NOTES ON MARINE ALGAE FROM TASMANIA

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(WITH THREE PLATES)

ABSTRACT

Notes are given on ten species of marine algae from Tasmania, seven of them being new records for the State.

INTRODUCTION

Since the time of Harvey there has been, with the exception of the work of Lucas, very little attention paid to the rich marine algal flora of Tasmania. The list of Tasmanian marine algae published by Lucas (1928) has recently been brought up to date by Guiller (1952) with a check list in which the synonymy of the earlier list is revised and new records added to make a total of approximately 546 species. Leving (1953) has added several species to the list, but it seems certain that a considerable number of species occurring in the area, particularly the smaller forms, are yet to be recorded.

Species marked * are recorded for the first time from Tasmania.

Division CYANOPHYTA

Hormogonales—Rivulariaceae

  Introd. and No. 1, p. 130, fig. 2 a-b.

This species is characterised by its very firm solid thallus and abundant intercalary heterocysts.

Hab.: A single drift specimen, mouth of Currie River, north coast of Tasmania, 17. ix. 1950—Cribb.

Extra-Tasmanian distrib.: Kangaroo Is., South Australia.

Division CHLOROPHYTA

Chaetophorales

* Sporocladopsis novae-zelandiae Chapman 1949. Some new Species
  and Forms of Mar. Alg. N.Z. p. 496, fig. 4. Pl. 1, fig. 1-6; pl. 2, fig. 3.

Forming green or yellow-green colonies up to 10 mm. diam., round, irregular or ring-shaped, sometimes of up to 3 concentric rings; basally of a single layer of densely placed prostrate filaments of cylindrical or irregular cells, 5-18 μ × 5-10 μ; almost every cell of the prostrate
system bearing an erect branch which may be many-celled, or short and capped with a terminal sporangium; erect filaments unbranched, often approx. 600 μ long, sometimes up to 1,050 μ, 7-11 μ diam. in lower and mid parts, sometimes tapering to 5-6 μ near apex; cells cylindrical or slightly barrel-shaped, usually 1-3 diam. long, sometimes up to 5-6 diam. long near apex; chloroplast single, parietal, encircling the protoplast; sporangia borne on erect filaments, alternate or somewhat second, generally 1 to a cell or exceptionally 2 from the same cell, ellipsoid or ellipsoid-pyriform, often narrowed unevenly at the base, 11-14 μ broad, 17-21 μ long, dehiscing by a terminal pore; a new sporangium sometimes proliferating within the wall of a discharged sporangium; occasionally a cell of an erect filament enlarging to form an intercalary sporangium; sporangia also sessile on the prostrate filament or terminal on a 1-celled stalk, sometimes with a second sporangium born to one side of the upper end of the supporting cell.

There is no penetration of the host tissue by the epiphyte, but beneath each colony the host frequently develops a thickened laminated cuticle appearing somewhat cork-like, often 10-14 μ thick, but occasionally up to 35 μ thick.


Extra-Tasmanian distr.: New Zealand, epiphytic on Pachymenia and Carpophyllum.

**Siphonales—Codiaceae**


The green peltate frond up to 3 cm. diam. is borne on a very short and frequently excentric stipe.

This appears to be a rare species and apart from the type collection of J. B. Wilson from Port Phillip Heads, Victoria, the only collections recorded are those of Womersley (1950) from shaded rear littoral pool and deeper pools of the sub-littoral fringe at Kangaroo Island.

Hab.: Dredged at 22 fathoms, five miles south of Goose Island, 5. xi. 1951—A. M. Olsen.

Extra-Tasmanian distr.: Victoria, Kangaroo Is.

**Division Phaeophyta**

**Ectocarpales—Ectocarpaceae**


Occurring in dense tufts up to 8 cm. tall; chromatophores disc-shaped; plurilocular sporangia up to 105 μ long, obtuse, ellipsoid to cylindrical or sometimes ovoid-ellipsoid.
Extra-Tasmanian distr.: Very widely distributed.


Filaments up to 52 μ diam.; chromatophores disc-shaped; sporangia ovoid or ovoid-ellipsoidal, up to 80 μ broad and 105 μ long, on a pedicel of a single cell, borne singly or in opposite pairs on main axis and its branches.

Extra-Tasmanian distr.: Europe, Canary Is.


Main filaments up to 70 μ diam.; cells in the larger branches ½—1⅓ diam. long, often somewhat barrel-shaped; branching of main filaments opposite or alternate, in the lateral branches usually secund; chromatophores discoid; plurilocular sporangia ovoid and asymmetrical, up to 52 μ broad and 70 μ long, sessile and borne secundly on lateral branches.


**Sporochnales—Sporochnaceae**


The sessile nature of the receptacle distinguishes this species from all others of the genus. The larger of the specimens here recorded was approximately 18 inches long but lacked its base.

This species was described by Harvey on a single drift specimen from Georgetown, Tasmania, and there appears to be no record of the species having been found again until the collections here recorded were made.


**Division Rhodophyta**

**Nemalionales—Acrorhaetiacae**


Forming a dense red fringe 3-8 mm. long over host; sinuate endophytic filaments 15-20 μ diam. penetrating between utricles of host; erect
filaments densely branched, irregularly alternate or sometimes somewhat secund in the upper parts; cells of erect filaments 15-24 μ diam., 1-3 or more rarely 4 diam. long; branches tapering gradually or sometimes hardly at all to obtuse apices; chromatophore a parietal lobed plate with 1-2 pyrenoids; monosporangia 14-21 μ diam., 20-35 μ long, obovoid, ellipsoid-obovoid or ellipsoid, borne secundly on the inner sides of lateral branches near their base, occasionally sessile but usually on a short unicellular pedicel, sometimes one at the apex and another at the side, or more rarely the pedicel 2-celled with the lower cell also bearing a sporangium.

A. polychizum (Harv.) J. Ag., A. grande (Levring) J. de Toni and A. codecola Boergesen are all large species which have been described as epiphytes on Codium. Levring (1953), in recording both A. grande and A. polychizum from the southern part of Australia, remarks on the similarity between these two species, but apart from slight differences in size the only essential distinction which he makes is that in A. grande the cells are 3-5 diam. long and contain 1-2 (—4) pyrenoids while in A. polychizum they are 1-5-2-5 diam. long and contain one or occasionally more pyrenoids. Material from Port Arthur on which the present record is based has cells typically 1-5-3 diam. long but sometimes up to 4 diam., and with 1-2 pyrenoids. In the type description of A. polychizum Harvey gives the cell length as 2-4 diam.

A. codecola Boergesen (1927) is described from the Canary Islands and appears to agree very closely with the above species, and particularly with A. grande in having cells apparently 2-5 diam. long and with 1-5 or more pyrenoids. The chromatophore in young cells is a parietal lobed plate as in the other two species, but in older cells may become divided into 2 or more ribbon-like lobed discs.

There appears to be no essential difference in the branching or in the shape, size and distribution of sporangia in the three species.

In view of the small and somewhat inconstant nature of the differences between the three species, it seems doubtful whether they can be kept separate, though, as no material of A. grande and A. codecola is available to the author, no definite opinion can be expressed.

Hab.: On Codium fragile (Sur.) Heriot, lower littoral and sub-littoral fringe, Port Arthur, 23. ix. 1950—Cribb.
Extra-Tasmanian distrib.: Victoria.

Chaetangiaceae


Plants from Port Arthur are typically more or less lanceolate, up to 2-5 cm. high, simple or exceptionally once forked. They correspond well with the description of C. lingula but Levring (1953) is of the opinion that this species cannot be separated from C. fastigiata which has previously been known as a repeatedly forked species.
Hab.: Mid littoral, Port Arthur, 7. ii. 1952—Cribb.

**Ceramiales**—Delessleriaceae

*Platysiphonia miniata* (Ag.) Boergesen 1931B, *Sur Platysiphonia* nov. gen. ... pp. 1-9, fig. 1-5; 1931A, Some Ind. Rhodophy. p. 20, fig. 13 (as *Sorcomenia miniata* (Ag.) J. Ag.). Pl. 2, fig. 5.

Tufts up to 4 cm. high; basal rounded filaments up to 225 μm diam.; flattened erect filaments up to 135 μm broad; cystocarps and stichidia both common.

Hab.: Shallow lower littoral pools, Hawley near Devonport, 5. ii. 1952—Cribb.

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**REFERENCES**


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FIG. 1-6.—*Sporeladopsis novae-zelandiae* Chapman.—1, erect branch with lateral and intercalary sporangia; 2, basal filament with long erect sporangia-bearing branch and short 1-celled branches with terminal discharged sporangia; 3, erect long branch with lateral sessile and pedicellate sporangia; 4, basal filament with an erect long branch and with pedicellate and sessile sporangia; 5, basal filament with pedicellate sporangia; 6, thickened cuticle of *Sarcophycus potatorum* beneath basal filament of *Sporeladopsis*. All x 375.
Fig. 1.—Ectocarpus mitchelliæ Harvey.—branch with plurilocular sporangia. x 250.
Fig. 2.—Sporochmus apodus Harvey.—portion of branch with receptacles. x 11.
Fig. 3.—Sporocladospis novae-zelandiae Chapman.—colonies on thallus of Sarcopeous potatorum. x 1.
Fig. 4.—Rhizilopsis pelata (J. Ag.) A. & E. S. Gepp.—whole plant. x 1.7.
Fig. 5.—Platysiphonia miniata (Ag.) Boergs.—portion of a branch. x 250.
Fig. 1-2.—*Ectocarpus gruniius* (Smith) C. Ag.—5, plurilocular sporangium. x 235. 6, main axis with branches bearing plurilocular sporangia. x 43.

Fig. 3.—*Ectocarpus globifer* Kuetz.—plurilocular sporangium on main axis. x 106.