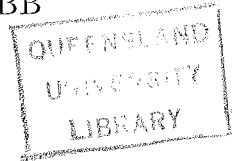


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SOME MARINE ALGAE FROM
THURSDAY ISLAND
AND SURROUNDING AREAS

BY
A. B. CRIBB



DEPARTMENT OF BOTANY

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Some Marine Algae from Thursday Island and Surrounding Areas

A. B. CRIBB

SUMMARY

Sixty-eight species are recorded, twenty-nine being new for the area.

INTRODUCTION

During July and August 1960 an expedition from the Scripps Institute of the University of California spent several weeks on Thursday Is. off the northernmost tip of the mainland of Queensland. A member of the expedition, Dr. F. T. Haxo, made a small collection of marine algae from this island, and from the adjacent Goode Is., Hammond Is., and Possession Is.

Although the region of the state most remote from the centres of early settlement and subsequent scientific investigation, the islands of Torres Strait and the adjacent mainland have not been so neglected algologically as might be assumed. The only algae recorded specifically from Thursday Is. are those collected by H. A. Lorentz in 1907, and recorded by Weber-van Bosse (1913-28) amongst the algae of the Siboga Expedition. However, records of species from adjacent areas are provided by Montagne (1845), Sonder (1871), Dickie (1876, 1877), Okamura (1904), Howe (1918) and Taylor (1945, p. 67). Records in some of these papers are based on misdeterminations and it is hoped in the reasonably near future to publish a revision of the specimens recorded therein.

In view of the previous work it is to be expected that many of the species recently collected will have been previously recorded for the area. However, of the sixty-eight species determined in the collection of Dr. Haxo, twenty-nine have not previously been noted from the area, and for this reason the collection seems worth recording.

The specimens have been distributed between the herbarium of the Department of Botany, University of California, and the herbarium of the Department of Botany, University of Queensland, most species being represented in each place.

Species marked with an asterisk are newly recorded for the area.

LIST OF SPECIES

Lyngbya majuscula (Dillwyn) Harv. *in* Hooker 1833, p. 370.

Ulva reticulata Forsskal 1775, p. 187. One specimen shows the irregularly perforate frond characteristic of this species, the perforations being up to 4 cm. diam. and occupying an area greater than that occupied by the thallus. The cells in section are more or less quadrate, and lack the thick outer wall figured by Okamura (1912).

Another specimen with relatively few, small perforations mostly not over 1 mm., and the largest about 8 mm. diam., has the area occupied by interstices of the thallus greatly exceeding the area occupied by perforations. In the absence of undoubted specimens of *U. reticulata* in the same area this specimen might perhaps be referred to *U. lactuca*, but the presence of perforations and the resemblance to

the above mentioned specimen in anatomy and texture suggests that it is probably to be referred to *U. reticulata*.

**Enteromorpha clathrata* (Roth) Greville 1830, p. 181. The two specimens of *Enteromorpha* are tentatively referred to this species.

**Anadyomene brownii* (Grey) J. Agardh 1887, p. 127.

Codium sp. The determination of this dichotomous species awaits further critical studies on the genus such as those already undertaken by Silva.

**Avrainvillea erecta* (Berk.) A. & E. S. Gepp 1911, p. 29, fig. 84-89.

**Udotea argentea* Zanardini 1858, p. 290, pl. 10, fig. 1, 1a, 1b.

**Udotea orientalis* A. & E. S. Gepp 1911, p. 119, fig. 1, 4, 47, 48.

Penicillus nodulosus Blainville 1834, p. 553.

Halimeda opuntia (L.) Lamouroux 1812, p. 186.

Halimeda macroloba Decaisne 1841, p. 118.

Halimeda monile (Ell. & Sol.) Lamouroux 1812, p. 186.

Halimeda tuna Lamx. f. *platydisca* (Denc.) Barton 1901, p. 14, fig. 2.

**Halimeda cuneata* Hering f. *cuneata*. Barton 1901, p. 16, fig. 7.

**Caulerpa brachypus* Harvey 1859, p. 333.

Caulerpa cupressoides (Vahl) C. Agardh, p. 441.

**Caulerpa lentillifera* J. Agardh 1837, p. 173.

Caulerpa racemosa (Forssk.) J. Ag. var. *laetevirens* (Mont.) Weber-van Bosse 1898, p. 366, pl. 33, fig. 8, 16-22.

Caulerpa racemosa (Forssk.) J. Ag. var. *corynephora* (Mont.) Weber-van Bosse 1898, p. 364, pl. 33, fig. 10-14.

**Acetabularia major* Martens 1866, p. 25, pl. 4, fig. 3.

Sphacelaria furcigera Kuetz. 1855, p. 27, pl. 90. On *Polysiphonia variegata*.

**Dictyota bartayresii* Lamouroux 1809, p. 331. On *Halimeda tuna* var. *platydisca*.

Dictyopteris woodwardii (R. Br. ex Turn.) Schmitz 1937, p. 219.

The degree of development of the denticulate margin varies considerably in this species. In the type specimen in the British Museum (Nat. Hist.) the marginal teeth are prominent, but in the Torres Straits specimen they are very poorly developed so that the greater part of the frond has an essentially entire margin.

Padina gymnospora (Kuetz.) Vickers 1905, p. 58.

Colpomenia sinuosa (Roth) Derbès & Solier 1856, p. 11, pl. 22, fig. 18-20.

Hydroclathrus clathratus (Bory) Howe 1920, p. 590.

Cystophyllum muricatum (Turn.) J. Agardh 1848, p. 231.

Sargassum decurrens (R. Br. ex Turn.) C. Agardh 1820, p. 42.

Sargassum spp. Four specimens, only one of them fertile, remain undetermined.

**Asterocystis ornata* (C. Ag.) Hamel 1924, p. 451, fig. 7 B-E. On *Polysiphonia variegata*.

Asparagopsis taxiformis (Delile) Collins & Hervey 1917, p. 117.

**Mastophora affinis* Foslie in Weber-van Bosse & Foslie 1904, p. 71, fig. 28-29.
On (?) *Laurencia poitii* (Lamx.) Howe.

Jania adhaerens Lamouroux 1816, p. 270. On *Aneuria lorentzii*, *Anadyomene brownii* and other species.

**Amphiroa fragilissima* (L.) Lamouroux 1816, p. 298. On fruit of *Enhalus acoroides* (L.f.) Rich. ex Steud.

Halymenia durvillaei Bory 1826, pl. 15.

Halymenia floresia (Clem.) J. Agardh 1876, p. 138.

*? *Halymenia ulvoidea* Zanardini 1865, p. 17, pl. 45. The two specimens are sterile. The attachment in each is by a very short stipe, 2-4 mm. long, and the roughly circular to reniform frond, up to 22 cm. high, is more or less entire in one specimen, and deeply divided into several lobes in the other (see plate). The margin is entire to irregularly dentate. A photograph of a Siboga Expedition specimen from Jedan Isles housed at the Rijksherbarium, Leiden, and recorded by Weber-van Bosse (1921) as *H. ulvoidea* reveals a few rounded perforations similar to those found in the Torres Straits plants, although much less abundant. These latter plants are probably to be identified with the Siboga specimen recorded as *H. ulvoidea*, but whether or not they are conspecific with Zanardini's plant from the Gulf of Naples is doubtful. Epidermal cells in the Torres Straits plants are mostly a little elongate vertically, mainly 1-2 diam. long, and generally do not exceed 8 μ in greatest diameter. No dimensions are given by Zanardini (1865), but his figure gives the impression of appreciably larger epidermal cells.

Gracilaria edulis (Gmelin) Silva 1952, p. 293. The specimens show the characteristics of this species, but in the absence of cystocarps, the possibility that they are to be referred to *Gracilariopsis* cannot be entirely overlooked.

Gracilaria salicornia (C. Ag.) Dawson 1954, p. 4, fig. 3.

Sarconema furcellatum Zanardini 1858, p. 264, pl. 10, fig. 1.

**Solieria robusta* (Grev.) Kylin 1932, p. 18, pl. 5, fig. 9, 10.

**Eucheuma cervicorne* Weber-van Bosse 1928, p. 420, pl. 16, fig. 1, 2. A single specimen, which on first sight might be taken for a form of *Gracilaria edulis*, is provisionally referred to this species. The plant is attached to a discoid holdfast; the point of attachment was missing in Weber van-Bosse's specimens.

Hypnea sp.

Botryocladia leptopoda (J. Ag.) Kylin 1931, p. 17, pl. 6, fig. 14.

Champia parvula (C. Ag.) Harvey 1853, p. 76. On *Acetabularia major*.

**Crouania minutissima* Yamada 1944, p. 40. On *Halophila spinulosa* (R. Br.) Benth.

**Antithamnion lherminieri* (Crouan & Crouan) Nasr 1941, p. 66, fig. 9-10. In the specimens of this species figured by Boergesen (1917) (as *A. antillarum*) and by Nasr (1941) the opposite branches from the main axes are alternately branched, with the alternate branches themselves often carrying a short branch. In the figure of Dawson (1956), however, these short branches are absent so that the opposite branches are simply pinnate as is usually the case in the Thursday Is. plants epiphytic on (?) *Laurencia poitii* (Lamx.) Howe.

In the specimens of Nasr and of Boergesen the gland cells are found usually on the short secondary branches, or less commonly on the primary branches, from the opposite branches; in Dawson's figure they are shown on the primary branches. In all these previously reported plants the gland cell is usually in contact with two cells of the branch, although in Dawson's figure one of the glands appears to be in contact with only one cell. In the Thursday Is. plant the gland cells may be apparently absent in some plants and fairly common in others. They are borne occasionally on the lateral pinnules of the opposite branches, but more often on the main axis of the opposite branches, and differ further from the above plants in being in contact with only one cell. However, in other respects the plants seem to be in good agreement with this apparently widespread species.

- **Ceramium gracillimum* var. *byssoideum* (Harv.) Mazoyer 1938, p. 323. On *Laurencia obtusa* var. *majuscula*.
- **Ceramium huysmansii* Weber-van Bosse 1932, p. 322, fig. 115. On *Halimeda macroloba*.
- Centroceras clavulatum* (C. Ag.) Montagne in Durieu 1846, p. 140. On *Halimeda macroloba* and other species.
- Spyridia filamentosa* (Wulf.) Harv. in Hooker 1833, p. 337. On *Polysiphonia variegata* and other species.
- Callithamnion* sp. A specimen of *Callithamnion* epiphytic on *Gracilaria edulis* appears to be close to *C. marshallensis* Dawson (1957) but differs from that species in having the tetrasporangia ellipsoid, usually at least $1\frac{1}{2}$ diam. long, rather than subspherical as reported by Dawson.
- **Griffithsia tenuis* C. Agardh 1828, p. 131. On *Cymodocea* sp.
- **Hypoglossum spathulatum* (Kuetz.) J. Agardh 1898, p. 186. On *Sarconema furcellatum* and (?) *Laurencia poitii*.
- **Platysiphonia miniata* (C. Ag.) Boergesen 1931, p. 8, fig. 1-5. Epiphytic on *Halophila spinulosa* (R. Br.) Benth.
- **Dictyurus purpurascens* Bory in Bélanger & Bory 1836, p. 170. On base of *Sargassum* sp.
- **Polysiphonia variegata* (C. Ag.) Zanardini 1841, p. 162.
- **Polysiphonia mollis* Hook. & Harv. in Harvey 1847, p. 43. On *Dictyopteris woodwardii* and *Laurencia obtusa* var. *majuscula*.
- Tolypiocladia glomerulata* (C. Ag.) Schmitz in Schmitz and Hauptfleisch 1897, p. 441. On *Halimeda macroloba*.
- **Herposiphonia tenella* (C. Ag.) Ambronn 1880, p. 197, pl. 4, fig. 9-11, 13-16. On *Gracilaria edulis*. In the absence of spermatangial branches the determination must be tentative.
- Leveillea jungermannioides* (Mart. & Her.) Harvey 1854, p. 539. On *Hypnea* sp. and other species.
- Amansia daemelii* (Sond.) J. Agardh 1892, p. 172.
- Vidalia fimbriata* (R. Br.) J. Agardh 1863, p. 1124.
- Neurymenia fraxinifolia* (Mert.) J. Agardh 1863, p. 1134.
- Aneuria lorentzii* Weber-van Bosse 1910, p. 30.

**Chondria lancifolia* Okamura 1935, p. 43, pl. 323, fig. 1-10. Specimens epiphytic on *Halophila spinulosa* (R. Br.) Benth. seem to be in good agreement with figures and descriptions given by Okamura and by Tseng (1945). The lenticular thickenings of the medullary cells noted by the above author were not seen, but this is probably not surprising since the plants are very small, the largest not exceeding 6 mm. in length, and are probably juvenile.

Acanthophora muscoides (L.) Bory 1829, p. 156.

Acanthophora spicifera (Vahl) Boergesen 1910, p. 201.

Laurencia concinna Montagne 1842, p. 6.

Laurencia papillosa (Forssk.) Greville 1830, p. lii.

Laurencia obtusa (Huds.) Lamouroux 1813, p. 42, var. *obtusa*.

Laurencia obtusa (Huds.) Lamx. var. *majuscula* Harvey 1863, p. xxvi.

* ? *Laurencia poitii* (Lamx.) Howe 1905, p. 593.

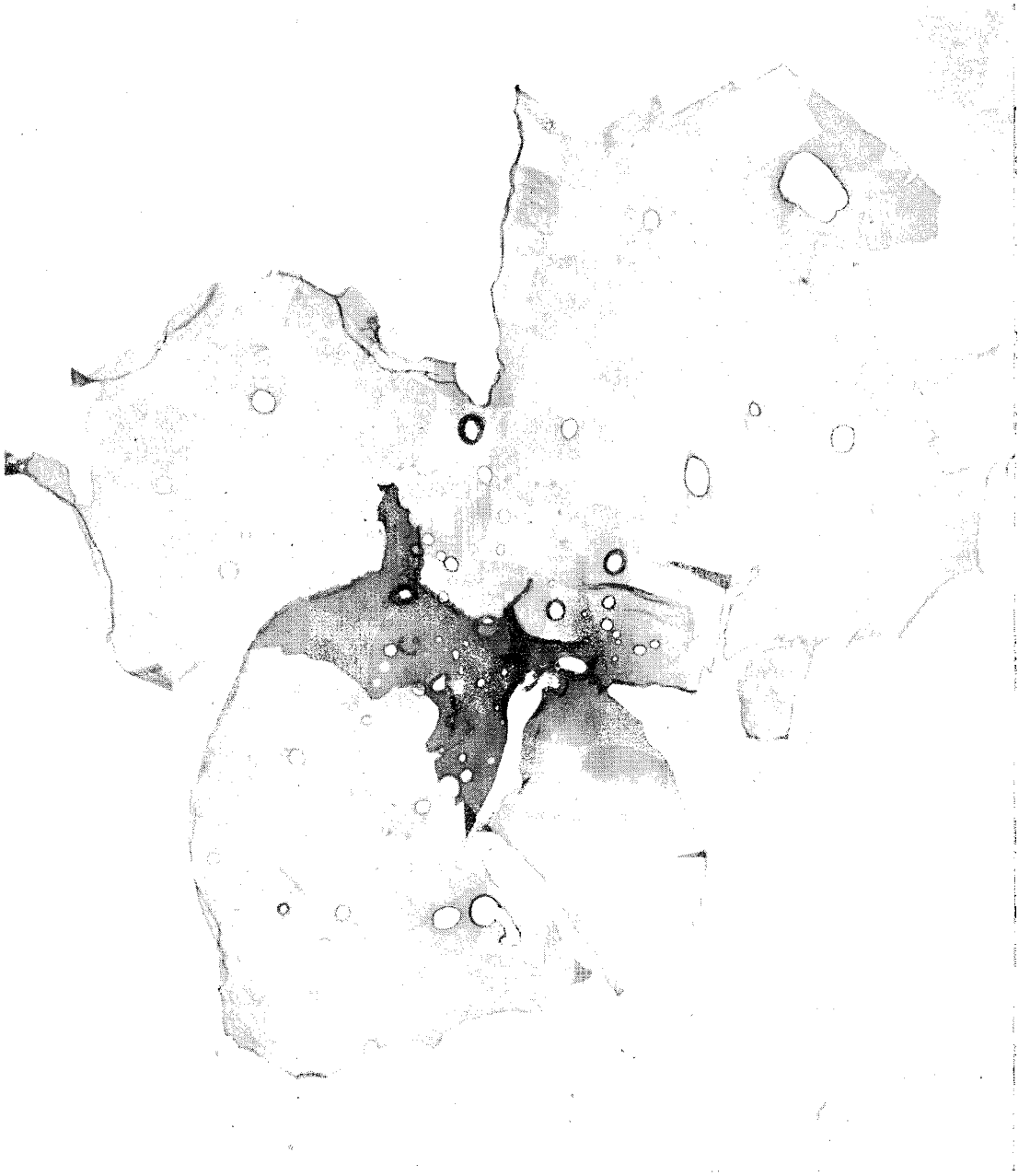
A robust fleshy *Laurencia* is probably conspecific with the Siboga Expedition plant which Weber-van Bosse (1923) records as *L. poitii*, although lateral branches are generally more poorly developed than in the Siboga specimens. Whether or not these Australian and Malaysian plants are conspecific with *L. poitii* of the West Indies is open to question.

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EXPLANATION OF PLATE

? *Halymenia ulvoidea*, x 0.6. Pieces have been removed from the upper right hand side of the specimen for physiological experiments.