

XVIII.—*Rhizopoda and Heliozoa from British Columbia.*

By G. H. WAILLES.

DESCRIPTIONS of two new species of Rhizopoda and notes of the occurrence of fresh-water species in a marine habitat are the subject of this communication.

Class *SARCODINA*.

Subclass RHIZOPODA.

Family Conchulina.

*Centropyxis stellata*, sp. n. (Figs. a, b, c.)

Test large, light brown or colourless, circular in oral view, nearly hemispherical in side-view, height equal to about two-thirds of diameter; aperture 3-5-lobed, invaginated, about one-third the diameter of the test in width; test composed of irregularly shaped silicious plates, without protuberances; animal not observed.

*Dimensions*.—Diameter 335-400  $\mu$ ; height 252-290  $\mu$ ; aperture 115-155  $\mu$  in width.

*Habitat*.—Freshwater; spring and stream, Coulter Bay and lake between Coulter Bay and Squirrel Cove, Cortes Island, B.C.

This species was found May 1915, but was held over for description in the hope of observing the living animal; Coulter Bay was revisited in 1926, but no individuals were found.

The only member of this genus equalling it in size is a form described by Dr. Penard (4) as a variety (?) of *C. arcelloides* from Sierra Leone, which measured 330-380  $\mu$  in diameter, with height of about one-third the diameter; *C. arcelloides* measures 70-110  $\mu$  in diameter, and has a large, circular, invaginated aperture about half the diameter of the test in width.

*Corythion acutum*, sp. n. (Figs. g, h, i.)

Test small, colourless, elliptical, slightly flattened dorso-ventrally; fundus terminating in a short spine, aperture large, circular, everted, opening ventrally; test formed of circular or sub-circular plates, arranged more or less regularly in diagonal rows; animal not observed.

*Dimensions*.—Length 50-55  $\mu$ ; breadth about 23  $\mu$ ; thickness 20  $\mu$ ; aperture 16  $\mu$  in diameter; spine 5  $\mu$  in length; plates of test 3  $\mu$  in diameter and 1.5  $\mu$  in thickness.

*Habitat*.—On the sea-beach, Camp Island, B.C.

Although found on the sea-shore, as described below, it is in all probability a fresh-water or moss-inhabiting species.

The only other species of this genus that bears spines is *C. dubium*, var. *spicata*, Penard, found in Australasia (3).

#### Order AMÆBINA.

##### *Astramæba granulifera*, Wailes.

Syn. *Amæba granulifera*, Wailes (8).

*Dactylosphærium radiosum*, var. *granuliferum*, Penard (2).

This species, from British Columbia, was described by me in this Magazine, July 1925 (8), as *Amæba granulifera*, with a note to the effect that it rightly should be included in Vejdovsky's genus *Astramæba*, and that *Dactylosphærium radiosum* should be placed in the same genus.

Since then, Professor A. A. Schaeffer (5) has divided the two genera, which now contain the following species:—

##### Genus DACTYLOSPHÆRIUM, Hertwig & Lesser, 1874.

*Dactylosphærium polypodium* (M. Schultze). (Type-species.)

Syn. *Amæba polypodia*, M. Schultze (1854).

*Dactylosphærium vitreum*, H. & L. (1874) (in part.).

*Dactylosphærium acuum*, Schaeffer (5).

##### Genus ASTRAMÆBA, Vejdovsky, 1881.

*Astramæba radiosa* (Ehrenb.), Vejdovsky. (Type-species.)

Syn. *Amæba radiosa*, Ehrenb. (1830).

*Dactylosphærium radiosum*, Butschli (1880).

*Astramæba granulifera*, Wailes.

*Astramæba stella*, Schaeffer (5).

*Astramæba flagellipodia*, Schaeffer (5).

For a full discussion of the synonymy of the above species, Schaeffer (5) should be consulted, and Cash and Hopkinson (1) for complete bibliographical references.

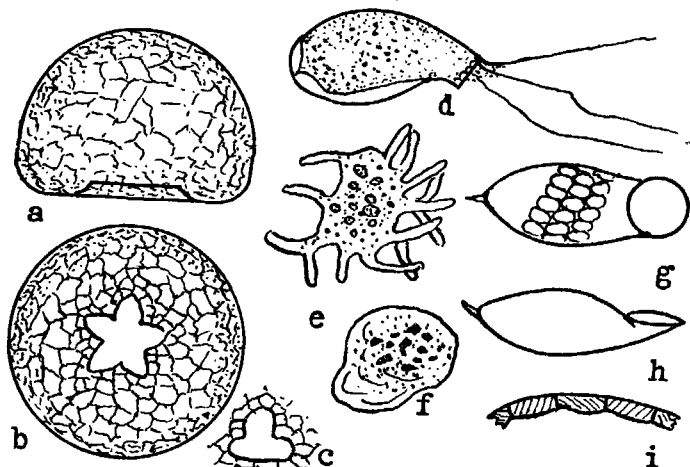
##### Genus STRIOLATUS, Schaeffer (5).

*Striolatus tardus*, Schaeffer (5). (Figs. e, f.)

An individual referable to this species was found on the sea-beach at Camp Island. Fig. e shows it active as first seen under the microscope, fig. f as in a contracted and perhaps abnormal state, owing to the evaporation of the sea-water under the slide.

*S. tardus* resembles the fresh-water species *Dactylosphaerium polypodia*, but differs in having usually two nuclei instead of one.

In the individual observed, the nuclei were not distinguishable, but Schaeffer states that this is usually the case in the living animal; the length was  $50\ \mu$  over all when active, with a body-diameter of  $30\ \mu$ .



Figs. a, b, c.—*Centropyxis stellata*,  $\times 75$ .

Fig. d.—*Cyphoderia ampulla*, small form,  $\times 500$ .

Figs. e, f.—*Striolatus tardus*,  $\times 500$ .

Figs. g, h.—*Corythion acutum*,  $\times 500$ .

Fig. i.—Ditto, section of test,  $\times 2000$ .

#### FRESH-WATER RHIZOPODA IN A MARINE HABITAT.

Existing records of Freshwater-inhabiting Rhizopoda and Heliozoa living in the sea are few in number, and mostly refer to cases in which they were found either near the shore or in brackish estuaries, lagoons, etc. :—

*Acanthocystis spinifera*, Greeff, in the autumn often forms an important constituent of the neritic marine microplankton, occurring in great numbers; on the west coast of Vancouver Island it occurs 7 miles off shore, but no evidence is at present available as to how far from land it extends, or to what extent it is tolerant of freshwater; the freshwater form is fairly common in the lakes and pools, etc., throughout the coast-region of British Columbia.

*Acanthocystis brevicirrhys*, Perty, is not common in British Columbia freshwaters, and is scarce in the marine plankton, never occurring in numbers in any gathering yet collected.

*Actinophrys sol*, Ehrenb., has been recorded so far only near the shore, and no large individuals were seen, all being of small size.

Small forms that might be referred to this genus are met occasionally in association with *Aconthocystis spinifera* in the plankton, but seem more likely to be individuals of that species, which have not formed or have been accidentally deprived of their envelope and spines.

*Cyphoderia ampulla* (Ehrenb.). Several individuals of a very small form of this species were found on the beach of Camp Island in an active condition, with pseudopodia fully extended (fig. d).

They measured 45–49  $\mu$  in length with a diameter of 22–26  $\mu$ .

*Euglypha laevis*, Perty. Several individuals of this species were found on the Camp Island beach, living, but not active; length about 50  $\mu$ .

Empty tests of land or fresh-water Rhizopoda were almost entirely absent, only one each of a *Diffugia* and *Euglypha ciliata* being found.

Camp Island is a small island of about 70 acres in extent separated from Cortes Island by a pass about one-third of a mile in width, with strong tidal streams running through it.

There are no permanent streams or pools on Camp Island or a likely habitat for any species of Heliozoa or *Cyphoderia*, the latter a fresh-water genus which cannot resist dessication.

*Euglypha laevis* may have been carried down to the sea from mosses.

#### REFERENCES.

- (1) CASH, J., and HOPKINSON, J. "The British Fresh-water Rhizopoda," Ray Soc. vols. i., ii. (1905, 1908).
- (2) PÉNARD, Dr. E. 'Faune Rhizopodique du bassin du Lemau.' Genève (1902).
- (3) ——. In British Antarctic Exped. Report 1, part vi. Rhiz., 1911.
- (4) ——. "On some Rhizopoda from Sierra Leone." In Journ. Quekett Micro. Club. ser. 2, vol. xi. pp. 299–306, pls. ix., x. (1911).
- (5) SCHAEFFER, ASA ARTHUR. "Taxonomy of the Amebas, with Descriptions of 39 new Marine and Fresh-water Species." Dep. Marine Biol. vol. xxiv. Carnegie Institute, Washington (1926).
- (6) WATLES, G. H., and HOPKINSON, J. "British Fresh-water Rhizopoda and Heliozoa," vols. iii., iv., v. Ray Soc. (1915, 1918, 1921).
- (7) WATLES, G. H. "Rhizopoda and Heliozoa from British Columbia." Contrib. to Canadian Biology. Biological Board of Canad. Univ. of Toronto Press (1925).
- (8) ——. "Some new or rare Protozoa from British Columbia." Ann. & Mag. Nat. Hist. ser. 9, vol. xvi. pp. 40–48, pls. i. & ii. (July 1925).