

The nearest ally of this plant seems to be *S. remotispicula* Lacaita, but it may be separated from that by its whole habit being more divergent, its numerous sterile branches, its more zig-zag scape with branches more spreading, its  $\pm$  patent and shorter spikes, its larger spikelets and bract proportions. From the numerous forms of *S. virgata* distinguished by its revolute-margined leaves, smaller and less curved and lighter-coloured spikelets, bract proportions etc.

*Distribution.* Jugo-Slavia. Dalmatia. Kürste bei Cannosa N.W. von Ragusa! 1906, A. Ginzberger and R. Wettstein. Dr. Ginzberger writes: "Cannosa is the Italian name of a village whose South-Sclavian name is Treteno: it is situated on the eastern coast of the Adriatic, thirteen kilometres to the north-west of Ragusa. The coast-rocks which the *Statice* inhabits fall steeply to the sea and consist of limestone."

#### EXPLANATION OF PLATE 565.

1. *Statice anfracta* C. E. Salmon; 2, outer bract; 3, middle bract; 4, inner bract; 5, bracteole; 6, calyx—all enlarged four times.

#### ANTITHAMNIONELLA, A NEW GENUS OF ALGÆ.

BY LILIAN LYLE, F.L.S.

IN October 1921 I gathered in Guernsey an epiphytic alga belonging to the *Rhodophyceæ*, which proved very puzzling. The plant branches alternately and bears in addition whorls of small ramuli at each joint, thus indicating affinity with *Antithamnion*. Farlow, indeed, in his *Marine Flora of New England* (p. 121), had used the presence of these whorls as a distinction between that and *Callithamnion*; the filaments of *Antithamnion*, he says, "are of two kinds, the main filaments being indefinite and the branches definite, so that we have indefinitely elongating stems clothed with short definite branches, or, to use the expression of Nägeli, with leaves."

The triangular division of the tetraspores, however, distinctly excludes the Guernsey plant from *Antithamnion*. With *Callithamnion* and *Spermothamnion* it agrees in the triangular division of the tetrasporanges, but from the former it is separated by the verticillate character of the ramelli, the absence of cortication in the older parts, and the presence of discoid rhizoids; from *Spermothamnion*, though it agrees in the possession of discoid rhizoids, it differs in the mode of branching and shape of tetrasporanges; the general character of the species of this genus is more rigid and lax than that of the alga in question.

It is difficult to account for the presence of this alga in British waters. The only plants approaching it in appearance or structure belong to the Southern Hemisphere, S. Africa, and Cape Horn. *A. sarniensis* belongs probably to some region hitherto unworked for algæ, and has travelled to the shores of the Channel Islands by one or other of the means of dispersal possible for algæ—*i.e.* currents, ships, intestines of birds, packing, etc.

Two rather small algæ, which resemble the new plant very closely, both in structure, verticillate nature of small branches, and character of the tetrasporanges—*Antithamnion ternifolium* and *A. verticillatum*, both from the Southern Hemisphere, doubtfully referred by De Toni to *Antithamnion*, probably on account of the two kinds of branching. These and the plant from Guernsey possess a combination of characteristics which, though agreeing in one or more points with *Callithamnion*, *Spermothamnion*, and *Antithamnion*, do not conform completely to any of the three. I propose therefore to unite these plants under a new genus, *Antithamnionella*, on account of the verticillate arrangement of the smaller branches round a central axis; only those algæ with verticils of simple ramelli have been included. Of this the following is a description:—

Frons cæspitosa, filamentosa, articulato-monosiphonia, alterne

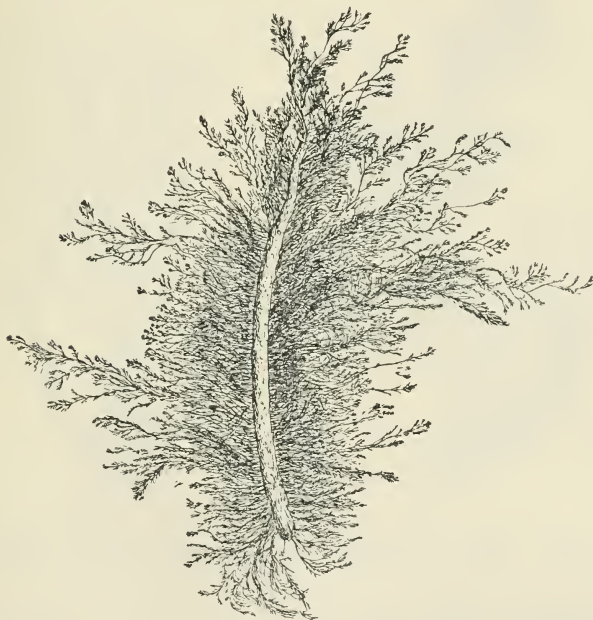


Fig. 1.—*Antithamnionella sarniensis* Lyle.  $\times 2$ .

verticillatimve et fasciculatim ramosa, ramis iterum repetite divisis et sub-divisis. Cystocarpia bilobis.

Plants monosiphonous and filamentous, with irregular alternate and indefinite ramification. Whorls of 2 to 4 ramelli at each joint crowded towards the extremities. In the whorls of the older portions, one or more ramelli are occasionally replaced by discoid rhizoids. Tetrasporanges solitary, ovoid, sessile on inner angles of ramelli, triangularly divided. Cystocarps bilobed.

1. *A. sarniensis*, sp. n. Frons pellucide articulata, fastigiata, erecta, ecorticata, tenui-filamentosa, repetite secunde lateraliter ramosa ramulis fasciculatis.

About 1–1½ inch in height; epiphytic on other algæ; an exceedingly beautiful and delicate plant of a deep rose-red; first found in fine fruiting condition Oct.–Dec. 1921, in great abundance in almost every rock-pool at about half-tide; later on it was less plentiful, but doubtless persisted through the winter, as fully-grown sterile specimens were gathered in May (Fig. 1).

The main branches are widely divergent, giving off at first irregular and then alternate secondary branches from below the articulations. Each joint bears 2–3, rarely 4, ramelli, any one of which may in turn develop into a branch of indefinite growth. Towards the



Fig. 2.—*Antithamnionella sarniensis*.  $\times 45$ .

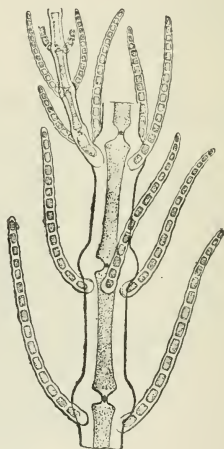


Fig. 2 a.—*Antithamnionella sarniensis*. Verticils with 2–4 ramelli.  $\times 100$ .

extremities the whorls become very dense and ocellate in appearance; the branches are obovate in outline and tufted or plumose (Figs. 2, 2 a).

The older portions of the stem are naked or clothed with 2, rarely 3, ramelli,  $10\mu \times 18\mu$ , and about  $230\mu$  in length, any of which may be replaced by a discoid rhizoid. The rhizoids are non-septate, irregular in outline, and almost colourless (Fig. 3).

The cells of the main branches measure  $190 \times 60\mu$ – $70\mu \times 50\mu$ . The cell-membranes are pellucid, extremely thick, and laminated; in the oldest parts of the plant they vary from a quarter to nearly equal the diameter of the central lumen—12 to  $15\mu$ . The joints are perforated, a distinct pore is visible on each side of the septum.

Cystocarps and antheridia have not yet been observed. The sessile tetrasporanges are borne on the upper branches at the bases of,

and in the inner angles of, the verticils. They are ovoid, divide triangularly, and measure  $40\ \mu \times 30\ \mu$ – $25\ \mu \times 30\ \mu$  (Fig. 4).

To the naked eye the plant has a speckled appearance, owing to the pellucid nature of the joints and the concentration of colour-matter in the verticils.

2. *ANTITHAMNIONELLA VERTICILLATA*, nov. comb., is a fragile little plant from South Africa, 6–9 millimetres in length. The branching is alternate, with whorls of 4 ramelli at each joint; the stems have the same speckled appearance as *A. sarniensis* (Fig. 5). The cells of the main stem measure  $65\ \mu \times 18\ \mu$ – $90\ \mu \times 20\ \mu$ , and the

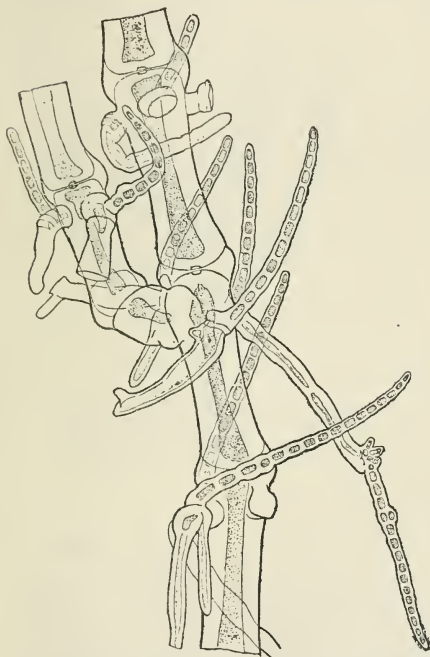


Fig. 3.—*Antithamnionella sarniensis*. Cells of main stem, showing rhizoids and ramelli.  $\times 100$ .

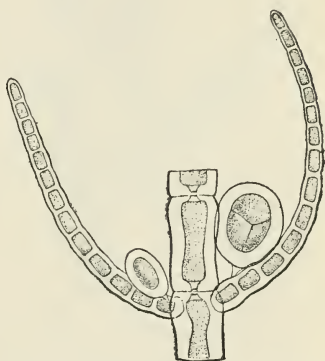


Fig. 4.—*Antithamnionella sarniensis*. Tetraspores.  $\times 200$ .

ramelli of the verticils measure  $155\ \mu \times 20\ \mu$ . The tetraspores are sessile in the upper axils of the whorls, and measure  $30\ \mu \times 50\ \mu$ ; they divide triangularly.

De Toni's description and references (Syll. Alg. iv. 1413; 1903) are as follows:—

“*Antithamnion*? *verticillatum* (Suhr). *Callithamnion verticillatum* Suhr in *Flora*, 1840, p. 290, J. Ag. Sp. ii. p. 34, Epier, p. 28. Filo primario simplici ad geniculum quodque ramis 3–4 verticillatis obsito, ramis alterne et fasciculatim ramulosis. Hab. ad Caput Bonæ Spei, Africæ australis. Frons 6–9 millim. alta. An *Spermothamnion*? ”

3. *ANTITHAMNIONELLA TERNIFOLIA*, nov. comb. (*Antithamnion ternifolium* De Toni; *Callithamnion ternifolium* Hook. & Harv.), is a deep-water epiphyte from Cape Horn; rose-red, flaccid, membranous, 0.5–12 millimetres in height. It branches indefinitely, and bears whorls of 3 (rarely 4) slender, simple, erecto-patent ramelli. Articulations of the stem 4–5 times the diameter, twice as long as broad in the branches; the tetraspores divide triangularly. Cystocarps large, bilobed.



Fig. 5.—*Antithamnionella verticillata* Lyle.  $\times 90$ .

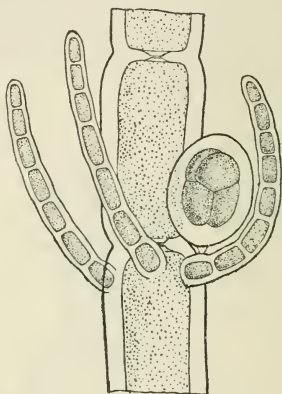


Fig. 6.—*Antithamnionella verticillata*. Tetraspores.  $\times 400$ .

The original description (in Lond. Journ. Bot. iv. 272; 1845) is as follows:—

“Pusillum vage dichotomum, ramis pellucide articulatis, ramulis sæpissime ternis e quoque ramorum geniculo enatis brevibus tenuibus simplicibus subulatis erecto-patentibus, articulis ramorum diametro 4–5-plo, ramulorum subduplo longioribus; favellis magnis bilobis ad apices ramorum sitis.”

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