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DIE

RADIOLARIEN.

(RHIZOPODA RADIARIA.)

EINE MONOGRAPHIE

VON

Dr. ERNST HAECKEL,

AUSSERORDENTLICHEM PROFESSOR DER ZOOLOGIE UND DIRECTOR DES ZOOLOGISCHEN MUSEUMS AN DER UNIVERSITÄT JENA.

ATLAS

VON

FÜNF UND DREISSIG KUPFERTAFELN.

BERLIN.

DRUCK UND VERLAG VON GEORG REIMER.

1862.

Systematische Uebersicht

der in dem Atlas abgebildeten Radiolarien-Arten,

nach den Familien und Gattungen geordnet.

Anm. Die römischen Ziffern hinter den Arten-Namen zeigen die Tafel, die arabischen Ziffern die Figur an.

Erste Unterordnung der Radiolarien: MONOZOA (MONOCYTTARIA).

Erste Reihe der Monozoen: Ectolithia.

Erste Familie: Collida.

Erste Unterfamilie der Colliden: Thalassicollida.

I. Genus. Thalassicolla.

1. Thalassicolla pelagica I, 1—5.
2. T. nucleata III, 1—5.
3. T. zanclea II, 3.

II. Genus. Thalassolampe.

4. Thalassolampe margarodes II, 4, 5.

Zweite Unterfamilie der Colliden: Thalassosphaerida.

III. Genus. Physematium.

5. Physematium Muelleri III, 6—9.

IV. Genus. Thalassosphaera.

6. Thalassosphaera bifurca XII, 1.

V. Genus. Thalassoplancta.

7. Thalassoplancta cavispicula III, 10—13.

Dritte Unterfamilie der Colliden: Aulacanthida.

VI. Genus. Aulacantha.

8. Aulacantha scolymantha II, 1, 2; IV, 1—5.

Zweite Familie: Acanthodesmida.

VII. Genus. Zygostephanus.

9. Zygostephanus Muelleri XII, 2.

VIII. Genus. Prismatium.

10. Prismatium tripleurum IV, 6.

IX. Genus. Dictyocha.

11. Dictyocha messanensis XII, 3—6.

Dritte Familie: Cyrtida.

Erste Unterfamilie der Cyrtiden: Monocyrtida.

X. Genus. Litharachnium.

12. Litharachnium tentorium IV, 7—10.

XI. Genus. Cyrtocalpis.

13. Cyrtocalpis obliqua V, 3—11.
14. C. amphora V, 2.

XII. Genus. Carpocanium.

15. Carpocanium diadema V, 1.

Zweite Unterfamilie der Cyrtiden: Zygocyrtida.

XIII. Genus. Petalospyris.

16. Petalospyris arachnoides XII, 7.

Dritte Unterfamilie der Cyrtiden: Dicyrtida.

XIV. Genus. Lithomelissa.

17. Lithomelissa thoracites VI, 2—8.

XV. Genus. Arachnocorys.

18. Arachnocorys circumtexta VI, 9—11.
19. A. umbellifera VI, 12.

XVI. Genus. Dictyophimus.

20. Dictyophimus tripus VI, 1.

XVII. Genus. Eucecryphalus.

21. Eucecryphalus Gegenbauri V, 12—15.
22. E. Schultzei V, 16—19.

Vierte Unterfamilie der Cyrtiden: Stichocyrtida.

XVIII. Genus. Eucyrtidium.

23. Eucyrtidium cranoides VII, 1—3.
24. E. carinatum VII, 4—7.
25. E. anomalum VII, 11—13.
26. E. galea VII, 8—10.
27. E. lagena IV, 11.

XIX. Genus. Dictyoceras.

28. Dictyoceras Virchowii VIII, 1—5.

XX. Genus. Dictyopodium.

29. Dictyopodium trilobum VIII, 6—10.

Fünfte Unterfamilie der Cyrtiden: Polycyrtida.

XXI. Genus. Spyridobotrys.

30. Spyridobotrys trinacria XII, 8, 9.

XXII. Genus. Botryocampe.

31. Botryocampe hexathalamia XII, 10.

Vierte Familie: Ethmosphaerida.

Erste Unterfamilie der Ethmosphaeriden: Heliosphaerida.

XXIII. Genus. Cyrtidosphaera.

32. Cyrtidosphaera reticulata XI, 2.

XXIV. Genus. Ethmosphaera.

33. Ethmosphaera siphonophora XI, 1.

XXV. Genus. Heliosphaera.

34. Heliosphaera inermis IX, 1.
35. H. tenuissima IX, 2.
36. H. actinota IX, 3.
37. H. echinoides IX, 4.
38. H. elegans IX, 5.

Zweite Unterfamilie der Ethmosphaeriden: Arachnosphaerida.

XXVI. Genus. Diplosphaera.

39. Diplosphaera gracilis X, 1.

XXVII. Genus. Arachnosphaera.

40. Arachnosphaera oligacantha X, 2; XI, 3.
41. A. myriacantha X, 3; XI, 4.

Fünfte Familie: Aulosphaerida.

XXVIII. Genus. Aulosphaera.

42. Aulosphaera trigonopa X, 4.
43. A. elegantissima X, 5; XI, 5, 6.

Zweite Reihe der Monozoen: Entolithia.

Sechste Familie: Coelodendrida.

XXIX. Genus. Coelodendrum.

44. Coelodendrum ramosissimum XIII, 1—4.
45. C. gracillimum XXXII, 1—3.

Siebente Familie: Cladococcida.

XXX. Genus. Rhaphidococcus.

46. Rhaphidococcus simplex XIII, 5, 6.
47. R. acufer XIV, 1.

XXXI. Genus. Cladococcus.

48. Cladococcus dentatus XIII, 10.
49. C. spinifer XIII, 9.
50. C. bifurcus XIII, 7, 8.
51. C. viminalis XIV, 2, 3.
52. C. cervicornis XIV, 4—6.

Achte Familie: Acanthometrida.

Erste Unterfamilie der Acanthometriden: Acanthostaurida.

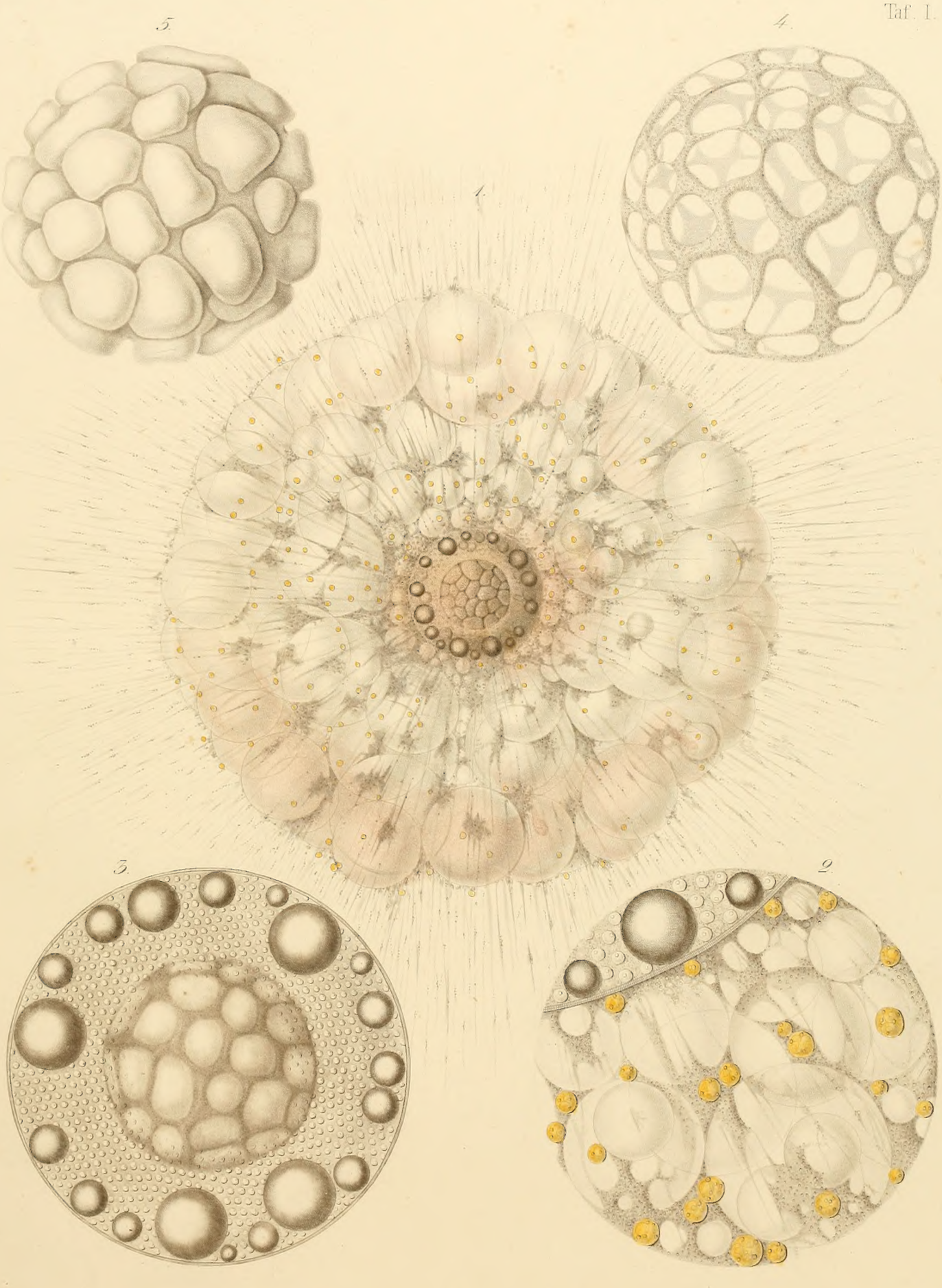
XXXII. Genus. Acanthometra.

53. Acanthometra elastica XV, 1; XVIII, 1.
54. A. bulbosa XV, 2; XVIII, 2.
55. A. dolichoscia XVIII, 3a, 3b.
56. A. compressa XVIII, 4a, 4b.
57. A. tetracopa XVIII, 5.
58. A. Muelleri XV, 3; XVIII, 6.
59. A. fragilis XV, 4; XVIII, 7.
60. A. sicula XVII, 1, 2; XVIII, 8.
61. A. brevispina XV, 5; XVIII, 9.
62. A. quadrifolia XVIII, 10.
63. A. cuspidata XVIII, 11.
64. A. Claparèdei XVIII, 12.

XXXIII. Genus. Xiphacantha.
65. Xiphacantha cruciata XVIII, 13.
66. X. serrata XVII, 3; XVIII, 14a, 14b.
67. X. quadridentata XVIII, 15a, 15b.
68. X. spinulosa XVII, 4.
XXXIV. Genus. Amphilonche.
69. Amphilonche tenuis XVI, 1; XVIII, 16.
70. A. denticulata XVI, 2; XVIII, 17.
71. A. complanata XVI, 3; XVIII, 18a, 18b.
72. A. messanensis XVI, 4; XVIII, 19.
73. A. tetraptera XVI, 5; XVIII, 20.
74. A. belonoides XVI, 6; XVIII, 21.
75. A. elongata XVIII, 22A, 22B.
76. A. heteracantha XVI, 7.
77. A. anomala XVIII, 8; XVIII, 23A, 23B.
XXXV. Genus. Acanthostaurus.
78. Acanthostaurus purpurascens XIX, 1, 2.
79. A. forceps XIX, 3, 4.
80. A. hastatus XIX, 5.
XXXVI. Genus. Lithoptera.
81. Lithoptera Muelleri XX, 1, 2.
Zweite Unterfamilie der Acanthometriden: Astrolithida.
XXXVII. Genus. Astrolithium
82. Astrolithium dicopum XX, 3, 4.
83. A. bifidum XX, 5.
XXXVIII. Genus. Staurolithium.
84. Staurolithium cruciatum XX, 6.
Dritte Unterfamilie der Acanthometriden: Litholophida.
XXXIX. Genus. Litholophus.
85. Litholophus rhipidium XIX, 6.
Vierte Unterfamilie der Acanthometriden: Acanthochiasmida.
XL. Genus. Acanthochiasma.
86. Acanthochiasma Krohnii XIX, 7.
87. A. fusiforme XIX, 8.
Neunte Familie: Diploconida.
XLI. Genus. Diploconus.
88. Diploconus fasces XX, 7, 8.
Zehnte Familie: Ommatida.
Erste Unterfamilie der Ommatiden: Drataspida.
XLII. Genus. Drataspis.
89. Drataspis bipennis XXI, 1, 2.
90. D. costata XXIII, 1.
91. D. loricata XXI, 3—6.
92. D. solidissima XXII, 6—9.
93. D. diodon XXII, 1—5.
94. D. polyancistra XXI, 7—9.
XLIII. Genus. Haliommatidium.
95. Haliommatidium Muelleri XXII, 10—12.
96. H. tetragonopum XXII, 13.
Zweite Unterfamilie der Ommatiden: Haliommatida.
XLIV. Genus. Haliomma.
97. Haliomma capillaceum XXIII, 2.
98. H. erinaceus XXIII, 3, 4.
99. H. castanea XXIV, 4.
100. H. echinaster XXIV, 1—3.
XLV. Genus. Heliodiscus.
101. Heliodiscus phacodiscus XVII, 5—7.
Dritte Unterfamilie der Ommatiden: Actinommatida.
XLVI. Genus. Actinomma.
102. Actinomma inerme XXIV, 5.
103. A. trinacrium XXIV, 6—8.
104. A. asteracanthion XXIII, 5, 6.
105. A. drymodes XXIV, 9.
XLVII. Genus. Didymocyrtis.
106. Didymocyrtis ceratospyris XXII, 14—16.
Elfte Familie: Spongurida.
Erste Unterfamilie der Sponguriden: Spongosphaerida.
XLVIII. Genus. Rhizosphaera.
107. Rhizosphaera trigonacantha XXV, 1—7.
108. R. leptomita XXV, 8—10.
XLIX. Genus. Spongosphaera.
109. Spongosphaera streptacantha XXVI, 1—3.
110. S. helioides XII, 11—13.
L. Genus. Spongodictyum.
111. Spongodictyum trigonizon.
Zweite Unterfamilie der Sponguriden: Spongodiscida.
LI. Genus. Spongodiscus.
112. Spongodiscus mediterraneus XII, 14, 15.
LII. Genus. Spongotrochus.
113. Spongotrochus brevispinus XXVII, 4, 5.
114. S. longispinus XXVII, 2, 3.
LIII. Genus. Spongurus.
115. Spongurus cylindricus XXVII, 1.
Dritte Unterfamilie der Sponguriden: Spongocyclida.
LIV. Genus. Spongocyclia.
116. Spongocyclia cycloides XXVIII, 1.
117. S. elliptica XXVIII, 2.
118. S. orthogona XXVIII, 3.
119. S. scyllaea XXVIII, 4.
120. S. charybdaea XXVIII, 5, 6.
LV. Genus. Stylospongia.
121. Stylospongia Huxleyi XXVIII, 7.
LVI. Genus. Spongasteriscus.
122. Spongastericus quadricornis XXVIII, 8—10.
Zwölfte Familie: Discida.
Erste Unterfamilie der Disciden: Coccodiscida.
LVII. Genus. Coccodiscus.
123. Coccodiscus Darwinii XXVIII, 11, 12.
Zweite Unterfamilie der Disciden: Trematodiscida.
LVIII. Genus. Trematodiscus.
124. Trematodiscus orbiculatus XXIX, 1.
125. T. sorites XXIX, 2.
126. T. heterocyclus XXIX, 3.
LIX. Genus. Stylodictya.
127. Stylodictya quadrispina XXIX, 4.
128. S. multispina XXIX, 5.
LX. Genus. Rhopalastrum.
129. Rhopalastrum truncatum XXIX, 6.
LXI. Genus. Euchitonia.
130. Euchitonia Virchowii XXX, 1—4.
131. E. Beckmanni XXXI, 1.
132. E. Gegenbauri XXXI, 2, 3.
133. E. Muelleri XXX, 5—10.
134. E. Leydigii XXXI, 4, 5.
135. E. Koellikeri XXXI, 6, 7.
Dritte Unterfamilie der Disciden: Discospirida.
LXII. Genus. Discospira.
136. Discospira helicoides XXIX, 7.
137. D. operculina XXIX, 8.
LXIII. Genus. Stylospira.
138. Stylospira Dujardinii XXIX, 9, 10.
Dreizehnte Familie: Lithelida.
LXIV. Genus. Lithelius.
139. Lithelius spiralis XXVII, 6, 7.
140. L. alveolina XXVII, 8, 9.

Zweite Unterordnung der Radiolarien:
POLYZOA (POLYCYTTARIA).

Vierzehnte Familie: Sphaerozoida.
Erste Unterfamilie der Sphaerozoiden: Collozoida.
LXV. Genus. Collozoum.
141. Collozoum inerme XXXV, 1—14.
142. C. coeruleum XXXII, 6—8.
143. C. pelagicum XXXIII, 4, 5.
Zweite Unterfamilie der Sphaerozoiden: Rhaphidozoida.
LXVI. Genus. Sphaerozoum.
144. Sphaerozoum italicum XXXIII, 1, 2.
145. S. spinulosum XXXIII, 3, 4.
146. S. ovodimare XXXIII, 5, 6.
147. S. punctatum XXXIII, 7—9.
LXVII. Genus. Rhaphidozoum.
148. Rhaphidozoum acuferum XXXII, 9—11.
Fünfzehnte Familie: Collosphaerida.
LXVIII. Genus. Collosphaera.
149. Collosphaera Huxleyi XXXIV, 1—11.
150. C. spinosa XXXIV, 12, 13.



1–5. Thalassicolla pelagica, Hkl.

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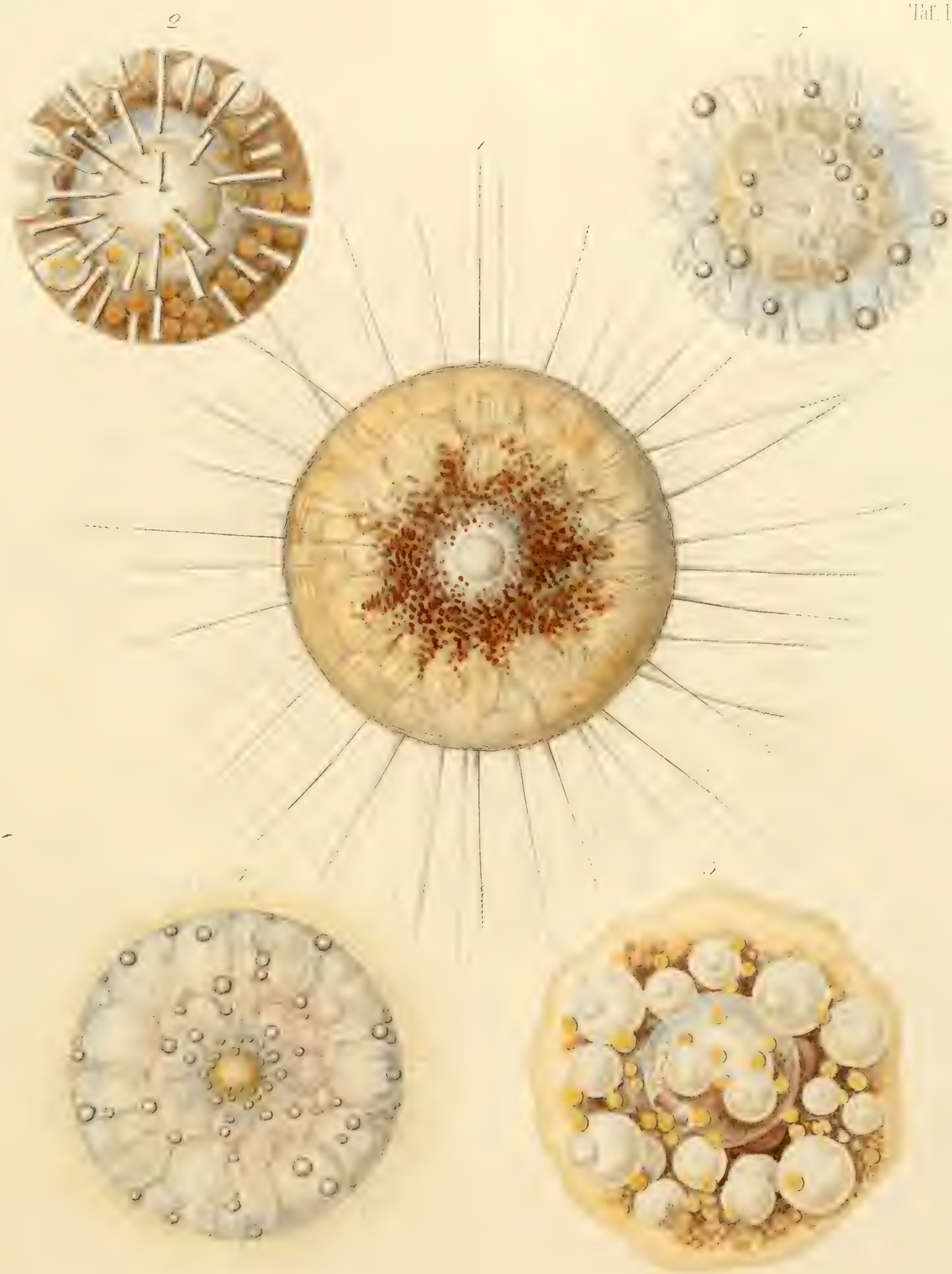
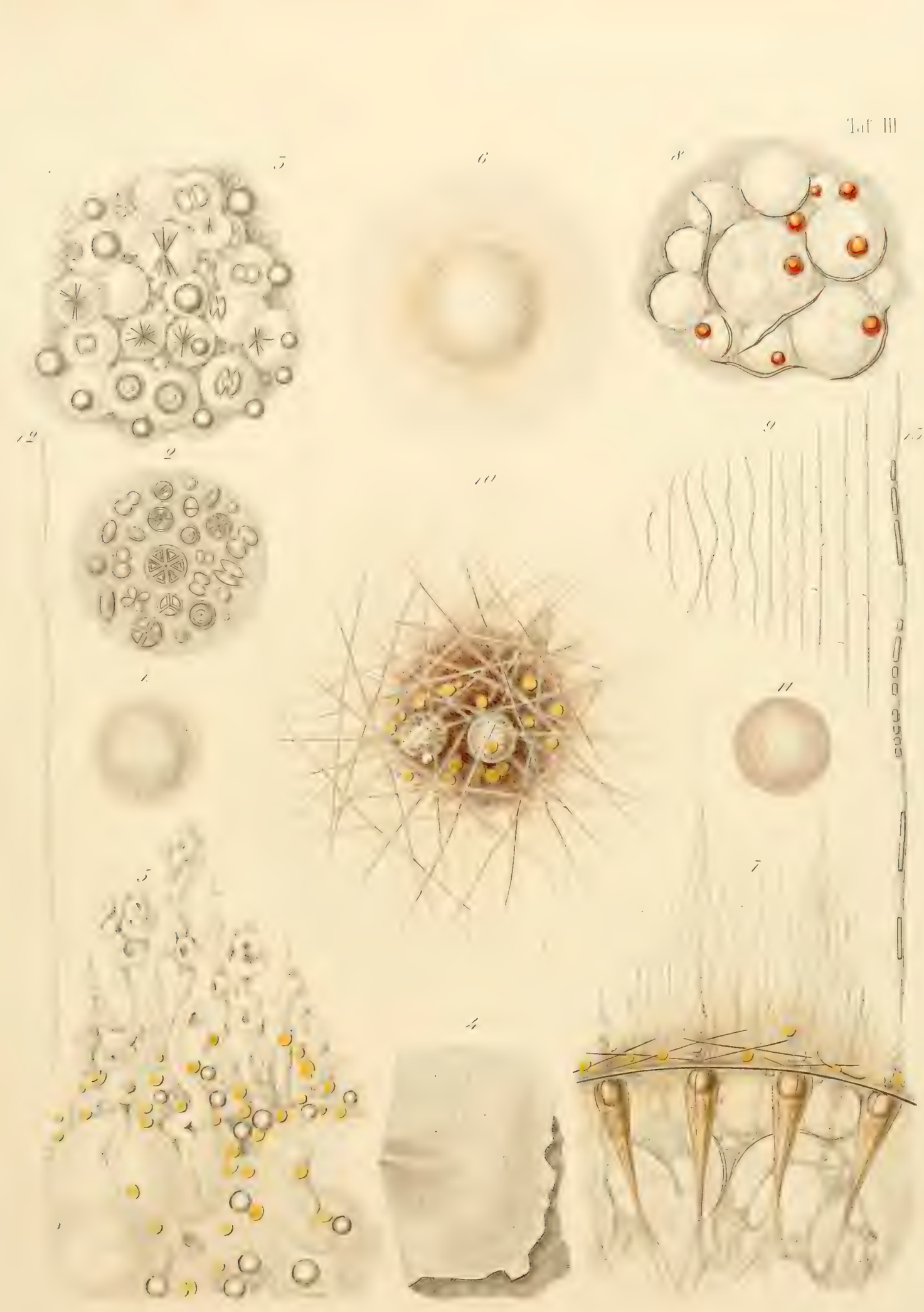


1. 2. Aulacantha scolymantha, Hkl. 3. Thalassicolla Zanclea, Hkl.
4. 5. Thalassolampe margarodes, Hkl.



1–5. Thalassicolla nucleata, Huxley. 6–9. Physematium Müllerі, Schneider.
10–13. Thalassoplancta cavispicula, Hkl.

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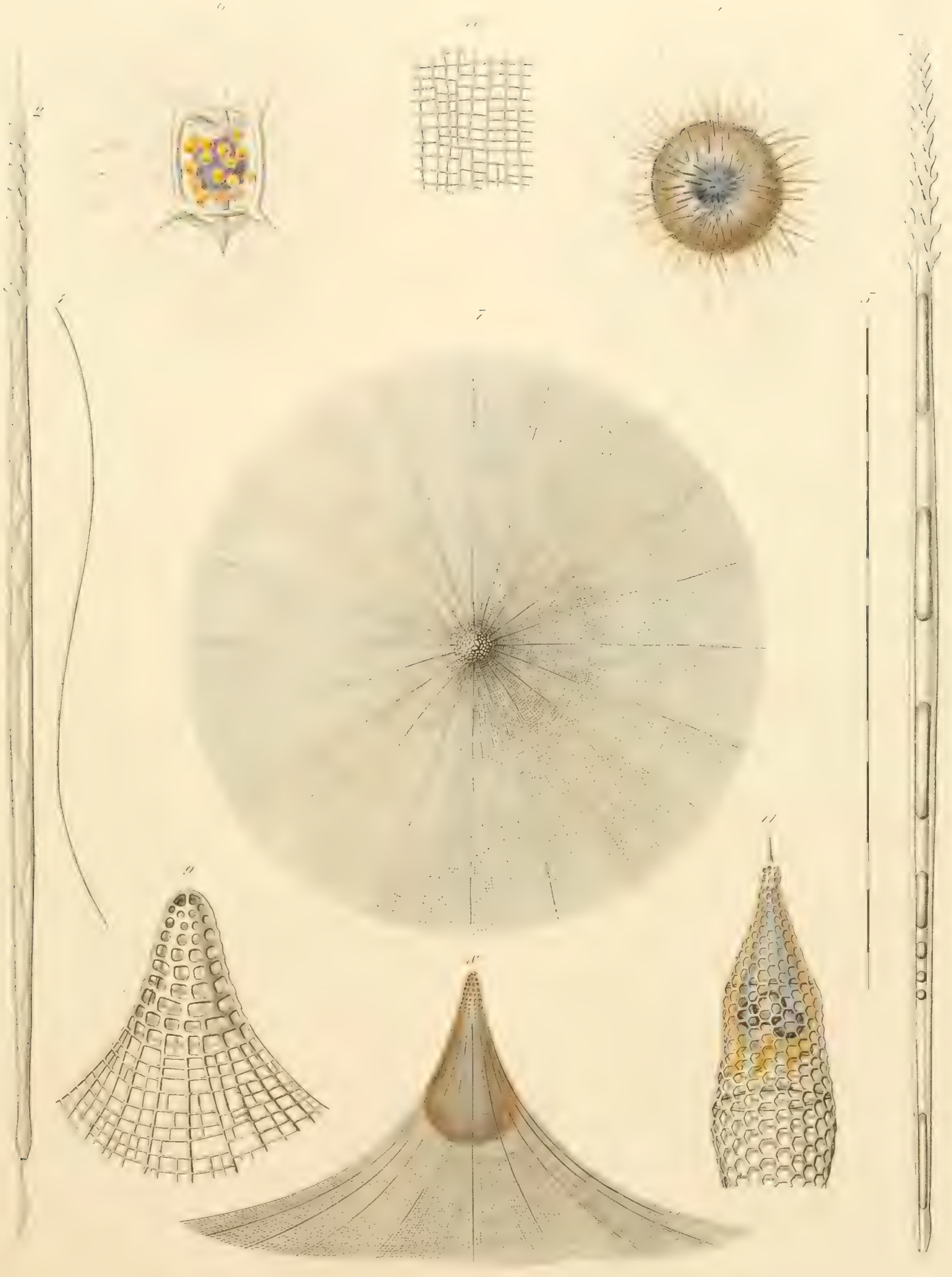
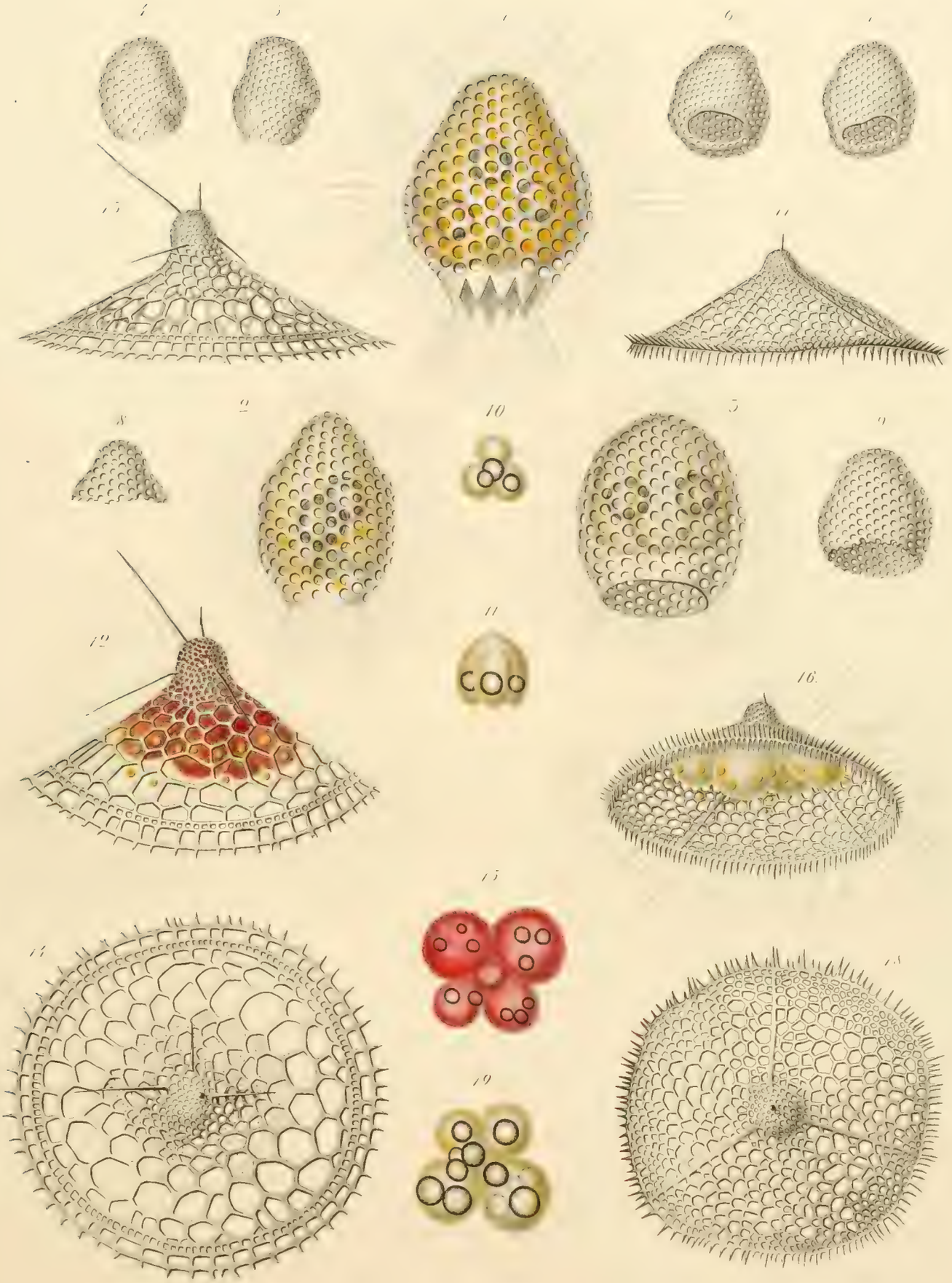
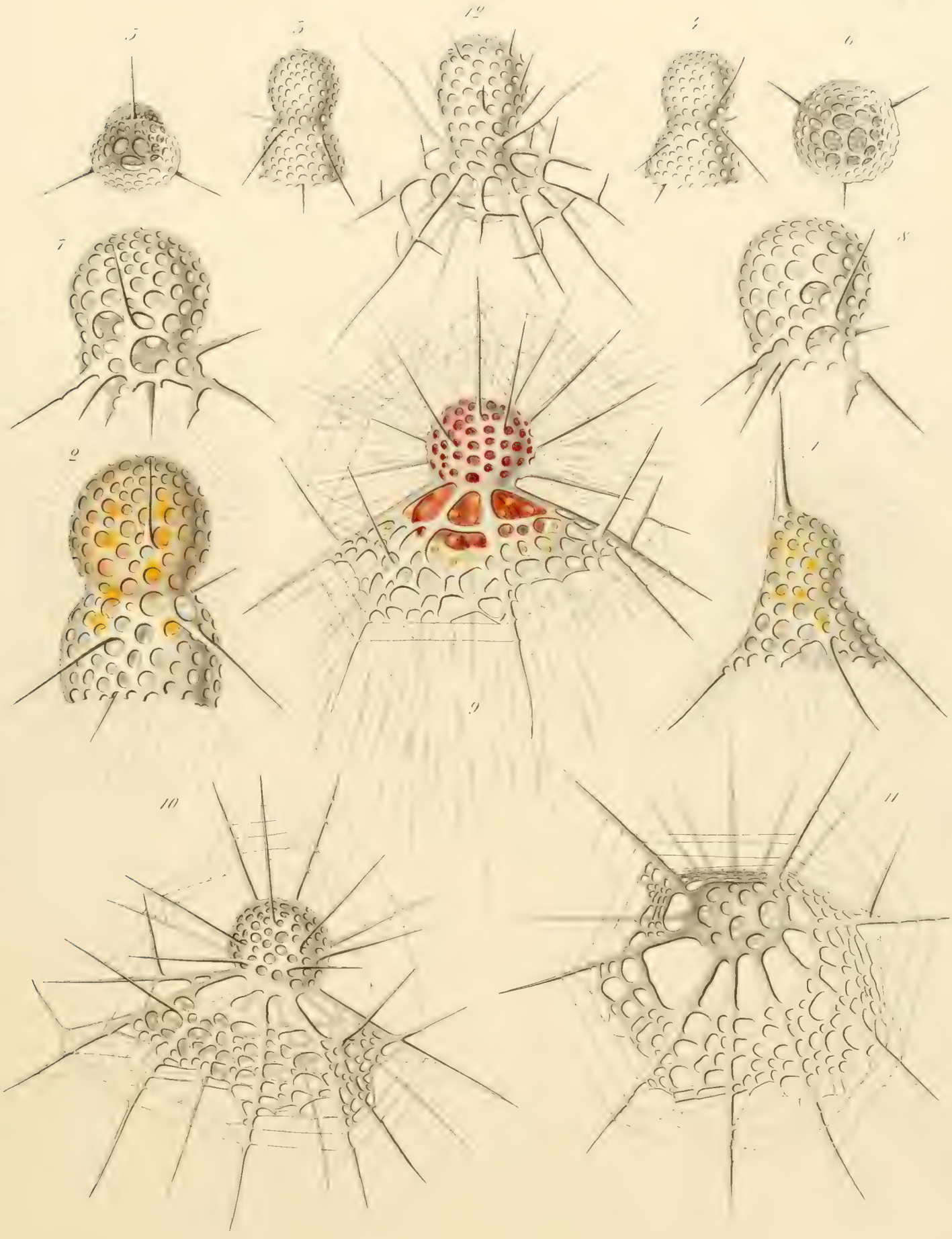


1–5. Aulacantha scolymantha, Hkl. 6. Acanthodesmia Prismatium, Hkl.
7–10. Litharachnium Tentorium, Hkl. 11. Eucyrtidium Lagena, Hkl.

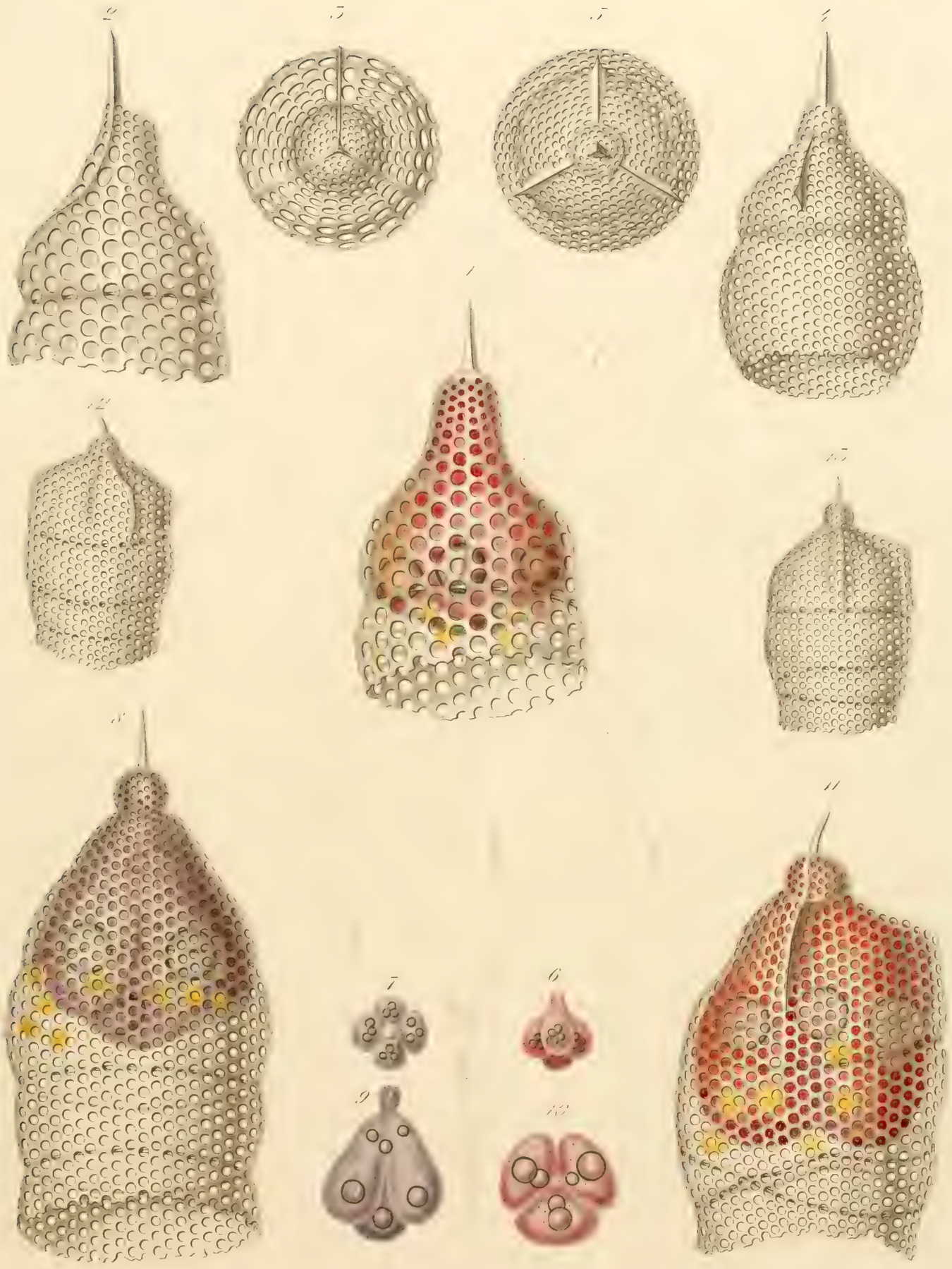
E. Haeckel del. Wagenschieber sc.



1. Carpocanium Diadema, Hkl. 2–11. Cyrtocalpis. 2. C. Amphora, Hkl. 3–11. C. obliqua, Hkl. 12–19. Eucecryphalus. 12–15. E. Gegenbauri, Hkl. 16–19. E. Schultzei, Hkl.

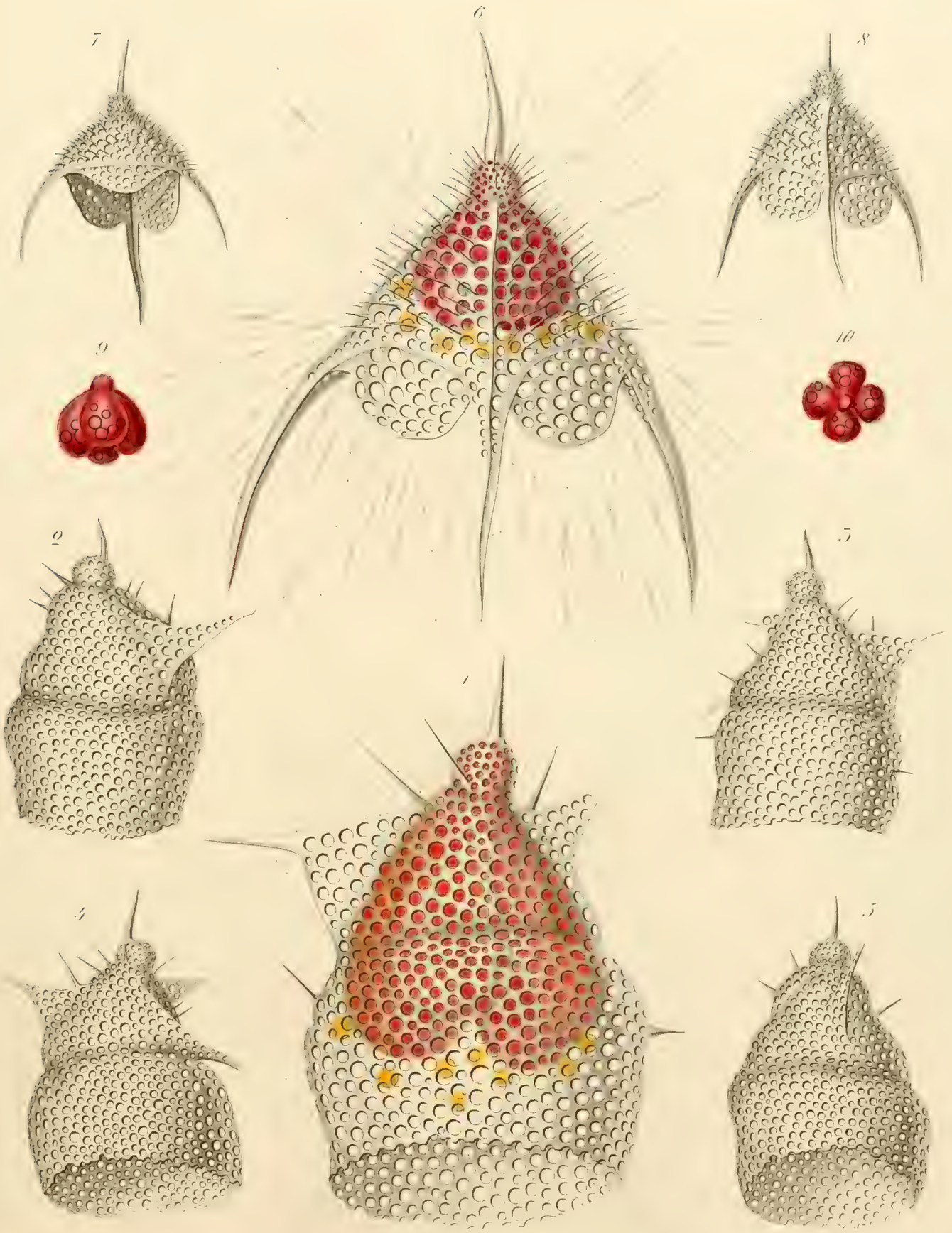


1. Dictyophimus Tripus, Hkl. 2–8. Lithomelissa Thoracites, Hkl.
9–12. Arachnocorys. 9–11. A. circumtexta, Hkl. 12. A. umbellifera, Hkl.



1–13. Eucyrtidium. 1–3. E. cranoides, Hkl. 4–7. E. carinatum, Hkl.
8–10. E. Galea, Hkl. 11–13. E. anomalum, Hkl

Haeckel lith.



1–5. Dictyoceras Virchowii, Hkl. 6–10. Dictyopodium trilobum, Hkl

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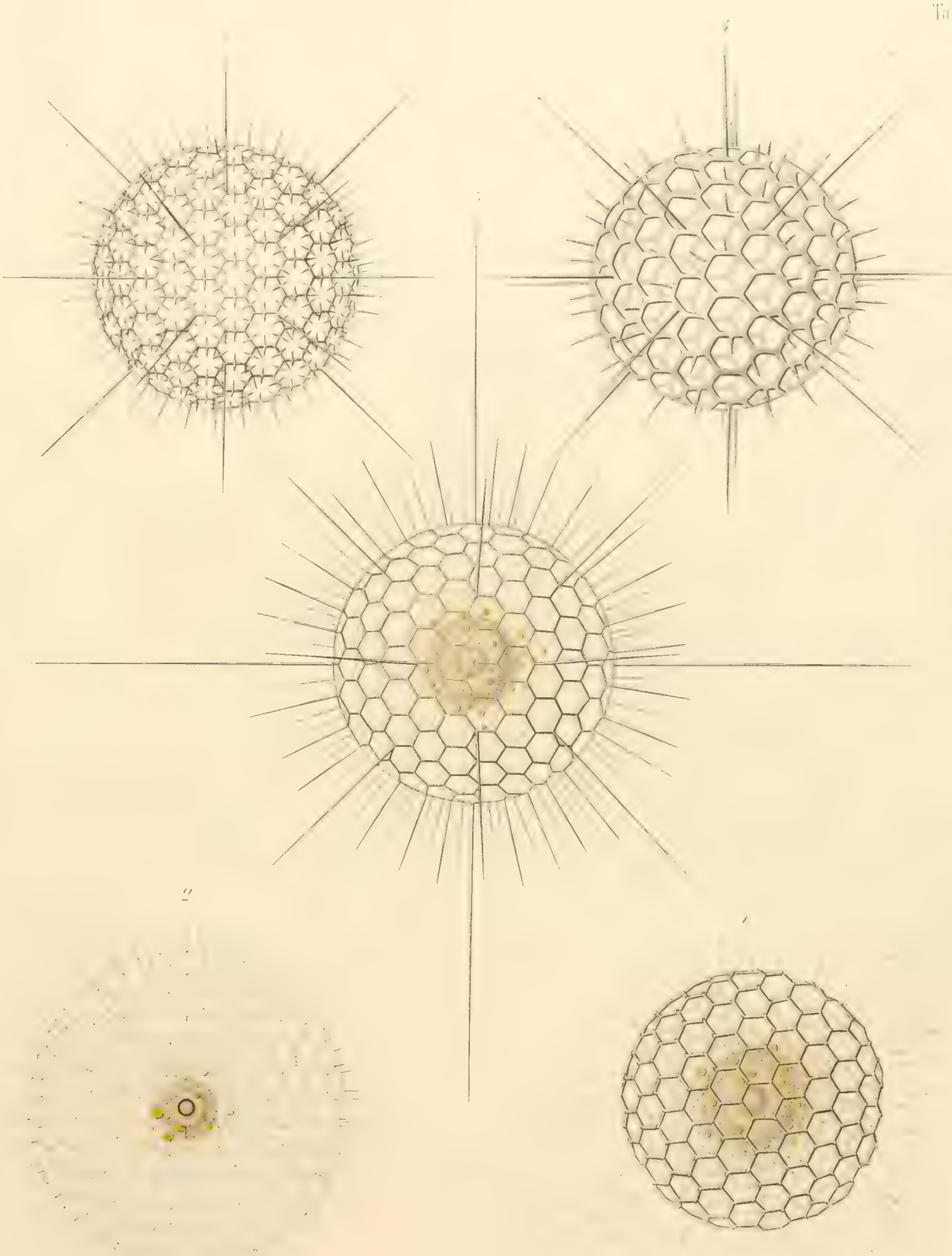
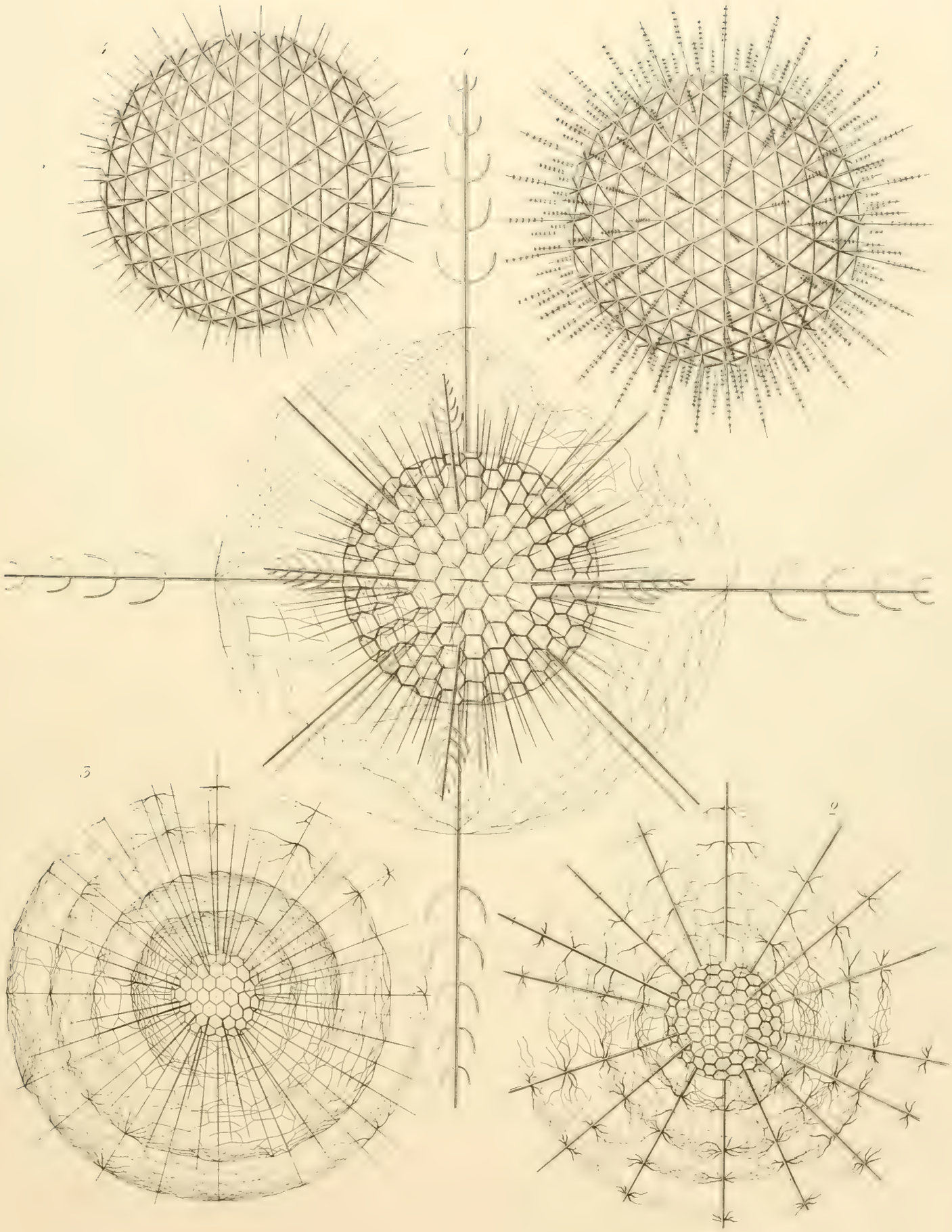


1–5. Heliosphaera. 1. H. inermis, Hkl. 2. H. tenuissima, Hkl. 3. H. actinota, Hkl.
4. H. echinoides, Hkl. 5. H. elegans, Hkl.



1. Diplosphaera gracilis Hkl. 2. 3. Arachnosphaera. 2. A. oligacantha, Hkl.
3. A. myriacantha, Hkl. 4. 5. Autosphaera. 4. A. trigonopa, Hkl. 5. A. elegantissima, Hkl

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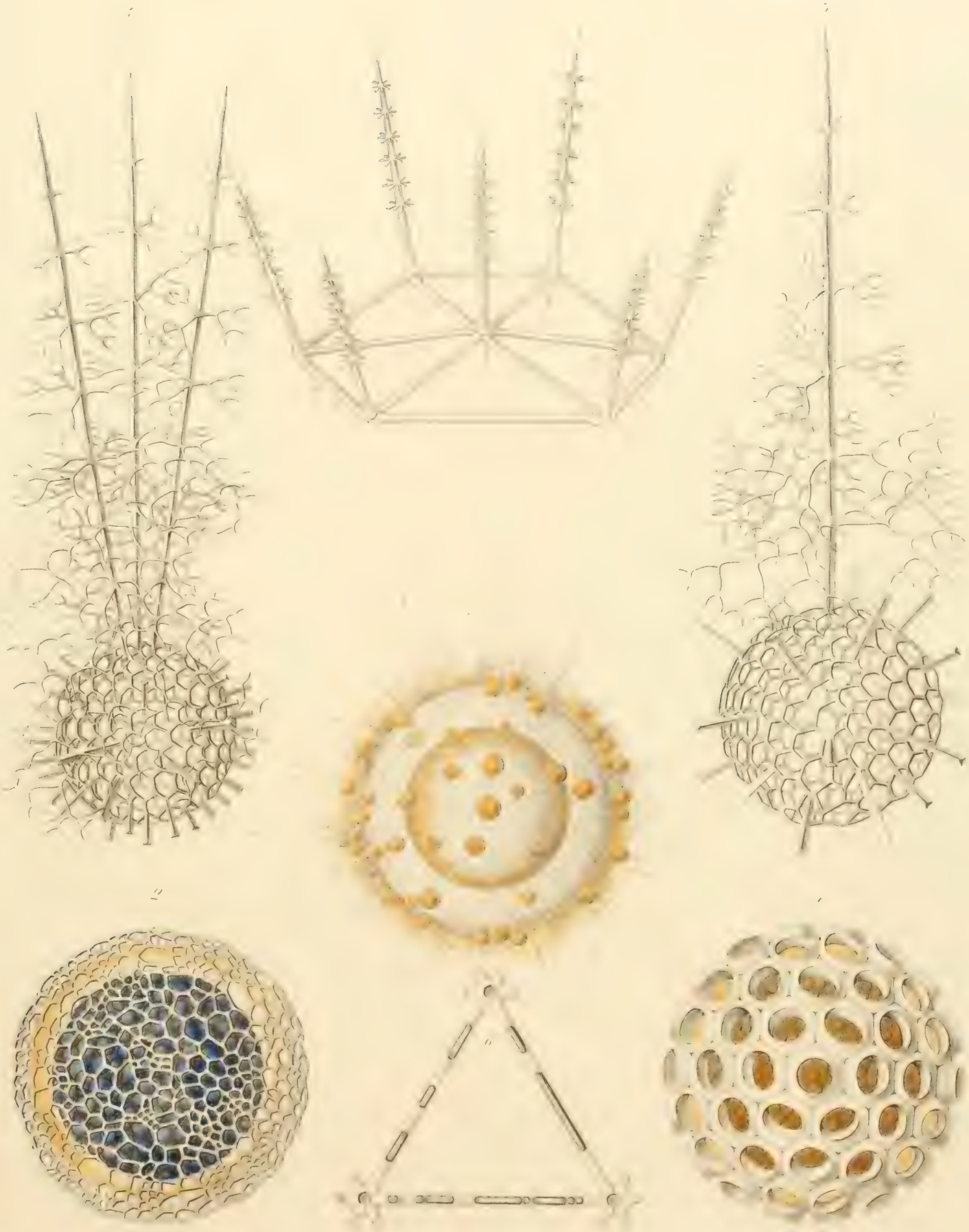
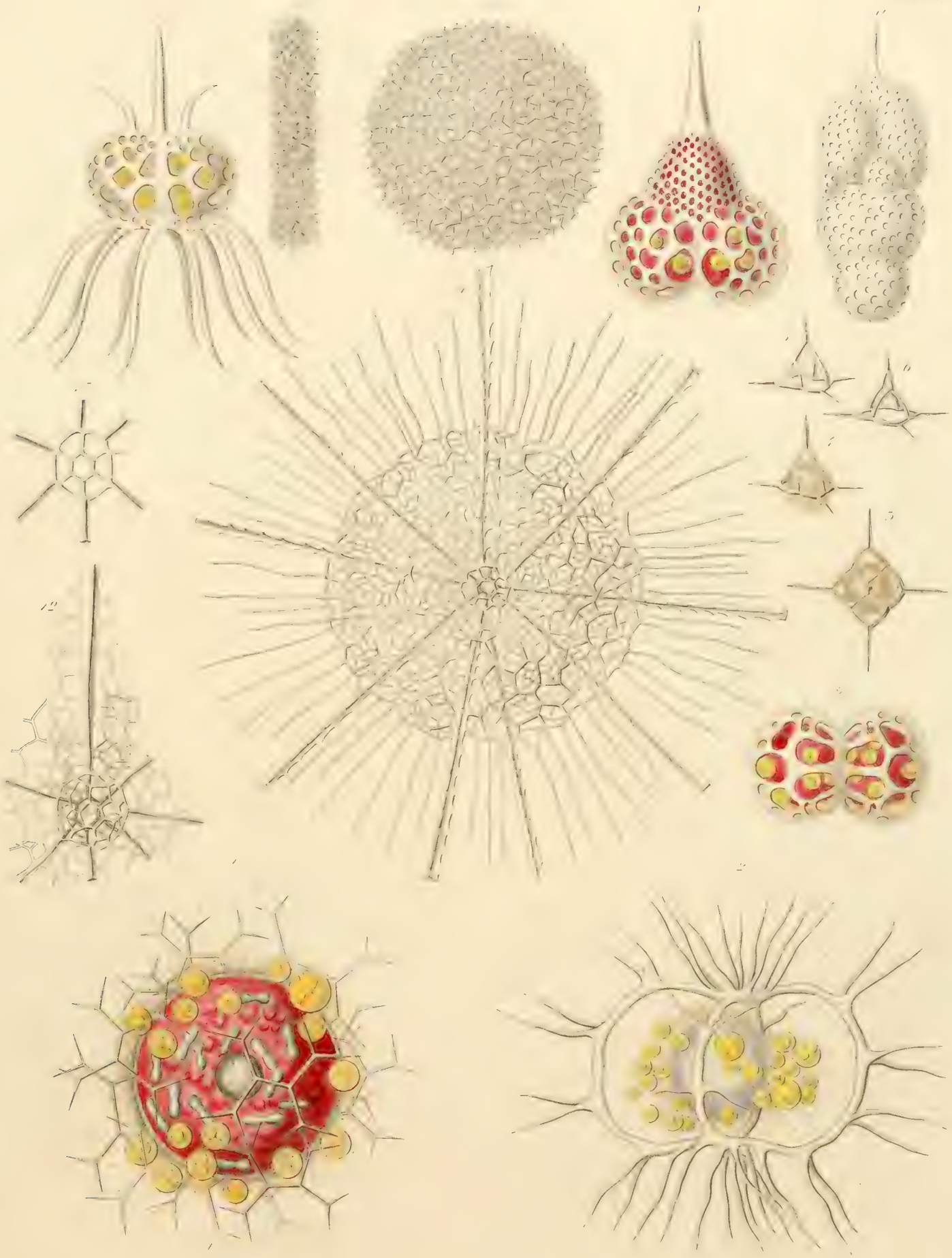
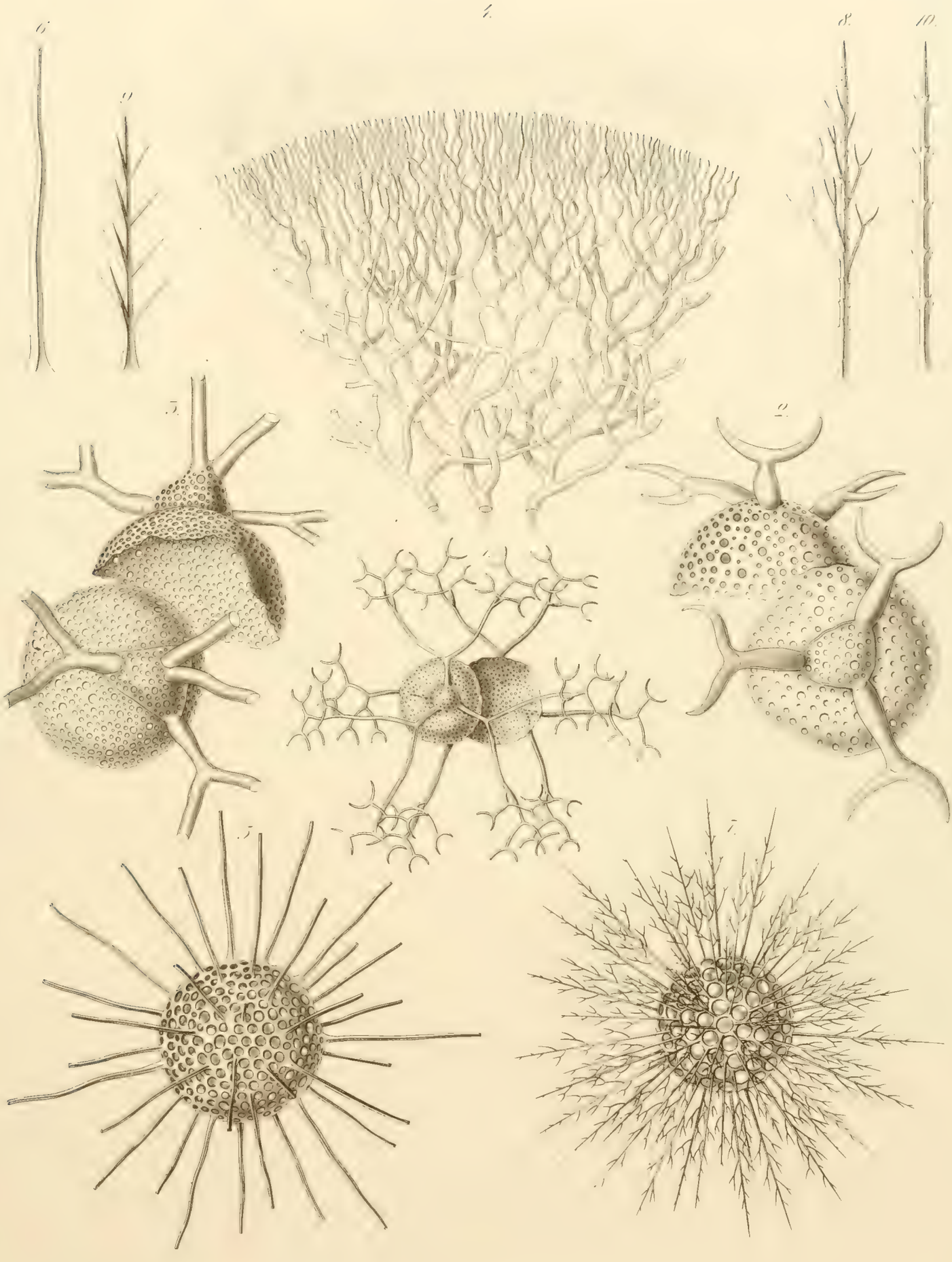


1. Ethmosphaera siphonophora, Hkl. 2. Cyrtidosphaera reticulata, Hkl. 3. 4. Arachnosphaera. 3. A. oligacantha, Hkl. 4. A. myriacantha, Hkl. 5. 6. Aulosphaera elegantissima, Hkl.

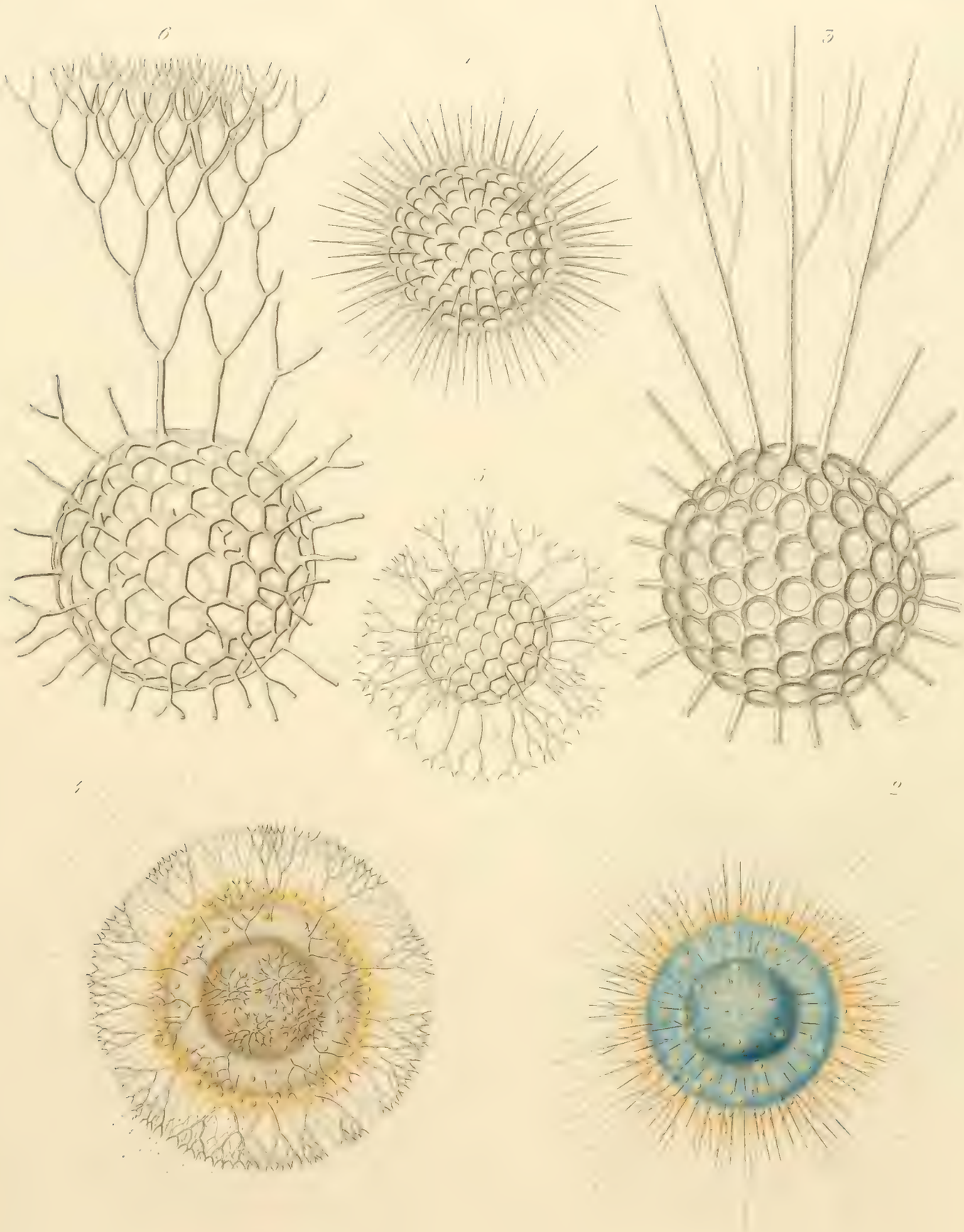


1. Thalassosphaera bifurca, Hkl. 2. Zygostephanus Mülleri, Hkl. 5-6. Dictyocha Messanensis, Hkl. 7. Petalospyris arachnoides, Hkl.
3. 9. Spyridobotrys Trinacria, Hkl. 10. Botryocampe hexathalamia, Hkl. 11-15. Spongosphaera helioides, Hkl. 14. 15. Spongodiscus Mediterraneus, Hkl.

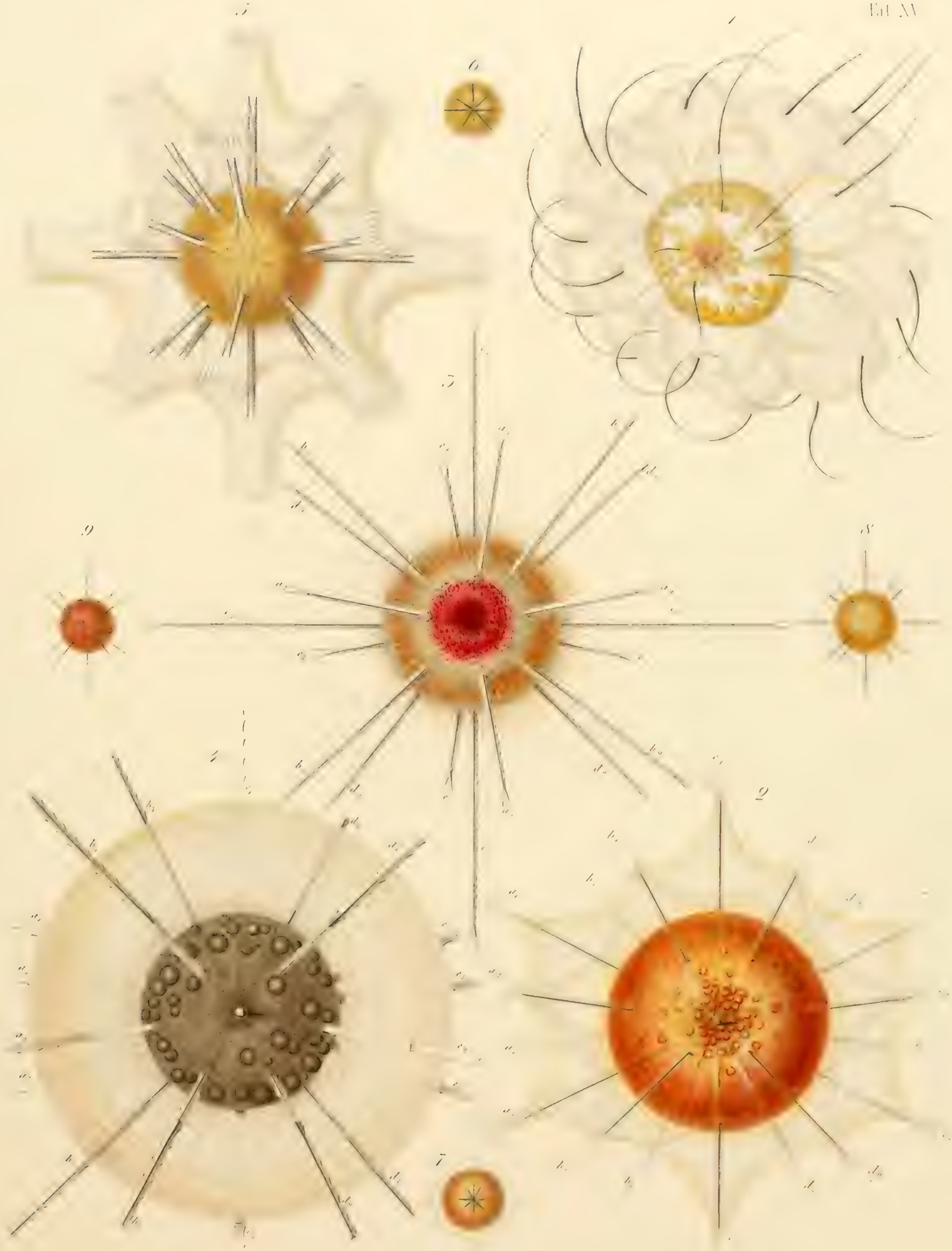


1-4. Coelodendrum ramosissimum, Hkl. 5. 6. Rhaphidococcus simplex, Hkl. 7-10. Cladococcus.
7. 8. C. bifurcus, Hkl. 9. C. spinifer, Hkl. 10. C. dentatus, Hkl.

E. Haeckel



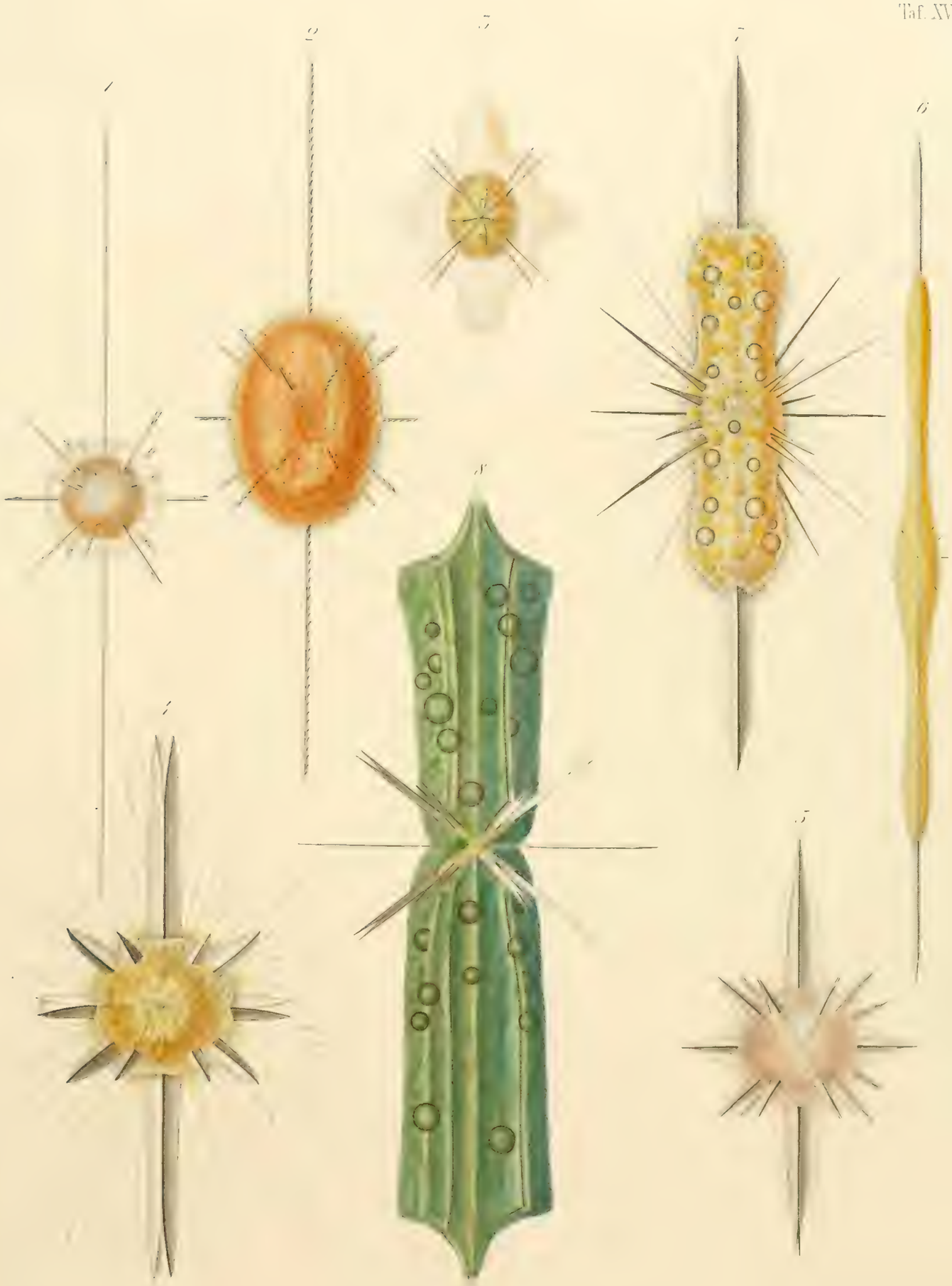
1. Rhaphidococcus acufer, Hkl. 2–6. Cladococcus.
2. 3. C. viminalis, Hkl. 4–6. C. cervicornis, Hkl.



1–9. Acanthometra. 1. A. elastica, Hkl. 2. A. bulbosa, Hkl. 3. A. Mülleri, Hkl.
4. A. fragilis, Hkl. 5. A. brevispina, Hkl. 6–9. Acanthometrae juvenes.

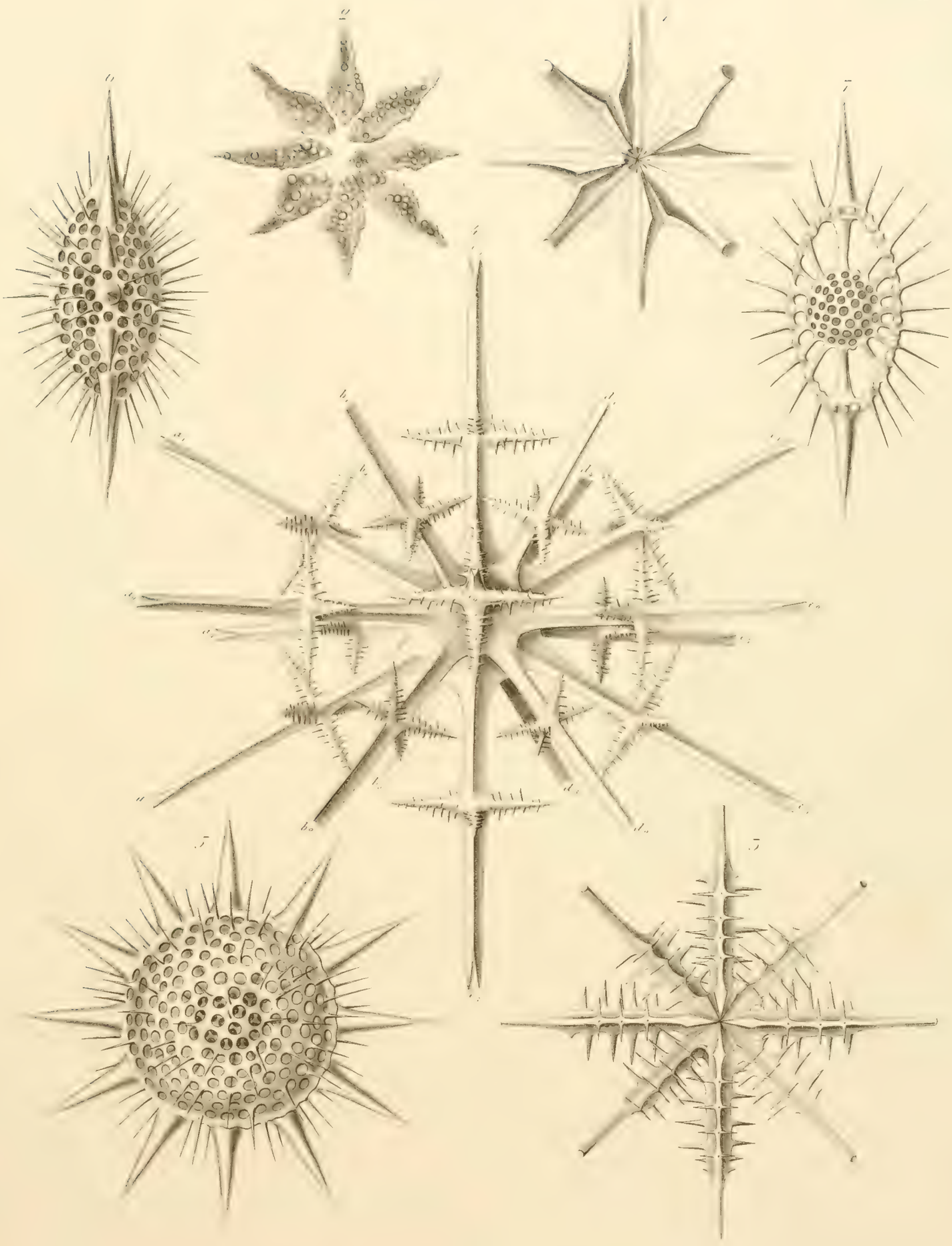
E. Haeckel del.

Wagner sculp.

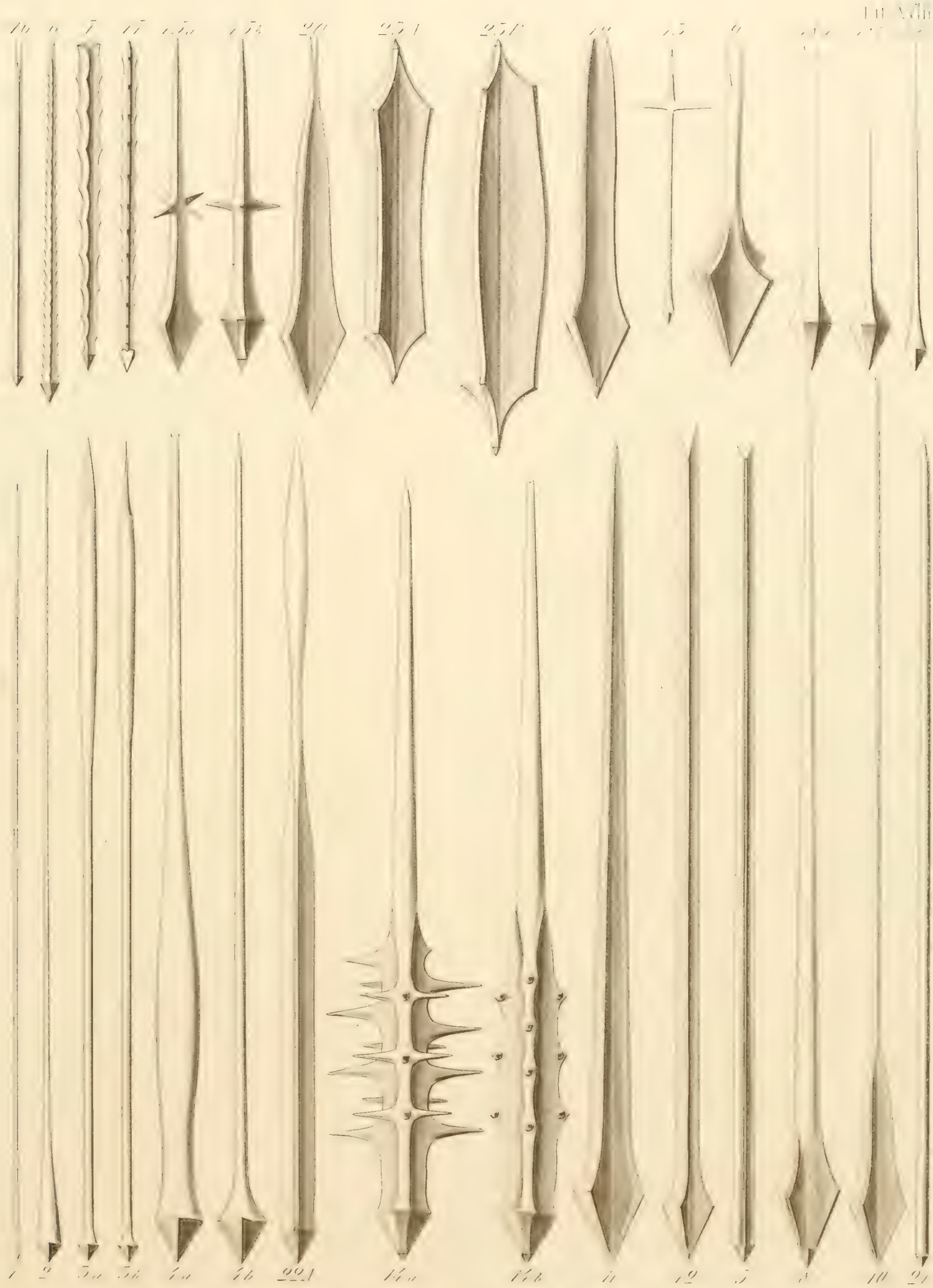


1–8. Amphilonche. 1. A. tenuis, Hkl. 2. A. denticulata, Hkl. 3. A. complanata, Hkl. 4. A. Messanensis, Hkl. 5. A. tetraptera, Hkl. 6. A. belonoides, Hkl. 7. A. heteracantha, Hkl. 8. A. anomala, Hkl.

E. Haeckel del.

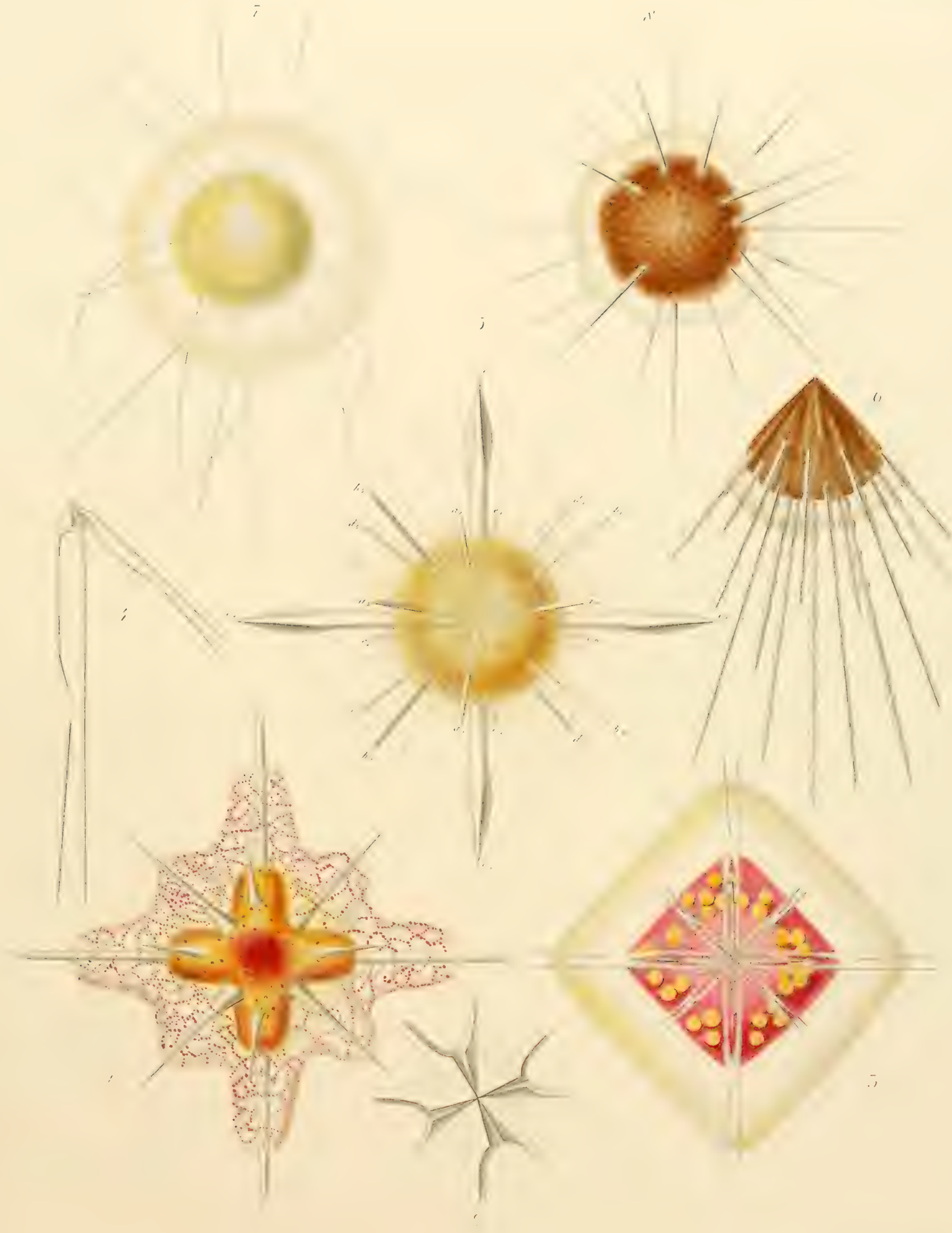


1. 2. Acanthometra Sicula, Hkl. 3. 4. Xiphacantha. 3. X. serrata, Hkl.
4. X. spinulosa, Hkl. 5–7. Heliodiscus Phacodiscus, Hkl.

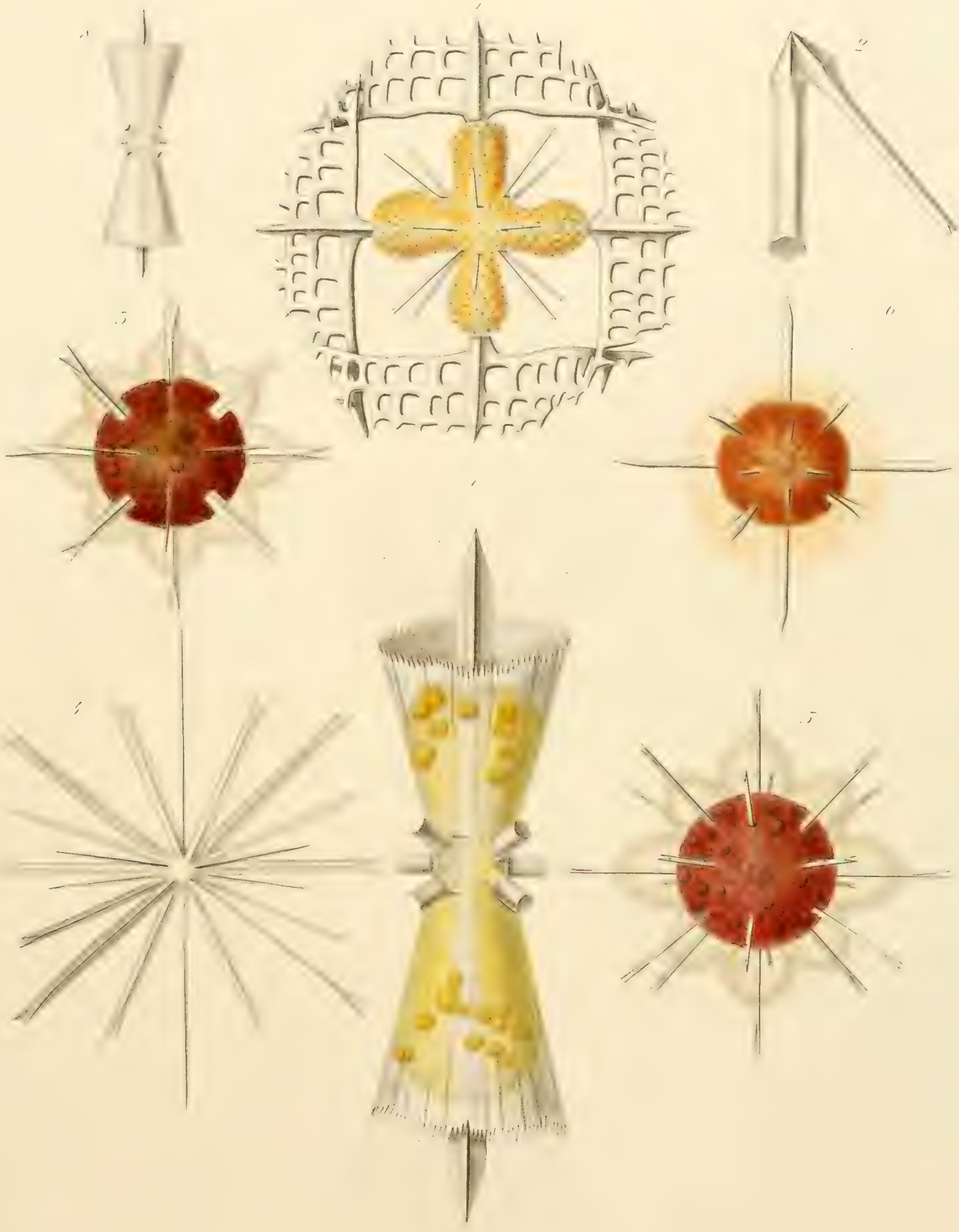


1–25. Aculei Acanthostauridium, 1–12. Generis Acanthometrae,
13–15. Generis Xiphacanthae, 16–25 Generis Amphilonchae

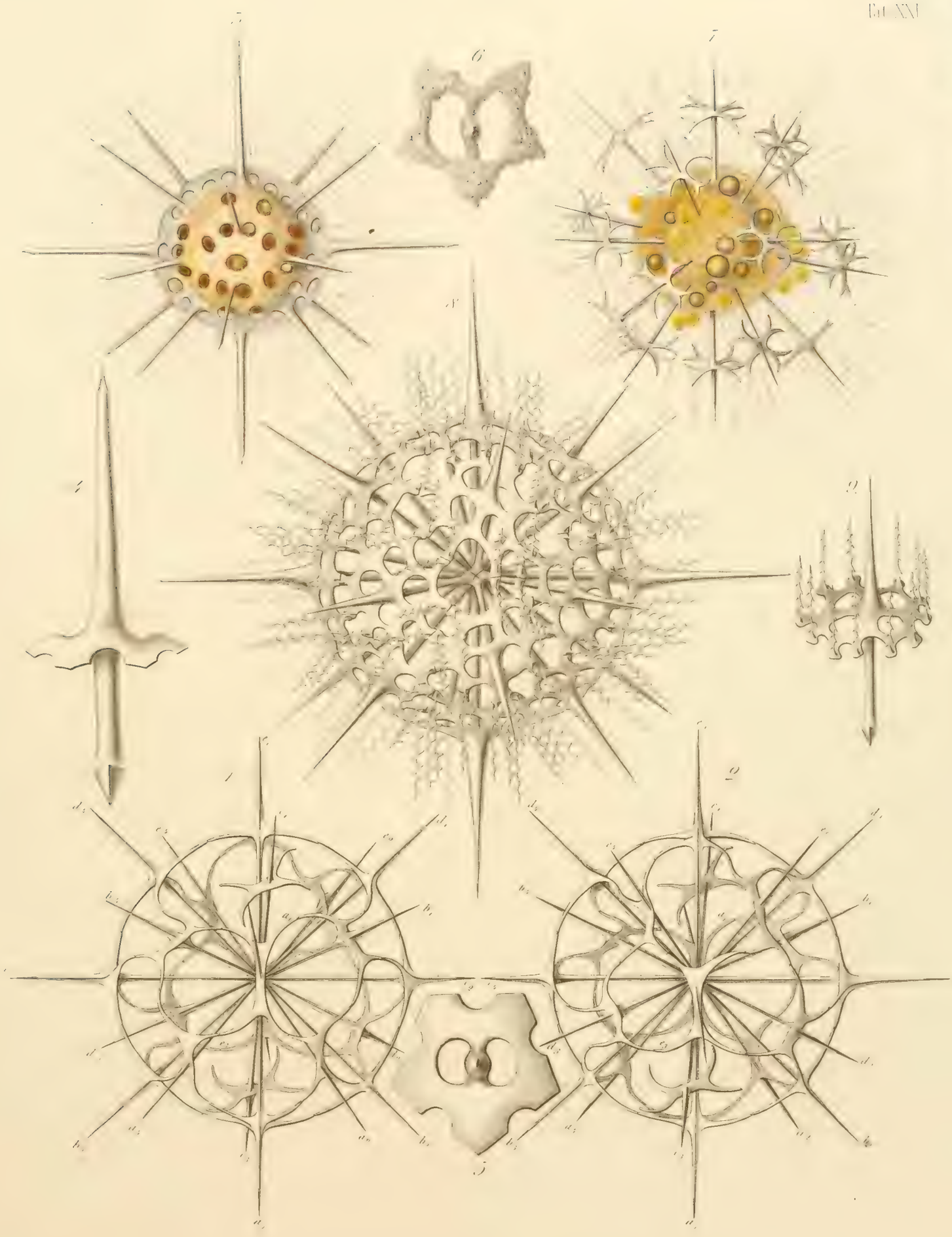
E. Haeckel del.



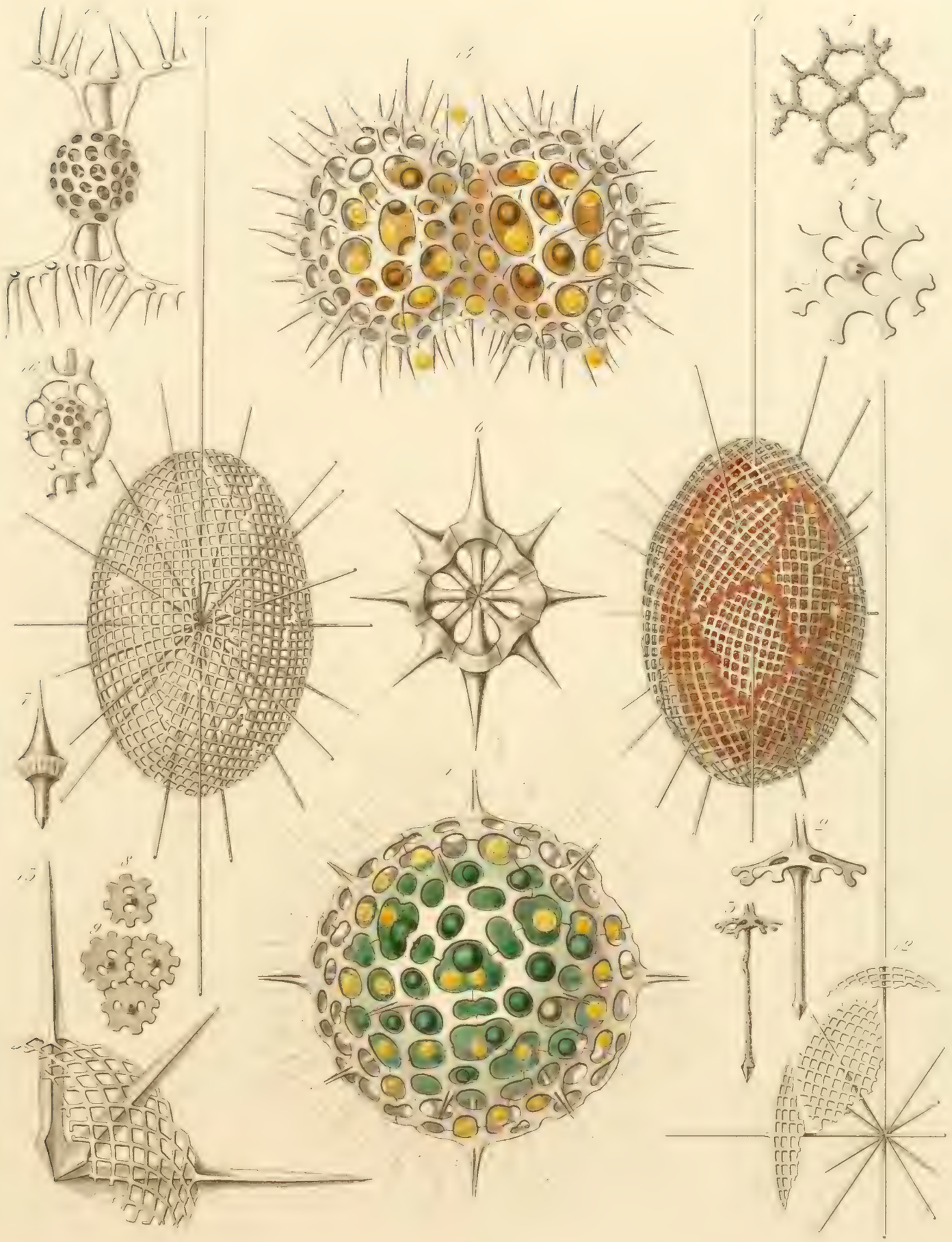
1-5. Acanthostaurus. 1. 2. A. purpurascens, Hkl. 3. 4. A. Forceps, Hkl. 5. A. hastatus, Hkl.
6. Litholophus Rhipidium, Hkl. 7. 8. Acanthochiasma. 7 A. Krohnii, Hkl. 8. A. fusiforme, Hkl.



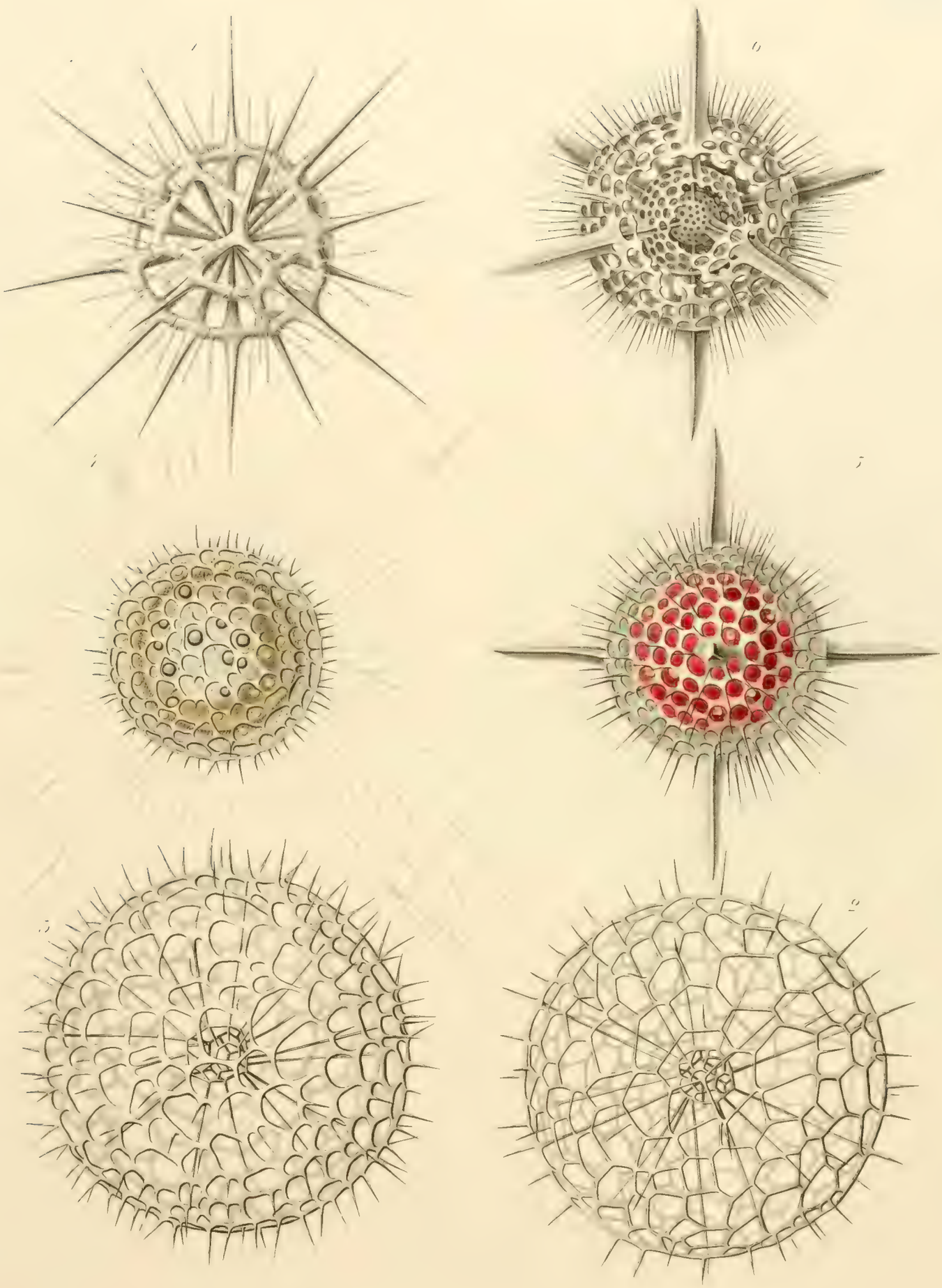
1. 2. Lithoptera Müllers, Hkl. 3–6. Astrolithium. 3 4. A. dicopum, Hkl
5. A. bifidum, Hkl. 6. A. cruciatum, Hkl 7. 8. Diploconus Fasces, Hkl.



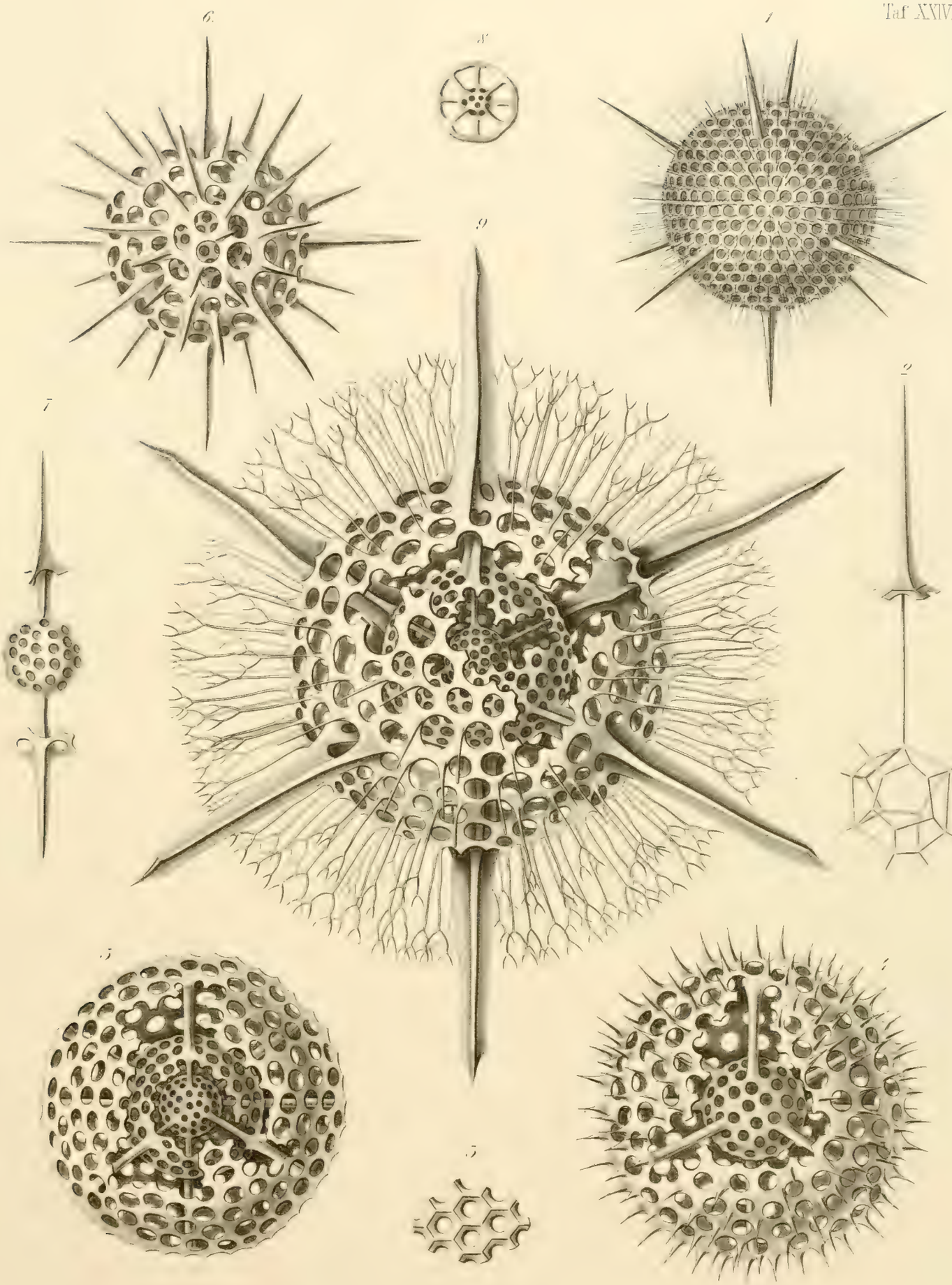
1–9. Dorataspis. 1. 2. D. bipennis, Hkl. 3–6. D. loricata, Hkl.
7–9. D. polyancistra, Hkl.



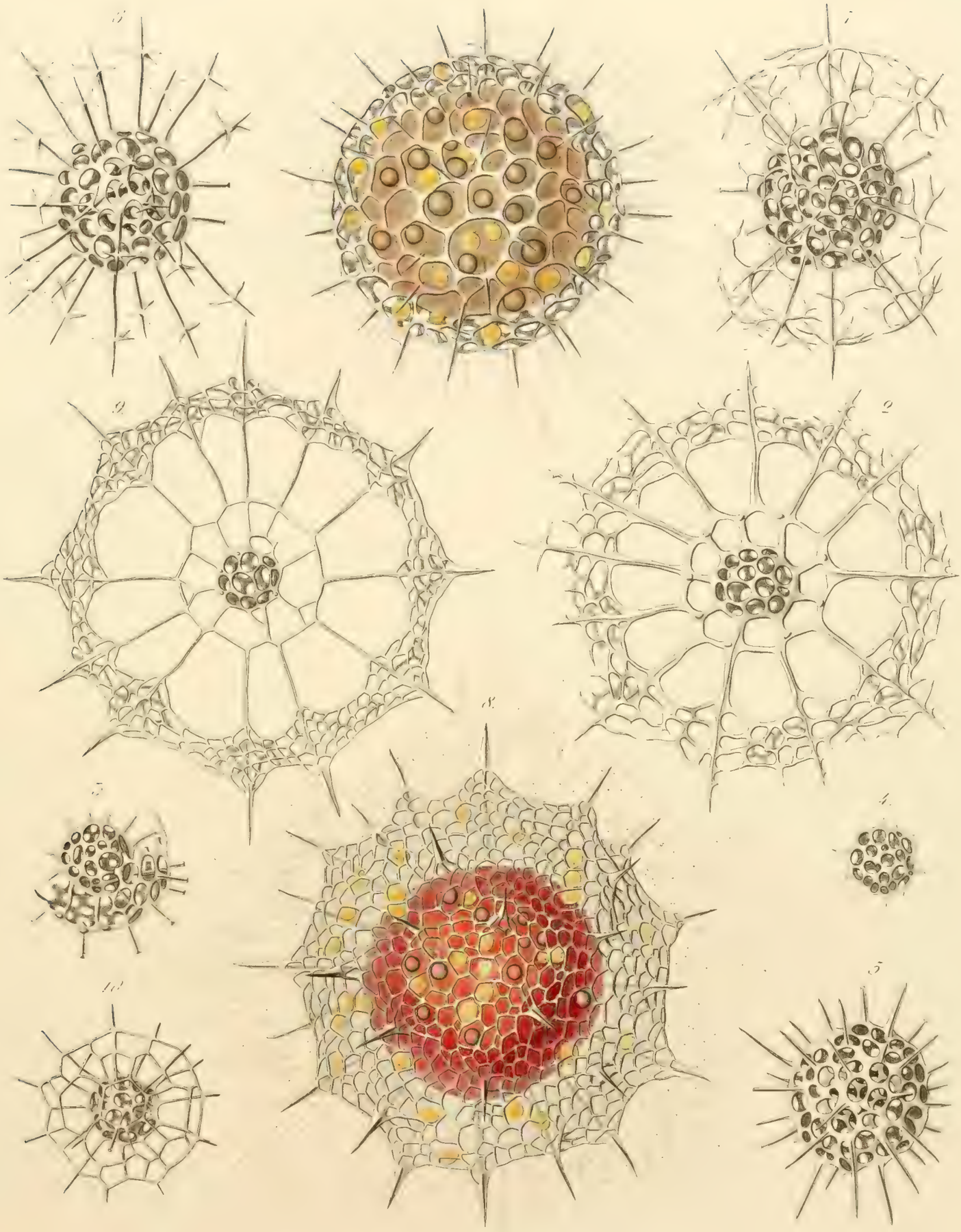
1–9. Dorataspis. 1–5. D. Diodon, Hkl. 6–9. D. solidissima, Hkl. 10–13. Haliommatidium.
10–12. H. Müller i, Hkl. 13. H. tetragonopum, Hkl. 14–16. Didymocyrtis Ceratospyris.



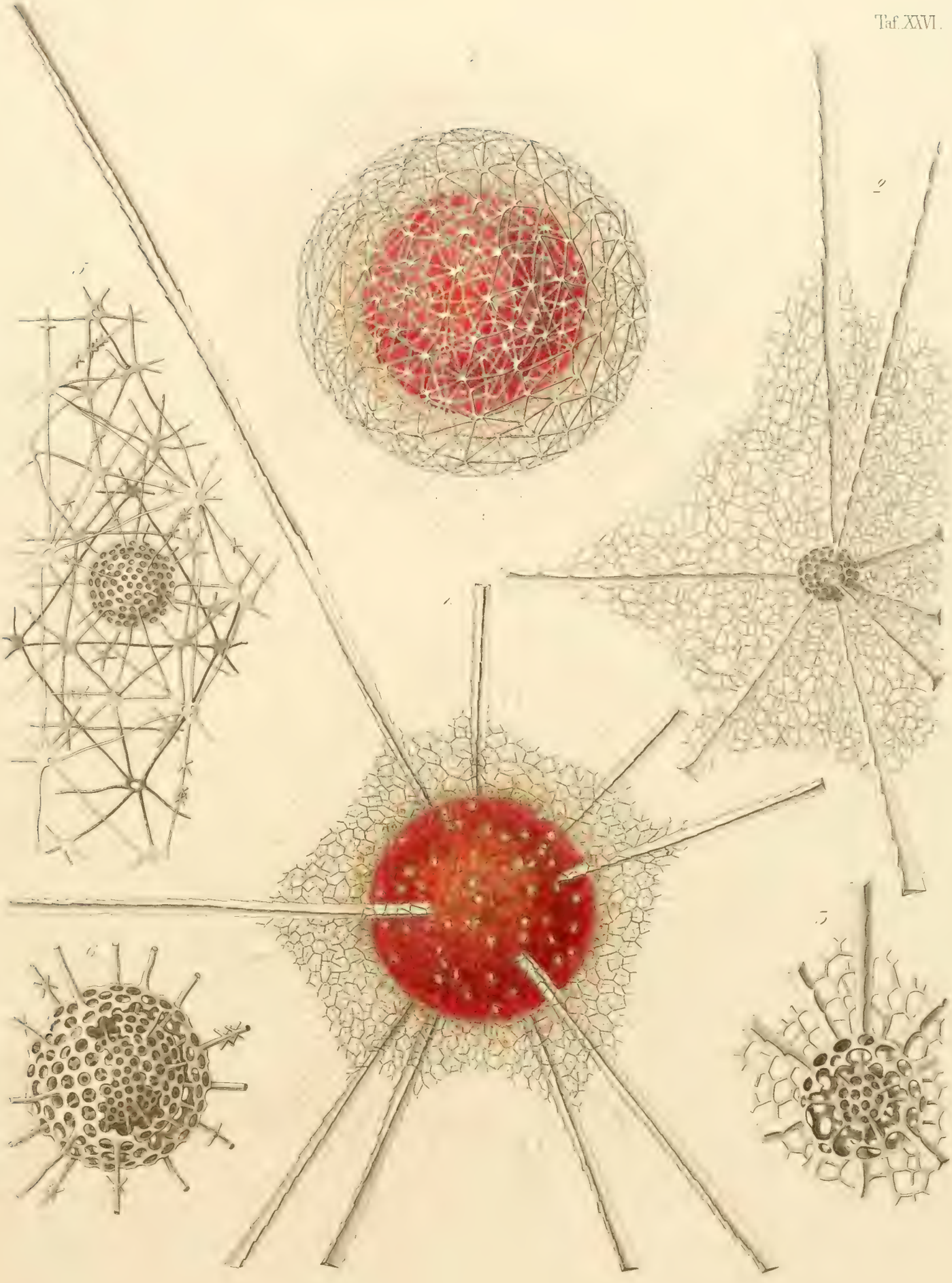
1. Dorataspis costata, Hkl. 2–4. Haliomma. 2. H. capillaceum, Hkl.
3. 4. H. Erinaceus, Hkl. 5. 6. Actinomma Asteracanthion, Hkl.



1–4. Halionma 1–3. H. Echinaster, Hkl. 4. H. Castanea, Hkl. 5–9. Actinomma
5. A. inerme, Hkl. 6–8. A. Trinacrum, Hkl. 9. A. drymodes, Hkl

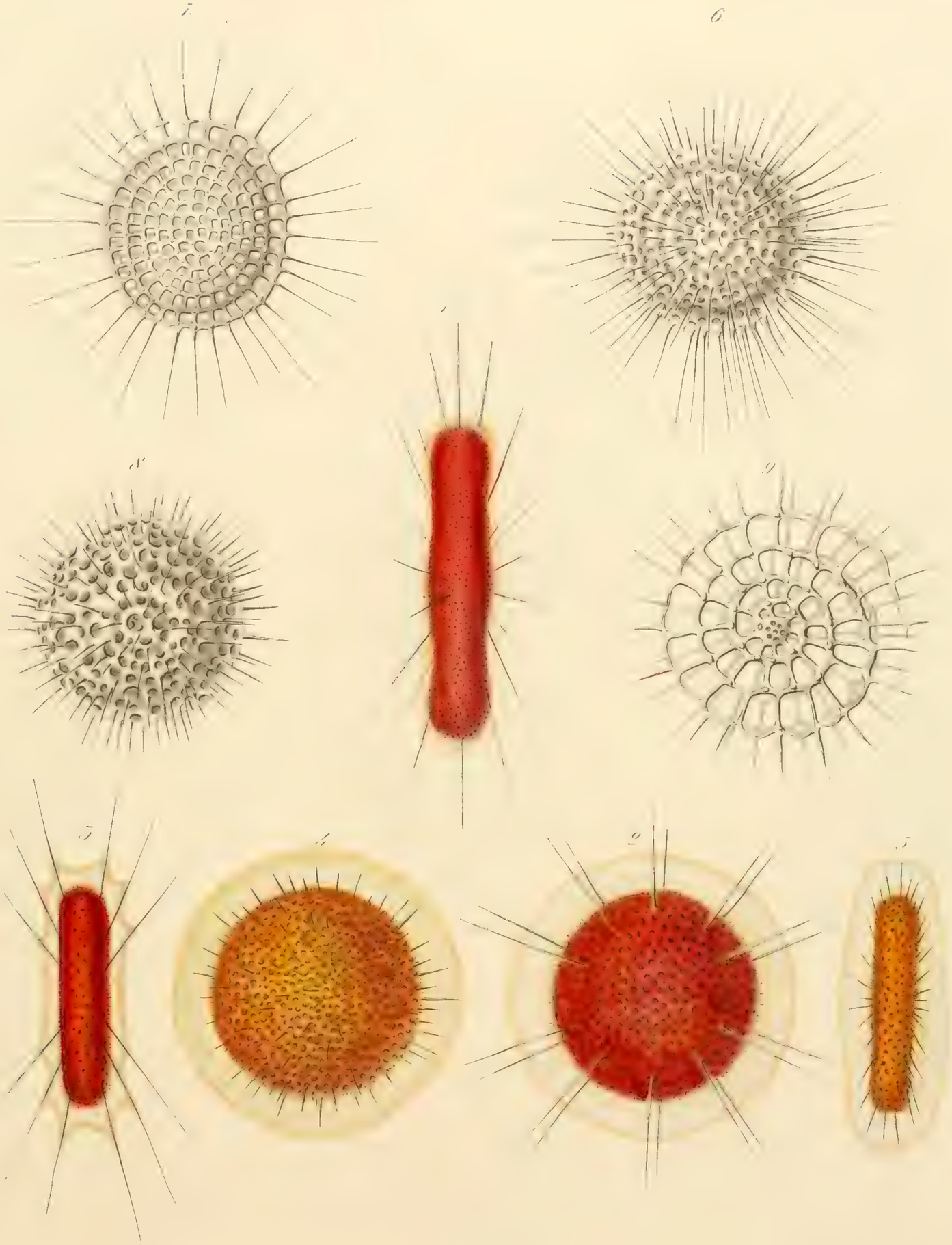


1–10. Rhizosphaera 1–7 R. trigonacantha, Hkl. 8–10. R. leptomita, Hkl

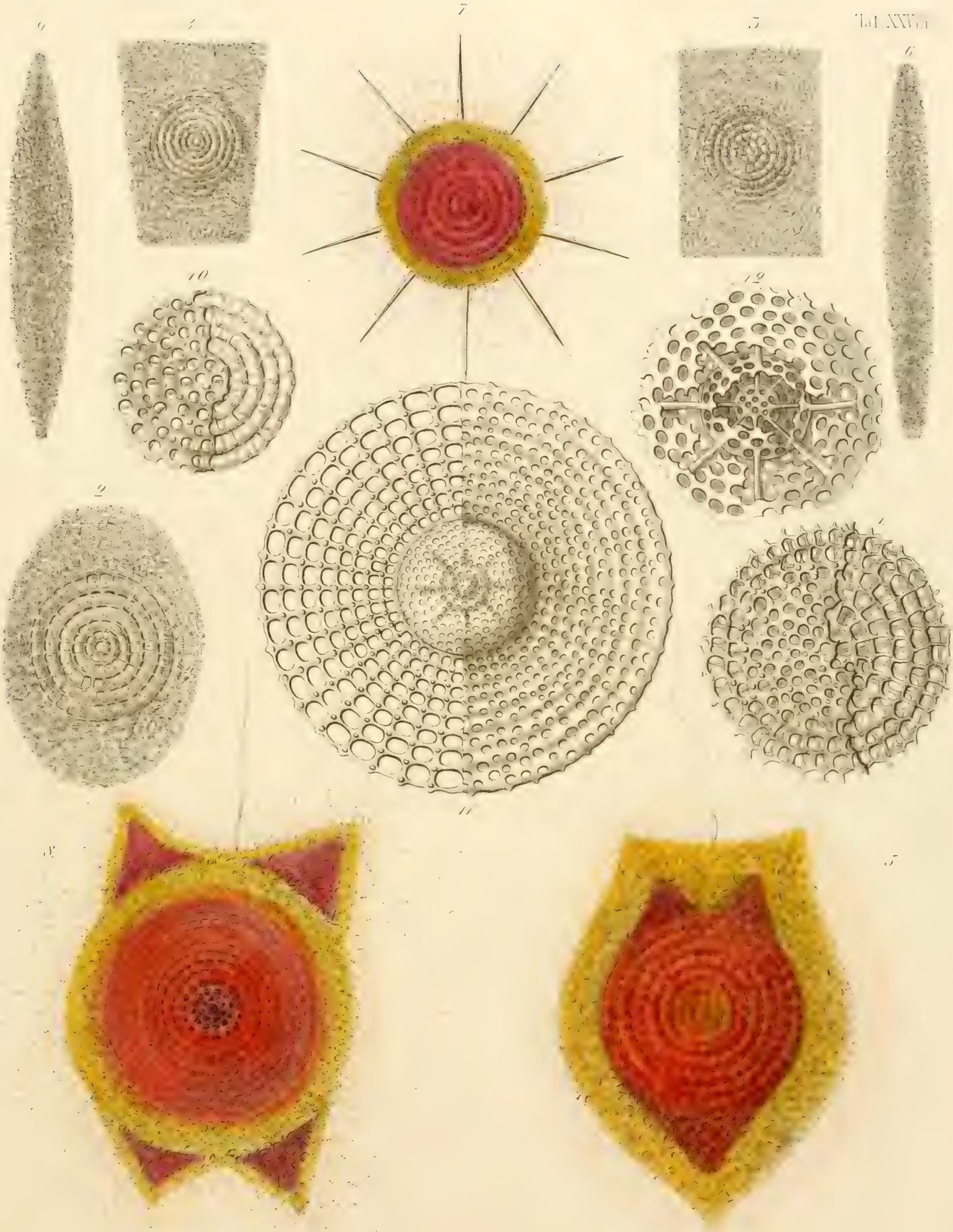


1–3. Spongosphaera streptacantha, Hkl. 4–6. Dictyosoma trigonizon, Hkl.

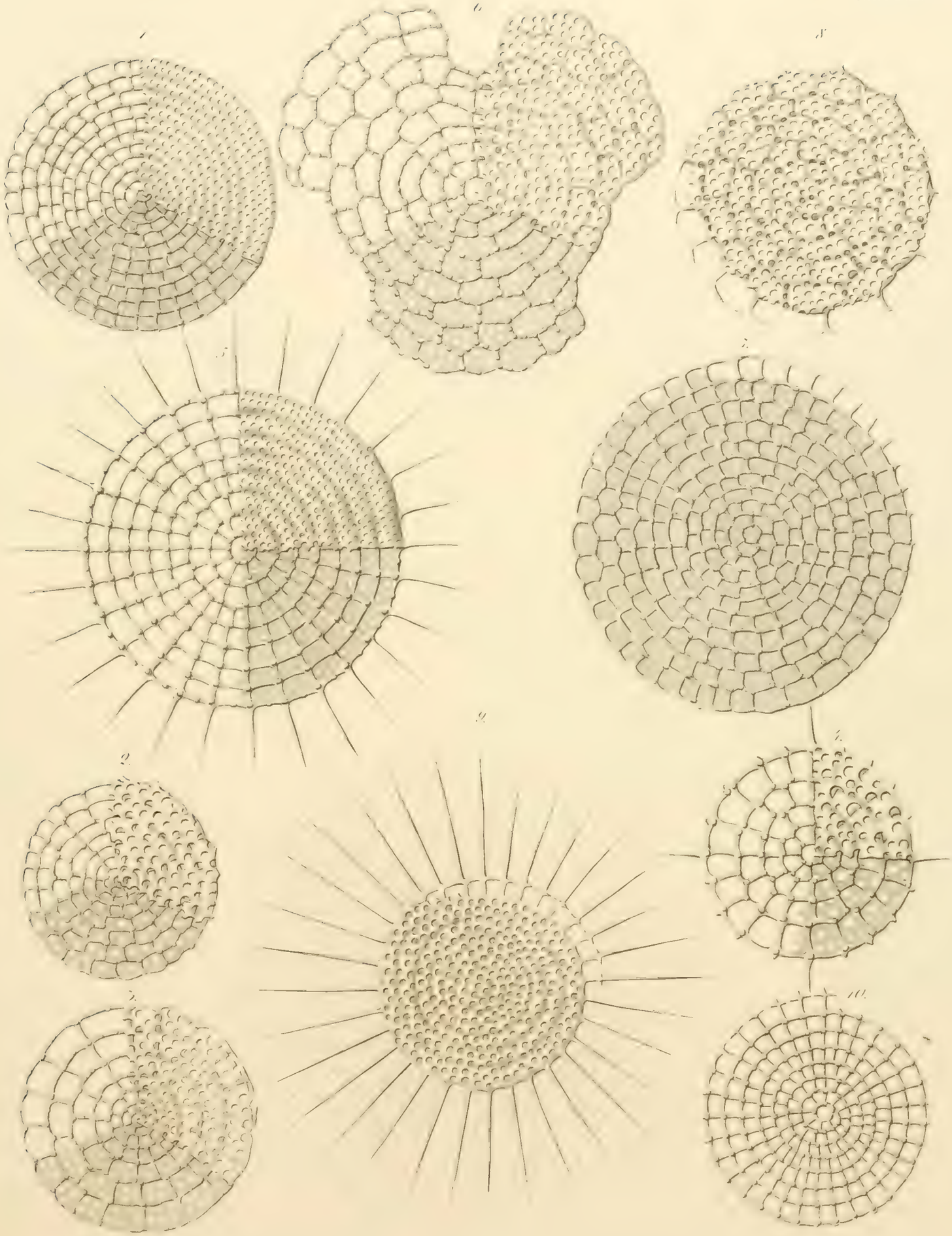
E. Haeckel del. Wagner sculp.



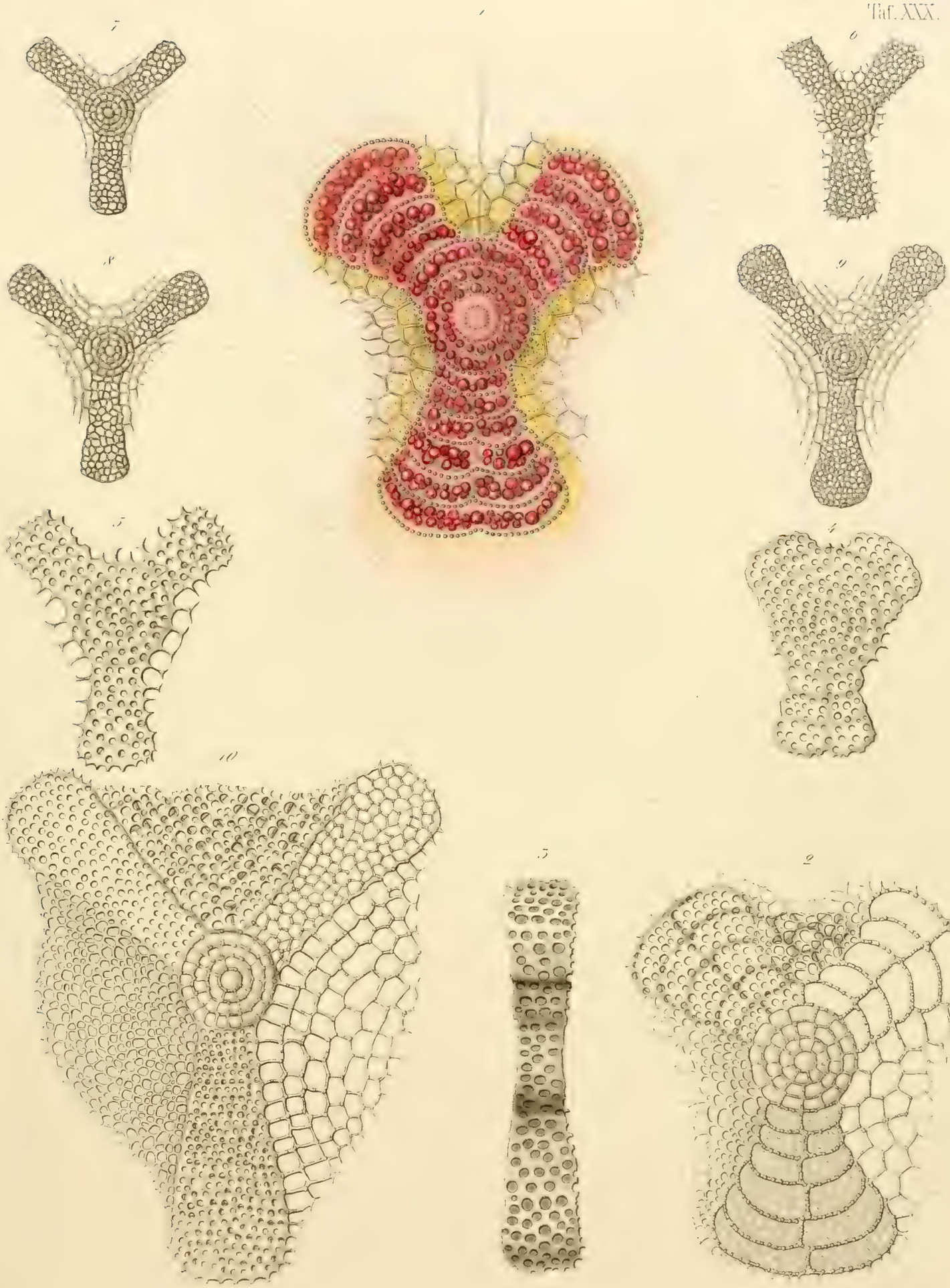
1. Spongiurus cylindricus, Hkl. 2–5. Spongotrochus. 2. 3. S. longispinus; Hkl. 4. 5. S. brevispinus, Hkl. 6–9. Lithelius. 6. 7. L. spiralis, Hkl. 8. 9. L. Alveolina, Hkl.



1-6. Spongiocyclia 1. S. cycloides, Hkl. 2. S. elliptica, Hkl. 3. S. orthogona, Hkl. 4. S. Scyllaea, Hkl. 5. 6. S. Charybdaea, Hkl.
7. Stylospongia Huxleyi, Hkl. 8-10. Spongasteriscus quadricornis, Hkl. 11. 12. Coccodiscus Darwinii, Hkl.

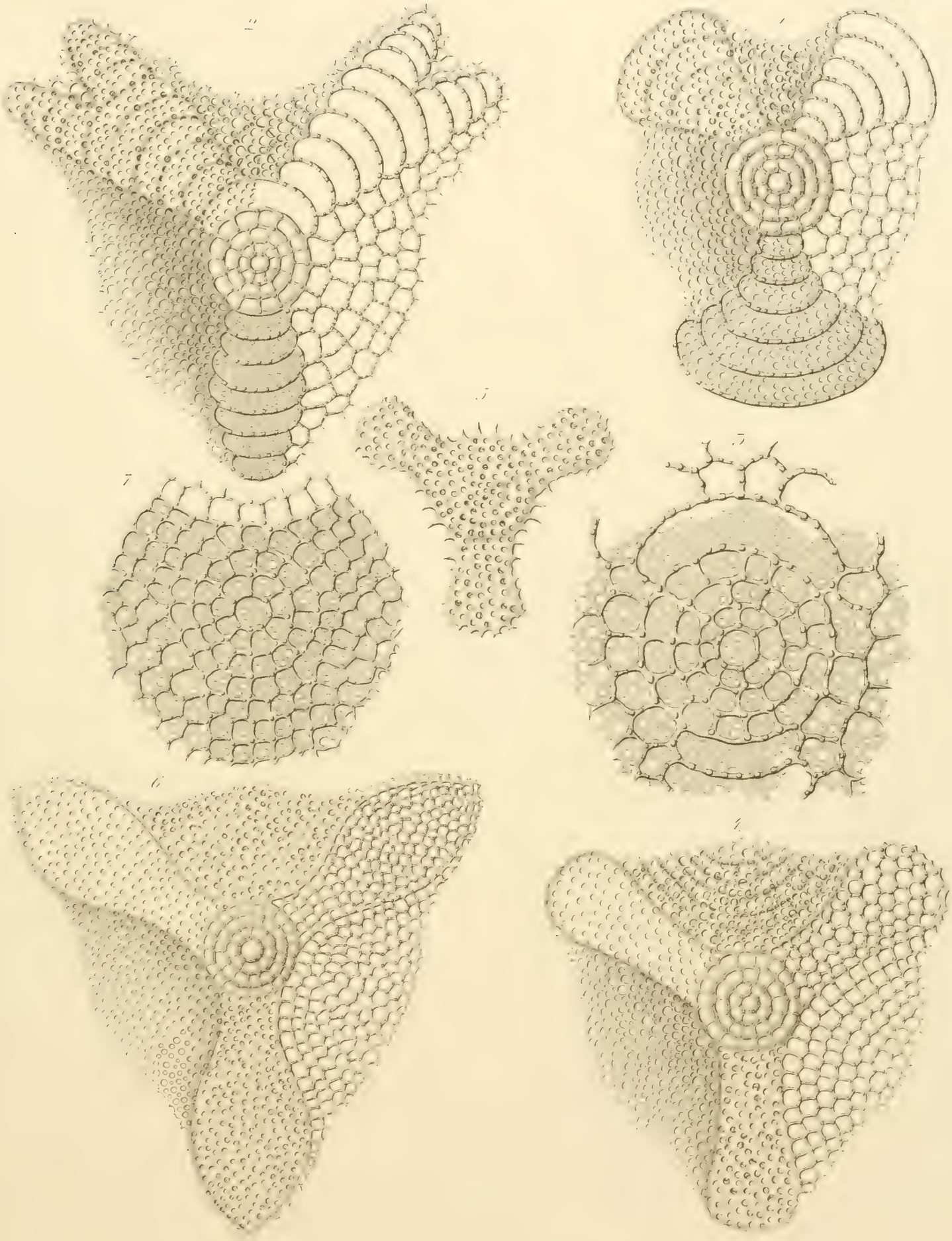


1-3. Trematodiscus. 1. T. orbiculatus, Hkl. 2. T. Sorites, Hkl. 3. Theterocyclus, Hkl. 4. 5. Stylodictya. 4. S. quadrispina, Hkl.
5. S. multispina, Hkl. 6. Rhopalastrum truncatum, Hkl. 7. 8. Discospira. 7. D. helicoides, Hkl. 8. D. Operculina, Hkl. 9. 10. Stylo[illegible] Dujardinii Hkl

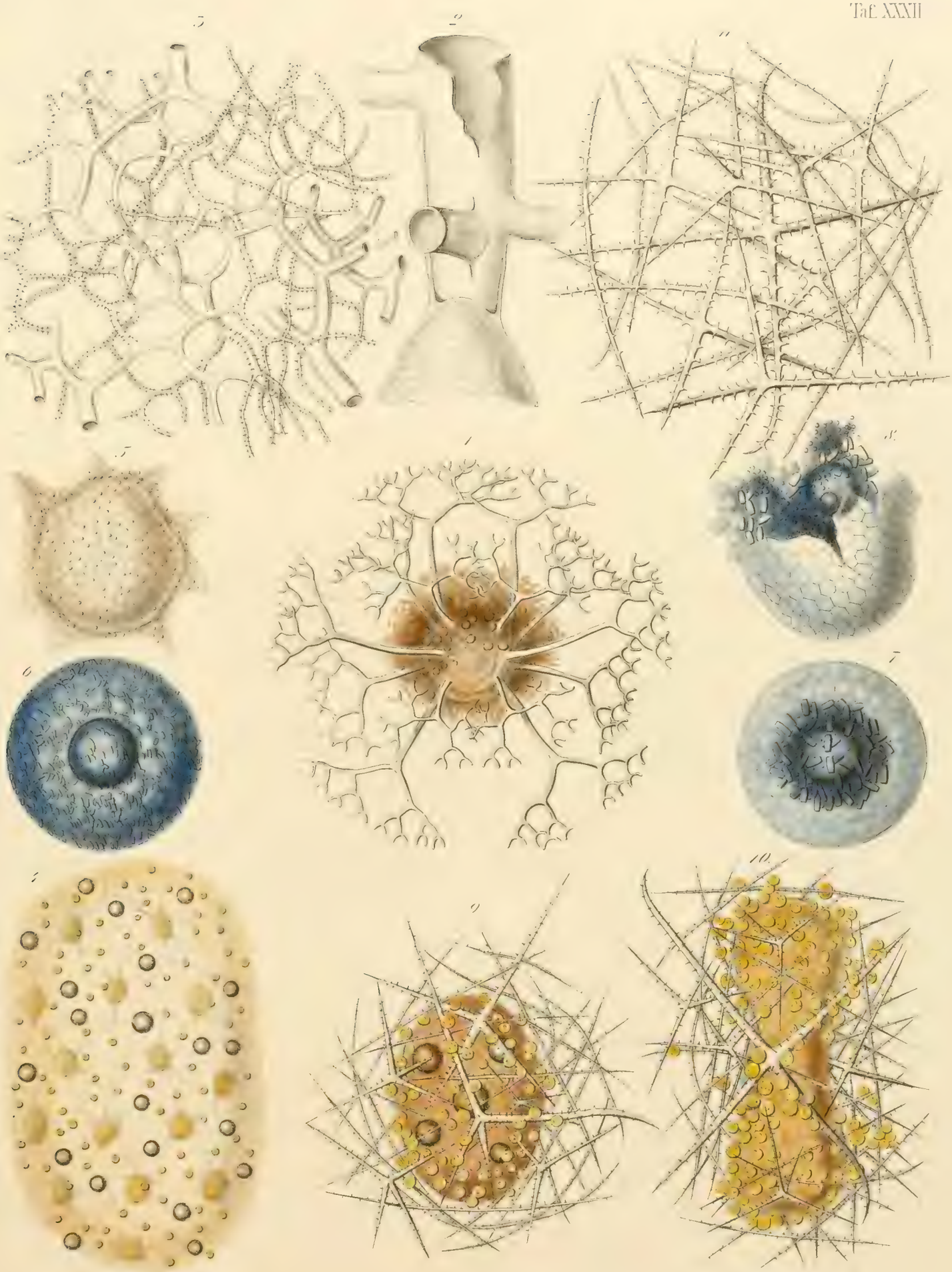


1–10. Euchitonia. 1–4. E. Virchowii, Hkl. 5–10. E. Mülleri, Hkl.

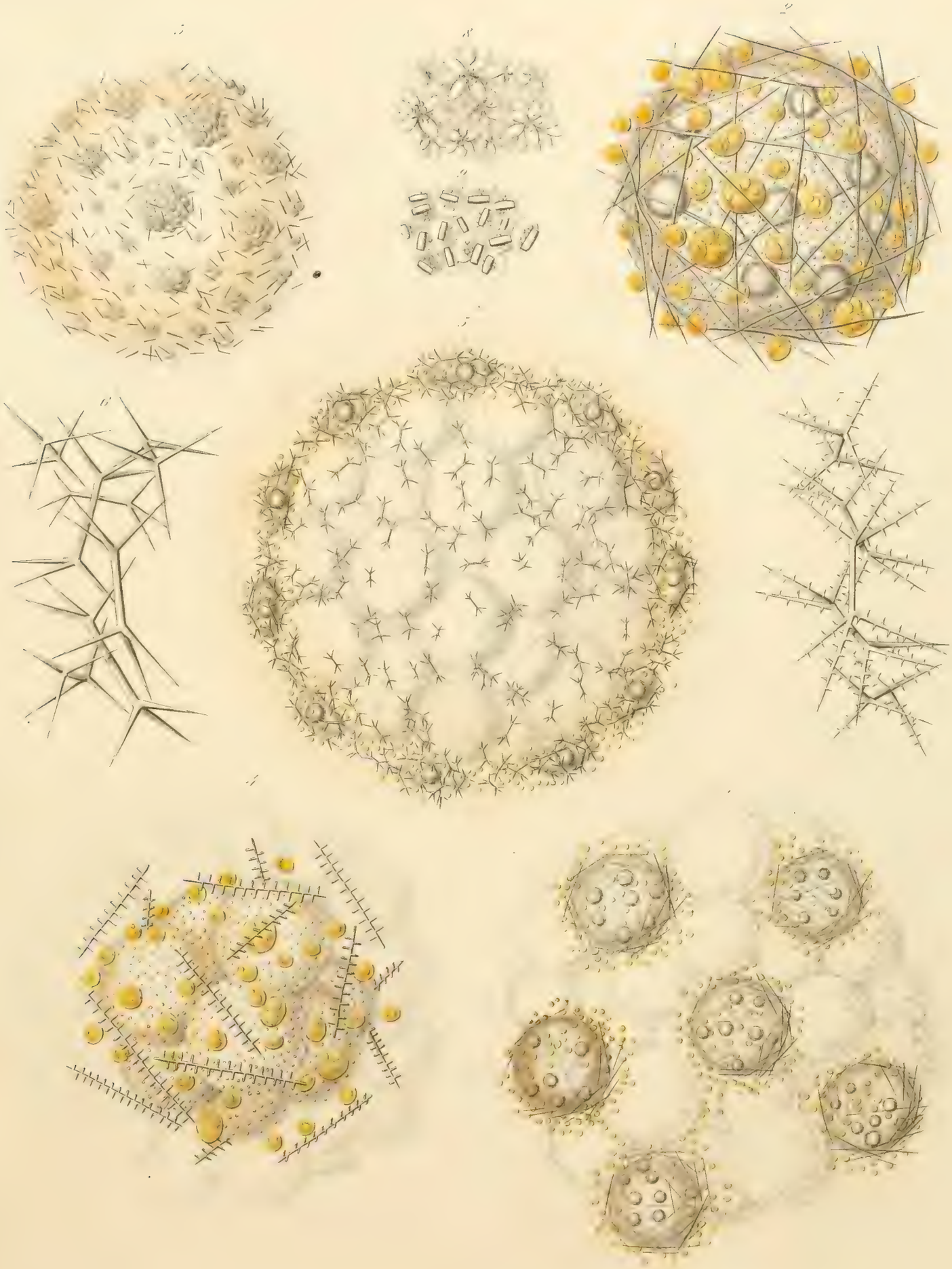
E. Haeckel del.



1–7. Euchitonia 1. E. Beckmanni, Hkl. 2. 3. E. Gegenbauri, Hkl.
4. 5. E. Leydigii, Hkl. 6. 7. E. Köllikeri, Hkl.

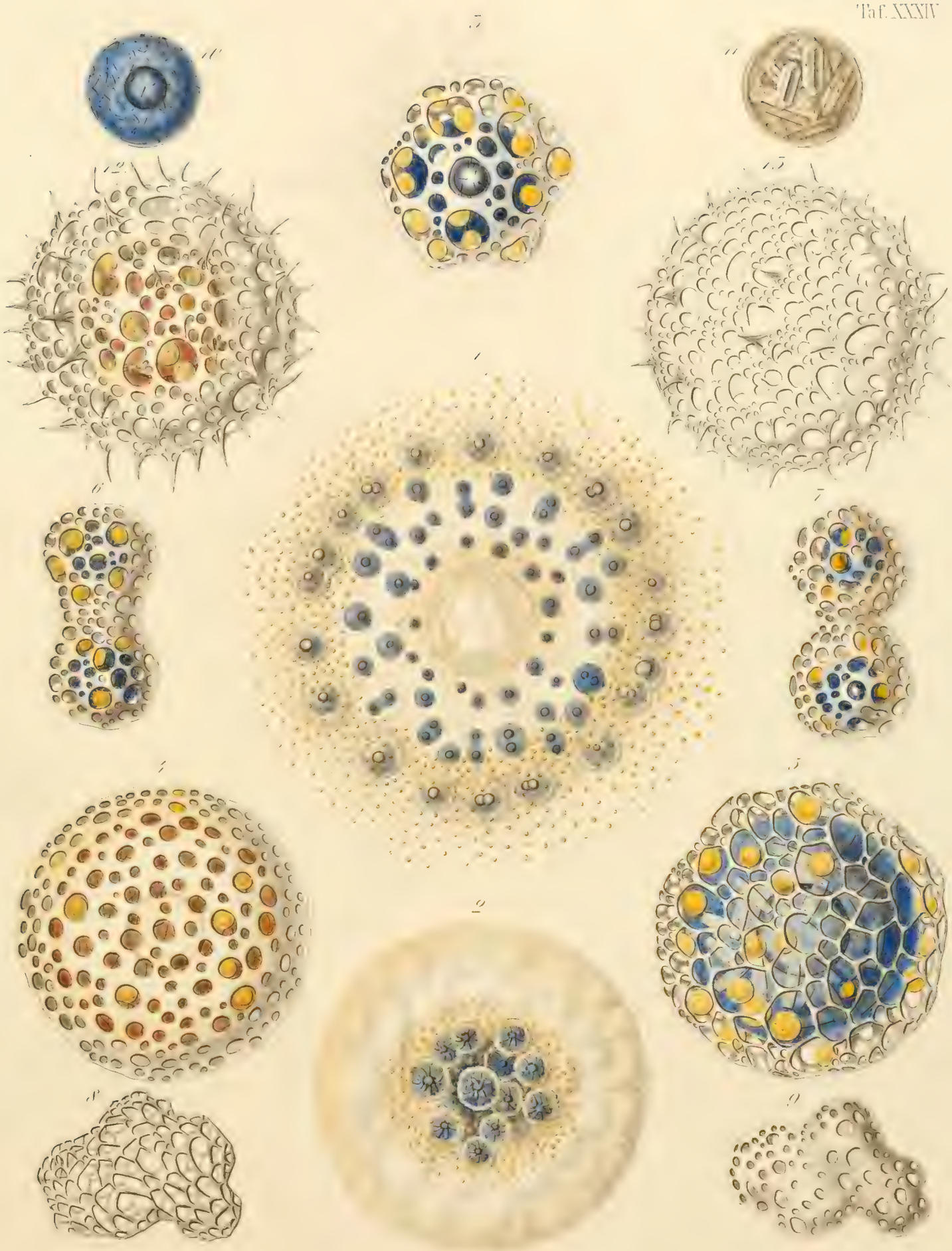


1–3. Coelodendrum gracillimum, Hkl. 4–8. Collozoum. 4 5 C. pelagicum Hkl
6–8. C. coeruleum, Hkl. 9–11. Rhaphidozoum acuferum, Hkl.

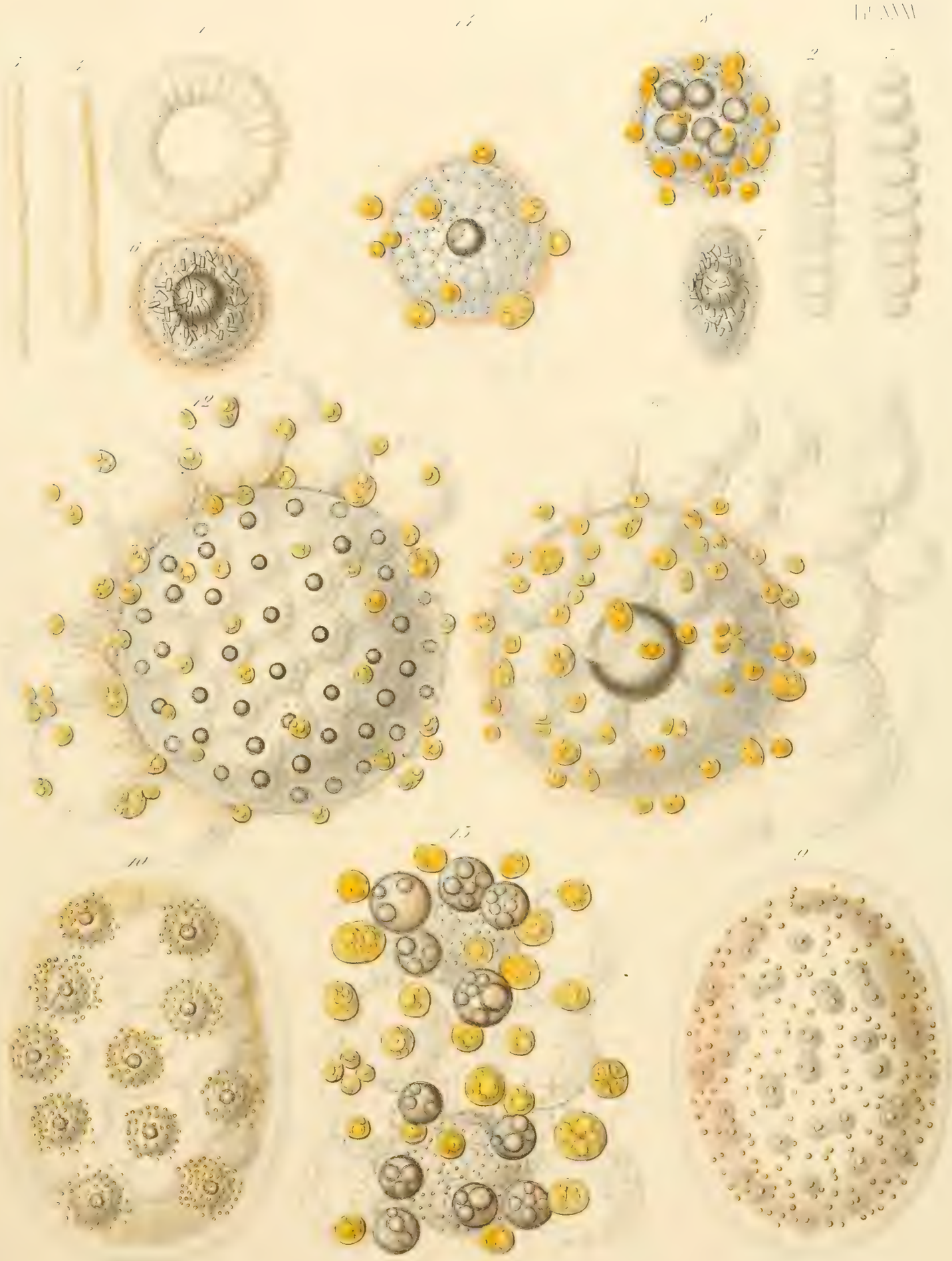


1–9. Sphaerozoum. 1. 2. S. Italicum, Hkl. 3. 4. S. spinulosum, Müller.

5–6. S. Ovodimare, Hkl. 7–9. S. punctatum, Müller.



1–13. Collosphaera. 1–11. C. Huxleyi, Müller. 12 13. C. spinosa, Hkl.



1–14. Collozoum inerme, Hkl.

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