THE Geographical Society at Antwerp has given a reception to the distinguished geographer, Dr. Chavanne, editor of the *Mittheilungen* of the Vienna Geographical Society. He has undertaken the task of drawing up a complete map of the Congo territory, showing the stations of the African Association. He will leave for the Congo at the beginning of next month.

THE first maps of the Algerian survey have been published and presented to the Paris Academy by Col. Perrier.

THE largest ice cavern in Carniola has lately been discovered by Prof. Linhart of Laibach, having hitherto been known only to a small circle of woodcutters and hunters. It is now called the Friedrichstein Cavern, and can be reached in about two to three hours from Gottschee. The upper aperture is large and rectangular, the back is formed by a limestone rock rising some 80 metres perpendicularly; there is also a colossal gate fringed by icicles some metres in length. The sides are very steep. The area of the cave is about 450 square metres, nearly circular in shape, the level ground being covered with ice several feet deep. Altogether the cave seems to offer one of the grandest aspects imaginable.

NEWS about the Russian expedition to Western Africa under Herr Schulz von Rogosinski was communicated at a recent meeting of the Berlin Geographical Society. The expedition has investigated the district north and east of the Cameroon Mountains, and discovered a large native settlement or town, Kumba by name, on the Mungo River east of the mountains mentioned. They intend to penetrate still further to the east. Dr. Pauli and Dr. Passavant of Basle have started also for the same districts on an exploring tour. A letter was also read, dated Ibi, September 30, in which Robert Flegel makes some official business communications.

THE additions to the Zoological Society's Gardens during the past week include a Black-handed Spider Monkey (*Ateles geoffroyi*) from Central America, presented by Mr. Colin Wm. Scott; two Yellow-bellied Liothrix (*Liothrix luteus*) from India, a Goldfinch (*Carduelis elegans*), British, presented by Mrs. Edwards; an Indian Elephant (Mottled Variety) (*Elephas indicus* ♂) from Burmah, a Slow Loris (*Nycticebus tardigradus*) from Sumatra, a Gray Ichneumon (*Herpestes griseus*) from India, deposited; a Rufous-necked Wallaby (*Halmaturus ruficollis*) from New South Wales, a Brush Bronze-wing Pigeon (*Phaps elegans*) from Australia, received on approval; an Axis Deer (*Cervus axis*), three Brown-tailed Gerbilles (*Gerbillus erythrurus*), a Babirussa (*Babirussa alfurus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

A SOUTHERN COMET.—A telegram from Melbourne addressed to Prof. Krueger of Kiel, editor of the *Astronomische Nachrichten*, notifies the discovery of a small comet on January 12 in R.A. 22h. 40m., and N.P.D. 130° 8′, and consequently in the constellation Grus. It is stated to be moving quickly to the south-east.

Possibly this comet may add to the very small number of cases where one of these bodies has been telescopically discovered in the other hemisphere, and the elements of the orbit have wholly depended upon southern observations. We can call to mind only two such instances: (1) the comet of 1824 detected by the late Carl Rümker at Parramatta, and observed there by him and by Sir Thomas Brisbane, the founder of that observatory, and Governor of the Colony. The orbit was first calculated by Rümker, and has lately been more completely investigated from the Parramatta observations by Dr. Doberck; (2) the comet of 1833, discovered by Dunlop (Rümker's successor) at Parramatta at the end of September, and observed there from October 1 to 16: orbits by Henderson, Peters, and Hartwig.

PONS' COMET.—For the convenience of readers who are observing in the southern hemisphere we subjoin an ephemeris of this comet, deduced from the provisionally corrected ellipse of MM. Schulhof and Bossert. The positions are for Greenwich mean noon:—

1884	R.A. h. m. s.	Decl. ° ′ ″	Log. distance from Earth	Log. distance from Sun
Feb. 5	0 44 33	−31 38·8	9·9506	9·9024
9	0 55 27	35 10·7		
13	1 5 10	38 14 2	0·0019	9.9284
17	1 14 0	40 54·4		
21	1 22 14	43 15·8	0·0440	9 9628
25	1 30 7	45 22·4		
29	1 37 52	47 17·2	0·0772	0·0011
March 4	1 45 40	49 2·8		
8	1 53 40	50 41·4	0·1029	0·0401
12	2 2 0	52 14·9		
16	2 10 50	53 44·6	0·1225	0·0781
20	2 20 19	55 11·3		
24	2 30 34	56 36·0	0·1374	0·1143
28	2 41 44	57 59·4		
April 1	2 53 58	59 22·0	0·1489	0·1483
5	3 7 27	60 43·6		
9	3 22 23	62 4·1	0·1583	0·1800
13	3 38 59	63 22·5		
17	3 57 27	64 37·4	0·1668	0·2095

The theoretical intensity of light on February 5 is sixty-nine times that on the day of discovery; on April 17 only six times the same. Probably the comet may be discernible with the naked eye until the end of February.

Dr. G. Müller of the Astro-physical Observatory at Potsdam records a second remarkably sudden increase in the brightness of this comet. On January 1 at 5h. 47m. M.T. its appearance was very similar to that of the preceding days, the nucleus large and diffused; photometric comparisons showed that it was following pretty nearly in the calculated light-curve, and harmonised with the measures on December 29 and 30. At 7h. 20m. he was astonished at the altered aspect of the comet. In place of the previously diffused nucleus, there was now an almost stellar point, equal in brightness to a star of the seventh magnitude, so that he was at first under the impression that a bright star was seen through the comet. By comparisons with two neighbouring stars, estimated in the *Durchmusterung* 7·0 and 6·8, the following magnitudes were determined:—

h. m.			h. m.		
At 7 28	...	7·53 m.	At 8 27	...	7·03 m.
7 41	...	7·35	8 38	...	7·00
7 58	...	6 97	9 0	...	7·13
8 7	...	6·89	9 7	...	7·33

With the help of a curve the observations appeared to fix the maximum of the development of light to 8h. 12m. M.T. at Potsdam corresponding to 7h. 20m. Greenwich M.T. At 9h. 30m. the comet's aspect had again changed and resembled that presented at the previous day's observations. The whole variation amounted to about 1·3 mag. On that evening the comet's distance from the sun was 0·90, and that from the earth 0·665.

Attention will be no doubt directed in the other hemisphere to these abnormal variations in the light of the comet. It will be remembered that the first remarkable change occurred about September 22, three weeks after the discovery by Mr. Brooks, when the distance from the sun was 2·18, and from the earth 2·14.

PROFESSOR HAECKEL ON THE ORDERS OF THE RADIOLARIA[1]

II.

[THE following translation of a recent paper of mine, by Miss Nellie Maclagan, has been revised by myself.—ERNST HAECKEL.]

Systematic Survey of the 4 *Orders,* 10 *Sub-orders, and* 32 *Families of the Class Radiolaria.* (Compare the former survey of the families in my Monograph, 1862, and in "Prodromus," *l.c.* 1881).

I. Order I. ACANTHARIA, Hkl. (*Acantharia*, Hkl., 1881 = *Acanthometreæ*, Hertwig, 1879 = *Panacantha*, Hkl., 1878).

Central capsule originally (and usually permanently) spherical; nucleus usually early divided into numerous small nuclei. Cap-

[1] "Separat-Abdrück aus den Sitzungsberichten der Jenaischen Gesellschaft für Medicin. und Wissenschaft." Jahrg. 1883. Sitzung. vom 16 Februar.

Concluded from p. 276.

sule membrane spherical, pierced on all sides by innumerable fine pores. Extracapsularium, a voluminous gelatinous sheath, without phæodium, usually without zooanthella. Skeleton always intracapsular, consisting of acanthine spicules, which meet in the centre of the central capsule, and pierce the membrane.

1A. Sub-order I. Acanthometræ, J. Müller, 1858. Acantharia, in which the acanthine skeleton is composed merely of radial spicules, but does not form a fenestrated shell.

Family 1. Actinelida, Hkl., 1865. Skeleton composed of a varying number of spicules, not distributed according to J. Müller's law (*Astrolophida, Litholophida*).

Family 2. Acanthonida, Hkl., 1881. Skeleton composed of twenty radial spicules, distributed regularly according to J. Müller's law, in five quadriradiate zones (*Acanthometrida, Acanthostaurida, Acantholonchida*).

1B. Sub-order II. Acanthophractæ, Hertwig. Acantharia, in which the skeleton is composed of twenty radial spicules regularly distributed according to J. Müller's law, and forming a fenestrated or solid shell round the central capsule by means of connected transverse processes.

Family 3. Dorataspida, Hkl., 1862. Fenestrated shell, spherical, spheroidal, or ellipsoidal, simple or double (*Phractaspida, Sphærocapsida, Phractopelmida*.

Family 4. Diploconida, H., 1862. Shell shaped like an hour-glass or a double cone, having in its axis a pair of strong spicules running in opposite directions (*Diploconus*).

2. Order II. SPUMELLARIA, Ehrenberg (= *Peripylea* + *Thalassicollea* + *Sphærozoea*, Hertwig, 1879 = *Sphærellaria* + *Collodaria* + *Polycyttaria*, Hkl., 1881).

Central capsule originally (and usually permanently) spherical, more rarely discoid or polymorphous. Nucleus usually divided only immediately before the formation of spores into a number of small nuclei. Capsule membrane simple, pierced on all sides by innumerable fine pores. Extracapsularium a voluminous gelatinous sheath, without phæodium, usually with zooxanthella. Skeleton consisting of silicium, or of a silicate, originally usually forming a central reticulate sphere, later extremely polymorphous, more rarely rudimentary or entirely wanting.

2A. Sub-order III., Collodaria, H., 1881 (*sensu ampliori*). Spumellaria without skeleton, or with a rudimentary skeleton composed mainly of detached siliceous spicules scattered outside the central capsule.

Family 5. Thalassicollida, H., 1862. Skeleton entirely wanting. Central capsules living solitary, monozoic (*Actissa, Thalassolampe, Thalassicolla*, &c.

Family 6. Collozoida, H., 1862. Skeleton entirely wanting. Central capsules social, thickly embedded in a common gelatinous body, polyzoic (*Collozoum*).

Family 7. Thalassosphærida, H., 1862. Skeleton composed of numerous detached spicules, scattered round the solitary central capsule. Monozoic (*Thalassosphæra, Thalassoxanthium*, &c.).

Family 8. Sphærozoida. Skeleton composed of numerous detached spicules, scattered round the social central capsules, or embedded in their common gelatinous body (*Sphærozoum, Rhapidozoum*).

2B. Sub-order IV. Sphærellaria, Hkl., 1881. Spumellaria having a reticulate or spongiose siliceous skeleton, forming a single connected plexus of siliceous fibre, originally evolved from a simple fenestrated sphere.

Family 9. Sphæroida (vel *Sphæridea*, H., 1879. "Protistenreich," p. 103; "Prodromus," 1881, pp. 448, 449). Skeleton either a simple fenestrated sphere, or composed of several concentric fenestrated spheres, with or without radial spicules. Central capsule solitary, monozoic. The family of Spumellaria richest in specific forms (*Monosphæria, Diosphæria, Triosphæria, Tetrasphæria, Polysphæria, Spongosphæria*).

Family 10. Collosphærida, H., 1862. Skeleton either simple reticulate spheres, or composed of two concentric reticulate spheres, severally inclosing the spherical, social, central capsules. Polyzoic (*Acrosphærida, Clathrosphærida*).

Family 11. Pylonida, Hkl., 1881 ("Prodromus," p. 463). Skeleton subspherical, ellipsoid, or polymorphous, distinguished by large fissures or gaps, which break through the originally spherical or ellipsoidal fenestrated shell, at definite points. Fenestrated shell, simple or composed concentrically, with or without spicules. Geometrical fundamental form with three unequal, equipolar axes, perpendicular one to another (*Pylocaspida, Pylophonnida*).

Family 12. Zygastida, Hkl., 1881. Skeleton an ellipsoida or almost cylindrical fenestrated shell prolonged in the direction of one axis and constricted annularly in the middle, perpendicular to the said axis, often articulated by repeated annular strictures. One or two concentric, small, fenestrated shells, often inclosed in the middle. Both poles of the principal axis equal (*Artiscida, Cyphinida*).

Family 13. *Lithelida*, Hkl. ("Monogr. Prodrom." 1881, p. 464). Skeleton spheroidal or irregular, composed of a small, central, fenestrated sphere, and of series or heaps of chambers piled round it, sometimes spirally or axially according to definite, complicated laws, sometimes quite irregularly (*Phorticida, Soreumida, Spireumida*).

Family 14. Discoida (vel *Discidea*, Hkl., 1879, "Protistenreich," p. 103, "Prodrom." p. 456). Skeleton flattened like a disk, originally circular, lenticular, later often polymorphous by means of peripheric processes; sometimes distinctly composed of rings, sometimes spongiose (*Phæodiscida, Coccodiscida, Porodiscida, Spongodiscida*).

3. Order III. NASSELLARIA, Ehrenberg (= Monopylea, Hertwig, 1879; *Monopylaria*, Hkl., 1881).

Central capsule originally invariably uniaxial, oval, or conical, with two different poles of the axis; at one pole the characteristic porous area through which the whole of the pseudopodia project like a bush. Nucleus usually divided late, immediately before the formation of spores, into numerous small nuclei. Capsule membrane simple. Extracapsularium, a voluminous gelatinous sheath without phæodium, usually without zooxanthellæ. Skeleton consisting of silicium or of a silicate, originally (it is probable universally) a ring or a triradiate framework of spicules, later extremely polymorphous, usually forming a dipleuric fenestrated shell (wanting only in the simplest form, *Cystidium*).

3A. Sub-order V., Plectellaria, Hkl. Nassellaria, in which the skeleton consists of a simple siliceous ring or of a triradiate framework of spicules, usually furnished with processes forming simple or branched spicules. The branches of the latter may be united into a loose plexus, without, however, forming a chambered fenestrated shell. The skeleton is entirely wanting only in the simplest form (*Cystidium*).

Family 15. Cystidina, Hkl., nov. fam. Skeleton entirely wanting (*Cystidium*).

Family 16. Plectoida (vel *Plagonida*), Hkl., 1881. Skeleton originally composed of three spicules or siliceous rods, radiating from one point (near the mouth of the central capsule), the latter often ramifying into loose plexus (*Plagonida, Plectanida*).

Family 17. Stephoida (vel *Stephanida*), Hkl., 1881. Skeleton originally (?) forming a simple siliceous ring (with or without spicules), later often several connected siliceous rings or a loose plexus, not, however, developed into a regular fenestrated shell *Monostephida, Parastephida, Dyostephida, Triostephida*).

3*b*. Sub-order VI. Cystellaria (Hkl., 1881). Nassellaria, having a chambered (usually dipleuric) fenestrated shell, the primary foundation of which consists either of a simple ring (like the Stephoida), or of a triradiate framework (like the Plectoida), sometimes of a combination of both. Primary foundation sometimes entirely lost.

Family 18. Spyroida (vel *Sphyridina*, Ehrenberg). Skeleton dipleuric, forming a fenestrated twin-shell, the two halves of which (right and left chamber) are connected by a vertical ring, lying in the median plane. At the upper (aboral) pole of the longitudinal axis, usually an occipital apical thorn, at the lower (oral) pole an oscular network, with four (rarely three, five, or more) openings, and three (rarely more) spicules. (*Triospyrida, Diospyrida, Tetraspyrida, Pentaspyrida, Polyspyrida, Perispyrida, Pleurospyrida*) = Zygocystida.

Family 19. Botryoida (Hkl., 1881 = Polycystida, 1862). Skeleton an irregular fenestrated shell, composed of several unequal chambers, piled usually irregularly (rarely in definite order varying from that of the Cyrtida) round a primary capitulum (derivable from the twin-shell of the Spyroida), with or without spicules (*Pylobotryida, Cannobotryida*).

Family 20. Cyrtida, Hkl., 1862. Skeleton, dipleuric (at least originally), consisting either of a primary capitulum (derivable from the twin-shell of the Spyroida?) or (usually) of one or more chambers, joined to the oral pole of the said capitulum in the longitudinal axis. Osculum sometimes open, sometimes reticulate. Usually three radial spicules (one median and two lateral), rarely four or more spicules, or none at all (having undergone retrograde formation?). The family most rich in

specific forms of all Nassellaria (*Cystocorida, Cystopilida, Cystophonnida, Cystocapsida, Cystoperida, Cystophatuida*, "Prodrom.," 1881, p. 426).

4. Order IV. PHÆODARIA, Hkl., 1879 (= *Pansolenia*, Hkl., 1878 = *Tripylea*, Hertwig, 1879).

Central capsule always uniaxial, sometimes almost spherical, sometimes lenticular or oval, always with two different poles of the axis. At one pole invariably the characteristic principal opening with radiated operculum, from which the bush of pseudopodia project through a tube; at the other pole, frequently (though not invariably) two or more accessory openings. Nucleus usually only late divided into numerous small nuclei. Capsule membrane double. Extracapsularium usually (or always ?) with zooxanthellæ distinguished by the *phæodium*, a voluminous body of pigment lying excentrically in the gelatinous sheath round the principal opening. Skeleton always extracapsular, consisting of silicium or of a silicate, usually composed of hollow tubes, polymorphous (wanting only in the most simple forms, *Phæodina*, &c.).

4A. Sub-order VII. Phæocystia, Hkl., 1879. Phæodaria, without skeleton, or with a rudimentary skeleton formed merely of detached siliceous tubes (or of reticulated pieces of silex) scattered outside the central capsule.

Family 21. Phæodinida, Hkl., 1879. Skeleton entirely wanting (*Phæodina, Phæodella*).

Family 22. Cannoraphida, Hkl., 1879. Skeleton consisting of detached hollow tubes or reticulated pieces of silex, deposited tangentially round the central capsule (*Cannoraphis, Thalassoplaneta, Dictyocha*).

Family 23. Aulacanthida, Hkl., 1862. Skeleton consisting of a superficial pallium of fine tangential tubes and a number of strong radial spicules (simple or branched) which pierce the mantle (*Aulocantha, Aulospathis, Auloraphis, Aulodendrum*, &c).

4B. Sub-order VIII. Phæogromia, Hkl., 1879. Phæodaria with a dipleuric single-chambered shell having a large opening, usually armed with one or more teeth at the basal pole; besides the primary, often several secondary openings.

Family 24. Lithogonida, Hkl., nov. fam., single-chambered dipleuric shell, with solid wall of peculiar crystalline structure, like porcelain (*Lithogromia*, Tuscarora).

Family 25. Challengerida, John Murray, 1876. Single chambered shells, varying greatly in form, with porous glass-like wall, and very fine, perfectly regular, hexagonal pores (resembling the structure of diatoms) (*Challengeria, Gazelletta, Porcupinia*, &c.).

4C. Sub-order IX. Phæosphæria, Hkl., 1879. Phæodaria having a spherical, or subspherical, fenestrated shell, usually consisting of one single, rarely of two concentric spheres; sometimes with a large principal opening, sometimes without; partly with, partly without, radial spicules. Beams of the reticulum sometimes solid, sometimes hollow.

Family 26. Castanellida, Hkl., 1879. Fenestrated shell, spherical, simple, composed of solid rods, having at one point a large principal opening (often armed with a corona of spicules), with or without radial spicules (*Castanella, Castanidium*, &c.).

Family 27. Circoporida, Hkl., 1879. Fenestrated shell, spherical, subspherical, or polyhedric, composed sometimes of reticulate plates, usually with hollow, radial spicules, always with one large, principal opening, and with several detached porous areæ (*Circoporus, Porostephanus, Porospathis*, &c.).

Family 28. Sagenida, Hkl., nov. fam. Fenestrated shell, sometimes spherical, sometimes subspherical or polymorphous, forming a spongiose plexus of solid beams, without principal opening (*Sagena, Sagenidium*, &c.).

Family 29. Aulosphærida, Hkl., 1862. Fenestrated shell, spherical, more rarely subspherical or polymorphous, composed in a peculiar fashion of hollow tubes, usually with hollow, radial spicules, without principal opening (*Aulosphæra, Auloplegma*, &c.).

Family 30. Cannosphærida, Hkl., 1879. Fenestrated shell, spherical or subspherical, double. The inner (medullar layer) composed simply of solid beams, the outer (cortical layer) of hollow tubes with radial spicules at the nodes of junction; both layers connected by hollow, radial rods (*Cannosphæra, Cœlocantha*, &c.).

4D. Sub-order 10. Phæoconchia, Hkl., 1879. Phæodaria, having a bivalve fenestrated shell, composed like that of a mussel, of two convex, separate, perforated valves, with or without hollow, radial tubes.

Family 31. Concharida, Hkl., 1879. Fenestrated shell, without radial spicules, composed of two smooth, hemispherical or lenticular valves, the edges of which usually catch one another by rows of teeth (*Concharium, Conchidium, Conchopsis*, &c.).

Family 32. Cœlendrida, Hkl., 1862. Fenestrated shell composed of two hemispherical or lenticular valves, having processes in the form of large, hollow, radial spicules, usually dendritically branched at their apical, centre points or at the two poles of the transverse axis of the shell (*Cœlodendrum, Cœlothamna*, &c.).

Differential Characters of the Four Orders of Radiolaria

Holotrypasta

Radiolaria having the capsule membrane pierced on all sides.

I. ACANTHARIA.	II. SPUMELLARIA.
Central capsule originally spherical. Homaxonous.	Central capsule originally spherical. Homaxonous.
Capsule membrane pierced equally everywhere by innumerable fine pores. (*Peripylea*).	Capsule membrane pierced equally everywhere by innumerable fine pores. (*Peripylea*).
Skeleton acanthine. Zooxanthellæ usually (or invariably ?) wanting. Without phæodium.	Skeleton siliceous. Zooxanthellæ usually present. Without phæodium.

Merotrypasta

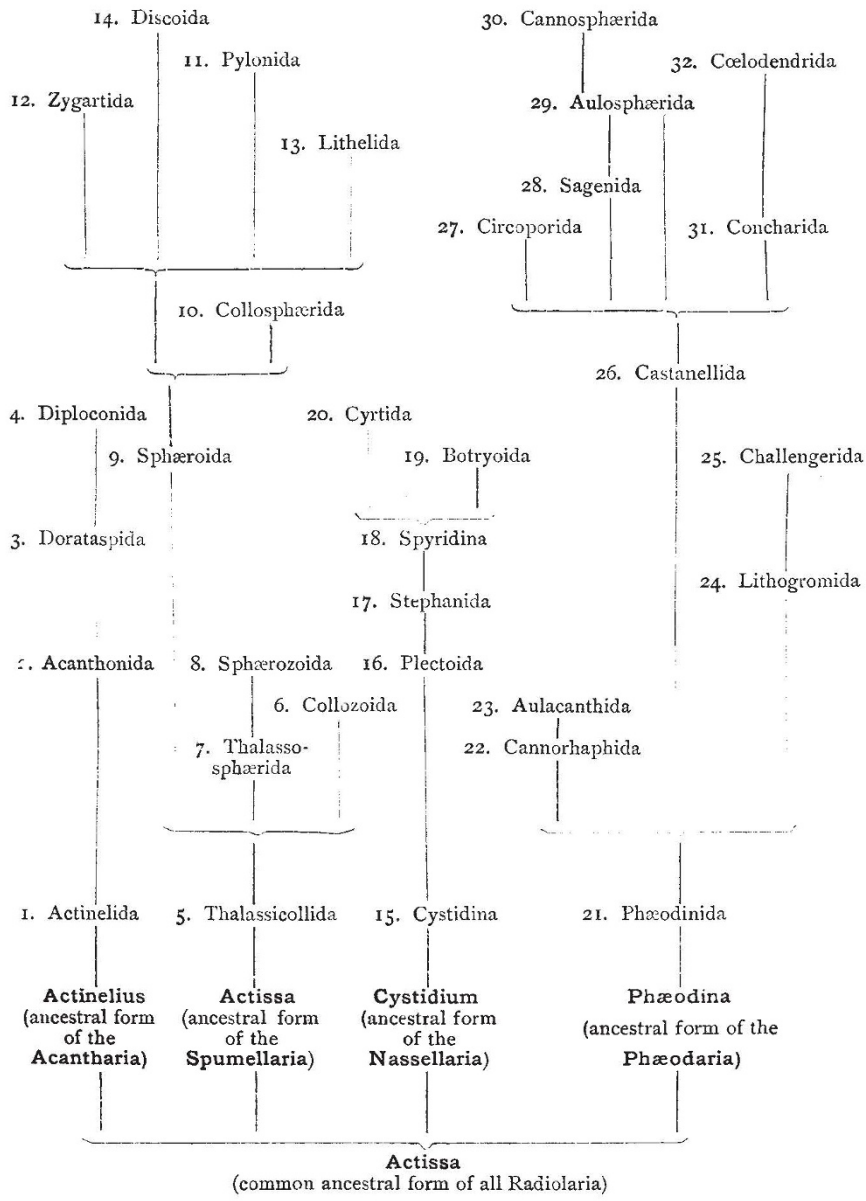
Radiolaria having the capsule membrane partially pierced.

III. NASSELLARIA.	IV. PHÆODARIA.
Central capsule oval or conical. Monaxonous.	Central capsule oval or subspherical. Monaxonous.
Capsule membrane with a single area of pores at the oral pole of the principal axis. (*Monopylea*).	Capsule membrane with a single simple principal opening and often several accessory openings. (*Tripylea*).
Skeleton siliceous. Zooxanthellæ usually present. Without phæodium.	Skeleton siliceous. Zooxanthellæ usually (or invariably ?) wanting. Always with phæodium.

Conspectus Ordinum et Familiarum Radiolarium classis

Ordines	Subordines	Familiæ	Genus typicum
I. Ordo: Acantharia Holotrypasta skeleto acanthinico	I. Acanthometra (sine testa)	1. Actinelida	Actinelius
		2. Acanthonida	Acanthonia
	II. Acanthophracta (testa completa)	3. Dorataspida	Dorataspis
		4. Diploconida	Diploconus
II. Ordo: Spumellaria Holotrypasta skeleto deficiente aut siliceo polymorpho	III. Collodaria (sine testa)	5. Thalassicollida	Actissa
		6. Collozoida	Collozoum
		7. Thalassosphærida	Physematium
		8. Sphærozoida	Sphærozoum
		9. Sphærida	Phormosphæra
	IV. Sphærellaria (testa completa)	10. Collosphærida	Collosphæra
		11. Pylonida	Tetrapyle
		12. Zygartida	Didymocyrtis
		13. Lithelida	Porodiscus
		14. Discoida	Lithelius
III. Ordo: Nassellaria Merotrypasta membrana capsulæ simplici, sine phæodio	V. Plectellaria (sine testa completa)	15. Cystidina	Cystidium
		16. Plectoida	Plagiacantha
		17. Stephanida	Lithocircus
	VI. Cyrtellaria (testa completa)	18. Spyroida	Dictyospyris
		19. Botryoida	Botryocyrtis
		20. Cyrtida	Dictyophimus
IV. Ordo: Phæodaria Merotrypasta membrana capsulæ dupplici, cum phæodio	VII. Phæocystia (sine testa)	21. Phæodinida	Phæodina
		22. Cannorhaphida	Thalassoplancta
		23. Aulacanthida	Aulacantha
	VIII. Phæogromia (testa dipleura)	24. Lithogromida	Lithogromia
		25. Challengerida	Challengeria
	IX. Phæosphæria (testa globosa aut subglobosa)	26. Castanellida	Castanella
		27. Circoporida	Circoporus
		28. Sagenida	Sagena
		29. Aulosphærida	Aulosphæra
		30. Cannosphærida	Cannosphæra
	X. Phæoconchia (testa bivalva)	31. Concharida	Concharium
		32. Cœlodendrida	Cœlodendrum

HYPOTHETICAL ANCESTRAL TREE OF THE RADIOLARIA (1882)



UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The following courses of lectures and instruction in Natural Science will be held during the present term. In the Department of Physics Prof. Clifton lectures on "The Distribution of Potential in a Circuit," and on the Galvanometer. Mr. Heaton lectures on Elementary Mechanics. Practical instruction in Physics is given daily by Prof. Clifton and Messrs. Heaton and Walker in the Clarendon Laboratory. At Christ Church Mr. Baynes lectures on the Kinetic Theory of Gases, and gives practical instruction in magnetic and electric measurements. At Balliol Mr. Dixon lectures on Elementary Heat and Light.

In the Chemical Department Prof. Odling continues his course on the Naphthalene Compounds. The Courses on Organic and Inorganic Chemistry are continued by Dr. Watts and Mr. Fisher. At Christ Church Mr. Vernon Harcourt has a class for Quantitative Analysis.

Prof. Story-Maskelyne continues his course on Crystallography, and Prof. Prestwich concludes his course on Dynamical Geology, and lectures on Stratigraphical Geology.

In the Department of Morphology practical instruction is given by Prof. Moseley and Messrs. Robertson and Hickson on Human and Comparative Anatomy. Prof. Moseley lectures on the Comparative Anatomy of the Vertebrata, Mr. Hickson on the Elements of Animal Morphology, Mr. Jackson on Mimicry and Parasitism, Mr. Poulton on Descriptive Histology, Mr. Morgan on Odontography, and Mr. Barclay-Thompson on the Anatomy of Amphibia and Reptilia.

In the Department of Physiology (which is much cramped for room pending the erection of new buildings) Prof. Burdon Sanderson lectures on the Nervous System, while practical instruction is given by the Professor and Mr. Gotch on the Elementary Physiology of the Nervous System and of the Sense Organs, and by Mr. Dixey on Histology. At Magdalen Mr. Yule has a class for instruction in Practical Physiology.

The new Reader in Anthropology will give a course of six lectures on the Development of Civilisation and the Arts of Life.