper or dorsal valve.
- 1 *y.* Longitudinal section of the dorsal valve, showing the comparative extent of the spoon-shaped cavity and the narrow short septum below.

Fig. 2 <i>a - l.</i>	PENTAMERUS PSEUDOGALEATUS (n. s.).	Page 259
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- 2 *a, b, c, d.* Dorsal, profile and front views of young individuals.
- 2 *e.* Dorsal view of a specimen of medium size.
- 2 *f, g.* Front and profile views of the same specimen.
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- 2 *k, l.* Dorsal and profile views of an unusually large specimen from which the shell is partially exfoliated, showing the two septa of the dorsal valve.

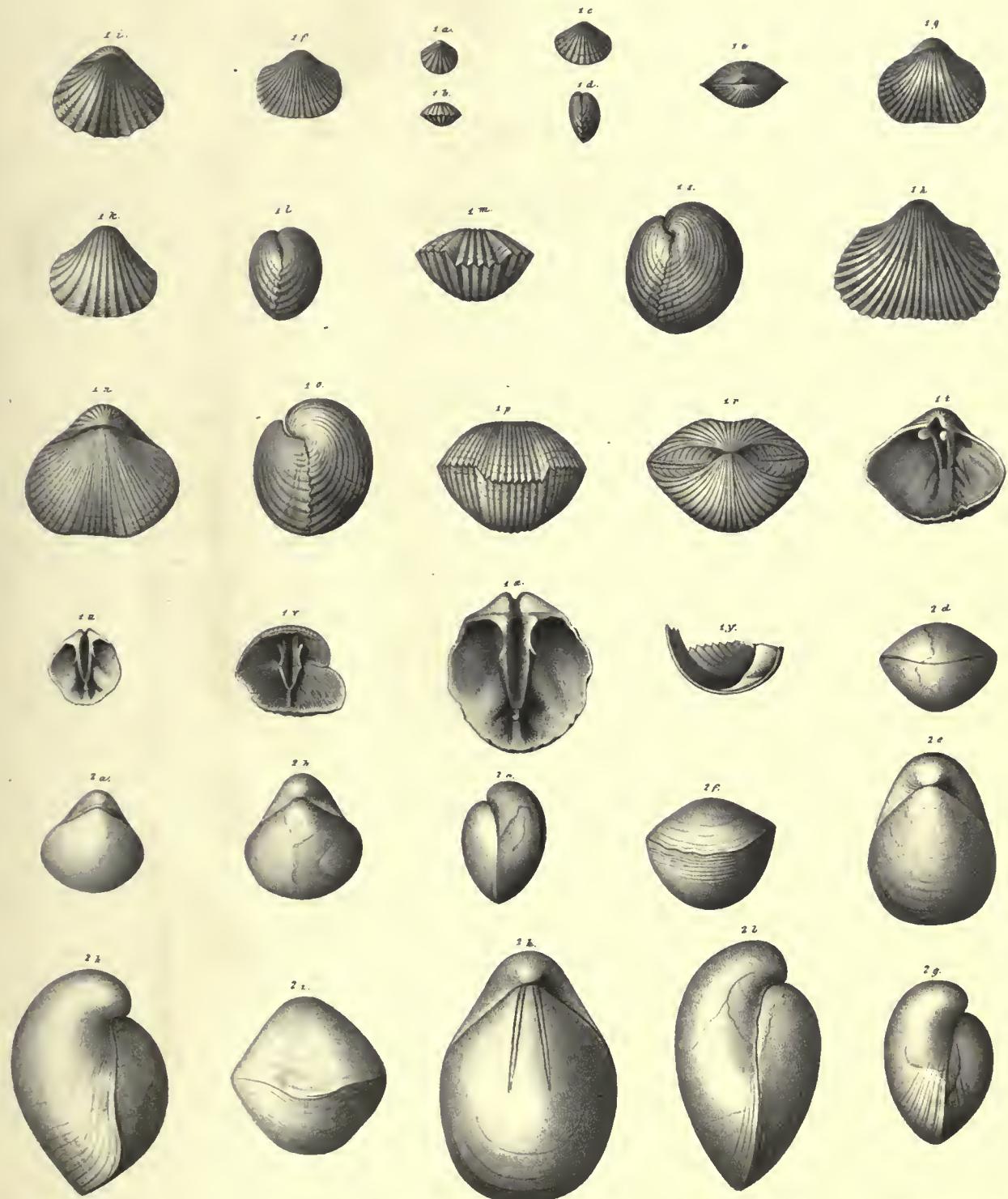
D. Shaly and upper Pentamerus Limestone
BRACHIOPODA

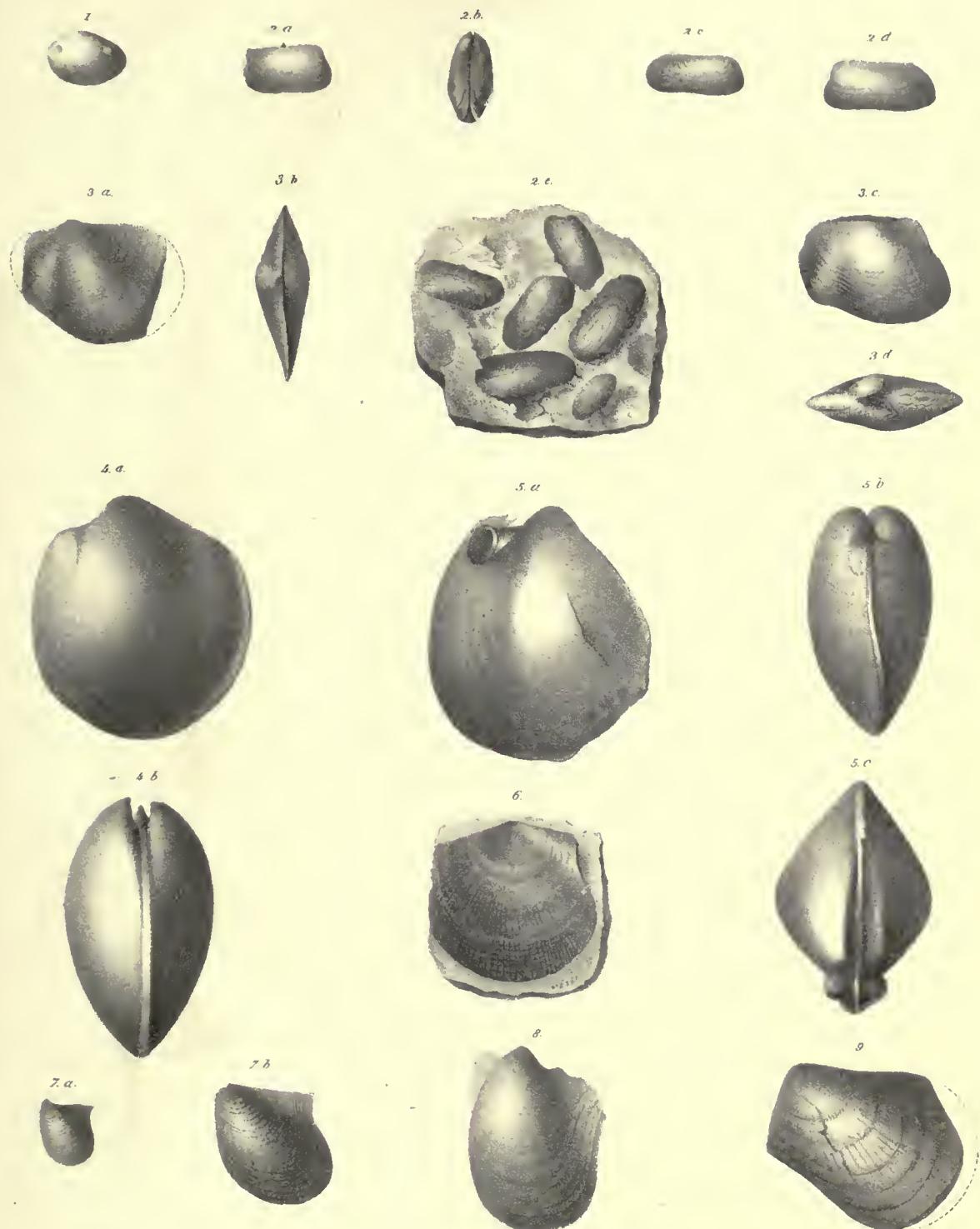


FIG. 1. Correlation coefficient between the annual mean precipitation at each grid point and the annual mean precipitation at the indicated reference point.

the correlation coefficients between the annual mean precipitation at each grid point and the annual mean precipitation at the indicated reference point. The

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F. B. Meek, del.

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THE SEED

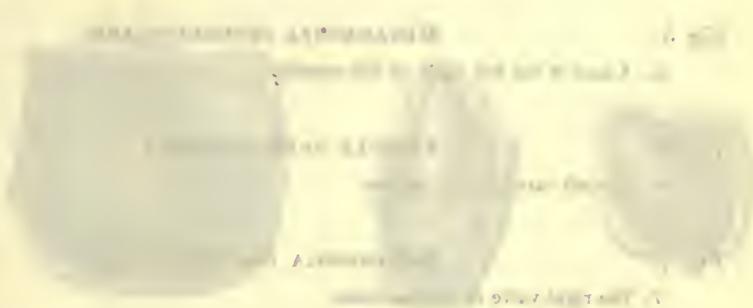
ANNUAL AND BIENNIAL PLANTS

Annuals and biennials usually have a single seed per fruit, which may be very different in size.



PERENNIAL PLANTS

Perennials often have many seeds per fruit, and these may differ in size.



ANNUAL AND BIENNIAL PLANTS

Annuals and biennials usually have a single seed per fruit.

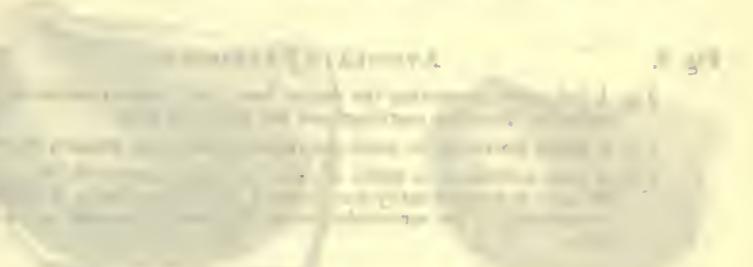
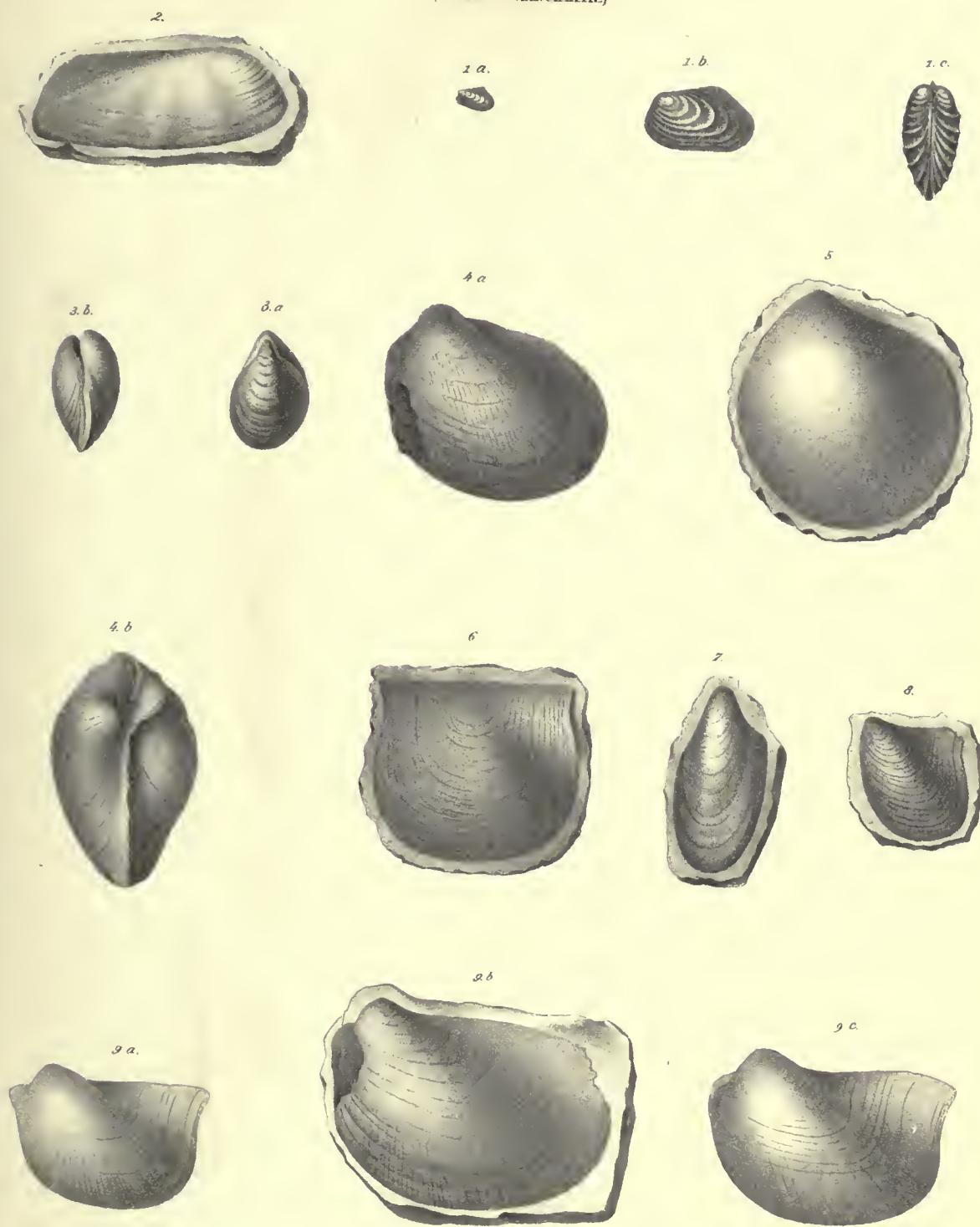


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LOWER HELDERBERG GROUP
 (TENTACULITE AND PENTAMERUS LIMESTONE)
 (LAMELLIBRANCHIATA.)

PL 49.a



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Archaeology Archaeology

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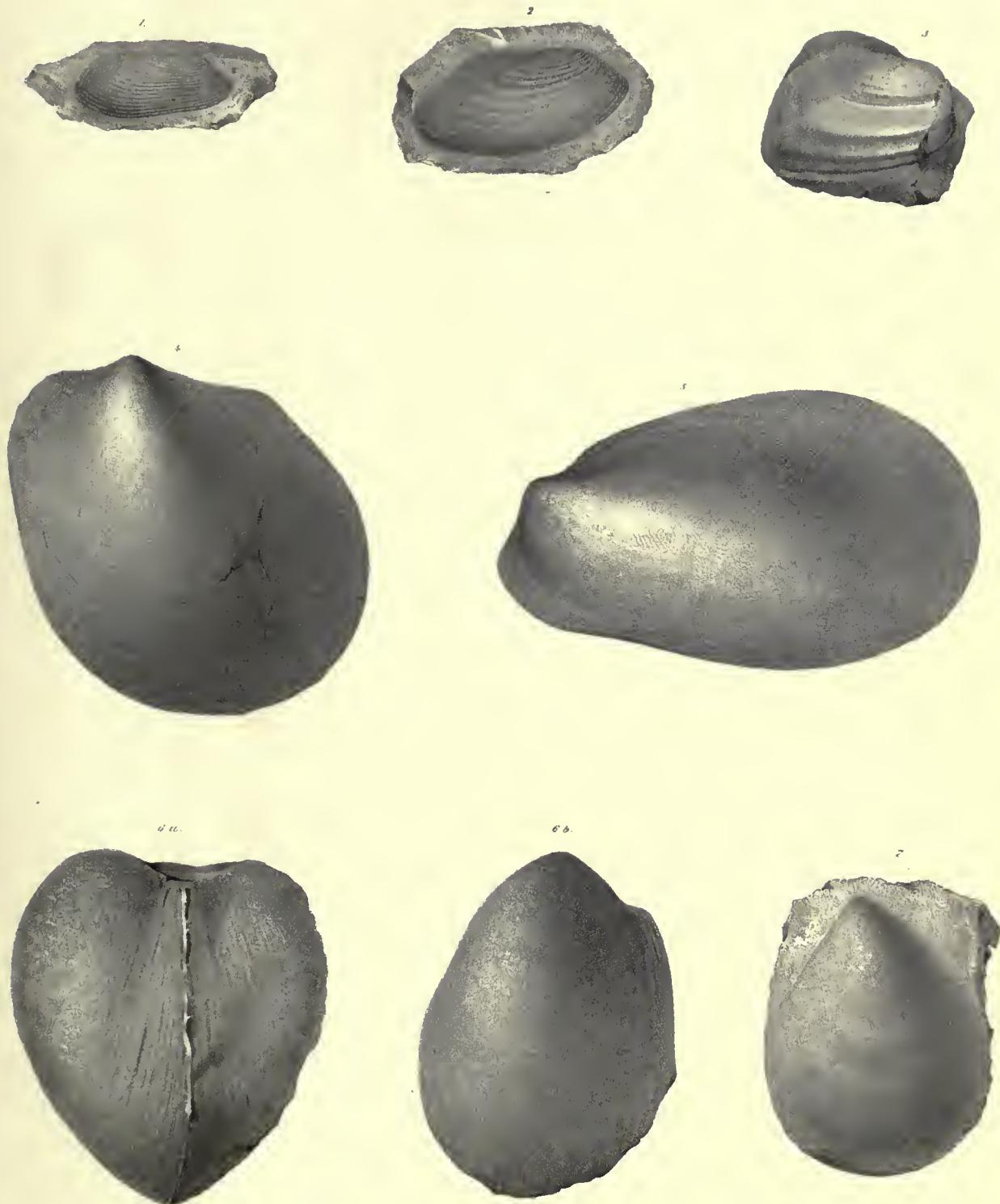
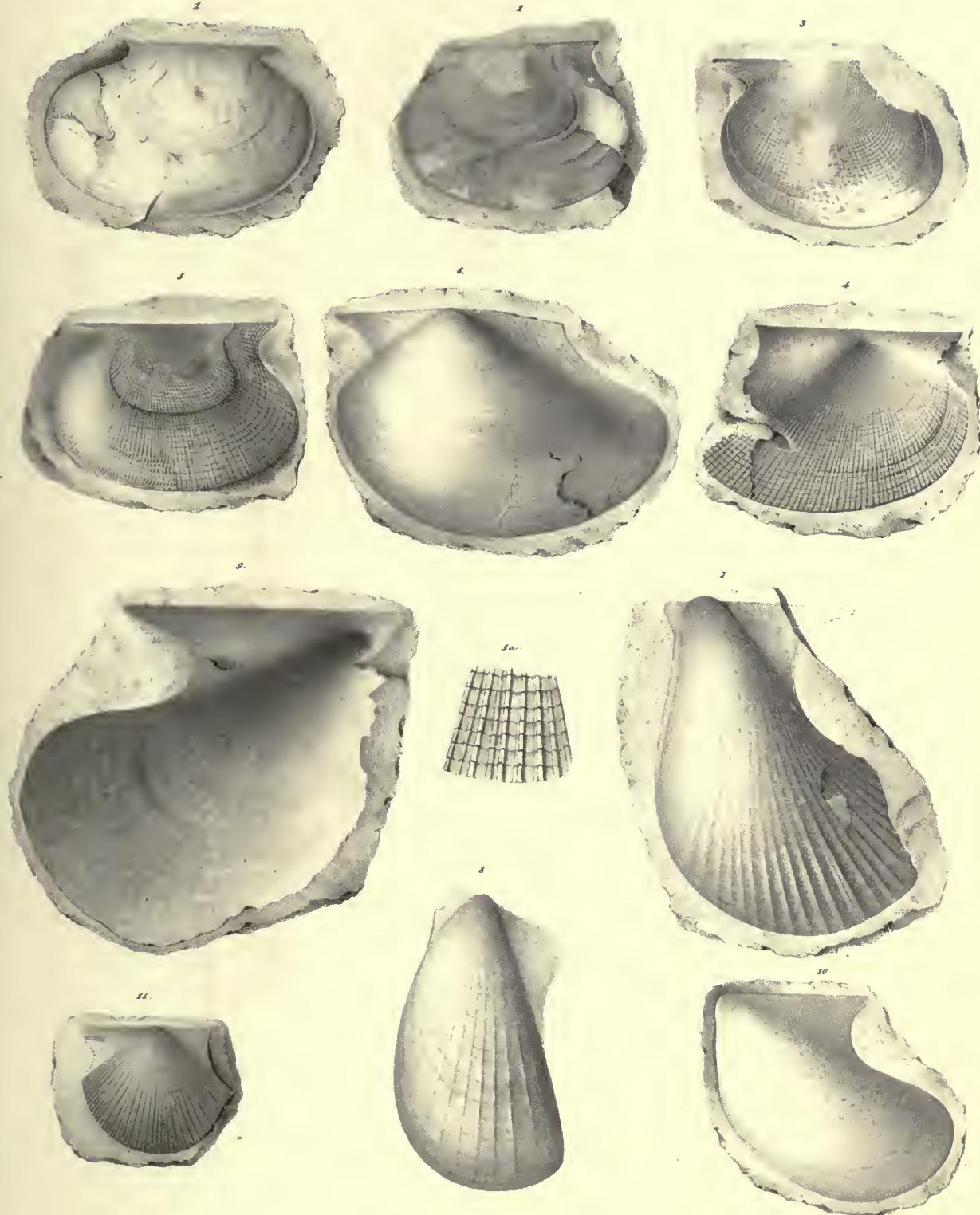


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(LAMELLIBRANCHIATA)



26 JUNE

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PLATE 52.

Fig. 1 - 7. *AVICULA COMMUNIS.* 286

1. A cast of the left valve which has been transversely compressed, elevating the anterior and depressing the posterior wing. The radii are pretty regularly interrupted by the concentric striae.
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3. The interior of the left valve of a specimen of this species, in which the anterior wing is imperfect, as well as the cardinal margin of the posterior wing.
4. The cast of the interior of a smaller specimen, having the posterior side and extremity of the wing broken off.
5. The right valve, from which the shell has been partially removed. The radii are much more nearly equal, than on the opposite valve.
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- 10? The interior of a left valve, which, in the general form and obliquity of the body of the shell, corresponds to this species, but the wing is shorter. The abrupt separation between the body of the shell and the wing may be due to pressure, which has produced a slight folding along that line.

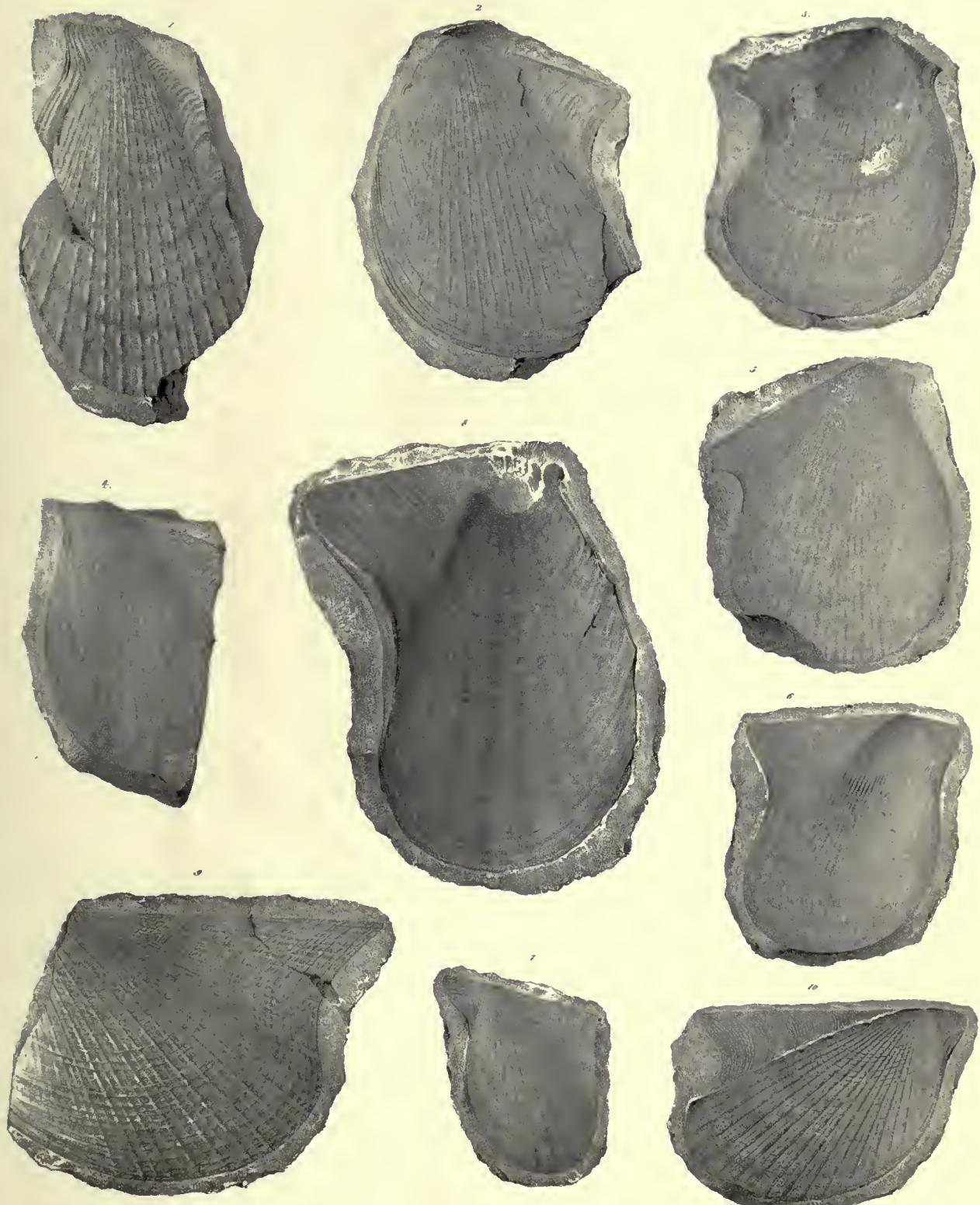


PLATE 53.

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1, 4 & 6.	<i>AVICULA COMMUNIS.</i>	286

1. A young shell of this species, which preserves the anterior and posterior wings entire, with the gibbous umbo and beak elevated above the hinge-line.
4. A specimen of medium size, which is very gibbous above the middle and at the umbo. The wing is erroneously represented as too pointed, by leaving out a portion which is obscurely visible on the posterior sinuate margin.
6. A similar specimen, in which the body of the shell is a little more oblique than usual. The posterior extension of the wing is broken off, so that the margin represented is not the natural one.

Fig. 2, 3, 5, 7 & 10.	<i>AVICULA TEXTILIS.</i>	288
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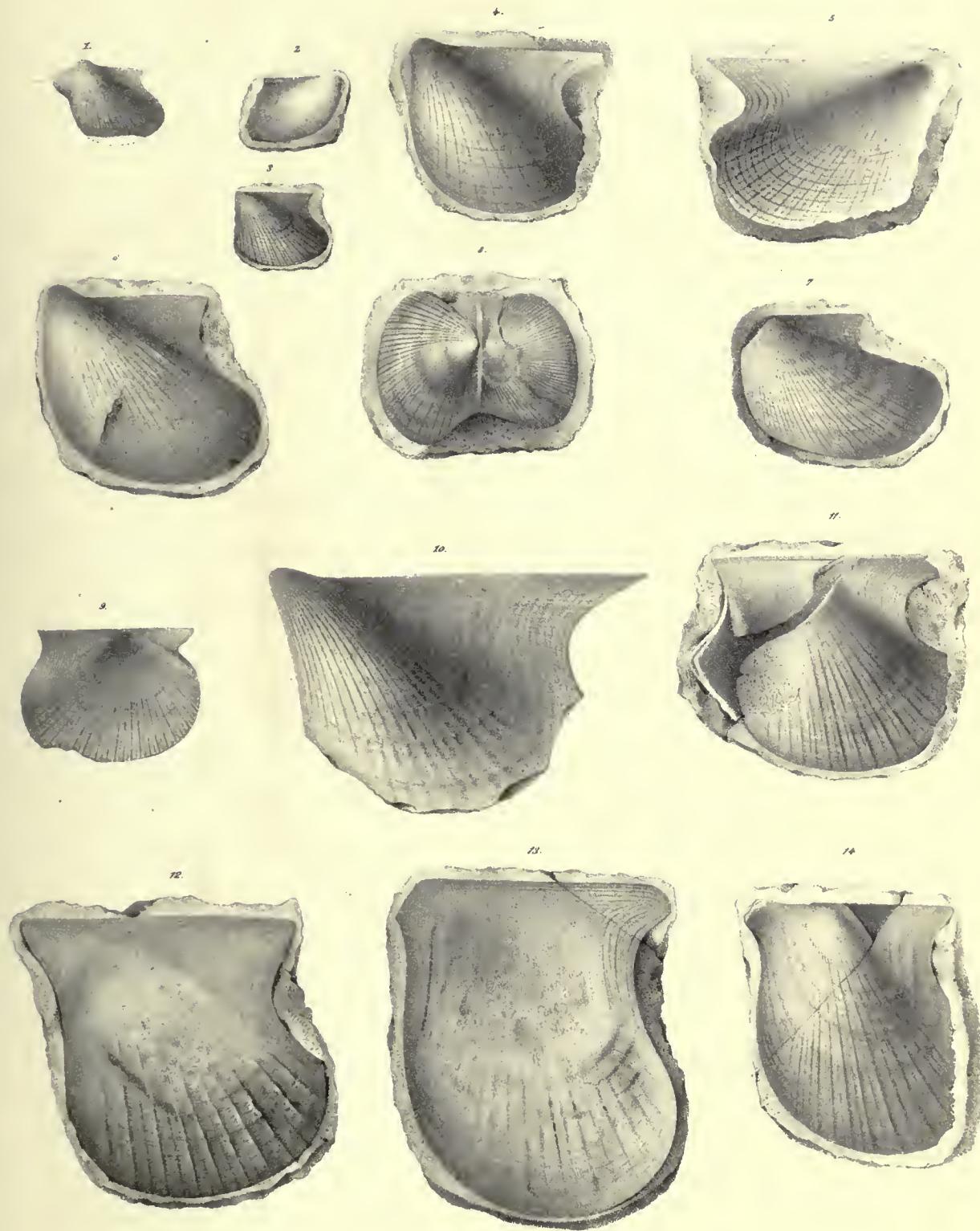
2. The right valve of a young shell which is imperfect, but, in the obliquity of the body and general form, corresponds to this species. It is moderately convex, a little gibbous on the umbo, and the surface of the shell shows subdued radii, while the wing shows only concentric markings as in *A. communis*.
3. The left valve of a young shell preserving the surface markings, with radiating striae upon the wing, as in the larger specimens. The posterior part of the wing is broken off, so that the full extent is not shown in the figure.
5. The interior of the left valve of a shell of this species. In the figure, the sinus on the outer margin is too abrupt : a cast from this interior presents precisely the characters shown in fig. 9, Plate LII.
7. The left valve of a small specimen of this species : the anterior wing and beak are broken off, as well as a part of the posterior wing.
10. A cast of the left valve of this species, from which the shell has been exfoliated and the posterior and basal margins broken off. The specimen is a little more abruptly convex in the middle and upper part than usual in shells of this species.

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9. The interior of a left valve of the same species.

Fig. 11 – 14.	<i>AVICULA SECURIFORMIS.</i>	290
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12. The left valve, preserving the form nearly entire; the upper part of the surface being exfoliated so as to obliterate the markings.
13. The specimen is apparently the inner side of the right valve, and is quite flat. The broad costæ represented are the elevated spaces between the external costæ, showing as depressions on the inside of the shell.
14. A partial cast of the left valve of this species.



ACT VIII

SCENE I.—A ROOM IN THE HOUSE OF

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE II.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE III.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE IV.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE V.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE VI.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE VII.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE VIII.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE IX.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE X.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE XI.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

SCENE XII.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

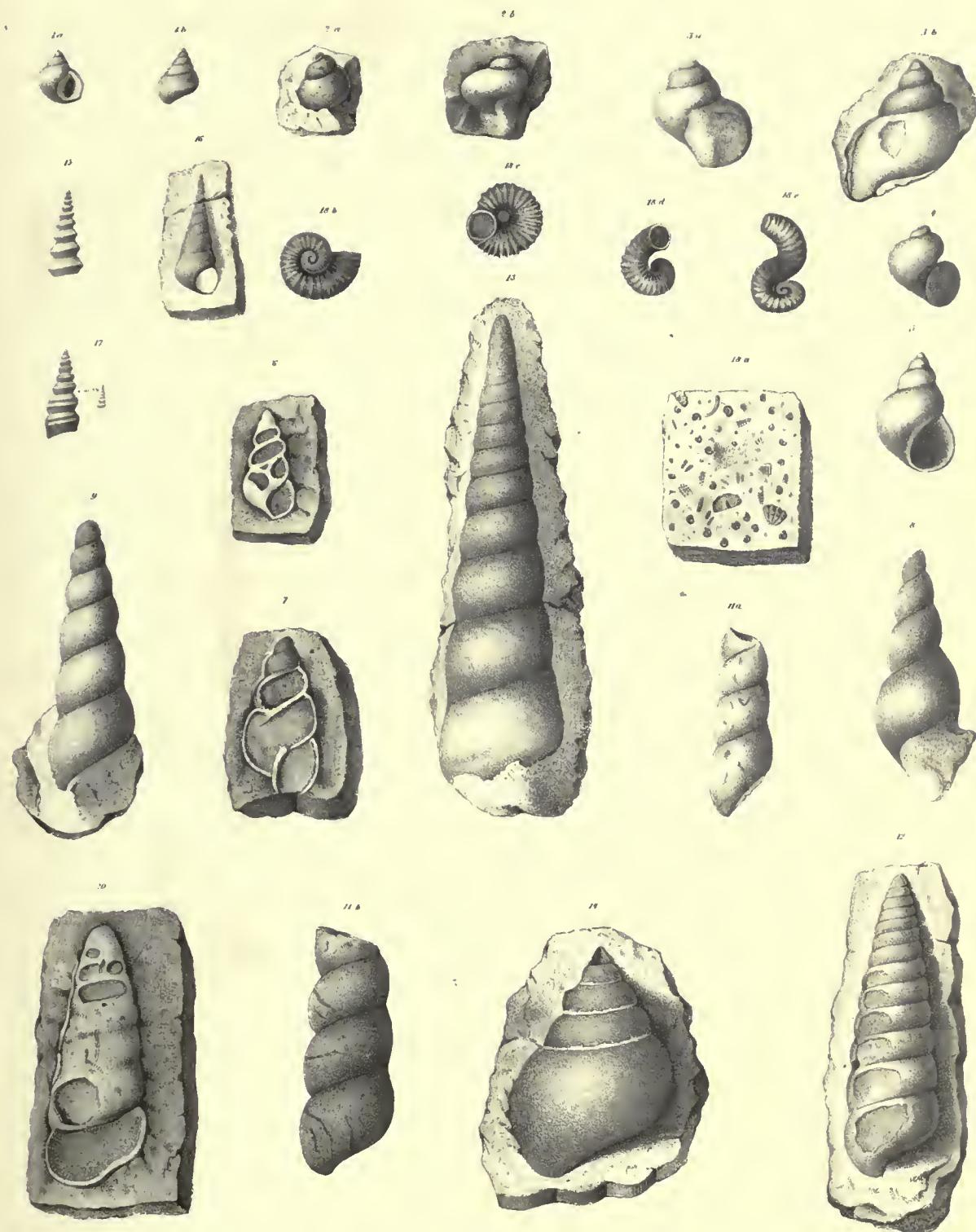
SCENE XIII.—THE SAME. ANOTHER PART

ANTONIO. (SINGING.)—*Antonius, Antonius,*
I am not worthy to be thy son, nor fit
To be thy master; but I will prove
Myself thy servant, and thy true friend.

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LOWER HELDREBERG GROUP
(TENTACULITE AND PENTAMERUS LIMESTONES.)
(GASTEROPODA.)



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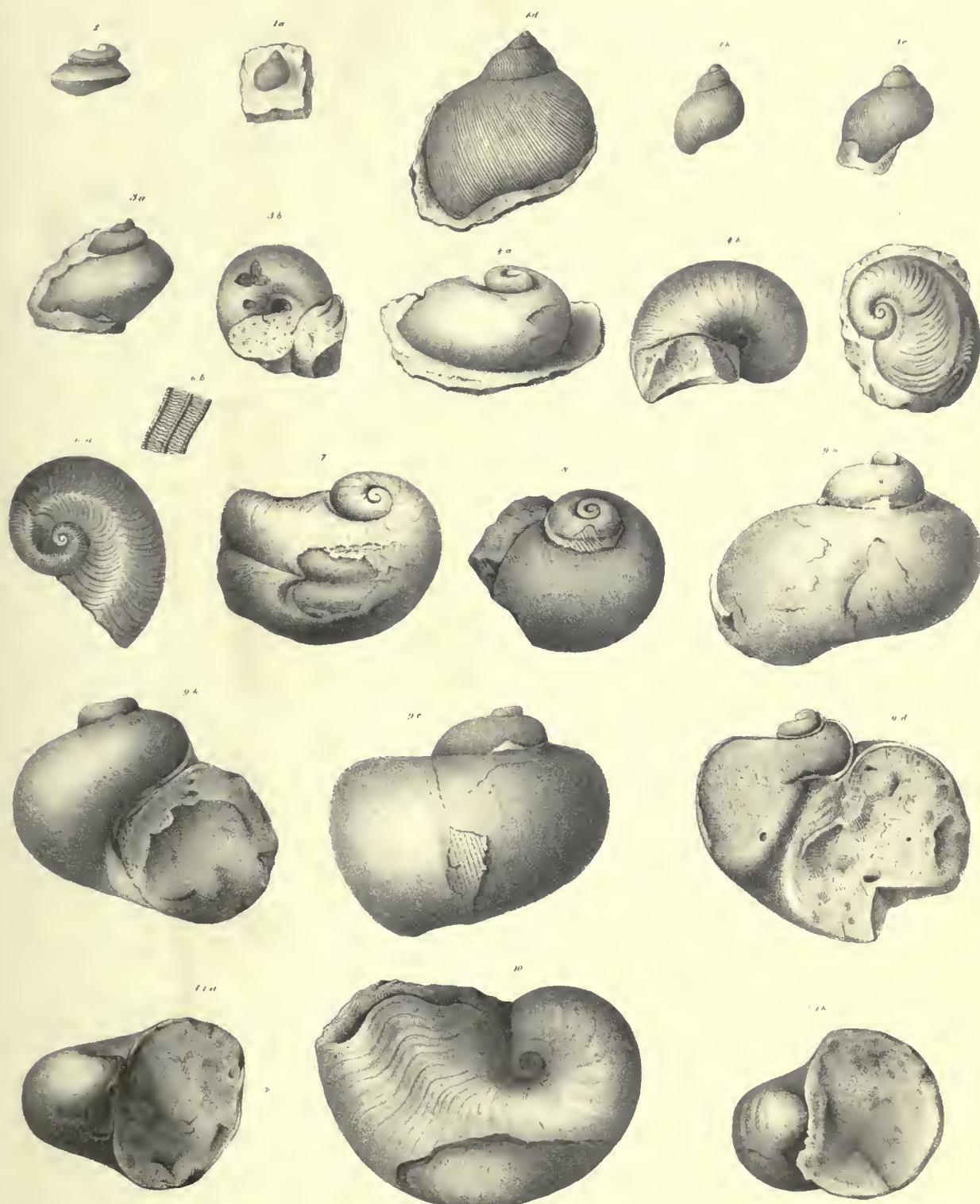
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(GASTEROPODA.)



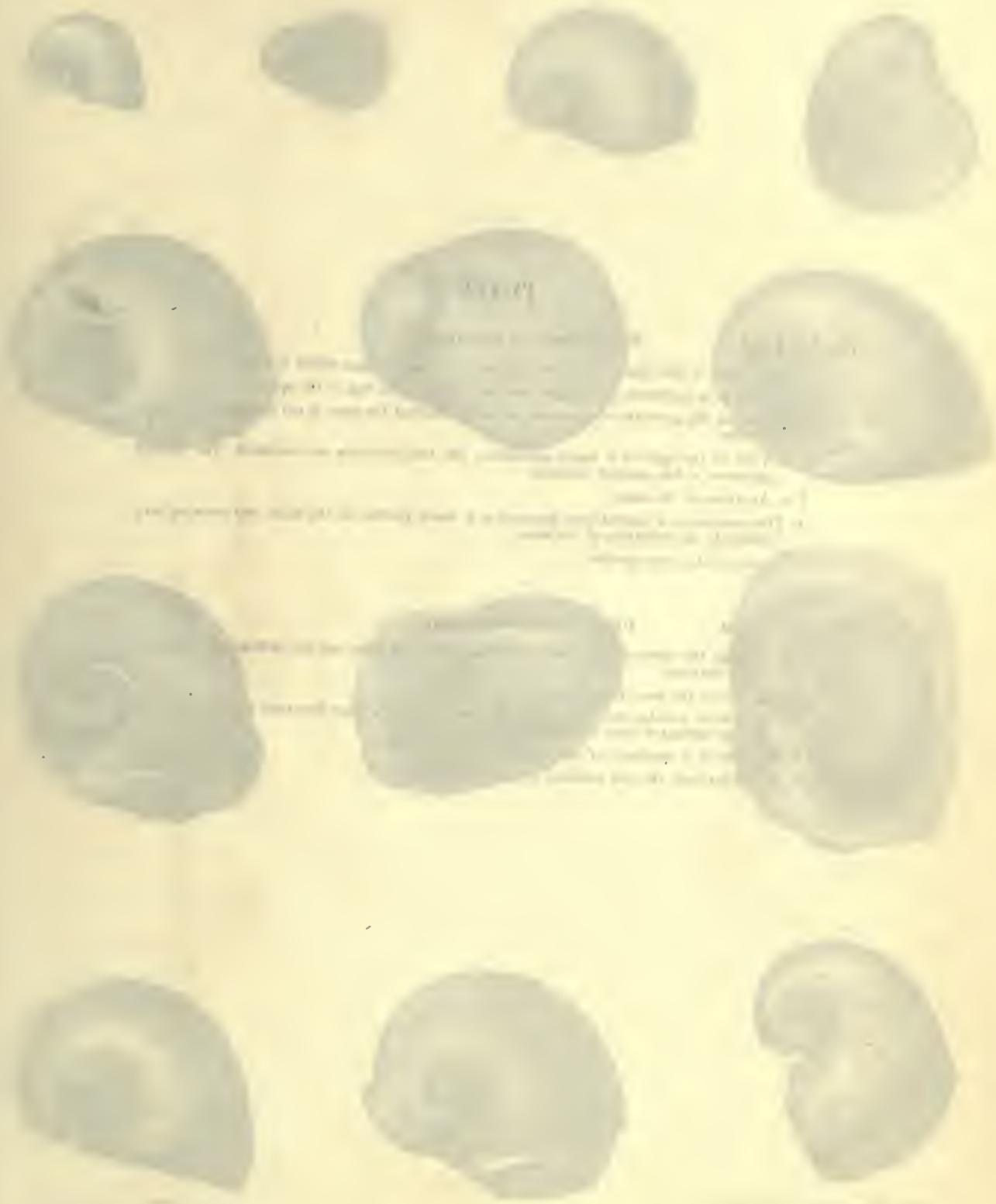


Fig. 1. Medallions representing the persons named in the list of the members of the Society of Friends of the Poor, 1750.

and persons you might be coming near it or know any friends of mine that are.

Yours very truly,

John Wesley.

1750.

Wesleyan Museum, John Wesley's Chapel, London.

MS. 1750. Vol. 1. p. 10.

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PLATE 56.

Fig. 1 - 4 & 8. PLATYCERAS VENTRICOSUM. Page 311

- 1 *a, b.* Views of the upper and lower side of a young specimen which is a cast.
- 2 *a.* View of a specimen of medium size, looking upon the top of the spire.
- 2 *b.* View of the aperture of the same, showing also that the spire is not as high as the outer volution.
- 3 *a.* View of the spire of a larger specimen : the last volutions are obscured. The surface preserves a few obscure wrinkles.
- 3 *b.* Aperture of the same.
4. The specimen is a partial cast, preserving a small portion of the shell, and showing very distinctly the volutions of the spire.
8. A cast of the same species.

Fig. 5, 6, 7 & 9. PLATYCERAS GEBHARDI. Page 312

- 5 *a.* View of the spire of a specimen of ordinary size. The striae are not sufficiently undulated in the drawing.
- 5 *b.* Profile of the same from the back of the shell.
6. The spire of another specimen where the last volution is more free near the aperture, and slightly carinated near the apex.
7. The cast of a specimen of this species.
9. A similar cast, the last volution becoming free.

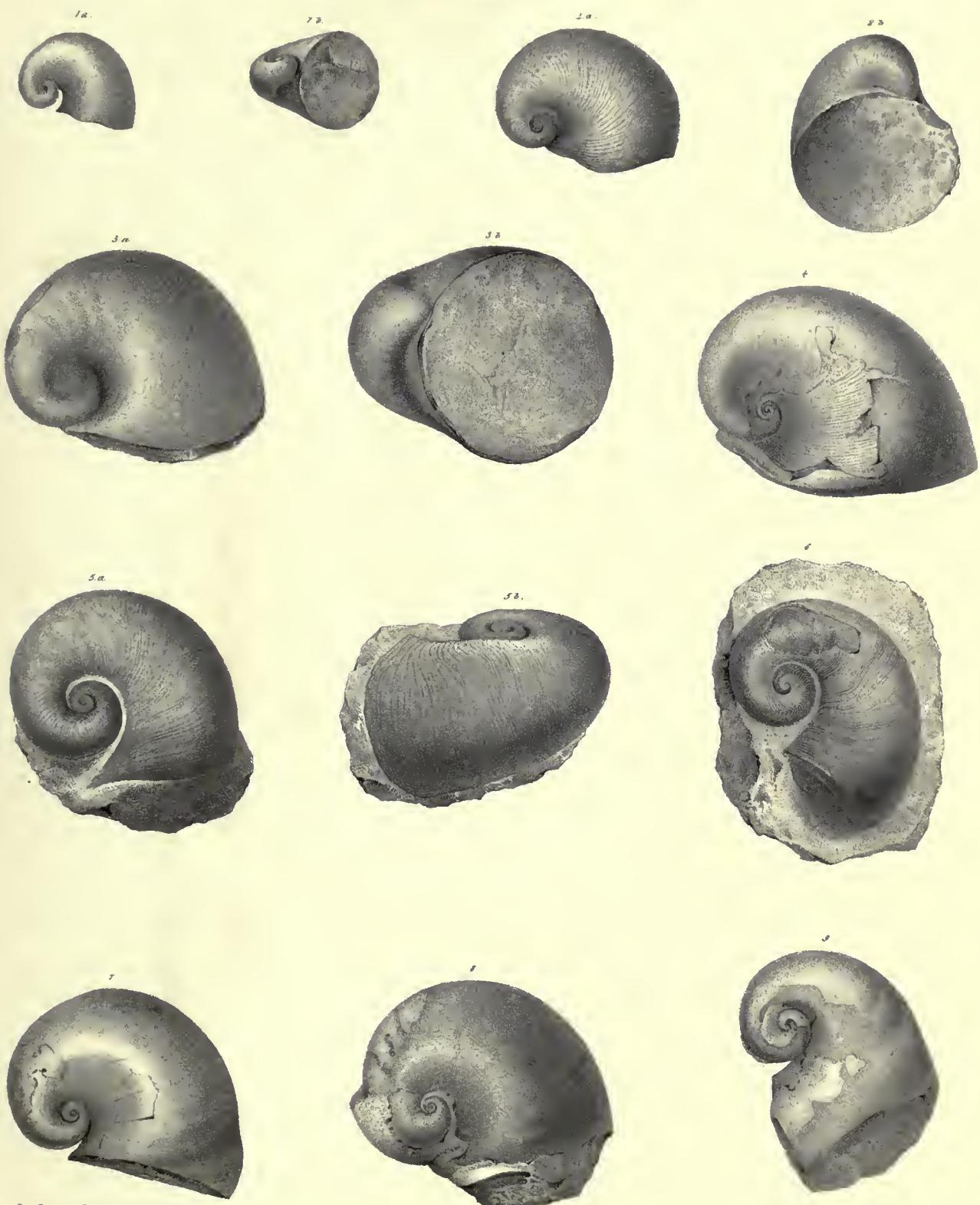




Figure 1. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 2. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 3. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 4. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 5. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 6. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 7. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).



Figure 8. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).

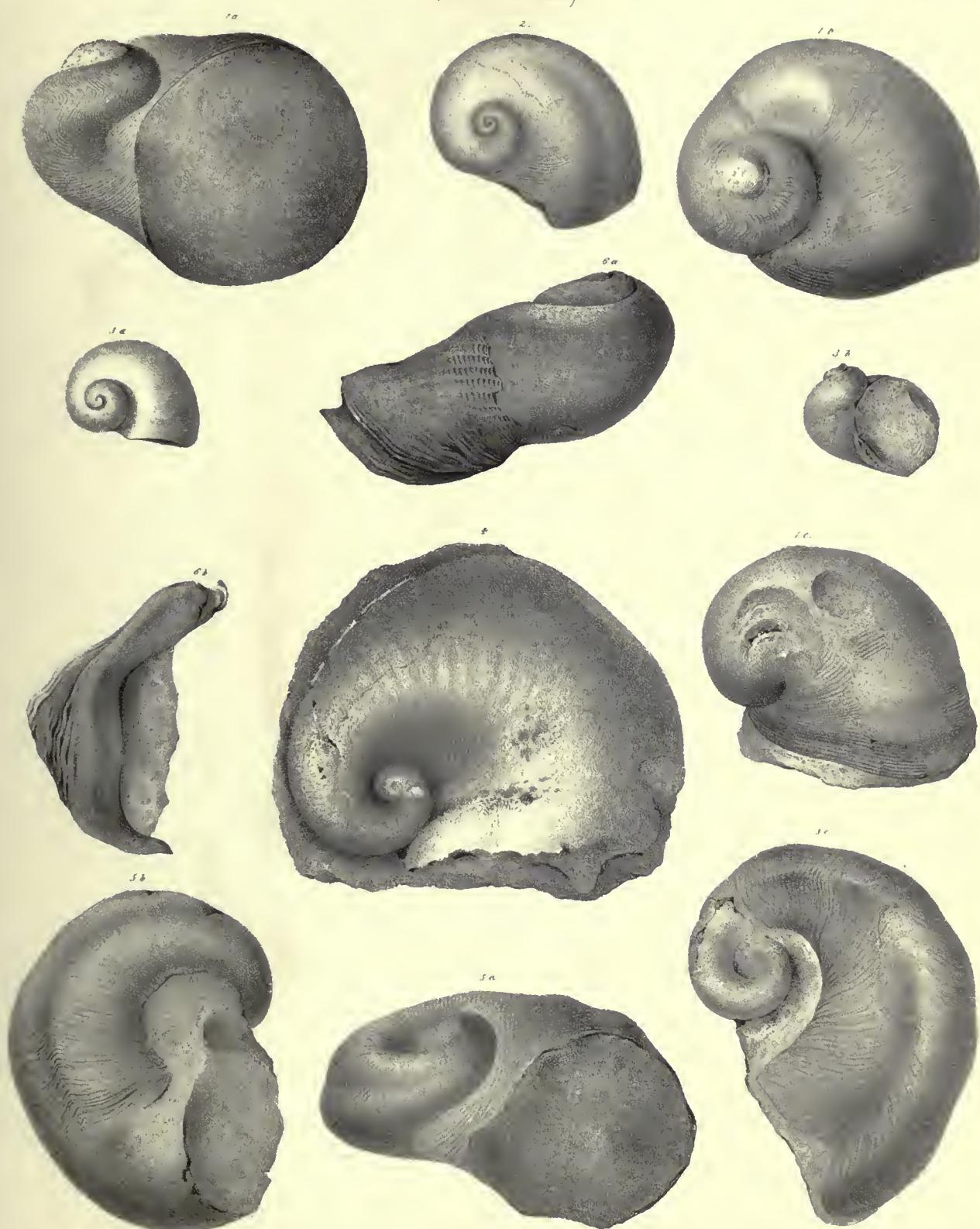


Figure 9. The relationship between health care costs and other variables.

Source: World Bank, World Development Report 2000 (New York: Oxford University Press, 2000).

PLATE 57.

	Page	
Fig. 1 a, b.	PLATYCERAS BILLINGSI.	315
1 a.	View of the aperture of this species. [The striae on the lower side of the figure are very incorrectly represented.]	
1 b.	View looking upon the spire of the same specimen, the upper part of which shows the subangular form and the sinuosity of the striae.	
Fig. 1 c.	STROPHOSTYLUS? ROTUNDATUS.	307
1 c.	View of the spire, with the aperture downwards.	
Fig. 2.	PLATYCERAS SINUATUM.	314
2.	View of the spire of a specimen of this species.	
Fig. 3.	PLATYOSTOMA ARENOSA.	302
3 a.	View looking upon the spire.	
3 b.	View of the aperture of the same.	
Fig. 4.	PLATYCERAS VENTRICOSUM.	311
4.	A large individual which is extremely ventricose. The specimen is silicified, and the surface striae are obliterated.	
Fig. 5.	PLATYCERAS TRILOBATUM.	316
5 a.	View of the aperture and part of the spire of a large individual. [The striae represented between the aperture and the next volution do not exist in the specimen.]	
5 b.	The lower or umbilical side of the same specimen, showing the sinus on that side.	
5 c.	The upper side of the specimen, showing the sinuosity on that side and the extension of the shell in the middle. The upper volutions are imperfect.	
Fig. 6.	PLEUROTOMARIA LABROSA.	339
6 a.	Profile view, looking upon the back of the specimen.	
6 b.	View of the lower side of the aperture, the upper side being broken away.	



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CHLOROPHYLL PROTEIN I

of chlorophyll protein I. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein I. The protein is composed of chlorophyll protein I and protein. The water is present in the form of chlorophyll protein I.

CHLOROPHYLL PROTEIN II

of chlorophyll protein II. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein II. The protein is composed of chlorophyll protein II and protein. The water is present in the form of chlorophyll protein II.

CHLOROPHYLL PROTEIN III

of chlorophyll protein III. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein III. The protein is composed of chlorophyll protein III and protein. The water is present in the form of chlorophyll protein III.

CHLOROPHYLL PROTEIN IV

of chlorophyll protein IV. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein IV. The protein is composed of chlorophyll protein IV and protein. The water is present in the form of chlorophyll protein IV.

CHLOROPHYLL PROTEIN V

of chlorophyll protein V. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein V. The protein is composed of chlorophyll protein V and protein. The water is present in the form of chlorophyll protein V.

CHLOROPHYLL PROTEIN VI

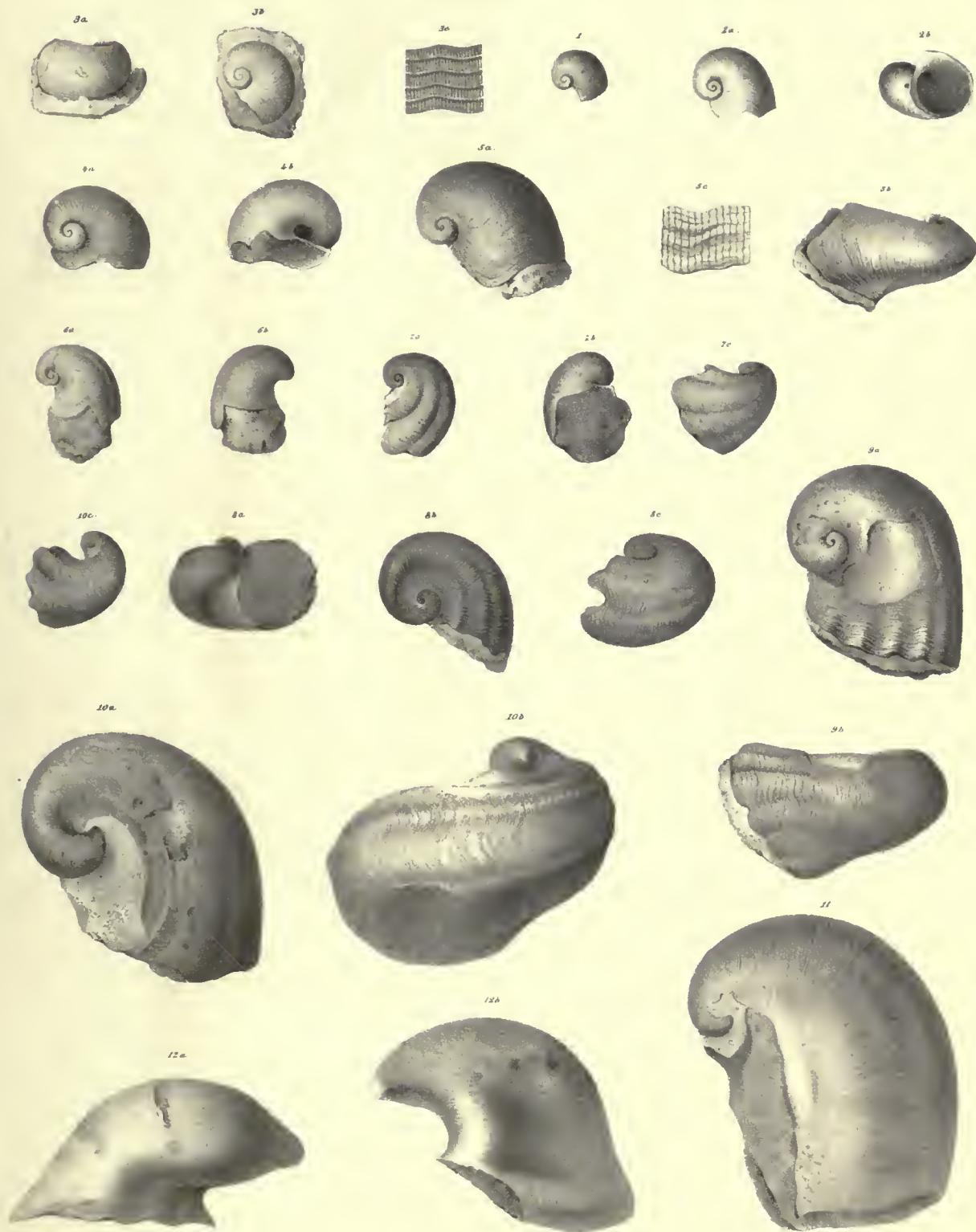
of chlorophyll protein VI. It is composed of chlorophyll, protein and water. The chlorophyll is present in the form of chlorophyll protein VI. The protein is composed of chlorophyll protein VI and protein. The water is present in the form of chlorophyll protein VI.

PLATE 58.

	Page
Fig. 1 - 5. PLATYCERAS TENUILIRATUM.	317
1. A young shell where the second sinus is not developed.	
2 a. A specimen where the second sinus has begun to be developed.	
2 b. View of the aperture and umbilicus of the same. The expanded peristome is broken off, except a small portion adjacent to the volution.	
3 a. Profile of a specimen which is more coarsely striated than usual.	
3 b. Spire of the same.	
3 c. Enlargement of the surface of this specimen, showing the transverse and longitudinal striae.	
4 a. View of the spire of an individual where the peristome has been much expanded on the side of the volutions.	
4 b. Lower side of the same, showing the umbilicus. The peristome has originally extended much farther, so as nearly to cover the umbilicus.	
5 a. A large individual of this species, showing the broad shallow sinus in the peristome.	
5 b. View of the same, showing the sinns on the lower side of the shell.	
5 c. An enlargement of the surface near the aperture, where the transverse striae have become lamellose.	
Fig. 6. PLATYCERAS BISINUATUM.	318
6 a. The upper side of the spire, showing the sinns in the peristome, and the sinns bordering the dorsal lobe : the extension of the latter, being broken off, presents the appearance of the notch in the peristome at this point.	
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7 c. Profile or dorsal view.	
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8 b. View of the spire and upper side of the volutions, showing the folds or carina.	
8 c. An oblique view, showing the sinuosity in the anterior margin of the aperture.	
9 a. An older specimen in which the inequalities from the upper part of the last volution are worn off, the plications being more strongly marked on the peristome.	
9 b. Dorsal or profile view, showing the outer volution above the apex of the spire. The deep sinus in the anterior margin of the younger shell is not conspicuous in this one, the peristome having become strongly and almost regularly plicate, except on the posterior side, where there is a broad shallow sinus.	
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10 a. The upper side of the spire, from which the shell is worn smooth and partially removed.	
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Fig. 11. PLATYCERAS INTERMEDIUM.	321
11. View of the upper side of the spire, which is incorrectly represented at the apex. The apparent contraction toward the anterior side of the aperture is due to accident.	
Fig. 12. PLATYCERAS — sp.?	
12 a, b. Two views of a cast : species undetermined.	

(Shaly Limestone)

(GASTEROPODA)



in 1910

the following table:

Country	Population	Area	Population per square mile
United States	80,000,000	3,000,000	26.67
China	400,000,000	3,000,000	133.33
Russia	100,000,000	10,000,000	10.00
England	40,000,000	100,000	400.00
Germany	40,000,000	100,000	400.00
Austria-Hungary	30,000,000	100,000	300.00
France	30,000,000	100,000	300.00
Spain	15,000,000	100,000	150.00
Italy	15,000,000	100,000	150.00
Japan	10,000,000	100,000	100.00
Brazil	10,000,000	100,000	100.00
Belgium	5,000,000	10,000	500.00
Netherlands	5,000,000	10,000	500.00
Portugal	5,000,000	10,000	500.00
Greece	5,000,000	10,000	500.00
Switzerland	3,000,000	10,000	300.00
Denmark	2,000,000	10,000	200.00
Iceland	100,000	10,000	10.00
Algeria	10,000,000	100,000	100.00
Yugoslavia	10,000,000	100,000	100.00
U.S.S.R.	100,000,000	100,000	100.00
U.S.A. (1900)	70,000,000	3,000,000	23.33
U.S.A. (1850)	30,000,000	3,000,000	10.00
U.S.A. (1800)	10,000,000	3,000,000	3.33
U.S.A. (1700)	5,000,000	3,000,000	1.67
U.S.A. (1600)	2,000,000	3,000,000	0.67
U.S.A. (1500)	1,000,000	3,000,000	0.33
U.S.A. (1400)	500,000	3,000,000	0.17
U.S.A. (1300)	250,000	3,000,000	0.08
U.S.A. (1200)	150,000	3,000,000	0.05
U.S.A. (1100)	100,000	3,000,000	0.03
U.S.A. (1000)	50,000	3,000,000	0.02
U.S.A. (900)	25,000	3,000,000	0.01
U.S.A. (800)	15,000	3,000,000	0.005
U.S.A. (700)	10,000	3,000,000	0.003
U.S.A. (600)	5,000	3,000,000	0.002
U.S.A. (500)	3,000	3,000,000	0.001
U.S.A. (400)	2,000	3,000,000	0.001
U.S.A. (300)	1,000	3,000,000	0.001
U.S.A. (200)	500	3,000,000	0.001
U.S.A. (100)	250	3,000,000	0.001
U.S.A. (50)	125	3,000,000	0.001
U.S.A. (25)	62.5	3,000,000	0.001
U.S.A. (10)	25	3,000,000	0.001
U.S.A. (5)	12.5	3,000,000	0.001
U.S.A. (2)	6.25	3,000,000	0.001
U.S.A. (1)	3.125	3,000,000	0.001

PLATE 59.

	Page
Fig. 1 – 4. PLATYCERAS UNGUIFORME.	322
1 <i>a</i> , <i>b</i> , & 2. Views of young individuals of this species.	
3 <i>a</i> . Profile view from the dorsal side, showing the spire and the broad flat plications.	
3 <i>b</i> . View of the upper side of another specimen, with more numerous plications.	
4 <i>a</i> , var. <i>multicarinatum</i> . View of the lower side of a specimen which has numerous narrow plications.	
4 <i>b</i> , <i>c</i> . Views of the upper sides of similar specimens.	
Fig. 5 <i>a</i> – <i>i</i> & 6 <i>c</i>. PLATYCERAS DILATATUM.	322
5 <i>a</i> , <i>b</i> . Young specimens of this species.	
5 <i>c</i> . A larger specimen, showing a shallow sinus on the back and the commencement of small plications on the right side.	
5 <i>d</i> . A larger specimen where the plications are more fully developed.	
5 <i>e</i> . Dorsal view of a similar specimen in which the plications are more developed, and the obtuse carina extending from the apex is more defined, and ending in a broad extension in front (which is broken off in the specimen figured).	
5 <i>f</i> . View of the aperture of the same specimen, showing the incipient plications upon the left side of the aperture.	
5 <i>g</i> . A specimen in which the spiral carina is more strongly developed, and is marked by a deep sinuosity in the peristome.	
5 <i>h</i> . An enlargement of the surface, showing the bending of the striae as they cross the carina.	
5 <i>i</i> . An enlargement of the surface of a young specimen, where the longitudinal striae are more conspicuous.	
6 <i>c</i> . This specimen is probably one of the same species, which is less expanded towards the aperture, and has one more volution at the apex than the preceding figures.	
Fig. 6 <i>a</i>, <i>b</i>. PLATYCERAS TENUILIRATUM.	317
6 <i>a</i> , <i>b</i> . The specimen may be a compressed form of this species.	
Fig. 6 <i>d</i> – <i>g</i>, & 7 <i>a</i>. PLATYCERAS GIBBOSUM.	323
6 <i>d</i> . View of the aperture of a large specimen of this species.	
6 <i>e</i> . A similar specimen, with less strongly plicated margins and a smaller spire.	
6 <i>f</i> . The upper side of the spire of fig. 6 <i>e</i> . The specimen is not quite symmetrical in its convexity.	
6 <i>g</i> . The upper side of the spire of the specimen fig. 6 <i>d</i> .	
7 <i>a</i> . The lower side of a smaller specimen, showing strong plications.	
Fig. 7 <i>b</i>. PLATYCERAS SULCOPPLICATUM.	324
7 <i>b</i> . The figure represents the specimen lying with the aperture downward.	
Fig. 8. PLATYCERAS PERPLICATUM.	325
8. Anterior view of the specimen.	
Fig. 9. PLATYCERAS RETRORSUM.	320
9 <i>a</i> , <i>b</i> . A specimen which is probably of this species : it is broken at the apex, and somewhat otherwise distorted.	
Fig. 10. PLATYCERAS PLICATILE.	325
10 <i>a</i> . View of the upper side of the shell.	
10 <i>b</i> . View of the aperture.	

Shaly Limestone.

(GASTROPODA.)

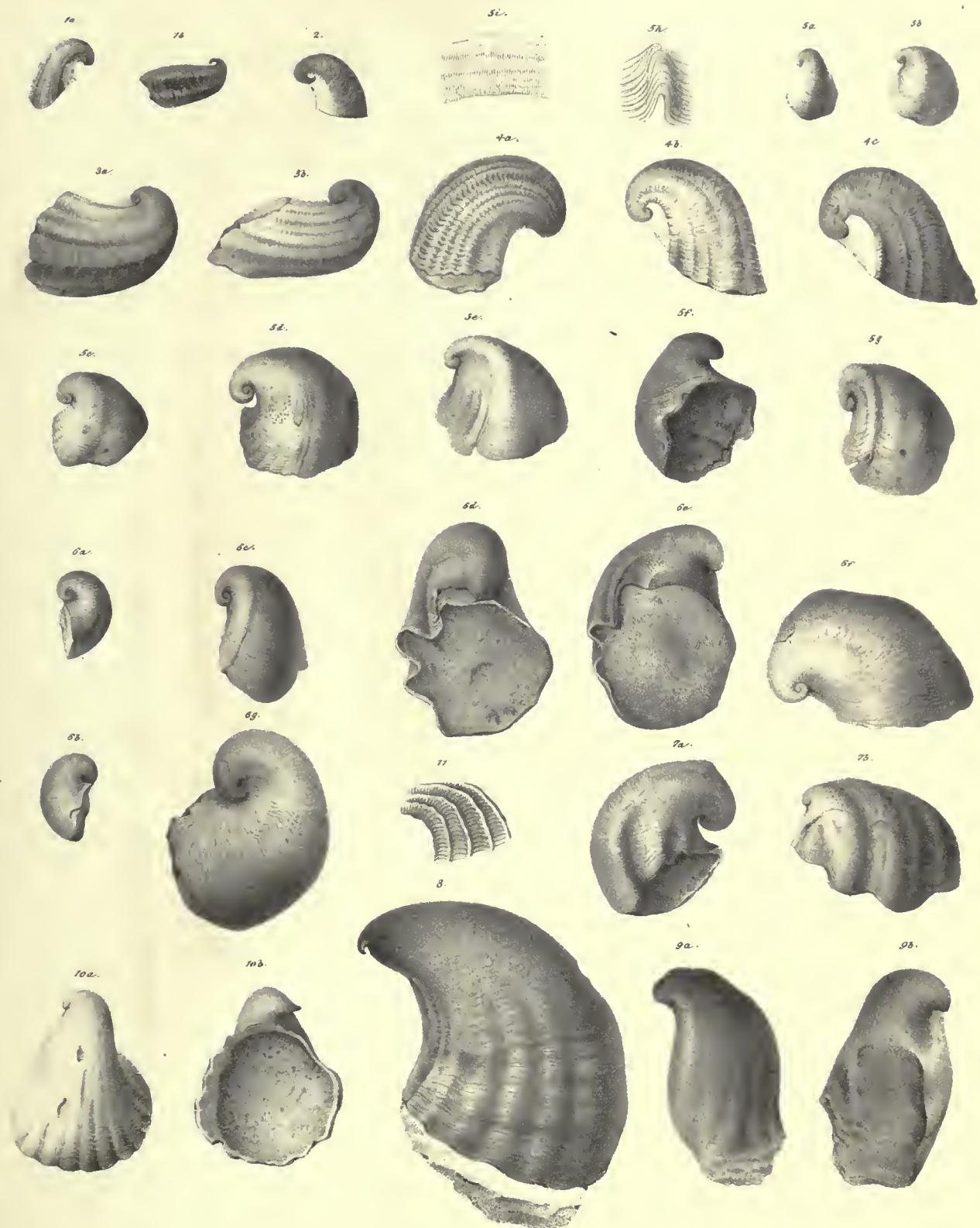
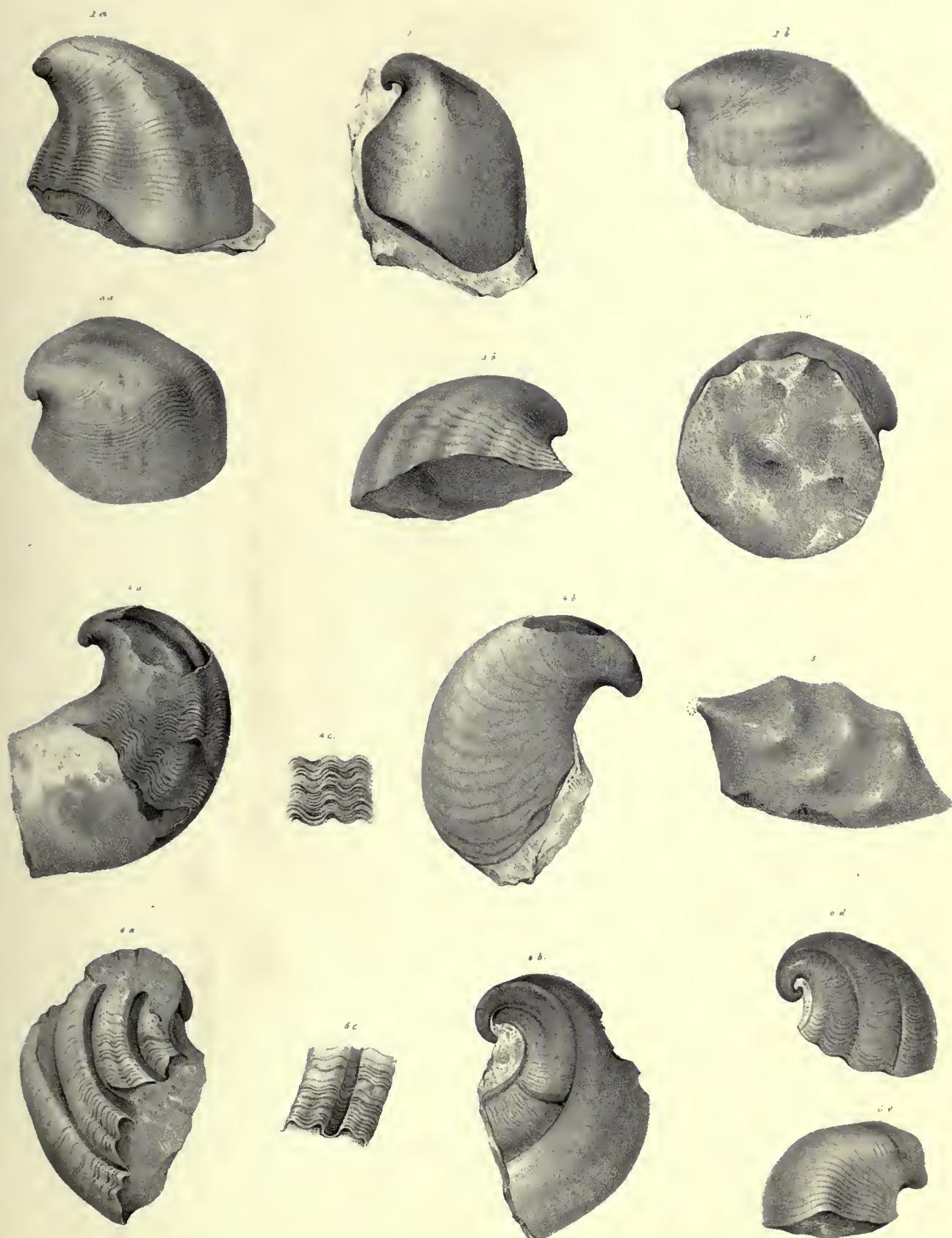


PLATE 60.

	Page
Fig. 1 & 2. PLATYCERAS PLATYSTOMUM.	326
1 a. View of the right side of a specimen, the apex of which is broken off.	
1 b. The cast of a similar specimen, preserving the impressions of the plications.	
2. A similar specimen, showing a little irregularity at the apex. The plications are shown only on one side.	
Fig. 3. PLATYCERAS PLATYSTOMUM, var. ALVEATUM.	326
3 a. The right side, showing the upper side of the spire.	
3 b. The left posterior side.	
3 c. View of the aperture.	
Fig. 4. PLATYCERAS RETRORSUM, var. ABNORMIS.	321
4 a. Upper side of the shell, showing the plications and the strong lamellose striae.	
4 b. The lower side of the same, which is marked only by concentric lamellose striae.	
4 c. An enlargement of the striae on the upper side.	
Fig. 6 a - c. PLATYCERAS GIBBOSUM.	
6 a, b. Two views of a much crushed specimen of this species.	
6 c. Enlargement of the surface, showing the wrinkled transverse striae.	
Fig. 6 d, e. PLATYCERAS BISULCATUM.	327
6 d. View of the upper side of the spire, showing the two sharp grooves and the broad lobes.	
6 e. The left side, showing the sinuous stria with an undefined longitudinal plication : there are, besides this, one or two obscure plications.	



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PLATE 61.

Fig. 1. *PLATYCERAS PLATYSTOMUM.* Page
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- 1 *a.* The left posterior side of a specimen, which is crushed on the upper side.
- 1 *b.* The anterior side of the same, the distortion being due to pressure.
- 1 *c.* A young individual which is somewhat distorted by pressure.

Fig. 2. *PLATYCERAS VENTRICOSUS.* 326

2. View of the aperture of a specimen of this species. A part of the preceding volution has been removed by weathering.

Fig. 3. *PLATYCERAS PILEIFORME.* 327

- 3 *a.* The upper side of a specimen in which the apex is partially broken off. [The minute volition is seen on the specimen, though not represented in the figure.]
- 3 *b.* Profile view of a young specimen.

Fig. 4. *PLATYCERAS PERLATUM.* 328

- 4 *a.* View looking upon the summit of the fossil. The indentation near the summit may have been due to the involution of the apex of the shell, which afterwards became solid, as the apex of the east is not broken.
- 4 *b.* An oblique postero-lateral view of the specimen.

DELTHEVRIS SHALY LIMESTONE.

(GASTEROPODA .)

Pl 61

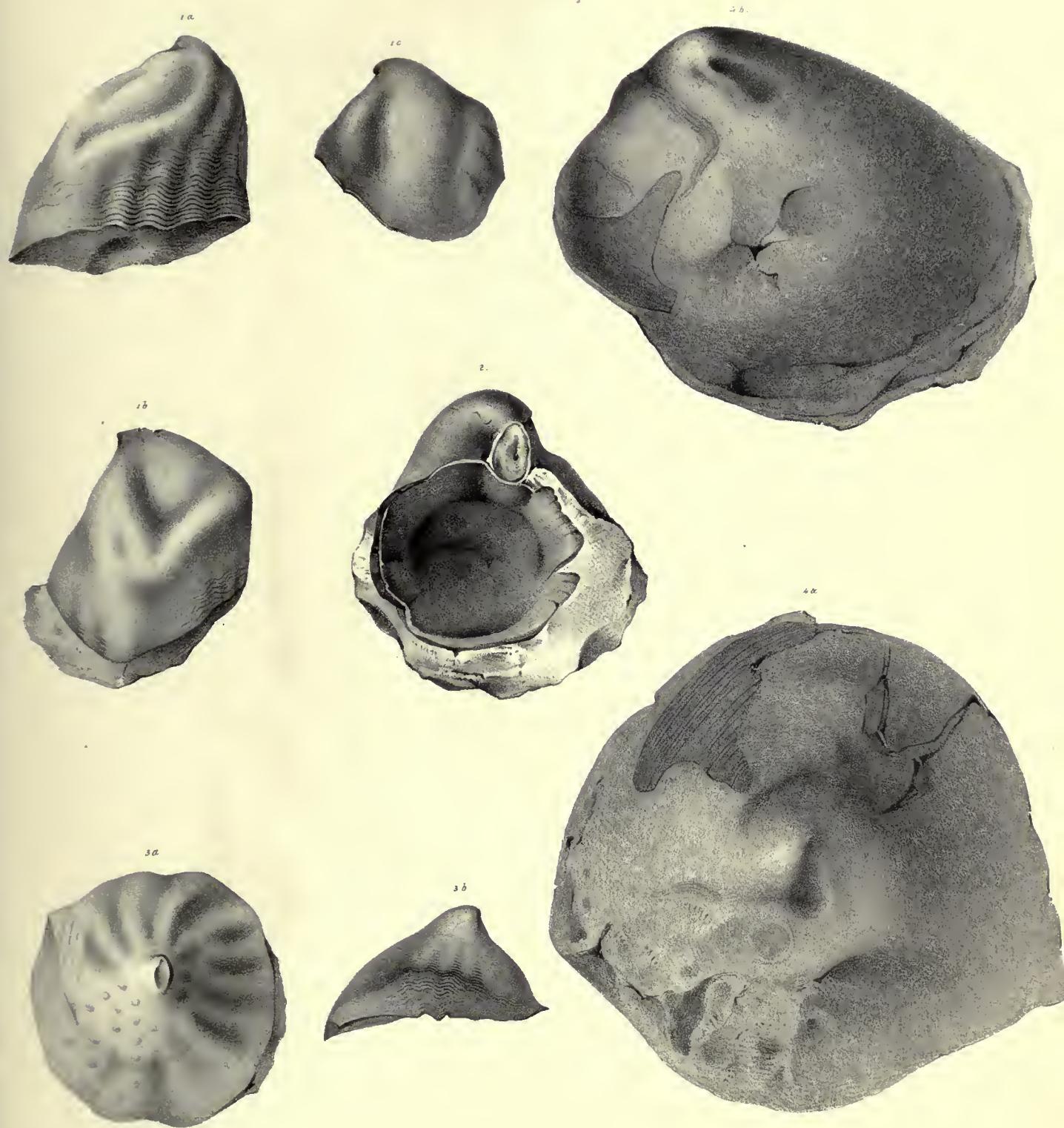


PLATE 62.

Fig. 1 - 5.

PLATYCYRAS CALANTICA.

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1. View of the upper side of the spire of a specimen where the apex is entire. The shell is nearly all exfoliated from the body of the specimen.
2. A similar but less symmetrical specimen, preserving little of the shell.
3. Anterior view of fig. 1.
4. View of the upper side of the spire of a smaller specimen, in which the apex is broken off.
5. A smaller specimen of, apparently, the same species, having the apex broken off and the shell compressed from above.

Fig. 6 & 7.

PLATYCYRAS OBESUM.

329

6. Lateral view of the specimen, from which the shell is nearly all exfoliated.
7. A portion of the peristome, from which the upper part of the shell has been worn away, showing the plications.

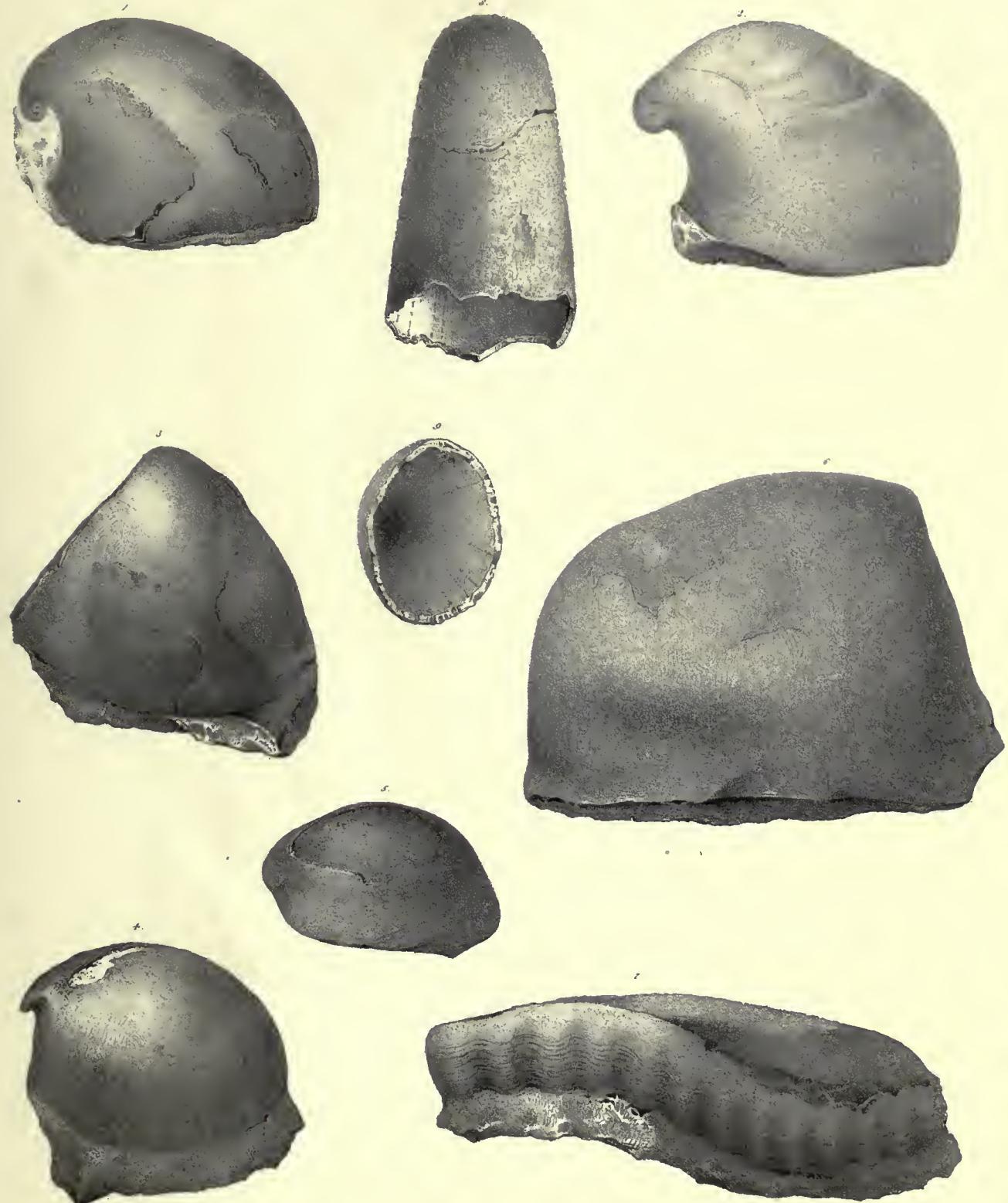
Fig. 8 & 9.

EDRIOCRINUS SACCULUS?

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8. Lateral view of an extremely elongate specimen.
9. View shewing the interior.

These same figures are given on Plate LXXXVII, fig. 19 & 20.



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PLATE 63.

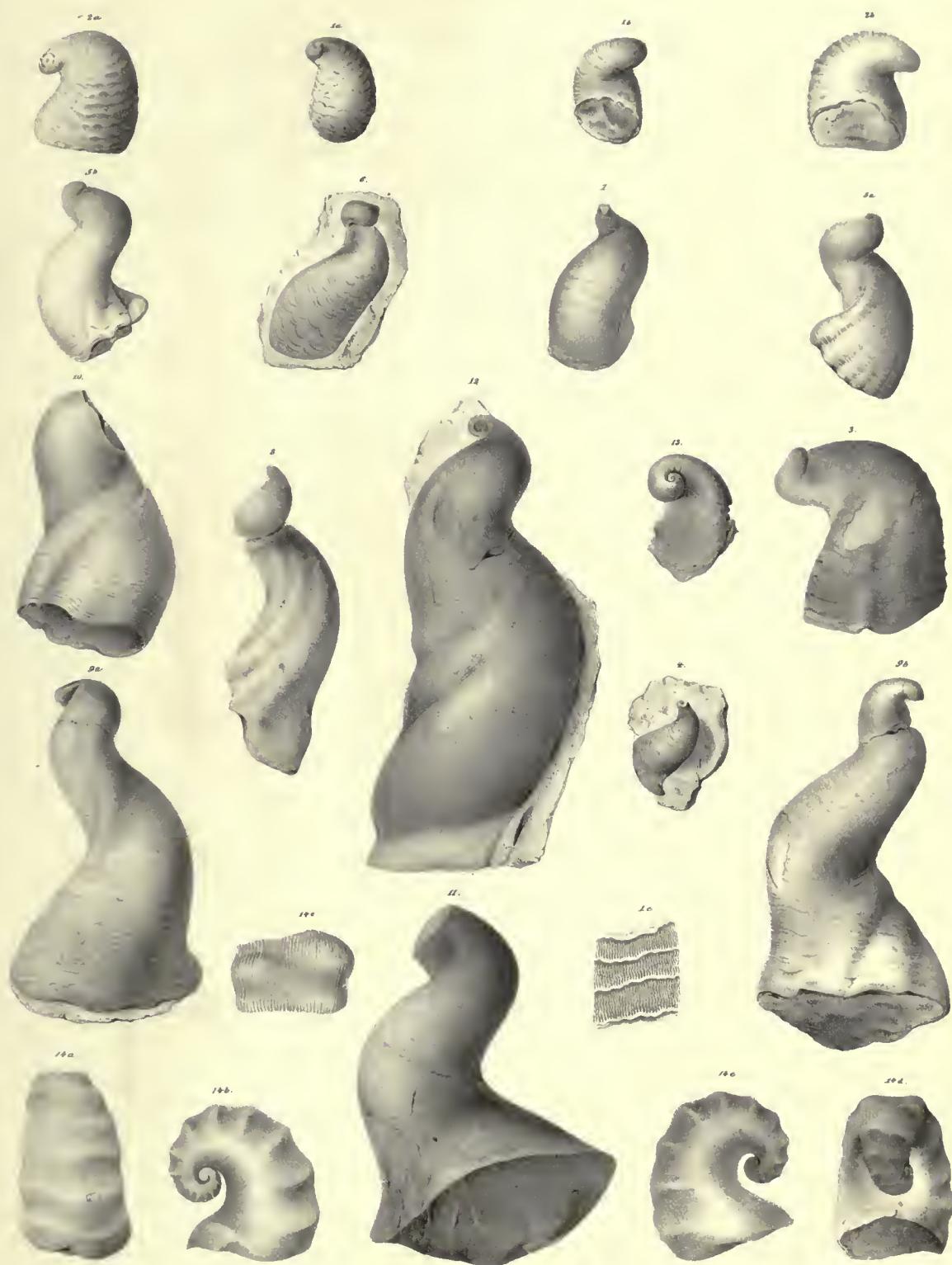
	Page
Fig. 1, 2, 3. PLATYCERAS LAMELLOSUM.	330
1 <i>a, b.</i> The anterior and posterior sides of a small specimen.	
1 <i>c.</i> Enlargement of the surface, showing the undulating transverse lamellæ and the fine longitudinal striae.	
2 <i>a, b.</i> Views of the anterior and posterior sides of a larger individual.	
3. A larger individual, in which the transverse lamellæ are much subdued : the longitudinal ridge is an accidental feature.	

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Fig. 4 – 9. PLATYCERAS SPIRALE.	331
4. A young individual of this species, in which no plications are developed.	
5 <i>a.</i> A larger specimen, in which the plications are very strongly developed on the right posterior side of the shell.	
5 <i>b.</i> The posterior side of the same shell.	
6. A specimen of equal size with the preceding, in which the plications are but partially developed, or shown principally in the undulations of the striae of the surface.	
7. A similar specimen which is smooth on the anterior side, and showing only two or three plications on the posterior side.	
8. A more elongated specimen, with strongly developed plications. (The upper part has been broken off, and presents some imperfection at the junction of the two parts.)	
9 <i>a.</i> The anterior side of another specimen, in which plications are but faintly developed.	
9 <i>b.</i> The posterior side of the same. The expansion towards the aperture is increased beyond the natural width, by compression.	

	Page
Fig. 10, 12 & 13. PLATYCERAS INCILE.	332
10. The lower part of the shell, consisting of a single volution.	
12. A specimen preserving imperfectly the apex and nearly two volutions below. The specimen is somewhat flattened from pressure.	
13. A fragment which is probably the apex of a specimen of this species.	

	Page
Fig. 11. PLATYCERAS TUB.EFORME.	332
11. A fragment preserving a little more than one volution.	

	Page
Fig. 14 <i>a – e.</i> PLATYCERAS NEWBERRYI.	333
14 <i>a.</i> Dorsal side of the last volution.	
14 <i>b.</i> View of the top of the spire.	
14 <i>c.</i> The lower side of the shell.	
14 <i>d.</i> Posterior view, partially showing the aperture.	
14 <i>e.</i> Enlargement of the surface, showing the longitudinal striae.	



ARTICLES**REVIEW ARTICLE**

Assessing the feasibility of Arctic oil drilling from a political and economic perspective: An analysis of the politics of environmental regulation in the Arctic

ARTICLE

Oil well survival: Implications for oil and gas field development in Alaska

ARTICLE

Oil well survival: Implications for oil and gas field development in Alaska

ARTICLE

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Oil well survival: Implications for oil and gas field development in Alaska

ARTICLE

Oil well survival: Implications for oil and gas field development in Alaska

PLATE 64.

	Page
Fig. 1 - 5. PLATYCERAS PLICATUM.	334
1. A young specimen in which no plications are developed.	
2. A more slender specimen in which the plications are strongly marked.	
3 & 4. A larger individual, in which the plications are but moderately developed.	
5. A large specimen which is compressed, the view showing a width greater than the natural width of the shell.	
Fig. 6 & 10. PLATYCERAS ELONGATUM.	335
6. A young specimen of this species.	
10. A large individual from which the extremity of the apex is broken, and the shell partially exfoliated from the lower part.	
Fig. 7, 8, 9. PLATYCERAS PYRAMIDATUM.	336
7 & 8. Two views of the same specimen.	
9. View of a smaller specimen.	

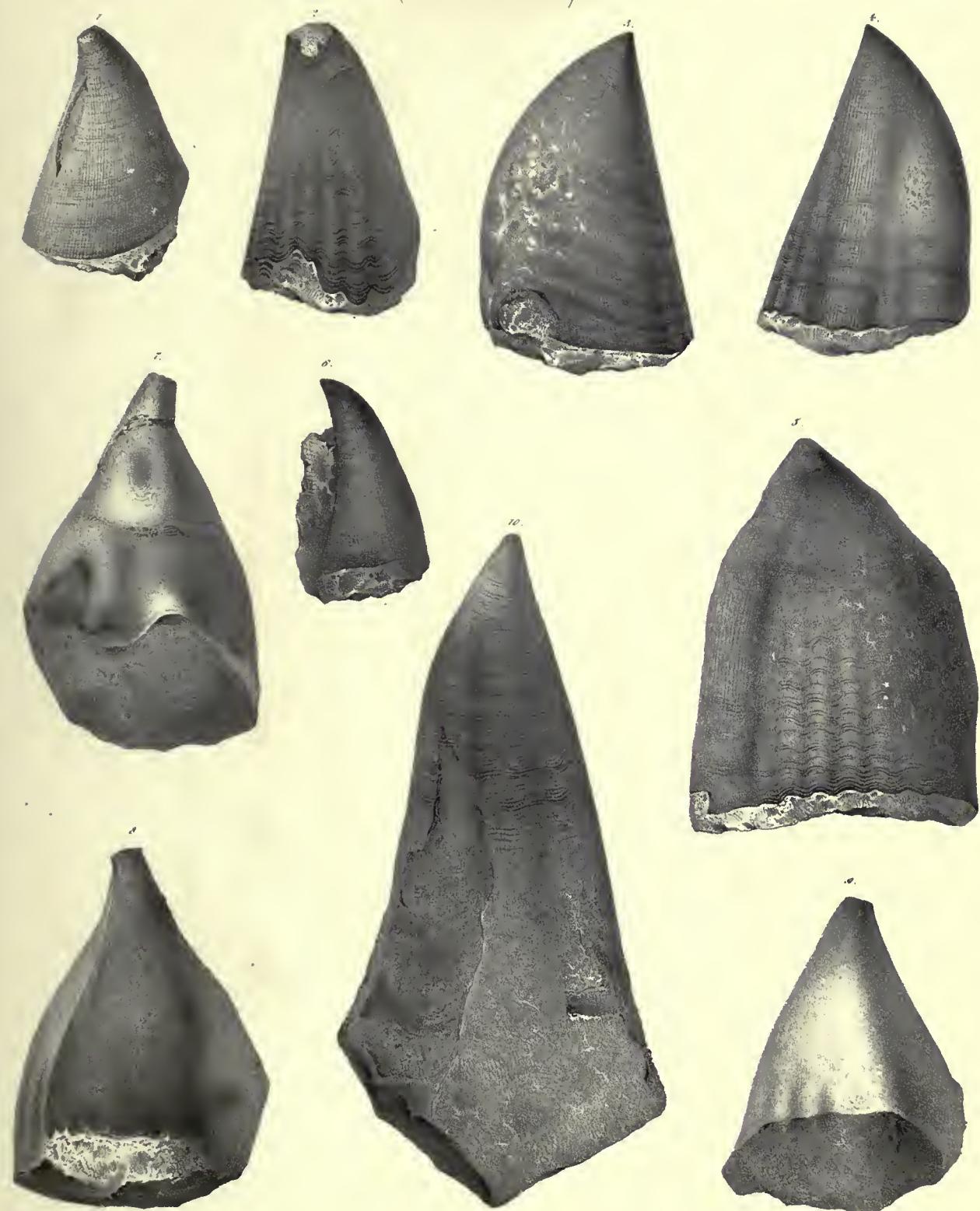




PLATE 65.

	Page
Fig. 1. PLATYCERAS UNDULOSTRIATUM.	336
1 a. View of the upper side of the spire.	
1 b. The lower side, showing the narrow groove in the last volution.	
Fig. 2. PLATYCERAS CLAVATUM.	337
2. A specimen of this species, from which the shell is nearly exfoliated.	
Fig. 3. PLATYCERAS CURVIROSTRUM.	338
3 a. The upper side of the spire, from which the surface is nearly all exfoliated.	
3 b. The posterior side, showing the form of the aperture.	
Fig. 4 & 7. PLATYCERAS AGRESTE.	338
7. The lower side of the specimen, showing the aperture.	
4. A specimen having a similar form of the body-volution, but with the apex more acute. The shell on the upper part of the volution is marked by abruptly undulating longitudinal striæ, and, near the base, the surface becomes roughly cancellated by the two sets of striæ.	
Fig. 5. PLATYCERAS ELONGATUM? var.	335
5 a. A fragment of a specimen, natural size.	
5 b. An enlargement of the surface striæ.	
Fig. 6. PLATYCERAS ARCUATUM.	336
6. Lateral view of the specimen, natural size.	
Fig. 8. EUOMPHALUS DISJUNCTUS.	340
8. The lower side of a weathered specimen of this species.	

LOWER WEEDERBERG GROUP.
(SHALY AND UPPER PENTAM LIMESTONES.)
(GASTROPODA.)

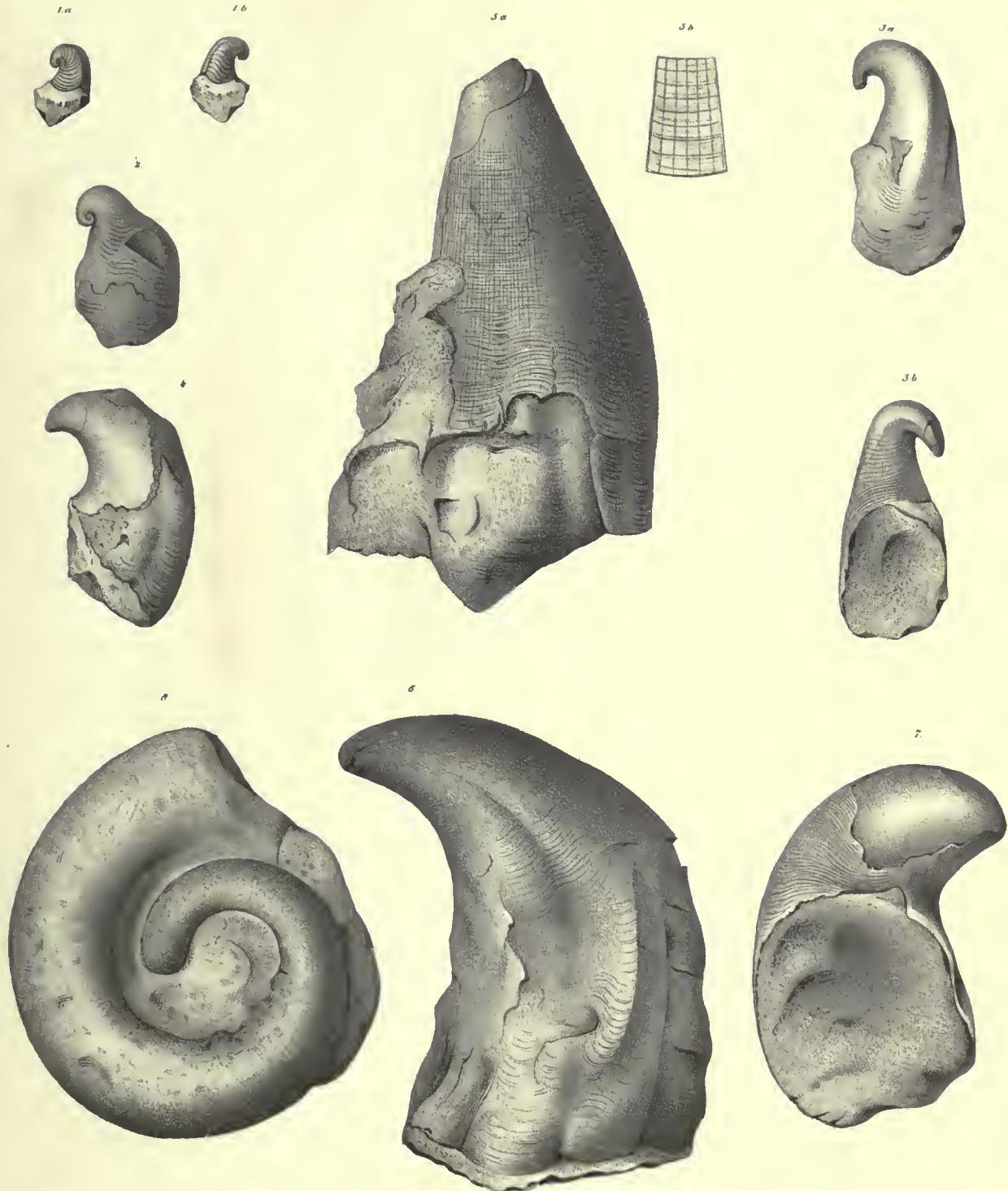




Figure 3. (Continued).

PLATE 66.

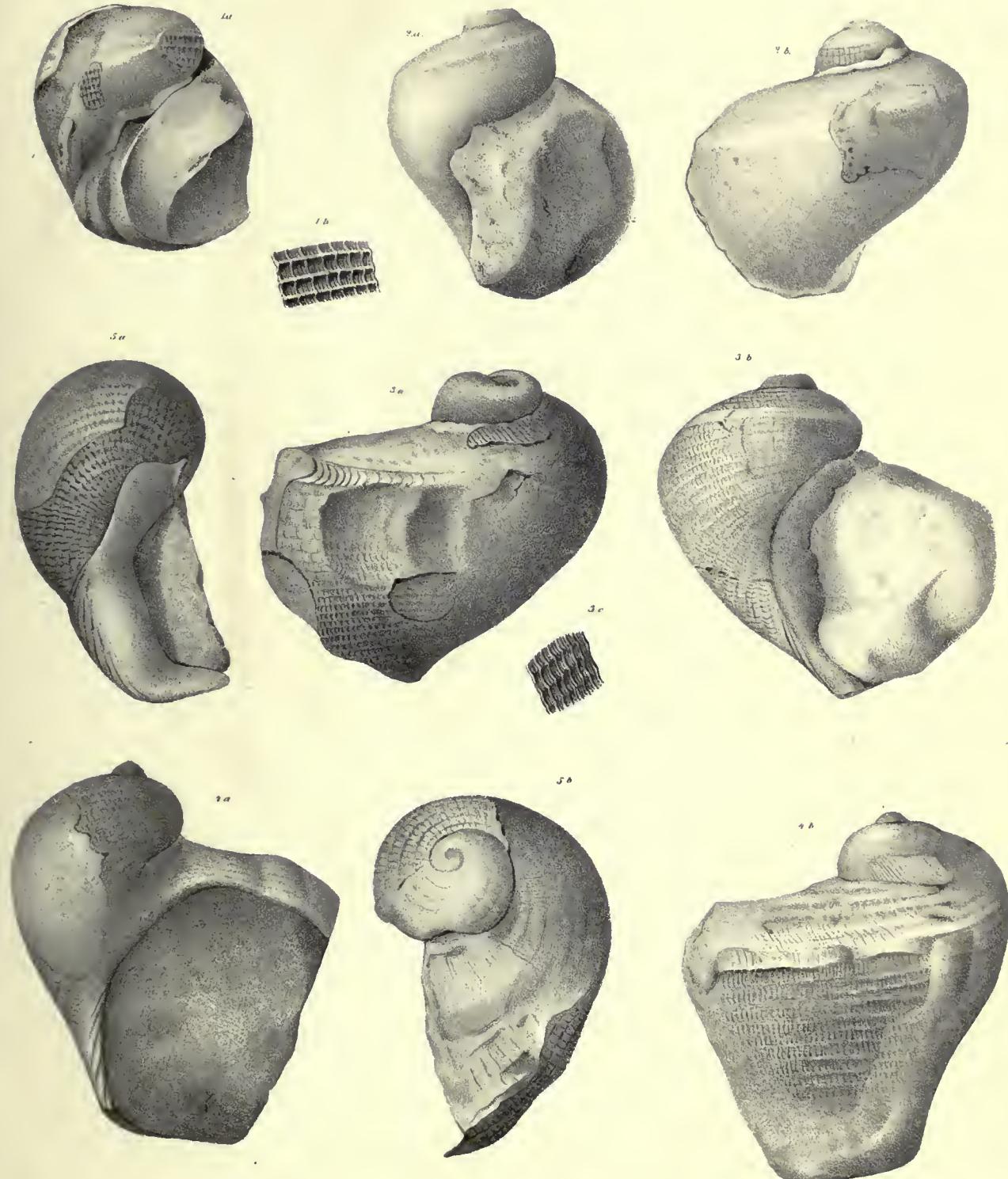
Fig. 1 - 5.

PLEUROTOMARIA LABROSA.

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- 1 a. An imperfect specimen from the Shaly limestone.
- 1 b. An enlargement of the surface of the same.
- 2 a. A cast of the same species : view of the aperture, which is filled with stone.
- 2 b. View of the exterior of the specimen.
- 3 a. The exterior of a specimen where the shell is mostly removed, showing the spiral band and the sinuosity in the peristome.
- 3 b. View of the aperture of the same, showing the thickened columellar lip.
- 3 c. An enlargement of the surface markings.
- 4 a, b. Two views of another individual, showing in one of the figures the thickened lip, which, on the upper side, extends as far as the marginal sinus.
- 5 a, b. Two views of a crushed specimen, showing in one of the figures the externally thickened columellar lip.

Upper Pentamerus Limestone.
(GASTROPODA.)



December 1

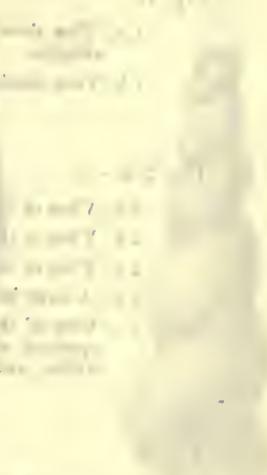
Wet weather continues & continues

From Tammam Gharbi



6. STPI

Wet weather continues



100%

100%

Wet weather continues & continues



Wet weather continues & continues

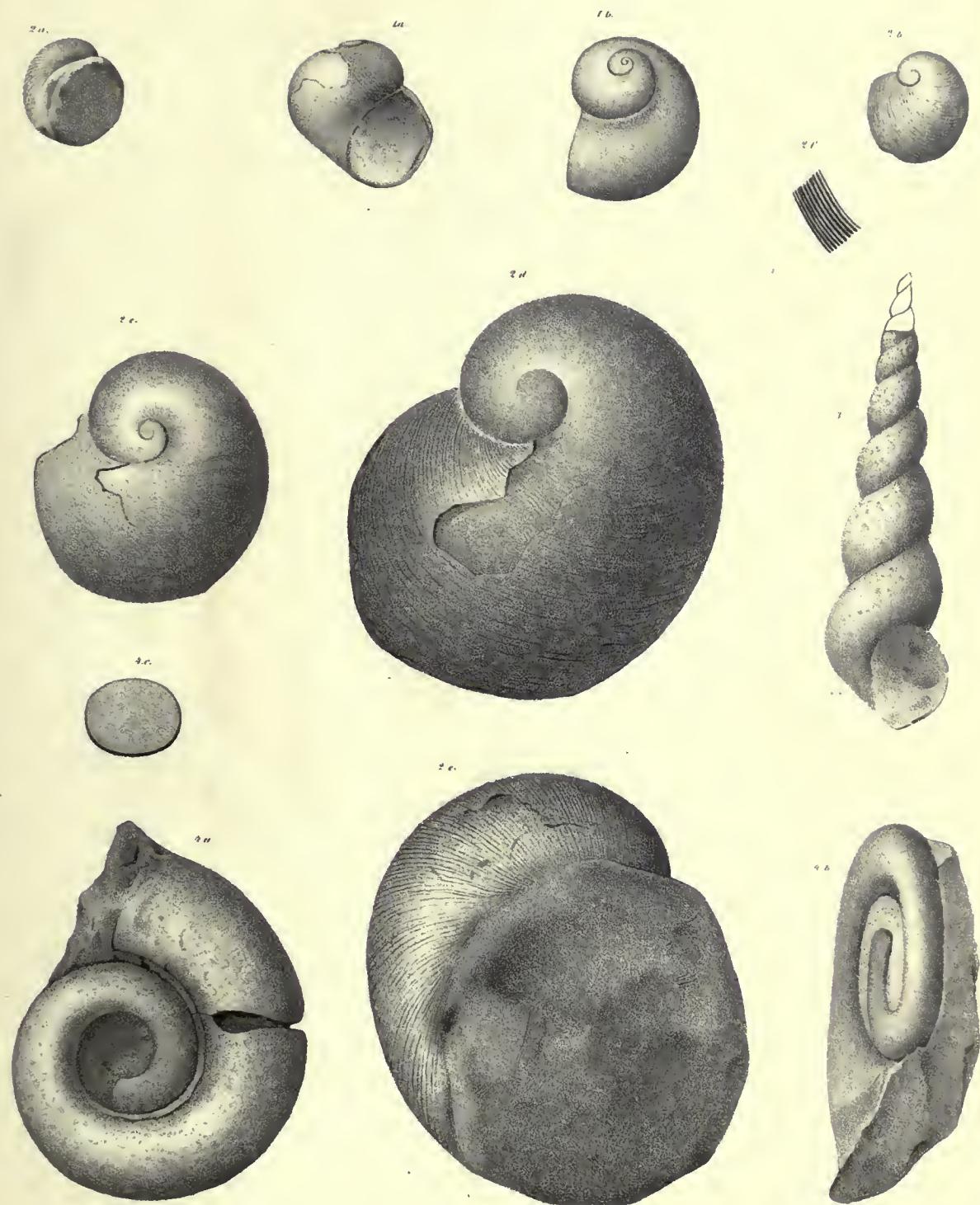
Wet weather continues & continues

PLATE 67.

	Page
Fig. 1. <i>STROPHOSTYLUS OBTUSUS.</i>	305
1 <i>a.</i> View showing the aperture with the obtuse spire, which is barely visible above the second volution.	
1 <i>b.</i> View looking upon the spire.	
Fig. 2 <i>a – e.</i> <i>STROPHOSTYLUS FITCHI.</i>	306
2 <i>a.</i> View of the aperture of a young shell.	
2 <i>b.</i> View of the spire of the same, which preserves but two distinct volutions.	
2 <i>c.</i> View of the spire of a larger specimen.	
2 <i>d.</i> A large individual in which the apex of the spire is covered by stony matter.	
2 <i>e.</i> View of the aperture of the same. A careful removal of a portion of the stone from the aperture, since this figure was drawn, has shown the columellar margin, the spiral groove within, and the thickened ridge or callosity beyond.	
Fig. 3. <i>LOXONEMA ATTENUATA.</i>	296
3. A cast of the interior, preserving eight volutions.	
Fig. 4. <i>EUOMPHALUS DISJUNCTUS.</i>	340
4 <i>a.</i> The lower side of a cast of this species.	
4 <i>b.</i> Profile view of the same.	
4 <i>c.</i> Transverse section at the point of fracture shown in fig. 4 <i>a.</i>	

Upper Pentamerus Limestone.

(GASTROPODA.)



100
100

100 100

(a) *Leucania luteolella* (L.) (Pyralidae) -
Female. *L. luteolella* is a small pyralid moth with a wingspan of about 25 mm. The forewings are yellowish-green with a distinct blackish brown patch near the apex. The hindwings are yellowish-green with a few small black spots. The body is light brown with dark brown markings on the abdomen.

PLATE 68.

Fig. 1, 2, 3.

BUCANIA PROFUNDA.

Page
341

- 1 a. Dorsal view of a cast, in which the expanded peristome is shown upon the surface of the stone.
- 1 b. Lateral view of the same. The representation of the volutions is incorrect.
- 2 a. A small specimen in which the expanded portion is broken off.
- 2 b. Lateral view of the same.
- 3 a. A specimen having a part of the outer volution broken off.
- 3 b. The umbilicus, showing three volutions.
- 3 c. Dorsal view of the same, showing an obscure carination.

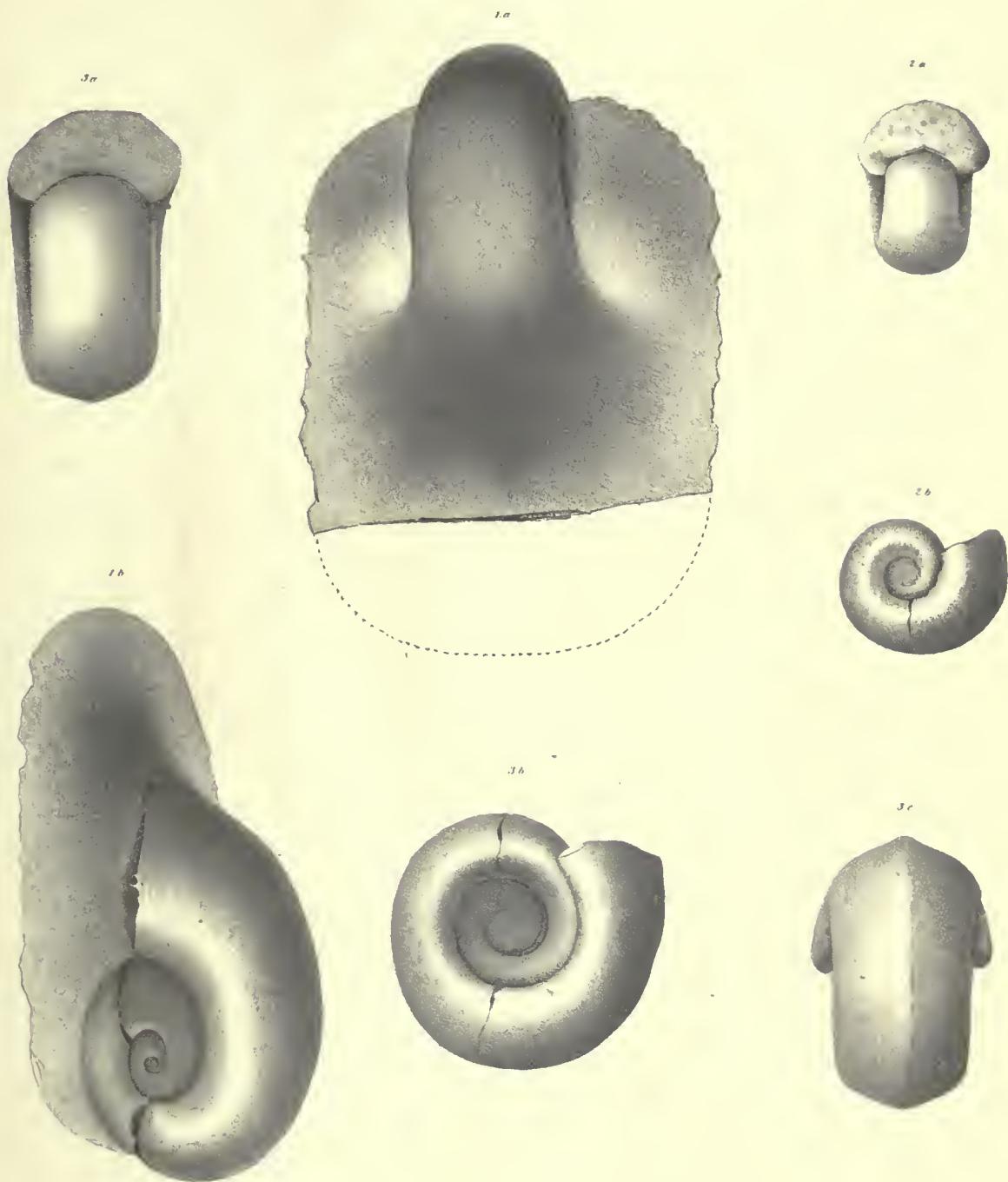
LOWER HELDIEBINGE GROUP.

Palaeont. N.Y. Vol. 3.

(UPPER PENTAMERUS LIMESTONE.)

(GASTEROPODA.)

Pl. 68.



13

20.2.19

[unclear]

24.3

(21.1.1.2.2.2.2.2.2)

2.3.1

[unclear]

25.3

(21.1.1.2.2.2.2.2.2)

2.3.1

[unclear]

26.3

(21.1.1.2.2.2.2.2.2)

2.3.1

[unclear]

27.3

(21.1.1.2.2.2.2.2.2)

2.3.1

[unclear]

PLATE 69.

Fig. 1. *EUOMPHALUS SINUATUS.* Page
340

- 1 *a.* The lower side of an imperfect specimen, where the umbilicus is filled with stony matter.
1 *b.* The upper side of a larger specimen, the apex of which is imperfect.

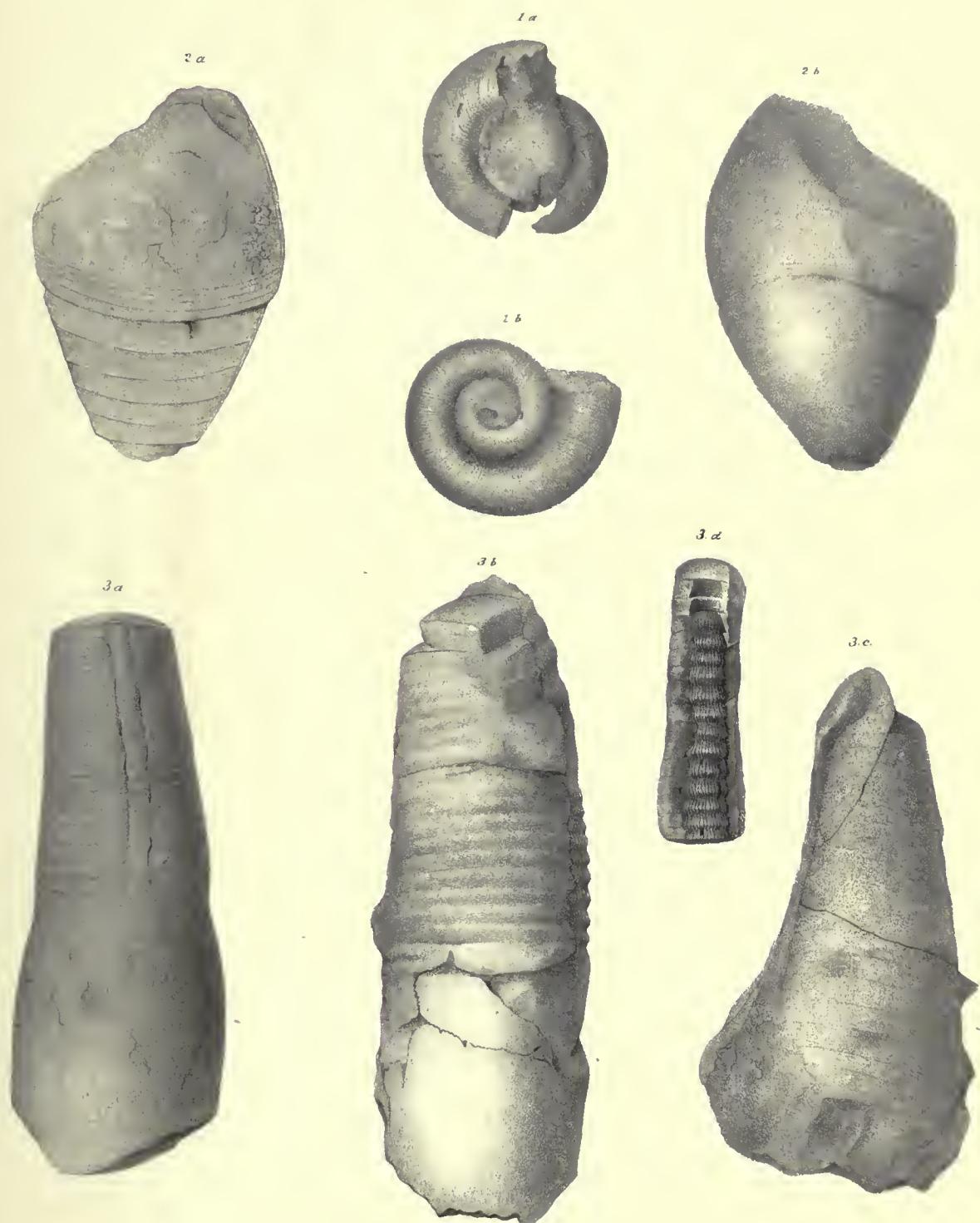
Fig. 2. *ONCOCERAS OVOIDES.* 342

- 2 *a.* A longitudinal section of the specimen, showing the crowded septa near the outer chamber.
2 *b.* The exterior of the cast of the same specimen.

Fig. 3 *a - d.* *CYRTOCERAS SUBRECTUM.* 342

- 3 *a.* A cast preserving a part of the outer chamber and about twenty septa. The back is somewhat worn, so that the form of the siphuncle is seen.
3 *b.* Lateral view of a fragment of a larger individual, showing the cast of the interior of the siphuncle.
3 *c.* A smaller individual, lateral view. The apparent rapid attenuation above is due to compression of the lower part of the specimen.
3 *d.* A portion of the cast of the siphuncle, with the filling between the adjacent septa.

LOWER HELDIERBERG GROUP

(Tentaculite Limestone.)
(CEPHALOPODA, etc.)

at 376.0

(approximately 1000 feet above sea level)

the upper part of the valley floor is composed of sand and gravel derived from the bedrock, and the lower part of the valley floor is composed of alluvium derived from the bedrock and talus derived from the bedrock.

According to the map (Figure 10)

(approximately 1000 feet above sea level)

the upper part of the valley floor is composed of sand and gravel derived from the bedrock, and the lower part of the valley floor is composed of alluvium derived from the bedrock and talus derived from the bedrock.

PLATE 70.

Fig. 1.

ORTHOERAS LONGICAMERATUM.

Page
343

1. The siphuncle has been filled with crystalline matter, and the swollen portions are concave above and beneath, indicating a thickening of the septum at its junction with the narrower parts of the siphuncle. Some remains of the septa are still perceptible.

Fig. 2.

ORTHOERAS — (sp. undetermined).

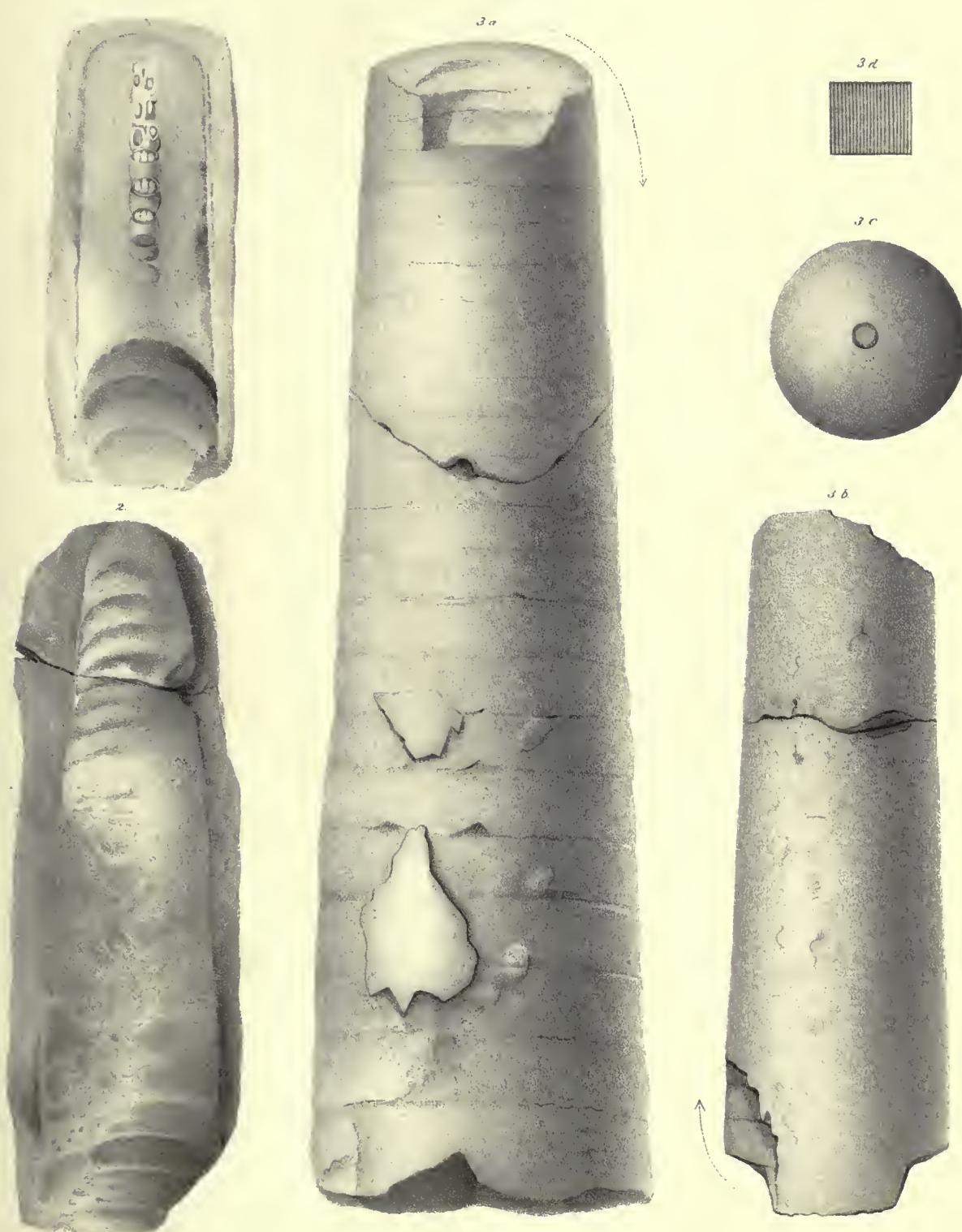
Fig. 3 *a - d.*

ORTHOERAS RIGIDUM.

344

- 3 *a.* A fragment of this species, having the shell almost entirely removed.
- 3 *b.* A continuation of the same specimen.
- 3 *c.* Transverse section, as shown in the line of fracture of fig. 3 *b.*
- 3 *d.* Enlargement of the striae. The position of the figure represents the striae in the reverse of their natural relation, which is horizontal.

LOWER HELDERBERG GROUP
(*Pentamerus* Limestone etc.)
(CEPHALOPODA.)



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PLATE 71.

		Page
Fig. 1 & 5.	<i>ORTHOCEAS LONGICAMERATUM.</i>	343
	1. A fragment of a large specimen preserving a part of the outer chamber, with about fourteen of the first chambers.	
	5. A longitudinal section of a specimen, apparently of the same species, the septa being proportionally a little more distant.	
Fig. 2.	<i>ORTHOCEAS SUBTEXTILE.</i>	344
	2. The specimen, natural size.	
Fig. 3.	<i>ORTHOCEAS — ? Undetermined.</i>	345
Fig. 4.	<i>ORTHOCEAS CLAVATUM.</i>	345
	4. A fragment, preserving a part of the outer chamber and several of the septa above.	



Lith of R H Pease, Albany



PLATE 72.

		Page
Fig. 1.	<i>ORTHOCEAS TENUIANNULATUM.</i>	345
1.	A fragment, natural size.	
Fig. 2.	<i>ORTHOCEAS HELDERBERGIAE.</i>	345
2.	A specimen of this species, showing some remains of septa.	
Fig. 3.	<i>ORTHOCEAS PERSTRIATUM.</i>	346
3.	A fragment preserving a part of the outer chamber and several of the chambers above, from which the shell is partially exfoliated.	
Fig. 4.	<i>ORTHOCEAS RUDIS.</i>	346
4 a.	The fragment, somewhat flattened from pressure.	
4 b.	A section showing the subcentral position of the siphuncle.	
Fig. 5.	<i>ORTHOCEAS PAUCISEPTUM.</i>	346
5 a.	A fragment of this species. The lower chamber is cut longitudinally, to show the place of the siphuncle.	
5 b.	Transverse section, showing the eccentric position of the siphuncle.	



On Stone by F. J. Swinton.

Lith. of R. H. Pease, Albany.

• 100 •

² See also the discussion of the relationship between the two concepts in the section on "The concept of 'cultural capital'".

VOLUME 1

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PLATE 72 A.

* * By error, this plate is referred to in the text as Plate LXXII A.

	Page
Fig. 1 a, b, c.	CONULARIA PYRAMIDALIS.
	347
1 a.	A compressed specimen preserving a smooth convex apex. Of two similar specimens, one has an apparent perforation in the apex.
1 b.	A broken specimen, which preserves the quadrangular form of the shell.
1 c.	Enlargement of the surface as it usually appears under a lens.
Fig. 2 a, b.	CONULARIA HUNTIANA.
	348
2 a.	Figure of a compressed specimen, from which the apex has been broken.
2 b.	An enlargement of the surface, showing the double transverse ridge.
Fig. 3 a, b, c.	CONULARIA LATA.
	479
3 a, b.	A figure from a cast made in the mould of the shell represented on Plate CXI, and the same enlarged.
3 c.	An enlargement from a cast made in the imprint left in the stone, at one of the angles of the shell, showing an unusual lateral compression of the nodes, a feature shown in some degree upon all specimens.
Fig. 4.	CONULARIA DESIDERATA (n. s.).
	480
	(CONULARIA — ? Text, p. 480.)
4.	A fragment near the apex, enlarged. So far as can be discovered, this species has never been marked by longitudinal ridges or nodes, the transverse ridges being smooth and continuous.

LOWER HELDERBERG GROUP.
 &
 ORISKANY SANDSTONE.

(PTEROPODA.)



277.17



PLATE 73.

	Page
Fig. 1 - 4. BRONTEUS BARRANDI.	350
1. The pygidium of the natural size. (The specimen is imperfect, and the figure is completed from a cast of the impression in stone.)	
2. The impression of the same.	
3. Profile of the same.	
4. Enlargement of the surface, showing the undulating striae and minute granulations.	
Fig. 5 - 7. PROETUS PROTUBERANS.	351
5. The head of this species.	
6. A fragment preserving the head and part of the thorax.	
6 a. Lateral view of the same.	
7. The pygidium of another individual.	
7 a. Profile of the same.	
Fig. 9 - 13. HOMALONOTUS VANUXEMI.	352
9. A fragment of the thorax of a specimen of medium size.	
10. The pygidium of a small specimen.	
11. Profile view of the same.	
12. The pygidium of a large individual.	
13. An enlargement of the surface.	
NOTE. The differences in the two specimens of the pygidium here figured induce a doubt of their specific identity : the distinctly trilobate character of the smaller specimen contrasts strongly with the larger one, in which the lobes and annulations are less distinctly marked, while the extremity has been much more extended. The smaller form may be regarded as the typical form of <i>H. vanuxemi</i> ; while the larger one may perhaps prove a distinct species, or at least a strongly marked variety.	
The fragment of the thorax figured is very much flattened upon the back; and though its relations are not determinable, it appears more nearly related to the smaller than to the larger pygidium. It will require better materials for the satisfactory determination of these species.	
Fig. 15 - 25. PHACOPS LOGANI.	353
15. An entire specimen which has the head compressed from above, and the eyes a little distorted.	
16. View of a specimen which is enrolled.	
17. The head of a larger individual which shows the transverse furrows, and preserves the eyes in their proper form.	
18. A larger head, which has few pustules in the space between the eye and the dorsal furrow.	
19. Front view of fig. 17.	
21. View of the lower side of the head of another specimen, showing some crenulations along the marginal furrow.	
22. The lower side of a specimen in which the granulation is worn from the surface of the glabella, and showing the line of the hypostomal suture.	
23. The eye enlarged.	
24. A portion of the eye, from which the lenses have been removed by weathering.	
24 a. An enlargement of a portion of the eye.	
25. The hypostoma.	
Fig. 26, 27, 28. PHACOPS HUDSONICUS.	355
26. The head of this species.	
27. Profile of the same.	
28. The eye enlarged.	

Correction for description on page 355. HEAD semielliptical : length greater than half the width; posterior angles extended and abruptly rounded. Cheeks broad triangular, produced behind.

(CRUSTACEA)

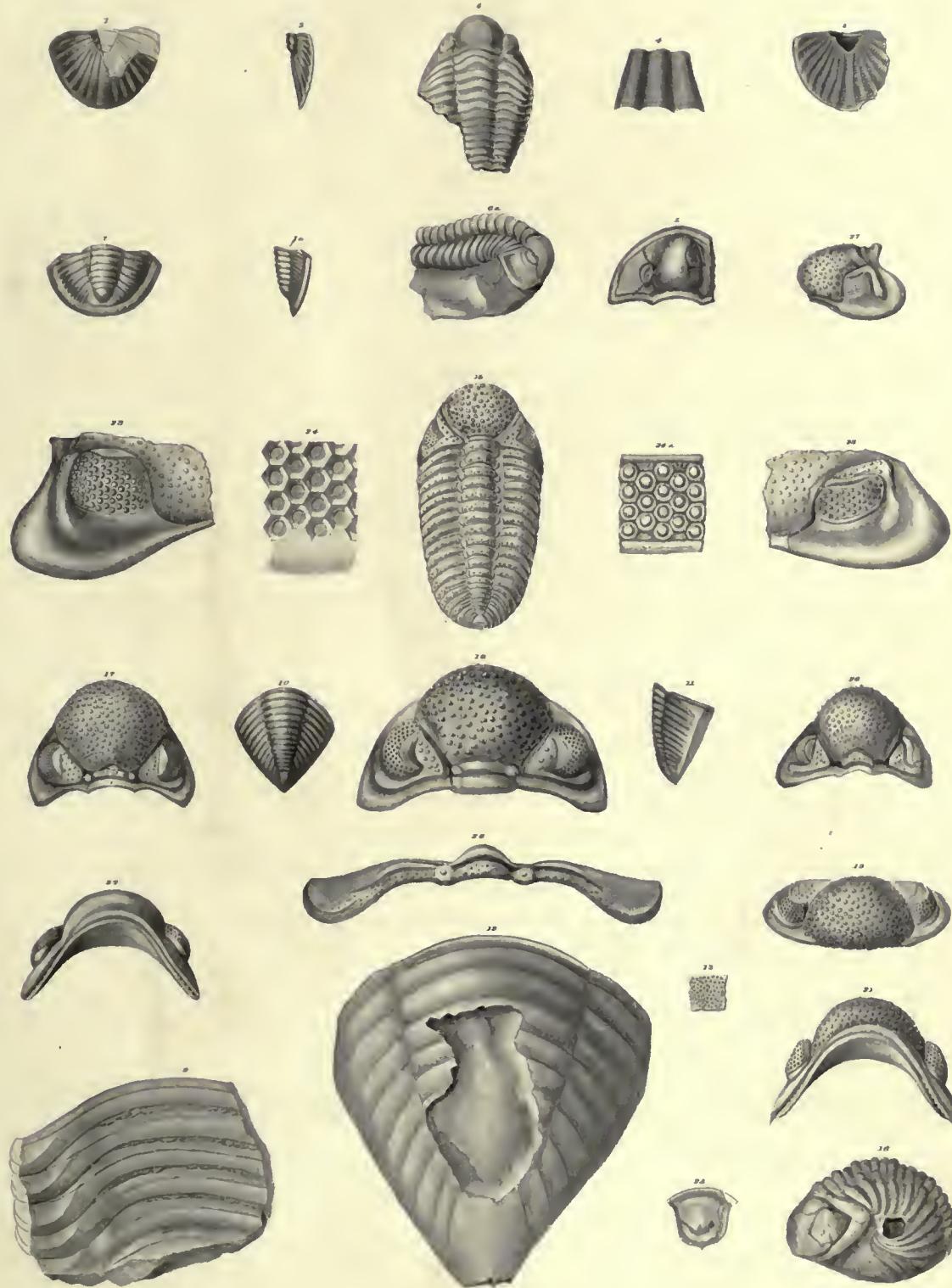


PLATE 74.

Fig. 1 - 12. DALMANIA PLEUROPTYX. 356

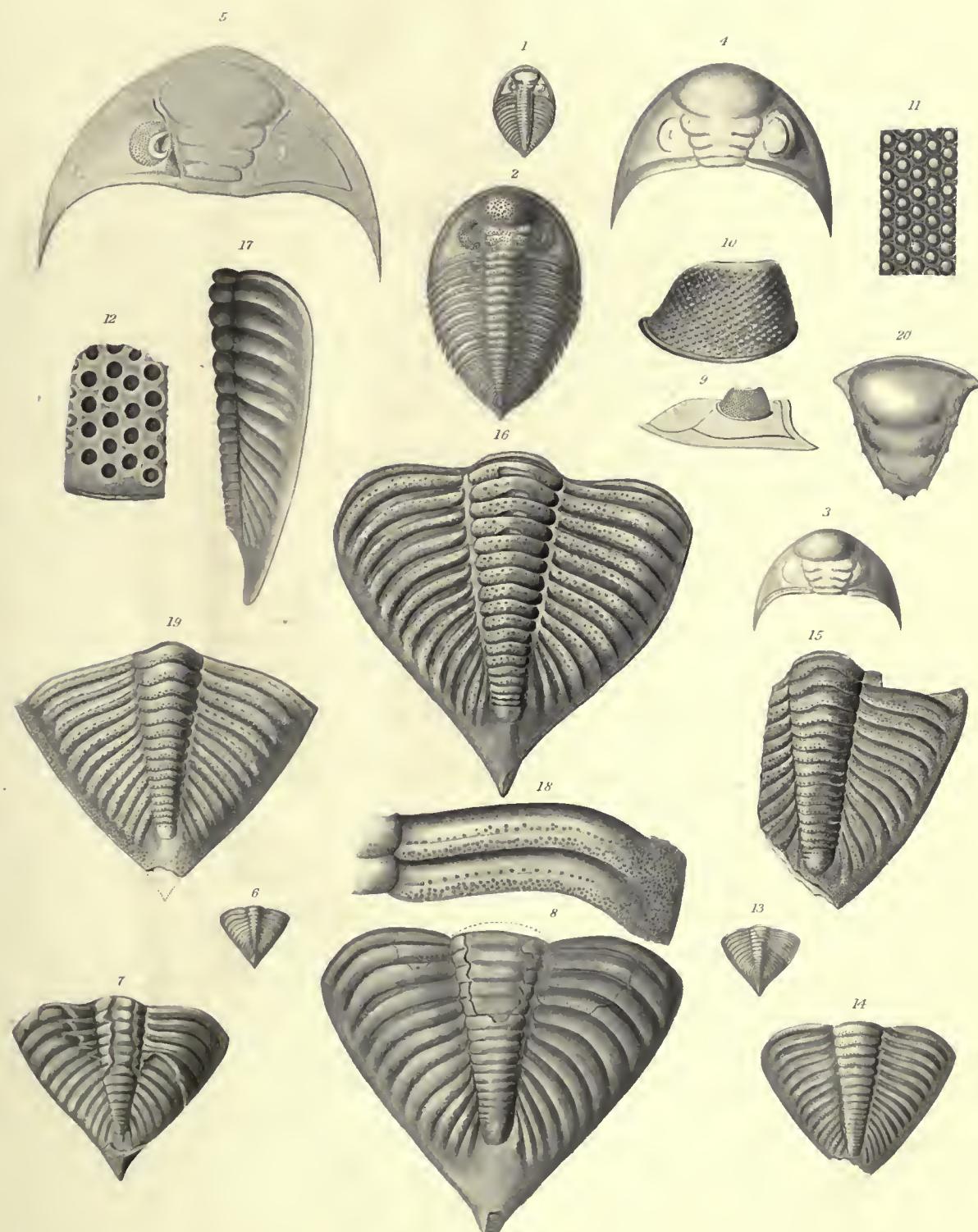
1. A young specimen which is extremely flattened.
2. The same enlarged, showing more distinctly the characteristic features of the species.
- 3 & 4. The head of a young and of a half-grown individual, which are probably of this species.
5. The original preserves the central portion of the head, with one eye nearly entire. The posterior angles are completed from another specimen.
6. The pygidium of a young specimen.
7. The pygidium of a larger individual.
8. A larger individual in which seventeen annulations are distinctly visible in the axis (and an eighteenth is very faintly indicated), and thirteen ribs in each lateral lobe.
9. Profile of the head, showing the form and elevation of the eye.
10. The eye enlarged.
11. A portion of the surface still farther enlarged.
12. A magnified portion of the eye, where the lenses have been removed by weathering.

Fig. 13 - 20. DALMANIA MICRURUS. 359

13. The pygidium of a young specimen, contrasting with fig. 6 in the number of annulations of the axis and ribs in the lateral lobes.
14. A small pygidium having fifteen ribs on each lateral lobe, and twenty annulations of the axis.
15. A fragment of a similar pygidium, on which the test is very perfectly preserved.
16. A larger pygidium from which the test has been removed, leaving the cast punctate.
17. Profile view of the same.
18. An enlargement to show the surface markings, from fig. 15.
19. The pygidium of a medium-sized specimen, showing some variation in form.
20. The hypostoma probably of this species. The crust has been removed from the central portion.

LOWER HELDERBERG GROUP.

CRUSTACEA



STYLIS

THE STYLIS GROUP

The Stylis group is represented by two distinct forms based on the presence or absence of a prominent, elongated, and slightly curved process, the stylus, which extends from the ventral surface of the head.

STYLIS STYLIS

Stylis stylis is a small (0.40 mm) amphipod with a broad, oval body and a deeply notched

4.50

STYLIS STYLIS

Stylis stylis is a small (0.40 mm) amphipod with a broad, oval body and a deeply notched

4.50

STYLIS STYLIS

Stylis stylis is a small (0.40 mm) amphipod with a broad, oval body and a deeply notched

4.50

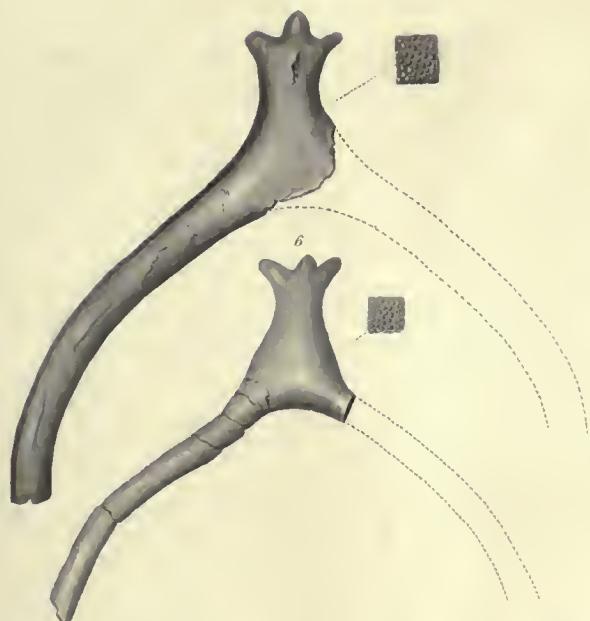
PLATE 75.

	Page
Fig. 1.	DALMANIA PLEUROPTYX.
	356
1.	The specimen is a cast preserving a part of the head, the axis and one lateral lobe of the thorax, and a part of the pygidium. From the condition of the specimen, it cannot be positively referred to this species, though there can be little doubt of its identity.
Fig. 2.	DALMANIA NASUTUS.
	362
2.	The inner side of the crust of a pygidium, showing the thickened border and a part of the posterior spine.
Fig. 3 - 6.	DALMANIA TRIDENS.
	361
3.	The underside of a portion of the head, showing the cavity of one eye and the extension of the frontal process.
4.	A fragment of the lower surface, showing the marginal limb on one side and the frontal process. The abruptness of the junction of the process with the marginal limb, as represented in the figure, is due to an imperfection in the specimen at that point.
5 & 6.	Fragments of the marginal limb and the frontal process from the lower side, with portions of the surface enlarged.

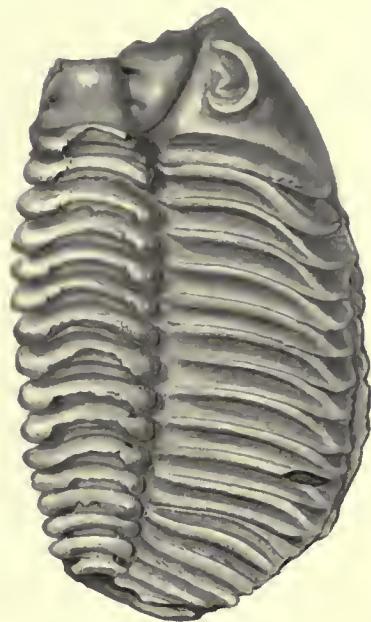
LOWER HELDERBERG GROUP.

(CRUSTACEA)

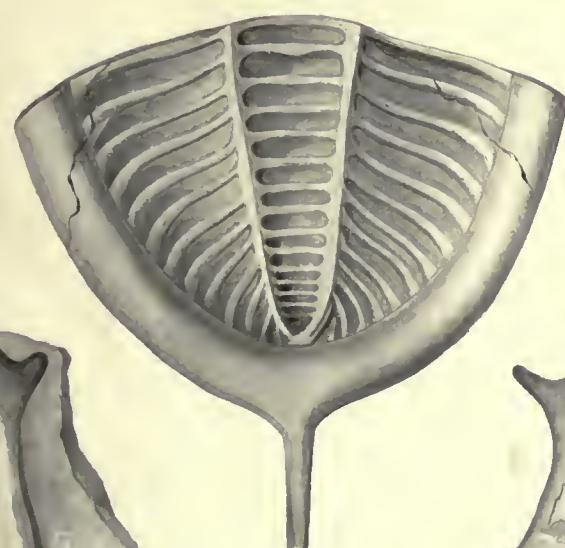
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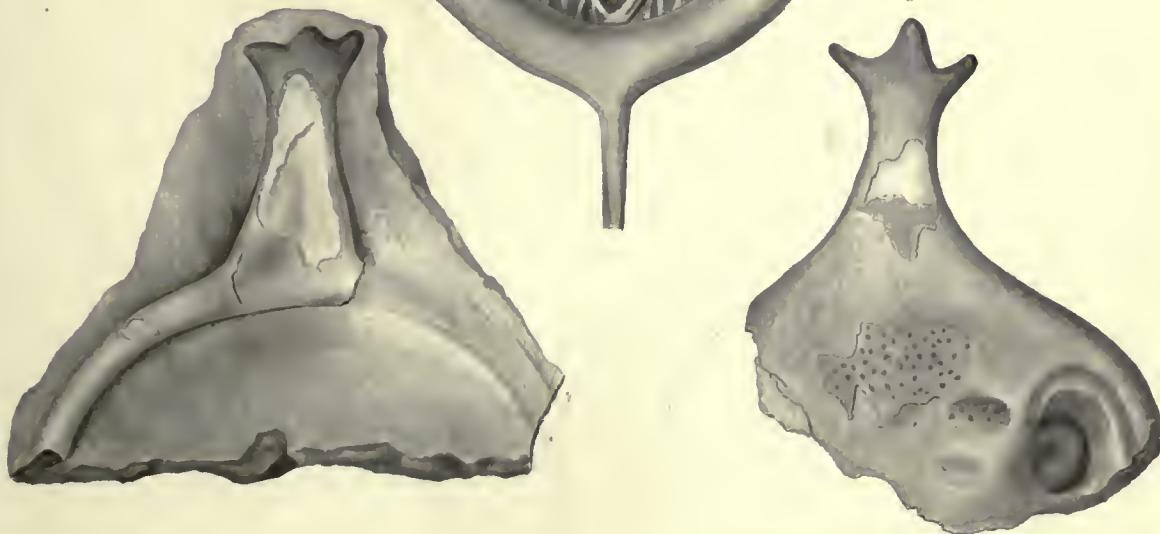
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2



3



BY STEPHEN

—JOURNAL OF ANALYSIS

—A new Journal of literary, historical, and scientific subjects, published monthly, containing original articles, and a variety of interesting matter, intended for the general reader, and for those who are desirous of improving their knowledge of the world, and of the progress of science. It will be published at the end of every month, and will contain from 12 to 15 pages of text, and a few illustrations. It will be sold at the price of one dollar per volume, or one dollar and twenty-five cents per number. It will be published at the end of every month, and will contain from 12 to 15 pages of text, and a few illustrations. It will be sold at the price of one dollar per volume, or one dollar and twenty-five cents per number.

PLATE 76.

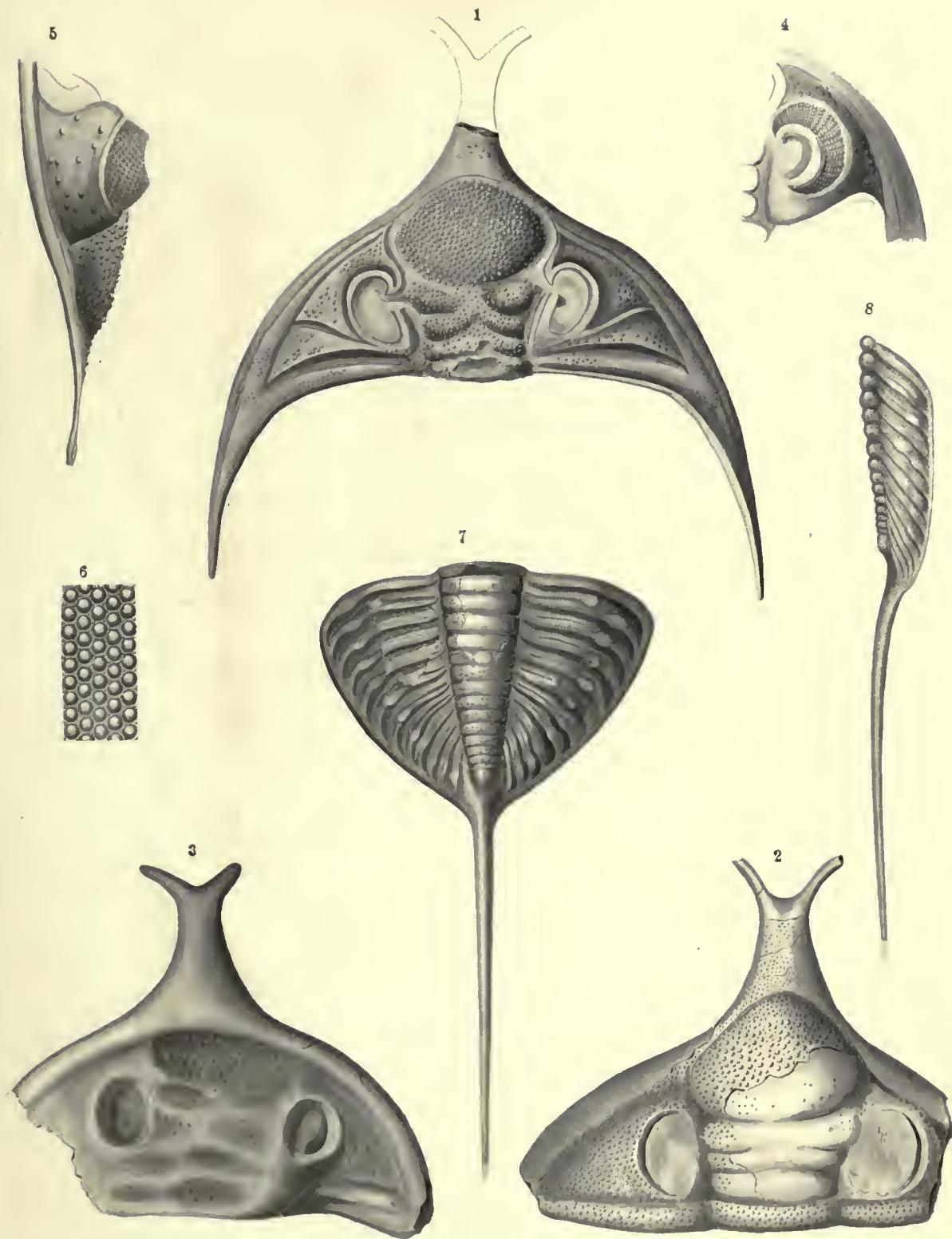
Fig. 1 - 8.

DALMANIA NASUTUS.

Page
362

1. The head of a specimen, natural size. The frontal process is broken off; and the continuation, as represented, is drawn from fig. 2.
2. An imperfect head preserving the glabella (which is distorted by pressure), the bases of the eyes, and the frontal process. The extremities of the bifurcation are broken off, and their true extent is not known.
3. The underside of the test of the head, preserving the anterior border and the frontal process.
4. The eye and part of the cheek, from another specimen.
5. Profile view of the same, with the posterior portion extended.
6. A portion of the eye-surface enlarged, showing the lenses and the rounded grains between.
7. The pygidium, showing the elongate caudal spine.
8. Profile view of the same.

(CRUSTACEA)



AT HOME

DOMESTIC SCENES

—A collection of sketches of scenes at home, with short incidents from the author's life.

—A collection of sketches of scenes at home, with short incidents from the author's life.
—A collection of sketches of scenes at home, with short incidents from the author's life.
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DOMESTIC SCENES

—A collection of sketches of scenes at home, with short incidents from the author's life.
—A collection of sketches of scenes at home, with short incidents from the author's life.

PLATE 77.

Fig. 1 - 8.

LICHAS BIGSBYI.

Page
364

1. Profile view of an imperfect head. The median lobe of the glabella is not represented as sufficiently prominent.
2. View of the upper side.
3. Anterior view, showing the elevation of the median lobe and the frontal limb. The surface is represented as too coarsely pustulose.
4. View of the upper side of the head of another individual. The median lobe of the glabella is not sufficiently narrowed in its posterior part. The surface markings in this figure present the prevailing feature.
5. The median and anterior lateral lobes of the glabella of a larger specimen, which is somewhat depressed.
6. Profile view of the same.
7. The hypostoma.
8. A part of the pygidium of this species.

Fig. 9 - 11.

LICHAS PUSTULOSUS.

366

9. A portion of the head, showing the median and anterior lateral lobes of the glabella.
10. Lateral view of the same.
11. A fragment of the pygidium, showing a part of the axis and the ribs on one side.

CRUSTACEA /

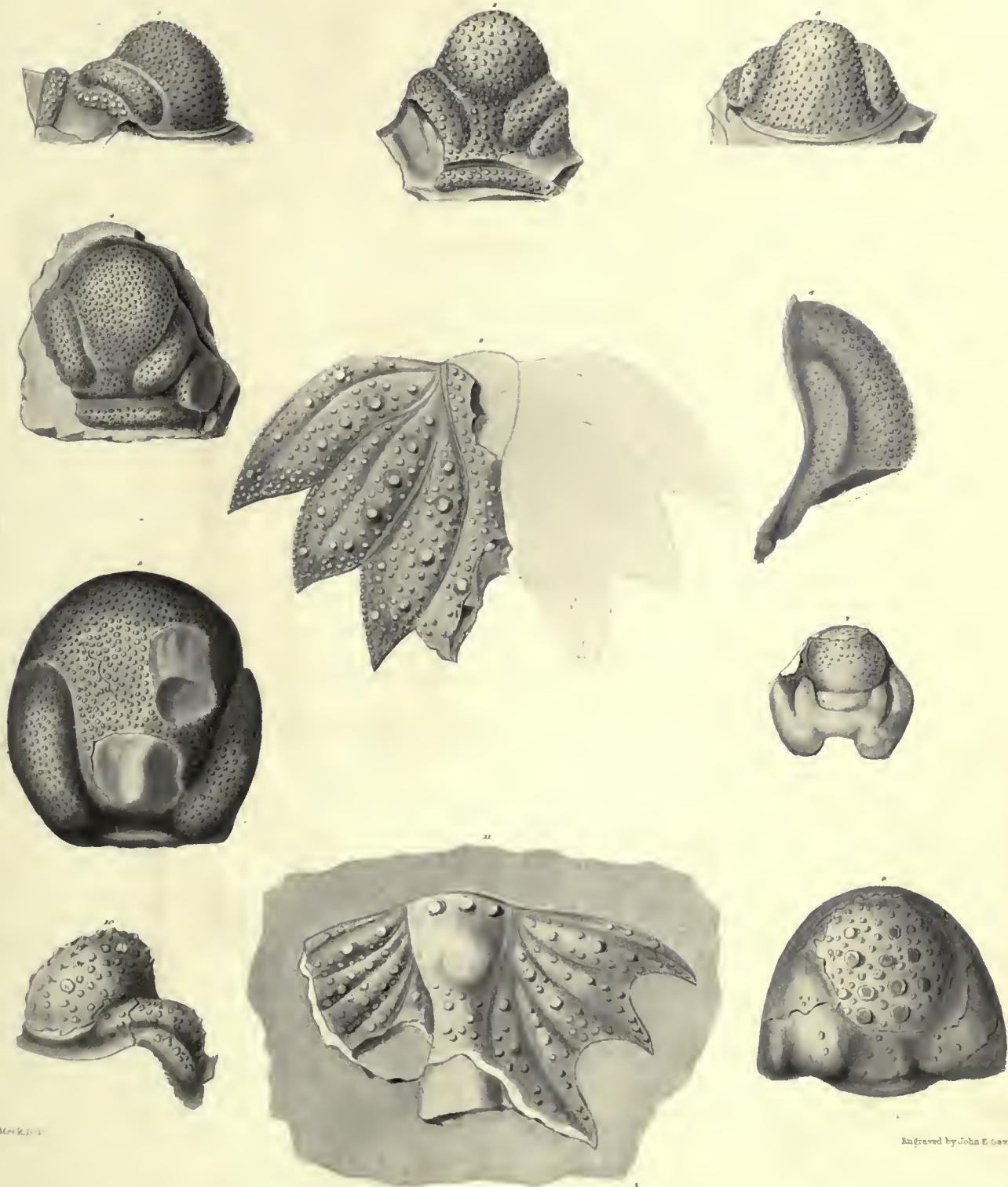


PLATE 78.

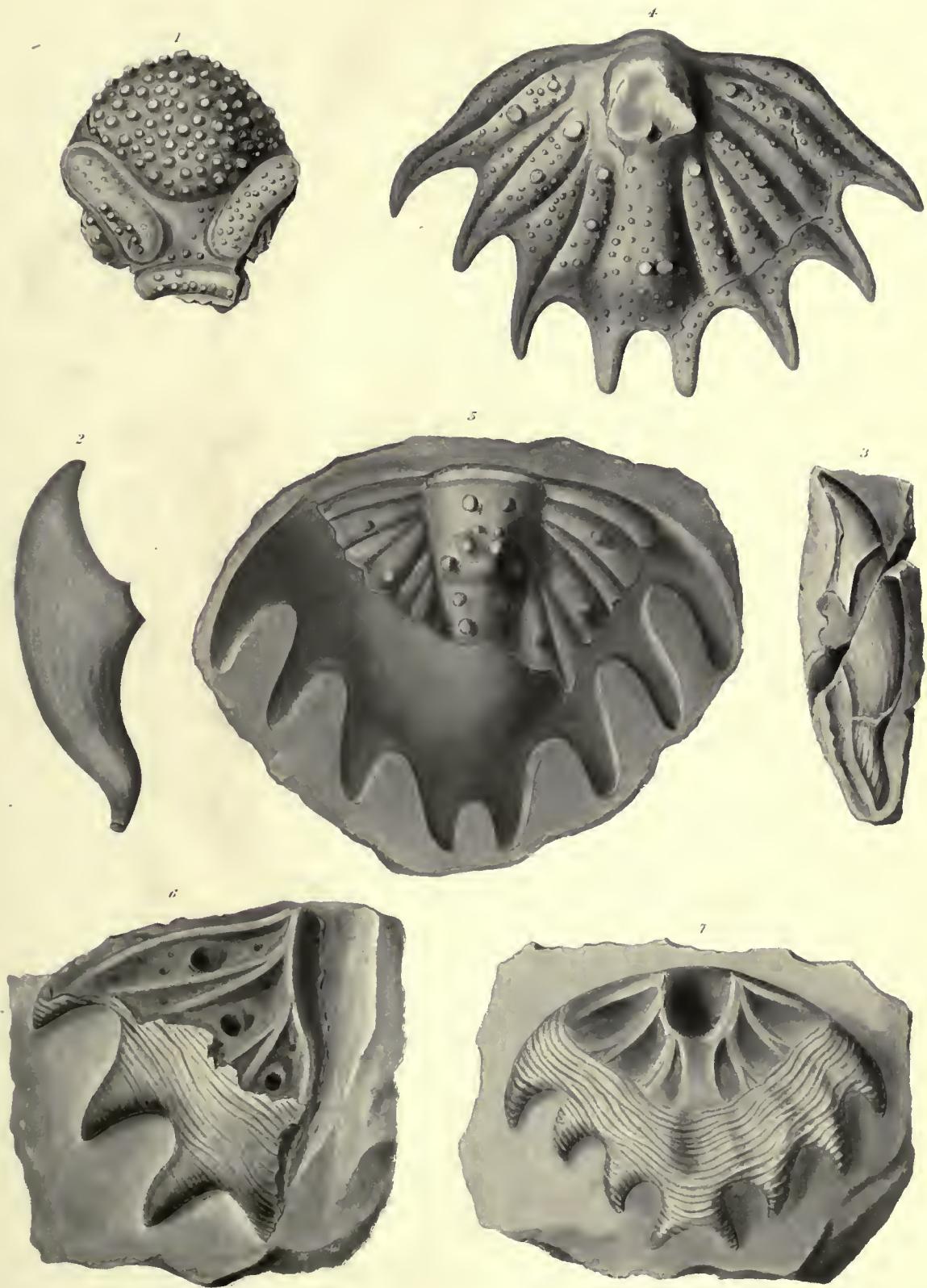
Fig. 1 - 7.

LICHAS PUSTULOSUS.

Page
366

1. A part of the head, showing the median lobe and anterior lateral lobes of the glabella, the occipital furrow and annulation. The specimen has been crushed, and some parts of it are incorrectly represented.
- 2 & 3. Fragments showing the lower side of what appear to have been the movable cheeks.
4. The pygidium, which is nearly entire in all its parts, except the protuberance and the spines at the extremity of the axis, which are broken off. The short spines towards the posterior extremity are, in this specimen, a little on one side of the centre.
5. A fragment of the pygidium, where the posterior part of the axis is extremely prominent, and the bases of the principal and smaller lateral spines are preserved. The continuation of the ribs is preserved only in outline.
6. The underside of a part of the pygidium, showing the thickened border, the sharp elevations separating the ribs, and those marking the furrow upon them. The round pits indicate the bases of the large tubular spines, which ornament the surface with some regularity.
7. The lower side of a pygidium, showing the broad thickened border and the deep cavity made by the protuberance at the extremity of the axis. The bifurcations of the central lobe are more diverging than usual, but this feature is accidental in the specimen.

(CRUSTACEA)



6. STAFF

6.1. STAFF ANALYSIS

Concern about staff at the beginning of the project was primarily centered on the need for staff to be involved in the planning process, and the potential for staff to be involved in the implementation process.

As a result, staff were recruited to participate in the planning process, and the implementation process.

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6.2. STAFF ANALYSIS

6.2.1. STAFF

Concern about staff at the beginning of the project was primarily centered on the need for staff to be involved in the planning process, and the potential for staff to be involved in the implementation process.

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PLATE 79.

Fig. 1 - 14. ACIDASPIS TUBERCULATUS. Page
368

1. View of a specimen preserving the members in connexion; but the fossil being imbedded in a hard stone, the condition does not admit of the parts being shown in detail.
- 1 a. The counterpart of fig. 1, showing the extensions of the lateral spines and the form of the pygidium.
2. The central portion of the head, showing the lobes of the glabella, the frontal border, the occipital annulation, and the central posterior spine.
3. The central part of the head of another specimen.
5. A portion of the surface enlarged.
- 6 & 7. The right cheeks of two different individuals, preserving the eye tubercle, and showing differences in the exterior and inner spines.
8. The left cheek, which shows very distinctly, as do the others, the gradation of the border ornaments, from small nodes at the anterior extremity, to distinct spines.
- 8 a. A cheek, with the eye tubercle, enlarged.
- 9 & 10. The underside of two cheeks, one of which shows a single spine on the inside, and the other a single spine with the rudiments of two others above it.
11. An articulation of the thorax.
12. The underside of a part of the thorax, showing the extension of the lateral spines of the articulations.
13. The pygidium, in which the upper lateral spine is not fully developed.
14. The pygidium of another individual, showing the parts described.

Fig. 15 - 19. ACIDASPIS HAMATA. 371

15. A small individual preserving the central portion of the head and the occipital spine.
16. A larger individual.
17. Profile view, showing the recurved spines.
18. The bifurcating occipital spine of a larger individual.
19. A fragment of the thorax, and the pygidium, probably of this species.
- 19 a. A fragment of the thorax of a large individual, showing the prolongation of the lateral lobes into spines.

(CRUSTACEA)

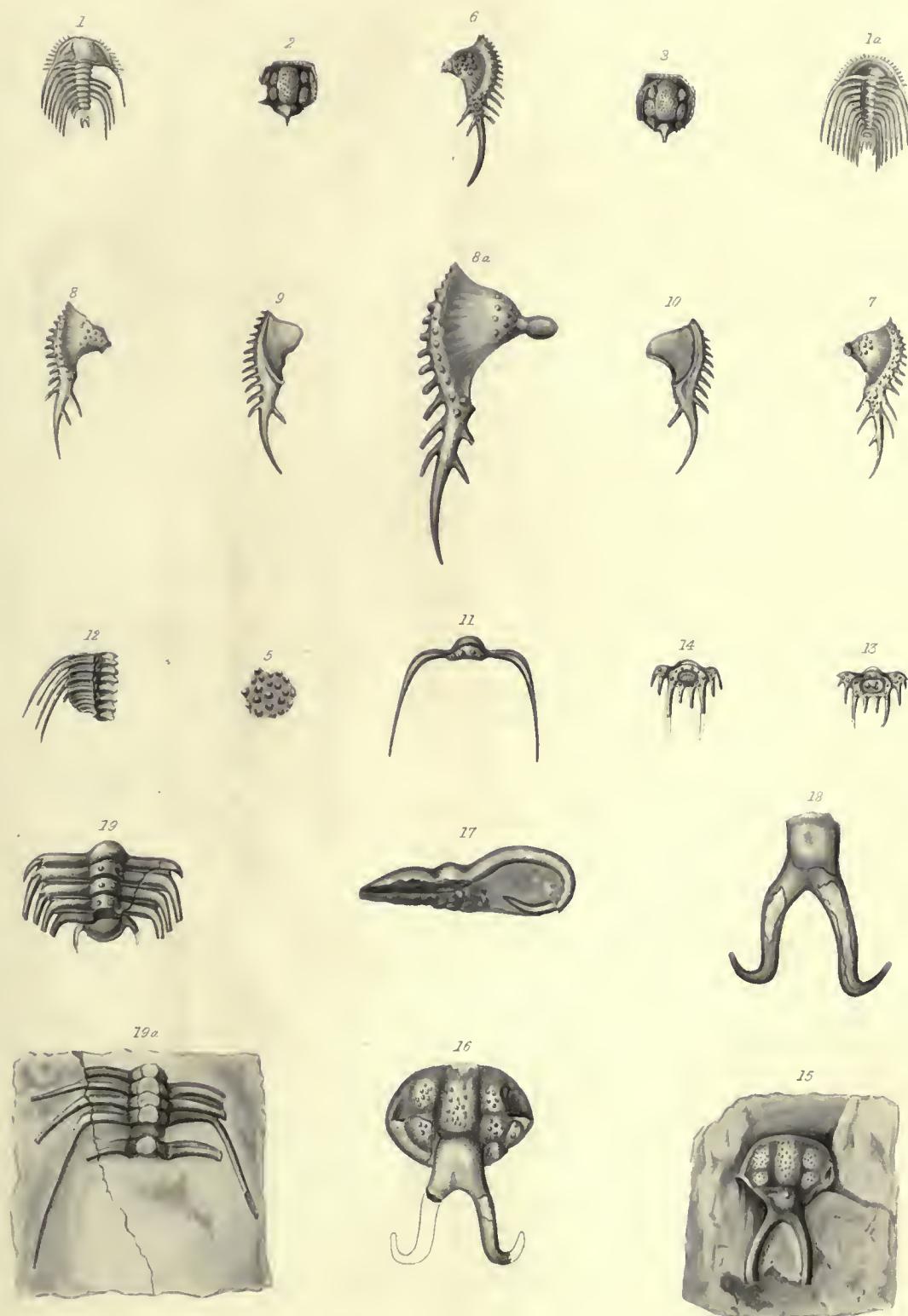


PLATE 80.

Fig. 1 - 13.

EURYPTERUS REMIPES.

Page
404*

1. A young individual, dorsal side.
2. A young individual, ventral side; showing the anterior feet, the postoral plate, with the articulations of all the parts nearly entire.
3. A young specimen, showing the upper side of the body, which is entire, except the posterior spine and a part of the anterior feet.
4. A large individual of nearly the full size to which this species attains, lying upon its back, and having the lower or ventral side of the articulation removed; showing therefore the inner side of the carapace, and the articulations of the thorax and the abdomen. The anterior feet are partially preserved, and the swimming feet are entire, the lower side being shown. At s , s is the line of the suture by which a triangular piece is attached to the sixth joint, forming the fixed ramus of the chela, and over the upper surface of which the free extreme joint moves. The articulation of these parts with the body is not clearly shown, from the incompleteness of the specimen, the parts to which they were attached having been removed.
5. An individual preserving more than usual convexity of body. The head and eyes are very perfect : the anterior feet are lost, but the swimming feet are well preserved in all their parts, and the indented extremities are strongly marked. In the contraction of the extreme joint, the fixed branch of the chela below is nearly covered. In comparing the swimming feet in figures 4 and 5, it will be observed that in the former the lower side, and in the latter the upper or dorsal side, is seen.
6. A small carapace preserving the eyes.
7. The abdominal articulations and the posterior spine, separated from the thoracic rings.
8. An imperfect caudal spine, with the last two articulations of the abdomen.
9. The caudal spine : a lateral view of a specimen not quite entire. The lefthand is the dorsal side, and the general form is triangular, becoming more convex on each side of the dorsal edge towards the base.
10. The ventral side of a fragment, showing, on the lefthand side of the figure at a , the articulations of one of the swimming feet, with the large maxillary joint, which is nearly in its natural position, while the opposite one is displaced. The basal articulations of the anterior feet are likewise seen more distinctly than in any other specimen : the first and second are broken off, while the third is nearly entire, and preserves the minute spines on the lower side of each joint.
11. A fragment showing the inner side of several of the thoracic articulations, and preserving the anterior feet nearly entire, with the articulations of one of the swimming feet : the place of attachment of these is obscured by some of the plates of the body below.
12. The post-oral plate of this species.
13. An enlargement of the centre of the head of fig. 5, showing the small oculiform spots.

(CRUSTACEA)



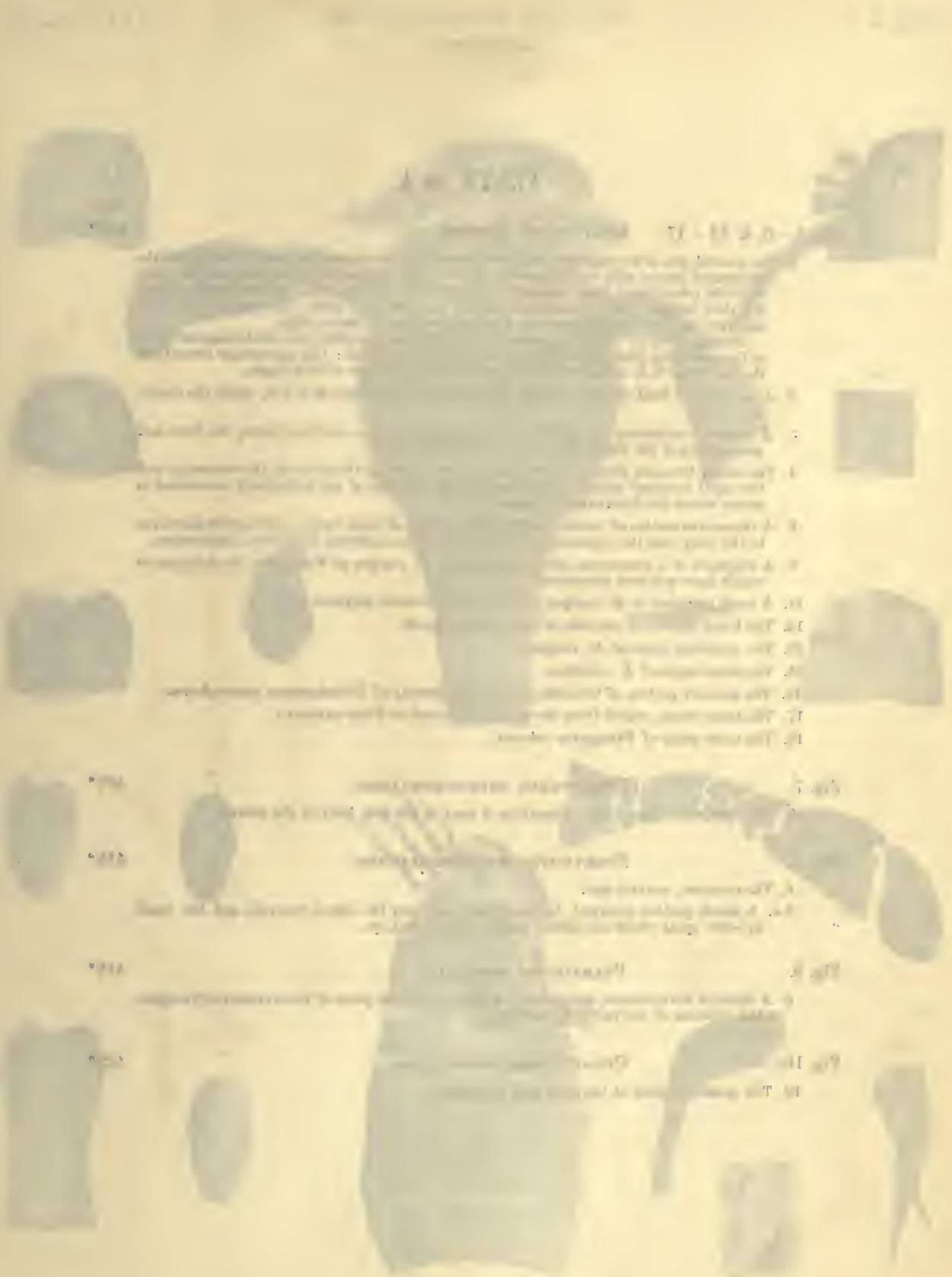


PLATE 80 A.

Fig. 1 – 6, & 11 – 17. EURYPTERUS REMIPES.

Page
404*

1. The ventral side of an imperfect specimen preserving the thoracic segments and four of the abdominal joints, with the impression of one of the swimming feet entire, and the other with the penultimate joint separated. Impressions of the maxillary plates remain, showing their original form, as also the form of the post-oral plate. The bases of the four anterior pairs of feet still remain, showing the place of their origin.
The last joint of the foot appears in this individual to slide over the triangular piece of the preceding joint upon the lower side, which is not true : this appearance arises from the fact that it is a mould of the upper or dorsal surface of this organ.
2. A part of the head of this species, showing part of the three first feet, while the fourth is entire.
3. A dissected swimming foot, showing its attachment to the maxillary plate, the form and proportions of the joints, and mode of articulation.
4. The broad terminal joint of the swimming foot, showing the notch at the extremity and the small terminal palette. These separated joints are of not unfrequent occurrence in strata where the *Eurypterus* is found.
5. A transverse section of the abdominal portion of one of these fossils : the section is oblique to the body, and the appearance indicates that it has suffered little from compression.
6. A fragment of a crustacean associated with the *E. remipes* at Waterville, the relations of which have not been determined.
11. A small carapace of *E. remipes*, with the first thoracic segment.
12. The lower surface of one side of the cephalic shield.
13. The post-oral plate of *E. remipes*.
14. The same organ of *E. robustus*.
15. The anterior portion of the same organ (a fragment) of *Dolichopterus macrocheirus*.
17. The same organ, copied from the specimen figured on Plate LXXXIII A.
16. The same organ of *Pterygotus osborni*.

Fig. 7. EURYPTERUS MICROPHTHALMUS.

407*

7. The carapace, natural size, preserving a part of the first joint of the thorax.

Fig. 8. PTERYGOTUS MACROPHTHALMUS.

418*

8. The carapace, natural size.
- 8 a. A small portion enlarged, to show more distinctly the oblong tubercle, and the small eye-like spots which are faintly visible to the naked eye.

Fig. 9. PTERYGOTUS OSBONI.

419*

9. A figure of the specimen, natural size. A reference to the parts of *Eurypterus* will explain the relations of the parts of this figure.

Fig. 10. CERATIOCARIS ACULEATUS.

422*

10. The posterior joint of the body and tail-spines.

WATERLIME GROUP.
(CRUSTACEA.)



PLATE 81.

Fig. 1 - 11.

EURYPTERUS LACISTRIS.

Page
407*

1. A young individual, preserving but one of the larger appendages on one side : the posterior spine is broken off near the distal extremity.
2. An individual of medium size, preserving all the articulations of the body, the fourth foot, and one of the swimming feet imperfect.

The specimen lies upon the stone with the back downward, and the crust from the lower side is almost wholly removed, so that the inner sides of all the parts are seen, and the cavities of the eyes. The last joint of the swimming foot is separated at the articulation *r*; and the suture at the base of the fixed ramus of the chela, which is naturally solid, is slightly separated *s*. The other joints are somewhat distorted by pressure, which has been directed from below upwards. On the right side of the figure, and on the last articulation, there are small portions of the ventral crust remaining. In this specimen, the interior of the crust being seen, the imbrication of the rings of the body is reversed.
3. The exterior of a head or earapace of a larger individual, which preserves the eyes.
4. The two posterior annulations of the body, with the caudal spine attached. The specimen lies with the dorsal side downwards; the ventral crust being removed from the annulations, and the lower concave side of the spine is shown.
5. A separated caudal spine, showing the lateral and lower sides. The specimen is much compressed.
6. The ventral side of the body, preserving nine of the segments : the two upper are joined by a close suture, and sustain a locomotive [?] appendage.
7. The upper thoracic segment separated from the body, and scarcely showing the suture line : the articulated appendage is imperfect.
8. A very large thoracic segment, showing the suture line and the appendage before mentioned, from which the lower articulations are separated. The continuation is drawn from the one shown in fig. 6.
9. A single articulation of the thorax. The line near the upper margin, including a portion which is broken off, indicates the extent of the imbrication of the next superior segment.
10. A part of a segment which is longitudinally divided ; a feature shown along the dorsal line in several articulations in another nearly entire individual. It is probable that this dehiscence of the rings along the back is connected with the process of casting the crust.
11. A portion of the surface of fig. 8 enlarged.

(CRUSTACEA)





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PLATE 81 A.

Fig. 1.

EURYPTERUS LACUSTRIS.

Page
407*

1. A large individual which is deprived of the appendages, except one dismembered swimming foot. The specimen is compressed, and the little pustule-like scales have the appearance of pores in the crust. [These have been very incorrectly represented in the drawing; there being but two rows, and these not parallel, on the six posterior joints, while the six rows are but indistinctly visible on a few of the thoracic segments.]

Individuals of this species frequently attain a larger size than this, as seen in other figures.

(CRUSTACEA)



27
28

29 30 31

32 33 34

PLATE 81 B.

Fig. 1 - 4.

EURYPTERUS LACUSTRIS.

Page
407*

1. A specimen of medium size, lying with the dorsal side exposed. The carapace has been broken off, showing the inner side of the maxillary plates, the post-oral plate, and the four anterior pairs of feet, which are obscured at their bases. The body is curved, and the tail-spine directed forwards. The pustuliform scales upon the back are in four rows on the thoracic joints, and two slightly diverging rows on the abdominal joints.
2. The last joint of the swimming foot, with the minute palette at the extremity.
3. The seventh joint of the swimming foot, having the triangular chelate extension separated at the suture.
4. The first articulation of the ventral side, with the organs attached.

(CRUSTACEA.)

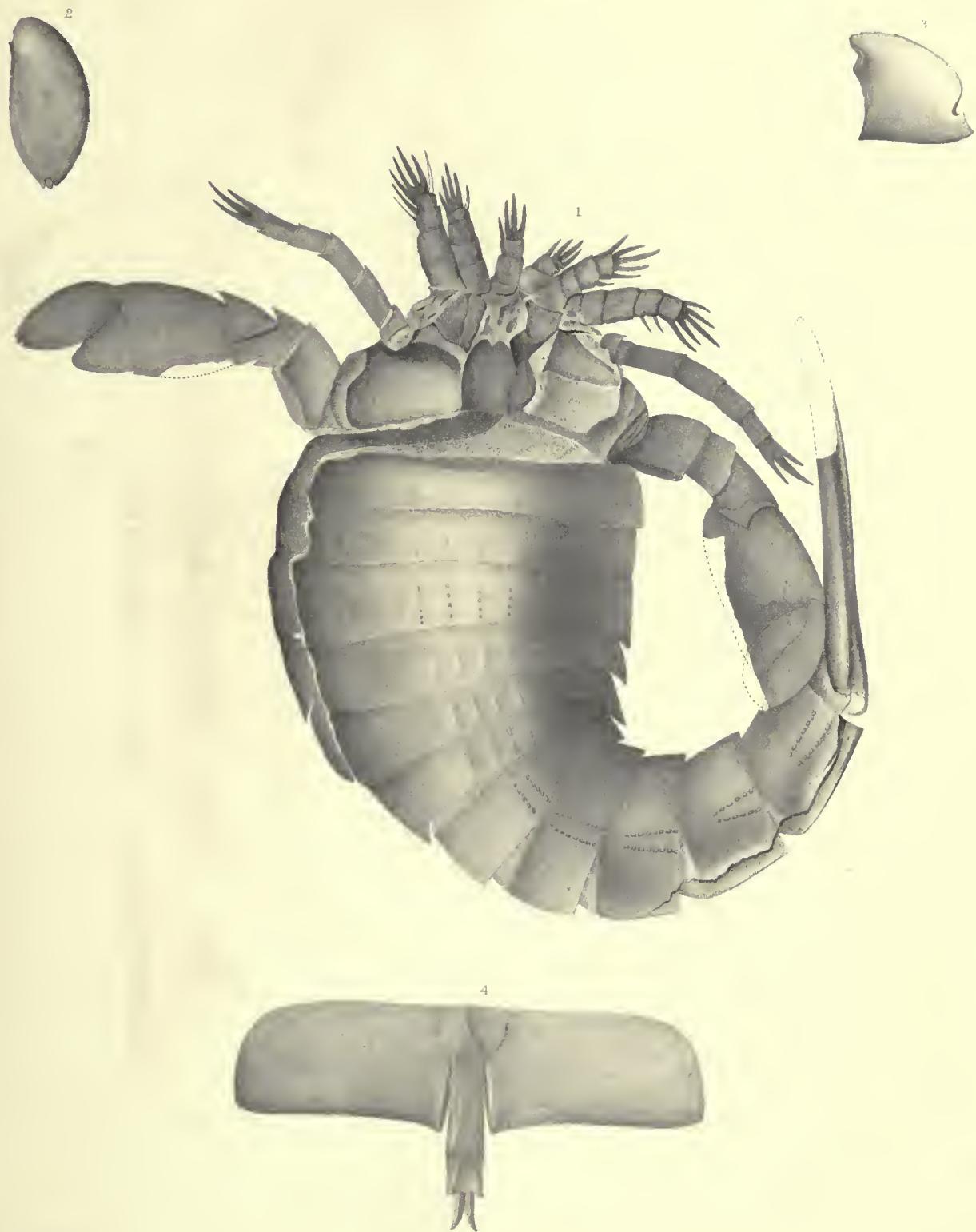


PLATE 81 C.

Fig. 1.

EURYPTERUS ROBUSTUS*.

Page
410*

1. View of the specimen from the lower side.
2. The ventral side of another specimen of this species, from the collection of Prof. J. S. GARDNER of Whitesboro' (N.York), showing more distinctly the fracture or dehiscence across the segments, indicating the specimen to have been a cast crust†.

* A farther examination, with other specimens, has shown that the form referred to *E. lacustris*, var. *robustus*, has the characters of a distinct species.

† Some copies are without this figure.

(CRUSTACEA.)

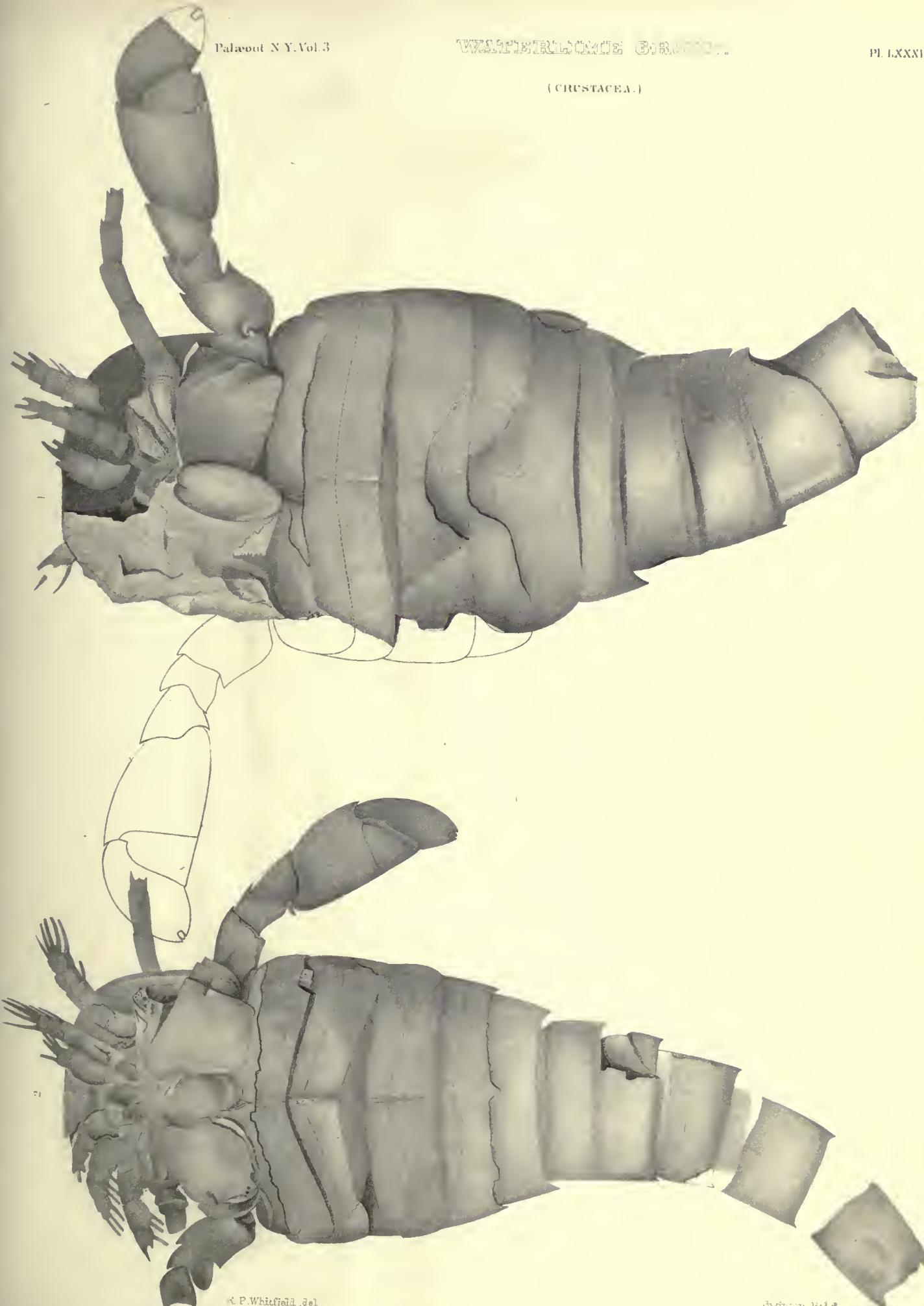


PLATE 82.

Fig. 1.

EURYPTERUS DEKAYI.

Page
411*

1. An individual, natural size, with the dorsal side upwards. One side has been broken off; and this portion, with the swimming foot, is restored in outline, the same organ on the left side being essentially entire. The upper part of the carapace and the first joints are removed, so as to show the maxillary plates, the postoral plate and the bases of the anterior feet, which are broken off so as not to extend beyond the margin of the carapace. The thoracic appendage is shown in its junction with the first ventral joint, and extending to the base of the fourth joint.

(CRUSTACEA.)





PLATE 82.*

Fig. 1 - 3.

EURYPTERUS PACHYCHEIRUS.

Page
412*

1. The body of an individual of this species, preserving eight or nine articulations of the thorax and abdomen. The surface is strongly marked by the scale-like facets, and the articulations are coarse and strong.
- 1 *a*. A portion of the crust enlarged, showing the surface markings.
2. A fragment of stone upon which are preserved two swimming feet, the ankylosed ventral thoracic segment, and some portions of the anterior feet. These appear to be the remains of a large individual, which has been brokeu up, and the parts separated. The swimming foot 2 *a* shows the lower side, and the joints are partially separated; and fig. 2 *b* shows the lower side of the other foot, also in a reversed position.
- 2 *c* is the fragment of one of the anterior feet, and fig. 2 *d* is the same placed in a natural position : the length of the spines is a very characteristic feature.
- 2 *e* is the ankylosed first and second segments on the ventral side, preserving the thoracic appendage. The specimen is worn, and the line of suture is scarcely perceptible.
3. A separate swimming foot, preserving the five outer joints.

* PLATE LXXXII. This plate should properly have been Plate LXXXII A; but the letter A has been accidentally omitted both in the text and on the plate.

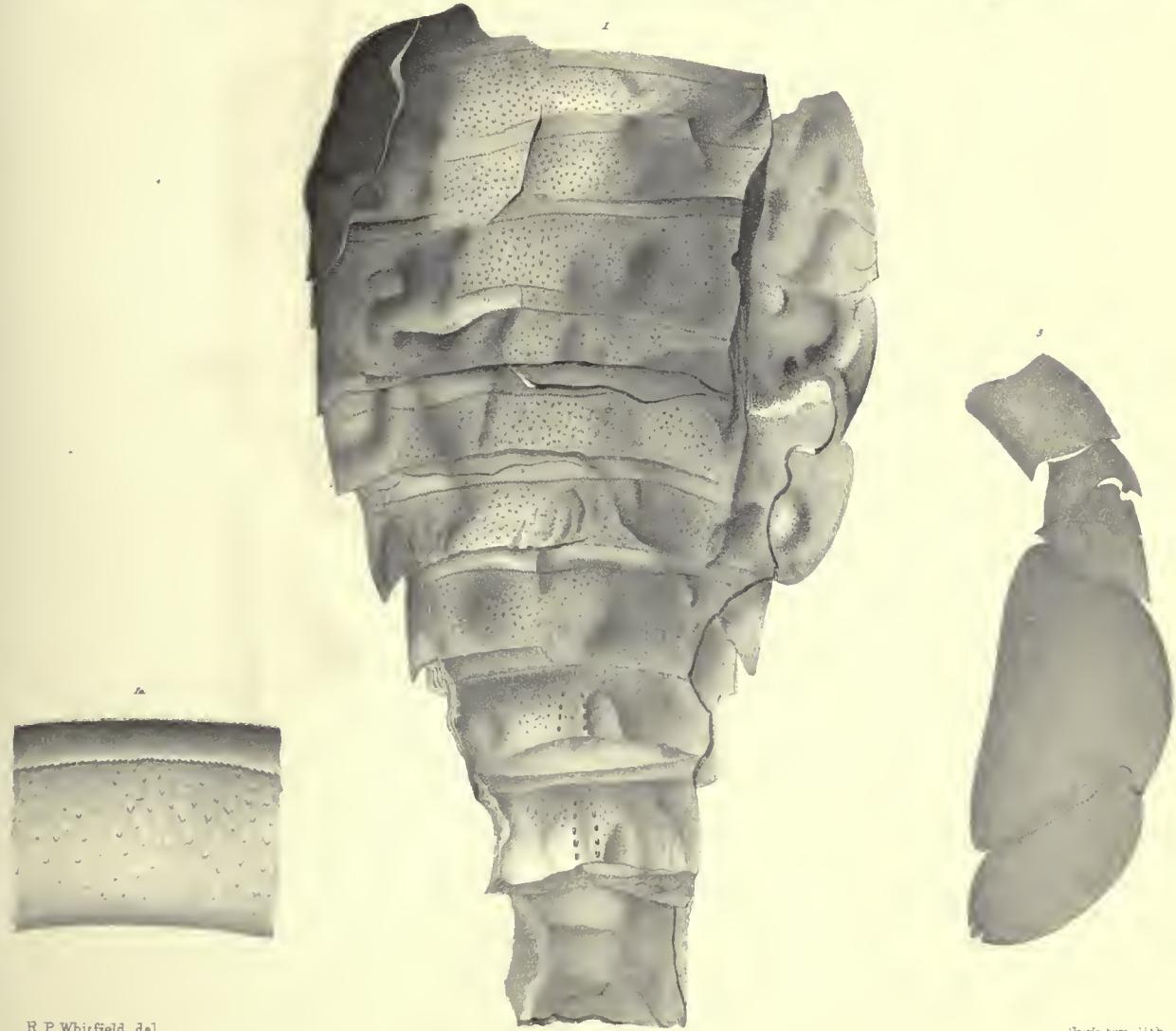




PLATE 83.

Fig. 1.

DOLICHOPTERUS MACROCHEIRUS.

Page
414*

1. The dorsal side of the specimen, preserving ten joints and a part of the eleventh joint of the body.



PLATE 83 A.

Fig. 1.

DOLICHOPTERUS MACROCHEIRUS.

Page
414*

1. The ventral side of the specimen as it lies on the surface of the stone.

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WATERLIME GROUP.
(CRUSTACEA.)

PL 83 A.

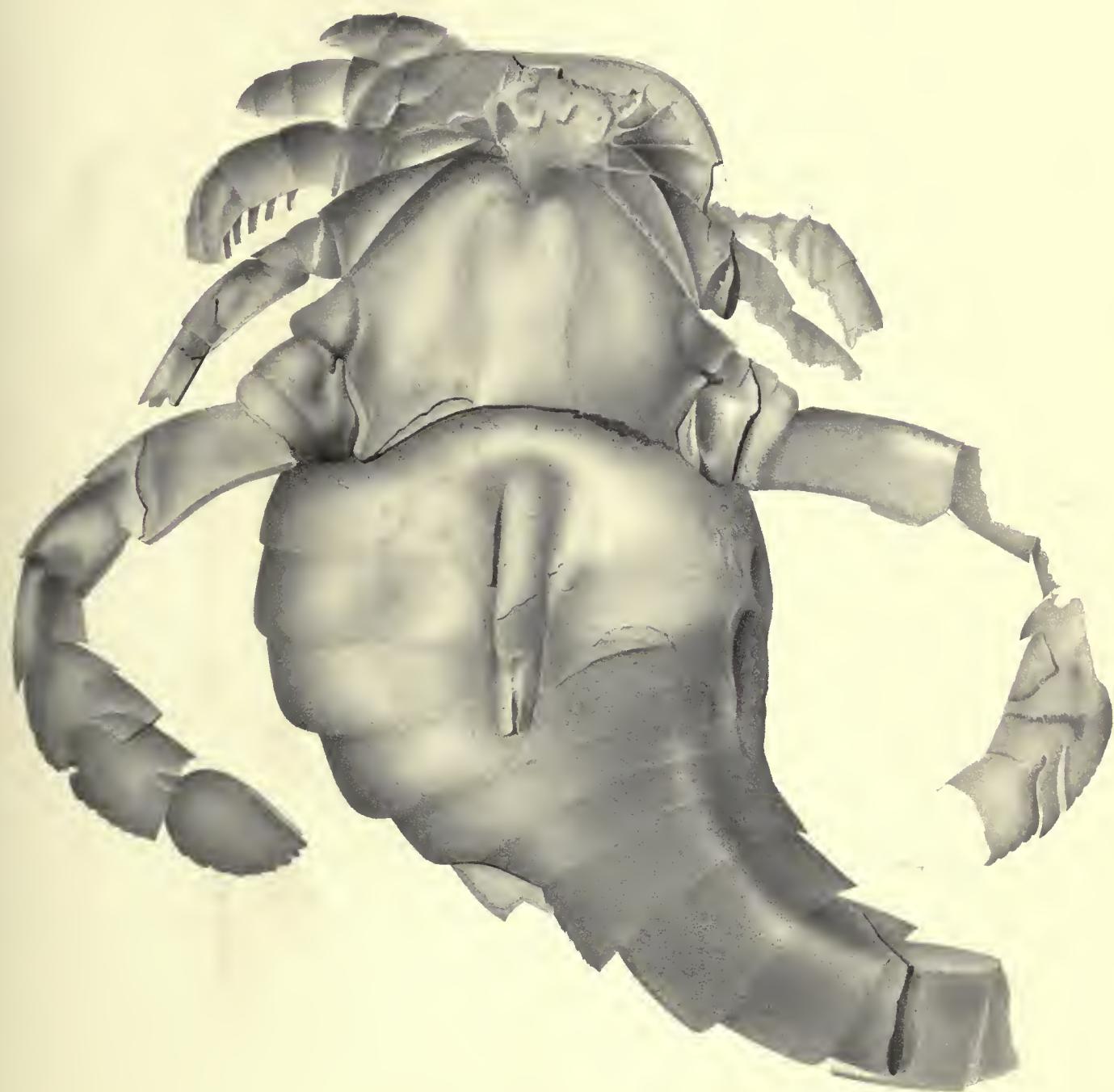
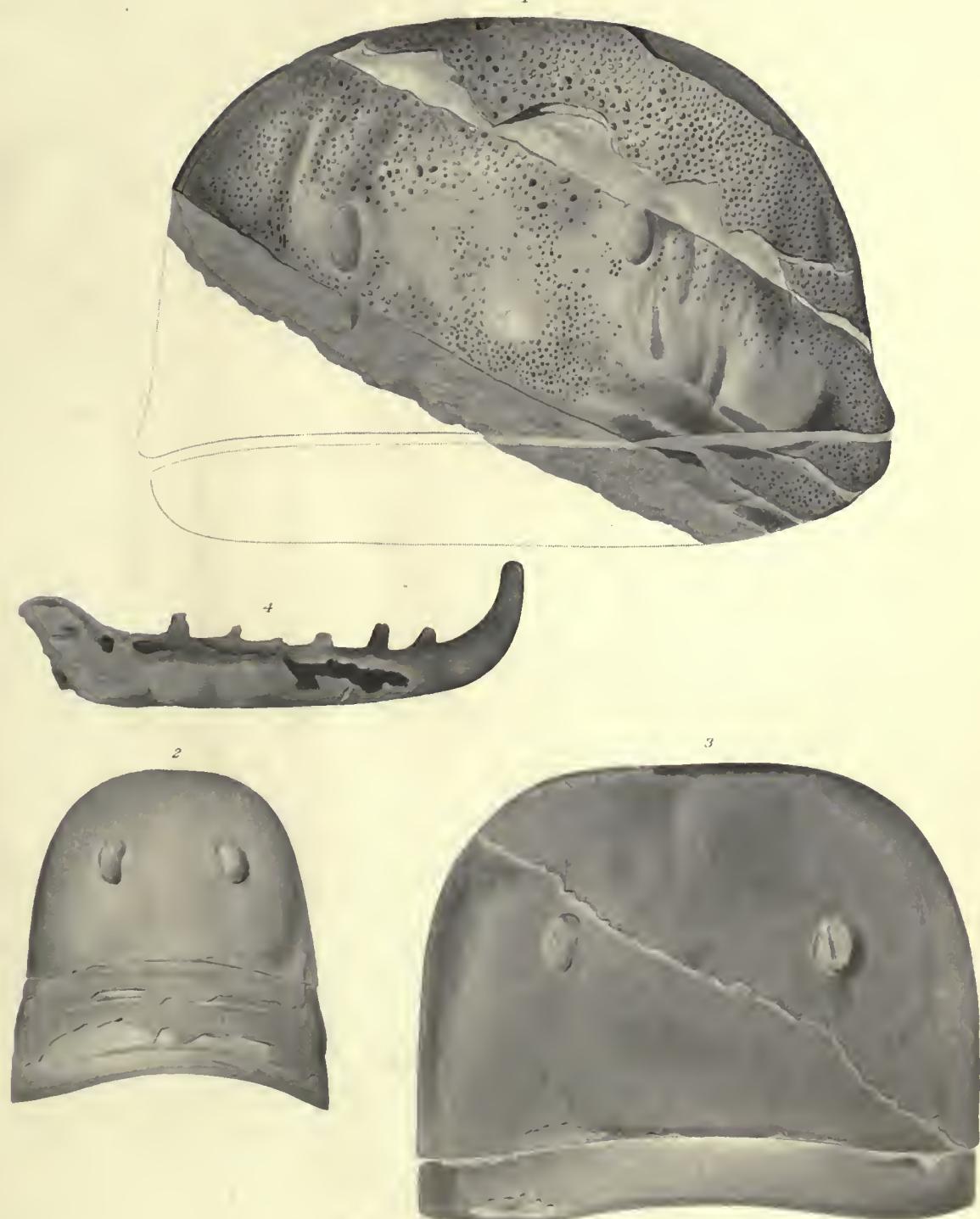


PLATE 83 B.

		Page
Fig. 1.	EURYPTERUS PUSTULOSUS.	413*
1.	The specimen, natural size.	
Fig. 2.	EURYPTERUS REMIPES.	404*
2.	The carapace and three articulations of the body of <i>E. remipes</i> , for comparison with the form of carapace of <i>E. lacustris</i> on same plate.	
Fig. 3.	EURYPTERUS LACUSTRIS.	407*
3.	The carapace of a large individual, showing the form to be distinct from fig. 2, which is the carapace of <i>E. remipes</i> .	
Fig. 4.	PTERYGOTUS COBBI.	417*
4.	The free ramus of the chelate appendage of this species.	

WATER-LIME GROUP.

(CRUSTACEA)



17-27649

1000
1000

gave personal history as follows:

Age 1 year

On 10-20-1940 at approximately 10:00 P.M. he was sleeping in his bed in the room of his mother, Mrs. L. M. [unclear].
He had been sleeping in this room since he was born. He was awakened by a noise which sounded like a gun shot.
He got up and went to the window and saw a man standing outside. He ran back to his bed and lay down again.
He heard another noise which sounded like a gun shot. He got up and went to the window and saw a man standing outside.
He lay down again. He heard another noise which sounded like a gun shot. He got up and went to the window and saw a man standing outside.

1000

gave history as follows:

Age 1 year

Same as above except that he saw a man standing outside.

1000

gave history as follows:

Age 1 year

Same as above except that he saw a man standing outside.
He heard a noise which sounded like a gun shot. He got up and went to the window and saw a man standing outside.
He lay down again. He heard another noise which sounded like a gun shot. He got up and went to the window and saw a man standing outside.

PLATE 84.

		Page
Fig. 1 - 5.	CERATIOCARIS MACCOYANUS.	421*
1.	A specimen preserving the tail-spines, several articulations of the body, and a part of the carapace, the body having been folded between the valves of the latter.	
2.	A specimen in similar condition, preserving one side of the carapace more nearly entire.	
3.	A fragment preserving the tail-spines, with two or three of the articulations.	
4.	A similar fragment.	
5.	A similar but larger fragment.	
Fig. 6.	CERATIOCARIS ACUMINATUS.	422*
6.	The left valve of the carapace of this species.	
Fig. 7.	CERATIOCARIS : sp.?	422*
7.	A crushed specimen preserving the mutilated carapace and several of the articulations, but too indistinct for determination : it may be identical with the preceding.	
Fig. 8.	PTERYGOTUS COBBI ?	417*
8.	An articulation of the abdomen, which probably belongs to this or to some other species of the genus.	

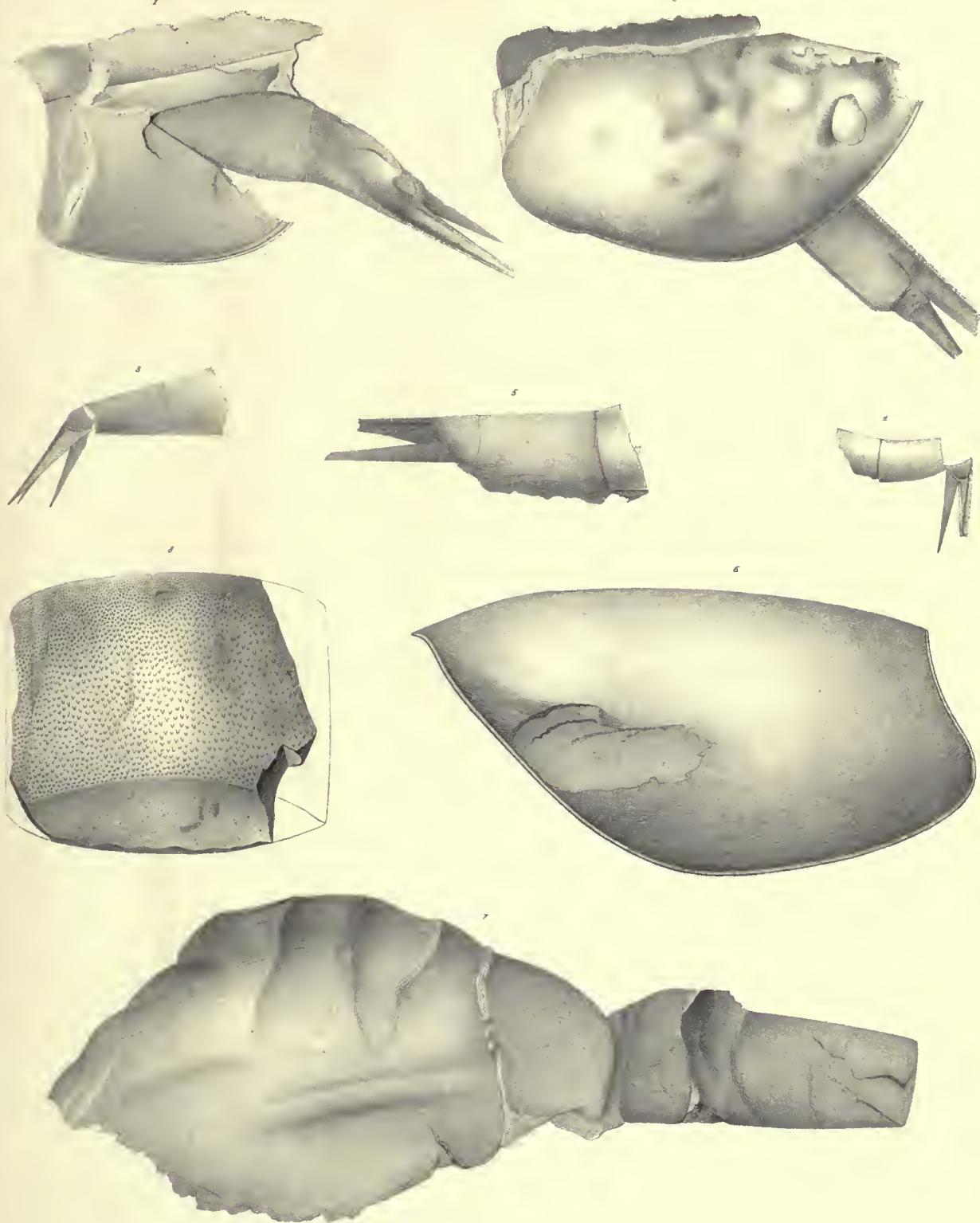


PLATE 84 A.

Fig. 1 & 2. Restoration of the form and appendages of *EURYPTERUS REMIPES*.

The parts represented are not in any respect imaginary, but have all been seen in different individuals or parts of individuals, and are known to have the relations here expressed.

Fig. 1. A dorsal view. The parts and surface-markings have been described in reference to figures of preceding plates.

Fig. 2. The ventral side, showing the position of the mouth and oral appendages, the two swimming feet, the postoral plate, and the organ before referred to as a locomotive appendage, but which I suppose may have borne the generative organs, as in the similar appendage of *LIMULUS*, and of other crustaceans, upon the corresponding segment of the body.

Fig. 3.

SAPPHIRINA GEMMA, after DANA.

Fig. 4. A figure showing the mouth and bases of the feet of a female *LIMULUS*, the two anterior tentacles, etc.

Fig. 5. The membranous leaflet placed posteriorly to the mouth in *LIMULUS*, and regarded as the ankylosed sixth pair of feet. The posterior extremities probably perform the same functions as the extremities of the appendage behind the postoral plate in *EURYPTERUS*. See Note, page 399.

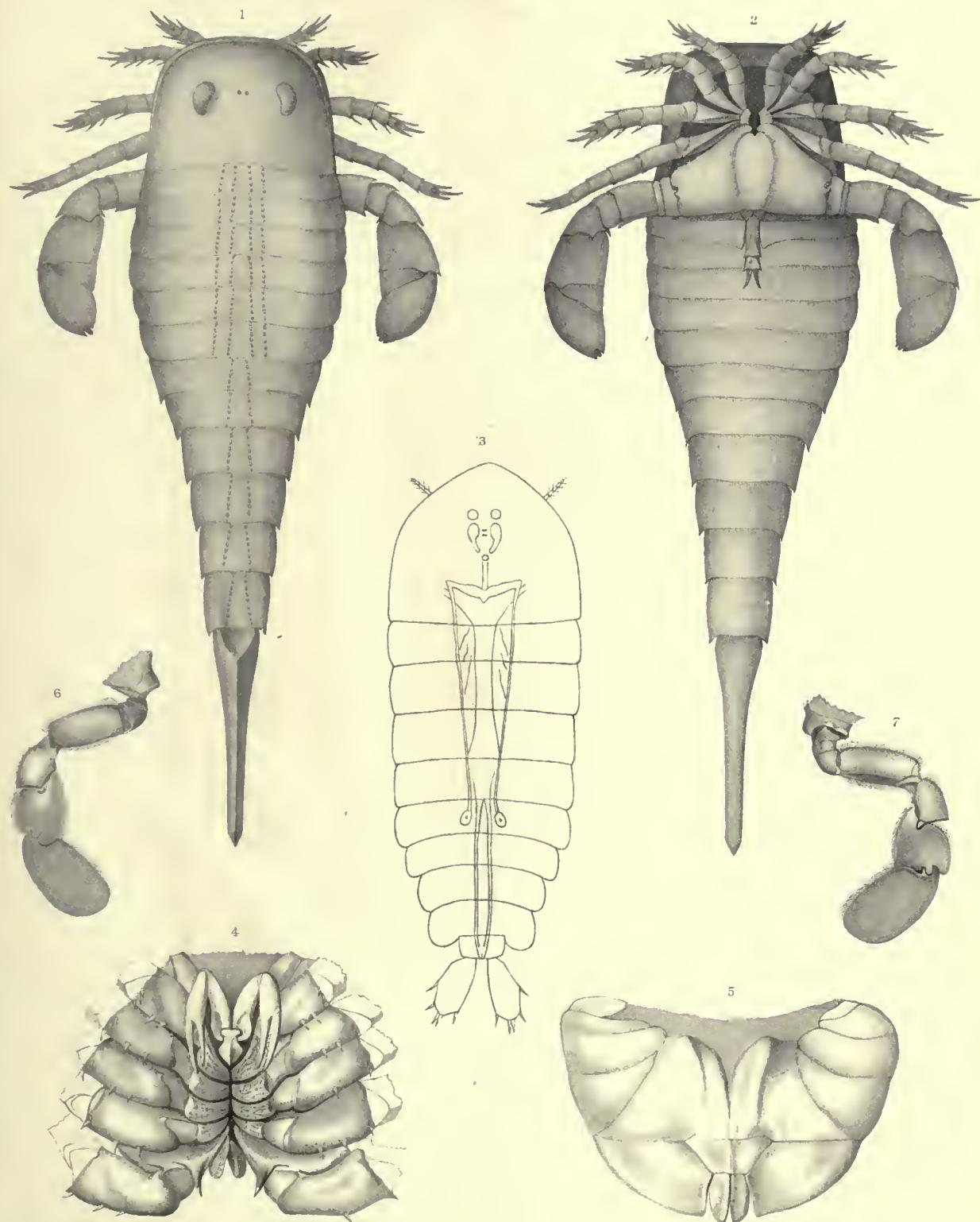
Fig. 6 & 7.

PLATYONICHUS OCELLATUS.

A representation of the upper and lower sides of one of the hinder or swimming feet (the fifth pair) of this crustacean, which is a common species upon our coast, for comparison with the corresponding pair in *EURYPTERUS*.

RESTORATIONS OF EURYPTERUS,

AND COMPARATIVE ILLUSTRATIONS OF RECENT CRUSTACEA.



28 JULY

Wrote to Mr. G. C. Ladd, Boston, Mass., concerning my recent letter to him, and his reply to me.

Received a telegram from Mr. G. C. Ladd, Boston, Mass., concerning my recent letter to him.

Received a telegram from Mr. G. C. Ladd, Boston, Mass., concerning my recent letter to him.

All day at work on the preparation of the specimens.

Worked on the preparation of the specimens.

Worked on the preparation of the specimens.

PLATE 85.

	Page
Fig. 1 - 18. <i>TECHNOCRINUS SPINULOSUS.</i>	140
1. The body and bases of the arms, with a portion of the column attached.	
2. Diagram of the structure of the body to the base of the arms, as far as determined.	
3 - 14. Figures of separated plates from different parts of the body, showing the form, ridges, spines, etc.	
13. { The lower fig. 12 on plate should be 13.)	
15 - 18. Joints of the column, showing absence of nodes in some, and varying degrees of development in others.	

Fig. 19 - 23. Columns and plates of undetermined CRINOIDÆ.	145
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Fig. 24 & 25. <i>HOMOCRINUS PROBOSCIDALIS.</i>	138
24. The specimen, natural size.	
25. Enlargement of the body and bases of the arms.	

(CRINOIDEÆ)

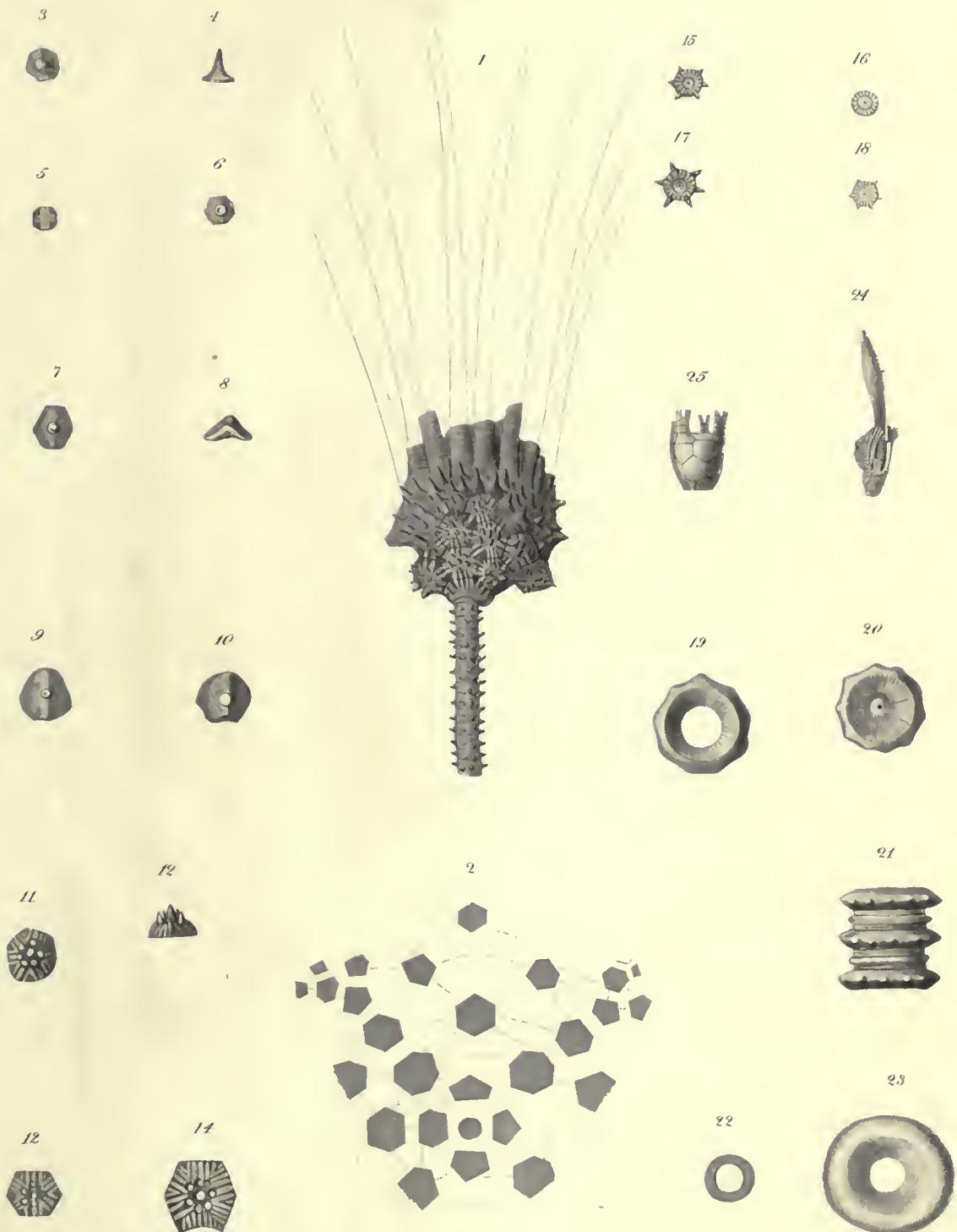


PLATE 86.

Fig. 1 - 4. **TECHNOCRINUS ANDREWSI.** Page
141

1. The specimen, natural size, preserving the body, and on one side a part of the arms and a portion of the column.
- 1 *a.* Diagram illustrating the structure from the base to the lower part of the arms (for comparison with structure of *Mariacrinus pachydactylus* and *M. plumosus*, Plate iii).
- 2 & 3. Fragments of columns apparently of this species.
4. Section of column fig. 3.

Fig. 12 & 5 - 11. **TECHNOCRINUS STRIATUS.** 142

12. The basal plates ankylosed together with a small portion of the column attached, and also one first radial plate.
- 5, 6, 7, 9, 10 & 11. Several plates of different series belonging to this species.

Fig. 13 & 14. **TECHNOCRINUS SCULPTUS.** 143

- 13 & 14. Basal and lateral view of the lower part of the body.

CRINOIDEÆ

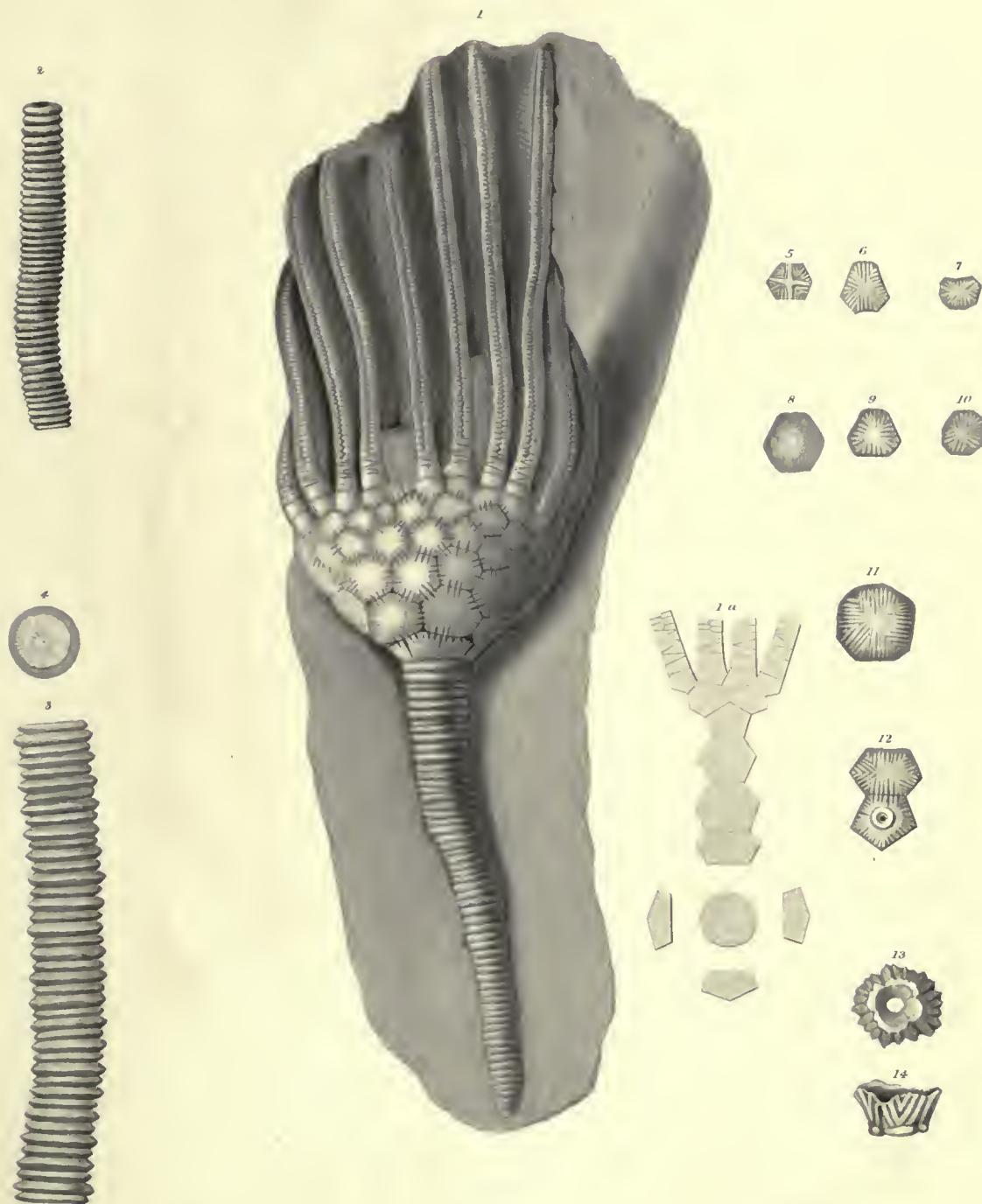


PLATE 87.

Fig. 1 - 22.	EDRIOCRINUS SACCOLUS.	Page
		143
1, 2, 3.	The young growing singly and in groups of two and three, preserving the radial plates above the base, which is still expanded below at its point of adhesion.	
4, 5, 6 & 7.	The bases of several individuals, showing the marks of adhesion below, and having forms more or less elongated and slightly distorted.	
8.	The base of a specimen, still showing the mark of adhesion.	
9.	The base entirely rounded, and with the radials and first arm-plates attached.	
10.	An individual nearly entire, having a part of the base broken off, but preserving the radial plates with the arms more or less entire.	
11.	Diagram of the structure, showing the base, radial and anal plates, and first plates of the arms	
12, 13, 14 & 15.	Lateral and interior views of two very symmetrical bases of this species.	
16, 17 & 18.	A specimen much elongated below, and one of nearly hemispheric form.	
19 & 20.	Lateral and interior views of a remarkably elongated specimen, which may perhaps prove a distinct species.	
21 & 22.	Lateral and basal view of a specimen presenting an appearance as if the upper one had grown from the interior of the base of a preceding individual.	

ORISKANY SANDSTONE.

(CRINOIDEÆ)



PLATE 88.

Fig. 1 - 4.

ANOMALOCYSTITES DISPARILIS.

Page
145

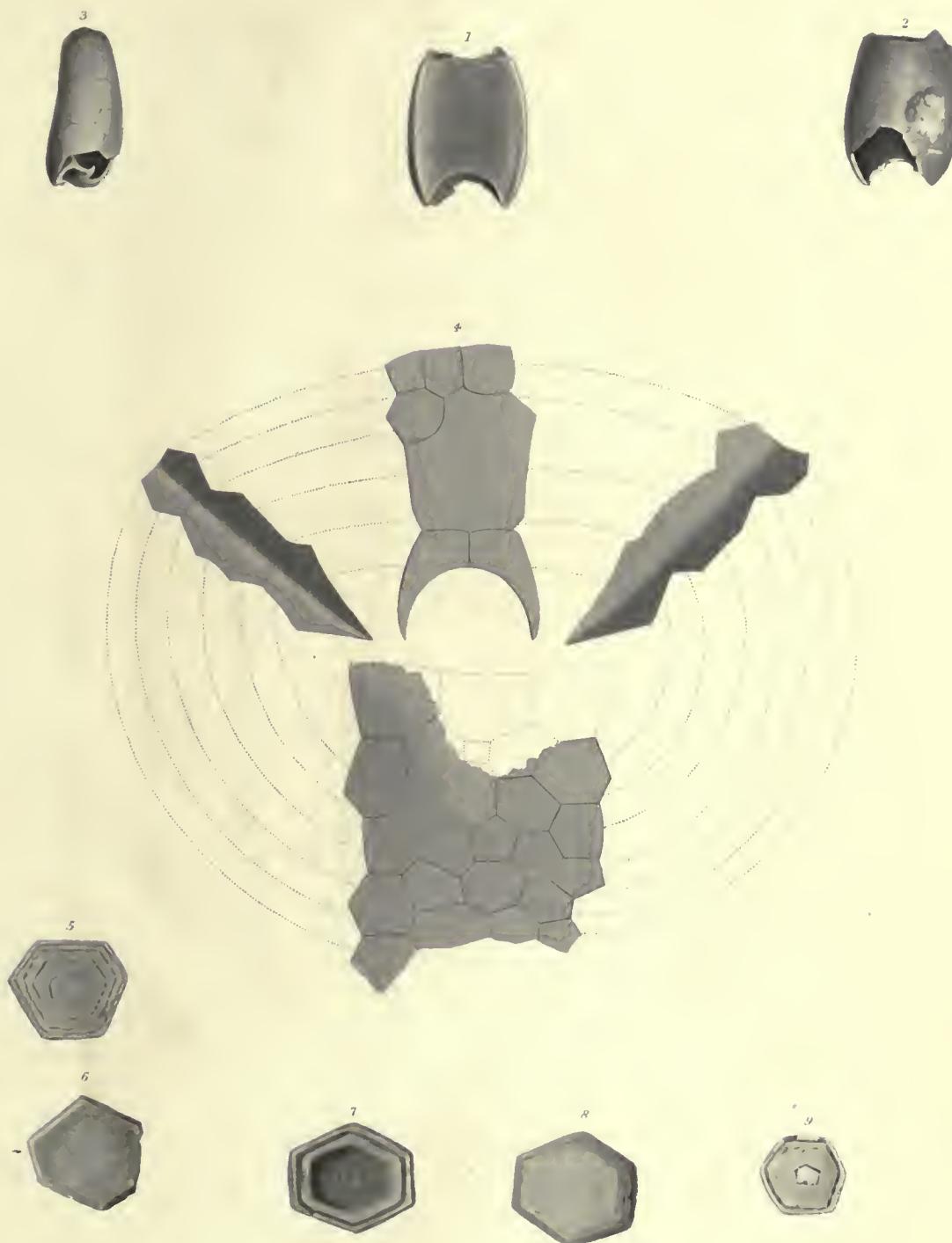
1. Anteal or concave side, showing the deeply arched or crescentform base with the succeeding plates.
2. Posteal or convex side, showing the form and arrangement of plates.
3. Lateral view of the same specimen.
4. Diagram illustrating the structure of the body, showing the deep indentation for the insertion of the column : a , plates of the anteal or concave side; p , plates of the posteal or convex side; r, r , the lateral or radial plates, which are shaded to indicate the abrupt angles, one part of the plate serving to make up the convex and the other the concave side.

Fig. 5 - 9.

Plates of undetermined Crinidian or Cystidian bodies.

147

(CRINOIDEÆ)



20-374.19

• The following statement is true:

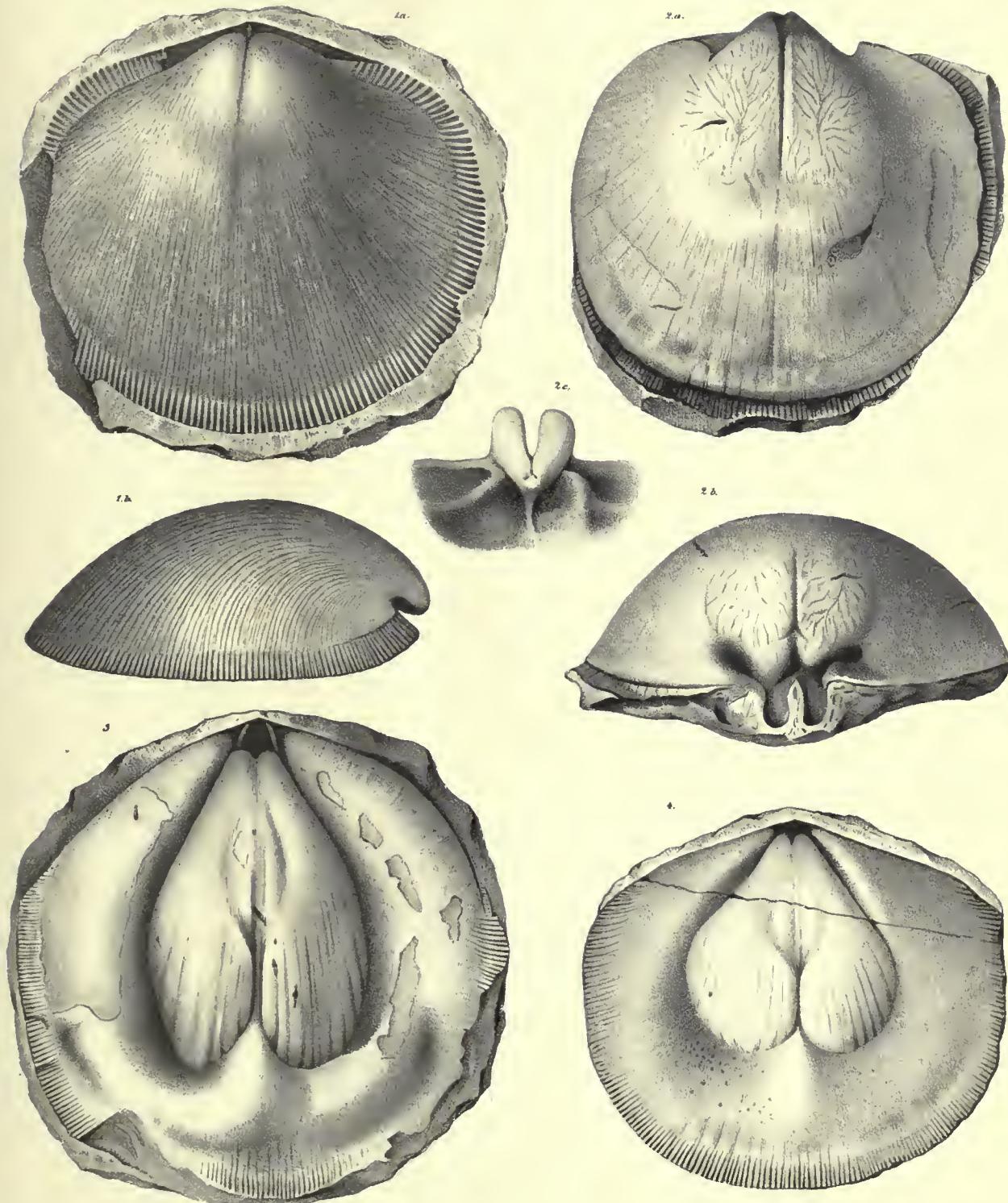
PLATE 89.

Fig. 1 - 4.

ORTHIS HIPPARIONYX.

Page
407

- 1 *a.* A dorsal valve which retains a small portion of the shell. The direction of the striae upon the hinge-margin is very well shown.
- 1 *b.* Profile view of the same.
- 2 *a.* A similar cast, showing the vascular impressions upon the surface of the more prominent portions, and likewise towards the anterior margin.
- 2 *b.* Profile of the same from the cardinal side.
- 2 *c.* The interior of the upper part of the dorsal valve and brachial processes, as shown in a mould from the preceding figure.
3. A very old specimen, in which the muscular impression is extremely elongated.
4. The cast of a shell of medium size, preserving the muscular impression in its usual symmetrical form.



10 YEARS

EXPLANATION.

The following table gives the results of the experiments made by the author, in which he has tried to ascertain the effect of different degrees of heat upon the growth of plants. The experiments were conducted in a series of five, each consisting of a number of plants, all of which were exposed to the same conditions of light, temperature, &c., except that they were subjected to different degrees of heat. The results show that the plants exposed to the highest degree of heat grew most rapidly, and that the plants exposed to the lowest degree of heat grew most slowly.



PLATE 90.

Fig. 1 - 7. *ORTHIS HIPPARIONYX.* Page
407

1. Cast of the dorsal valve of a younger specimen than that of the preceding plate.
2. Cast of the ventral valve of a specimen of medium size, showing the lower part of the muscular impression but faintly developed.
3. A similar specimen, which preserves a portion of the shell.
4. An older specimen, in which the cast of the muscular imprint is perfectly preserved.
- 5 & 6. The interior and the cast of a very old shell.
7. A portion of the surface striae enlarged.

(BRACHIOPODA)

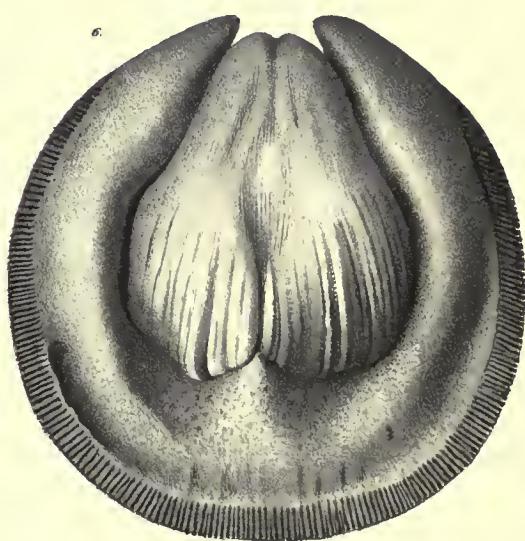
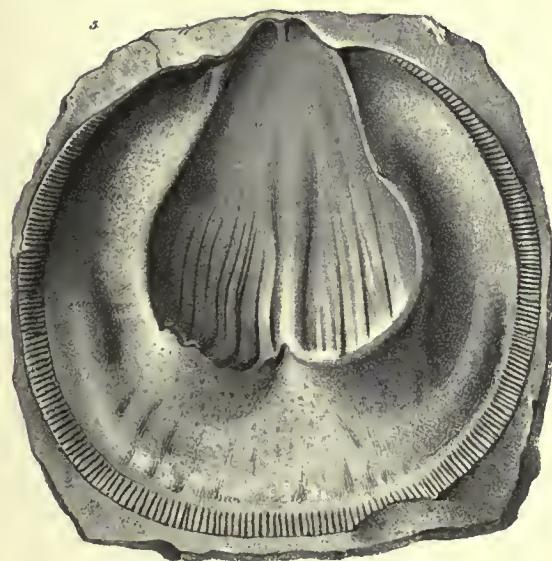
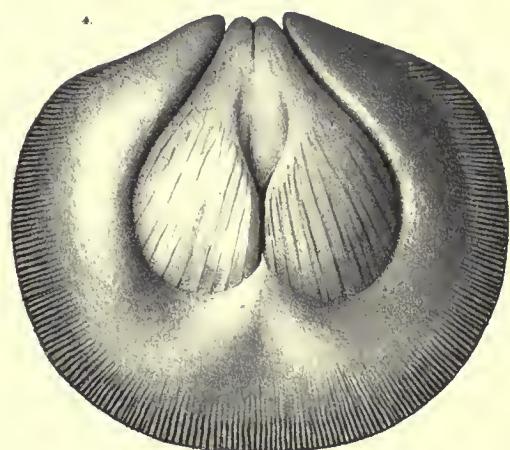
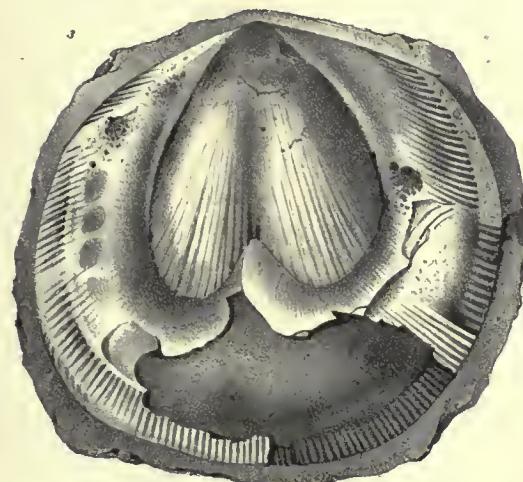
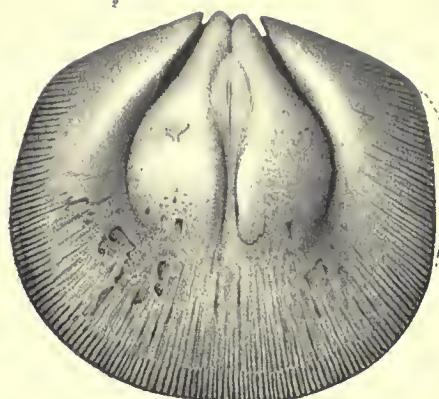




PLATE 91.

	Page
Fig. 1, 2, 3.	409
	<i>ORTHIS MUSCULOSA.</i>
1 <i>a, b.</i> Dorsal and ventral views of a cast of a small individual.	
2 <i>a.</i> Ventral view of a larger individual, with a small muscular impression.	
2 <i>b, c.</i> Cardinal and dorsal views of the preceding, showing the cavities made by the brachial lamellæ and cardinal process, and the impression of the longitudinal crest.	
3. The ventral side of a cast with narrow and small muscular impressions (perhaps a distinct species).	
3 <i>a.</i> The cast of a specimen preserving a large and strongly marked muscular impression.	
3 <i>b.</i> A mould from the cast shown in the preceding figure. (The imprints of the adductor muscles are omitted in the drawing.)	
3 <i>c, d, e.</i> Dorsal, profile and cardinal views of the same specimen.	

Fig. 4 & 5.	<i>ORTHIS HIPPARIONYX.</i>	407
4.	The cardinal area, showing the closed foramen.	
5.	A portion of the surface of a young shell enlarged, showing the character and direction of the striae.	

ORISKANY SANDSTONE

Palaeont N.Y., Vol. 3.

(BRACHIOPODA)

Pl. 91

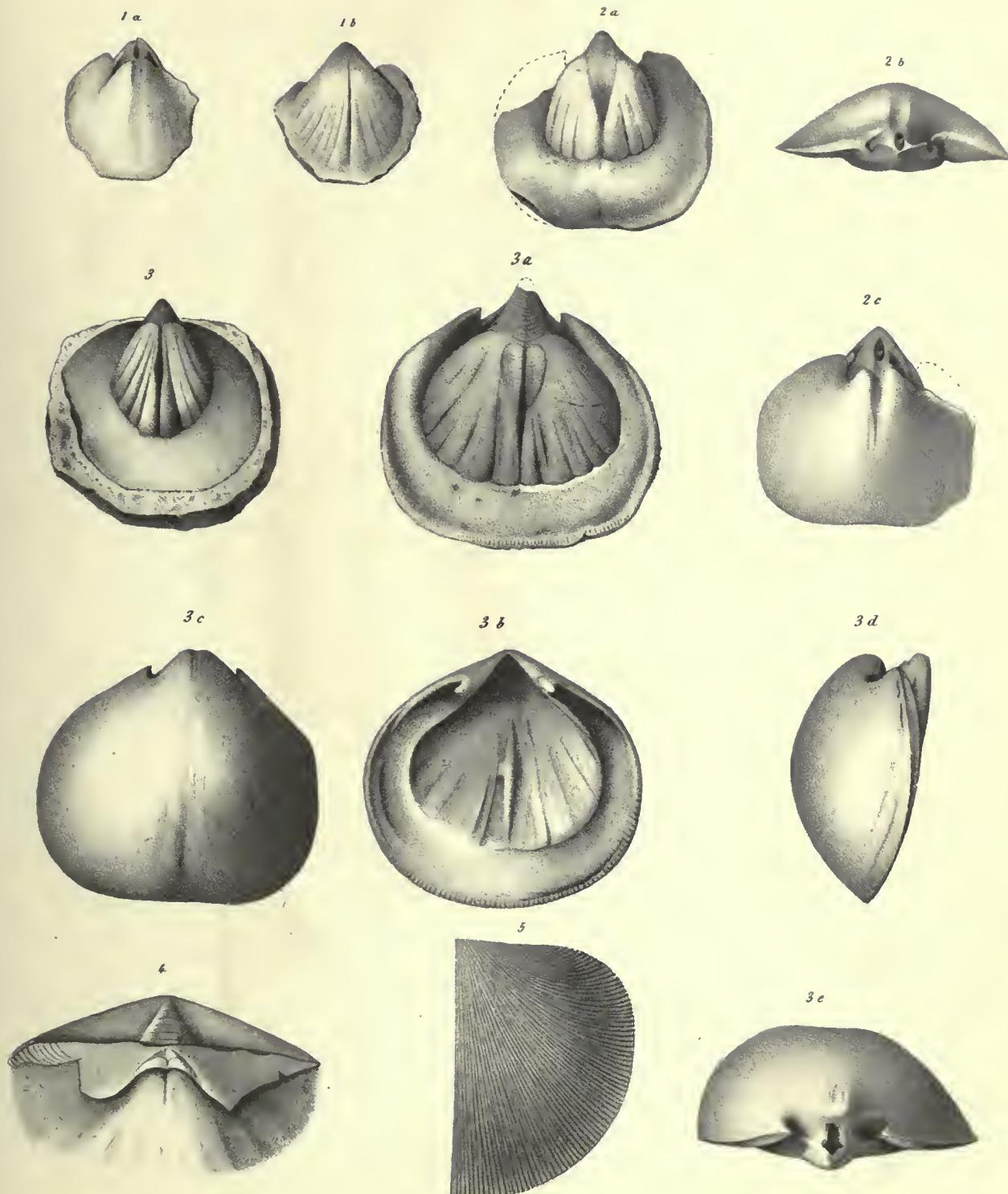




PLATE 92.

Fig. 1 a - d.	DISCINA GRANDIS.	Page
		406

- 1 a. The dorsal valve, from a cast taken from the mould of the original in sandstone.
- 1 b. The ventral valve from the inside, the shell having been mostly removed by weathering.
- 1 c. Profile of the dorsal valve.
- 1 d. The ventral valve, from a cast retaining the two valves in connexion. The foramen, as seen in this specimen, extends more nearly to the margin than is shown in fig. 1 b, which is seen from the inside.

Fig. 2 & 3.	STROPHODONTA MAGNIVENTRA.	Page
		411

- 2 a. The cast of the interior of a ventral valve, where the muscular impression is very strongly marked, and occupies a large part of the area of the valve. The central upper portion, marked by the adductor muscles, is, in this and some other specimens, well defined and separated from the other parts.
- 2 b. A similar cast, where the cardinal angles are more extended and the muscular impressions less strongly defined. Both this and the preceding specimen show the imprint of the strongly striated cardinal area; the first one having a flattened space without striae in the place of the foramen, while this feature is less distinctly seen in the latter.
- 2 c. A fragment of a similar specimen, showing a process extending into the cavity towards the beak of the valve. A mould made from the casts of this species shows the foramen to be entirely closed, with a thickened process below and a cavity extending beneath it towards the beak; as if there may have been, at some period of growth, a perforation of the apex.
- 3. The exterior of the ventral valve, showing the strongly striated surface.

Fig. 4.	STROPHODONTA VASCULARIA.	Page
		412

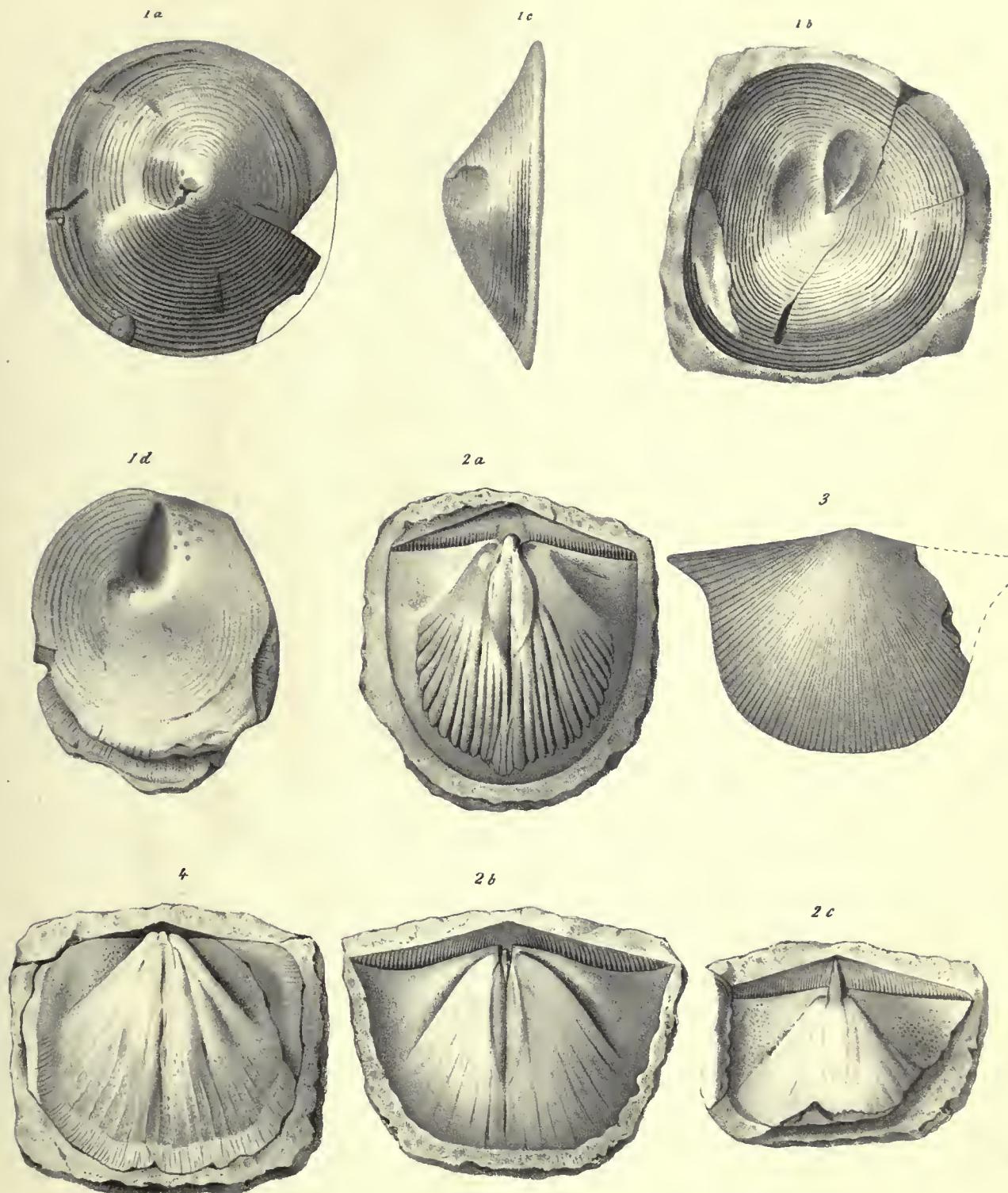
- 4. A cast of the ventral valve. (The muscular and vascular markings are not correctly represented in the figure.)

ORISKANY SANDSTONE

Palaeont., N.Y. Vol. 3.

(BRACHIOPODA)

Pl. 92



F B. Meek, del.

Rich'd H. Pease, Lith. Albany,



Fig. 1

Figures 1–3. *Top*

Figure 1. Small rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 2. Large rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 3. Medium rounded rectangular objects from Tigray (T) and Eritrea (E).

Fig. 2

Figures 1–3. *Middle*

Figure 1. Small rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 2. Large rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 3. Medium rounded rectangular objects from Tigray (T) and Eritrea (E).

Fig. 3

Figures 1–3. *Bottom*

Figure 1. Small rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 2. Large rounded rectangular objects from Tigray (T) and Eritrea (E).
Figure 3. Medium rounded rectangular objects from Tigray (T) and Eritrea (E).

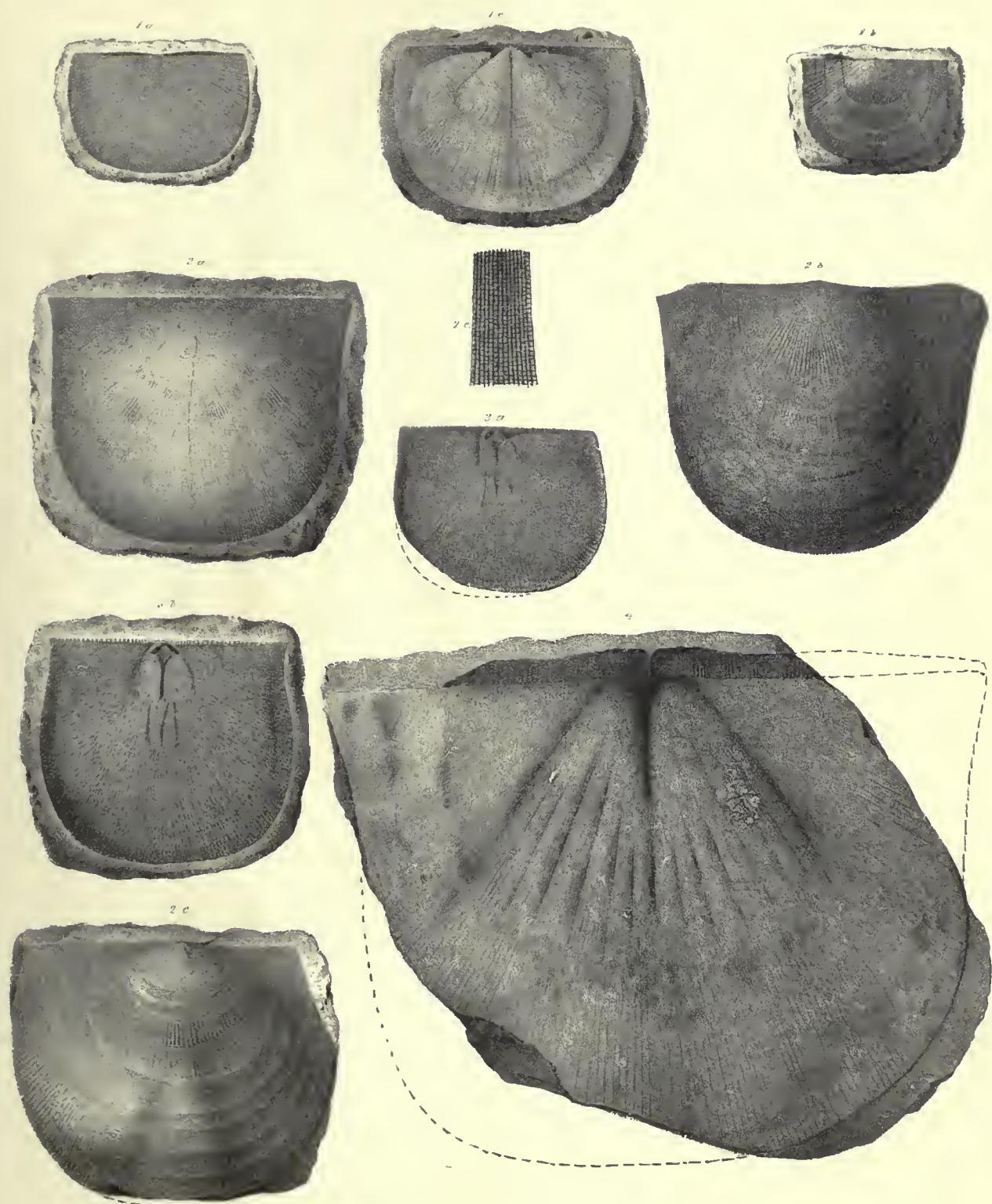
PLATE 93.

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|------------------------------|-----------------------------|-------------|
| Fig. 1 <i>a</i> - <i>d</i> . | <i>CHONETES COMPLANATA.</i> | Page
418 |
|------------------------------|-----------------------------|-------------|
- 1 *a*. An impression of the outside of the ventral valve of this species.
1 *b*. A similar impression in sandstone, showing the concentric lines of growth.
1 *c*. A cast of the interior of a ventral valve, showing the muscular impression and cavities of the dental lamellæ.
2 *c* (in centre of plate, by error for 1 *d*). An enlargement of the imprint of the surface, as sometimes seen in sandstone.

- | | | |
|---|--------------------------------|-----|
| Fig. 2 <i>a</i> , & 3 <i>a</i> , <i>b</i> . | <i>STROPHODONTA LINCKLÆNI.</i> | 415 |
|---|--------------------------------|-----|
- 2 *a* (the specimen referred with doubt to this species). The exterior of a ventral valve, in which the shell is partially exfoliated.
3 *a*. The imprint made by the interior of the dorsal valve of a small individual, showing the cavities made by the bifurcating cardinal process, the impressions of the median crest, and the low ridges towards the centre of the shell.
3 *b*. The impression of a larger ventral valve of this species, showing the same features as the preceding, the crenulated hinge-line, and the abruptly recurved outer margin.

- | | | |
|----------------------------|---------------------------------|-----|
| Fig. 2 <i>b</i> , <i>c</i> | <i>STROPHODONTA VASCULARIA.</i> | 412 |
|----------------------------|---------------------------------|-----|
- 2 *b*, *c* are referred to this species with some hesitation : they are the impressions of the exterior of the dorsal valve, and show the convexity corresponding to the concavity of the shell, which only occurs in an equal degree in this or the preceding species; the others in the rock being much less concave on the dorsal side.

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|---------|--------------------------------|-----|
| Fig. 4. | <i>STROPHODONTA MAGNIFICA.</i> | 414 |
|---------|--------------------------------|-----|
4. The cast of a ventral valve, preserving the marks of the muscular impression and the imprints of the radiating striae.



CULTURE AND CIVILISATION

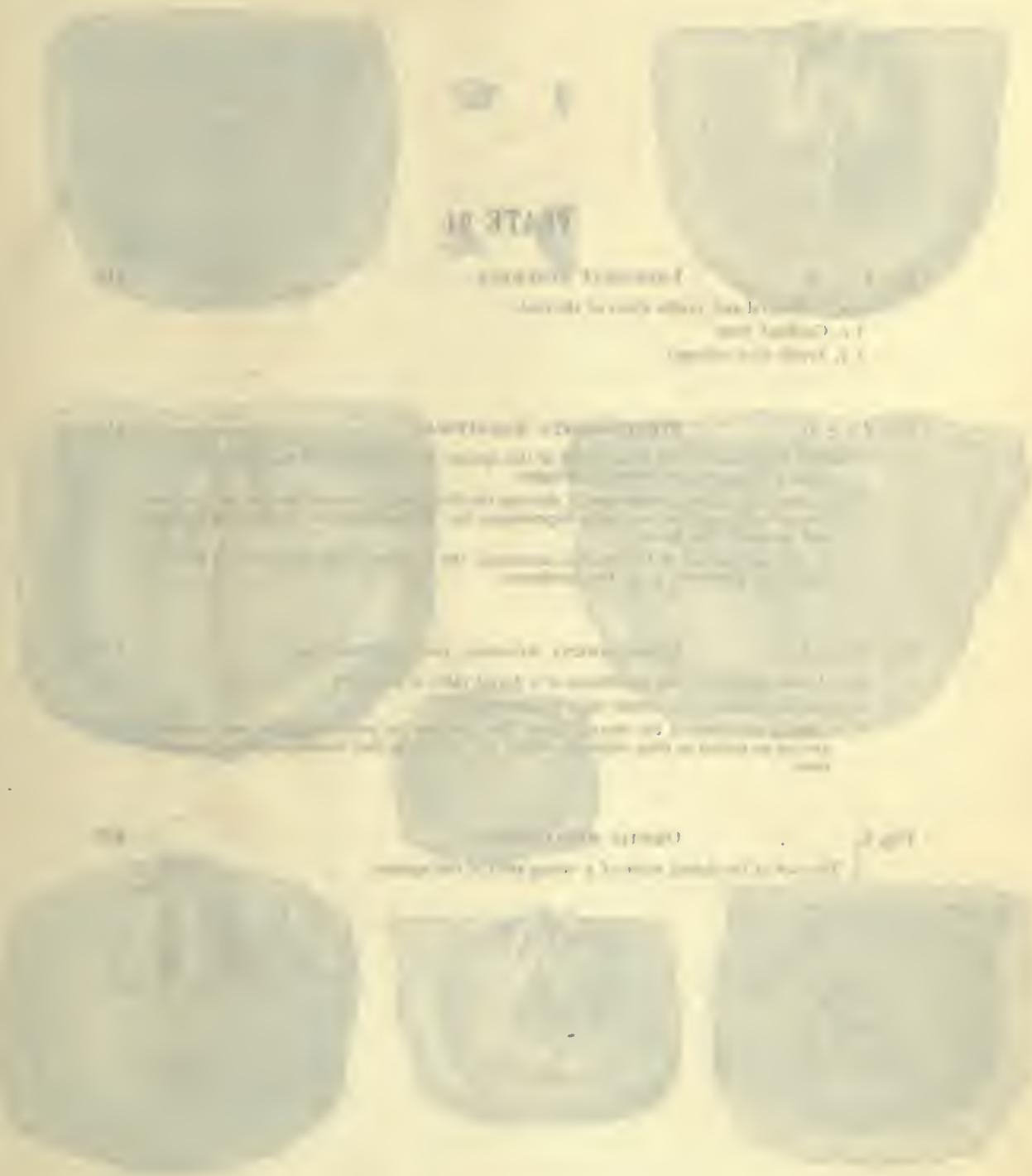


PLATE 94.

	Page
Fig. 1 <i>a - d.</i>	<i>LEPTAENA?</i> NUCLEATA.
	419
1 <i>a, b.</i>	Ventral and profile views of the cast.
1 <i>c.</i>	Cardinal view.
1 <i>d.</i>	Profile view enlarged.
Fig. 2 <i>a - d.</i>	<i>STROPHODONTA MAGNIFICA.</i>
	414
2 <i>a.</i>	The impression of the dorsal valve of this species in sandstone. The cavities of the cardinal process are not shown in the figure.
2 <i>b.</i>	A cast taken from a similar mould, showing the diverging divisions of the cardinal process, crenulated hinge-line, muscular impressions, etc. (The details of the marking are not well shown in this figure.)
2 <i>c, d.</i>	The impressions of the same in sandstone, the marking being preserved in different degrees of perfection in the two specimens.
Fig. 2 <i>e, f, & 3.</i>	<i>STROPHOMENA RUGOSA, var. VENTRICOSA.</i>
	417
2 <i>e.</i>	A cast taken from the impression of a dorsal valve in sandstone.
2 <i>f.</i>	An impression of the dorsal valve in sandstone.
3.	A cast in sandstone of the ventral valve. The specimen has been weathered, and the parts are not so salient as they otherwise would be : the hinge-line is obliterated in the specimen.
Fig. 4.	<i>ORTHIS HIPPARIONYX.</i>
	407
4.	The cast of the dorsal valve of a young shell of this species.

(BRACHIDPODA)

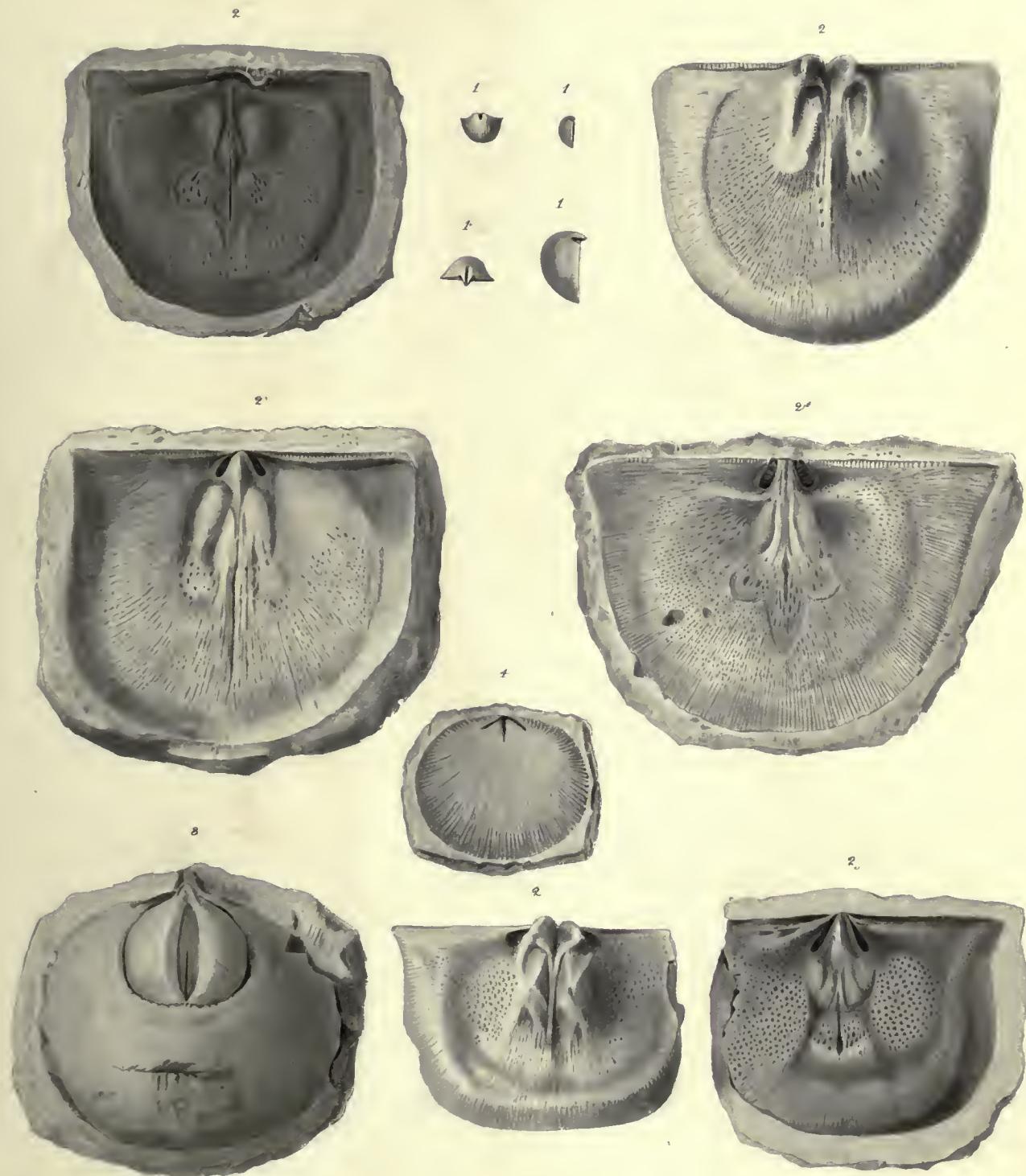




PLATE 95.

Fig. 1 - 7. ORTHIS MUSCULOSA. 409

1. Dorsal view of a specimen preserving the shell. The striae are partially obliterated by the silicification of the shell, and they are not sufficiently curved towards the hinge-line in the figure.
2. Profile view of the same specimen.
- 3 & 4. Dorsal and ventral views of a smaller specimen.
5. Interior of the ventral valve.
6. Interior of the dorsal valve.
7. Cardinal view of the dorsal valve, showing the outline and the elevation of the processes.

Fig. 8. STROPHODONTA MAGNIFICA. 414

8. A cast of the ventral valve, showing the muscular impression in part, with the shell preserved upon the lower part of the specimen.

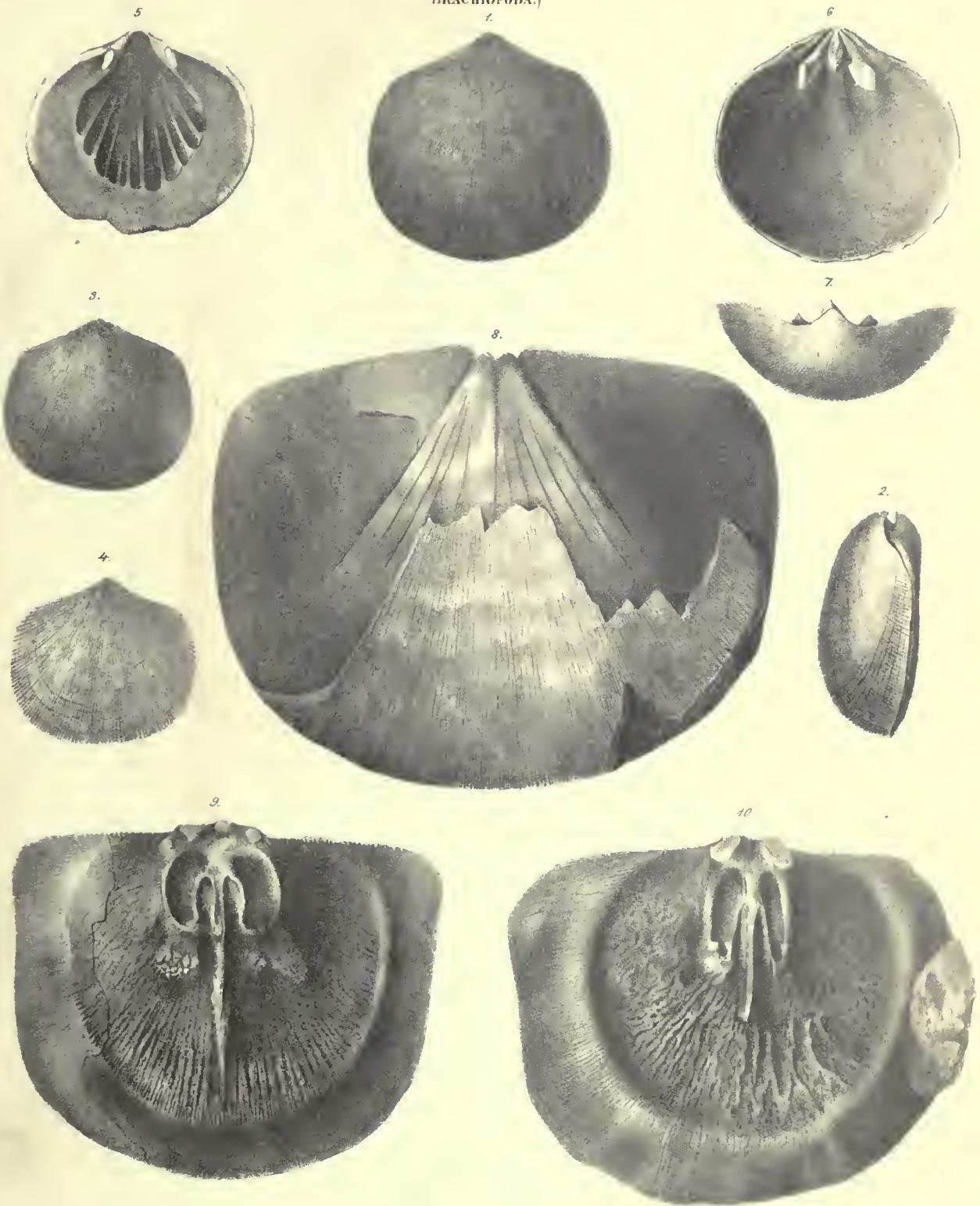
Fig. 9. STROPHODONTA MAGNIVENTRA. 411

9. This figure is an impression taken from a mould in sandstone, left by the solution and removal of the shell. The broad reniform muscular impressions are strongly defined by an elevated rim; and between these and the median crest there are, on each side, other equally marked impressions, which, with the flattened median crest, appear to have been the points of attachment for the adductor muscles. Below and outside of these are vascular impressions approaching those of *Productus*, which are strongly marked, but not limited as the others.

Fig. 10. STROPHODONTA VASCULARIA. 412

10. A cast of the dorsal valve from an impression in sandstone. The divisions of the cardinal process are not of the full length, owing to the cavities not becoming filled with the material forming the cast.

DALTONIAN SANDSTONE.
BRACHIOPODA.)



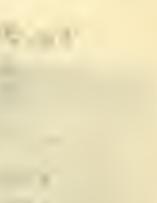
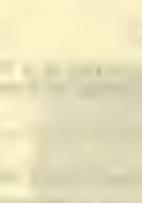
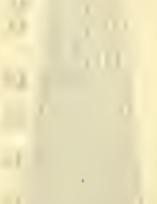
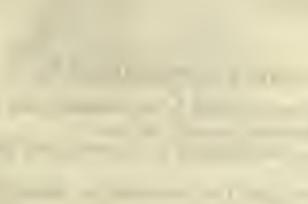
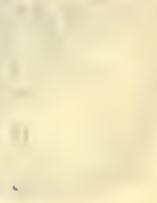
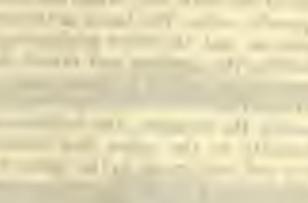
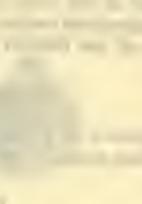
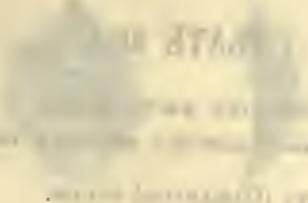


PLATE 95 A.

	Page
Fig. 1. <i>RHYNCHOSPIRA RECTIROSTRA.</i>	485
1 <i>a</i> , <i>b</i> , <i>c</i> . Dorsal, ventral and profile views of a specimen of this species.	
Fig. 2, 3, 5 & 6. <i>MERISTA (CAMARIUM) TYPUM.</i>	487
2 <i>a</i> . Dorsal view of a specimen of this species. 2 <i>b</i> . Profile view of the same. 3. Interior of the ventral valve, showing the transverse arching septum. 5. A longitudinal section of fig. 3. 6. A cast of the interior of a valve similar to fig. 3.	
Fig. 4. <i>MERISTA (CAMARIUM) ELONGATUM.</i>	488
4. The interior of a ventral valve of this species : the sides of the valve, and a part of the arching septum, have been broken away.	
Fig. 7 – 11. <i>RHYNCHOSPIRA FORMOSA.</i>	485
7. Interior of the ventral valve of a specimen of this species. 8. Interior of the dorsal valve, enlarged to two diameters, to show the broad cardinal process which covers the extremities of the beak, and, when the valves are closed, passes beneath the deltoidal area of the opposite valve. The bases of the crura are shown on each side at the base of the cardinal process, and the short median septum also is shown. 9. Profile view of the same, showing the cardinal and crural processes. 10. The upper part of the two valves connected in their natural relations to each other, and showing the manner of articulation. 11. A longitudinal section, showing the foramen, the deltium, and the cardinal process of the opposite valve lying beneath it; the crura first bending downwards, and then re-curved into the dorsal valve and continued in the spire, with the descending process <i>e</i> , which forms, with the opposite one, a connecting filament between the two spires.	
Fig. 13 & 14. <i>STROPHODONTA INTERMEDIA*</i> .	482
13. The exterior of the dorsal valve. 14. The interior of the same.	
Fig. 15 – 19. <i>STROPHODONTA MAGNIFICA†.</i>	482
15. A dorsal view, showing the area, which is imperforate and striate. The specimen is below the medium size which this shell usually attains. 16. Ventral view of the same : the margins are broken, and the outline is consequently imperfect. 17. The interior of a ventral valve of the same species, showing a central pit or foramen. 18. View of the area when the linear foramen is closed. 19. Enlargement of the striae, showing their mode of bifurcation, and the puncta which are very regularly interposed between the striae.	
Fig. 20 & 21. <i>ORTHIS CUMBERLANDIA.</i>	481
20. The exterior of a ventral valve of this species. 21. The interior of a smaller ventral valve of the same.	

* This species possesses the cardinal process of *STROPHODONTA*, with the dental lamellæ of *STREPTORHYNCHUS*.

† This species may be compared with *Orthis hippocionyx*, page 407. The striae, however, are more sharply elevated and less curved towards the hinge-line, while the muscular impression is not distinctly bilobate as in that species.

LOWER HELDERBERG GROUP.
 & ORISKANY SANDSTONE.
 (BRACHIOPODA.)

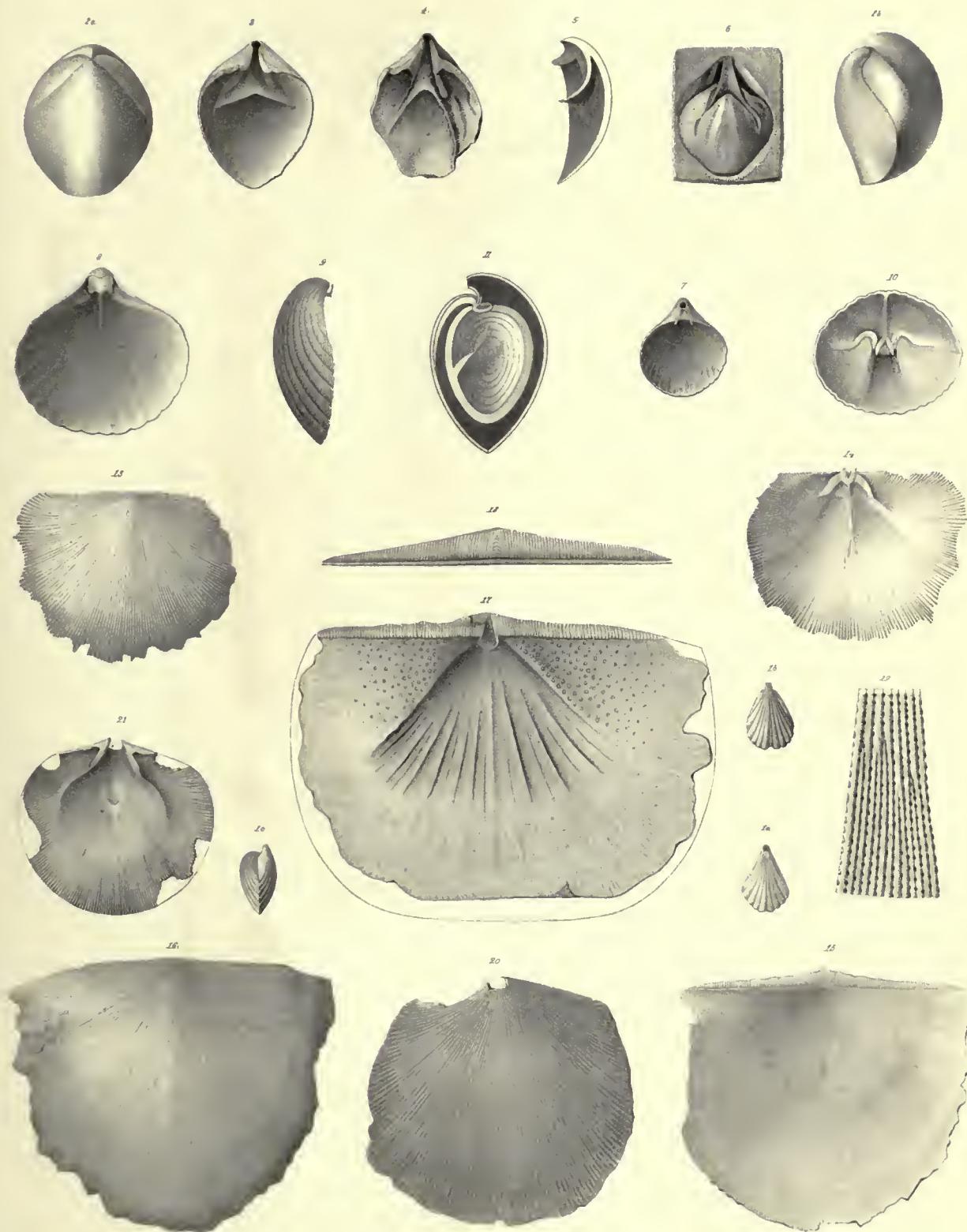


PLATE 96.

Fig. 1 - 6.	CYRTIA ROSTRATA.	Page 429
	1 <i>a, b.</i> Dorsal and cardinal views of a young specimen, which has six plications on each side of the mesial fold.	
	2 <i>a, b.</i> Dorsal and front views of a larger specimen.	
	2 <i>c, d.</i> Profile and cardinal views of the same specimen.	
	3 <i>a, b.</i> Cardinal and front views of another individual, with a higher area and less extended hinge-line. The beak in fig. 3 <i>a</i> , as represented, is not sufficiently elevated.	
	4 <i>a, b.</i> Ventral and dorsal valve of an old specimen.	
	4 <i>c, d.</i> Profile and cardinal views of the same specimen.	
	5. Interior of the dorsal valve.	
	6 <i>a, b.</i> The exterior and interior of a dorsal valve of this species.	

Fig. 7 <i>a - f.</i>	SPIRIFER SUBMUCRONATUS.	419
	7 <i>a, b.</i> Ventral and dorsal views of a specimen of this species.	
	7 <i>c.</i> A specimen with one of the cardinal angles more extended.	
	7 <i>d.</i> Front view of the preceding.	
	7 <i>e.</i> Profile view of a specimen of this species.	
	7 <i>f.</i> The interior of the ventral valve.	

Fig. 8 <i>a - e.</i>	SPIRIFER TRIBULIS.	420
	8 <i>a, b.</i> Ventral and dorsal views of a specimen of ordinary size.	
	8 <i>c.</i> Front view of a specimen which is less gibbous than usual.	
	8 <i>d.</i> Profile view of a more gibbous specimen. (The dorsal valve is represented as too convex.)	
	8 <i>e.</i> An enlargement of the surface, showing the fine concentric and radiating striae.	

Fig. 9 <i>a - h.</i>	SPIRIFER CUMBERLANDIÆ.	421
	9 <i>a, b.</i> Dorsal and ventral views of a large individual, showing the foramen almost entirely closed.	
	9 <i>c.</i> Front view of another individual.	
	9 <i>d.</i> Profile view of the specimen.	
	9 <i>e.</i> Ventral view of a specimen from the upper part of which the shell is removed, showing the cast of the muscular area and the rostral cavity.	
	9 <i>f.</i> Interior of the dorsal valve, showing the cardinal and crural processes, with the dental fossets.	
	9 <i>g.</i> Interior of the ventral valve, showing the partial closing of the foramen, with a perforation at the summit, the dental lamellæ, etc.	
	9 <i>h.</i> View of a cast of the internal spiral appendage, probably of this species.	

CRISKANY SANDSTONE.

(BRACHIOPODA)

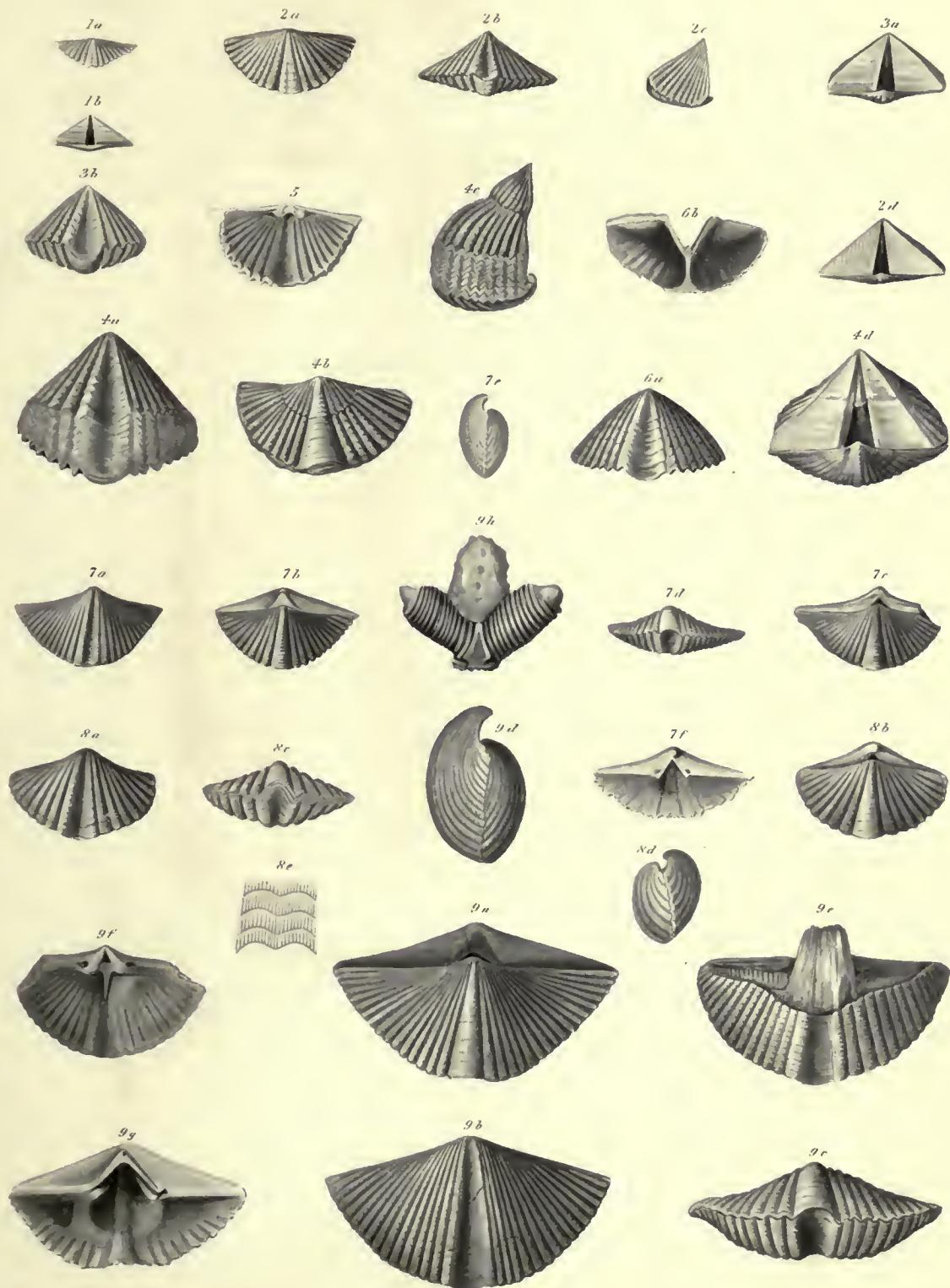


PLATE 97.

Fig. 1 *a - h*, & 2 *a - i*. *SPIRIFER ARRECTUS*.

Page
422

- 1 *a, b*. Dorsal and front views of a specimen in which the shell is partially exfoliated. (The mesial fold is more angular in the specimen than is represented in the figure.)
- 1 *c*. The ventral valve of another specimen, in which the plications are rounded.
- 1 *e*. A ventral valve which is more extended on the hinge-line, and preserves to a considerable degree the surface markings, and has about eight plications on each side.
- 1 *f*. A dorsal valve of proportionally greater length : the plications are broad and rounded, and seven are visible on each side.
- 1 *g*. Profile view of a gibbous specimen.
- 1 *h*. An enlargement of the surface, showing the fine concentric and radiating striae as they appear on a worn surface.
- 2 *a*. The dorsal side of a cast, in which the plications are sharply angular.
- 2 *b, c, d, e*. Casts of the ventral valve, showing a variety of form and markings in the cast of the muscular impression, and in the number and development of the plications.
- 2 *f*. Cardinal view of a cast which is somewhat distorted, and shows a part of the ventral valve : the beak is broken off.
- 2 *g*. A cardinal view of the cast of a ventral valve, showing the elevation of the process filling the beak.
- 2 *h*. A similar view, showing also the ventral side and the median line.
- 2 *i*. The east of a distorted specimen.

BRACHIOPODA

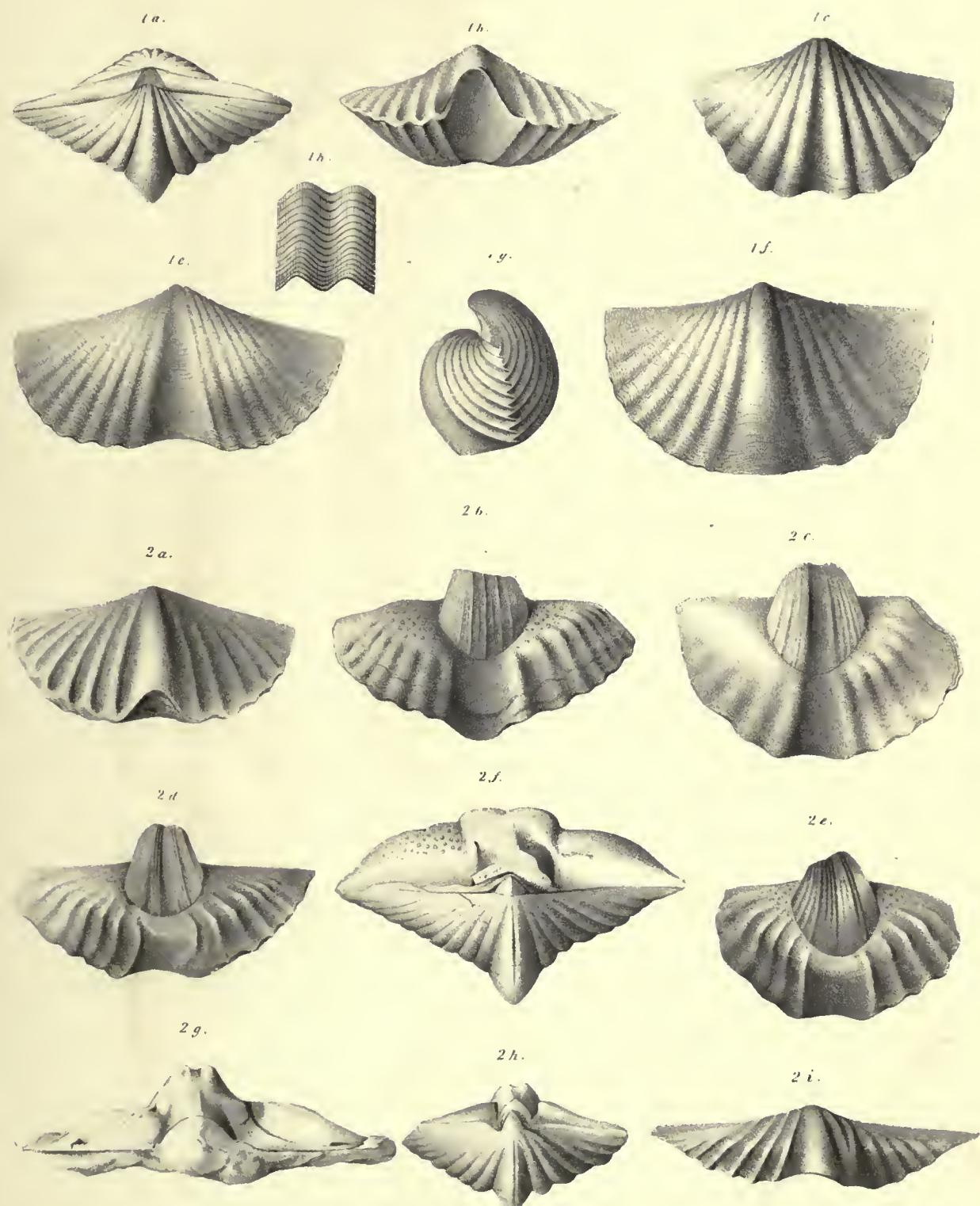


PLATE 98.

Fig. 1 - 8.

SPIRIFER ARENOSUS.

Page
425

- 1 & 2. Two views from the same specimen, which is slightly distorted and the shell partially removed.
3. Ventral valve of a large specimen.
4. A dorsal view, showing the area and foramen.
5. View of a ventral valve.
6. The dorsal side of a specimen where the shell is worn from the mesial fold, and partially from the sides of the valve.
- 6 a, b. Front and profile views of the same specimen, the ventral side being a cast of the interior.
7. The interior of a large ventral valve.
8. Enlargement of the plications, showing fine concentric striæ.

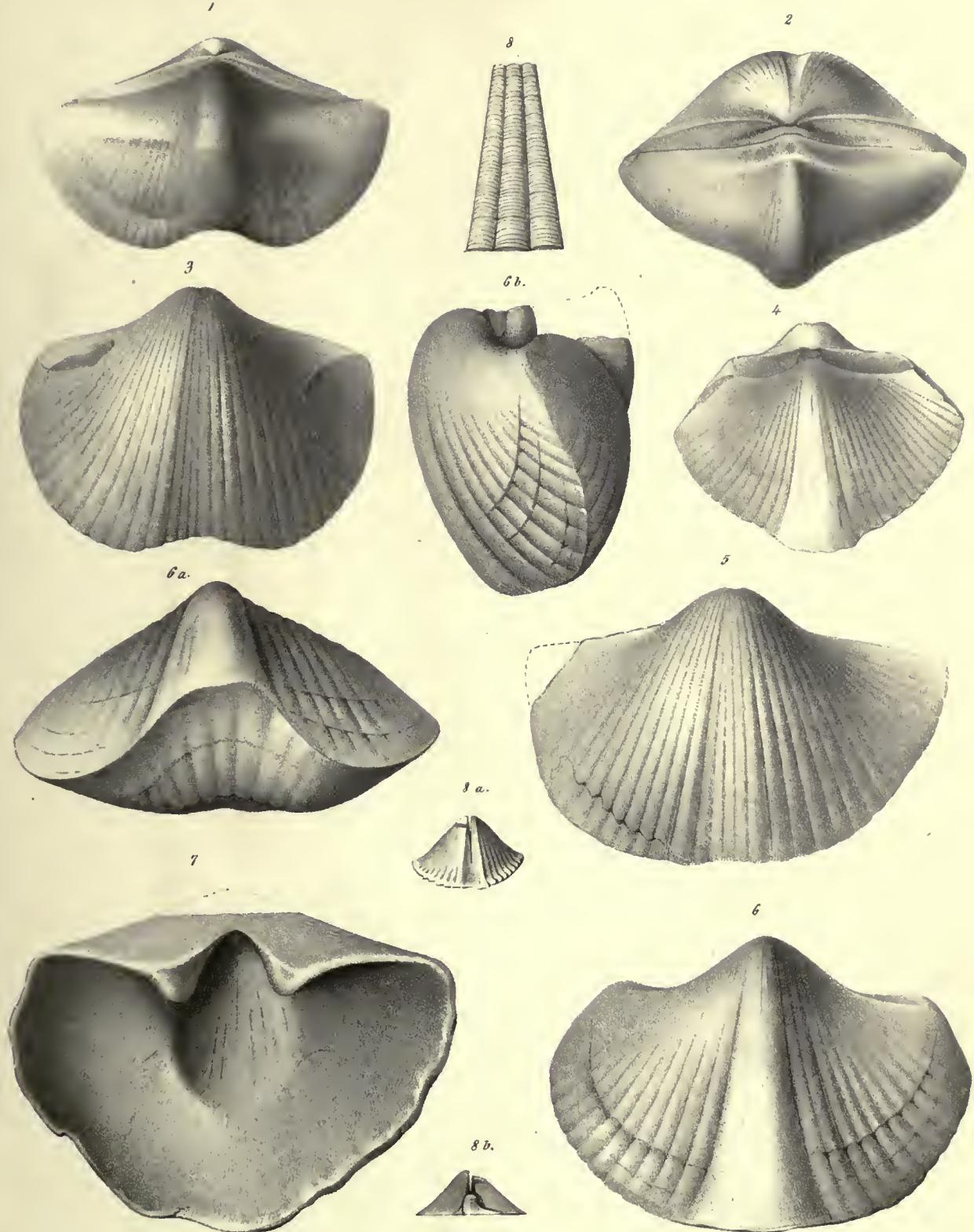
Fig. 8 a, b.

CYRTIA ROSTRATA.

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- 8 a, b. Ventral and cardinal view of an imperfect cast of this species.

BRACHIOPODA.



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PLATE 99.

Fig. 1 - 10.

SPIRIFER ARENOSUS.

Page
425

- 1, 2 & 3. Casts of the dorsal valve of young and medium-sized specimens.
- 4 & 5. Casts of larger individuals, showing the marks of the muscular impressions.
- 6 a. A specimen below the medium size, in which the marks of the muscular impression are well preserved, the transverse striae being as distinct as in older shells.
- 6 b. Cardinal view of the same specimen.
- 7 & 8. Casts of the ventral valve of very old specimens.
- 9 & 10. Casts of the dorsal valve, the latter figure presenting an unusual extension of the beak.

ORISKANY SANDSTONE.

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BRACHIOPODA

Pl. 99.

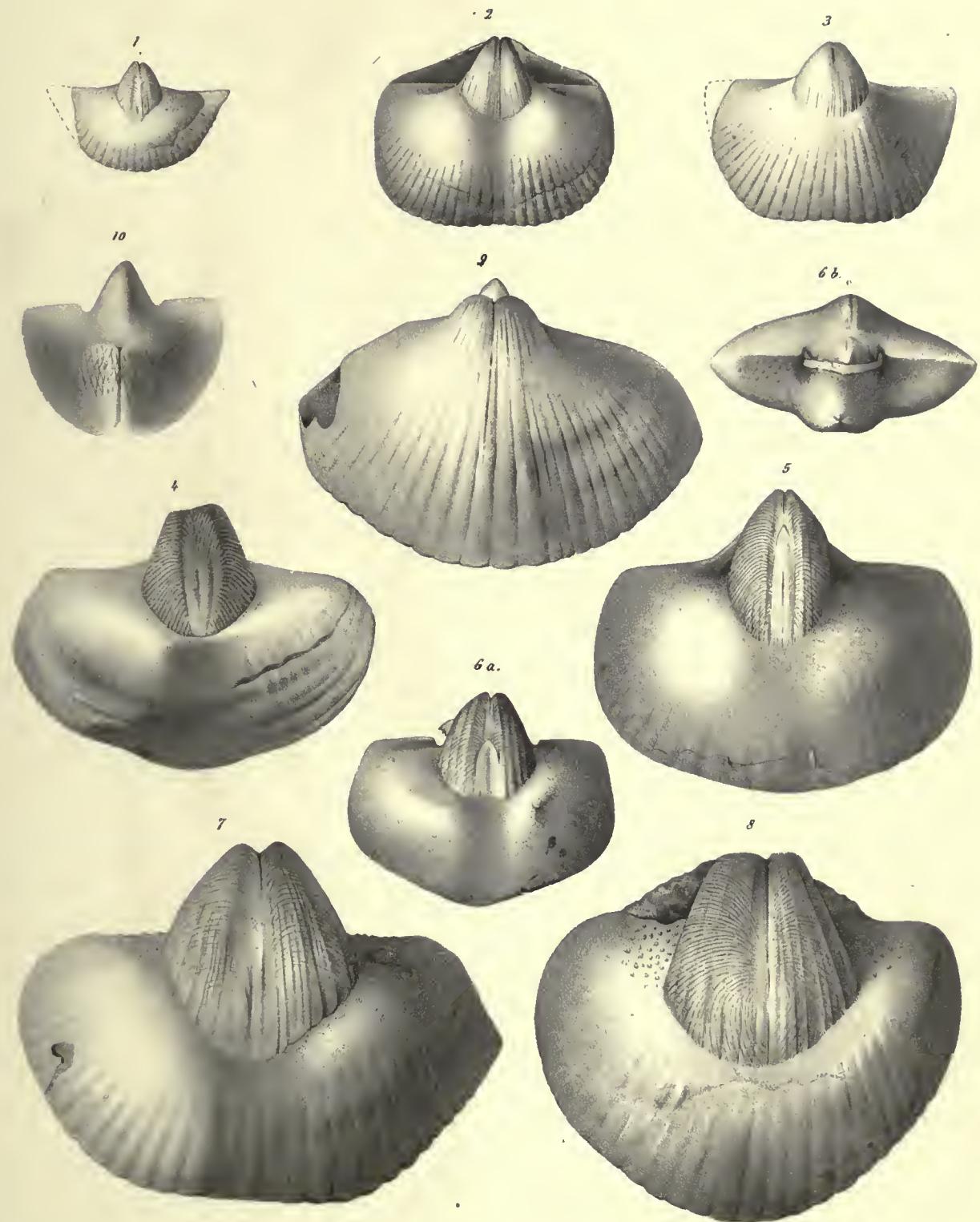




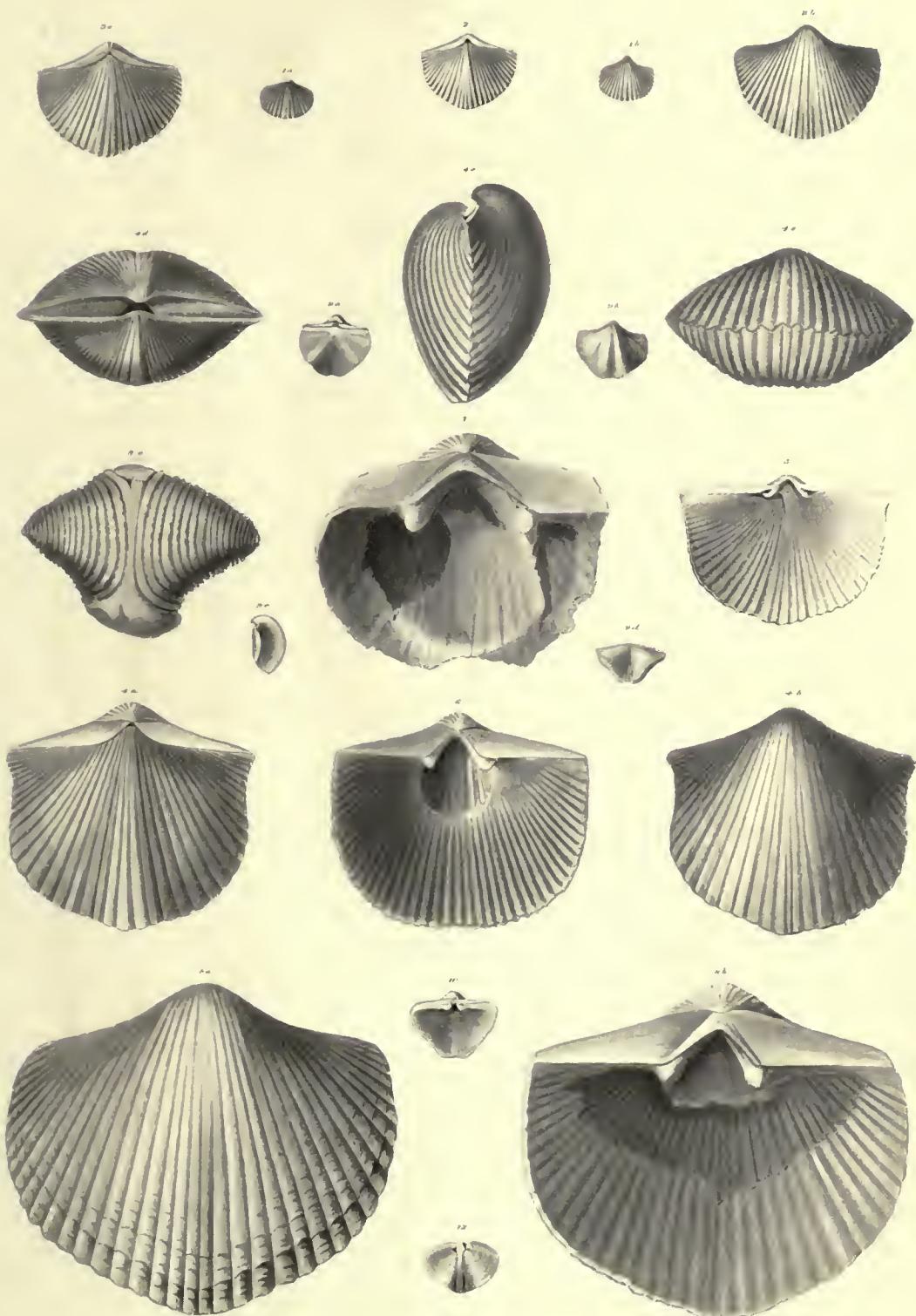
PLATE 100.

Fig. 1 - 8.	SPIRIFER ARENOSUS.	Page
		425
1 <i>a, b.</i>	Dorsal and ventral views of a very young specimen, showing the characters already described.	
2.	A larger specimen.	
3 <i>a, b.</i>	Dorsal and ventral views of a larger specimen, showing the commencement of the dichotomizing of the plications of the mesial fold and sinus.	
4 <i>a, b.</i>	Dorsal and ventral views of a specimen of medium size, in which the cardinal angles are a little produced.	
4 <i>c.</i>	Profile view of the same specimen.	
4 <i>d.</i>	Cardinal view of the same.	
4 <i>e.</i>	Front view of the same.	
5.	The interior of a dorsal valve.	
6.	The interior of a ventral valve, with an area of medium width, and a slight thickening on each side of the muscular impression.	
7.	An old shell having the foramen partially closed by a callosity, and an excessive thickening of the shell on the inside. The inner laminae of the shell are much broken away.	
8 <i>a.</i>	The exterior of the ventral valve of a large individual, which preserves the external markings in a good degree of perfection.	
8 <i>b.</i>	The interior of the same, showing the large area, partially closed foramen, and dental lamellæ, while the inner lamina of the shell around the muscular impression is exfoliated.	

Fig. 9 - 12.	SPIRIFER PYXIDATUS.	Page
9 <i>a.</i>	Dorsal view of a specimen of this species.	428
9 <i>b.</i>	Ventral view of the same.	
9 <i>c, d.</i>	Profile and front views of the same.	
10.	The interior of the ventral valve, showing the area, etc.	
12.	A cast of the dorsal valve.	

DRISKANY SANDSTONE.

BIVALVIA



100 XMAS



101

101 XMAS

101 XMAS

101 XMAS

101 XMAS

102

102 XMAS

102 XMAS



PLATE 101.

Fig. 1.

EATONIA PUMILA.

Page
437

1. The cast of the ventral valve, natural size.

Fig. 2 *a - g.*

EATONIA PECULIARIS.

436

- 2 *a, b, c.* Dorsal, ventral, and profile views of a specimen, having the ordinary form and proportions of this species in the Oriskany sandstone.
2 *d.* A cast of the dorsal valve of this species, showing the median septum and lateral lamellæ.
2 *e.* A cast of the ventral valve, showing the form of the muscular impression, the median septum, and the small points of attachment for the adductor muscles.
2 *f.* A specimen preserving a portion of the shell, which, on one side, is penetrated by the ramifying vessels. (The lamelloose structure of the shell is confounded with the surface striae in the figure, which gives it an unnatural appearance.) Figure enlarged to one and a half diameters.
2 *g.* A cast of the ventral valve, showing the muscular and vascular impressions (See corrected figure on Plate CI A).

Fig. 3 *a - m.*

MERISTA LATA.

431

- 3 *a.* Ventral valve of a young specimen.
3 *b.* Dorsal view of a large specimen.
3 *c, d, e.* Profile, ventral, and front views of the same specimen.
3 *f.* A ventral view of an intermediate form.
3 *g, h.* Dorsal and ventral views of a cast of this species. (The mark of the median septum is not shown in some of the figures.)
3 *i.* Profile view of the same.
3 *k.* Ventral view of an imperfect cast, showing a larger muscular area.
3 *l.* Ventral view of a large individual of this species.
3 *m.* Profile view of the same.

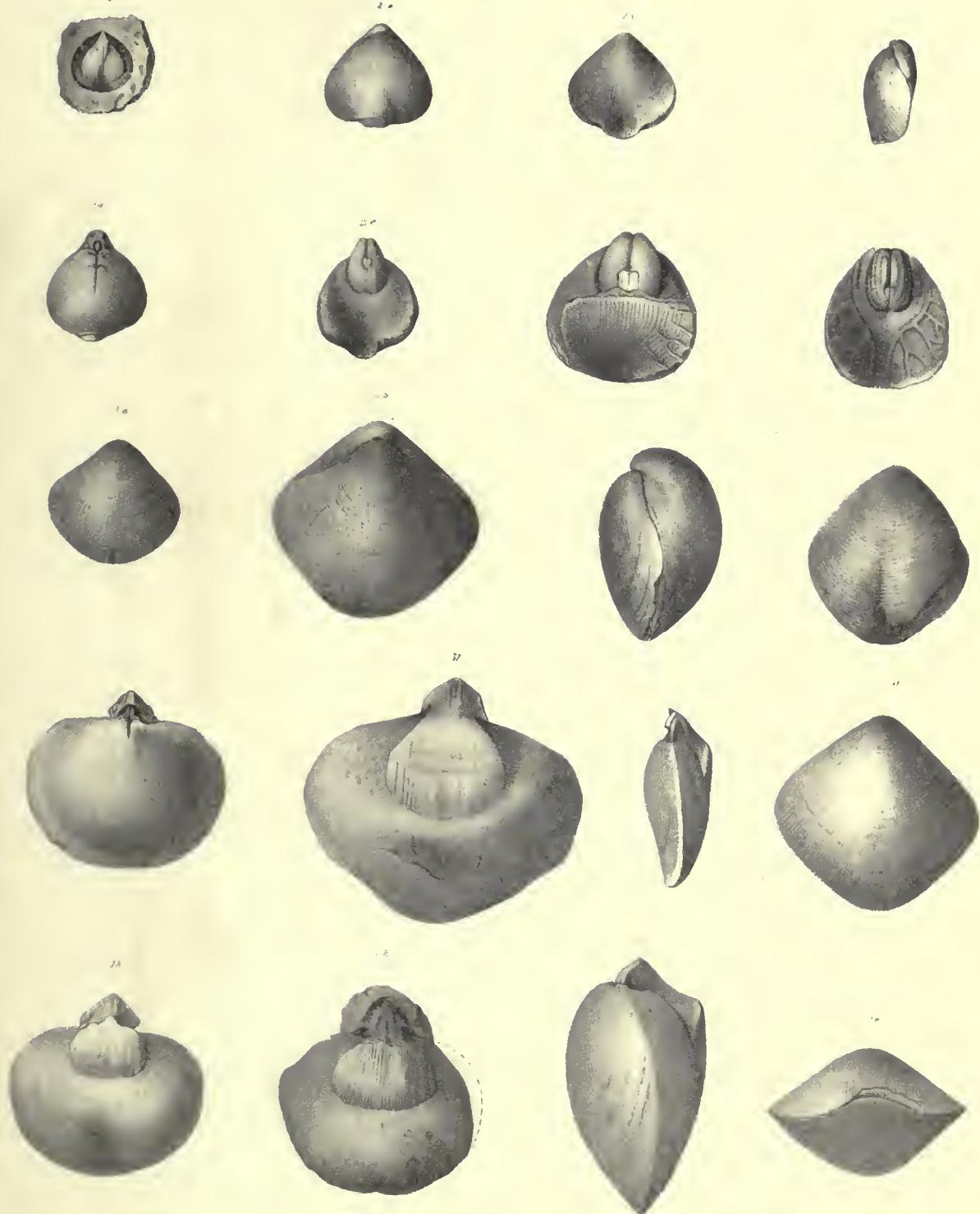


PLATE 101 A.

Fig. 1 <i>a - h.</i>	EATONIA PECULIARIS.	Page 436
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- 1 *a.* Interior of the ventral valve, showing the form of the muscular impressions, teeth, etc.
- 1 *b.* Profile of the same, showing the little elevations of the shell-surface, and the small pits for the adductor muscles *a* and the teeth *t.*
- 1 *c.* The dorsal valve, showing the crural processes and muscular impression.
- 1 *d.* Front view of the same, showing the deep sinus, and the relation of the crural processes and median septum.
- 1 *e.* Section of the dorsal valve, showing the elevation of the median septum and the crural processes.
- 1 *f.* Figure of the ventral valve (the inflected extension in front being removed) with a part of the dorsal valve attached, showing the crural processes, the median septum of the dorsal valve, the adductor imprints, the small oblique pits penetrating beneath the laminae of the shell, and the cardinal muscular impression.
- 1 *g.* View of another specimen with the dorsal valve downwards and the ventral valve broken away, to show the median septum articulating with the bifurcating cardinal process of the dorsal valve.
- 1 *h.* A cast of the ventral valve, showing the muscular and vascular impressions. This and the preceding figure are enlarged to once and a half the natural size.

Fig. 2 <i>a, b.</i>	EATONIA WHITFIELDI.	Page 437
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- 2 *a.* The exterior of the ventral valve.
- 2 *b.* The interior of the ventral valve, with the apex of the dorsal valve attached.

Fig. 3 - 6.	EATONIA SINUATA.	Page 438
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- 3 *a.* Dorsal view of a large individual, which shows the prevailing form.
- 3 *b, c.* Profile and front views of the same.
4. Dorsal view of a more orbicular form.
5. Ventral view of a cast, showing the strong muscular impression with the small central adductor impression.
6. Ventral view of a cast preserving a part of the shell; the form of the shell and muscular impression more rotund than the preceding.

Fig. 7 & 8.	RHYNCHONELLA RAMSAYI.	Page 446
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7. View of the dorsal side of the specimen.
- 8 *a, b.* Ventral and dorsal views of the cast of this species.

(BRACHIOPODA.)

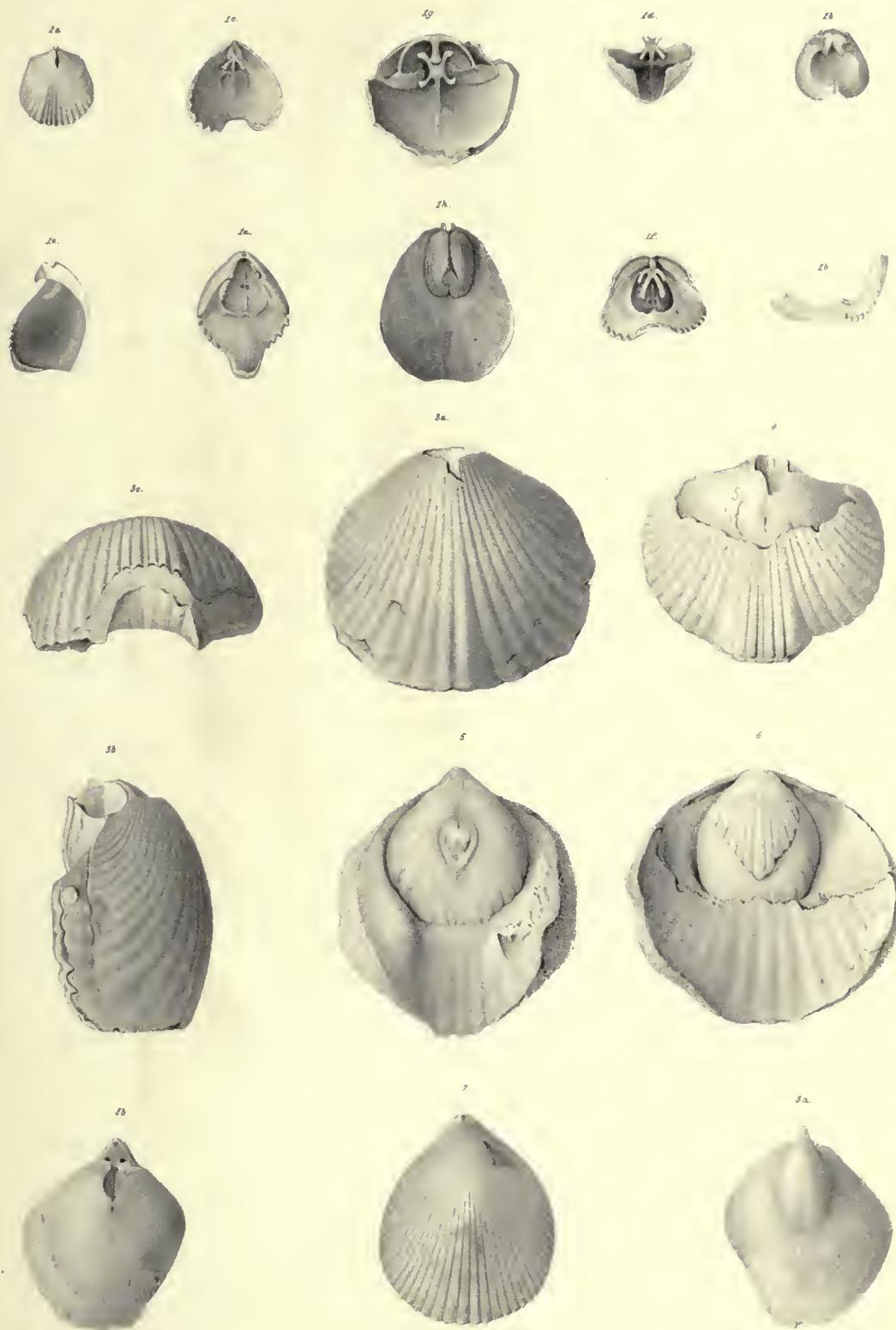


PLATE 102.

Fig. 1 & 2.

RHYNCHONELLA OBLATA.

Page
439

1. A young individual, retaining a part of the shell on the dorsal valve.
- 2 a. Front view, showing the broad shallow sinus.
- 2 b. The ventral side of another specimen, showing the muscular area and the ramifying vascular impressions. (The latter are represented in lines too sharply defined : the two sides are not connected by a sharp line, as shown in the figure; and their extension towards the front of the shell is in shallow depressions, which gradually become obsolete.)
- 2 c & d. Dorsal and cardinal views of the same specimen.

Fig. 3.

RHYNCHONELLA MULTISTRIATA.

440

3. View of the dorsal valve.

Fig. 3 a, b, c; 4 a, b, c. RHYNCHONELLA PLEIOPLEURA.

440

- 3 a. A ventral view of a cast. The area of the muscular impression is not sufficiently defined.
- 3 b. Dorsal view of the same specimen, showing a greater convexity of the valve, and a shorter medio-longitudinal septum than the *R. oblata*.
- 3 c. Front view of the same.
- 4 a. A larger individual. The specimen is somewhat broken and distorted.
- 4 b & c. Dorsal and profile views of the same.

(BRACHIOPODA.)

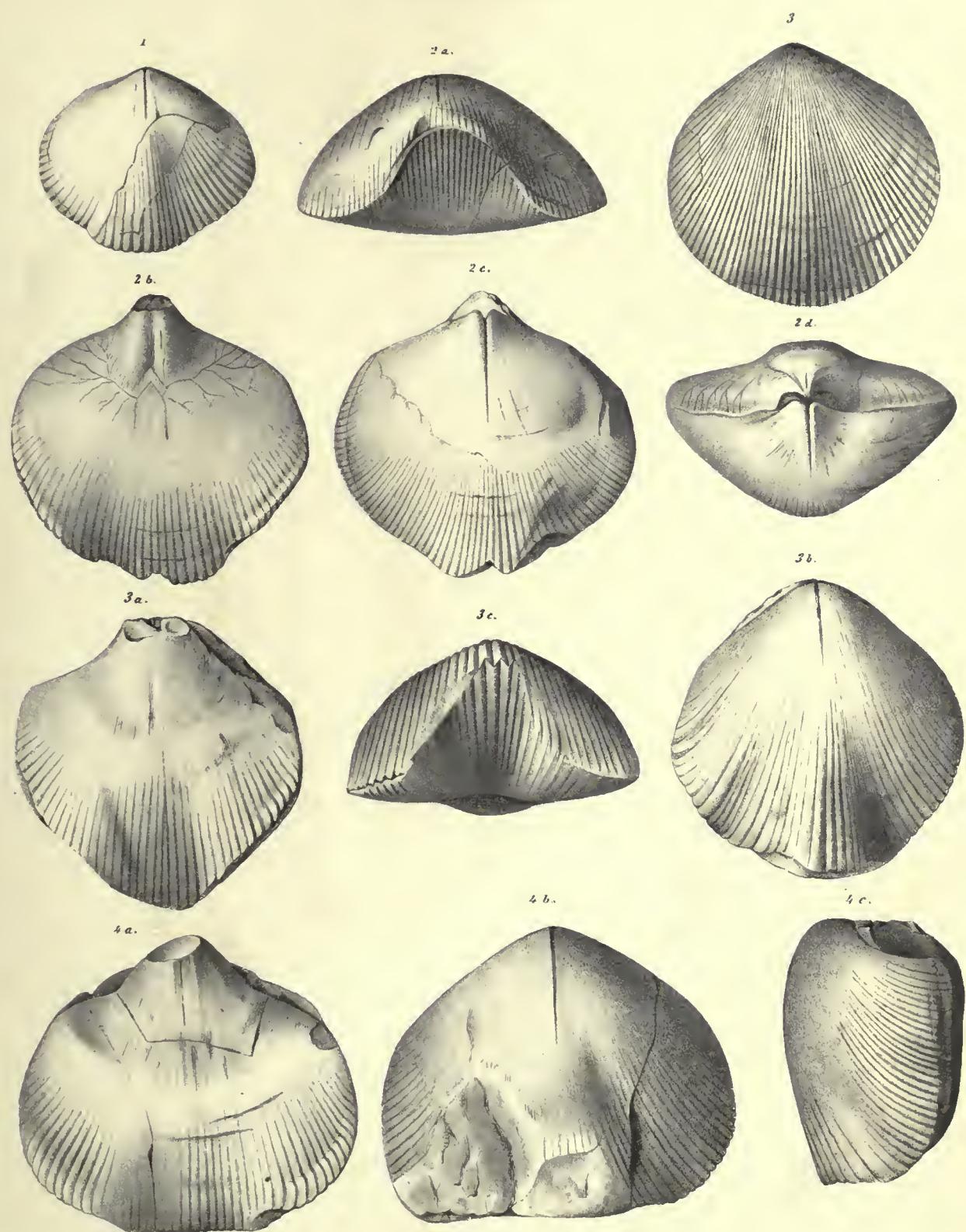




Fig. 10. *C. annuum*

Stems with few leaves, flowers numerous, fruit conical, yellow, 1.5 cm. long, 1 cm. wide, pulp white, seeds 10-12 mm. long, 5 mm. wide.



PLATE 103.

Fig. 1. *RHYNCHONELLA FITCHANA.* Page
441

- 1 a. The dorsal side of the specimen, which preserves a part of the shell.
- 1 b. Profile view of the same.

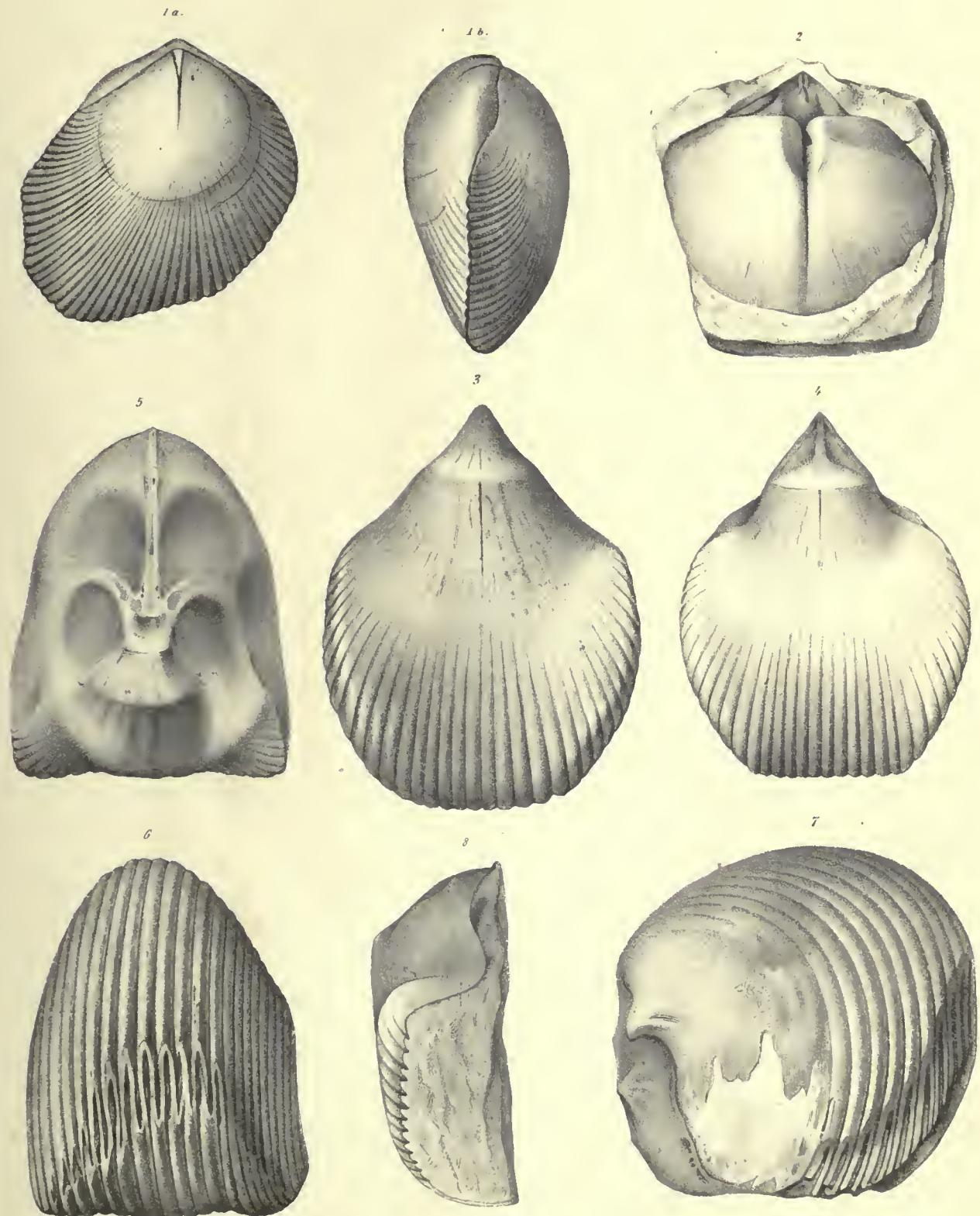
Fig. 2. *RHYNCHONELLA SEPTATA.* 443

2. A cast of the dorsal valve, showing indistinct marks of a few plications near the margin.

Fig. 3 - 8. *RHYNCHONELLA BARRANDI.* 442

3. Cast of the ventral valve, showing the large muscular impression. The area of the adductor muscles is not represented as large as in the specimen. The depression in front is less than one-eighth of an inch below the plane of the more prominent margins.
4. A similar cast of a smaller individual, in which the form of the rostral cavity is better preserved than in the preceding. The casts show a great thickening of the shell at the beak.
5. Cardinal view of a specimen which is a cast from the interior of both valves, showing the great elevation of the dorsal valve, the strong median septum, and the deep sinuosity on each side of the beak.
6. Front view of the same specimen.
7. Lateral view of the same, showing the great lateral extension of the dorsal valve.
8. Profile view of a cast of the ventral valve, showing the abrupt inflection at the margin and the expansion of the shell below the beak, which fills the lateral sinuosities in the opposite valve.

(BRACHIOPODA)



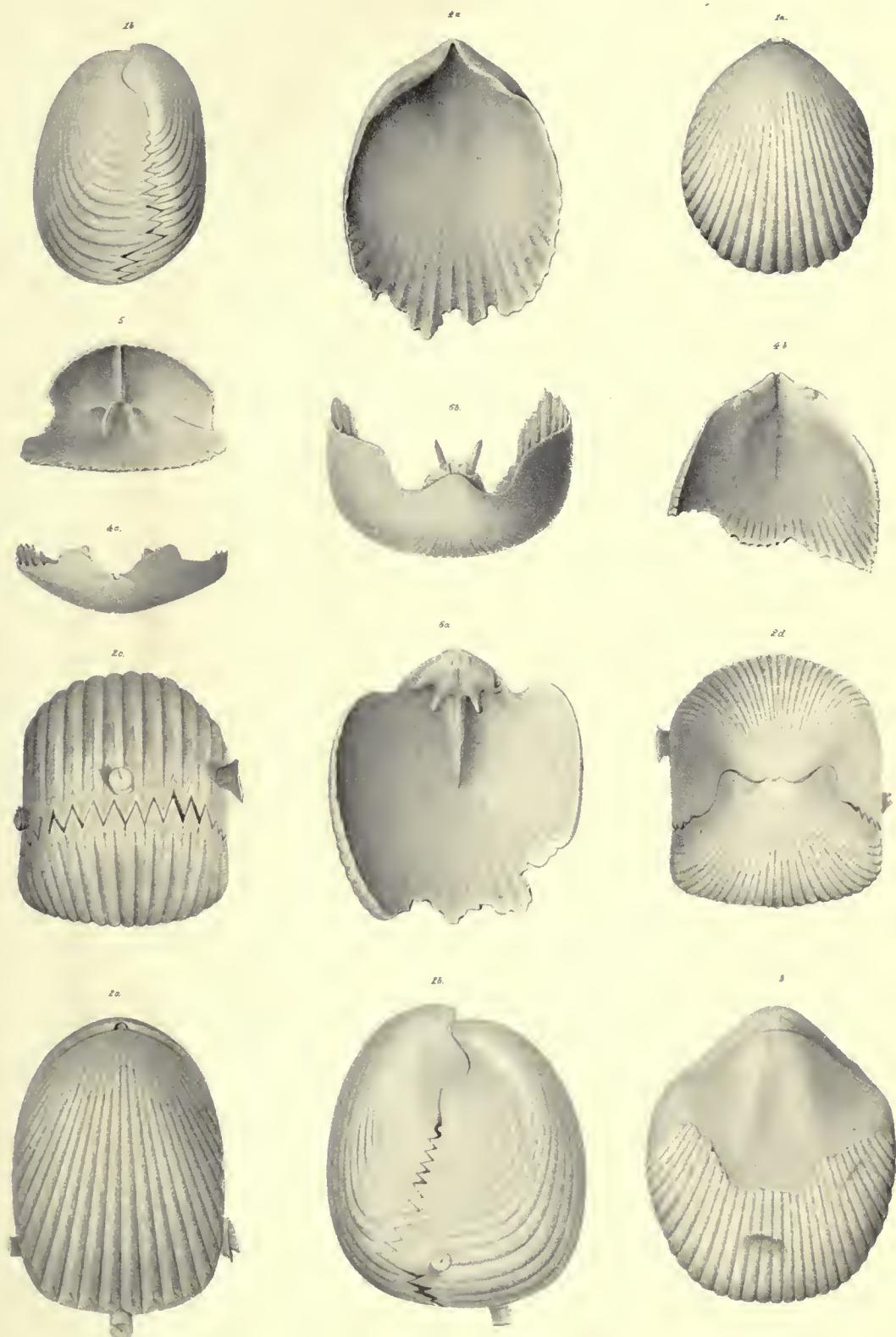
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PLATE 103 A.

Fig. 1 - 6. *RHYNCHONELLA SPECIOSA.* Page
444

- 1 a. Dorsal view of a specimen of medium size.
- 1 b. Profile of the same, showing some parasitic bodies attached at the front and side.
- 2 a. Dorsal view of a larger individual.
- 2 b & c. Profile and front views of the same.
- 2 d. Cardinal view, showing the deep sinuosities in the dorsal valve and the auricular extensions of the ventral valve.
- 3. A partial cast of a large individual of this species.
- 4 a. The ventral valve, showing the muscular impression : the teeth are broken off.
- 4 b. A fragment of a dorsal valve, showing the muscular impression, teeth, etc.
- 4 c. Cardinal view of the preceding specimen.
- 5. The rostral portion of a specimen, showing the junction of the valves, the median septum in the dorsal valve, and the crural processes of the ventral valve.
- 6 a. The interior of the dorsal valve, showing the median septum, the crural processes, the thickened cardinal process with the prominent bilobed summit, and the dental fossets.
- 6 b. Cardinal view of the preceding specimen, showing the sinuosities on each side of the beak, the cardinal and crural processes.

(BRACHIOPODA.)



of the PTA

103

PTA's role in community

While the Association's primary focus has been PTA work, it is also involved in local issues such as education, child welfare, and other community concerns. It is involved in many different areas of concern to the community, from the local school system to the national level.

104

PTA's role in community

PTA is involved in many different areas of concern to the community, from the local school system to the national level. It is involved in many different areas of concern to the community, from the local school system to the national level.

105

Community involvement

Community involvement is important because it helps to strengthen the local community and make it a better place to live.

106

Community involvement

Community involvement is important because it helps to strengthen the local community and make it a better place to live.

107

Community involvement

Community involvement is important because it helps to strengthen the local community and make it a better place to live.

108

Community involvement

Community involvement is important because it helps to strengthen the local community and make it a better place to live.

109

Community involvement

Community involvement is important because it helps to strengthen the local community and make it a better place to live.

PLATE 103 B.

Fig. 1 *a - g.*

LEPTOCÆLIA FLABELLITES.

Page
449

- 1 *a, b.* Ventral and dorsal views of a specimen of this species.
- 1 *c, d.* Dorsal and profile views of a specimen of the ordinary form of this species.
- 1 *e.* Interior of a specimen with rounded extremities.
- 1 *f.* Interior of the dorsal valve of this species.
- 1 *g.* The interior of the dorsal valve, showing the cardinal process, crura and crural plate, restored from cavities seen in a cast.

Fig. 2 *a - g.*

LEPTOCÆLIA FIMBRIATA.

450

- 2 *a, b.* Dorsal and ventral views of a specimen of ordinary size.
- 2 *c.* Front view of a specimen a little greater than the ordinary size, and which has the fimbriated expansion extending below the cardinal angles.
- 2 *d.* The ventral side of the preceding specimen, enlarged two diameters.
- 2 *d+ & 2 d—.* Dorsal and profile views enlarged the same as the preceding.
- 2 *e.* The interior of the ventral valve, showing the cardinal teeth and the muscular impression.
- 2 *e (bis).* The interior of the dorsal valve, showing the muscular impression, the cardinal process, the oblique lamella, median septum and bases of the crural processes.
- 2 *f.* The same enlarged.
- 2 *g.* The specimen fig. 2 *e* enlarged, to show more distinctly the teeth and muscular impressions.

Fig. 3 *a, b, c.*

LEPTOCÆLIA DICHOTOMA.

452

- 3 *a.* Dorsal view of the specimen.
- 3 *b.* Ventral view of the same.
- 3 *c.* Front view, showing the outline, the depression of the dorsal valve, and the incurved beak.

Fig. 4 & 5.

LEPTACÆLIA PLANOCONVEXA.

Atrypa planoconvexa : Pal. New-York, Vol. ii, pa. 75, pl. 23, f. II.

- 4 *a, b.* Dorsal and ventral views of a specimen of this species.
- 5. Interior of the dorsal valve of this species.

Fig. 6.

PHOLIDOPS SQUAMIFORMIS.

490

- 6 *a.* Interior of a specimen of the natural size.
- 6 *b.* The same enlarged.

Fig. 7.

PHOLIDOPS OVATUS.

490

- 7 *a.* Exterior of a specimen of the natural size.
- 7 *b.* The same enlarged.

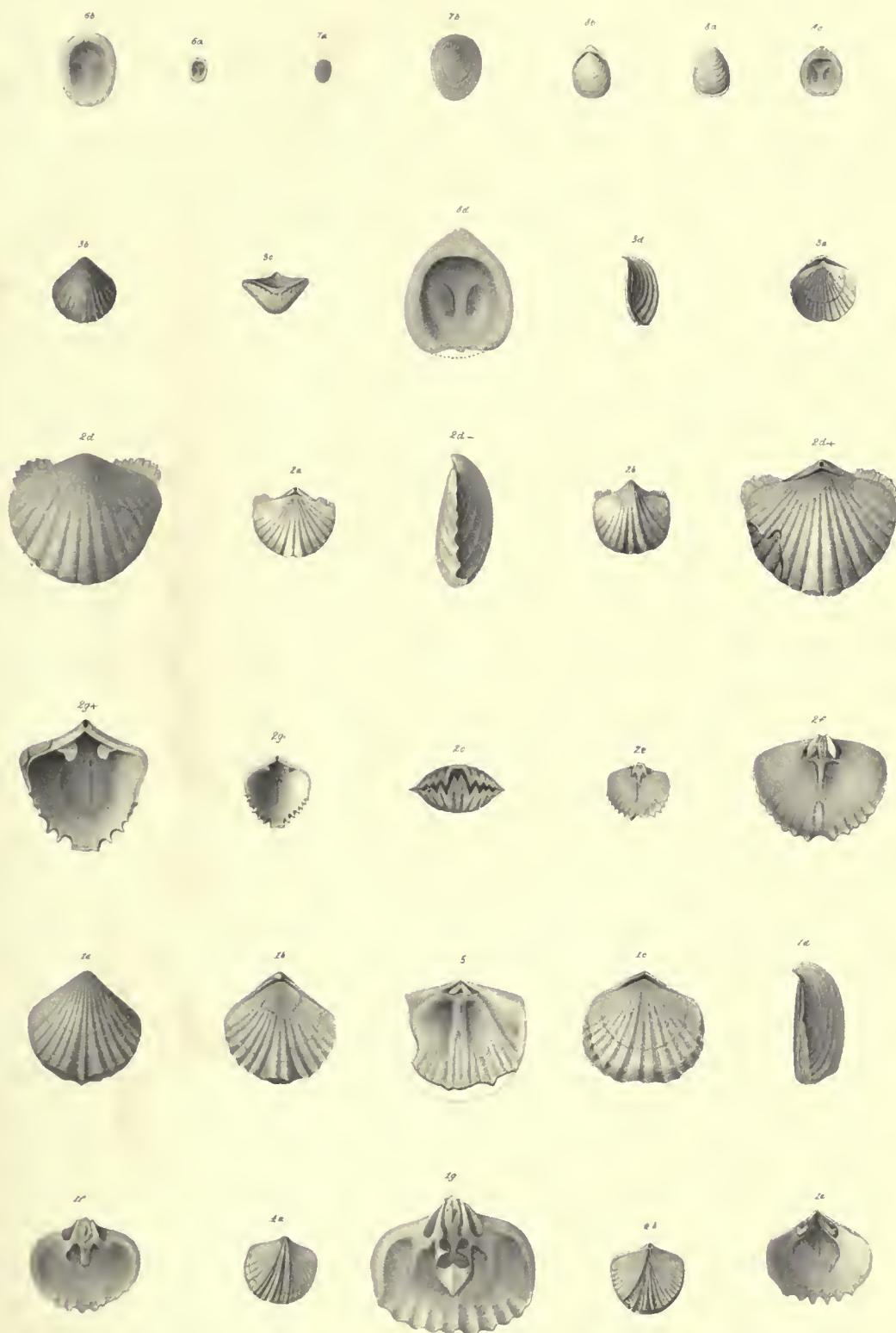
Fig. 8 *a - d.*

PHOLIDOPS TERMINALIS.

490

- 8 *a.* The exterior of the shell, of the natural size.
- 8 *b.* Two valves in conjunction. It is not determined that these valves are in their natural relations, and no articulating processes have been observed.
- 8 *c.* The interior of another specimen.
- 8 *d.* The same enlarged.

(BRACHIOPODA.)



974

As a result, the government must take steps to ensure that the public has access to information about the risks and benefits of new technologies.

PLATE 104.

Fig. 1 - 4.

RENSSELÆRIA OVOIDES.

Page
456

- 1 a. The dorsal side of a young specimen, where the length little exceeds the width; the shell nearly all exfoliated.
- 1 b, c. Ventral and profile view of the cast of a larger individual, preserving a little of the shell.
- 1 d. Cardinal view of a cast of a specimen of medium size, which is more ventricose than 1 b c.
- 2 a, b. Dorsal and profile view of a large specimen of elliptical form, preserving a part of the shell in front.
- 3 a. Cardinal view of a large cast, the ventral valve uppermost.
- 3 b. Dorsal view of an individual of ovate form, preserving the greater part of the shell.
- 3 c. Cardinal view of a gibbous specimen.
- 3 d. Cardinal view of an extremely gibbous specimen, which is flat or slightly concave at the sides, and the centre of the ventral valve strongly elevated.
- 4. A fragment of stone presenting the aspect of these fossils in their usual condition in the rock.

ORISKANY SANDSTONE.
(BRACHIOPODA.)

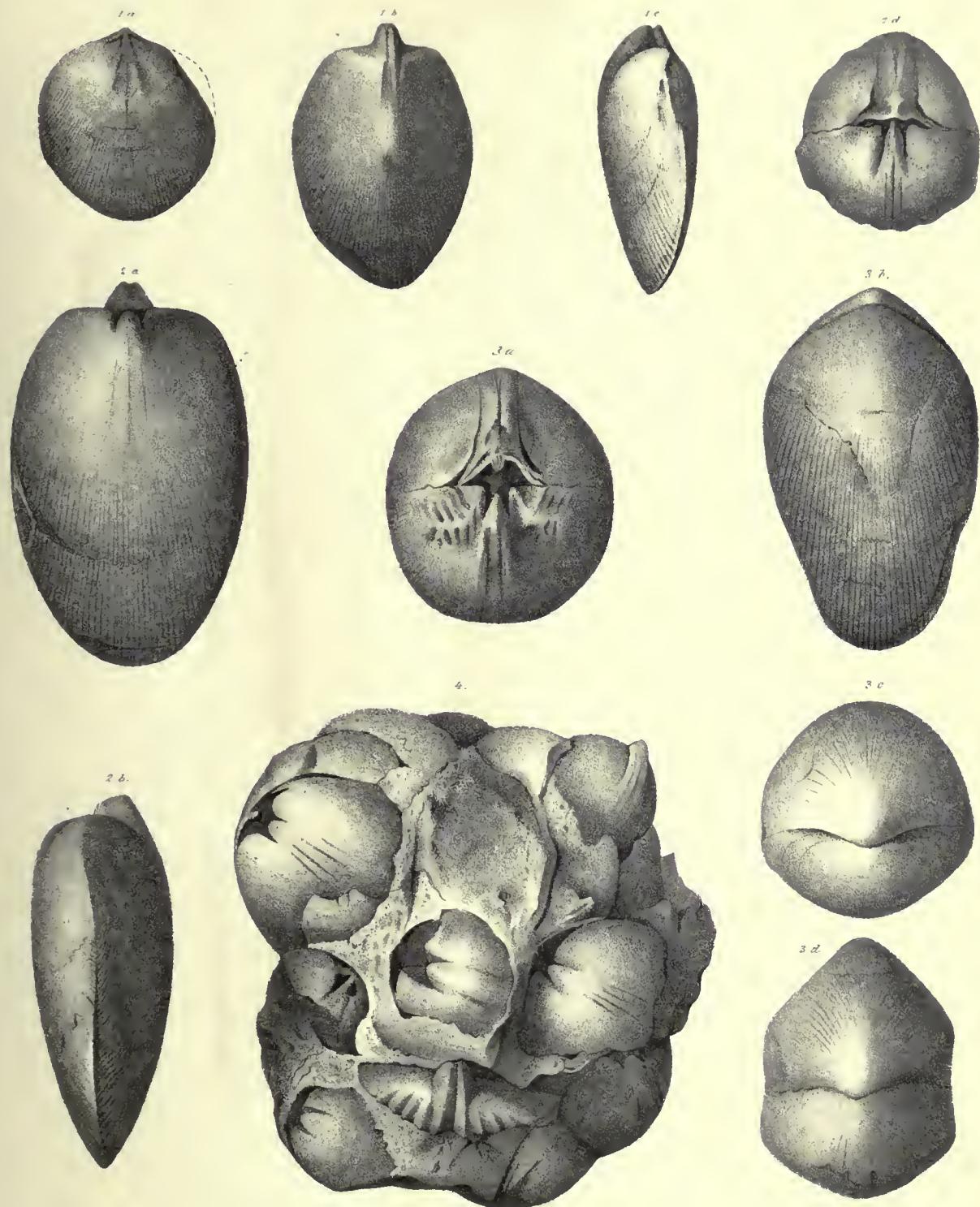




Figure 1. Unintentional neglect of a patient with a 10-day history of bilateral foot ulcers. Note the lack of awareness of the ulcers and the absence of any self-care activity despite the presence of a large, dark, necrotic ulcer on the plantar surface of each foot.



PLATE 105.

Fig. 1 - 6. RENSSELÆRIA OVOIDES. Page 456

1. Dorsal valve of a full-grown individual, showing the abrupt inflection at the sides.
2. Profile of a large shell in which the parts are pretty well preserved in all their proportions; the dorsal valve being partially exfoliated, and the striae not visible.
3. Ventral view of the preceding.
4. Dorsal view of a large specimen, which is unusually contracted at the sides on the lower half of the shell.
5. A partial cast of a ventral valve, showing the form of the muscular impressions and rostral cavity. The forms of the dental plates and teeth are seen on each side, below the beak.
6. A partial cast of a dorsal valve, showing a process reaching from the beak to the muscular impressions below. This process is the filling of the foramen, and extends from the cavity of the dorsal valve beneath the bases of the crural supports, coming out at the apex of the beak.

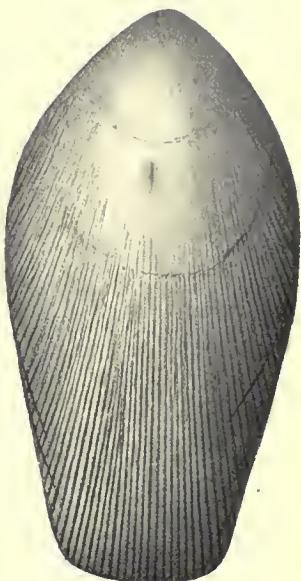




PLATE 106.

Fig. 1 *a - f.*

LEPTOCÆLIA FLABELLITES.

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449

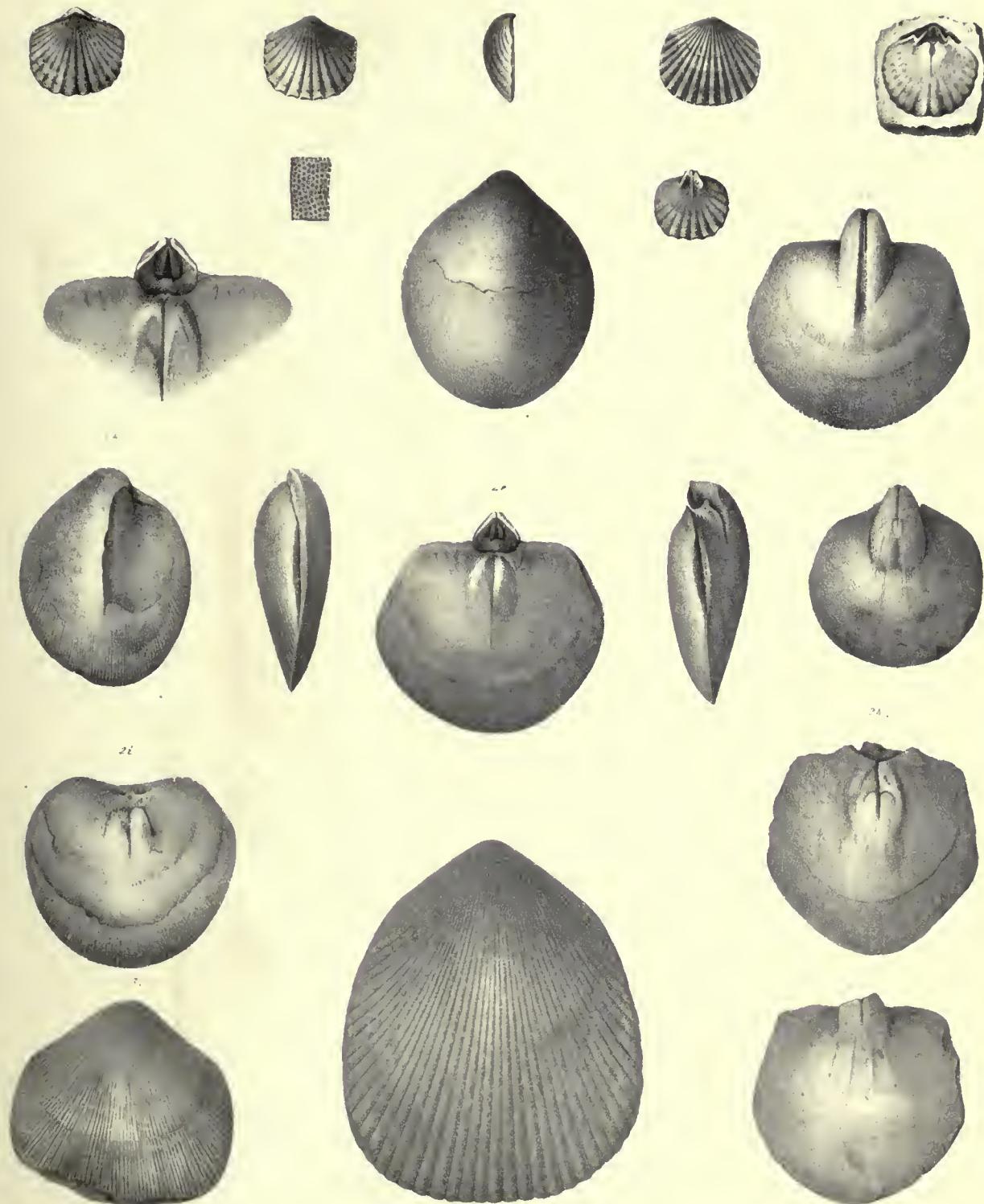
- 1 *a, b, c, d.* Dorsal, ventral, and profile view of this species. (The figures, unfortunately, represent too many plications by two on each side of the centre.)
1 *e.* The interior of the dorsal valve, showing the cardinal process, etc.
1 *f.* A cast or impression of a larger dorsal valve.

Fig. 2 *a - l.*

RENSSELÆRIA OVALIS.

458

- 2 *a.* The ventral valve of a specimen, which partially preserves the shell on the upper part.
2 *b.* Another specimen from which the shell is partially removed.
2 *c.* Profile of the same, showing the inflected margins of the shell. The specimen has been flattened by pressure.
2 *d.* Ventral view of a well-preserved cast of this species.
2 *e.* Dorsal view of the same, showing the muscular impression, imprints of the hinge-plates, and the dental plates preserved in the cast of the rostral cavity of the opposite valve.
2 *f.* Profile view of the preceding specimen.
2 *g.* The upper portion of the preceding specimen enlarged. The indentations on the hinge-line are due to marks sometimes shown on the valves of old specimens of some or all the species of this genus.
2 *h.* The cast of a smaller specimen, showing the muscular area and the marks of the adductor muscles.
2 *i, k, l.* Dorsal and ventral views of imperfect casts of this species.



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PLATE 107.

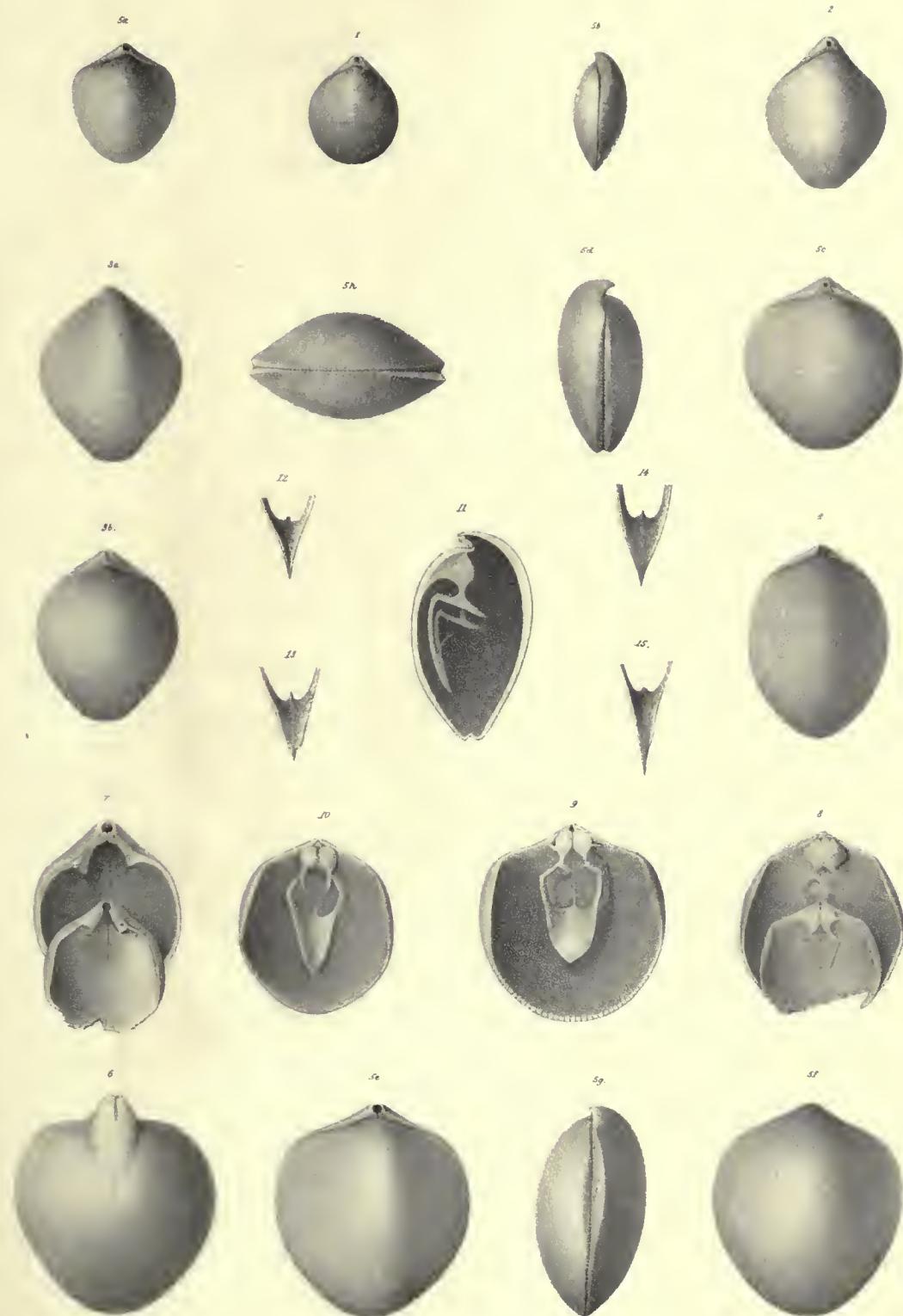
Fig. 1 - 15.

RENSSELÆRIA SUSSANA.

Page
459

1. Dorsal view of a specimen of a symmetrically oval form.
2. A specimen showing a more prominent beak and contracted front.
- 3 *a, b.* Ventral and dorsal views of a specimen of less extreme form than the preceding.
4. An elongate form which is more symmetrically oval.
- 5 *a.* Dorsal view of a small specimen of the prevailing or characteristic form.
- 5 *b.* Profile view of the preceding, showing a scarcely perceptible incurving of the valves at their lateral margins.
- 5 *c.* Dorsal view of an older specimen, showing the perfect condition of the shell.
- 5 *d.* Profile view of the same, showing the inflected margins of the shell.
- 5 *e, f, g & h.* Dorsal, ventral, and profile views of a full-grown specimen of this species.
6. A cast of a similar form.
7. The interior of two ventral valves, one preserving the deltidial plates and the other without them. The muscular impressions are but feebly preserved.
8. The interior of two dorsal valves; the one showing the hinge-plates in their usual form, and the upper one having them much thickened: in the latter, the crura diverge at their origin, while in the other they proceed in a longitudinal direction for a short distance before bifurcating.
9. The dorsal valve, showing the hinge-plates, dental fossets, foramen, crura and crural plate, and appendages. The figure is slightly enlarged.
10. The figure of a similar specimen, where the hinge-plates are much thickened and rounded, the crura branching near the base, and the crural plate narrower than in the preceding.
11. A diagram showing a longitudinal section of the two valves in connexion, with the crura and appendages.
- 12, 13, 14 & 15. Figures showing the variety of form of the crural plate, as observed in several individuals of this species.

(BRACHIOPODA.)



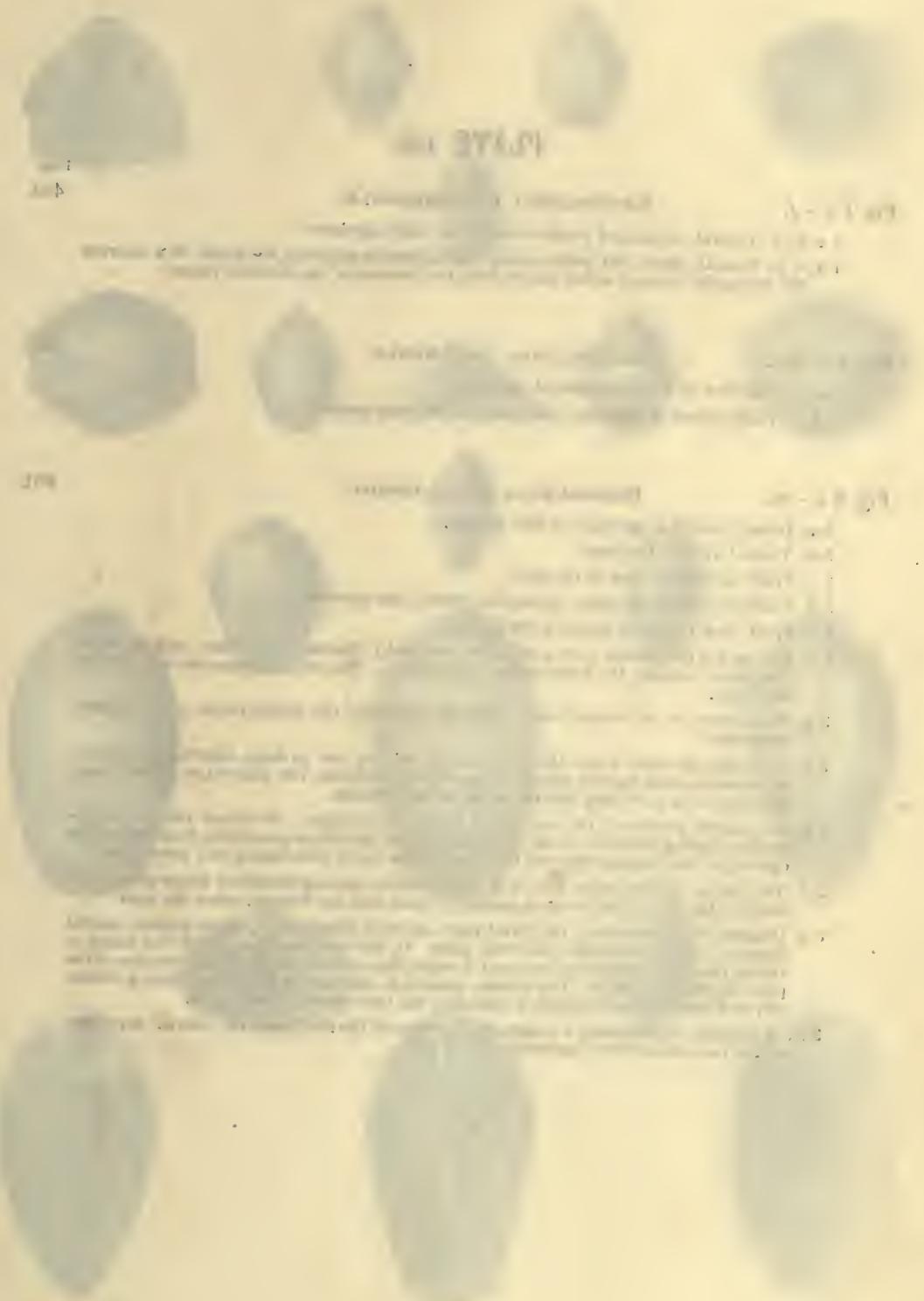
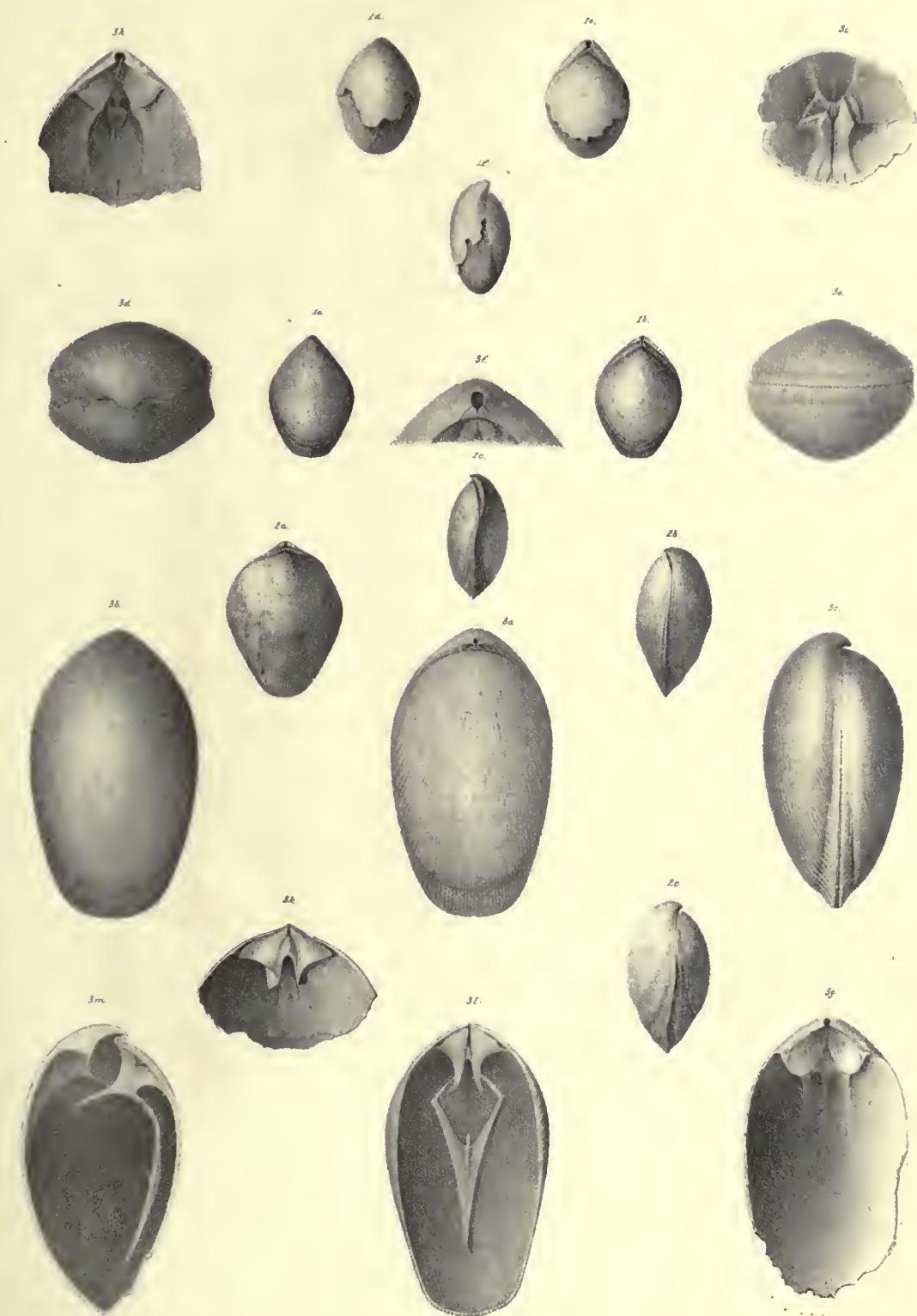


PLATE 108.

	Page
Fig. 1 a - f.	RENSSELÆRIA CUMBERLANDIÆ.
1 a, b, c.	464
1 a, b, c. Ventral, dorsal and profile views of an entire specimen.	
1 d, e, f.	464
1 d, e, f. Ventral, dorsal and profile views of an imperfect specimen, the dorsal view showing the triangular foramen which results from the removal of the deltoidal plates.	
Fig. 2 a, b, c.	RENSSELÆRIA INTERMEDIA.
2 a.	463
2 a. Dorsal view of a well-preserved specimen.	
2 b, c.	463
2 b, c. Profile views of different individuals of the same species.	
Fig. 3 a - m.	RENSSELÆRIA MARYLANDICA.
3 a.	461
3 a. Dorsal view of a specimen of this species.	
3 b.	461
3 b. Ventral view of the same.	
3 c.	461
3 c. Profile or lateral view of the same.	
3 d.	461
3 d. Cardinal view of the same, having the ventral side upwards.	
3 e.	461
3 e. Front view (not well shown in the figure).	
3 f.	461
3 f. The apex of the ventral valve (somewhat enlarged), showing the foramen, and the deltoidal pieces forming the lower side of the foramen. The outer margins are too thick in the figure.	
3 g.	461
3 g. The interior of the ventral valve, showing the teeth, the dental plates, and muscular impression.	
3 h.	461
3 h. A similar specimen where the cavity of the valve is not so deep, showing the form of the muscular area and the places of the adductor muscles. The inner edges of the dental plates are seen extending into the cavity of the foramen.	
3 i.	461
3 i. The rostral portion of the two valves joined at the hinge : the dorsal valve is downwards, showing the bases of the crural plates and the ridges proceeding from these. The opening of the foramen between the bases of the crural processes is very perceptible.	
3 k.	461
3 k. The interior of the upper part of a dorsal valve, showing the broad hinge-plates, the bases of the crura, the elevated median process, and the foramen below the apex.	
3 l.	461
3 l. Diagram of the interior of the dorsal valve, showing hinge-plates, dental sockets, apical foramen, crural processes and crural plate. In the specimen from which this figure is taken, these processes are all encased in crystalline matter, the form and direction of the parts alone being visible. The slender process at the base of the crural plate is broken off; and since its entire length is unknown, the base alone is represented.	
3 m.	461
3 m. A diagram representing a longitudinal section of the shell, and the internal apparatus of the two valves when connected.	

(BRACIOPODA.)



BY STAGE

— Standard time per stage —
approx. 10 min. for the starting movement and 10 min. for the ending movement.

— Total time per stage —

— Total time for all stages —

approx. 10 min. for the starting movement and 10 min. for the ending movement.

— Total time for all stages —

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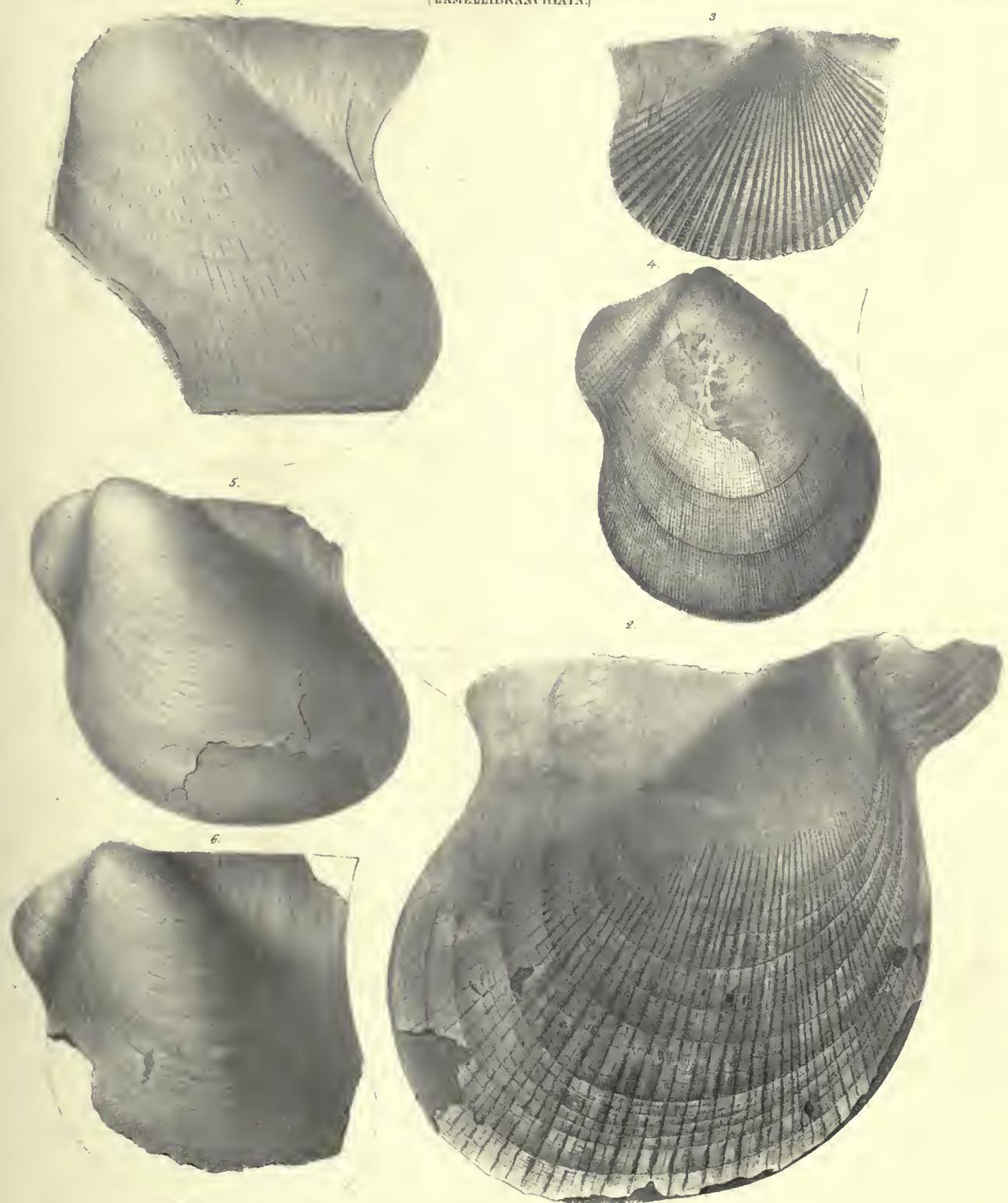
— Total time for all stages —

approx. 10 min. for the starting movement and 10 min. for the ending movement.

— Total time for all stages —

PLATE 109.

	Page
Fig. 1 & 2. <i>AVICULA TEXTILIS, var. ARENARIA.</i>	465
1. An impression made in sandstone by the exterior surface of the smaller or right valve.	
2. The imprint of the exterior of the left valve of this species.	
Fig. 3. <i>AVICULA RECTICOSTA.</i>	466
Fig. 4. <i>MEGAMBONIA BELLISTRIATA.</i>	467
4. A cast of the left valve, from a mould of the exterior in sandstone.	
Fig. 5 & 6. <i>MEGAMBONIA LAMELLOSA.</i>	467
5. The left valve of a specimen of this species.	
6. The left valve, showing a proportionally more extended wing than the preceding.	



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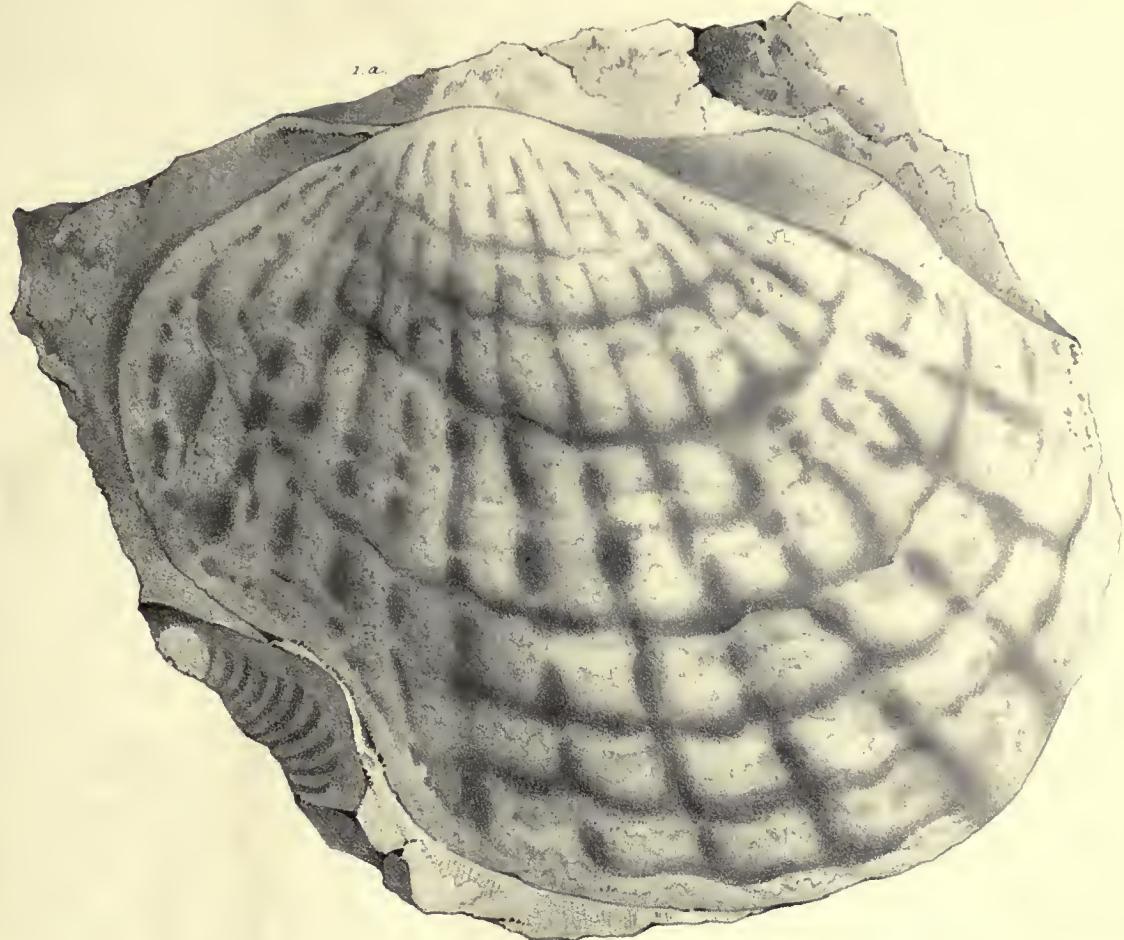
Journal of the American Statistical Association, Vol. 33, No. 201, March, 1938.

PLATE 110.

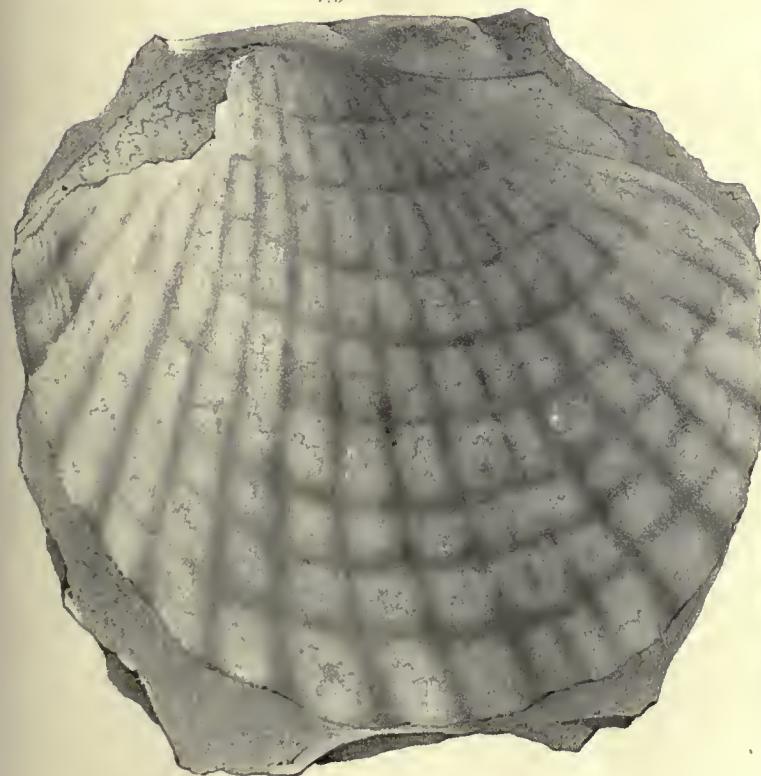
Fig. 1.	AVICULA GEBHARDI.	Page 466
1 a.	A cast of the left valve of a specimen.	
1 b.	A smaller specimen, in which the ribs are better preserved.	

Fig. 2.	AVICULA TEXTILIS, var. ARENARIA.	Page 465
2.	The exterior surface of a weathered and exfoliated specimen of the left valve.	

ACEPHALA.



1.b



2.





ALBERT

ALBERT

ALBERT

PLATE III.

Page
479

Fig. 1.

CONULARIA LATA.

1. A fragment preserving the impression of parts of two sides : the extreme length of one side, which is imperfect both above and below, is five inches.

Fig. 2.

AVICULA GEBHARDI.

466

2. The cast of the left valve of a large individual of this species.

(ACEPHALA.)

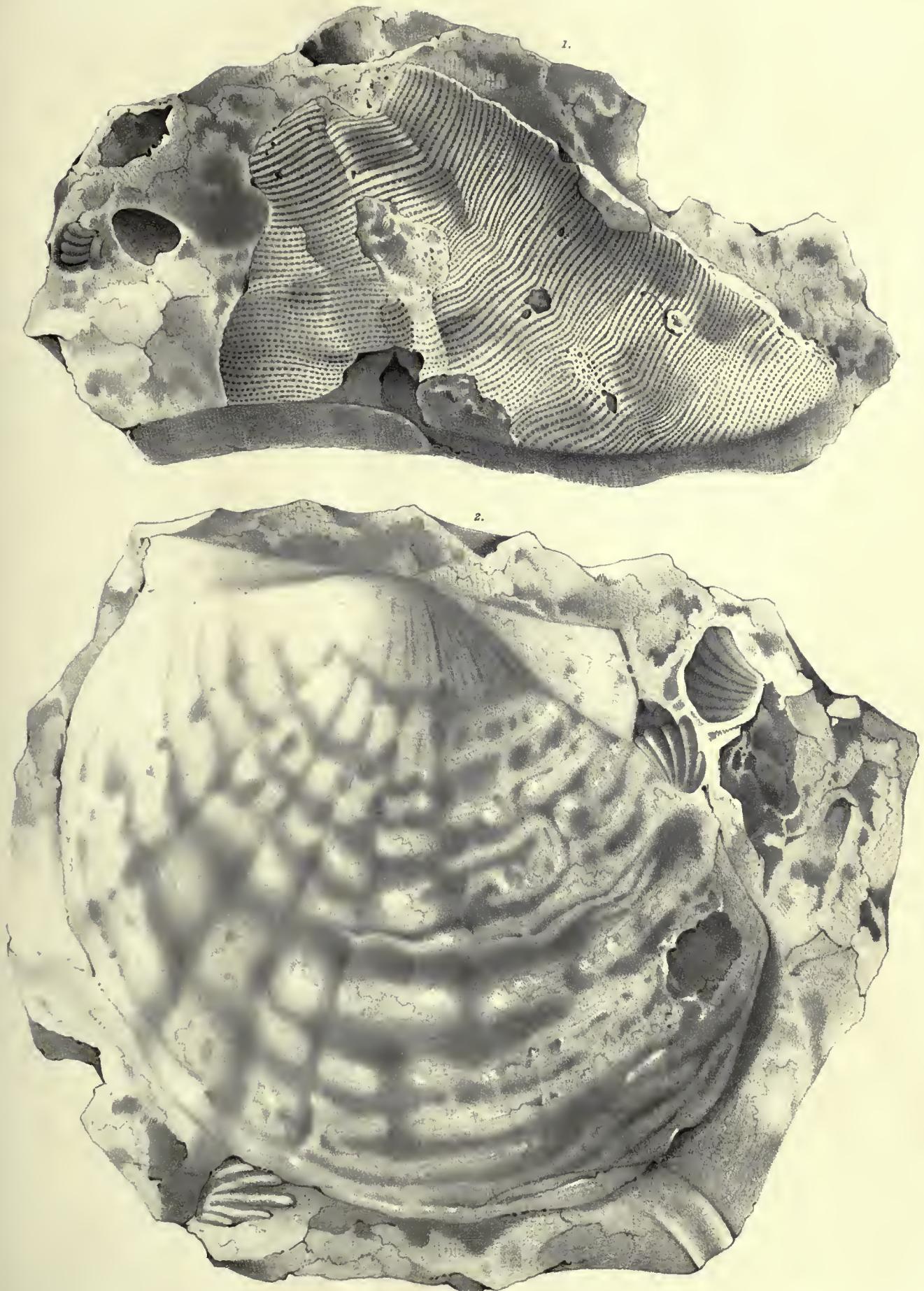


PLATE 112.

Fig. 1 - 10.	PLATYOSTOMA VENTRICOSA.	Page 469
1 & 2.	Young shells of this species.	
3.	A young specimen, showing a broadly undulating surface.	
4 a.	View of the aperture of the same.	
4 b.	An older specimen of the ordinary form.	
5 a, b.	View of the spire, and of the aperture of a specimen of medium size.	
5 c.	Profile of a specimen which is somewhat depressed vertically.	
6.	A young specimen with a more elevated spire. This is of the type of <i>P. arenosa</i> of CONRAD (See Plate LVII).	
7 & 8.	View of the spires of two specimens of ordinary form.	
9.	A specimen which has been vertically compressed.	
10 a, b.	View of a specimen which is a little compressed obliquely.	

DRISKANY SANDSTONE

Palaeont. N.Y. Vol. 3.

(GASTEROPODA)

Pl. 112

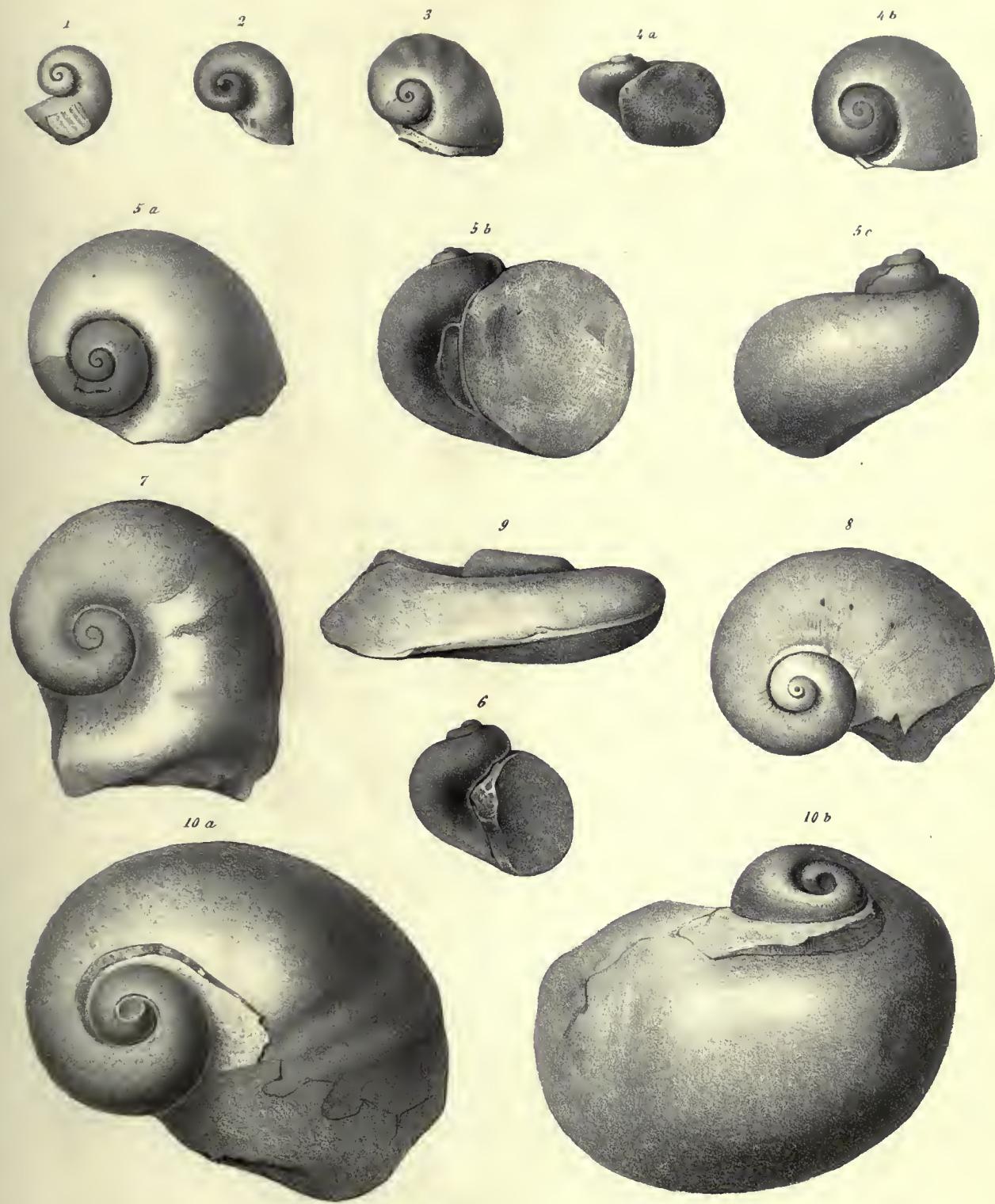


PLATE 113.

	Page
Fig. 1 - 5. PLATYCERAS TORTUOSUM.	472
1 - 5. Views of different individuals (which are more or less perfect), showing a gradation in size.	
Fig. 6. PLATYCERAS ?	473
6. A cast; the specimen too imperfect for determination.	
Fig. 7 & 8. PLATYOSTOMA VENTRICOSA.	469
7. Profile of the spire of a very large specimen, which has been somewhat compressed vertically.	
8. View of the spire of the same specimen. The surface shows broad undulations parallel to the lines of growth.	

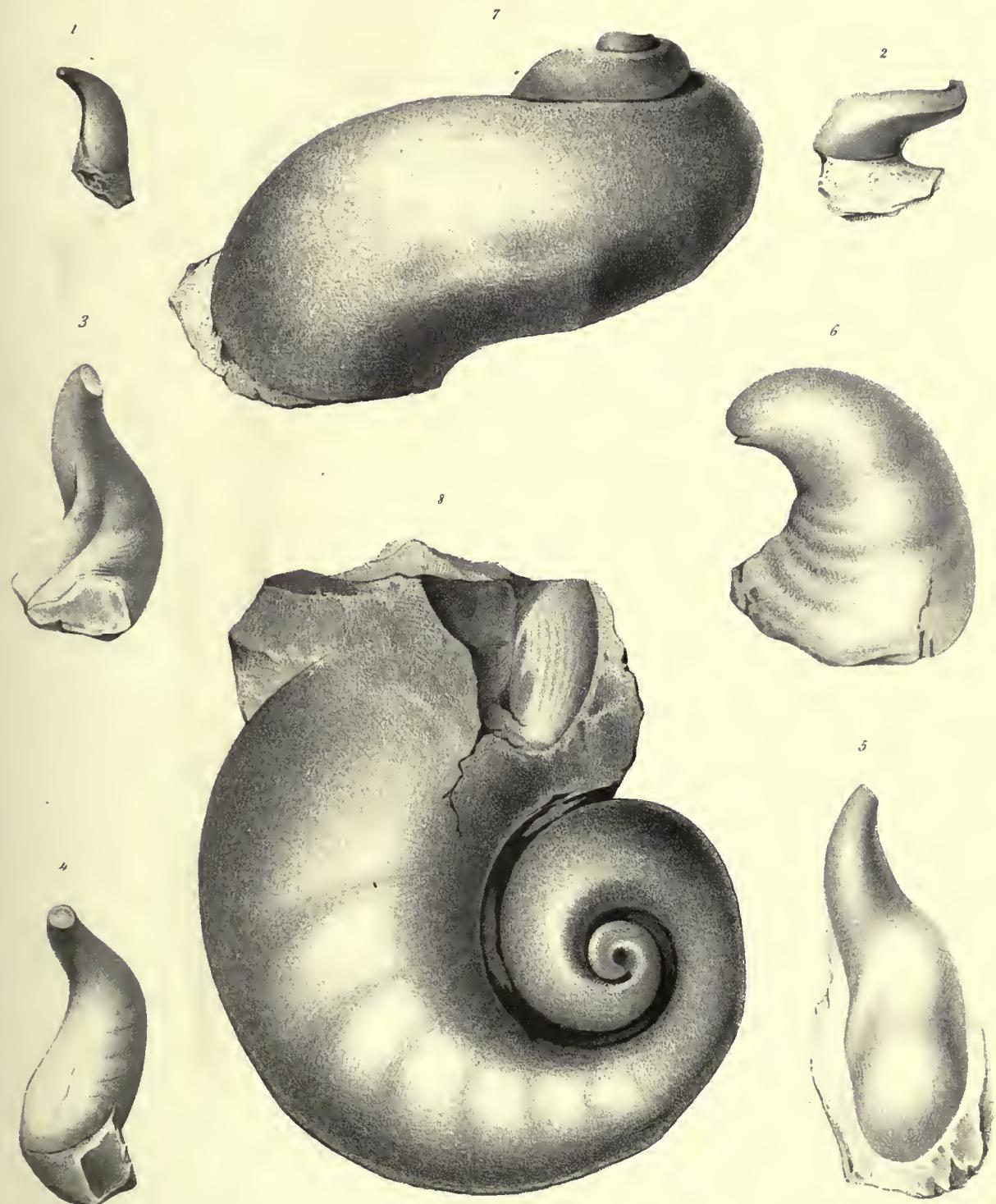


PLATE 114.

Fig. 1.

STROPHOSTYLVUS TRANSVERSUS.

Page
470

- 1 a. View of the spire.
- 1 b. View of the aperture, which is narrowed by turning the upper margin forward.
- 1 c. Profile view of the shell from the upper side.

Fig. 2 & 3.

STROPHOSTYLVUS EXPANSUS.

470

2. A small specimen which is obliquely compressed. The peristome is extended around the adjacent volution, giving it a different aspect from the other specimens of the same species.
- 3 a. View of the aperture, showing its form, with the outer angle of the columellar lip.
- 3 b. View of the upper side of the spire and the expanded body volution.

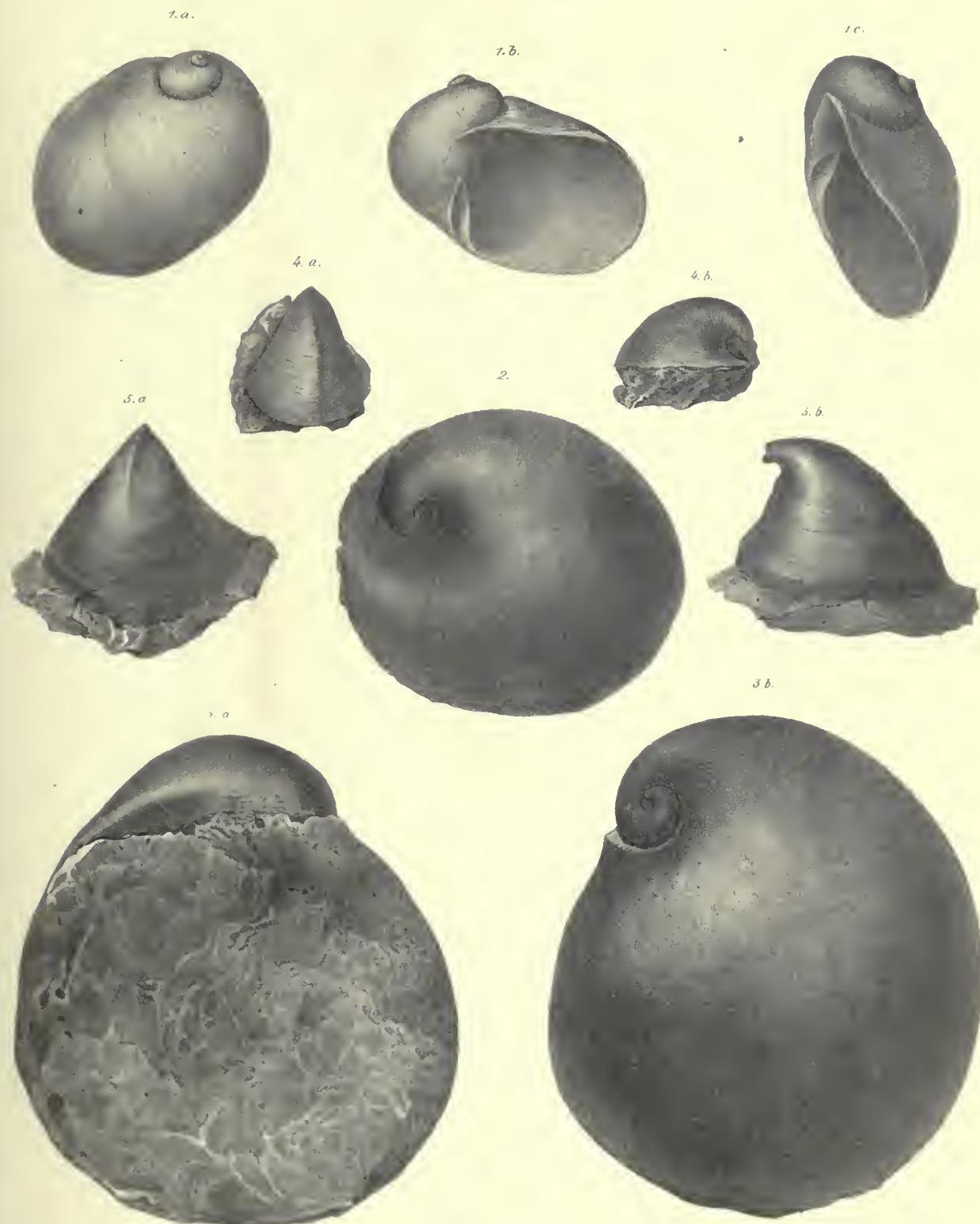
Fig. 4 & 5.

CYRTOLITES? EXPANSUS.

479

- 4 a, b. Anterior and lateral views of the smaller specimen.
- 5 a, b. Anterior and lateral views of the larger specimen.

ORISKANY SANDSTONE.
(GASTROPODA.)

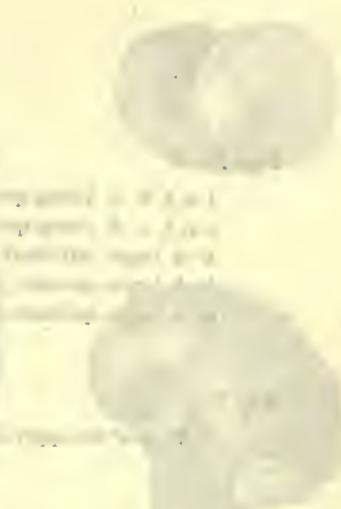


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PLATE 115.

Fig. 1 - 6.

PLATYCYRAS NODOSUM.

Page
473

- 1 *a*, *b*, & 2. Young specimens of this species, preserving about two volntions.
- 3 *a*, *b*, *c*. A young specimen which preserves the proper form of the shell.
4. A larger individual.
5. A larger specimen, preserving little more than a single volntion.
6. A larger specimen of similar character with the preceding.

Fig. 7.

PLATYCYRAS SUBNODOSUM.

474

7. View of the upper side of the spire.

Fig. 8.

PLATYSTOMA VENTRICOSA.

469

8. A fragment of a specimen, apparently of this species, preserving a little more than one volntion and a part of the aperture, with the pillar-lip, which is thickened and smooth.

ORISKANY SANDSTONE

Paleont., N.Y. Vol. 3.

(GASTEROPODA)

Pl. 115

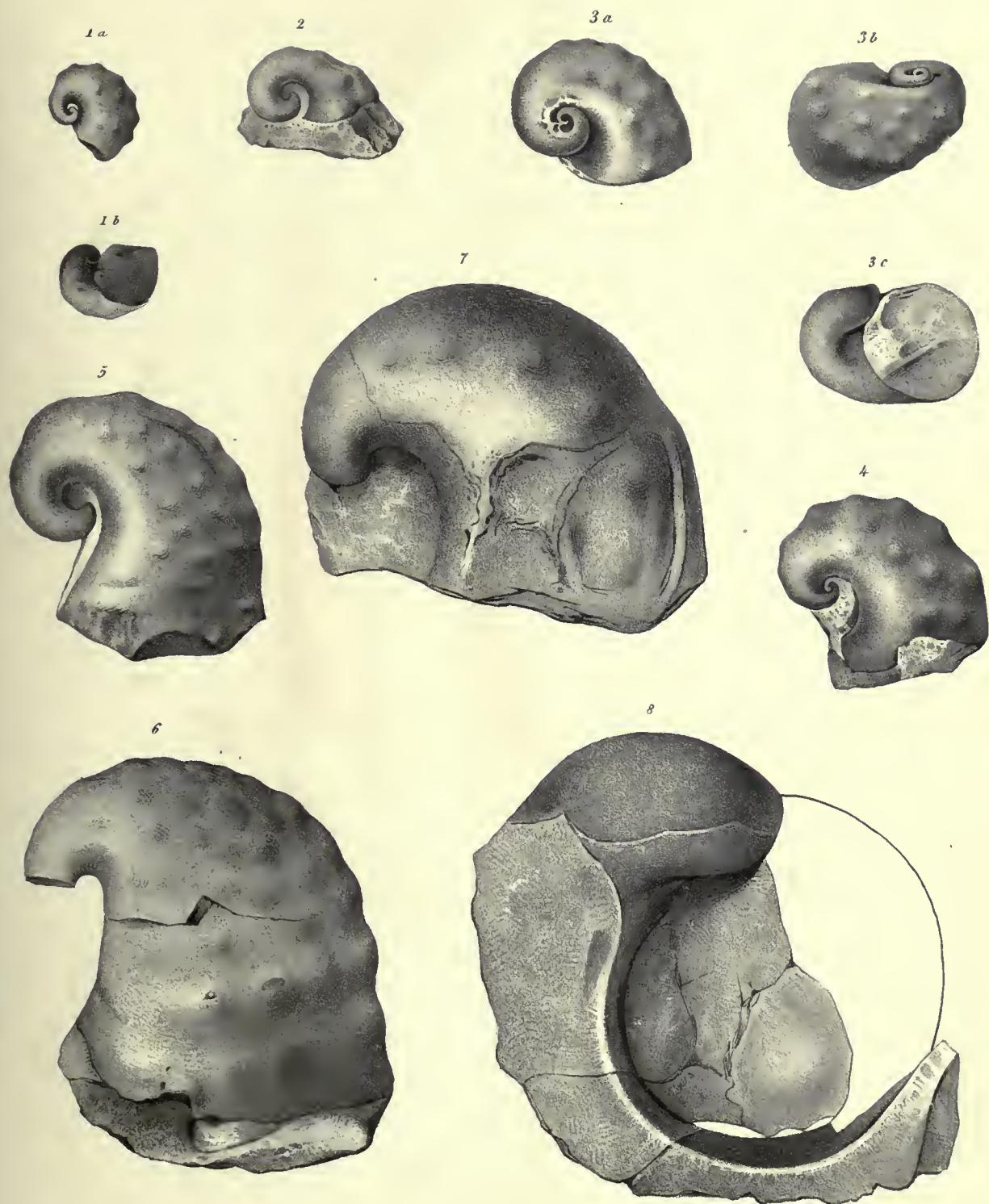




PLATE 116.

Fig. 1 - 4.

PLATYCERAS NODOSUM.

Page
473

1 & 2. Casts of this species, preserving the usual form.

3 & 4. View of the upper and lower side of the cast of a large individual. In this specimen, the nodes, either from weathering or extreme age and thickening of the shell, are less prominent than in the preceding.



THE WILP

Wilp is a small town in the province of North Holland, situated on the river Vliet, about 10 miles from Amsterdam. It is a very old town, and has a population of about 10,000. The town is built on a hill, and is surrounded by a wall. The church is a large, Gothic building, with a tall spire. The town is famous for its cheese, which is made from cow's milk. The cheese is sold in large quantities, and is exported to many countries. The town is also known for its pottery, which is made from clay. The pottery is sold in large quantities, and is exported to many countries.

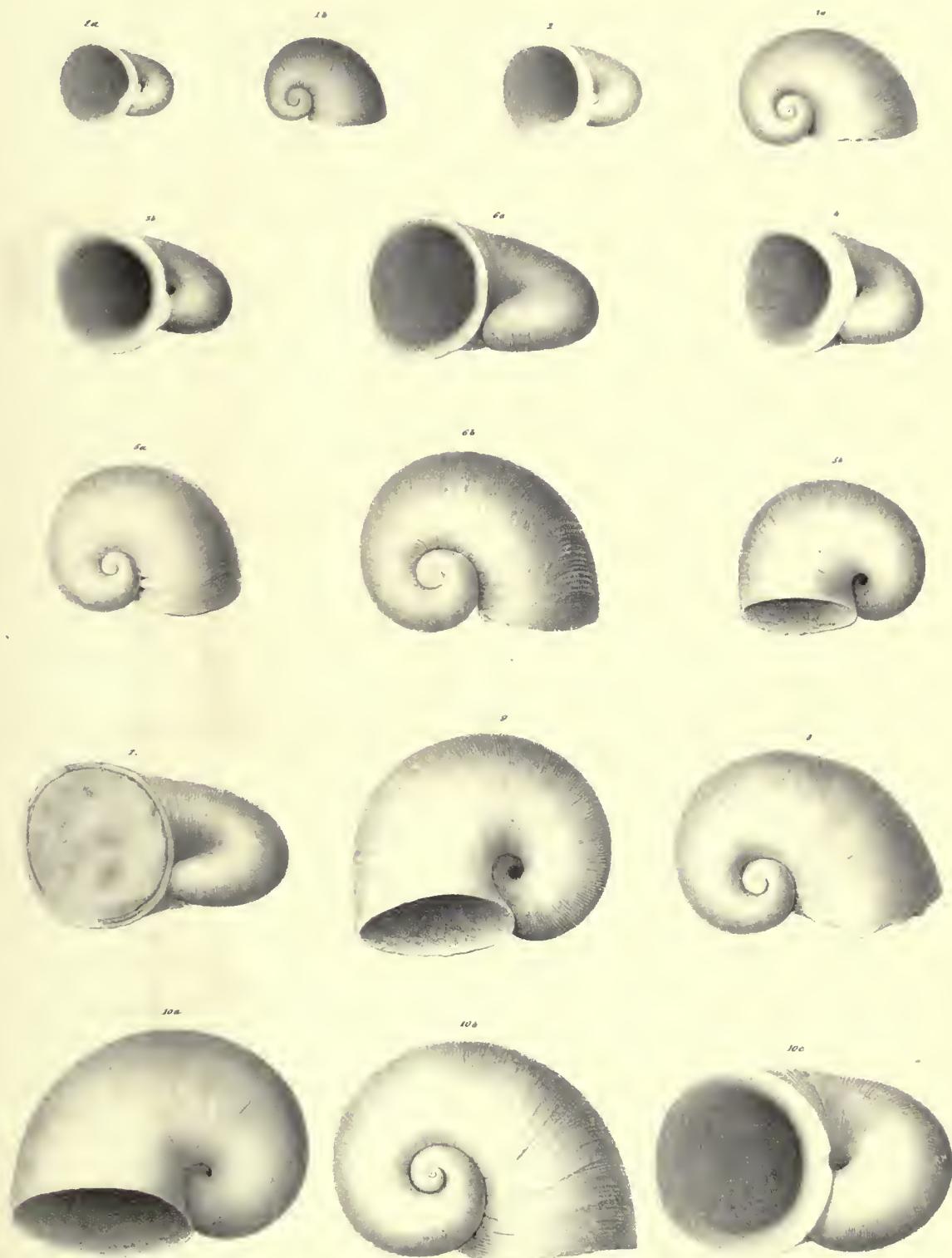
PLATE 117.

Fig. 1 - 10.

PLATYCYRAS GEBHARDI.

Page
474

- 1 *a, b.* A young shell, in which the peristome is closely adhering to the body whorl.
2. A similar specimen with the preceding.
- 3 *a, b.* A larger individual of the same character.
4. A specimen where the peristome is more expanded.
- 5 *a, b.* A specimen in which the peristome is free and not expanded.
- 6 *a, b.* A larger specimen, in which the peristome is expanded and free.
- 7, 8 & 9. Specimens in which the peristome is not expanded, or but slightly expanded and essentially free.
- 10 *a, b.* Two views of a large specimen with a free peristome and small umbiliens.
- 10 *c.* A specimen with expanded aperture, the peristome adjacent to the body volition, but still free. The umbiliens is much larger than in the preceding specimen.



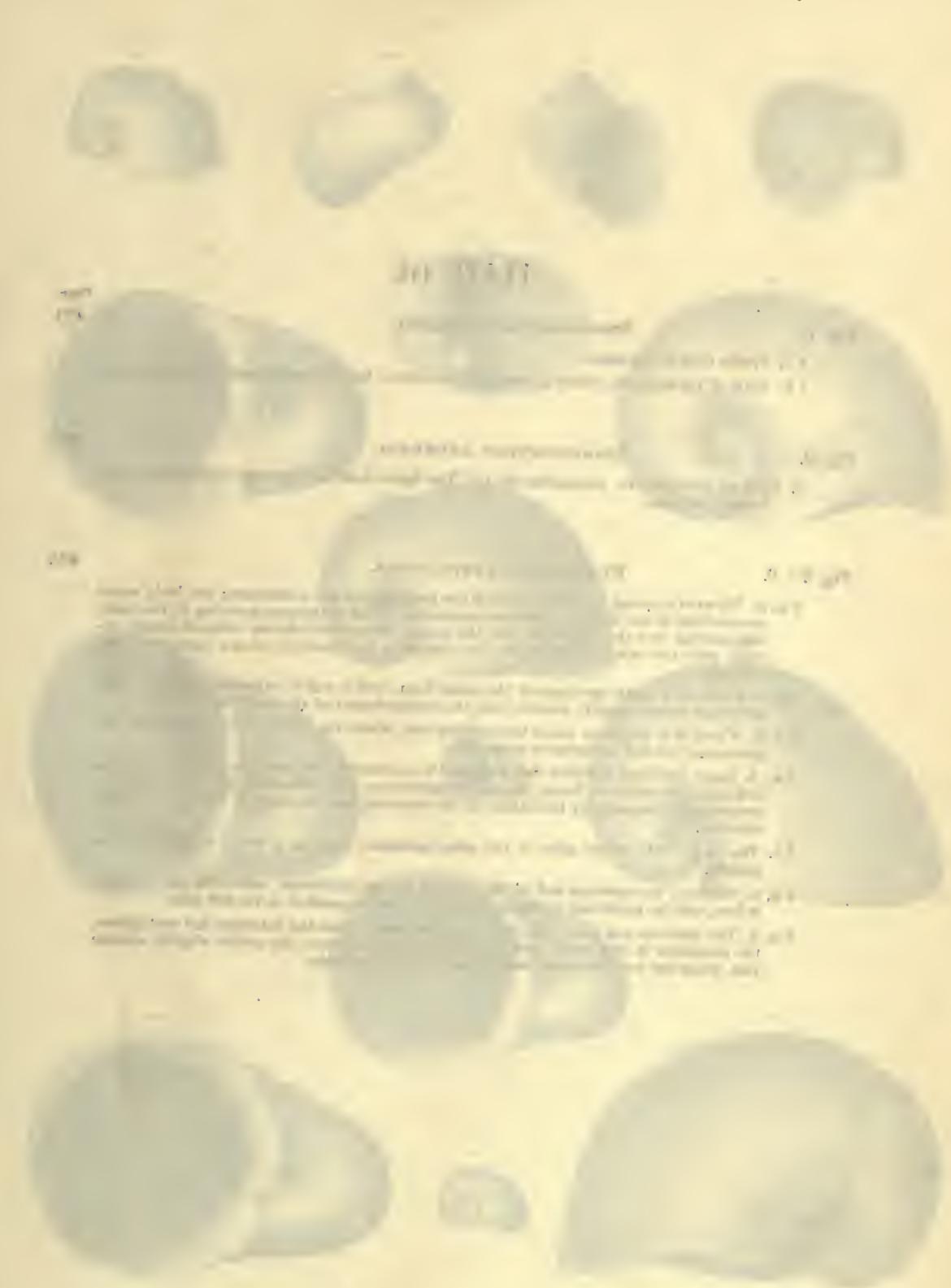


PLATE 118.

Fig. 1. *STROPHOSTYLVUS MATHERI.* 471

- 1 *a.* Profile view of the spire.
- 1 *b.* View of the aperture, which is imperfect in outline, the columellar side being broken off.

Fig. 2. *STROPHOSTYLVUS ANDREWSI.* 472

- 2. View of the aperture, columellar lip, etc. The figure does not represent the aperture sufficiently circular.

Fig. 3 - 9. *PLATYCERAS VENTRICOSUM.* 475

3 *a, b.* Views of a young specimen in which the peristome is not continuous; the body whorl encroaching on the aperture, with an attenuated film of the labrum covering it, the lower side curving into the umbilicus, and the margin below the volution reflexed nearly parallel with the axis. In the figure, the labrum is too distinctly shown upon the body volution.

4 & 5. Views of a small specimen of the usual form, with a widely expanded aperture. The peristome is only slightly sinuate from the encroachment of the body volution.

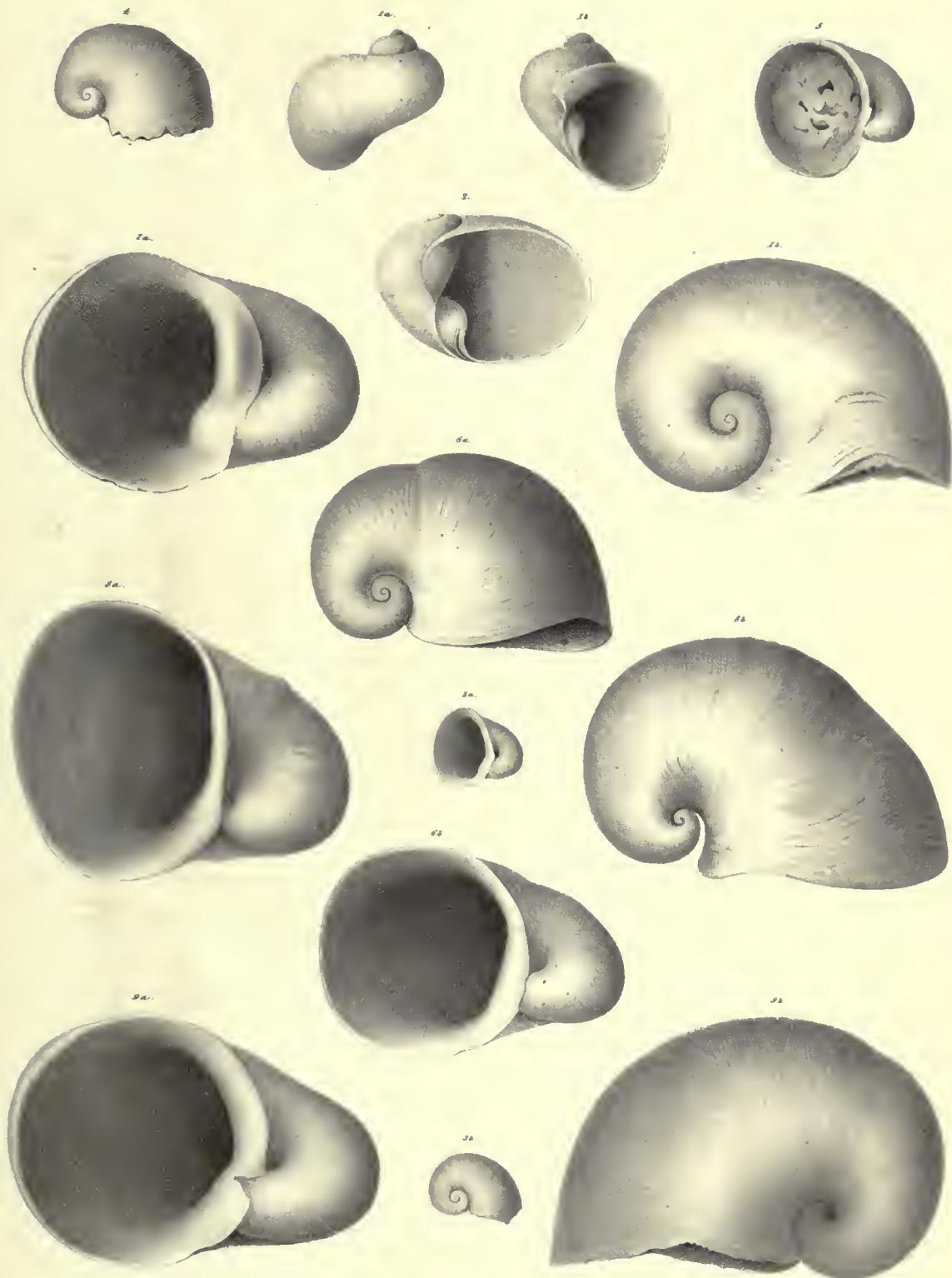
6 *a, b.* Views of a specimen above the medium size, where the volutions are in contact, the peristome free and moderately expanded.

7 *a.* A larger specimen in which the peristome is continuous, but joined to the body volution and abruptly deflected below, giving the appearance of a columellar lip. The figure represents very imperfectly the extent of the sinuosity and the form of the lip below the volution.

7 *b.* The upper side of the spire of the same specimen, showing a broad sinuosity in the margin.

8 *a, b.* Views of the aperture and of the spire of a large individual, where the last volution is free, and the peristome continuous and somewhat expanded on the left side.

9 *a, b.* The aperture and lower side of a large specimen, where the volutions are contiguous, the umbilicus is very small, and the peristome continuous; the outline slightly sinuate just below the body volution, and expanded upon that side.



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PLATE 119.

Fig. 1, 2, 4, 5 & 6.

PLATYCEAS MAGNIFICUM.

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- 1 *a, b.* View of the spire and aperture of a young shell. The volutions are actually free to the apex, though not distinctly represented in the figure.
- 2 *a, b.* A larger specimen with free volutions, having the aperture abruptly expanded.
- 4 *a, b.* A larger specimen, with the volutions free and the peristome less expanded.
- 5 *a, b.* A larger specimen, having the apex broken off. This specimen presents a sinuosity in the posterior side of the aperture.
- 6 *a, b.* View of the aperture and spire of a large specimen in which all the parts are symmetrical and well preserved, and the volutions are free except at the extreme apex. This figure is represented as of the natural size; the extreme length being three inches and three-fourths, while the aperture is two inches and three-eighths in height, and a little more than two inches and a half in length.

Fig. 3.

PLATYCEAS PATULUM.

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View of the aperture where the peristome is spread over the body volution, and thickened below.

ORISKANY SANDSTONE.
(GASTROPODA.)



PLATE 120.

Fig. 1 - 7.

PLATYCERAS REFLEXUM.

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- 1 *a, b.* View of the upper side of the spire, and of the aperture of a small specimen.
- 2 *a, b.* Similar views of a shorter form of the same species.
3. A larger specimen of the same species.
4. A specimen in which the first volution of the spire is concealed. The surface shows some obscure marks of spiral plications.
5. A large specimen in which the last volution is more than usually deflected, standing almost at a right angle with the preceding volution.
- 6 *a, b.* Two views of a specimen in which the aperture is obtusely quadrangular.
- 7 *a, b.* A similar specimen with the preceding, where the last volution is less deflected than usual from the direction of the preceding volutions.

Fig. 8.

PLATYCERAS? (PLATYSTOMA?) CALLOSUM.

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- 8 *a.* View of the back and upper part of the last volution.
- 8 *b.* View of the aperture, spire, and callosity of the columellar lip.

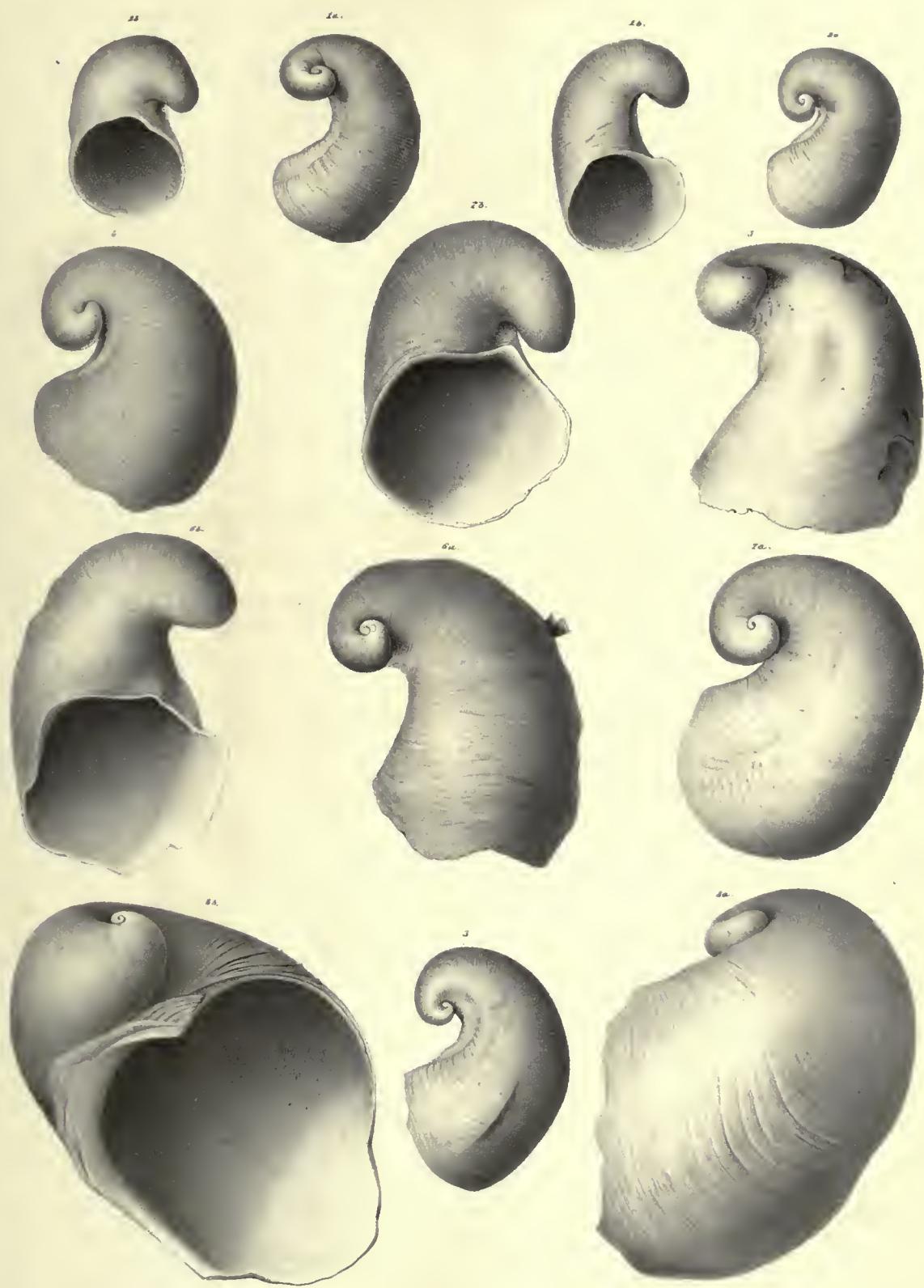
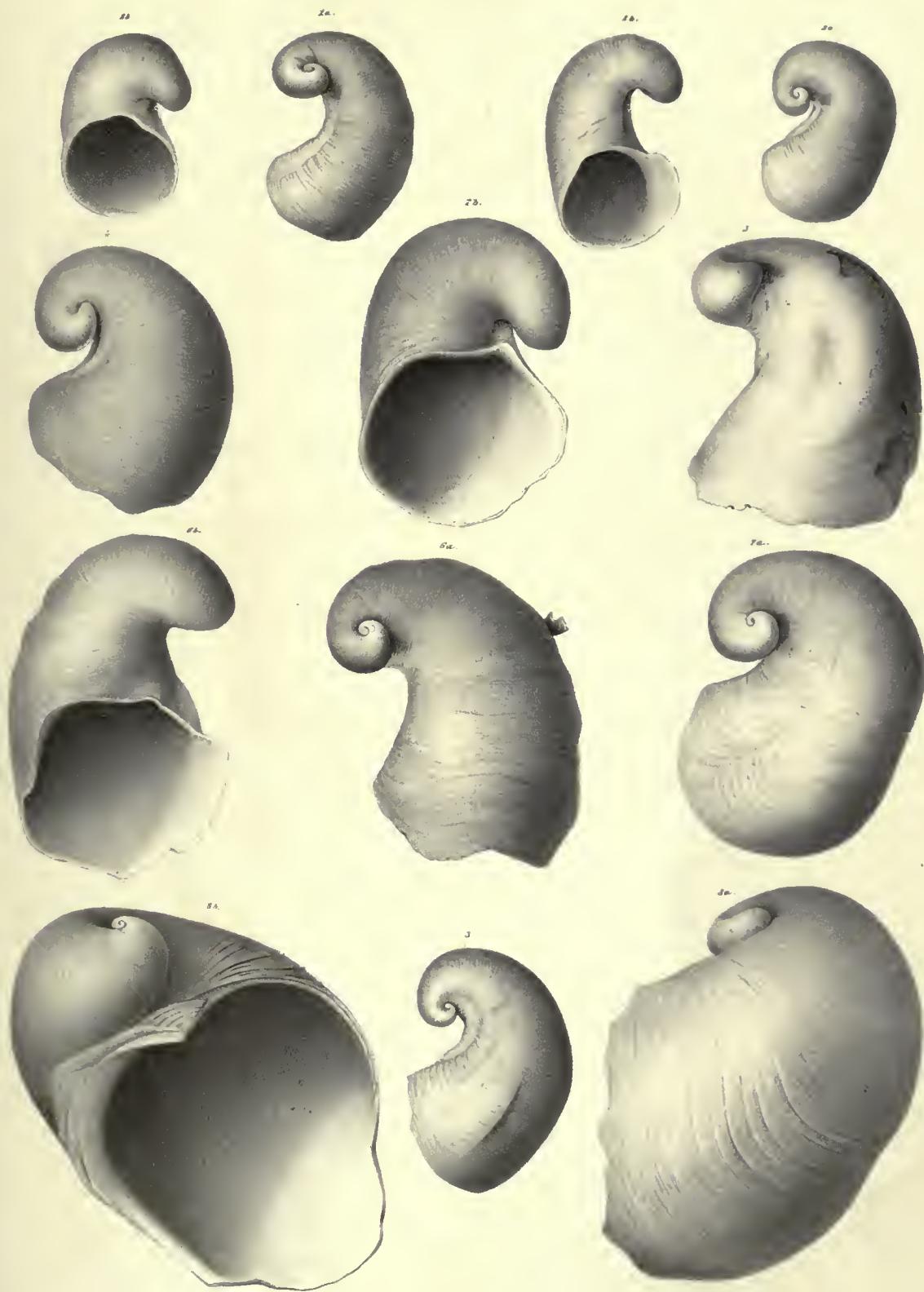
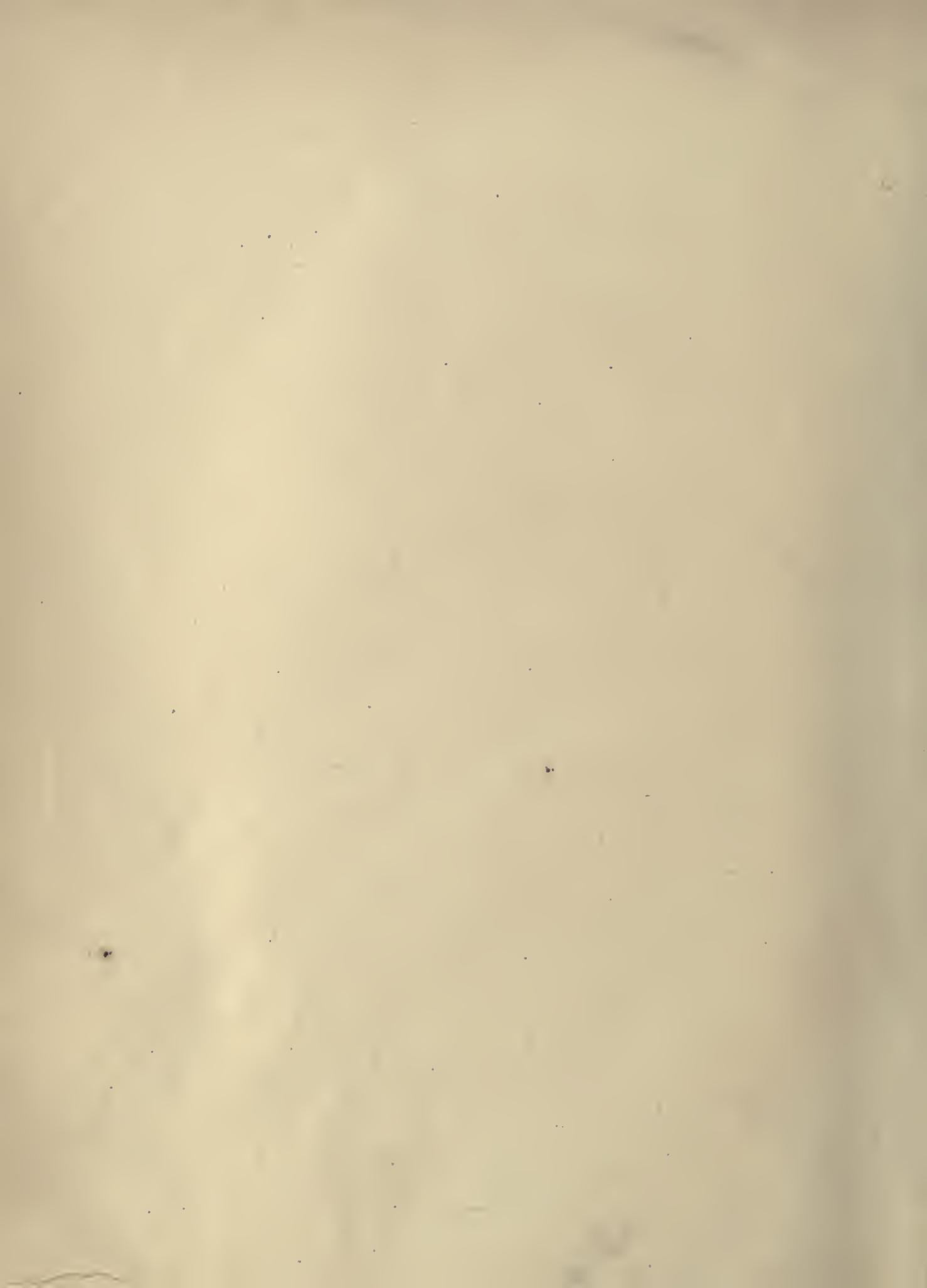


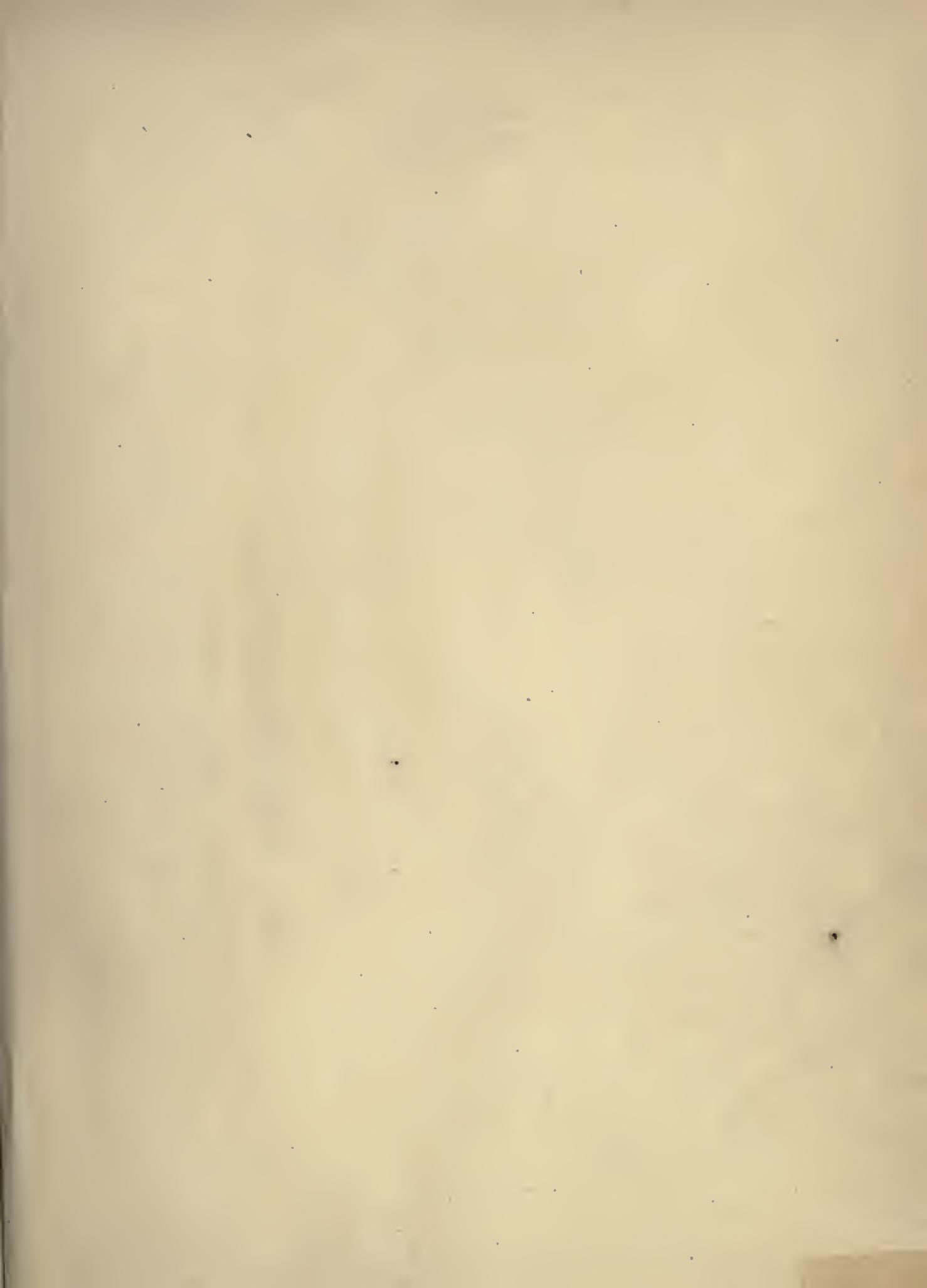
PLATE 120.

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| Fig. 1 - 7. | PLATYCERAS REFLEXUM. | Page
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|-------------|-----------------------------|-------------|
- 1 *a, b.* View of the upper side of the spire, and of the aperture of a small specimen.
2 *a, b.* Similar views of a shorter form of the same species.
3. A larger specimen of the same species.
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| Fig. 8. | PLATYCERAS? (PLATYOSTOMA?) CALLOSUM. | 478 |
|---------|---|-----|
- 8 *a.* View of the back and upper part of the last volution.
8 *b.* View of the aperture, spire, and callosity of the columellar lip.







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