

TWO NEW ULOTRICHALES

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Following are descriptions of two new species of green algae that are of interest because each contributes to our concept of the genus to which it belongs. Both descriptions have been held for some years in manuscript form in the hope that the plants might be studied cytologically before publication.

Chaetonema ornatum sp. nov.

Filaments straight or irregular, with shorter lateral branches more or less at right angles to the filament, imbedded in the pectic sheath of *Tetraspora* and *Draparnaldia*. Vegetative cells at

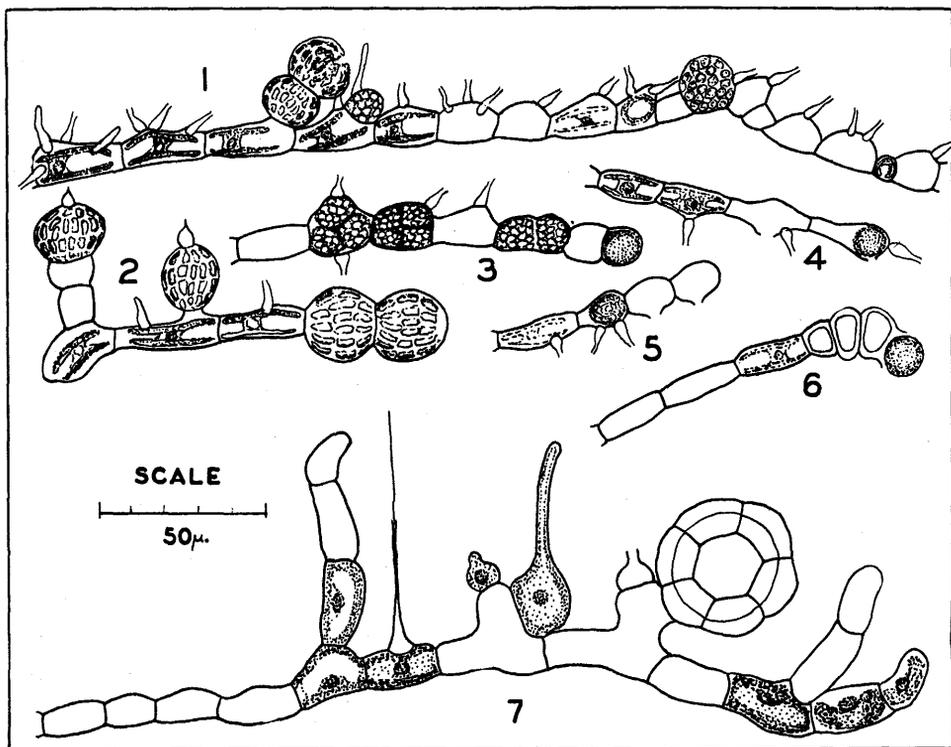


FIG. 1. *Chaetonema ornatum*, filament with vegetative cells, 2 antheridia and 2 oogonia. FIG. 2. Part of a filament with mature oogonia only. FIG. 3. A filament with antheridia and sperm masses, also a terminal sporangium containing a swimming spore. FIGS. 4, 5, and 6. Vegetative cells and sporangia with swimming spores. FIG. 7. *Coleochaete sampsonii*, filament with seta, immature antheridium and oogonium, and mature oogonium.

first 7 to 10 μ in diameter, and 15 to 30 μ long, later becoming enlarged toward the middle to 14 to 20 μ , often with one to four rather short setae. Reproduction by swimming spores, one or two of which may be formed within an enlarged vegetative cell. Development of two spores follows immediately after division of the protoplast, with or without the formation of a separating wall. The spores are 11 to 15 μ in diameter.

Sexual reproduction occurs by the union of eggs and sperms formed in oögonia and antheridia. The oögonia usually develop singly, or in pairs, on lateral branches, or from the terminal cells of main filaments. Oögonia are nearly globose, 18 to 22 μ in diameter, with or without a terminal seta. Occasionally the oögonia are ovoid and up to 28 μ long. The oögonial wall is marked by oblong pits, arranged more or less zonally.

Antheridia form in cells, either of the main filament or of lateral branches, either before a principal division of the protoplast occurs, or following one or two divisions. Each daughter protoplast then divides internally, and apparently 32 to 128 sperms result.

Apparently the plant is monoecious, but there are filaments present in the material that are forming only antheridia, others only oögonia, and still others only swimming spores.

This species was first collected on *Tetraspora*, from a pond near Birmingham, Alabama, April 11, 1925. In 1941 and 1942 it was again found by Dr. Elwyn Hughes in Halifax, Queen's and Lunenburg counties, Nova Scotia, where it was epiphytic on *Tetraspora* and *Draparaldia*.

Thallus epiphyticus, e filamentis irregulariter ramosis; ramuli rectangulariter exeuntes, distantes. Cellulis vegetativis vel subcylindricis vel unilaterialiter inflatis; 1-4 setas gerentibus, 7-10 μ latis, 2-4- plus longioribus; oögoniis subglobosis 18-22 μ latis. Fig. 1-6.

***Coleochaete sampsonii* sp. nov.**

During August, 1932, Dr. Homer C. Sampson collected algae in the vicinity of the Fulton Chain of Lakes in the western Adirondacks, New York. Among the collections were several vials containing species of *Batrachospermum* from Quiver and Round Lakes. In the surface of the pectic sheaths there were large numbers of a small and very simple *Coleochaete* resembling *C. pulvinata* in its mode of branching. In August, 1933, the plants were again found in abundance and this material contains all stages in the development of the reproductive organs. In the summer of 1934 the lakes were extremely low and the banks were exposed to the air and no specimens were found. In September, 1935, the water was unusually high and neither the *Batrachospermum* nor the *Coleochaete* could be found at any of the former localities, possibly because of previous fluctuations in the water levels. The species differs from *C. pulvinata* in its smaller dimensions, its spheroidal oöspore and the simplicity and regularity of the cortication of the oögonium. Following are the characteristics of this species:

Monoecious, filaments branching, prostrate, very irregular; cells 7 to 14 μ x 14 to 36 μ , irregularly curved, cylindric or enlarged near the middle; young oögonium with an elongated trichogyne; mature oögonium globose, corticated, 35 to 38 μ in diameter; antheridia small globose or pyriform cells that arise laterally from the vegetative cells; oöspore 29 to 36 μ in diameter. Fig. 7.

Thallus epiphyticus, e filamentis varie ramosis; cellulis vegetativis 7-14 μ latis, 14-36 μ longis, irregulariter curvatis, vel cylindricis vel in medio tumidis; oögoniis globosis, corticatis, diametro 35-48 μ oösporibus globosis diametro 29-36 μ ; antheridiis vel globosis vel pyriformibus.
