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MARINE ALGAE OF THE SOLOMON ISLANDS

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[Plates 24 to 27]

CONTENTS

An account is given of the benthic marine algae (and sea grasses) collected on the 1965 Royal Society Expedition to the Solomon Islands. The known algal flora is fairly typical of such a tropical area, comprising some 71 species of Chlorophyta, 27 of Phaeophyta, 121 of Rhodophyta and 14 of Cyanophyta. *Pseudobryopsis solomonensis*, *P. gracilis*, *Caulerpa spathulata* and *Cryptonemia ? subdichotoma* are newly described. Seven species of sea grasses are also recorded.

Introduction

A general account of the 1965 Royal Society Expedition to the Solomon Islands is given in the *Philosophical Transactions* B. **255**, 185–631 (1969), including a brief account of aspects of the marine algal biogeography and ecology (Womersley & Bailey 1969). The present paper gives a taxonomic account of the marine algae collected on the expedition, together with those reported from Malaita Is., Sikaiana Is. (northeast of Malaita Is.) and Bellona Is. (near Rennell Is., south of Guadalcanal) by Setchell (1935) and from Bellona Is. by Levring (1960). More detailed ecological aspects will be dealt with separately.

References given under each species include the most useful ones taxonomically and those to records from adjacent regions. This is followed by the type locality and the herbarium (using the standard abbreviations of *Index Herbariorum*) where the type specimen should be. Whether it is actually there has not been verified in many cases. The 'Distribution' given for each species summarizes the records unless a species is known from only a few localities.

The detailed list of Solomon Islands records, which follows the above information under each species, gives the number of each collection. Where more than one species was included in a number, they are listed by a letter after the number (e.g. 341a, 341b). The 'Collection Data' (immediately following) give the latitude and longitude, collection dates, collector and general notes on each locality. Following the records for each species, the habitat is briefly summarized, followed by taxonomic notes in many cases.

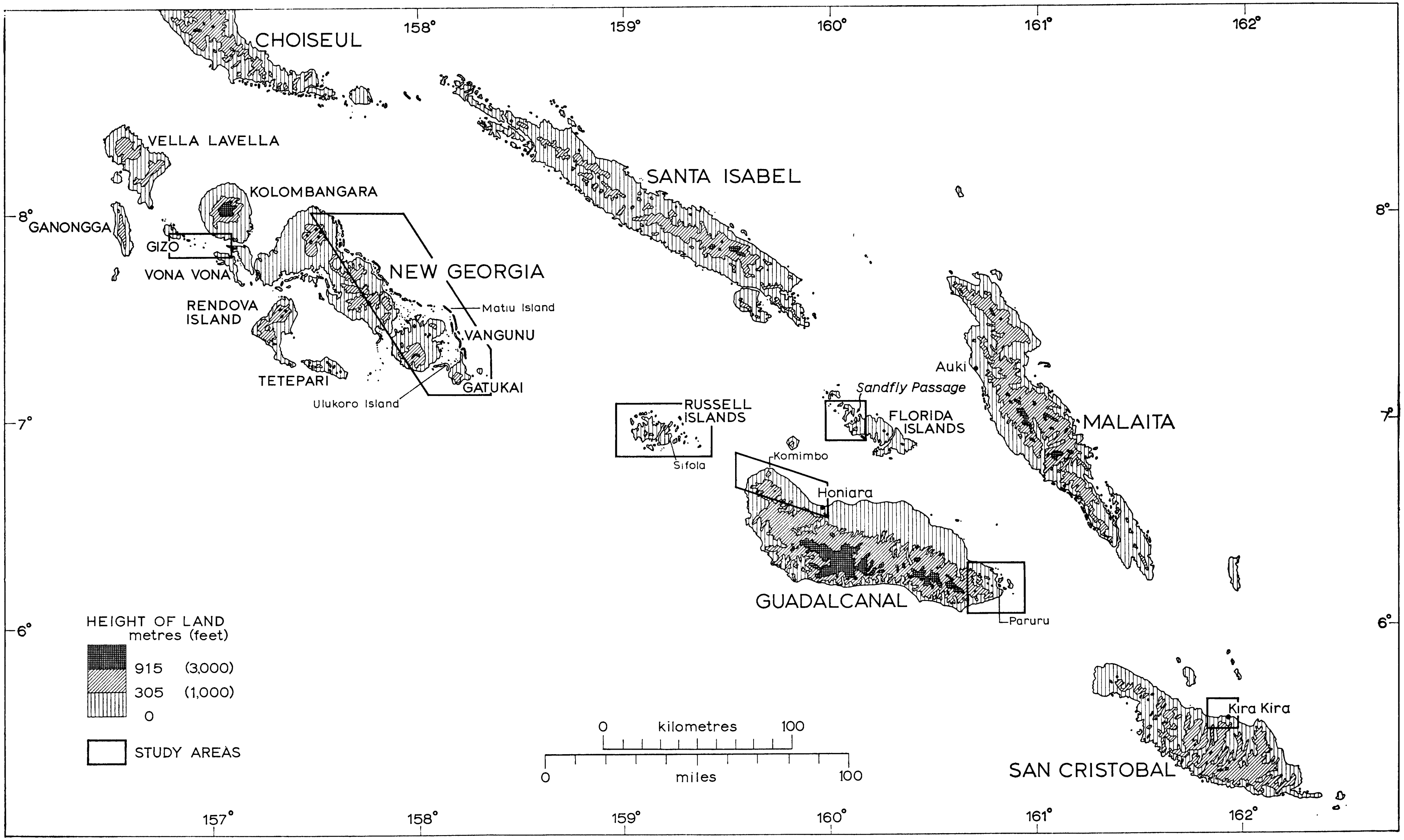

FIGURE 1. Map of the Solomon Islands showing collecting localities (from Stoddart 1969, p. 256).

The first set of specimens is housed in the Adelaide University Herbarium (Department of Botany) and a second set (almost complete) will be deposited in the British Museum Herbarium. Other sets will be distributed to Leiden (L), Paris (PC), Lund (LD), the Smithsonian Institution (US), University of California, Berkeley (UC), the Bishop Museum, Honolulu (BISH), Bogor (BO), Singapore (SING), Sapporo (SAP) and Brisbane (BRI).

Collections were originally preserved in 10% formaline–sea water and stored drip-wet in plastic bags in the dark. Liquid preserved (in 70% alcohol plus 5% glycerine) material of almost every species is held in the Department of Botany, University of Adelaide. This material, and herbarium specimens (including isotypes but not holotypes) is available on loan from the Department.

Collection data

Localities (figure 1) are grouped geographically by islands, in general from west to east and north to south. Citation of specimens in the systematic list is by locality followed by collection number. Reference can then be made to the following list for further information. Collections by A. Bailey were made between 30 June and 3 November 1965, and those with H. B. S. Womersley between 3 August and 10 September.

numbers	dates	locality, collector and notes	lat. (S)	long. (E)
		GIZO ISLAND		
510–550	5 Sept.	New Manra, south side of Gizo Is. *Womersley* and *Bailey*. 'Weather coast' with fairly constant surf at reef edge and sheltered areas inshore on the reef, with a few mangroves and areas of sea grasses	8° 07′	156° 50′
		KOLOMBANGARA		
896	6 Sept.	Dolo Cove, south side of Kolombangara. *Miller*. A general collection without details, from a fairly calm area	8° 07′	157° 07′
		NEW GEORGIA		
386–421 422–457 458–473	28 Aug. 30 Aug. 31 Aug.	Matiu Is., Marovo Lagoon. *Womersley* and *Bailey* (386–389, *Wainwright;* 422–428, *Wainwright* and *Stoddart*). An elongate island of the outer barrier of the Marovo Lagoon, with very deep water and a frequent strong wave surge on the outer (north side) and calm sheltered conditions on the inner side	8° 27′	158° 08′
474	1 Sept.	Lumaliha Pass, Marovo Lagoon. *Wainwright* and *Stoddart*. A single floating specimen.	8° 27′	158° 04′
491–499	3 Sept.	Ulukoro Is., south-east of Vangunu Is. *Womersley* and *Bailey*. The western end has 'weather coast' with moderate surf facing south and calm sheltered coast with shallow muddy flats on the north side	8° 45′	158° 04′
500–509	3 Sept.	Batuona Is., adjacent to west end of Ulukoro Is., south-east of Vangunu Is. *Womersley* and *Bailey*. A roughly circular island with rough 'weather coast' and strong surf, steeply sloping into deep water on the south side; calm and sheltered on the north side	8° 45′	158° 04′
490	2 Sept.	Yandina, Banika Is. *Womersley* and *Bailey*. A completely sheltered harbour area	9° 05′	159° 13′
844–854	26 Oct.	Yandina, Banika Is. *Bailey*. A sheltered rubble-reef in front of the Government Rest House	9° 05′	159° 13′
771–796	23 Oct.	Avuna, Banika Is. *Bailey*. A sheltered point about 2 miles (3 km) south-east of the Government Rest House	9° 06′	159° 14′

numbers	dates	locality, collector and notes	lat. (S)	long. (E)
475–489	2 Sept.	Sifola (Estate), Banika Is. *Womersley* and *Bailey*. 'Weather coast' with moderate surf on a narrow reef running fairly uniformly along the coast	9° 07′	159° 13′
797–808 830–843 856–889	23 Oct. 26 Oct. 27 Oct.	Sifola, Banika Is. *Bailey*. Between Sifola and Avuna, with comparable conditions to Sifola but a more distinct moat	9° 07′	159° 13′
809–829	25 Oct.	Lingatu Point, Banika Is. *Bailey*. Rough 'weather coast' with heavy surf	9° 08′	159° 10′
890	23 Oct.	Lingatu Point, Banika Is. *Challis*.	9° 08′	159° 10′
		FLORIDA ISLANDS		
1–33	2 July	Kokomtambu Is., south side of Big Nggela and near Tulagi Is. *Bailey*. A small island with a sloping reef, coral rubble patches and fairly calm conditions on the west side	9° 07′	160° 09′
34–48 69–95 123–144 204–211	4 July 9 July 14 July 24 July	Tetel Is., Sandfly Passage. *Bailey*. A small island about $\frac{1}{2}$ mile ($\frac{3}{4}$ km) across, with very calm conditions and mangroves on the south side	9° 02′	160° 06′
49–68	5 July	Haroro Village, Sandfly Passage. *Bailey*. A muddy reef area with very calm conditions	9° 01′	160° 07′
		GUADALCANAL		
268–287	18 Aug.	Naro Point, north-west coast. *Womersley* and *Bailey*. An extensive reef on fairly sheltered coast, near a river and backed by sedimentary rock	9° 17′	159° 37′
96–122 893	30 July 1 Nov.	Komimbo, north-west coast. *Bailey*. A fairly sheltered coast with extensive reefs; slight wave action only	9° 15′	159° 40′
228–267 288–297 329–333	14 Aug. 18 Aug. 22 Aug.	Komimbo. *Womersley* and *Bailey*	9° 15′	159° 40′
298–328 334–358 (345–354 not used)	21 Aug. 22 Aug.	Cape Esperance, north-west coast. *Womersley* and *Bailey*. Slight to moderate wave action with small reefs and also outcrops of basaltic rock and boulders	9° 15′	159° 44′
892	1 Nov.	Cape Esperance. *Bailey*.	9° 15′	159° 44′
145–169 225–227, 897	7 Aug. 12 Aug.	Mamara, about 4 miles (6 km) west of Honiara, north coast. *Womersley* and *Bailey*. Slight wave action on a fairly narrow reef along the coast	9° 24′	159° 53′
359–372	24 Aug.	Rove, above 1 mile ($1\frac{1}{2}$ km) west of Honiara, north coast. *Womersley* and *Bailey*. Slight wave action only on irregular reef areas	9° 25′	159° 57′
894	2 Nov.	Rove. *Bailey*.	9° 25′	159° 27′
202–203	9 Aug.	Honiara, north coast. *Womersley* and *Bailey*. A calm, muddy tidal flat at Point Cruz	9° 25′	159° 57′
373–376	24 Aug.	Honiara. *Morton*. On piles of 'Shell' jetty	9° 25′	159° 57′
170–201 212–224	8 Aug. 11 Aug.	Kukum, about 2 miles (3 km) east of Honiara, north coast. *Womersley* and *Bailey*. Narrow reefs along the coast with slight wave action	9° 25′	160° 01′
891	31 Oct.	Kukum. *Bailey*	9° 25′	160° 01′
618–642 719–720 752–754 764–770	24 Sept. 2 Oct. 8 Oct. 10 Oct.	Paruru (plantation), Marau Sound, south-east coast. *Bailey*. A sheltered reef flat area backed by sandy beach	9° 51′	160° 50′
551–578 579–582 583–608 757–763	17 Sept. 19 Sept. 20 Sept. 10 Oct.	Maraunibina Is., Marau Sound, south-east coast. *Bailey*. A sand cay with an extensive reef to the south-east, subject to constant surf at the edge of a reef facing the south-east but with calmer conditions inshore and on the north side	9° 50′	160° 50′
721–725	4 Oct.	Pigeon Is., Marau Sound, south-east coast. *Bailey*. A sand cay, similar to but larger than Maraunibina Is.	9° 50′	160° 50′
609–617	23 Sept.	Lauvie Is., Marau Sound, south-east coast. *Bailey*. A sand cay at the southern entrance to the sound, subject to considerable surf at the reef edge, calmer inshore	9° 51′	160° 53′

numbers	dates	locality, collector and notes	lat. (S)	long. (E)
673–707 708–718 726–730 755–756	30 Sept. 1 Oct. 5 Oct. 9 Oct.	UNTAVA, south-east coast. *Bailey*. 'Weather coast' subject to strong surf, with a broad reef (over 100 m) backed by a silty-mud area with mangroves	9° 52′	160° 49′
643–657 731–733	27 Sept. 5 Oct.	WAIMIA, south-east coast. *Bailey*. 'Weather coast' subject to strong surf, with coral rock extending throughout the intertidal region	9° 53′	160° 47′
658–672 734–751	27 Sept. 5 Oct.	KOPIU, south-east coast. *Bailey*. Very rough 'weather coast' with a narrow reef and basaltic rock in the upper intertidal region	9° 54′	160° 44′
		SAN CRISTOBAL		
377–385	25 Aug.	KIRA KIRA, north coast of San Cristobal. *Morton*. A collection from moderately rough conditions, in shaded areas of a surge channel	10° 27′	161° 55′
895	11 Aug.	HUNI R. MOUTH, about 3 miles ($4\frac{1}{2}$ km) east of Wainoni, north coast of San Cristobal. *Hunt* and *Dennis*. From intertidal pools subject to moderate wave action	10° 28′	162° 05′

Phylum **CHLOROPHYTA**

Order ULOTRICHALES

Family Ulvaceae

Genus *ENTEROMORPHA* Link

Enteromorpha flexuosa (Wulfen ex Roth) J. Agardh. Bliding 1963: 73, figs. 38–40. Weber van Bosse 1913*a*: 52.

Type. From Duini, Adriatic Sea (in WU).

Distribution. Probably cosmopolitan; common in tropical and subtropical waters.

Solomon Is. NEW GEORGIA: Matiu Is. (399, 433, 469a). RUSSELL Is.: Sifola (789c), Avuna (771), Lingatu Pt. (827c). FLORIDA Is.: Tetel Is. (81, 133). GUADALCANAL: Komimbo (234, 254), Cape Esperance (306, 318a), Mamara (146), Kukum (193), Paruru (621), Maraunibina Is. (558), Lauvie Is. (611), Untava (673), Kopiu (660). SAN CRISTOBAL: Kira Kira (385b), Huni R. mouth (859i).

A very common species, especially on dead coral and rock above low tide level; probably to be found at all localities in local shelter from surf conditions.

These specimens are very similar in habit, with branching mainly at their base, cells in distinct longitudinal rows and in most parts (except when broad) in conspicuous transverse rows, and 1–3 pyrenoids per cell. They agree well with Bliding's concept of *E. flexuosa*, sub. sp. *flexuosa*.

Two specimens (385b and 399) are very elongate (to 4 cm) in contrast to the usual upwardly expanded and compressed form, but with similar cell details to the others. No. 399 was subject to freshwater influence. These two collections are probably referable to *E. flexuosa* subsp. *paradoxa* (Dillwyn) Bliding (1963, p. 79).

Dawson (1954*a*, p. 384; 1956, p. 27) and Dawson, Aleem & Halstead (1955, p. 10) recorded *E. kylinii* Bliding from the Marshall Is., Nha Trang and Palmyra Is. However their description suggests their plant may be the same as the Solomon Is. alga. Weber van Bosse (1913*a*, p. 54) and Taylor (1950, p. 40) also record *E. lingulata*, which Bliding (1963, p. 106) places as a likely synonym of *E. flexuosa*.

Order CLADOPHORALES

Family Cladophoraceae

Genus *CHAETOMORPHA* Kuetzing

Chaetomorpha antennina (Bory) Kuetzing 1849: 379. Boergesen 1913: 16, figs. 4, 5; 1940: 37. Dawson 1954*a*: 386, fig. 6l. Durairatnam 1961: 20, pl. 1, figs. 11–13, pl. 3, fig. 4. Howe 1914: 37. Valet 1968: 33, pl. 6, fig. 1.

C. media (C. Agardh) Kuetzing 1849: 380. Womersley 1958: 146.

Type. From Reunion Is. (near Mauritius) (in PC).

Distribution. Widespread in the Indian, Pacific and Atlantic ocean tropics, extending to the subtropics.

Solomon Is. RUSSELL Is.: Sifola (480), Lingatu Pt. (827b, 829c). SAN CRISTOBAL: Huni R. mouth (895e).

Growing as short tufts to 3 cm high, under conditions of moderate surf or wave wash, at the reef edge or rear.

Boergesen (1940, p. 38) discusses the supposed differences between *C. antennina* and *C. media* on the basis of specimens from Mauritius, which is near the type locality of the former. Although the type specimens show differences in the size of the basal cell and length and thickness of upper cells (Howe 1914, p. 37; Womersley 1958, p. 146), these appear to be growth differences only.

Chaetomorpha crassa (C. Agardh) Kuetzing. Kuetzing 1849: 379. Boergesen 1913: 18. Dawson 1954*a*: 386, fig. 6k. Durairatnam 1961: 20. Taylor 1960: 72. Weber van Bosse 1913*a*: 85.

Type. From Tergestum (Trieste), Italy (in Herb. Agardh, LD).

Distribution. England, Mediterranean, tropical and subtropical oceans in general.

Solomon Is. GUADALCANAL: Komimbo (242d), Kukum (175).

Usually in deeper, calmer reef pools or the rear of reefs under fairly calm conditions.

While critical comparison with the type material is needed, 242 agrees well with *C. crassa* in having loose-lying, entangled filaments, 500–700 μm thick and cells 1 (–2) times as long as thick. No. 175 consists of filaments some 2 cm long, somewhat curled and attached by a short basal cell; presumably these are young plants.

Chaetomorpha javanica Kuetzing 1849: 376; 1853: 17, pl. 52, fig. IV. Dawson 1954*a*: 384, fig. 6h–j.

Type. From Java (in L, 936, 249...59).

Distribution. Only known from Java and the following locality.

Solomon Is. GUADALCANAL: Cape Esperance (336). As a mat on pebbles in the lower eulittoral.

This single collection of plants with short, possible stunted, filaments (under 1 cm long) appears to agree with *C. javanica* better than any other tropical Indo-Pacific species. The holdfast is small with the filaments increasing to 100 (–120) μm diam, cells about one-half as long as broad below and as long as broad above.

Chaetomorpha linum (Muller) Kuetzing. Taylor 1960: 71, pl. 2, fig. 8. Weber van Bosse 1913*a*: 84.

Type. From Europe.

Distribution. Almost cosmopolitan.

Solomon Is. RUSSELL Is.: Avuna (830). GUADALCANAL: Komimbo (893), Kopiu (735). SAN CRISTOBAL: Huni R. mouth (895h).

These collections of loosely matted, non-attached filaments agree with *C. linum* in dimensions; as with other species, determinations must remain doubtful in the absence of a critical monograph on the genus.

Genus *CLADOPHORA* Kuetzing

Cladophora coelothrix Kuetzing. van den Hoek 1963: 40, figs. 55–78.

Type. From Livorno, Italy (in L, 937, 278...392).

Distribution. Europe, north Africa.

Solomon Is. FLORIDA Is.: Tetel Is. (137). (det. C. van den Hoek).

Forming small tufts in a calm, silty area.

Cladophora laetevirens Dillwyn. van den Hoek 1963: 128, figs. 409–429, 443, 440.

Neotype. From England (in K, now at BM)—see van den Hoek 1963, p. 128.

Distribution. Probably widespread.

Solomon Is. GUADALCANAL: Kopiu (662a).

Forming small tufts to 2 cm high on the shoreward side of the reef platform. (det. C. van den Hoek).

Cladophora pellucida (Hudson) Kuetzing? Söderström 1963: 133, fig. 124. van den Hoek 1963: 215, pl. 54, figs. 696, 697, 702, 711–716.

Type. From England (?); neotype in BM (see van den Hoek).

Distribution. Europe, Mediterranean.

Solomon Is. NEW GEORGIA: Ulukoro Is. (497d).

A single specimen from the reef rim under rough conditions, close to *C. pellucida* but with somewhat stouter apical cells than normal for the species. The specimen is about 2 cm high, tufted, with acropetal growth and longer basal cells attached by a few rhizoids; filaments 250–350 μm thick, tapering slightly, often trichotomous and with thick lamellate walls; colour light green.

Cladophora prolifera (Roth) Kuetzing. Isaac & Chamberlain 1958: 124, fig. 1. Söderström 1963: 134. Taylor 1945: 57. van den Hoek 1963: 208, pl. 51, figs. 677–82, pl. 52.

Type. From Corsica (lost); neotype in K, now at BM (see Söderström).

Distribution. Europe; scattered throughout tropical and subtropical waters.

Solomon Is. GUADALCANAL: Cape Esperance (340).

An abundant collection from the lower eulittoral, under slight to moderate wave action. They agree well with *C. prolifera* although the annular constrictions are poorly developed.

Cladophora sericea (Hudson) Kuetzing? van den Hoek 1963: 77, figs. 184–240.

Type. From England (in OXF).

Distribution. Probably almost cosmopolitan.

Solomon Is. RUSSELL Is.: Sifola (798b). GUADALCANAL: Cape Esperance (328a).

At a low eulittoral level with moderate roughness, forming dense tufts to 1 cm high. Further comparisons of more material are necessary to support this provisional determination.

Cladophora sibogae Reinbold 1905: 146; in Weber van Bosse 1913*a*: 81, fig. 19. Durairatnam 1961: 21, pl. 2, fig. 2. Sakai 1964: 91, fig. 45, pl. 15, fig. 2. Yamada 1934: 45.

Type. From Banda Is., Indonesia (in L).

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (455).

A single collection growing at a mid eulittoral level in shade at the reef rear, on the outer side of Matiu Is.

Cladophora socialis Kuetzing 1849: 416; 1854: 15, pl. 71, fig. 1. Boergesen 1946: 28. Dawson 1956: 34; 1957: 103, fig. 4b. Levring 1960: 21. Sakai 1964: 84, fig. 41, pl. 10, fig. 2. van den Hoek 1963: 43, pl. 8, figs. 79–85, pl. 9, figs. 86–91.

C. patentiramea f. *longiarticulata* Reinbold in Weber van Bosse 1913*a*: 84. Boergesen 1940: 36, fig. 12. Dawson 1954*a*: 388, fig. 7e.

Type. From Tahiti (in L, 937, 253...440).

Distribution. Indian and Pacific Ocean tropics. Europe (van den Hoek).

Solomon Is. GIZO Is.: New Manra (548). RUSSELL Is.: Sifola (857a). GUADALCANAL: Paruru (770b). [Rennell Is. (Levring).]

Occurring in conditions of moderate wave-wash in pools near the reef rim.

No. 770b shows characters intermediate between *C. socialis* and *C. coelothrix*.

Cladophora vagabunda (L.) van den Hoek 1963: 144, figs. 434, 436–439, 470–503, 505–514.

Type. From Selsey Is., Sussex, England (in OXF).

Distribution. Very widespread.

Solomon Is. RUSSELL Is.: Sifola (798a), Lingatu Pt. (827d). GUADALCANAL: Cape Esperance (328b, 335), Lauvie Is. (612b), Kopiu (662b).

Small plants usually under 1 cm high, in tufts or intermixed with other algae, generally just above low tide level; fragments were observed in other collections also.

C. vagabunda is a widespread and rather variable species and has been known under other names in the Indo-Pacific tropics. *C. inserta* Dickie (1877, p. 454) and its var. *ungulata* (Brand) Setchell (1926, p. 75) are probably forms of *C. vagabunda*, as are most records of *C. fascicularis* (Mertens) Kuetzing.

Cladophora sp. (section Affines)

Solomon Is. NEW GEORGIA: Matiu Is. (432).

Forming a tangled low mat at an upper eulittoral level in shade of overhanging trees, in calm conditions on the inner side of the island.

The tangled mat consists of long filaments producing short branches, 1 (–3) cells long, from almost every cell of some filaments, but other long filaments are almost without such laterals.

The filaments are of uniform width throughout, about 50 (–70) μm thick, with cells 3–5 times as long as broad.

The characters place 432 in Sections Affines (see van den Hoek 1963, p. 33) where it comes near to the arctic species *C. pachyderma* (Kjellman) Brand.

Genus *RHIZOCLONIUM* Kuetzing

Rhizoclonium africanum Kuetzing 1853: 21, pl. 67(2).

R. samoense Setchell 1924: 177, fig. 42. Dawson 1956: 33, fig. 13a.

Type. From Senegambia, Africa (in L, 939, 23...159).

Distribution. Probably widespread in tropical and subtropical seas.

Solomon Is. NEW GEORGIA: Matiu Is. (430, 458). FLORIDA Is.: Kokomtambu Is. (31), Tetel Is. (46). GUADALCANAL: Kukum (891g), Maraunibina Is. (598), Lauvie Is. (612c).

Best developed (at Matiu Is.) at a high intertidal (spray zone) level under shade, but found in other localities at a mid to upper eulittoral level.

This slender (40–65 μm thick), thick-walled *Rhizoclonium*, with cells 2–4 times as long as broad and fairly short, frequent rhizoids, is almost certainly the same as that usually recorded as *R. hookeri* Kuetzing from many tropical and subtropical localities (e.g. Taylor 1960, p. 77. Weber van Bosse 1913*a*, p. 85; 1926, p. 79. Valet 1968, p. 34). However, *R. hookeri* (type in L, 938, 19...42) was originally recorded from Kerguelen Island in the subantarctic region, and Chamberlain (1965, p. 187) has shown that *R. ambiguum* (Hooker & Harvey) Kuetzing is an earlier valid name for this species. Most authors have followed Stockmayer (1890, p. 584) in referring *R. africanum* to *R. hookeri*, but examination of the types in Leiden shows that they are distinct. *R. africanum* is generally more fleecy and slenderer than *R. ambiguum* (40–80 μm compared to 70–200 μm), has longer cells (2–4 compared to 1–1½ times as long as broad) and no or rare branches apart from the rhizoids. The occurrence of *R. ambiguum* is probably limited to the subantarctic and *R. africanum* to warm waters.

R. samoense Setchell (type from Tutuila Is., Samoa, in UC 233513) appears identical with the type of *R. africanum* and with the Solomon Is. plants.

Further study of the species of *Rhizoclonium* is needed to clarify their distribution. Cribb (1965, p. 263) suggests that comparisons of the above species with *R. capillare* Kuetzing (*Chaetomorpha capillaris* (Kuetzing) Boergesen) are warranted.

Family Anadyomenaceae

Genus *ANADYOMENE* Lamouroux

Anadyomene brownii (Gray) J. Agardh 1887: 127. Weber van Bosse 1913*a*: 75.

Calonema brownii Gray 1866: 46, pl. 44, fig. 3.

Type. From Australia (in BM).

Distribution. Northern Australia, Indonesia.

Solomon Is. KOLOMBANGARA: Dolo Cove (896d). GUADALCANAL: Komimbo (250), Cape Esperance (298), Paruru (770a), Maraunibina Is. (564, 758b), Untava (694).

Usually growing as isolated small plants (under 2 cm high) in pools (often shaded) on the inner reef in conditions of moderate wave action.

Order SIPHONOCLADALES

Family Valoniaceae

Genus *VALONIA* Ginanni

Valonia aegagropila C. Agardh. J. Agardh 1887: 99. Cribb 1960: 13. Dawson 1954*a*: 388, fig. 8j. Egerod 1952: 348, pl. 29b. Isaac & Chamberlain 1958: 137, fig. 11, pl. 4, fig. 2. Kuckuck 1907: 174, figs. 18–23. Levring 1960: 121. Taylor 1950: 41; 1960: 111, pl. 7, fig. 6. Weber van Bosse 1913*a*: 60.

Type. From Venice, Italy (in Herb. Agardh, LD).

Distribution. Mediterranean; widespread in the tropical Indian and Pacific Oceans and the Caribbean.

Solomon Is. GUADALCANAL: Maraunibina Is. (563). [Rennell Is. (Levring).]

A single collection from rubble on the reef, just below low tide level. The segments are 1–2 mm broad and 3–4 mm long, and the plant fits Egerod's description of Hawaiian material though the segments are rather shorter. See notes under *V. fastigiata* also.

Valonia fastigiata Harvey ex. J. Agardh 1887: 101. Boergesen 1936: 61. Dawson 1957: 101, fig. 1. Egerod 1952: 348. Kanda 1944: fig. 9A. Valet 1968: 35. Weber van Bosse 1913*a*: 61.

Type. From Ceylon (Harvey, Alg. Exsicc. Ceylon no. 74) (in Herb. Agardh, LD).

Distribution. Indian and Pacific Ocean tropics.

Solomon Is. RUSSELL Is.: Avuna (781). FLORIDA Is.: Tetel Is. (206). GUADALCANAL: Naro Pt. (268), Komimbo (112, 118, 256), Mamara (152), Rove (363), Kukum (181), Maraunbina Is. (555, 606), Lauvie Is. (614d), Waimia (646).

This is a common species in conditions of slight to moderate wave action, growing amongst coral rubble, in pools or in sheltered crevices on the reef rim, often shaded, and in masses up to 10 cm across.

The segments are 3–6 mm broad and 6–15 mm long. Nos. 112, 118, 256, 268, 555 and 614d are a larger, fastigiate form agreeing well with *V. fastigiata*. The largest form (646) has segments 4–6 mm broad and 8–15 mm long. The remaining plants are of a smaller, less fastigiate form, but from field experience are specifically the same as the larger forms and may have been growing in less favourable conditions. However, some of these small forms might be referred to *V. utricularis* by other authors (e.g. Dawson 1956, fig. 3).

The branched, segmented species of *Valonia* are a confused group in most areas. The first such species described is *V. utricularis* (Roth) C. Agardh (1820, p. 431) from the Mediterranean, followed by *V. aegagropila* C. Agardh (1820, p. 429) from the lagoons of Venice. Kuckuck (1907) described these species in detail, together with *V. macrophysa* Kuetzing (1843, p. 307) from the Adriatic. These three species are closely related and further clarification of their variation in the Mediterranean is needed. Weber van Bosse (1913*a*, p. 60) records both *V. utricularis* and *V. aegagropila* from Indonesia, together with *V. fastigiata* from Ceylon. Other authors (e.g. Taylor 1950, p. 41) have recorded these species from the tropical Pacific, but generally without comparisons with the Mediterranean plants or comparisons within the complex. Egerod (1952, pp. 348–9) however discusses relationships between the Hawaiian species (*V. aegagropila*) and *V. fastigiata* and *V. utricularis*.

Until the branched species of *Valonia* are monographed for the tropics in general, based on detailed studies of variation in the type localities, naming of the Indo-Pacific species is best regarded as tentative.

Valonia ventricosa J. Agardh. Egerod 1952: 347, pl. 29a. Levring 1960: 121. Taylor 1960: 110, pl. 9, figs. 4, 5. Valet 1968: 35.

Type. From St Croix, Virgin Islands (in Herb. Agardh, LD).

Distribution. Tropical oceans in general.

Solomon Is. New Georgia: Matiu Is. (450, 471). Russell Is.: Yandina (849), Avuna (774). Florida Is.: Kokomtambu Is. (5), Tetel Is. (85), Haroro (53, 59). Guadalcanal: Naro Pt. (281), Komimbo (110, 255), Kukum (179), Maraunibina Is. (599, 758d), Untava (674). [Rennell Is. (Levring).]

Growing amongst coral debris in calm areas and with local shelter on reefs on coasts of moderate roughness, just covered at low tide.

Genus *VALONIOPSIS* Boergesen

Valoniopsis pachynema (Martens) Boergesen 1934: 10, figs. 1, 2. Dawson 1957: 102, fig. 2. Papenfuss & Egerod 1957: 84. Taylor 1960: 113. Valet 1968: 38.

Valonia pachynema (Martens) Weber van Bosse 1913*a*: 61.

Type. From Sumatra.

Distribution. Tropics (and subtropics) of the Indian and Pacific Oceans.

Solomon Is. Russell Is.: Sifola (861), Lingatu Pt. (812).

Small plants in crevices on the reef rim, with moderate to heavy surf.

Genus *DICTYOSPHAERIA* Decaisne

Dictyosphaeria cavernosa (Forsskål) Boergesen. Egerod 1952: 350, figs. 1b–f, 2f, g. Levring 1960: 121. Setchell 1935: 261. Taylor 1950: 43, pl. 27, fig. 2. Valet 1968: 35.

Type. From the Red Sea (in C).

Distribution. Tropical Indian, Pacific and western Atlantic Oceans.

Solomon Is. Gizo Is.: New Manra (536). Russell Is.: Sifola (800, 833, 858), Lingatu Pt. (810). Florida Is.: Kokomtambu Is. (2), Tetel Is. (74). Guadalcanal: Komimbo (119), Cape Esperance (302), Mamara (147), Rove (895d), Paruru (627), Maraunibina Is. (561, 758c), Untava (675, 755d), Kopiu (734). San Cristobal: Huni R. mouth (895d). [Rennell Is. (Levring). Sikaiana Is. (Setchell).]

Common in coral debris and near the reef rim, with moderate to strong wave action.

Dictyosphaeria versluysii Weber van Bosse 1905: 144; 1913*a*: 64, pl. 2, fig. 6. Egerod 1952: 351, figs. 1a, 2h–k. Isaac & Chamberlain 1958: 133, pl. 3, fig. 2. Valet 1966: 256, figs. 1–2; 1968: 36, pl. 6, fig. 6.

D. australis Setchell 1926: 79, pl. 8, figs. 9, 10; 1935: 261. Valet 1966*a*: 256.

Type. From Indonesia (in L, 962, 220...338).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. Gizo Is.: New Manra (511). New Georgia: Matiu Is. (395), Ulukoro Is. (497b), Batuona Is. (503). Russell Is.: Sifola (803, 834, 859, 880, 882), Lingatu Pt. (820b).

GUADALCANAL: Cape Esperance (301), Mamara (148), Kukum (199), Paruru (628), Maraunibina Is. (593), Untava (697), Waimia (644). [Sikaiana Is. (Setchell).]

Common on the reef rim under moderate to strong wave action.

All specimens of *Dictyosphaeria* with a solid thallus showed spinulose trabeculae in at least some cells, and also furcate hapteroid cells as illustrated by Egerod. Valet (1966) discusses the synonomy of this species.

Family Siphonocladaceae

Genus *BOERGESENIA* Feldmann

Boergesenia forbesii (Harvey) Feldmann 1938: 14, figs. 3–5. Dawson 1954*a*: 388, fig. 8d. Valet 1968: 37.

Valonia forbesii Harvey. Boergesen 1936: 62, fig. 1.

Type. From the Loo Choo Islands (in TCD).

Distribution. Indian and western Pacific Ocean tropics.

Solomon Is. NEW GEORGIA: Ulukoro Is. (491). RUSSELL Is.: Avuna (782), Sifola (489). FLORIDA Is.: Tetel Is. (136). GUADALCANAL: Naro Pt. (272), Cape Esperance (892), Kukum (197), Paruru (623), Maraunibina Is. (591, 758e), Pidgeon Is. (721), Untava (681), Kopiu (661, 736).

Occurring in relatively calm conditions at the rear of reefs, in shallow water or just exposed at low tide, sometimes in colonies over several square metres of reef.

Genus *CLADOPHOROPSIS* Boergesen

Cladophoropsis sundanensis Reinbold 1905: 147; in Weber van Bosse 1913*a*: 77, fig. 18. Boergesen 1934: 8; 1935: 10, fig. 1; 1940: 21. Cribb 1960: 10. Dawson 1956: 30, fig. 8. Dawson *et al*. 1955: 10.

Type. From Kangeang (in L, 937, 279...372).

Distribution. Tropical and subtropical Indian and western Pacific oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (463c). RUSSELL Is.: Lingatu Pt. (820e, 827a). FLORIDA Is.: Tetel Is. (41). GUADALCANAL: Maraunibina Is. (560, 762b), Lauvie Is. (612a, 613), Kopiu (737b).

Growing as small tufts or a mat at a lower to mid-eulittoral level, often with some shade, usually at the rear of reefs; wave action slight to moderate.

These collections agree well with the species. Nearly all side branches lack a basal septum, the segments are irregular in length, mostly 80–100 μm thick, and a few (sometimes very few) descending rhizoids occur.

Cladophoropsis zollingeri (Kuetzing) Boergesen 1905: 288; 1933*a*: 1, fig. 1. Howe 1914: 31. Reinbold in Weber van Bosse 1913*a*: 76. Valet 1968: 40.

Cladophora zollingeri Kuetzing 1849: 415; 1854: 14, pl. 64, fig. II.

Type. From Java (in L, 937, 276...41, isotype in BM).

Distribution. Tropical Indo-Pacific Ocean.

Solomon Is. NEW GEORGIA: Batuona Is. (500).

Forming a loose and extensive mat at a mid-eulittoral level under tree shade on the sheltered side of the island.

The thallus has long segments, 180–250 μm thick, and at each of the few cross walls a descending rhizoid occurs. It agrees well with isotype material in the BM although less matted.

Taylor (1950, p. 44) records *C. zollingeri* from Bikini, but Dawson (1956, p. 31) considers Taylor's record is referable to *C. sundanensis*. Cribb (1960, p. 11) regards *C. zollingeri* as very doubtfully distinct from *C. herpestica* (Mont.) Howe, and these species certainly are closely related. The Solomon Is. plants however are much looser in their growth and have thinner walls than the dense mats of thick walled filaments typical of *C. herpestica*.

Genus *SPONGOCLADIA* Areschoug

Spongocladia vaucheriaeformis Areschoug. Boergesen 1946: 17; 1948: 23. Gerloff 1960: 612, fig. 1. Lucas 1935: 196. Murray & Boodle 1888*a*: 175, figs. 8–11. Papenfuss 1950: 208, fig. 1a. Taylor 1966*b*: 348. Weber van Bosse 1913*a*: 86.

Cladophoropsis vaucheriaeformis (Aresch.) Papenfuss 1958: 104. Cribb 1960: 11, pl. 4, figs. 1–4.

Type. From Mauritius (in S?).

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. Florida Is.: Tetel Is. (143). Guadalcanal: Komimbo (122).

Growing on coral debris in sandy areas of calm reefs, just covered at low tide.

These two specimens consist largely of the basal felt and a few, small upright growths. They agree in filament thickness with *S. vaucheriaeformis* and are less than half as thick as in *S. neocaledonica* which consists only of a felt-like mat.

Papenfuss (1950, p. 208) considers *Spongocladia* is congeneric with *Cladophoropsis* and transfers (1958, p. 104) this species to the latter genus. However, the form of the species of *Spongocladia* is relatively distinct from that of *Cladophoropsis* and does not appear to be due simply to the common presence of a sponge. *Spongocladia* is here maintained as a genus, as in Taylor (1966*b*, p. 349).

Family Boodleaceae

Genus *BOODLEA* Murray & De Toni

Boodlea coacta (Dickie) Murray & De Toni ex Murray 1889: 245, pl. 49. Chihara 1955: 9, figs. 1–5. Valet 1968: 39.

Type. From Osima, Japan (in BM).

Distribution. From Japan through the western Pacific Ocean to New Caledonia.

Solomon Is. New Georgia: Matiu Is. (396). Guadalcanal: Untava (727).

As tufts in the lower eulittoral near the reef edge, in moderate wave action. This species appears distinct from *B. composita* in that the branches and cells are of fairly uniform size, apical branching is irregularly lateral, and it forms dense, hemispherical tufts. It agrees fairly well with the description of Murray, but is somewhat slenderer and softer than the type in the BM. Studies on the variation within this species are needed to confirm the Solomon Is. species as *B. coacta*.

Boodlea composita (Harvey) Brand 1905: 187, pl. 6, figs. 28–35. Boergesen 1940: 21, fig. 6; 1946: 15, fig. 5. Cribb 1960: 14. Dawson 1956: 30. Egerod 1952: 362, pl. 32a, fig. 6a. Reinbold in Weber van Bosse 1913*a*: 71. Taylor 1950: 44. Valet 1968: 38.

Type. From Mauritius (in TCD).

Distribution. Widespread in the tropical and subtropical Indian and Pacific Oceans.

Solomon Is. New Georgia: Matiu Is. (407, 462b). Russell Is.: Yandina (851), Avuna (772), Sifola (797, 837, 857b, 880), Lingatu Pt. (811, 823). Florida Is.: Tetel Is. (48, 76, 82). Guadalcanal: Naro Pt. (275), Komimbo (117a), Cape Esperance (310, 342), Mamara (149, 155). Kukum (891b), Paruru (625). Maraunibina Is. (556, 590, 758f), Untava (692c), Kopiu (737).

A common alga on most reefs except in surf-swept areas. This is a variable species and young plants may be difficult to separate from young *Struvea anastomosans*. The genus is in need of monographic revision, on the basis of field and culture studies.

Boodlea montagnei (Harvey ex Gray) Egerod 1952: 332. Papenfuss & Egerod 1957: 83.
Microdictyon montagnei Harvey. Gilbert 1961: 422, fig. 1; 1962: 141, fig. 5A. Reinbold in Weber van Bosse 1913*a*: 67. Setchell 1926: 78; 1929: 573, fig. 97–105.
Boodlea paradoxa Reinbold 1905: 148.

Type. From Tonga (Friendly Is.) (in BM).

Distribution. Indian and western Pacific Ocean tropics.

Solomon Is. Florida Is.: Tetel Is. (135). Guadalcanal: Komimbo (238, 239), Untava (676).

In shallow areas, mid reef, in moderate to calm wave action.

Boodlea vanbosseae Reinbold 1905: 148; in Weber van Bosse 1913*a*: 70, fig. 12. Cribb 1960: 15. Dawson 1956: 29, fig. 6. Gepp & Gepp 1908: 165.

Type. From Lucipara Is. (Banda Sea), Indonesia (in L, 936, 181...349).

Distribution. Tropical Indo-Pacific; S.E. Queensland.

Solomon Is. New Georgia: Matiu Is. (436).

Forming a mat at a mid-eulittoral level under tree shade, on the inner, sheltered, side of the island.

This collection agrees well with *B. vanbosseae*. The cushions consist of irregularly branched filaments, mostly 175–250 μm thick with cells 4–8 times as long as broad, and with numerous rhizoids arising from above the lower septum of the cells, each with a spreading attachment end. An end cell (tenaculum) is not always cut off, though a cross wall is commonly present somewhere along the rhizoid; both Reinbold and Dawson comment that tenacula may be sparse.

Genus *STRUVEA* Sonder

Struvea anastomosans (Harvey) Piccone and Grunow ex Piccone. Boergesen 1913: 54, fig. 39. Cribb 1960: 1. Dawson 1956: 30. Egerod 1952: 359, pl. 31, fig. 4.
Cladophora anastomosans Harvey 1859*a*: pl. 101.
Struvea delicatula Kuetzing. Murray & Boodle 1888*b*; 281, figs. 6–8. Reinbold in Weber van Bosse 1913*a*: 65. Valet 1968: 37.

Type. From Fremantle, Western Australia (in TCD).

Distribution. Tropical and subtropical (to warm temperate) oceans.

Solomon Is. Kolombangara: Dolo Cove (896e). New Georgia: Matiu Is. (408b). Russell Is.: Avuna (783). Florida Is.: Tetel Is. (82a). Guadalcanal: Komimbo (117b), Mamara (145), Rove (894d), Kukum (176), Paruru (624), Untava (692a, 700, 701), Kopiu (738).

Usually as small, scattered plants on the reef flat or near the rim, just below low tide level, and often associated with *Boodlea composita*. The variation, with age and habitat, needs further study.

No. 738, from a rough locality, showed rather irregular branching not strictly confined to one plane. Cribb (1960, p. 14) considers *S. tenuis* Zan. is probably only a form of *S. anastomosans*, and this appears likely from the range of form, especially of young plants, in the Solomon Islands collections.

Order CODIALES

Family Bryopsidaceae

Genus *BRYOPSIS* Lamouroux

Bryopsis indica Gepp & Gepp 1908: 169, pl. 22, figs. 10, 11. Cribb 1954: 18. Dawson 1956: 34, fig. 14. Levring 1960: 122. Taylor 1950: 50. Weber van Bosse 1913*a*: 93.

Type. The original description of *B. indica* gives for localities—'Coetivy. Chagos Archipelago: Coin, Peros—Also Ceylon, *Harvey!* no 99 Alg. exsicc. Ceylon. Mauritius, Pike! Gabriel Island, May 22/71.' Only the Ceylon and Mauritius specimens were found under *B. indica* in BM (March 1968), both labelled 'Type Specimen'.

Distribution. Tropical and subtropical Indian and Pacific Oceans.

Solomon Is. Gizo Is.: New Manra (547). New Georgia: Matiu Is. (406), Ulukoro Is. (492, 497a). Russell Is.: Avuna (791). Guadalcanal: Cape Esperance (313, 327, 892c), Rove (367), Honiara (376), Kukum (178, 891d), Untava (678, 698), Waimia (645). [Rennell Is. (Levring).]

Low eulittoral or just sublittoral near the reef rim, often in crevices, and subject to moderate to strong wave wash.

Distinctions between *B. indica* and the earlier described *B. australis* Sonder from Western Australia have been discussed previously (Womersley 1956, p. 362). Both species have the ramuli arranged similarly and vary considerably in both arrangement and robustness. While *B. indica* may prove to be synonymous with *B. australis*, they are left separate pending a study of the species of *Bryopsis* in Western Australia and their variation.

The relationship between *B. indica* and *B. pennata* Lamouroux (with its var. *secunda*) also needs clarifying. The Solomon Is. specimens vary considerably depending on age and habitat. The most luxuriant specimens (891d, 892c) were from medium roughness and late in the year (late October, November). The whole, or part, of the tufts shows the characteristic arrangement of ramuli in distichous rows, each row consisting of two slightly separated, irregular, rows. Many plants, or parts of tufts, are strongly secund with a double row only on one side or sometimes more than the two adjacent rows. The plants in general are small ($\frac{1}{2}$ to 3 cm high) and often stunted under rough conditions. The lower axes are bare, 200 to 500 μm thick, and the ramuli (55–) 75–100 μm thick and $\frac{1}{2}$–1 (–2) mm long.

Cribb (1954, p. 18, pl. 1, fig. 3) has segregated such secund forms as f. *unilateralis*, but this is not warranted for the Solomon Island specimens.

B. pennata was described from the West Indies and is described and figured as having strictly distichous ramuli, not in two close but irregular rows on each side. Secund forms are common—e.g. *B. harveyana* J. Agardh (from Florida) figured by Vickers & Shaw (1908, pl. 51) and now usually regarded as a form of *B. pennata*.

In the Pacific, both *B. pennata* and *B. indica* have been recorded by Dawson (1956, p. 34; 1957, p. 104), Taylor (1950, pp. 50, 51) and Weber van Bosse (1913*a*, p. 92). Egerod (1952, p. 370) in recording only *B. pennata* from the Hawaiian Is., comments that some plants show a distichous arrangement of two closely adjacent rows on each side; she refers to Setchell (1924, p. 174) who records *B. harveyana* from Samoa but makes no comparison with *B. indica*. Although the Gepps in their original description referred Harvey's no. 99 from Ceylon to *B. indica*, neither Boergesen (1936, p. 67) nor Durairatnam (1961, p. 25) mention this species but instead record *B. pennata*.

It appears likely that in the Indo-Pacific region the same taxon has been referred to both *B. indica* and *B. pennata*. Studies, based on liquid collections and if possible culture work, are needed to clarify the situation.

B. pennata var. *secunda* described by Steentoft (1967, p. 110) from tropical west Africa also appears similar to *B. indica* and this one taxon may be pantropical.

Genus *PSEUDOBRYOPSIS* Berthold

Pseudobropsis solomonensis sp.nov.

(Figure 2; figure 11, plate 24)

Thallus to 2 cm high, with numerous axes from a rhizoidal base. Axes 200–450 μm diam., with a wall 6–12 μm thick, tapering to a slender apex overtopped by ramuli. Ramuli simple, basally swollen, $\frac{1}{2}$–1 mm long and 25–55 μm diam. (80–100 μm at swollen base), densely surrounding the axes. Chloroplasts round to ovoid or lenticular, 4–7 μm long in ramuli, to 17 μm long in axes, usually with pointed ends and with a single pyrenoid. Gametangia single, usually adaxial near the base of the ramulus, elongate ovoid, not mucronate but developing an apical excrescence, 100–200 (–250) μm long and 60–100 μm broad.

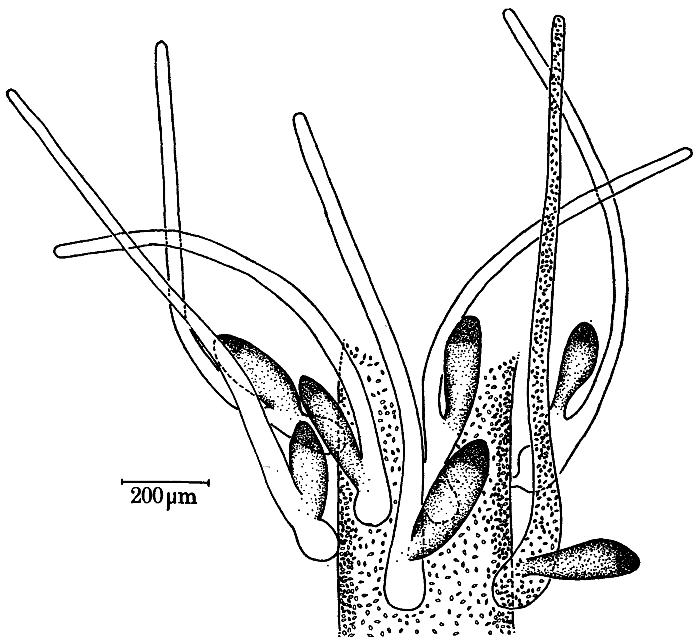

FIGURE 2. *Pseudobryopsis solomonensis* (no. 394, TYPE). Median part of axis with ramuli bearing gametangia.

Thallus ad 2 cm alt. Axes 200–400 μm diam., apicibus tenuibus. Ramuli simplices, basibus inflatis, $\frac{1}{2}$ to 1 mm long., 25–50 μm diam., in axibus crebre exorientes. Chloroplasti globosi, ovoidei, vel lenticulares, 4–7 (–17) μm long., cum pyrenoide una. Gametangia elongata ad

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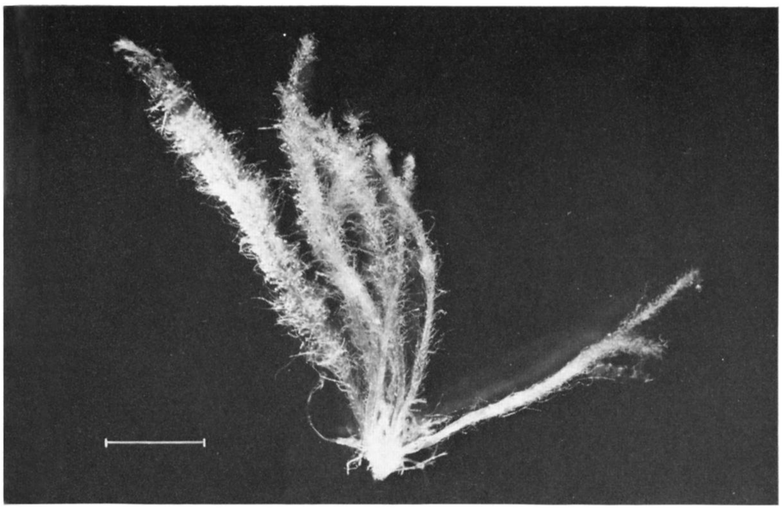

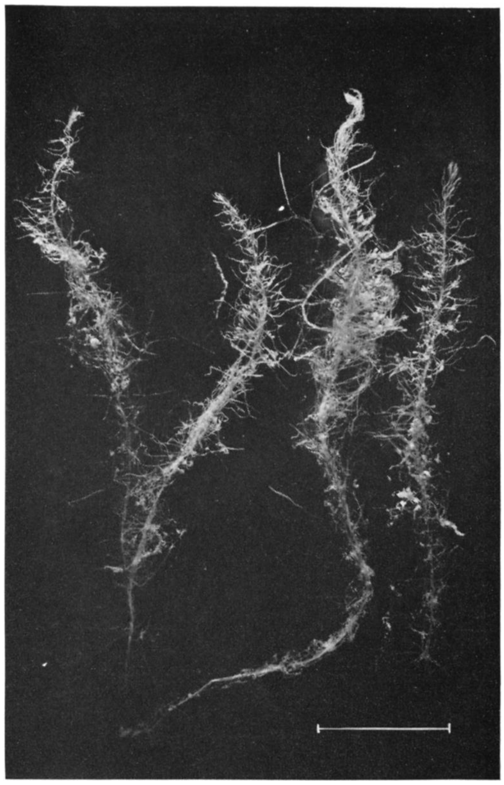

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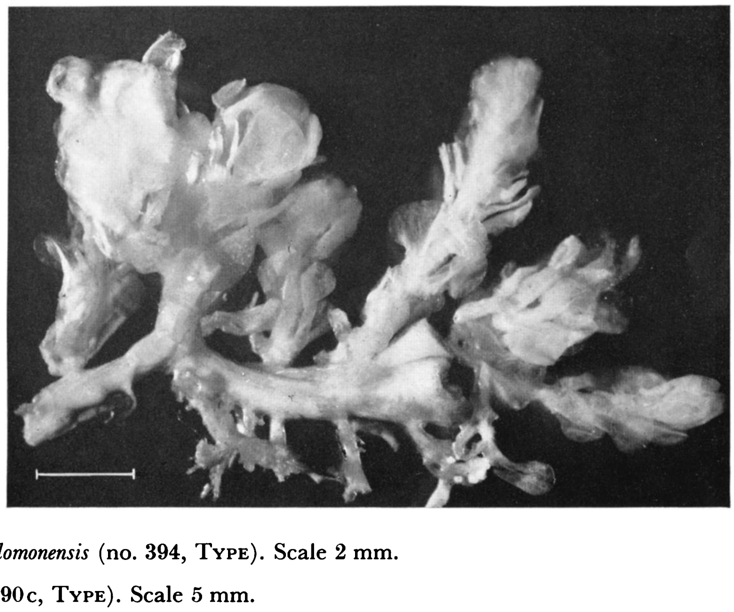

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FIGURE 11. *Pseudobryopsis solomonensis* (no. 394, TYPE). Scale 2 mm.

FIGURE 12. *P. gracilis* (no. 490c, TYPE). Scale 5 mm.

FIGURE 13. *Caulerpa spathulata* (no. 895c, TYPE). Scale 2 mm.

FIGURE 14. *Sargassum coriifolium* (no. 804). Scale 2 cm.

(*Facing p.* 272)

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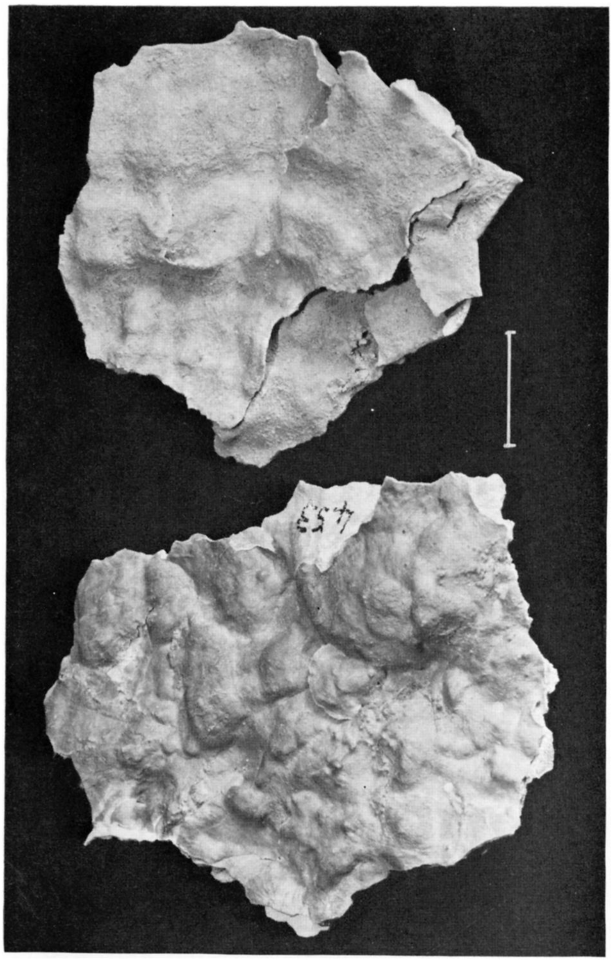

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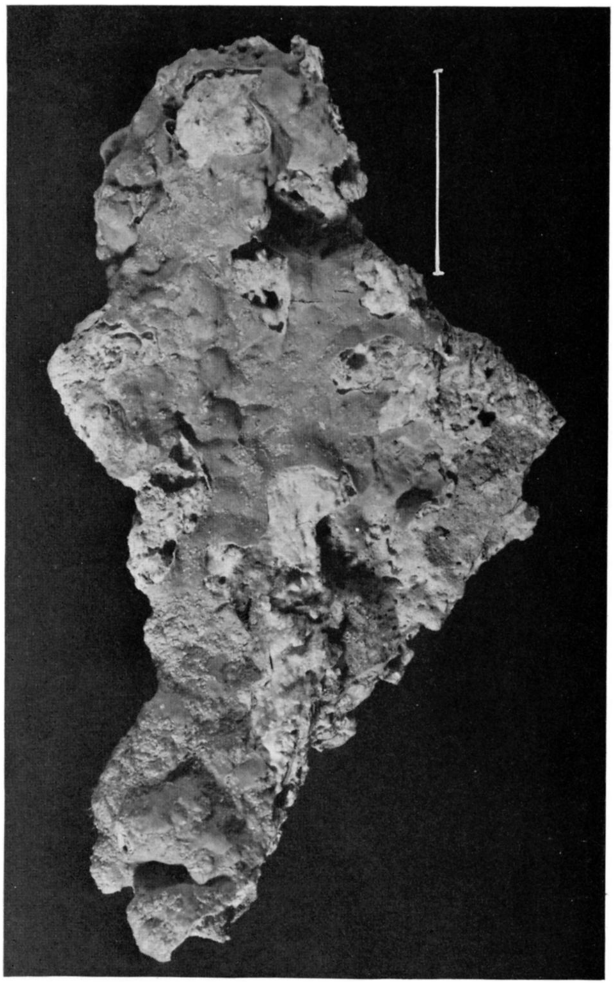

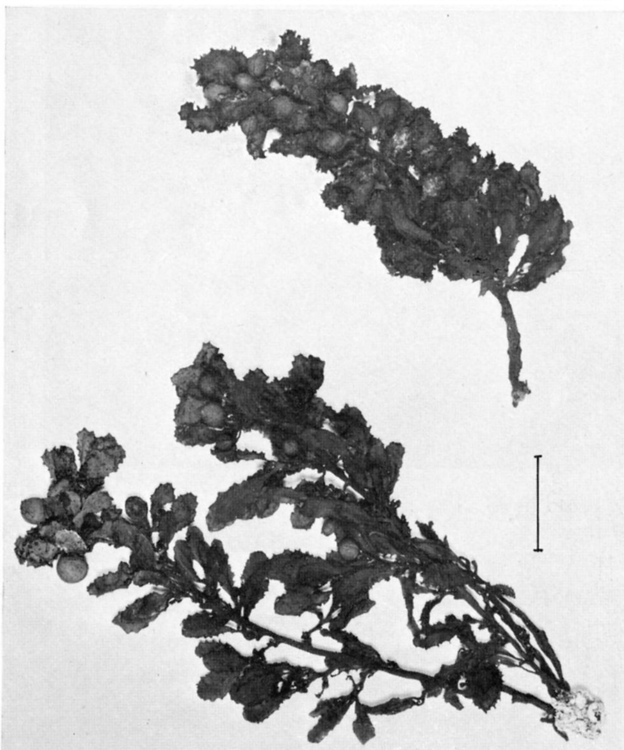

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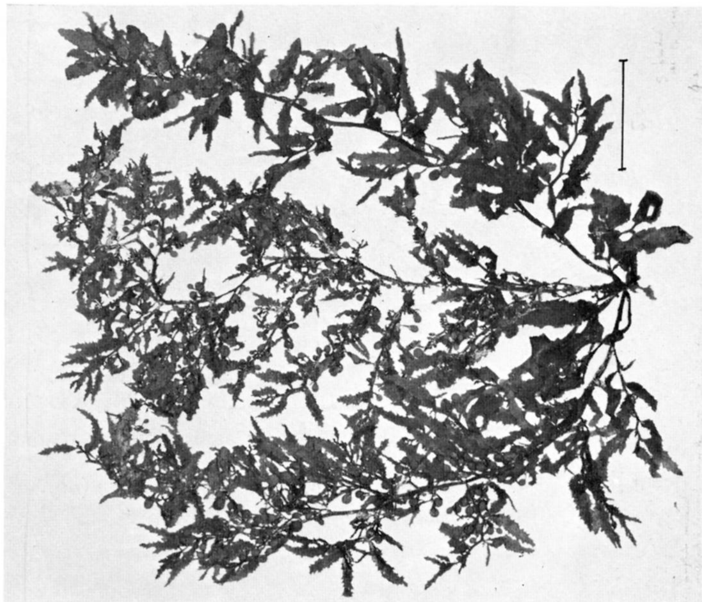

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FIGURE 15. *Sargassum cristaefolium* (no. 477). Scale 2 cm.

FIGURE 16. *Sargassum oligocystum* (no. 474a). Scale 5 cm.

FIGURE 17. *Peyssonelia neocaledonica* (no. 453). Scale 2 cm.

FIGURE 18. *Peyssonelia* sp. (no. 454). Scale 2 cm.

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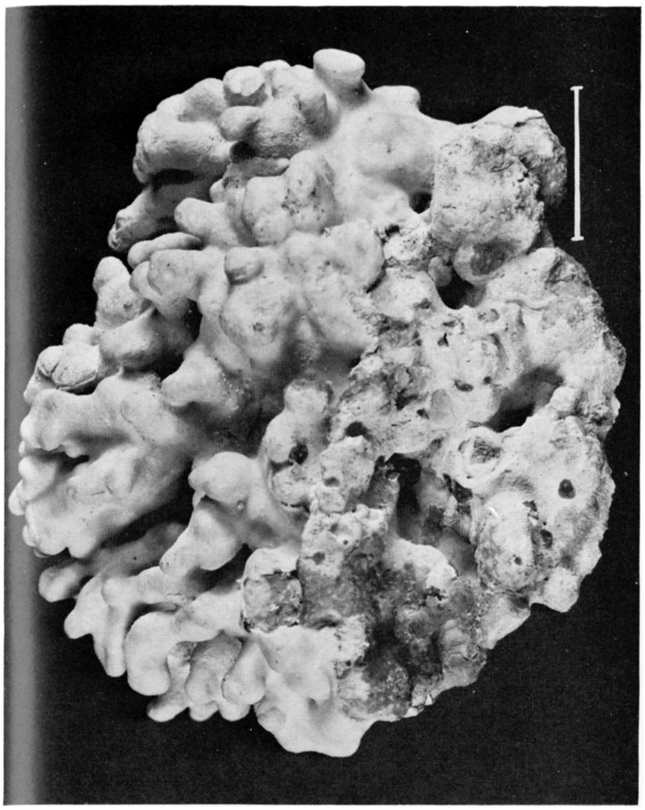

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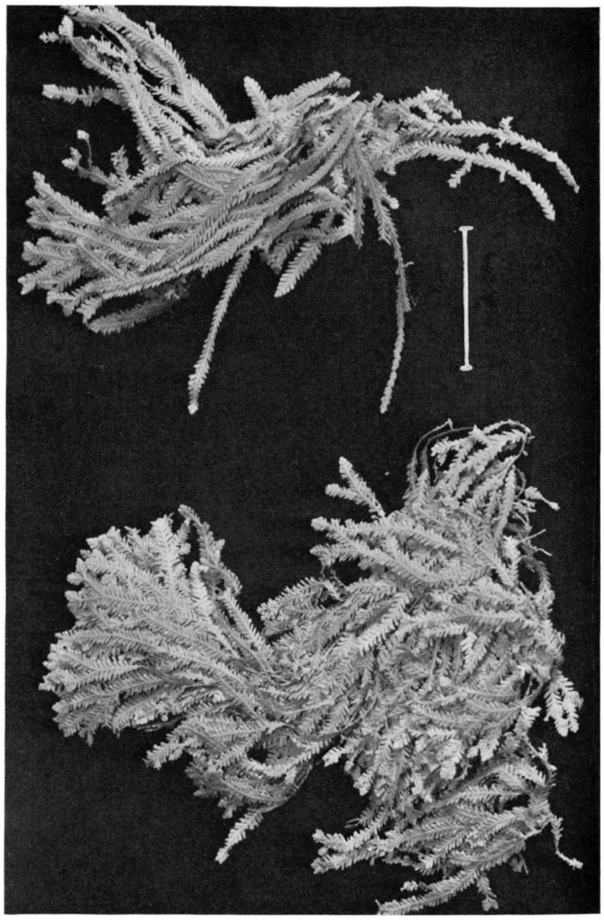

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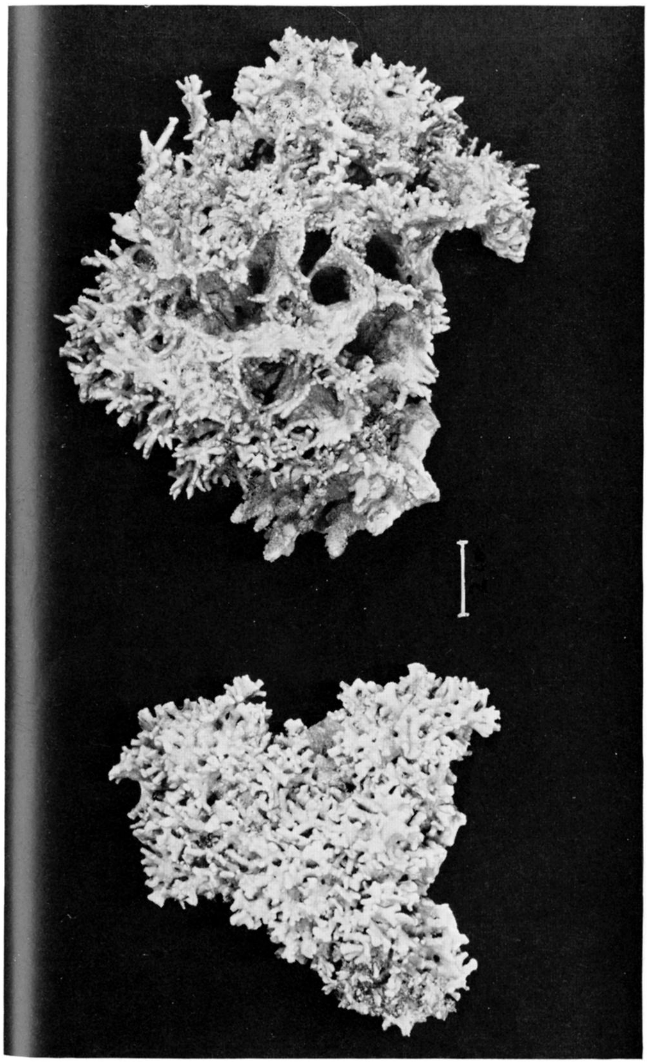

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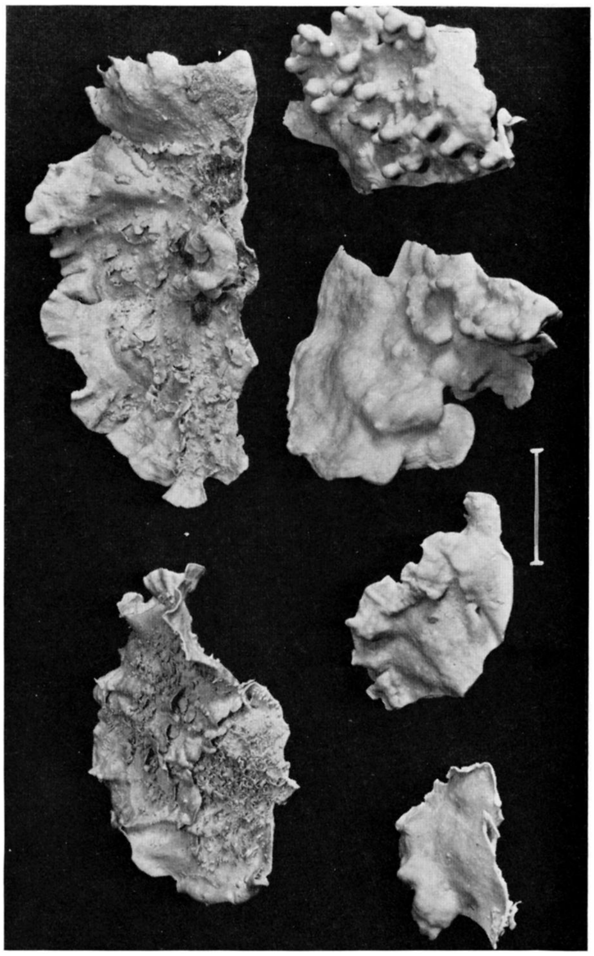

FIGURE 19. *Lithophyllum moluccense* (no. 168). Scale 2 cm.

FIGURE 20. *Lithophyllum* sp. (no. 571). Scale 2 cm.

FIGURE 21. *Neogoniolithon megalocystum* (no. 452). Scale 2 cm.

FIGURE 22. *Cheilosporum spectabile* (no. 533). Scale 2 cm.

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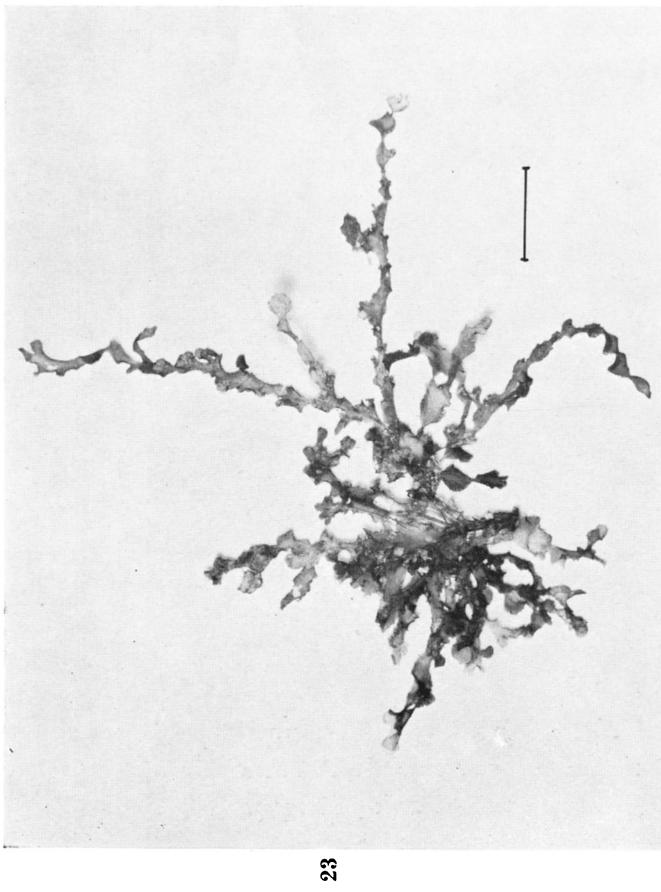

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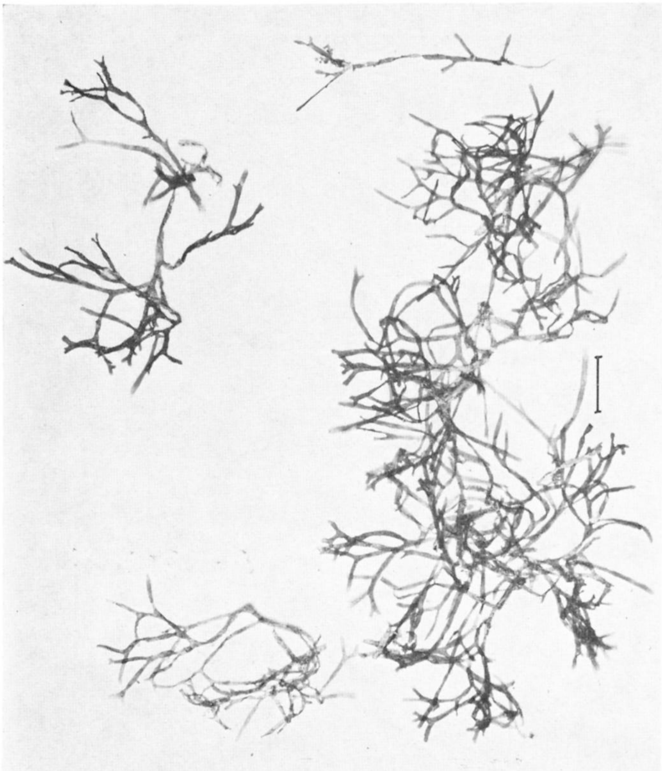

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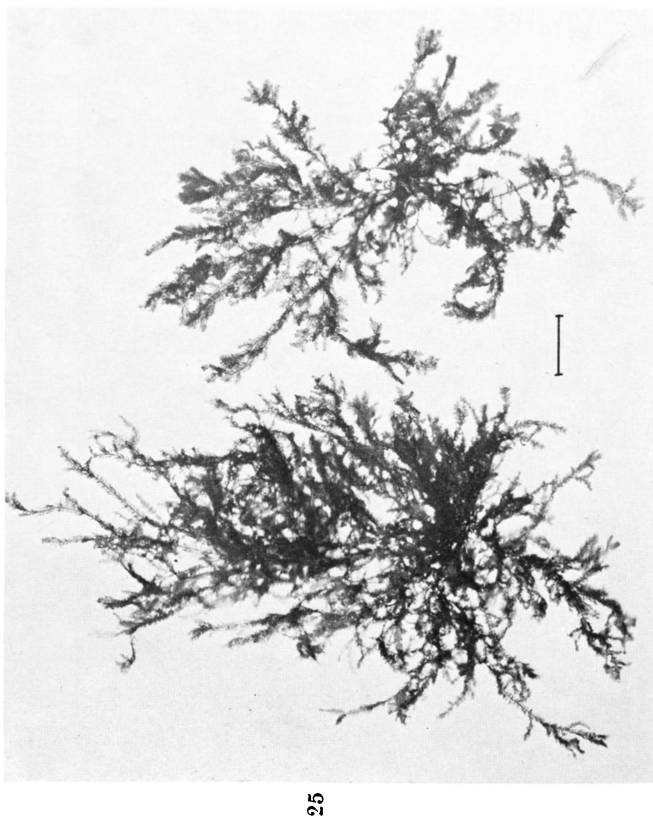

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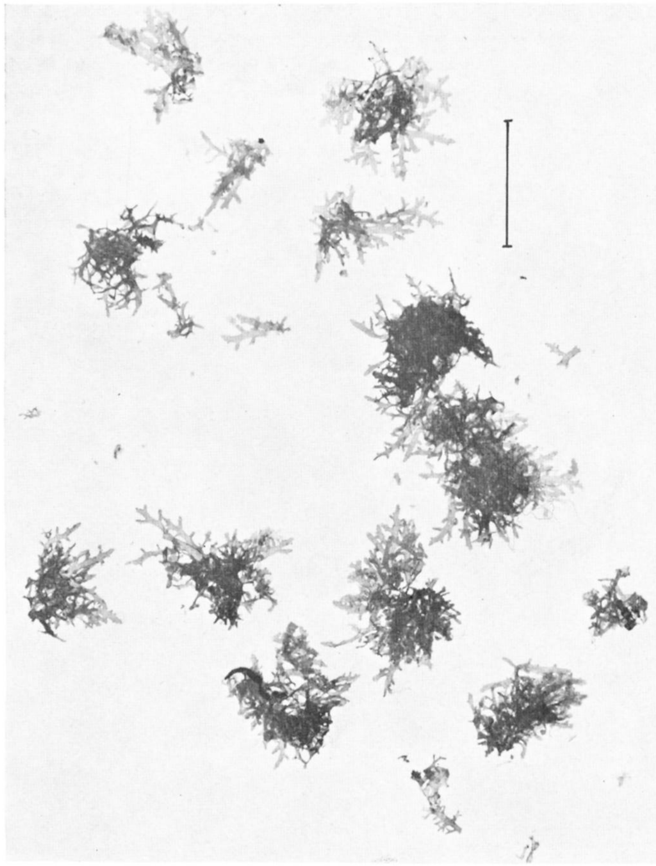

FIGURE 23. *Cryptonemia decolorata* (no. 499a). Scale 2 cm.

FIGURE 24. *Cryptonemia subdichotoma* (no. 445). Scale 2 cm.

FIGURE 25. *Dasyphila plumarioides* (no. 418). Scale 2 cm.

FIGURE 26. *Chondria intricata* (no. 401a). Scale 2 cm.

ovoidea, 100–200 (–250) μm long., 60–100 μm lat., singulariter prope basem ramuli exorientia.

Type. From Matiu Is., New Georgia (no. 394); holotype in ADU (isotypes distributed to other herbaria).

Distribution. Only known from the type locality (nos. 394 and 469b).

These plants formed a fairly dense covering, in one small area, on finger *Acropora* coral near the reef edge on the outer side of Matiu Is., subject to strong wave surge.

Since the establishment of *Pseudobryopsis* in 1881, with the type species *P. myura* (J. Agardh) Berthold from the Mediterranean, some nine more species have been described (Diaz-Piferrer 1965) from tropical and subtropical oceans. Each species is known from a relatively limited area and it would seem that each locality has its own species. However, age and ecological variations within any species are almost unknown and critical studies on specific variability are needed prior to a generic monograph.

This Solomon Is. species (and the following) differs in size, dimensions and chloroplast structure from other species and appears distinct. The apical excrescence on the gametangia is probably the early stage of pore formation preceding liberation of gametes. *P. solomonensis* is nearest to *P. parva* Dawson (1954*a*, p. 393) from Nha Trang, but Dawson's slide of D 11375 (in AHFH) shows a considerably slenderer plant. *P. hainensis* Tseng (1936, p. 171, figs. 27, 28) is also closely related but differs in its mucronate gametangia and in its dimensions, including those of the chloroplasts.

Pseudobryopsis Berthold 1881 is antedated by *Trichosolen* Montagne 1860 (Taylor 1962), but conservation of the former name is advocated by Diaz-Piferrer (1965, p. 472). In view of the wide use of *Pseudobryopsis* for some 10 species and virtual absence of references to *Trichosolen* until 1962, it seems reasonable to support the former name for conservation.

Pseudobropsis gracilis sp.nov.

(Figure 3; figure 12, plate 24)

Thallus to 2.5 cm high, with several axes from a loose rhizoidal base. Axes 100–160 μm diam., tapering to a slender apex overtopped by ramuli. Ramuli simple or occasionally once branched, not basally swollen, 1–2 mm long and 28–55 μm diam., loosely arranged on axes. Chloroplasts ovoid and 7–9 μm long in ramuli, lenticular and 15–25 μm long in axes, with a pyrenoid. Gametangia single or 2 per ramulus, usually adaxial but distant from base of ramulus, not mucronate, clavate, 200–260 μm long and 80–110 μm broad.

Thallus ad 2.5 cm alt. Axes 100–160 μm diam., apicibus tenuibus. Ramuli simplices vel semel ramosi, 1–2 mm long., 50–80 μm diam., in axibus laxe exorientes. Chloroplasti ovoidei vel lenticulares, 7–9 (–25) μm long., cum pyrenoide una. Gametangia clavata, 200–260 μm long., 80–110 μm lat., 1–2 distantia ab base ramuli exorientia.

Type. From Yandina, Russell Is. (490c); holotype in ADU, isotype in BM.

Distribution. Only known from the type locality.

This species occurred as a felt on stones at a lower eulittoral level near the wharf at Yandina, under very calm conditions.

P. gracilis differs from *P. solomonensis* in its slender axes, fewer, longer and not basally swollen ramuli with more distant gametangia, and somewhat larger chloroplasts. While these features appear to separate it specifically from *P. solomonensis*, the possibility of it being a calm water form of this species needs investigation.

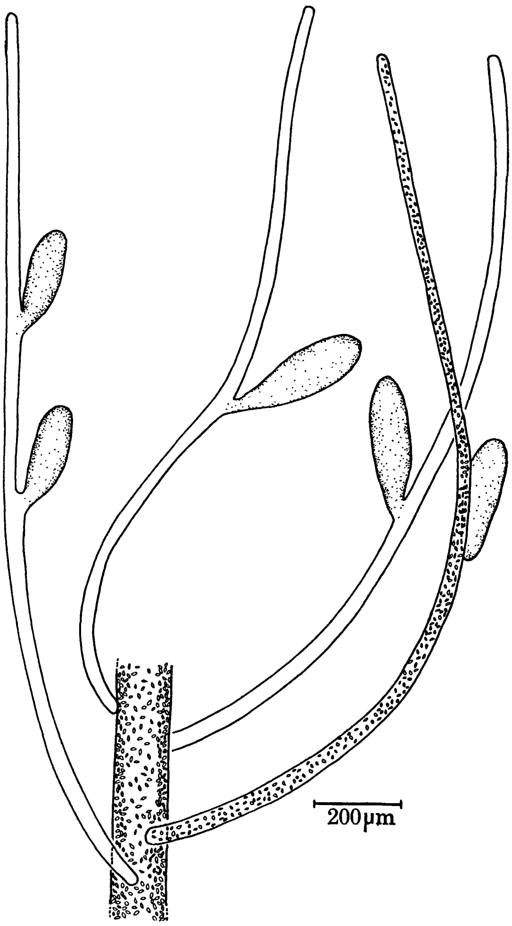

FIGURE 3. *Pseudobryopsis gracilis* (no. 490c, TYPE). Median part of axis with ramuli bearing gametangia.

Family Codiaceae

Genus *CODIUM* Stackhouse

Codium geppii Schmidt 1923: 50, fig. 33. Dawson 1956: 39, fig. 26. Valet 1968: 41, pl. 10, fig. 5.

C. divaricatum Gepp & Gepp 1911; 136, figs. 195–199. Weber van Bosse 1913*a*: 119.

Lectotype. From Elat, Kei Islands (in L, 938, 7...518).

Distribution. Indo-Pacific tropics.

Solomon Is. NEW GEORGIA. Matiu Is. (404). FLORIDA Is.: Tetel Is. (131). GUADALCANAL: Komimbo (260), Rove (365), Paruru (630).

Small, isolated plants a few cm high, on debris in the reef moat or near the rim, subject to slight to moderate wave action.

Order CAULERPALES

Family Caulerpaceae

Genus *CAULERPA* Lamouroux

Caulerpa cupressoides (Vahl) C. Agardh var. **cupressoides**.

var. *typica* Weber van Bosse 1898: 327, pl. 27, figs. 1–3, pl. 28, fig. 1; 1913*a*: 103. Boergesen 1907: 368, figs. 14–16; 1913: 135, figs. 109–111.

Type. From St Croix, Virgin Islands (in C).

Distribution. Western tropical Atlantic, tropical Indian and western Pacific oceans.

Solomon Is. Gizo Is.: New Manra (514). Guadalcanal: Naro Pt. (277), Komimbo (236c, 251a).

In pool areas of the moat, with moderate wave wash. No. 277 is fragmentary, but the other specimens agree well with the typical variety of *C. cupressoides*.

C. **cupressoides** var. **mamillosa** (Montagne) Weber van Bosse 1898: 332, pl. 28, figs. 2–7. Boergesen 1907: 368, fig. 13; 1913: 135, fig. 108. Levring 1960: 122. Taylor 1960: 146, pl. 15, fig. 4. Setchell 1935: 261.

Type. Of var. from Galega Is. or Mangareva Is. (in PC); lectotype to be selected.

Distribution. Tropical and subtropical Atlantic Ocean; tropical western Pacific Ocean.

Solomon Is. Gizo Is.: New Manra (520). [Rennell Is. (Levring), Sikaiana Is. (Setchell).]

Growing in outer pools near the rim, under strong wave action. The ramuli are irregular, crowded, and the young ones distinctly apiculate. Setchell (1935, p. 261) also recorded var. *lycopodium* (C. Ag.) Weber van Bosse from Bellona Is.

Caulerpa lentillifera J. Agardh. Eubank 1946; 418, fig. 2k, l. Nizamuddin 1967: 158, figs. 1–13, pl. 1. Taylor 1950: 67. Weber van Bosse 1898: 380, pl. 34, figs. 1–2; 1913: 112.

Type. From the Red Sea (in LD, 16851).

Distribution. Tropical and subtropical Indian and western Pacific Oceans.

Solomon Is. Guadalcanal: Komimbo (113, 330), Untava (710).

Occasional plants only, in sandy moat areas with coral rubble.

Caulerpa peltata Lamouroux. Taylor 1960: 155, pl. 17, fig. 2, pl. 18, fig. 1. Weber van Bosse 1898: 373, pl. 31, fig. 9; 1913*a*: 110.

Type. Locality unknown (type in CN?).

Distribution. All tropical seas.

Solomon Is. New Georgia: Matiu Is. (416), Batuona Is. (508). Russell Is.: Lingatu Pt. (824). Florida Is.: Tetel Is. (69, 89). Guadalcanal: Naro Pt. (276), Komimbo (111, 265), Cape Esperance (304), Rove (366), Kukum (174), Untava (711b).

Growing near the reef rim and within the moat, just sublittoral, subject to moderate to strong wave action.

C. peltata is often classed as a variety of *C. racemosa* (e.g. Eubank 1946, p. 421). The Solomon Is. plants however appear to be specifically distinct in that the stolon is slender compared to *C. racemosa* and the ramuli are scattered, single or a very few together, and are truly peltate, with a slender stalk capped by a flat, very thin disk. While some forms of *C. racemosa* approach this, their ramuli are always somewhat inflated terminally.

Caulerpa racemosa var. **laetevirens** (Montagne) Weber van Bosse 1898: 366, pl. 33, figs. 8, 16–22; 1913*a*: 106. Dawson 1957: 106, fig. 9. Svedelius 1906*a*: 124, fig. 19. Taylor 1950: 64; 1960: 153. Valet 1968: 45, pl. 8, fig. 1.

Type. Of var. from Toud Is. (Torres Strait) (in PC).

Distribution. Tropical and subtropical oceans in general.

Solomon Is. Gizo Is.: New Manra (518).

In mid and outer moat pools, with moderate to strong wave wash. This is the only collection agreeing with var. *laetevirens*, distinguished by abundant, overlapping, clavate ramuli which expand evenly from base to apex.

C. racemosa var. **macrophysa** (Kuetzing) Taylor 1928: 101, pl. 12, fig. 3, pl. 13, fig. 9; 1950: 63; 1960: 153, pl. 17, fig. 1, pl. 18, fig. 2. Eubank 1946: 420, fig. 2n. Setchell 1935: 261.

Type. Of variety from Central America (in Herb. Sonder, MEL?).

Distribution. Tropical oceans in general.

Solomon Is. FLORIDA Is.: Tetel Is. (39, 141h, 204), Haroro (56). GUADALCANAL: Paruru (719), Maraunibina Is. (588). [Sikaiana Is. (Setchell).]

A sublittoral variety (to 9 m at Paruru) in relatively calm localities.

C. racemosa var. **occidentalis** (J. Agardh) Boergesen 1907: 384, figs. 28, 29. Taylor 1928: 102, pl. 12, fig. 5, pl. 13, fig. 8; 1960: 153, pl. 17, fig. 6, pl. 18, fig. 5.

Type. Of variety from Atlantic Mexico (in LD).

Distribution. Tropical oceans in general.

Solomon Is. GIZO Is.: New Manra (519). RUSSELL Is.: Sifola (483, 864). FLORIDA Is.: Tetel Is. (132). GUADALCANAL: Kimombo (97, 103, 236a), Kukum (173a), Untava (677, 711a), Kopiu (740).

Growing within the reef moat, usually under moderate wave wash.

Distinguished by loosely arranged ramuli with symmetrical, almost spherical ends.

C. racemosa var. **uvifera** (Turner) Weber van Bosse 1898: 362, pl. 33; 1913*a*: 105. Taylor 1928: 102, pl. 12, fig. 6, pl. 13, fig. 3; 1950: 63; 1960: 153, pl. 17, fig. 3, pl. 18, fig. 4. Valet 1968: 45, pl. 7, fig. 2.

C. uvifera (Turner) Svedelius 1906*a*: 122, figs. 15–17.

Type. Of var. from the Red Sea (in K, now at BM?).

Distribution. Tropical oceans in general.

Solomon Is. NEW GEORGIA: Ulukoro Is. (497g), Batuona Is. (508a). RUSSELL Is.: Sifola (484, 832, 865), Lingatu Pt. (809). GUADALCANAL: Komimbo (236d), Cape Esperance (305).

Usually found near the reef rim or outer moat under moderate to strong wave action.

Characterized by crowded ramuli, asymmetric at their ends. Papenfuss & Egerod (1957, p. 88) consider this variety is not distinct from var. *clavifera* (Turner) Weber van Bosse which is the type variety (var. *racemosa*) of the species. Var. *uvifera*, however, is characterized in most accounts by densely crowded ramuli compared to the loosely arranged ramuli of var. *racemosa*.

Caulerpa serrulata (Forsskål) J. Agardh emend Boergesen. Eubank 1946: 418, fig. 2h–j. Nasr 1947: 55. Taylor 1950: 57; 1960: 145, pl. 14, fig. 5. Valet 1968: 43, pl. 9, fig. 1.

Caulerpa freycinetii (C. Agardh) Weber van Bosse 1898: 310, pl. 25, figs. 4–11, pl. 26, fig. 1–6; 1913*a*: 102.

Type. From the Red Sea (in C).

Distribution. Tropical and subtropical oceans in general.

Solomon Is. GIZO Is.: New Manra (516, 521e). NEW GEORGIA: Matiu Is. (397, 463d), Batuona Is. (506). RUSSELL Is.: Yandina (846), Sifola (863). FLORIDA Is.: Tetel Is. (75, 93). GUADALCANAL: Naro Pt. (270), Komimbo (101, 247), Cape Esperance (303), Mamara (150), Kukum (172, 891h), Lauvie Is. (614b).

Common in the moat area and near the rim, and in pools at a mid-eulittoral level on rough coasts.

All collections are of the typical twisted form.

Caulerpa sertularioides (Gmelin) Howe. Eubank 1946: 417, fig. 2d, e. Svedelius 1906*a*: 114, fig. 7–10. Taylor 1960: 144, pl. 13. Weber van Bosse 1913*a*: 100. Valet 1968: 43, pl. 7, fig. 3. *C. plumaris* (Forsskål) C. Agardh. Weber van Bosse 1898: 294, pl. 24, figs. 4–6.

Type. From tropical America.

Distribution. Tropical oceans in general.

Solomon Is. GIZO: New Manra (515). RUSSELL IS.: Sifola (482). FLORIDA IS.: Tetel Is. (90). GUADALCANAL: Komimbo (102), Cape Esperance (311), Kopiu (739).

Occasional plants usually in the moat area, with slight to moderate wave wash.

Caulerpa spathulata sp.nov.

(Figure 4; figure 13, plate 24)

Plant forming spreading, entangled masses to several cm across and 1–1½ cm high. Stolons naked, branched, 1–1½ mm diam., with frequent, branched rhizoids, 200–400 μm diam., with spreading attachment ends. Foliar branches 4–10 mm high and 1–2 mm across, simple or branched, densely clothed with overlapping spathulate ramuli; axes slender (300–500 μm diam.); ramuli close set, tending to be attached in an irregularly decussate arrangement on the

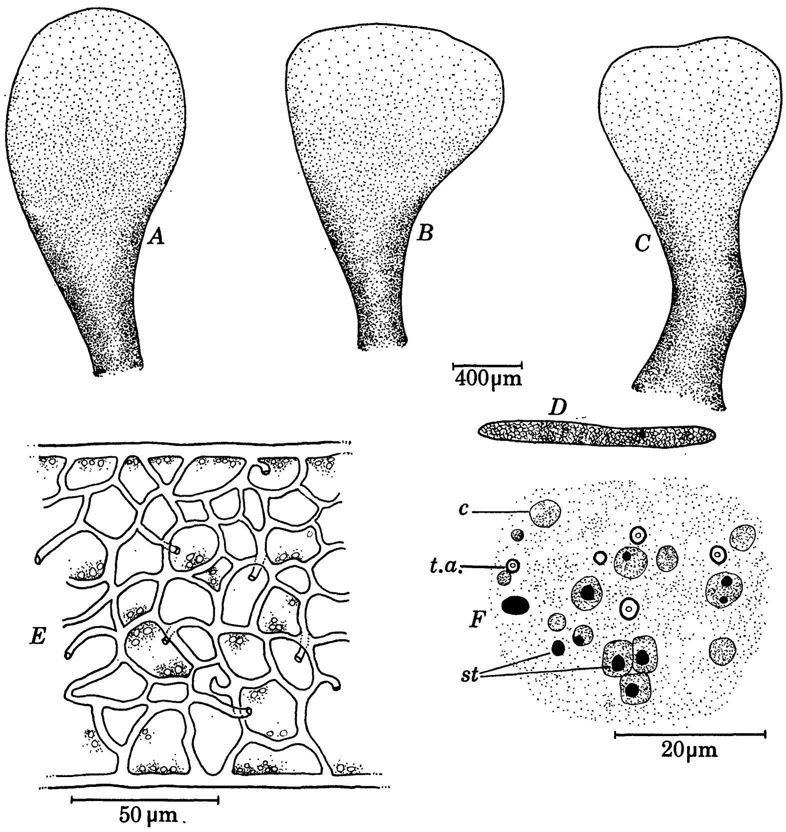

FIGURE 4. *Caulerpa spathulata* (no. 895c, TYPE). *A*, *B*, *C*, Ramuli; *D*, cross-section of flat part of ramulus; *E*, detail of cross-section of ramulus showing trabeculae; *F*, chloroplasts (*c*), starch grains (*st*) and trabeculae attachments (*t.a.*) as seen in face view of a ramulus.

lower axis, irregular above. Ramuli spathulate, flat, with a subterete stalk and broad, irregularly rounded, upper part $1\frac{1}{2}$–2 mm long, $\frac{3}{4}$–$1\frac{1}{4}$ (–$1\frac{1}{2}$) mm broad and 65–130 (–180) μm thick in the flat part. Chloroplasts irregular in size, without pyrenoids; starch associated with the chloroplasts and in the cytoplasm. Trabeculae prominent, forming a branched network across the thallus.

Plantae parvae, 1–$1\frac{1}{2}$ mm alt. Stolones 1–$1\frac{1}{2}$ mm diam. Rami foliares 4–10 mm alt., 1–2 mm lat. cum ramulis densis spathulatis. Ramuli plani, $1\frac{1}{2}$–2 mm long., $\frac{3}{4}$–$1\frac{1}{4}$ (–$1\frac{1}{2}$) mm lat., 65–130 (–180) μm crass. Chloroplasti sine pyrenoidibus.

Type. From near the mouth of the Huni River, San Cristobal (no. 895c). Holotype in ADU, isotypes distributed to other herbaria.

This species appears distinct from previously described species in its flat, spathulate ramuli, which showed no indication of ever being inflated as in members of the *C. racemosa* complex.

Caulerpa urvilleana Montagne. Taylor 1950: 61, pls. 31, 32(1). Weber van Bosse 1898: 318, pl. 26, figs. 7–12.

Type. From Toud Is., Torres Strait (in PC).

Distribution. Tropical western Pacific.

Solomon Is. FLORIDA Is.: Haroro (57).

Growing in the sublittoral (1–2 m) in calm water, on a muddy bottom.

This collection agrees with the typical variety, and comprises fairly large wide-spreading plants (to 10 cm high) with 3-angled branches.

Caulerpa verticillata J. Agardh. Boergesen 1913: 121, figs. 95–98. Dawson 1954*a*: 392, fig. 10*b*; 1956: 37. Svedelius 1906*a*: 108, fig. 1. Taylor 1950: 54; 1960: 138, pl. 10, figs. 1, 2. Weber van Bosse 1898: 267, pl. 20, figs. 7–10; 1913*a*: 96. Valet 1968: 42, pl. 6, fig. 4.

Type. From Mexico (in herb. Agardh, LD).

Distribution. Calm tropical waters in general.

Solomon Is. RUSSELL Is.: Yandina (490b).

A collection from near the wharf in Yandina, at a low eulittoral level in very calm conditions.

Caulerpa vickersiae Boergesen 1913: 119, fig. 94. Dawson 1956: 35, fig. 18. Gilbert 1962: 135, fig. 1B. Nizamuddin 1967: 160, figs. 14–17, pl. 2. Taylor 1960: 137, pl. 10, figs. 3–9.

Type. From St Jan, Virgin Is. (in C).

Distribution. Western tropical Atlantic; Marshall Is.

Solomon Is. GUADALCANAL: Maraunibina Is. (556a, 562, 757d), Untava (715).

These are collections of small plants with distichous, unbranched ramuli, from coral rubble in the reef moat area. They agree well with Boergesen's, Dawson's and Gilbert's comments on *C. vickersiae*, which they consider distinct from *C. ambigua*. Eubank (1946, p. 412), however, considers *C. vickersiae* synonymous with *C. ambigua*, as does Taylor (1967, p. 14).

Caulerpa webbiana Montagne. Eubank 1946: 415, figs. 1, 2c. Taylor 1960: 139, pl. 10, fig. 10. Weber van Bosse 1898: 269, pl. 21, figs. 1–4. Valet 1968: 42.

Type. From the Canary Is. (in PC).

Distribution. Tropical Atlantic and Pacific Oceans.

Solomon Is. Gizo Is.: New Manra (517, 533c). Russell Is.: Sifola (481, 831), Lingatu Pt. (890). Guadalcanal: Cape Esperance (312).

On the reef rim and in pools under moderate to strong wave action.

The Solomon Islands plants agree with var. *pickeringii* (Harvey & Bailey) Eubank in that they are robust, with numerous, irregularly arranged ramuli around the axis, and usually have some to many ramuli covering the stolons.

Caulerpa anceps (Harvey) = *C. brachypus* Harvey was doubtfully recorded by Setchell (1935, p. 262) from Sikaiana Is. The fragment (in CAS) is inadequate for proper determination.

Family Udoteaceae

Genus *CHLORODESMIS* Harvey & Bailey

Chlorodesmis fastigiata (C. Agardh) Ducker 1969: 17.

C. comosa Harvey & Bailey. Ducker 1967: 160, pl. 28, 29, 39. Gepp & Gepp 1911: 14, figs. 69–73. Valet 1968: 46. Weber van Bosse 1913*a*: 114.

Type. From Mariana Is. (in LD, 15661).

Distribution. Indian and western Pacific Ocean tropics.

Solomon Is. Gizo Is.: New Manra (510). New Georgia: Matiu Is. (443, 473a). Russell Is.: Avuna (773, 786), Sifola (838, 862, 879), Lingatu Pt. (822b). Florida Is.: Kokomtambu Is. (1), Tetel Is. (83), Haroro (67). Guadalcanal: Komimbo (106, 237, 248, 249), Cape Esperance (307, 892l), Mamara (151, 227a), Kukum (170, 171, 891c), Paruru (629, 768c), Maraunibina Is. (557, 757a), Lauvie Is. (616), Untava (680, 755a), Waimia (643). [Bougainville Is.: Arawa Bay (Jordan and Schroeder, in US).]

One of the commonest and most distinctive algae in the Solomon Is., occurring in the reef moat in conditions of slight to moderate wave action.

Two collections (171 and 616) have young branches with markedly broader apices (150–200 μm), the branch increasing gradually to this size. Otherwise they agree with *C. fastigiata* and they are regarded as forms showing active young growth.

Genus *RHIPILIA* Kuetzing

Rhipilia orientalis Gepp & Gepp 1911: 57, figs. 134–136. Dawson 1956: 40. Taylor 1950: 72, pl. 36, fig. 1. Weber van Bosse 1913*a*: 115.

Type. From Fau Is., Halmaheira Sea (in L).

Distribution. Tropical Indo-Pacific.

Solomon Is. New Georgia: Matiu Is. (413, 425d, 427). Russell Is.: Lingatu Pt. (820c). Florida Is.: Tetel Is. (208).

Growing just below low water at Tetel Is. but from this level and from 40 m deep on the outer side of Matiu Is.

Although small plants, they agree well with *R. orientalis*.

Genus *AVRAINVILLEA* Decaisne

Avrainvillea erecta (Berkeley) Gepp & Gepp 1911: 29, figs. 84–89. Valet 1968: 50, pl. 11, fig. 5. Weber van Bosse 1913*a*: 114.

Type. From the Philippines (in K, now at BM).

Distribution. Tropical and subtropical Indian and western Pacific Oceans.

Solomon Is. FLORIDA Is.: Tetel Is. (123b). GUADALCANAL: Paruru (620).

On sandy flats in the upper sublittoral under calm conditions.

The Paruru collection was of numerous plants which appeared in the field to consist of one population showing variation from flattened, entangled blades to tufted heads, always borne on an erect stipe embedded in the sandy-mud substrate. Detailed examination also indicates that they belong to the one taxon, though the extremes are relatively distinct; in one case, a flat lamina arose from the top of a tufted head.

Such tufted-head forms are present under *A. erecta* in the BM, and are described by Murray & Boodle (1889, p. 69) as young forms of *A. papuana* (*A. erecta*). Gepp & Gepp (1911, p. 19) also refer to such forms as abnormal *A. erecta.* In UC, no. 791872, consists of four specimens with tufted heads from Tahiti, labelled as *Chlorodesmis taitensis?* (a *nomen nudum*) and Tanaka (1967, p. 14, figs. 2, 3) has described similar plants from the Philippines as *A. capituliformis*. While further field and cultural studies are desirable, it seems best to regard such forms as variants of *A. erecta.*

The differences between *A. erecta* and *A. obscura* are scarcely satisfactory as Gepp & Gepp (1911, p. 33) inferred. A study of a range of material from Guam (the type locality of *A. obscura*) may well show these species are not distinct.

Avrainvillea lacerata Harvey ex J. Agardh. Gepp & Gepp 1911, 38, figs. 105–109. Taylor 1950: 70. Valet 1968: 50, pl. 10, fig. 6. Weber van Bosse 1913*a*: 115.

Type. From Tonga. (Harvey, Alg. Friendly Is. no. 86—in LD). Isotypes in BM.

Distribution. Tropical Indo-Pacific.

Solomon Is. GIZO Is.: New Manra (513). NEW GEORGIA: Ulukoro Is. (496). RUSSELL Is.: Yandina (850), Sifola (860). FLORIDA Is.: Tetel Is. (123a), Haroro (66). GUADALCANAL: Komimbo (266), Untava (679, 726).

Growing as occasional plants in the reef moat or in depressions near the reef rim.

Most of these collections are of small, stunted plants less than 3 cm high, but agreeing in form, branching and filament characteristics with *A. lacerata*. These correspond to var. *rubustior* Gepp & Gepp, which is the rougher water form of the species. No. 123a from a calm locality is a more typical plant to 7 cm high (f. *typica* of Gepp & Gepp).

Genus *UDOTEA* Lamouroux

Udotea argentea Zanardini. Gepp & Gepp 1908: 176; 1911: 125, figs. 21, 22c–d, 57–60. Weber van Bosse 1913*a*: 117.

Type. From the Red Sea (lost—See Gepp & Gepp 1911, p. 126).

Distribution. Tropical and subtropical Indian and western Pacific oceans.

Solomon Is. GUADALCANAL: Paruru (767, 768a), Maraunibina Is. (578, 760c).

Growing as isolated plants in calm areas, upper sublittoral. These plants agree well with *U. argentea*, falling within the var. *typica* of Gepp & Gepp.

Udotea javensis (Montagne) Gepp & Gepp 1911: 110, fig. 36. Dawson 1954*a*: 395, fig. 13b, c. Egerod 1952: 379, fig. 10. Taylor 1950: 73. Valet 1968: 51. Weber van Bosse 1913*a*: 116.

Type. From Java (in PC).

Distribution. Tropical Indian and western Pacific Oceans; southern Japan.

Solomon Is. FLORIDA Is.: Tetel Is. (72), Haroro (54). GUADALCANAL: Kukum (180), Maraunibina Is. (589).

Small plants, less than 1 cm high, growing in shade often under corals, low eulittoral to upper sublittoral.

Genus *TYDEMANIA* Weber van Bosse

Tydemania expeditionis Weber van Bosse. Gepp & Gepp 1908: 174; 1911: 66, figs. 153–154. Gilmartin 1966: 100, figs. 3–6. Taylor 1950: 73, pl. 38, fig. 1. Weber van Bosse 1913*a*: 116.

Type. From Indonesia (in L—lectotype 937, 279. . .323 from Fau Reef, Stn. 149).

Distribution. Tropical Indo-Pacific ocean.

Solomon Is. FLORIDA Is.: Tetel Is. (125), Haroro (49, 55). GUADALCANAL: Maraunibina Is. (600).

Sublittoral (1–2 m deep) in calm localities.

Genus *HALIMEDA* Lamouroux

Halimeda cylindracea Decaisne. Hillis 1959: 373, pl. 4, fig. 3, pl. 5, figs. 22–23, pl. 6, fig. 19, pl. 7, fig. 13, pl. 12. Valet 1968: 48, pl. 10, fig. 1.

H. monile (Ell. & Sol.) Lamx. Setchell 1935: 262.

Type. From Madagascar (in PC).

Distribution. Tropical and subtropical Indian and Pacific Oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (419, 470). FLORIDA Is.: Tetel Is. (95), Haroro (68). GUADALCANAL: Paruru (769a), Maraunibina Is. (551), Lauvie Is. (617). [Sikaiana Is. (Setchell 1935, p. 262, as *H. monile*).]

In sandy or silty areas in calm localities or at the rear of the moat in rougher localities; to 12 m depth at Paruru.

Halimeda discoidea Decaisne. Egerod 1952: 398, pl. 38, fig. 19b–d. Hillis 1959: 352, pl. 2, fig. 5, pl. 5, fig. 11, pl. 6, fig. 11, pl. 7, figs. 9–10, pl. 8, figs. 5–8, pl. 11. Levring 1960: 122. Taylor 1950: 85, pl. 45, figs. 1–2.

Type. From unknown locality (see Hillis 1959, p. 353) (in PC).

Distribution. Tropical oceans in general.

Solomon Is. NEW GEORGIA: Matiu Is. (387). RUSSELL Is.: Yandina (490e). FLORIDA Is.: Tetel Is. (86, 92b, 130, 141e, 209b). [Rennell Is. (Levring).]

In calm conditions and the upper sublittoral at Tetel Is. and at 12 m depth on the outer side of Matiu Is. The specimens referred to *H. discoidea* by Setchell (1935, p. 262) appear to be *H. tuna*.

Halimeda gracilis Harvey ex J. Agardh. Barton 1901: 22, figs. 28–32. Hillis 1959: 356, pl. 2, fig. 4, pl. 5, fig. 7, pl. 6, fig. 9, pl. 7, fig. 2, pl. 10.

Type. From Ceylon (in LD, Harvey no. 72).

Distribution. Pan-tropical but of restricted occurrence.

Solomon Is. GUADALCANAL: Paruru (764e), Maraunibina Is. (763d).

From reef pools under slight wave action. These two collections (determined by Dr Colinvaux) are superficially similar to *H. opuntia*, but differ in the much longer fusion of the pairs of nodal filaments and in the relatively long secondary utricles, each bearing 4–8 outer utricles.

Halimeda incrassata (Ellis) Lamouroux. Hillis 1959: 365, pl. 4, figs. 1–2, pl. 5, fig. 21, pl. 6, figs. 21–24, pl. 12. Taylor 1960: 181, pl. 23, figs. 1, 4. Valet 1968: 48. Weber van Bosse 1913*a*: 123.

H. tridens (Ellis & Solander) Lamouroux. Levring 1960: 122. Setchell 1935: 263. Taylor 1950: 92.

Type. From Jamaica (lost—see Barton 1901, p. 28).

Distribution. Tropical oceans in general.

Solomon Is. FLORIDA Is.: Tetel Is. (141d, 207a, 209a). GUADALCANAL: Paruru (618, 720b, 746d), Maraunibina Is. (554, 572c, 761a). [Bellona Is. (Setchell) and Rennell Is. (Levring, Setchell).]

Growing generally in calm localities in coral rubble, but at 10 m depth at Paruru.

Apart from 554, the holdfasts are poorly developed (less than 1 cm long), probably due to their growing directly on coral rubble rather than in sandy-mud. The Tetel Is. specimens are looser, more tridentate specimens and have rather larger utricles (in surface view) than the others, but all show a well-developed nodal fusion plate.

Halimeda macrophysa Askenasy 1888: 14, pl. 4, figs. 1–4. Barton 1901: 17, pl. 2, figs. 15–18. Hillis 1959: 351, pl. 2, fig. 3, pl. 5, fig. 16, pl. 6, fig. 8, pl. 11. Weber van Bosse 1913*a*: 121.

Type. From Natuku, Fiji (in B?).

Distribution. Tropical Indo-Pacific.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (3b, 8). GUADALCANAL: Maraunibina Is. (572b).

Growing in calm conditions in the upper sublittoral, not common.

Halimeda macroloba Decaisne. Barton 1901: 24, pl. 3, figs. 33–38. Hillis 1959: 375, pl. 3, fig. 3, pl. 5, figs. 19–20, pl. 6, fig. 17, pl. 12. Valet 1968: 47, pl. 10, fig. 4. Weber van Bosse 1913*a*: 122.

Type. From the Red Sea (in PC; isotype in BM).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. FLORIDA Is.: Tetel Is. (38, 94a), Haroro (64a). GUADALCANAL: Naro Pt. (279a), Paruru (619, 764b, 769b), Maraunibina Is. (587).

In calm, upper sublittoral conditions, in sandy-mud; to 12 m depth at Paruru (769b).

Halimeda micronesica Yamada. Hillis 1959: 364, pl. 3, fig. 1, pl. 5, figs. 13–14, pl. 6, fig. 2, pl. 9. Taylor 1950: 89, pl. 46, fig. 2, pl. 47.

Type. From Ant Atoll, East Caroline Is. (in SAP).

Distribution. Western tropical Pacific; Seychelles.

Solomon Is. FLORIDA Is.: Tetel Is. (141c). GUADALCANAL: Paruru (720c), Maraunibina Is. (553, 761b, 763c).

Growing as very occasional plants on the reef flat, in coral rubble, in fairly calm conditions.

Halimeda opuntia (Linnaeus) Lamouroux. Barton 1901: 20, pl. 2, fig. 19. Hillis 1959: 359, pl. 2, figs. 7–8, pl. 5, fig. 3, pl. 6, fig. 6, pl. 7, fig. 3, pl. 10. Levring 1960: 122. Setchell 1935: 263. Taylor 1950: 80, pl. 39, fig. 1. Valet 1968: 46. Weber van Bosse 1913*a*: 121.

Type. From Jamaica.

Distribution. Tropical oceans in general.

Solomon Is. GIZO Is.: New Manra (512). KOLOMBANGARA: Dolo Cove (896a). NEW GEORGIA:

Matiu Is. (386, 408a, 424). RUSSELL Is.: Yandina (847, 848), Avuna (790), Sifola (485, 835, 836, 842b, 856, 878), Lingatu Pt. (813). FLORIDA Is.: Kokomtambu Is. (3a, 24a, 26), Tetel Is. (36b, 92a, c, d, 141a, f, i, 207b), Haroro (52a, b, 63). GUADALCANAL: Naro Pt. (278), Komimbo (100, 241), Mamara (153), Kukum (186b, 215b), Paruru (631, 764a), Maraunibina Is. (552, 554b, 763a), Lauvie Is. (615), Untava (755c, 682, 683). [Rennell Is. (Levring), Sikaiana Is. (Setchell).]

The commonest *Halimeda* in the Solomon Islands, in the reef moat and near the rim except on rough reefs.

Nos. 92d, 141f, from Tetel Is. and 52b from Haroro are lax plants approaching *H. minima* (Taylor) Colinvaux in appearance; the holdfast situation is not clear in the specimens available and further collections are desirable to check this character.

Setchell's specimens (in CAS) of *H. opuntia* f. *triloba* are fragmentary but appear to be *H. opuntia*. His specimens (in UC and CAS) referred to *H. opuntia* f. *typica*, however, are f. *renschii*.

Halimeda opuntia f. **renschii** (Hauck) Barton 1901: 21, figs. 22, 22a? Okamura 1915: 208, pl. 148, figs. 8–12? Weber van Bosse 1913*a*: 122.

H. renschii Hauck 1886: 167.

Type. From the Comoro Islands, off East Africa (in L).

Distribution. Type locality and Sula Besi Is., Sula Islands, Indonesia (Weber van Bosse).

Solomon Is. NEW GEORGIA: Matiu Is. (472). GUADALCANAL: Kukum (186a, 891k).

Growing in outer reef pools, under moderate wave wash.

These specimens are referred with some doubt to f. *renschii* since authentic material has not been available for comparison. They do, however, appear to agree well with the descriptions and Barton's habit figures. The plants form dense, erect tufts of several to many branches arising from a small holdfast; the segments are opuntioid in appearance but relatively thin and are similar to *H. opuntia* in structure, including short fusion in pairs of the nodal filaments. *H. opuntia* f. *typica* sensu Setchell (1935, p. 263) from Sikaiana Is. appears to be the same taxon.

The habit and thin segments appear to justify specific separation of this form from *H. opuntia*. However, current studies of Dr Colinvaux on *H. renschii* will clarify the status of this taxon and the relationships of the Solomon Is. specimens.

Halimeda simulans Howe 1907: 503, pl. 29. Hillis 1959: 368, pl. 3, fig. 4, pl. 5, fig. 27, pl. 6, fig. 15, pl. 11. Valet 1968: 48, pl. 11, fig. 3.

Type. From Puerto Rico (in NY).

Distribution. Tropical western Atlantic and Pacific Oceans.

Solomon Is. FLORIDA Is.: Tetel Is. (94b), Haroro (64b). GUADALCANAL: Naro Pt. (279b), Komimbo (98a, 258).

Growing in calm localities in sandy muddy areas of the reef moat, upper sublittoral. The numerous specimens in collection 258 have a large holdfast (2–5 cm long, 1–2 cm thick) while 64b and 95a have a small but prominent holdfast. The nodal filaments form a distinct plate with pores, but they separate fairly easily.

Halimeda taenicola Taylor 1950: 86, pl. 46, fig. 1. Hillis 1959: 354, pl. 2, fig. 6, pl. 5, fig. 12, pl. 6, fig. 14, pl. 11.

Type. From Rongerik Atoll, Marshall Is. (in MICH).

Distribution. Tropical western Pacific Ocean.

Solomon Is. New Georgia: Matiu Is. (388). Guadalcanal: Paruru (720a, 764c), Maraunibina Is. (572a, 763b).

Growing as occasional plants from the upper sublittoral down to 12 m on the outside of Matiu Is. and at Paruru.

These collections agree well with Hillis's description though the utricle size, in surface view, is in the lower part of Hillis's size range and approaches that of *H. lacunalis*.

Halimeda tuna (Ellis & Solander) Lamouroux. Barton 1901: 11, pl. 1, figs. 1–6. Hillis 1959: 342, pl. 1, figs. 4–5, pl. 5, fig. 9, pl. 6, fig. 7, pl. 9. Taylor 1950: 84, pl. 43, fig. 2. Valet 1968: 47. Weber van Bosse 1913*a*: 120.

H. discoidea sensu Setchell 1935: 262.

Type. From the Mediterranean.

Distribution. Tropical and subtropical oceans in general; Mediterranean.

Solomon Is. New Georgia: Matiu Is. (420). Russell Is.: Yandina (845). Florida Is.: Tetel Is. (141b, 210). Guadalcanal: Naro Pt. (280), Komimbo (98b, 240), Cape Esperance (308, 309), Honiara (374a), Kukum (187, 215a), Untava (699).

Usually as occasional plants in the upper sublittoral of the reef moat, in calm to slight water movement.

These specimens agree with the comments of Hillis (1959, p. 344) on the Pacific form of *H. tuna*. The specimens referred by Setchell (1935, p. 262) to *H. discoidea* (in UC and CAS) appear to be *H. tuna*.

Order DASYCLADALES

Family Dasycladaceae

Genus *ACETABULARIA* Lamouroux

Acetabularia dentata Solms-Laubach 1895: 23, pl. 1, fig. 11. Valet 1968: 54; 1969: 614, pl. 141, figs. 3–5, pl. 142, fig. 6, pl. 148, figs. 2, 4–6, pl. 155, figs. 1–6. Yamada 1934: 54, fig. 21.

Type. From Sorong, New Guinea (in PC).

Distribution. Tropical and subtropical Indo-Pacific.

Solomon Is. Florida Is.: Kokomtambu Is. (24d), Tetel Is. (77a). Guadalcanal: Komimbo (103a, 329).

On rubble or rock in the reef moat under calm conditions, rare. Small specimens, easily overlooked, which agree well with Solms-Laubach's and Valet's description.

Acetabularia exigua Solms-Laubach 1895: 28, pl. 2, figs. 1, 4. Dawson 1956: 42, fig. 31. Nasr 1947: 42. Valet 1969: 621, pl. 142, figs. 4–5, pl. 149, figs. 3, 6, pl. 46. Weber van Bosse 1913*a*: 91.

Lectotype. From Sikka, Flores (Weber van Bosse no. 1199, in L?).

Distribution. Western tropical Pacific ocean.

Solomon Is. Florida Is.: Kokomtambu Is. (24b). Guadalcanal: Paruru (622b).

On coral rubble in the reef moat under calm conditions. A few specimens only, agreeing well with Solms-Laubach's and Valet's descriptions. The lectotype specimen from Sikka was fertile and illustrated by Solms-Laubach.

Acetabularia kilneri J. Agardh 1887: 171, pl. 5, figs. 6–13. Solms-Laubach 1895: 21, pl. 1, fig. 6. Valet 1968: 53; 1969: 611, pl. 141, figs. 1–2, 6, pl. 147, fig. 3, pl. 148, fig. 1, pl. 154, figs. 1–5.

(Figure 5)

Type. From Edgecombe Bay, Qld. (in LD).

Distribution. North-east Queensland coast, New Caledonia.

Solomon Is. GUADALCANAL: Cape Esperance (299, 892j).

Densely covering stones just below low tide, and in reef pools, subject to moderate wave action.

The record of May (1938, p. 213) of *A. crenulata* Lamx. from the Richmond River, N.S.W., may well apply to *A. kilneri*.

This alga was found in only one place, growing abundantly on rounded igneous rocks and pebbles at about low water level; wave action was slight. Collections were made on 21 August and 1 November.

The plants were up to 3 cm high, with caps to 9 mm diam in August and 11 mm in November, composed of 55–68 gametangial rays with apiculate ends (figure 5*F*, *G*). No plants with well-developed gametangial cysts were found in August but these were present in November. Though clearly related to *A. kilneri* in number of rays, in their apiculate ends, and in the form of the coronas, their smaller size and the stress placed by both J. G. Agardh and Solms-Laubach on the 'notching' processes of the lateral walls of the gametangial rays and the bilobed nature of the superior corona raised doubts as to their identity.

A. kilneri, from Queensland, has apparently not been recorded since the original collections described by J. Agardh. However it has recently been found at Sarina Head, south of Mackay, Queensland by E. M. and B. J. Jackes, and these collections establish the identity of the Queensland and Solomon Is. plants, though the latter are somewhat smaller. (Caps to 17 mm diam., in Queensland plants and to 11 mm diam. in Solomon Is. plants.)

The Queensland plants only form gametangial cysts (100–120 per ray) when the caps are 14 mm or more diam. The Solomon Is. plants were sterile when less than 9 mm diam. but the larger ones (November) were fertile and with larger numbers of cysts than the Queensland plants. The number of rays is similar (60–69 in Qld. plants), also the apiculations (figure 5*A*, *B*, *F*, *G*). Young rays have elongate apiculate ends which in older plants become flattened with a less prominent apiculus (cf. figure 5*F*, *G*). The pattern between the adjacent longitudinal walls of the rays is due to the calcification and is best developed in mature, fertile plants; in younger plants and in decalcified specimens it is not a feature.

The coronas are similar in the two collections. The superior corona (figure 5, *D*, *I* for top view; figure 5*E*, *J*, *K* for sectional views) bears a row of 4–6 hair initials, of which the inner one first develops as a hair. The outer part of the corona may or may not be lobed (cf. Solms-Laubach). The Solomon Is. plants have a smaller superior corona (figure 5*I*) but this is probably due to immature plants.

The inferior coronas are similar in plants of both collections (figure 5*C*, *E*, *H*, *J* and *K*) and are variable in lobing of the outer ends.

The Solomon Is. population thus agrees well with *A. kilneri* but consists of younger and immature plants as shown by size, by general lack of gametangial cysts in the August collection and by the young form of the apiculations.

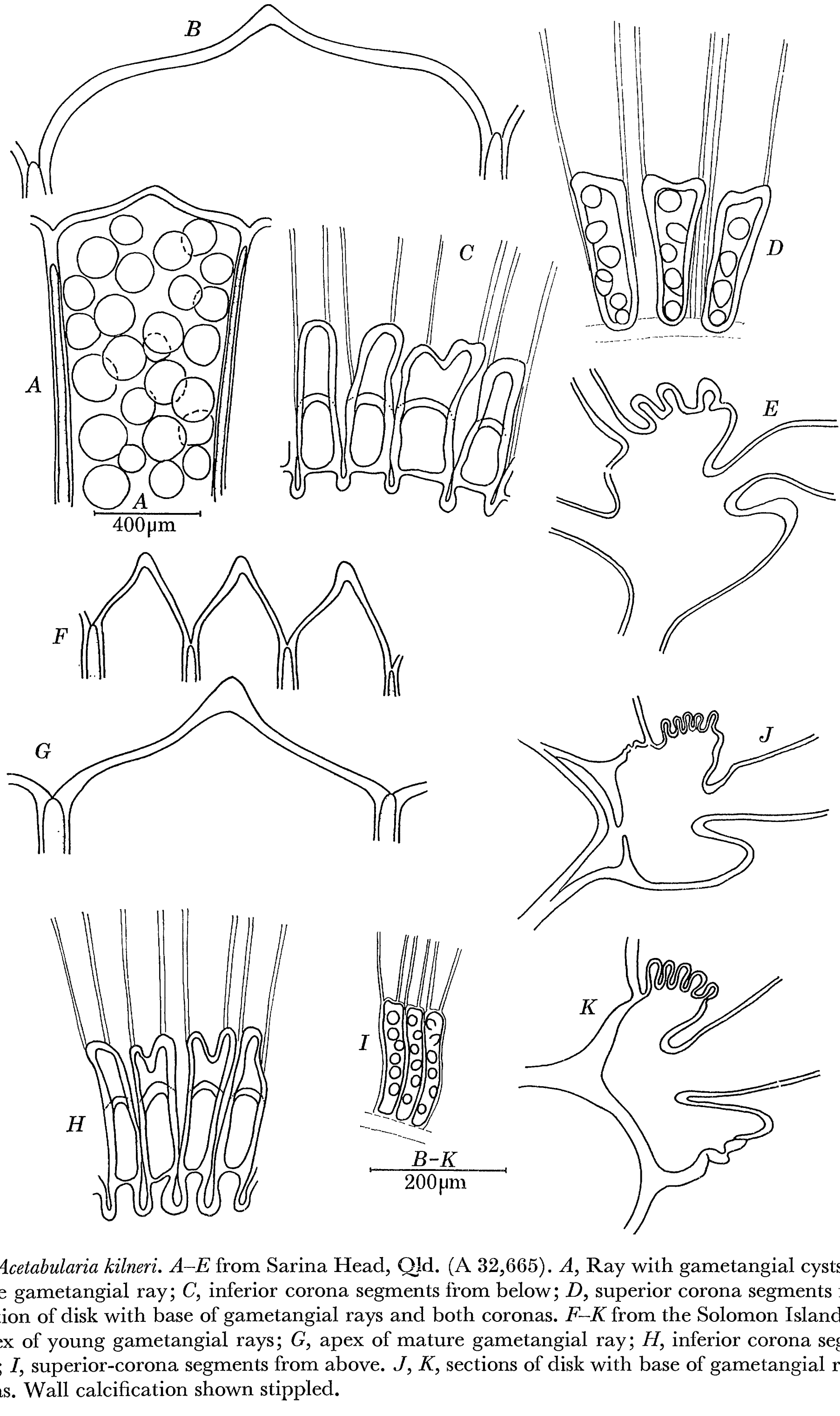

FIGURE 5. *Acetabularia kilneri*. *A–E* from Sarina Head, Qld. (A 32,665). *A*, Ray with gametangial cysts; *B*, apex of mature gametangial ray; *C*, inferior corona segments from below; *D*, superior corona segments from above; *E*, section of disk with base of gametangial rays and both coronas. *F–K* from the Solomon Islands (no. 299). *F*, Apex of young gametangial rays; *G*, apex of mature gametangial ray; *H*, inferior corona segments from below; *I*, superior-corona segments from above. *J*, *K*, sections of disk with base of gametangial ray and both coronas. Wall calcification shown stippled.

Acetabularia parvula Solms-Laubach 1895: 29, pl. 2, figs. 3–5. Taylor 1950: 50. Valet 1969: 621, pl. 149, figs. 1, 4–5, pl. 156, figs. 5–7.

A. moebii Solms-Laubach 1895: 30, pl. 4, fig. 1. Boergesen 1951: 6, figs. 1–2. Dawson 1954*a*: 397, fig. 13j. Egerod 1952: 411, fig. 23i. Isaac & Chamberlain 1958: 139, fig. 12. Nizamuddin 1964: 77, figs. 1–13. Papenfuss & Egerod 1957: 91.

Type. From Macassar (Celebes) (in L?).

Distribution. Tropical and subtropical oceans; Mediterranean.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (24c), Haroro (62). GUADALCANAL: Komimbo (296e), Paruru (622a), Untava (716).

Isolated specimens found amongst other collections. Valet discusses the synonomy of this species.

Genus *NEOMERIS* Lamouroux

Neomeris annulata Dickie. Dawson 1954*a*: 396, fig. 13e. Egerod 1952: 400, pl. 40, figs. 21, 22a, c. Howe 1909: 87, pl. 1, fig. 2. Taylor 1960: 101, pl. 5, fig. 5, pl. 6, figs. 4–6. Weber van Bosse 1913*a*: 88. Valet 1969: 593, pl. 145, fig. 5.

Type. From Mauritius (in BM).

Distribution. Tropical oceans in general.

Solomon Is. FLORIDA Is.: Tetel Is. (77c). GUADALCANAL: Paruru (626), Maraunibina Is. (758h).

Isolated specimens amongst *N. van-bosseae*.

Neomeris van-bosseae Howe 1909: 80, pl. 1, figs. 4, 7, pl. 5, figs. 17–19. Egerod 1952: 405, fig. 22b, pl. 41. Koster 1937: 221, pl. 15, fig. 2. Taylor 1950: 49. Valet 1968: 52; 1969: 596, pl. 146, figs. 2, 5, pl. 153, figs. 4–7, 10–12, 14. Weber van Bosse 1913*a*: 88.

Type. From Sikka, Flores, Indonesia (in NY and L).

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. RUSSELL Is.: Yandina (844). FLORIDA Is.: Tetel Is. (77b). GUADALCANAL: Kombo (245), Cape Esperance (300, 892b), Maraunibina Is. (565, 758g).

At about low tide level on the reef rim or in pools in the moat.

Phylum **PHAEOPHYTA**

Order ECTOCARPALES

Family Ectocarpaceae

Genus *BACHELOTIA* (Bornet) Kuckuck

Bachelotia antillarum (Grunow) Gerloff. Cardinal 1964: 10. Womersley 1967: 190.

Type. From Guadeloupe Is., Lesser Antilles (in B?).

Distribution. Tropical to warm temperate Atlantic Ocean (to N. France); South Africa; southern Australia.

Solomon Is. GUADALCANAL: Rove (894e).

Growing on a reef under slight wave action.

This single collection agrees well with the species, which is probably more widespread in the Solomon Islands.

Genus *ECTOCARPUS* (Lyngbye) Hamel

Ectocarpus breviarticulatus J. Agardh. Boergesen 1914: 173, fig. 136. Dawson 1954*a*: 398, fig. 14a, b. Durairatnam 1961: 32, pl. 6, figs. 10, 11. Kuckuck & Kornmann 1963: 362, figs. 1–3.

Type. From St Augustin, Mexico (in LD).

Distribution. Tropical oceans in general.

Solomon Is. New Georgia: Matiu Is. (412). Russell Is.: Sifola (799, 839). Guadalcanal: Rove (894i).

Growing as small, tangled, tufts on the reef rim, emergent between waves at low tide, in rough to moderate wave action.

This well-defined species has cells containing numerous small, discoid phaeoplasts, and in the restricted sense of Hamel and others it should not be placed in *Ectocarpus*. The growth regions however are not well defined as in *Giffordia* and *Feldmannia*, and on present concepts Pham-hoang's (1969, p. 298) placing of it in *Feldmannia* is dubious. This and other tropical species need further study in relation to the genera based on European (temperate) species.

Genus *FELDMANNIA* Hamel

Feldmannia indica (Sonder) comb.nov.†

Ectocarpus indicus Sonder in Zollinger 1854: 3. Boergesen 1941: 16. Dawson 1956: 43, fig. 32. Kuckuck & Kornmann 1963: 380. Taylor 1950: 95. Weber van Bosse 1913*a*: 129, fig. 34.

E. duchassaingianus Grunow 1870: 45, pl. 4, fig. 1. Boergesen 1914: 159, figs. 127, 128. Kuckuck & Kornmann 1963: 377, figs. 9, 10.

Giffordia indica (Sonder) Papenfuss & Chihara ex Papenfuss 1968: 30.

Type. From Bima, Indonesia (in MEL, 26389).

Distribution. Probably throughout tropical oceans.

Solomon Is. New Georgia: Matiu Is. (393b on *Turbinaria*, 440a). Russell Is.: Avuna (793b). Guadalcanal: Komimbo (228b, 253), Kopiu (742b on *Turbinaria*). San Cristobal: Kira Kira (385c).

Small plants (up to 5 mm high) growing on dead coral emergent at low tide or on other algae in the reef moat or rim, under moderate wave action.

There has been considerable uncertainty concerning the type of *E. indicus* Sonder. The type in MEL (26389) consists of two paper-mounted specimens and one (plus fragments) mica mount, together with Sonder's sketches, and labelled 'Planta a cl. Zollingero lecta. no. 3428, Bima, Ins. Sumbawa'. The specimens are all of one taxon and not a mixture as Setchell (1924, p. 170) suspected. They form fairly dense tufts up to 3 cm high, laterally branched but not secund, with numerous long, cylindrical sporangia formed all over the thallus but with the growth regions above the highest sporangia and surmounted by a sterile unbranched filament.

Setchell (1924, p. 170) considered that the type description showed *E. indicus* to be subsecund and much branched (i.e. like *Giffordia mitchellae*). This however, is not so and there can be no doubt that *E. duchassaingianus* is a synonym of *E. indicus*. *E. indicus* sensu Setchell (1924, p. 169, fig. 34) and Abbott (1947, p. 200, fig. 3) is almost certainly *Giffordia mitchellae*.

The presence of distinct growth regions at the base of long unbranched filaments, sporangia

† Previously (Womersley & Bailey 1969, p. 437) credited to Papenfuss & Chihara on misinformation.

mostly sessile but occasionally with a basal cell and borne below the growth regions, and cells with numerous discoid phaeoplasts, place *E. indicus* in the genus *Feldmannia* rather than in *Giffordia* as Papenfuss & Chiara have done. The very long, straight cylindrical plurilocular reproductive organs characterize the species.

Feldmannia irregularis (Kuetzing) Hamel 1939: xvii, fig. 61f. Cardinal 1964: 54, fig. 29. Womersley 1967: 192.

Ectocarpus irregularis Kuetzing. Boergesen 1941: 23, figs. 8–11. Dawson 1954*a*: 398, fig. 14e, f; 1957: 110. Kuckuck & Kornmann 1963: 371, fig. 6.

Type. From the Adriatic Sea (in L?).

Distribution. Widespread in tropical and temperate waters.

Solomon Is. GUADALCANAL: Kopiu (742c on *Turbinaria*).

A single collection from the reef rim.

These young plants show typical sessile sporangia situated immediately below the growth region of each filament. In this young state (2–3 mm high), most filaments branch only at their base and have a single growth zone, in contrast to the branched filaments with several growth zones in mature plants. Boergesen (1941, fig. 10) illustrates such a young plant. *Ectocarpus* sp. of Weber van Bosse (1913*a*, p. 131, fig. 35) is such a young plant also.

Family Ralfsiaceae

Genus *MESOSPORA* Weber van Bosse

Mesospora schmidtii Weber van Bosse 1910: 27; 1913*a*: 143, fig. 43, pl. 2, figs. 2, 3. Dawson 1954*a*: 400, fig. 14 l, m.

Type. From Indonesia (in L). A lectotype needs selecting from specimens from the original six localities; no. 939, 69...944 may be suitable but the locality of this specimen is not clear.

Distribution. Indonesia, Viet Nam.

Solomon Is. GUADALCANAL: Kukum (223b, 224).

Growing as brown patches on rock (and broken asbestos sheet) at a mid-eulittoral level at an old jetty.

No. 223b bears plurilocular reproductive organs (partitioned to their apex) and 224 bears prominent unilocular sporangia amongst looser and longer paraphyses.

Genus *RALFSIA* Berkeley

Ralfsia expansa J. Agardh. Boergesen 1914: 189, figs. 146–148. Isaac 1956: 176, figs. 11, 12. Weber van Bosse 1913*a*: 146, fig. 45.

Type. From Vera Cruz, Mexico (in C).

Distribution. Probably widespread in tropical and subtropical waters.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (4).

Growing on coral debris at a mid-eulittoral level, under slight wave action.

Though sterile, this single specimen agrees well with the figures of Boergesen and Weber van Bosse. Some hair groups are present.

Order SPHACELARIALES

Family Sphacelariaceae

Genus *SPHACELARIA* Lyngbye

Sphacelaria furcigera Kuetzing. Dawson 1954*a*: 400, fig. 14h. Sauvageau 1901: 145, fig. 35. Weber van Bosse 1913*a*: 135. Womersley 1967: 199.

Type. From Karak Is., Persian Gulf (in L, 937, 71...472).

Distribution. Cosmopolitan in tropical to temperate waters.

Solomon Is. Russell Is.: Sifola (874b). Guadalcanal: Mamara (225b), Kukum (222b, 223a), Maraunibina Is. (582b on *Turbinaria,* 594b).

Forming a short tuft at the reef rear at a mid-eulittoral level, or epiphytic near the reef rim, under slight to moderate wave action. Probably widespread in such areas in the Solomon Islands.

Sphacelaria novae-hollandiae Sonder 1846: 154. Boergesen 1941: 45, fig. 20. Dawson 1954*a*: 400, fig. 14g. Sauvageau 1901: 137, figs. 33, 34A. Taylor 1950: 97; 1960, 211, pl. 28, fig. 8. Weber van Bosse 1913*a*: 134. Womersley 1967: 200.

Type. From Western Australia (Preiss) (in MEL 15779).

Distribution. Southern Australia, Mauritius, tropical Pacific and western tropical Atlantic Oceans.

Solomon Is. Russell Is.: Avuna (793c). Guadalcanal: Komimbo (296c), Untava (687b).

On dead coral in the reef moat (687b) or on the rim (793c), under moderate wave wash.

The thallus is similar to, but shorter than, that of southern Australian plants and bears propagula agreeing with those figured by the above authors. No. 793c bears unilocular and plurilocular reproductive organs. Further comparisons are needed with authentic material from south-west Australia.

Order DICTYOTALES

Family Dictyotaceae

Genus *DICTYOTA* Lamouroux

Dictyota friabilis Setchell 1926: 91, pl. 13, figs. 4–7, pl. 20, fig. 1; 1935: 263. Dawson 1954*a*: 401, fig. 16a, b.

Type. From Tahiti (in UC 261252).

Distribution. Tropical Indo-Pacific waters.

Solomon Is. New Georgia: Ulukoro Is. (497e). Russell Is.: Sifola (842c, 881a). Florida Is.: Tetel Is. (70, 127, 141g, 209c). Guadalcanal: Komimbo (107), Cape Esperance (314, 315, 343, 892g), Kukum (216, 891j), Untava (709).

Common amongst coral debris and other algae in the reef moat and near the rim under calm to moderate wave action.

This is the common *Dictyota* in the Solomon Islands. It is a small creeping plant, entangled with or loosely growing over the substrate. Erect parts are rare and slight, and attachment of the branches both to other algae and to themselves frequently occurs by means of tufts of rhizoids. Most specimens are 2–3 mm broad but 314, 497e, 891j and 892g are of a more slender form about 1 (–2) mm broad. Only sporangial plants have been seen, the sporangia being scattered, sparsely to moderately densely, over most of the thallus except near the margin.

The broader Solomon Island specimens (e.g. 881) agree well with the type of *D. friabilis*, the narrower forms (e.g. 343, 497e) less so. Further comparisons are needed however with several other taxa.

The Solomon Is. plants show considerable similarity to small plants of *D. bartayresii* Lamouroux for the West Indies (see Boergesen 1914, p. 209; Taylor 1960, p. 219, pl. 30, fig. 2 and Vickers & Shaw 1908, pls. 12, 13), and Cribb (1954, p. 21) suggests that *D. friabilis* is only a juvenile form of *D. bartayresii*. However, the apparently constant occurrence of a largely procumbent habit in mature fertile plants and attachment by adventitious rhizoidal tufts indicate that *D. friabilis* is best regarded as a distinct species.

Comparisons are also needed with *D. adnata* Zanardini (1878, p. 34) from western New Guinea and with *D. ceylanica* Kuetzing (Boergesen 1936, p. 78, fig. 7) and its two varieties—var. *rotundata* Weber van Bosse (1913*a*, p. 185, pl. 3, fig. 7) from Indonesia and var. *anastomosans* Yamada (1950, p. 186, fig. 4) from Formosa. Boergesen's description and the original descriptions of both the varieties indicate that they are probably the same as *D. friabilis*. Weber van Bosse (1926, p. 101, figs. 18, 19) however places her var. *rotundata* as a synonym of *D. adnata* Zanardini. This latter species appears similar in form and the presence of adventitious rhizoidal tufts to *D. friabilis*, but is stated to have sporangia in sori on the margin of the thallus. In *D. friabilis* and according to the original descriptions of both var. *rotundata* and var. *anastomosans*, the sporangia are scattered over the frond except for the margins. They thus appear to be distinct from *D. adnata* unless the marginal sporangia of the latter are abnormal in position; *D. submaritima* Tanaka & Pham-Hoang (1962, p. 24) is probably not distinct from *D. adnata* and indicates that this marginal sporangial position is normal.

Dictyota hamifera Setchell 1926: 92, pl. 14, figs. 1–6. Yamada 1950: 187.

Type. From Tahiti (in UC, 261356).

Distribution. Tahiti, Formosa.

Solomon Is. GIZO Is.: New Manra (525).

Growing on *Caulerpa racemosa* in the middle moat area.

A single collection, many of the plants (but not all) showing the hamate branches characteristic of the species. The form and sporangia agree well with Setchell's description, but the thallus is rather narrower (1–2 (–3) mm broad).

Genus *DICTYOPTERIS* Lamouroux

Dictyopteris repens (Okamura) Boergesen 1924: 265, fig. 13. Dawson 1956: 44, fig. 34. Okamura 1931: 47, pl. 275, figs. 17–27.

Haliseris repens Okamura 1916*a*: 8, fig. 3, pl. 1, figs. 7–18.

Type. From Truk Is. (in Tokyo Imp. Fish. Inst.?).

Distribution. Tropical western Pacific; Easter Is.

Solomon Is. KOLOMBANGARA: Dolo Cove (896g). NEW GEORGIA: Matiu Is. (408c). RUSSELL Is.: Avuna (775, 792, 796a). FLORIDA Is.: Kokomtambu Is. (29c). GUADALCANAL: Komimbo (297), Rove (368).

In coral rubble in the reef moat under slight to moderate wave action.

These are mostly small specimens less than 1 cm long; sporangial plants are common. They agree with *D. repens* in form and in lacking the marginal thickening characteristic of *D. delicatula*.

Genus *LOBOPHORA* J. Agardh

Lobophora variegata (Lamouroux) Womersley 1967: 221.

Pocockiella variegata (Lamx.) Papenfuss 1943: 467, figs. 1–4. Dawson 1954*a*: 400, fig. 14k. Taylor 1950: 97.

Zonaria variegata Lamouroux. Weber van Bosse 1913*a*: 175.

Type. From the Antilles (in CN).

Distribution. Widespread in tropical to temperate waters.

Solomon Is. New Georgia: Matiu Is. (447), Batuona Is. (508c). Russell Is.: Sifola (842d). Florida Is.: Haroro (58). Guadalcanal: Komimbo (264), Rove (370), Paruru (766), Maraunibina Is. (585), Untava (692b).

On coral rubble and in pools in the reef moat, and in a deeper shaded pool on Matiu Is.; subject to moderate wave-wash.

Genus *PADINA* Adanson

Padina australis Hauck 1887: 44. Dawson 1957: 110, fig. 14a. Weber van Bosse 1913*a*: 179, fig. 52.

P. gymnospora (Kuetzing) Vickers *sensu* Boergesen 1941: 49. Sonder 1871: 47. Womersley 1958: 150.

Type. From Cape York, Qld. (in L, 937, 34...137).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. Gizo Is.: New Manra (524). Guadalcanal: Kopiu (741).

Growing on the reef rim, subject to surf conditions.

This is a rougher water species than *P. tenuis* and is generally larger, darker brown, more divided and with more 'stipe-like' bases. The hair rows are poorly developed but concentric lines on the frond indicate their position. In well-developed plants consecutive lines of sporangia are separated by 2–3 mm and by two zones of hairs.

P. australis has been considered as a variety of the West Indian *P. gymnospora*, but is regarded as distinct by Thivy (1959, p. 69).

Padina tenuis Bory 1827: 590.

Padina commersonii Bory 1828: 144, pl. 21, fig. 2. Dawson 1954*a*: 401, fig. 17; 1957: 110. Setchell 1935: 264. Taylor 1950: 100, pl. 54, fig. 1. Weber van Bosse 1913*a*: 178, fig. 51. Womerlsey 1958: 150. Womersley & Bailey 1969: 436.

P. boryana Thivy ex Taylor 1966*b*: 355.

Type. From Mauritius (in PC).

Distribution. Tropical Indian and Pacific Oceans and eastern Atlantic Ocean.

Solomon Is. Gizo Is.: New Manra (523). Russell Is.: Yandina (490a, 852), Lingatu Pt. (828). Florida Is.: Tetel Is. (71a), Haroro (65). Guadalcanal: Komimbo (109, 246), Cape Esperance (892a), Rove (894b), Kukum (198, 891i), Paruru (632), Maraunibina Is. (592). [Malaita Is. (Setchell).]

Generally found in calm water or semi-sheltered pools in the reef moat, upper sublittoral.

The basal (*Vaughaniella*) stage is not uncommon in lower eulittoral collections of turf algae (on medium to rough coasts) but is not listed unless adult *Padina* stages are present.

Padina tenuis Bory (1827, p. 590) is based on specimens from l'Ile de France (Mauritius) collected by Commerson, and the type description clearly applies to these specimens (which are in PC) and to the genus *Padina*. Bory later (1828, p. 144) re-named his species *Padina commersonii* and his description and illustration (his pl. 21, fig. 2) of Commerson's specimens corresponds closely with the same type sheet in PC which is labelled '*Padina commersonii* N. coq. pl. 21, fig. 2—de l'Ile de France—'. This sheet bears faint pencil writing of '*P. tenuis* Bory', now scarcely visible.

In his original description, after basing his *P. tenuis* on the Mauritius specimens, Bory stated: 'C'est le Zonaria Pavonia δ d'Agardh, Syst., p. 26 (4), rapporté des iles Marianes par Gaudichaud.' Only in the repeated and enlarged description of 1828, when Bory changed the name to *P. commersonii*, did he mention C. Agardh's name *tenuis* for var. δ. It seems clear from Bory's description that he considered *P. tenuis* as his own new species, based on (i.e. typified by) the Mauritius specimens, and that his mention of C. Agardh's variety should be regarded as incidental (this view is supported by Drs Gaillard and Delépine of the Université de Paris).

However, Thivy (ex Taylor 1966*b*, p. 355) considered that *P. tenuis* (and so *P. commersonii*) was based on C. Agardh's variety *tenuis* which 'seems actually to have been a *Pocockiella*', and therefore redescribed the *Padina* as *P. boryana* based on type material from the Friendly Islands. The type of var. *tenuis* C. Agardh is in PC and consists of a small sheet with two fragmentary specimens about $1\frac{1}{2}$ cm long; it is *Lobophora variegata* (*Pocockiella*) but is so different to Bory's *P. tenuis* specimens from Mauritius, and to his description, that it was clearly not used by Bory in describing his species. Hence Bory's mention of var. δ *tenuis* under his species is here regarded as incorrect as well as incidental.

Thus Bory's clear and comprehensive description of *P. tenuis* is the first of a species with this name and applies only to the Mauritius specimens, the single sheet of which in PC is the holotype. His description, figures and holotype enable the species to be clearly recognized. The present account therefore maintains *P. tenuis* Bory as the correct name for this widespread tropical species of *Padina*.

Order DICTYOSIPHONALES

Family Chnoosporaceae

Genus *CHNOOSPORA* J. Agardh

Chnoospora minima (Hering) Papenfuss 1956: 69. Taylor 1960: 263, pl. 36, figs. 3, 4.

C. fastigiata J. Agardh 1848: 171. Boergesen 1941: 63.

C. pacifica J. Agardh. Dawson 1954*a*: 405, fig. 20c. Levring 1938: 21, fig. 10.

Type. From Port Natal, South Africa (in HBG).

Distribution. Widely distributed in tropical and subtropical oceans.

Solomon Is. Russell Is.: Lingatu Pt. (829a).

A single collection of several rather small plants from the reef surface, subject to fairly heavy surf.

Family Punctariaceae

Genus *COLPOMENIA* Derbès & Solier

Colpomenia peregrina (Sauvageau) Hamel 1937: 20. Blackler 1964: 50; 1967: 5. Womersley 1967: 244.

Colpomenia sinuosa sensu in part Dawson 1954*a*: 402, fig. 18a?

Type. From Brittany, France (in PC).

Distribution. Probably widespread in most oceans.

Solomon Is. GUADALCANAL: Rove (364).

A single, minute specimen (about 4 mm across), from under an old table *Acropora* under fairly calm conditions.

This specimen agrees with *C. peregrina* in having only 1–2 rows of small outer cells and about 3 rows of larger inner cells. During the time of the Expedition, *Colpomenia* appears to have been rare in the Solomon Islands.

Order FUCALES

Family Cystoseiraceae

Genus *HORMOPHYSA* Kuetzing

Hormophysa triquetra (L.) Kuetzing was recorded from Uras Cove, Malaita Is., by Setchell (1935, p. 264). It is also known from Vella Gulf, between Vella Lavella and Kolombangara Is. (Mariscal, in US).

Family Sargassaceae

Genus *TURBINARIA* Lamouroux

Turbinaria conoides (J. Agardh) Kuetzing. Barton 1891: 217, pl. 54, fig. 1. Taylor 1963: 480, pl. 2, figs. 1–12; 1966*a*: 96. Weber van Bosse 1913*a*: 148.

T. turbinata sensu Setchell 1935: 265 (in part).

Type. From the Indian ocean region (in Herb. Agardh, LD?). A lectotype needs selecting as J. Agardh (1848, p. 267) referred to several localities.

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (393). GUADALCANAL: Maraunibina Is. (581, 582a), Kopiu (672, 742a, 743). SAN CRISTOBAL: Huni R. mouth (895b). [Uras Cove, Malaita Is. (Setchell, in Taylor). Bellona Is. (Setchell).]

In shallow pools and on the reef rim under moderate to heavy surf conditions.

Most of these specimens agree with Taylor's description of the type variety, *conoides*, but 582 seems to be f. *laticuspidata*. Nos. 672 and 895b are evesiculate forms. Setchell (1935, p. 265) recorded *T. turbinata* from Malaita and Bellona Is.; these collections (in UC and CAS) include *T. conoides* and probably *T. ornata* from each locality.

Turbinaria murrayana Barton 1891: 218, pl. 54, fig. 2. Gepp & Gepp 1908: 183, pl. 24, figs. 25, 26. Taylor 1963: 478; 1966*a*: 93. Weber van Bosse 1913*a*: 149.

Type. From New Guinea (in BM).

Distribution. Tropical Indian Ocean, to the Celebes and New Guinea.

Solomon Is. RUSSELL Is.: Sifola (476, 802, 866a).

In shallow pools and on the reef rim under moderate to heavy surf. These specimens agree well with *T. murrayana* in having no vesicles, finely dentate lateral ridges, and in the form of the leaves.

Setchell (1935, p. 264) recorded this species from Malaita Is., but the specimens (in UC and CAS) are *T. decurrens*.

Turbinaria ornata (Turner) J. Agardh 1848: 266. Barton 1891: 219. Dawson 1954*a*: 405, fig. 21. Levring 1960: 122. Setchell 1935: 265. Taylor 1950: 101, pl. 53, fig. 2, pl. 55, fig. 2; 1963: 483, pl. 3, figs. 1–6. Weber van Bosse 1913*a*: 149.
T. turbinata sensu Setchell 1935: 265 (in part).

Type. Locality unknown (type in LINN).

Distribution. Tropical and subtropical waters of the Indian Ocean and western and central Pacific Ocean.

Solomon Is. GIZO Is.: New Manra (521a). KOLOMBANGARA: Dolo Cove (896b). NEW GEORGIA: Matiu Is. (392), Batuona Is. (501, 508b). RUSSELL Is.: Sifola (475, 801, 866b), Lingatu Pt. (815). FLORIDA Is.: Kokomtambu Is. (14). GUADALCANAL: Komimbo (263), Rove (894g), Kukum (182). [Auki Bay and Uras Cove, Malaita Is. (in Setchell). Bellona Is. (Setchell, in Taylor). Rennell Is. (Levring).]

A fairly common species, though often as scattered plants, in pools near and on the reef rim, under calm to moderate wave action.

This is a variable species but most collections agree with Taylor's description of the typical form.

Other species recorded

Turbinaria decurrens Bory ia recorded from Uras Cove, Malaita Is. by Taylor (1963, p. 478). These specimens (in UC and CAS) were placed by Setchell (1935, p. 264) as *T. murrayana*, but the leaves clearly contain vesicles.

Genus *SARGASSUM* C. Agardh

Sargassum coriifolium J. Agardh 1889: 96?

(Figure 6; figure 14, plate 24)

Type. From India, *Wight* (in E).

Distribution. Indo-Pacific?

Solomon Is. RUSSELL Is.: Sifola (479, 804, 867b), Lingatu Pt. (829b). GUADALCANAL: Kopiu (671, 744).

Growing on or near the reef rim under moderate to strong wave action, in similar habitats to *S. cristaefolium*.

These specimens compare fairly well with the original figures of *S. echinocarpum* Greville (1848, p. 274, pl. 5) and *S. lanceolatum* Greville (1848, p. 431, pl. 13). J. Agardh (1889, p. 96) considered Greville's species distinct from his species of the same name published earlier in 1848 and united Greville's species under the new name *S. corifolium*. Type specimens of *S. echinocarpum* are in E and K (now in BM) and the type of *S. lanceolatum* is in E. The former specimens are taken as the type of *S. coriifolium*. The type of *S. lanceolatum* has more lanceolate leaves than those of *S. echinocarpum* but may be specifically the same; a range of specimens is necessary to confirm this.

The Solomon Is. specimens have terete-angular branch axes, only occasionally flattened near the stem, and branching on all sides. The lower leaves are 2–4 cm long, 3–5 mm broad, with entire and smooth to slightly undulate or sometimes dentate margins; upper leaves are 1–3 cm long, 2–5 (–8) mm broad and strongly dentate, occasionally with duplicate apices; the midrib may or may not reach the leaf apex and cryptostomata are moderately to very prominent on the light-brown leaves. Vesicles are ovoid to spherical, 2–4 (–6) mm long, with a terete to broadly foliaceous petiole which may continue as a slight to distinct wing around the vesicle, occasionally forming a small leafy appendage on the vesicle; some vesicles bear occasional spines. Receptables are 1–2 mm long and 0.4–0.8 mm thick, becoming compound in clusters 2–5 mm long; receptacles usually terete–verrucose below and flattened with prominent spines or irregular spinous wings on their upper part (figure 6); conceptacles unisexual, receptacles bisexual.

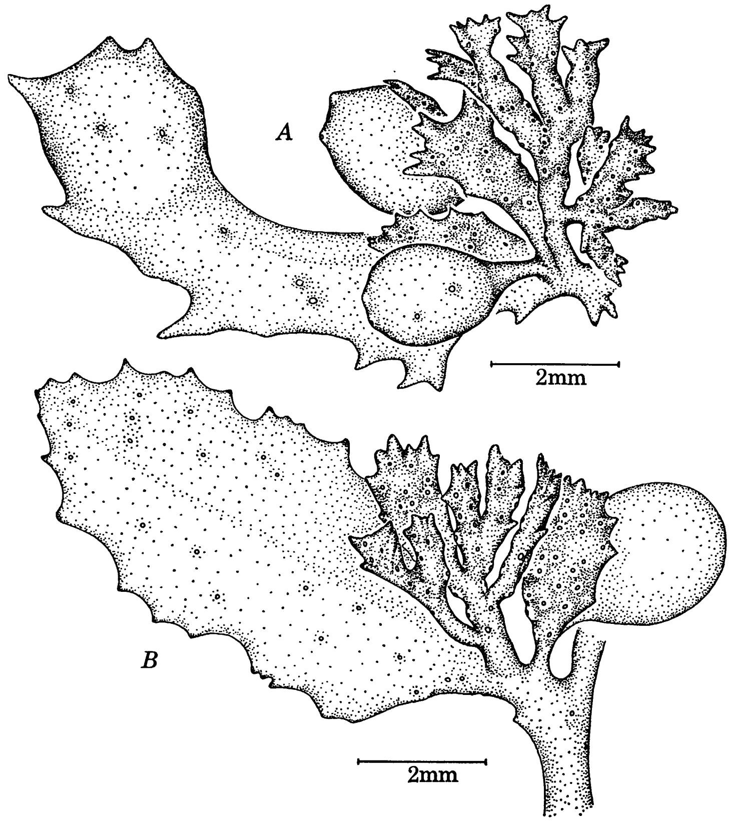

FIGURE 6. *Sargassum coriifolium. A,* Receptacle cluster with vesicles (no. 867b); *B,* cluster of slightly flattened receptacles with leaf and vesicle (no. 804.)

These specimens are generally similar to the type of *S. coriifolium* but their receptacles are smaller (probably younger). Further collections are needed to support this determination.

Sargassum cristaefolium C. Agardh 1820: 13; 1824: 297. J. Agardh 1848: 325; 1889: 91. Boergesen 1936: 79. Durairatnam 1961: 45, pl. 10, figs. 3–5. Grunow 1915: 398. Levring 1960: 122. Reinbold in Weber van Bosse 1913*a*: 157. Setchell 1935: 265. Sonder 1871: 42 (as var. *condensatum*).

S. duplicatum Bory 1828: 127. J. Agardh 1889: 90. Biswas & Sharma 1950: 89. Gepp & Gepp 1908: 182. Grunow 1915: 392. Okamura 1923*b*: 10, pl. 205. Pham-hoang 1967: 302, fig. 18. Reinbold in Weber van Bosse 1913*a*: 157.

S. ilicifolium (Turner) C. Agardh var. *duplicatum* (Bory) J. Agardh 1848: 318.

(Figure 7, figure 15, plate 25)

Type. From unknown locality (from Retzius, in LD). C. Agardh (1824) gives Ceylon.

Distribution. Tropical Indian and western Pacific oceans.

Solomon Is. GIZO Is.: New Manra (522a, 537, 538). NEW GEORGIA: Matiu Is. (398), Batuona Is. (502a). RUSSELL Is.: Sifola (477, 478, 840, 867a), Lingatu Pt. (814). SAN CRISTOBAL: Huni R. mouth (895a). [Uras Cove, Malaita Is. (Setchell) and Rennell Is. (Levring).]

Growing on the reef rim, often in shallow pools, under moderate to heavy wave action.

S. cristaefolium is probably a common alga under surf conditions in the Indo-Pacific tropics, and several other species and forms are probably referable to this taxon. It is probably more

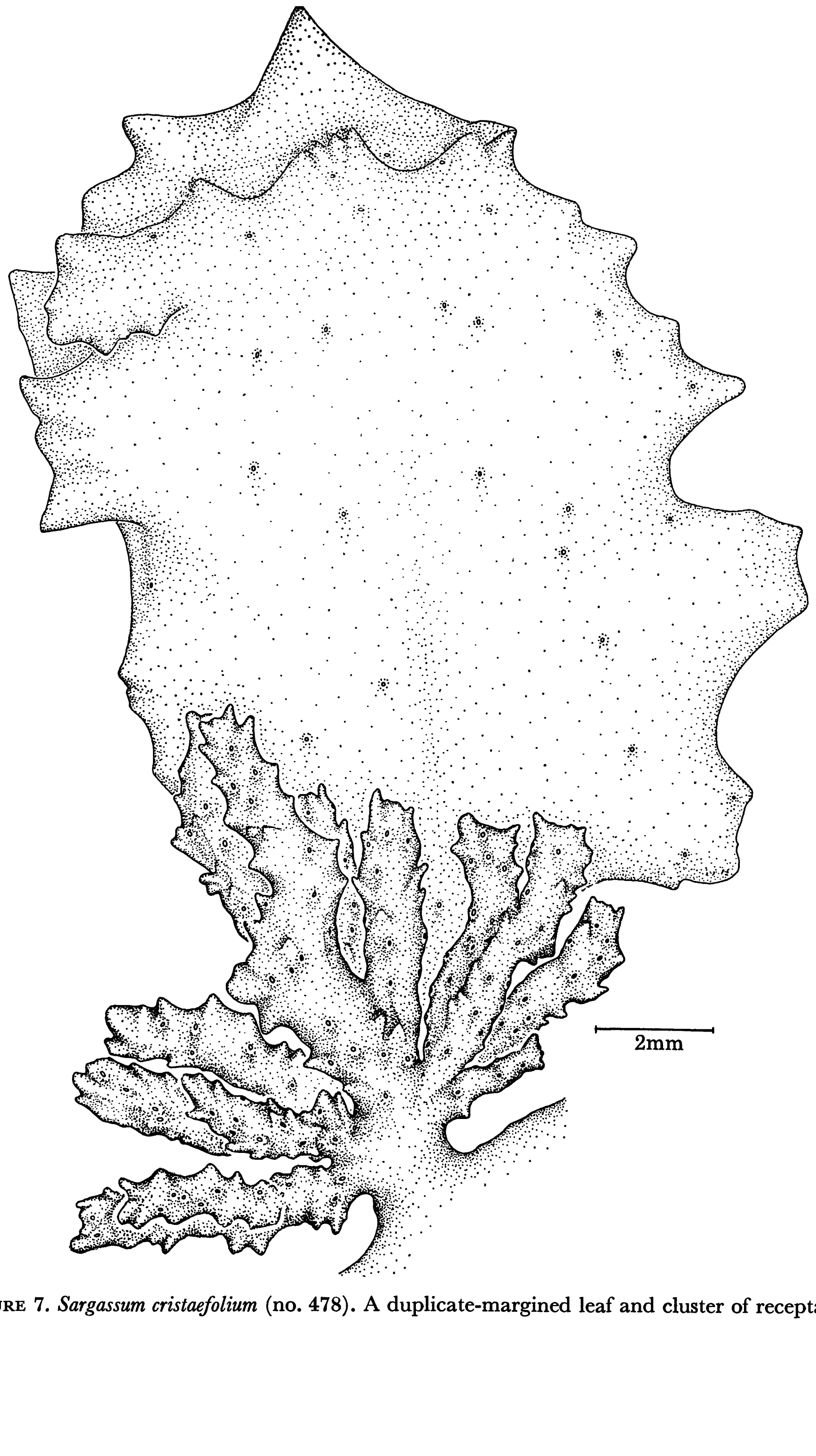

FIGURE 7. *Sargassum cristaefolium* (no. 478). A duplicate-margined leaf and cluster of receptacles.

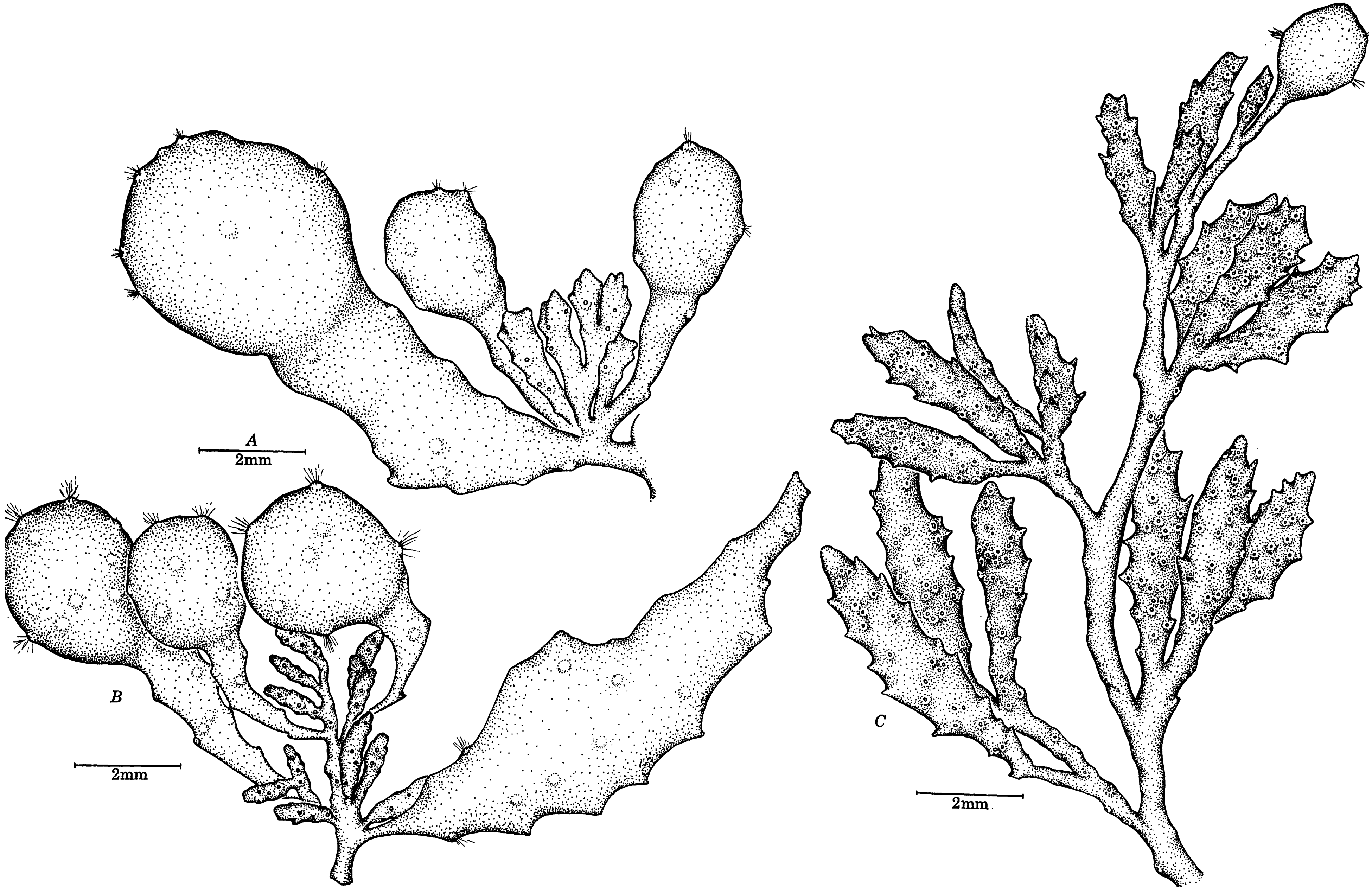

FIGURE 8. *Sargassum oligocystum* (no. 474a). *A*, Young, slightly flattened receptacles with vesicles; *B*, ditto but with more terete receptacles; *C*, old, fully mature receptacles (all from the one plant).

commonly known as *S. duplicatum* (lectotype from Tahiti, filed under *S. cristaefolium* in Herb. Thuret-Bornet, PC), but the descriptions of this species show no differences from the earlier described *S. cristaefolium*.

Other names which are possible synonyms of *S. cristaefolium* are:

S. crassifolium J. Agardh 1848: 326; 1889: 89. Dawson 1954*a*: 406, fig. 22f. Durairatnam 1961: 45, pl. 10, figs. 6–8. Grunow 1915: 390. Pham-hoang 1967: 300, fig. 17. Reinbold in Weber van Bosse 1913*a*: 158.

S. ilicifolium var. *conduplicatum* Grunow 1915: 405. Durairatnam 1961: 42, pl. 10, figs. 9–11. Reinbold in Weber van Bosse 1913*a*: 160.

S. coriifolium J. Agardh f. *duplicatum* Yamada 1950: 192, fig. 9.

S. fonanonense Setchell & Gardner ex Setchell 1924: 166, fig. 33 (1,2).

The relationships between *S. cristaefolium* and the earlier *S. ilicifolium* (Turner) C. Agardh (*Fucus ilicifolius* Turner 1808: 114, pl. 51) need further study. *S. cristaefolium* differs mainly in its 'crisped', compact form and duplicate-margined leaves, but these may be ecological variations found in plants growing under surf conditions and which are not shown in deeper water plants (= *S. ilicifolium*). While the Solomon Is. plants placed in *S. cristaefolium* all show duplicate-margined leaves, lower leaves on some plants do not show this feature.

Sargassum grevillei J. Agardh 1848: 336?; 1889: 105. Reinbold in Weber van Bosse 1913*a*: 155.

S. porosum Greville 1849: 106, pl. 4.

S. oligocystum sensu Setchell 1935: 266, pls. 11–15.

Type. From India or Indonesia (J. Agardh gave four localities; a lectotype needs selecting from type material in LD).

Distribution. Tropical Indo-Pacific.

Solomon Is. GUADALCANAL: Maraunibina Is. (579, 580b). [Bellona Is. (Setchell).]

These two drift collections are of the same taxon referred by Setchell (1935, p. 266) to *S. oligocystum* Montagne; the latter has been shown to be an earlier name for *S. binderi* Sonder (see below). It has not been possible to check authentic material of *S. grevillei* but the Solomon Is. specimens seem to agree well with descriptions of this species and of *S. porosum* Greville; no. 580b, however, has larger vesicles and leaves than 579 and further collections are needed to assess variability. Strongly oogonial receptacles are flattened (especially when young) and spinous (especially their upper parts), while strongly antheridial receptacles are terete-verrucose and usually become longer than essentially oogonial receptacles. Intergrades in both sexuality and form occur in the one plant.

Sargassum oligocystum Montagne 1845: 67. Grunow 1915: 385.

[NON Setchell 1935: 266, pl. 11–15.]

S. binderi Sonder ex J. Agardh 1848: 328; 1889: 87, pl. 26, fig. II. Durairatnam 1961: 45, pl. 9, figs. 11–15, pl. 10, figs. 1–2. Grunow 1870: 56; 1915: 383. Pham-hoang 1967: 295, fig. 14. Reinbold in Weber van Bosse 1913*a*: 156. Setchell 1935: 265. Sonder 1871: 43.

(Figure 8; figure 16, plate 25)

Type. From Lampoong, Sumatra (in PC).

Distribution. Tropical Indo-Pacific.

Solomon Is. NEW GEORGIA: Lumaliha Pass (474a). RUSSELL Is.: Sifola (867c). GUADALCANAL: Maraunibina Is. (580a). [Malaita Is.: Uras Cove (Setchell).]

Drift specimens from deeper water except for 867c from the reef rim.

Study of the type specimen of *S. oligocystum* in PC shows that it is almost certainly the same as the comparatively well known *S. binderi*, and quite different from Setchell's (1935) concept.

The type specimen has a discoid holdfast and a short stem (under 1 cm long). The axes are distinctly flattened, to 10 cm high and 2–3 mm broad, with laterals from their margins and thus tending to be distichously arranged. The leaves are crowded, 3–6 cm long, $\frac{3}{4}$–$1\frac{1}{4}$ cm broad, dark brown, margins distinctly dentate; the midrib is distinct to the apex and cryptostomata are scattered, slightly to moderately prominent. The receptacles are clustered, branched, compressed and with irregular and rather coarsely dentate margins; the clusters are to 7 mm long, individual receptacles 2–3 mm long and 1–$1\frac{1}{2}$ mm broad. No vesicles are present.

Other species recorded

Sargassum echinocarpum var. *phyllocysta* Grunow by Setchell (1935, p. 265) from Uras Cove, Malaita Is. The only specimen of Setchell's is in CAS and is inadequate for determination, consisting of two fragmentary specimens, the smaller bearing a single receptacle.

Sargassum polycystum. C. Agardh by Setchell (1935, p. 266) from Bellona Is. (in UC and CAS).

The presence of only four species of *Sargassum* in all the Solomon Island localities visited is surprisingly low. Setchell recorded two other species (see above) but in contrast Reinbold recorded some 45 species in the Siboga Expedition reports. Probably far more than the real number of tropical species of *Sargassum* has been recognized, and a monograph based on ecological and field experience is badly needed.

Phylum RHODOPHYTA

Bangiophycidae

Order GONIOTRICHALES

Family Goniotrichaceae

Other record

Goniotrichum elegans (Chauv.) Le Jolis by Levring (1960, p. 123) from Rennell Is. (epiphytic on various algae).

Order BANGIALES

Family Erythropeltidaceae

Other record

Erythrocladia subintegra Rosenvinge by Levring (1960, p. 123), from Rennell Is. (epiphytic on *Cladophora* and other algae).

Genus *ERYTHROTRICHIA* Areschoug

Erythrotrichia carnea (Dillwyn) J. Agardh. Boergesen 1924: 268. Dawson 1957: 111, fig. 16C. Durairatnam 1961: 47, pl. 11, figs. 3, 4. Levring 1960: 123. Weber van Bosse 1921: 188.

Type. From England.

Distribution. Cosmopolitan.

Solomon Is. RUSSELL Is.: Lingatu Pt. (827b, on *Chaetomorpha antennina*). GUADALCANAL: Honiara (373b, on *Spyridia filamentosa*). [Rennel Is. (Levring).]

Probably more common than indicated on algae in the moat and on the rim.

Floridiophycidae

Order NEMALIALES

Family Acrochaetiaceae

Genus *ACROCHAETIUM* Naegeli

Acrochaetium daviesii (Dillwyn) Naegeli. Baardseth 1941: 42, fig. 18. Boergesen 1927: 25, fig. 15.

Chantransia daviesii (Dillw.) Thuret. Rosenvinge 1909: 104, fig. 34.

Type. From Britain.

Distribution. Probably cosmopolitan.

Solomon Is. GIZO Is.: New Manra (522b). NEW GEORGIA: Batuona Is. (502b).

Both collections were growing on *Sargassum cristaefolium* on the reef rim under rough conditions. No. 502b is typical, with numerous fasciculate sporangial clusters, while in 522b the fasciculate clusters are comparatively rare but numerous solitary or paired monosporangia occur both along the filaments and in axillary positions.

Acrochaetium sargassi Boergesen 1915: 17, figs. 7–10. Taylor 1928: 134, pl. 22, figs. 1–5; 1960: 306. Weber van Bosse 1921: 193.

Type. From St Thomas, Virgin Is. (in C).

Distribution. Western tropical Atlantic.

Solomon Is. GUADALCANAL: Kukum (183b), Maraunibina Is. (576b).

Both collections were growing on *Galaxaura fastigiata* in the moat area under fairly calm conditions.

The monosporangia tend to be larger (about 18×10 μm) than Boergesen's type (10×7 μm), but otherwise there is close resemblance. The basal cell is distinctive and very thick walled. As Boergesen (1915, pp. 19–20) commented, the relation of *A. sargassi* to *A. dufourii* Collins needs further study.

Acrochaetium seriatum Boergesen 1915: 32, figs. 25–28. Abbott 1947: 203, fig. 4c; 1962: 113, fig. 15. Taylor 1960: 310. Weber van Bosse 1921: 193.

Rhodochorton seriatum (Boerg.) Nakamura 1944: 104, fig. 4.

Type. From St Croix, Virgin Is. (in C).

Distribution. Western tropical Atlantic, central and western Pacific (to Indonesia).

Solomon Is. Guadalcanal: Honiara (374b).

Growing on *Halimeda tuna* on the jetty piles, upper sublittoral.

Family Helminthocladiaceae

Genus *DERMONEMA* Greville ex Heydrich

Dermonema frappieri (Montagne & Millardet) Boergesen 1942: 42, fig. 21. Dawson 1954*a*: 414, fig. 25m; 1954*b*: 6, fig. 4. Desikachary 1962: 135, figs. 31–56. Papenfuss 1967: 96.
D. gracile (Martens) Weber van Bosse 1921: 204. Boergesen 1937: 320. Svedelius 1939: 21, figs. 1–19. Tseng 1945: 159, pl. 1, figs. 5–6.

Type. From Reunion Is. (near Mauritius) (in PC).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. GUADALCANAL: Kopiu (748).

A single plant from a reef pool under moderate roughness.

Family Chaetangiaceae

Genus *ACTINOTRICHIA* Decaisne

Actinotrichia fragilis (Forsskål) Boergesen. Dawson 1954*a*: 416, fig. 28b. Svedelius 1952: 1, figs. 1–6, 9–15.
A. rigida (Lamx.) Decaisne. Okamura 1916*b*: 30, pl. 158, figs. 17–19. Setchell 1924: 164. Weber van Bosse 1921: 207, pl. 6, figs. 1, 2.

Type. From the Red Sea.

Distribution. Tropical Indian and Pacific oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (446). RUSSELL Is.: Sifola (885), Lingatu Pt. (818). FLORIDA Is.: Kokomtambu Is. (19), Tetel Is. (88a, 128a), Haroro (50), GUADALCANAL: Komimbo (115, 243), Cape Esperance (320), Mamara (157), Rove (894m), Kukum (200), Maraunibina Is. (575). SAN CRISTOBAL: Kira Kira (379).

Common in the reef moat or sublittoral, under calm to moderate wave action.

Genus *GALAXAURA* Lamouroux

The collections of species of *Galaxaura* from the Solomon Islands give little help in solving the problems of this genus. In nearly all cases, all plants in each collection are either sexual or asexual and not mixed, so that the two generations of one species cannot be clarified. It is noticeable too that where a sexual species is considered common to both the Atlantic and the Pacific, what might be thought to be the asexual phase is different in the two oceans.

Galaxaura acuminata Kjellmann ex Butters 1911: 180, pl. 24, figs. 17–19. Dawson 1956: 45, fig. 36. Svedelius 1953: 63, figs. 53–55, 57–60.
G. apiculata Kjellmann sensu Chou 1945: 51, pl. 5, figs. 13–19, pl. 9, fig. 1.

Type. From Waianae, Oahu, Hawaiian Islands (Tilden 821 in MIN).

Distribution. Hawaiian Is., Philippine Is., Tonga.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (12). GUADALCANAL: Maraunibina Is. (577).

Growing in the moat area under fairly calm conditions.

These collections (3 plants of 12, over 20 of 577) are all asexual and agree well with Svedelius's description of *G. acuminata*. From occurrence and form, *G. ventricosa* could possibly be the sexual generation.

Galaxaura fasciculata Kjellmann 1900: 53, pl. 5, figs. 1–9, pl. 20, fig. 14. Chou 1945: 44, pl. 2, fig. 2, pl. 8, fig. 1. Dawson 1954*a*: 419, fig. 29b: 1956: 45, fig. 35. Tanaka 1936: 147, figs. 5–6. Weber van Bosse 1921: 211.

Type. From the Celebes (in UPS).

Distribution. Western tropical Pacific Ocean.

Solomon Is. RUSSELL Is.: Sifola (877a, 886). FLORIDA Is.: Tetel Is. (45, 88b). GUADALCANAL: Kukum (184).

In pools or the moat under fairly calm conditions.

Galaxaura cohaerens Kjellmann (1900, p. 54, pl. 5, figs. 10–18, pl. 20, fig. 10) from New Caledonia appears doubtfully distinct from *G. fasciculata*.

Galaxaura fastigiata Decaisne. Dawson 1954*a*: 419, fig. 30b. Kjellmann 1900: 64, pl. 9, figs. 1–3, pl. 20, fig. 4. Svedelius 1945: 28, figs. 14, 15, pls. 4, 5; 1953: 5, figs. 1–3. Tanaka 1936: 157, figs. 20–21, pl. 37, fig. 2. Weber van Bosse 1921: 213.

Type. From Manila, Philippine Is. (in PC?, isotype in S).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. GUADALCANAL: Komimbo (229), Mamara (156), Kukum (183a, 891a), Maraunibina Is. (576).

In pools at a lower eulittoral level and in the reef moat, under fairly calm conditions.

This material agrees well with the descriptions of Svedelius, who in contrast to Chou (1947, p. 8) maintains it as distinct from *G. oblongata*. The Solomon Is. collections are sexual, without associated asexual plants. No. 576 is referred to *G. fastigiata* with some doubt as it is a broader ($1\frac{1}{2}$ mm), more robust plant compared to the others which are 1–$1\frac{1}{4}$ mm broad. However, the internal structure is essentially similar and the inner cortical cells are not calcified as in *G. oblongata*.

Galaxaura filamentosa Chou ex Taylor 1945: 139. Chou 1945: 39, pl. 1, figs. 1–6, pl. 6, fig. 1. Dawson 1954*a*: 419, fig. 30a. Svedelius 1953: 33, figs. 29–32.

Type. From Clarion Is., Revilla Gigedo Is., Mexico (in AHFH).

Distribution. Tropical Pacific Ocean (previously mainly north of the equator); tropical West Africa.

Solomon Is. RUSSELL Is.: Sifola (877b), Lingatu Pt. (820a). GUADALCANAL: Komimbo (228a), Maraunibina Is. (595).

In the reef moat under fairly calm conditions.

These plants agree well with the descriptions by Chou and Svedelius.

Galaxaura squalida Kjellmann 1900: 55, pl. 6, figs. 1–12, pl. 20, fig. 9. Chou 1947: 9, pl. 4, figs. 1–11, pl. 8, fig. 2. Steentoft 1967: 123. Svedelius 1945: 3, figs. 1–7, pl. 1.

Type. From St Croix, Virgin Is. (in S).

Distribution. Tropical Indian, Pacific and Atlantic Oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (389). FLORIDA Is.: Kokomtambu Is. (6).

Growing at 12 m depth under an overhang on the outer side of Matiu Is.; drift at Kokomtambu Is. This is apparently a rare species in the Solomon Islands.

Galaxaura ventricosa Kjellmann 1900: 81, pl. 16, figs. 11–16, pl. 20, fig. 24. Chou 1947: 18, pl. 6, figs. 9–12, pl. 12, fig. 2. Taylor 1945: 143.

Type. From the Gabon R. mouth, Africa (in S).

Distribution. Tropical eastern Atlantic, Pacific, Mexico.

Solomon Is. GUADALCANAL: Komimbo (295).

Growing on the outer edge of the reef, upper sublittoral, in slight wave wash.

A single collection of two plants, with the thallus 2–3 mm broad, smooth, the margins (only) covered with papillate cells which arise from every cortical cell in this region. These are features of *G. ventricosa* rather than *G. veprecula* Kjellmann, according to Chou. The form of the papillate cells is similar to Kjellmann's and Svedelius's (1953, fig. 28) figures of *G. veprecula* rather than Kjellmann's figures of *G. ventricosa*, but Chou regards the form of these cells as unreliable. Whether their restriction to the thallus margins is any more satisfactory is doubtful, but the Solomon Islands plants show this restriction markedly.

Distinctions between these two species and the asexual generation (*G. occidentalis* Boergesen 1916, p. 109) of the western tropical Atlantic *G. marginata* (see Howe 1918, p. 191; Taylor 1960, p. 343) also need clarifying, as do the relationships of *G. kjellmanni* and *G. sibogae* of Weber van Bosse (1921, pp. 217, 218).

Since *G. ventricosa* is the only verprecula (sexual) type and *C. acuminata* is the only brachycladia (asexual) type collected in the Solomon Islands, these may prove to be the two generations of one species.

Order GELIDIALES

Family Gelidiaceae

Genus *GELIDIELLA* Feldmann & Hamel

Gelidiella acerosa (Forsskål) Feldmann & Hamel 1934: 533. Dawson 1953: 82; 1954*a*: 422, fig. 33g. Taylor 1960: 351, pl. 46, fig. 5.

Echinocaulon acerosum (Forssk.) Boergesen 1932: 5, pl. 1, fig. 3.

Gelidiopsis rigida (Vahl) Weber van Bosse 1928: 427, fig. 172.

Type. From the Red Sea (in C, no. 874).

Distribution. Tropical oceans in general.

Solomon Is. GIZO IS.: New Manra (521b, 529). NEW GEORGIA: Matiu Is. (463g), Batuona Is. (507d). RUSSELL IS.: Sifola (869a). GUADALCANAL: Rove (894j), Kukum (190), Untava (704), Kopiu (746). SAN CRISTOBAL: Kira Kira (384), Huni R. mouth (895l).

Growing near the reef rim or in pools where subject to moderate to strong wave action.

Some of the above collections are of fragmentary specimens only (a cm or so high).

Gelidiella ligulata Dawson 1953: 81, pl. 6, figs. 3–5.

Type. From Cabeza Ballena, Pacific Mexico (in AHFH, 54721).

Distribution. Apparently only known from the type locality.

Solomon Is. GUADALCANAL: Kopiu (749).

Growing on the reef rim under fairly strong wave action.

This collection agrees well with Dawson's description but appears to be a slightly slenderer plant, with branches usually less than 1 mm broad. Tetrasporangia are borne rather irregularly in upper parts of lateral branches.

Gelidiella lubrica (Kuetzing) Feldmann & Hamel 1934: 8, figs. 3–5.
Acrocarpus lubricus Kuetzing 1843: 405, pl. 60, fig. II; 1868: 11, pl. 32d–k.

Type. From Naples, Italy (in L, 941, 46...46).
Distribution. Mediterranean.
Solomon Is. FLORIDA Is.: Kokomtambu Is. (33b), Tetel Is. (126b, 140b), GUADALCANAL: Komimbo (296b).

Forming a mixed turf up to 1 cm high, on coral debris, at a low eulittoral level under calm conditions. No. 126b is tetrasporangial and agrees well with the above references; the other numbers are sterile and are provisionally referred to *G. lubrica*.

Genus *GELIDIUM* Lamouroux

Gelidium pusillum (Stackhouse) Le Jolis. Boergesen 1924: 279, fig. 26. Dawson 1953: 62; 1954*a*: 420, fig. 31a–c. Taylor 1960: 354, pl. 45, fig. 4. Womersley 1958: 153.

Type. From Sidmouth, England (fragment in BM).
Distribution. Cosmopolitan.
Solomon Is. RUSSELL Is.: Avuna (793a). GUADALCANAL: Cape Esperance (326a, 892i), Mamara (160, 161), Rove (894k, n), Kukum (195), Kopiu (746b).

At Mamara forming a short turf on rock at a mid eulittoral level at the rear of the reef, otherwise on the reef rim, under slight to moderate wave action.

Small, turf-forming plants, less than 1 cm high, with erect, usually flattened branches from prostrate bases, and with rhizines in the medulla. Most plants were sterile but several were tetrasporangial.

One collection (296a from Komimbo) which on general features would have been placed as a slender form of *G. pusillum*, contained a plant bearing a few cystocarps. These were unilocular, with carposporangia borne in chains of 2–3. Rhizines were present in older parts of the thallus. This collection appears referable to *Pterocladia*, but is inadequate for a definite record. Nearly all collections referred to *G. pusillum* from most parts of the world appear to be without cystocarpic material, and knowledge of this species is accordingly limited.

Order CRYPTONEMIALES

Family Rhizophyllidaceae

Genus *CHONDROCOCCUS* Kuetzing

Chondrococcus hornemanii (Lyngbye) Schmitz. Silva 1952: 304. Weber van Bosse 1921: 255.
Desmia hornemanii Lyngbye 1819: 35, pl. 7c. Boergesen 1933*b*: 117, Kylin 1956: 166, fig. 113. Papenfuss 1940: 216, fig. 12.
Chondrococcus harveyi (J. Agardh) De Toni. Womersley 1958: 155, pl. 26.

Type. Probably from the Red Sea (in C).
Distribution. Tropical and subtropical Indian and western Pacific Oceans.
Solomon Is. GIZO Is.: New Manra (530). NEW GEORGIA: Matiu Is. (428). FLORIDA Is.: Kokomtambu Is. (16). GUADALCANAL: Maraunibina Is. (757b), Pidgeon Is. (723).

The Solomon Is. specimens, and also those from Arnhem Land previously referred (Womersley 1958) to *C. harveyi*, are slender specimens similar to the type illustration of Lyngbye. Some specimens (428, 530) are small, being either young or stunted under rough conditions. *C. harveyi* is probably the same as the type, in contrast to the broader South African specimens (see Papenfuss 1940, fig. 12).

Family Peyssoneliaceae

Genus *ETHELIA* Weber van Bosse

Ethelia biradiata (Weber van Bosse) Weber van Bosse 1921: 297, fig. 107. Denizot 1968: 227, figs. 193–196.

Peyssonelia biradiata Weber van Bosse 1913*b*: 140, pl. 14, figs. 36, 37.

Type. From the Seychelles (in L, 960, 113...884).

Distribution. Seychelles, Borneo, New Caledonia.

Solomon Is. GIZO Is.: New Manra (534b).

On the shaded side of a surge channel in the reef rim, with considerable wave action.

This single collection agrees structurally with *Ethelia* and appears referable to the type species.

Genus *PEYSSONELIA* Decaisne

Peyssonelia calcea Heydrich 1897*a*: 10. Dawson 1953: 107; 1954*a*: 425, fig. 37a. Denizot 1968: 132, fig. 113. Taylor 1945: 169. Weber van Bosse 1921: 277, fig. 94.

Type. From Tami Is., New Guinea (lost—see Dawson 1953, p. 108).

Distribution. Tropical Indo-Pacific to Mexico.

Solomon Is. GIZO Is.: New Manra (543c). NEW GEORGIA: Matiu Is. (422b). FLORIDA Is.: Kokomtambu Is. (28), Tetel Is. (42a, 128b, 142a). GUADALCANAL: Komimbo (292a), Paruru (633b, 754b), Maraunibina Is. (567c, 574, 759b), Waimia (654b).

This is one of the commonest encrusting non-corallinaceous algae, on debris and rock in the moat and near the rim, under calm to rough conditions.

These specimens agree well with the above descriptions and figures and are calcified throughout the thallus; lateral cell fusions are also present. The type, however, was described from the rhizomes of *Zostera* and larger algae (becoming 5–10 cm across!), whereas the Solomon Is. specimens (and those recorded by other authors) were on rock or coral.

Peyssonelia capensis Montagne. Denizot 1968: 123, figs. 105, 107.

Type. From South Africa (in PC).

Distribution. South Africa, Angola, southern Australia, Japan. (Probably more widespread.)

Solomon Is. NEW GEORGIA: Matiu Is. (403).

This collection consists of several specimens from shaded areas at the rear of a surge channel. The thallus is relatively thin, adherent only in older parts and easily removed. Calcification is apparently hypobasal only, the rhizoids become multicellular with one to a few slender cross walls, and the perithallial filaments are arcuate from the anterior part of the hypothallial cells.

Apart from the apparent lack of any thallus calcification, these specimens agree well with *P. capensis*; Denizot places the southern Australian *P. gunniana* J. Ag. (recorded by Weber van Bosse 1921, p. 272 from Indonesia) as a synonym of *P. capensis*.

Peyssonelia conchicola Piccone & Grunow. Dawson 1956: 47, fig. 38. Denizot 1968: 102, fig. 86. Weber van Bosse 1921: 272, fig. 91.

Type. From the Red Sea (in PAV and L—see Dawson 1953, p. 106).

Distribution. Probably widespread in the tropics.

Solomon Is. NEW GEORGIA: Matiu Is. (437a), Ulukoro (499a,b). GUADALCANAL: Naro Pt. (283), Mamara (164), Rove (372c), Honiara (203b), Kukum (223c), Maraunibina Is. (607).

Common as an encrusting layer on old coral in the moat (especially where shaded) and upper sublittoral, under slight to moderate wave action; at Matiu Is., forming patches under tree shade at a lower to mid eulittoral level.

These collections are somewhat variable in degree of attachment to the substratum and in thickness and colour. The crusts are probably completely adherent when growing but some tend to have separated margins when dried. Plants from the underside of table-*Acropora* corals are dark greenish-yellow to brown in colour, those more exposed to the sun are dark red. Some related taxa in this group of *Peyssonelia* (see Denizot, p. 89) are not clearly distinguished and further studies are needed to clarify them.

Peyssonelia inamoena Pilger 1911: 311, figs. 24–25. Denizot 1968: 97, figs. 78–84.

Type. From the Cameroons (Nigeria), (in ?).

Distribution. Tropical west Africa.

Solomon Is. NEW GEORGIA: Matiu Is. (425a, 451). GUADALCANAL: Komimbo (292b), Rove (894l), Kukum (172c, 194), Maraunibina Is. (567e).

In the moat and pools at the reef rear, shaded and subject to slight wave action.

These collections consist of dark red crusts, the older parts adhering fairly strongly to the substratum but removable in large part. They belong to the 'inamoena' group of Denizot and are referred provisionally to this species. *P. rubra* var. *orientalis* Weber van Bosse (1921, p. 270, fig. 89) may be the same taxon. No. 194 has small (calcareous?) deposits between some of the perithallial cells and may prove to be distinct from the others.

Peyssonelia neocaledonica Kuetzing 1869: 32, pl. 90c–d. Denizot 1968: 129, figs. 111, 112.

(Figure 17, plate 25)

Type. From New Caledonia (in L, 941, 181...434).

Distribution. New Caledonia.

Solomon Is. NEW GEORGIA: Matiu Is. (453).

This collection consists of two pieces (of one plant), up to 8 cm long and 6 cm across, which were growing 1–2 m deep on the sides of a heavily shaded surge-pool at the reef rear. The brittle, heavily calcified, lamellate thallus is 300–1000 μm thick and has abundant multicellular rhizoids (as figured by Denizot); it was not adherent over most of its under surface. The Solomon Islands specimens are considerably larger and more robust than the type specimen.

Peyssonelia sp.

(Figure 18, plate 25)

Solomon Is. NEW GEORGIA: Matiu Is. (454).

Heavily calcified crustose thalli growing on the sides of a pool at the reef rear, 1–2 m deep and heavily shaded.

The thallus superficially resembles an encrusting coralline, but comprises 1 to several overgrowing layers of *Peyssonelia* structure, with short rhizoids below and mostly not firmly attached. The thallus is calcified throughout and in places an epiphytic coralline producing lithophylloid conceptacles occurs on the surface. The material is scarcely adequate to establish a new species, but appears distinct from all known species of *Peyssonelia*.

Family Hildenbrandiaceae

Genus *HILDENBRANDIA* Nardo

Hildenbrandia prototypus Nardo. Dawson 1953: 95, pl. 7, fig. 4; 1954*a*: 424, fig. 36a, b. Denizot 1968: 199.

Type. From the Adriatic (Italy).

Distribution. Cosmopolitan in temperate to tropical seas.

Solomon Is. GUADALCANAL: Cape Esperance (337), Mamara (154), Kukum (217).

Growing on smooth stones (usually igneous) in the reef moat or lower eulittoral.

Family Corallinaceae

Sporolitheae

Genus *SPOROLITHON* Heydrich

Sporolithon erythraeum (Rothpl.) Kylin 1956: 205. Dawson 1960*a*: 41.

Archaeolithothamnion erythraeum (Rothpl.) Foslie 1904: 38, pls. 5, 6. Setchell 1926: 107.

Sporolithon ptychoides Heydrich 1897*b*: 67, figs. 2, 3, pl. 3, figs. 15–23; 1897*c*: 415, pl. 18. Denizot 1968: 207, figs. 170, 171.

Type. From the Red Sea.

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (437b). GUADALCANAL: Waimia (654a).

These two poorly developed specimens form a crust, with only slight nodule formation, but are abundantly fertile. The Matiu Is. specimen was from a mid-eulittoral level under tree shade, with slight wave action only; the Waimia specimen was from the outer reef edge at a low eulittoral level.

Both specimens show nemathecia with abundant cruciate sporangia, often in several fertile layers of the thallus. They appear to agree with *A. erythraeum* as described by Foslie (1904, p. 38) from the Siboga Expedition, and also agree with *Sporolithon ptychoides* Heydrich (1897*a*, p. 67 and 1897*b*, p. 415) which is relegated to a synonym by Foslie. Presence of cruciate sporangia in *S. erythraeum* has been doubted, but Denizot (1968, p. 207, fig. 170) records them for *S. ptychoides* and they are clearly shown in the Solomon Is. specimens.

Cruciate sporangia are unknown in any other genus of Corallinaceae, but are characteristic of many other encrusting red algae. Until their presence in the fossil type species of *Archaeolithothamnion* (*A. cenomanicum* (Rothpl.) Foslie) is established, it seems best to keep living species in *Sporolithon* and the fossil taxa in *Archaeolithothamnion*, as has been done by Kylin.

Denizot (1968, p. 205) regards *Sporolithon* as an aberrant genus of the Corallinaceae. However, the cruciate division of the tetrasporangia and lack of an epithallial layer indicate that *Sporolithon* should probably not be referred to this family. Information on the early development of the crust, origin of tetrasporangia and the possible presence of other reproductive structures is necessary before the relationships of *Sporolithon* can be better understood.

Lithothamnieae

Genus *LITHOTHAMNIUM* Philippi

Lithothamnium simulans Foslie f. *crispescens* Foslie 1904: 16, fig. 7, pl. 1, figs. 21–23; 1929: 45, pl. 8, figs. 16–17.

Type. Of form from Elat, Kei Is. (a fertile specimen illustrated by Foslie from Stn. 261, is suggested as lectotype (in L?)).

Distribution. Indonesia, Samoa.

Solomon Is. Gizo Is.: New Manra (542).

This single collection agrees in form with Foslie's description, but is sterile and the determination is provisional. It forms a mass of thin crusts growing over each other. The species (but apparently not the form) has been referred to *Mesophyllum* Lemoine (1928, p. 252).

Lithophylleae

Genus *FOSLIELLA* Howe

Fosliella farinosa (Lamx.) Howe. Dawson 1954*a*: 425, fig. 37c; 1960*b*: 30, pl. 21, fig. 1, pl. 22, fig. 1. Taylor 1960: 388.

Melobesia farinosa Lamx. Foslie 1904: 55. Levring 1960: 123.

Type. From the Adriatic Sea (in CN)—see Dawson 1960*b*, p. 30.

Distribution. Cosmopolitan.

Solomon Is. Russell Is.: Sifola (881b). [Rennell Is. (Levring).]

Growing on *Dictyota friabilis* under moderate wave action. Isolated specimens were observed on other algae in other collections and the species probably occurs throughout the Solomon Islands.

Genus *HETERODERMA* Foslie

Heteroderma ?

Solomon Is. Guadalcanal: Cape Esperance (358).

Growing on other algae and animals (sponge?) on shaded parts of a large igneous rock outcrop, at a lower eulittoral level, under moderate wave wash.

These specimens consist of small disks, often overlapping, essentially monostromatic with small epithallial cells, without conspicuous heterocysts, and with prominent lateral fusions between the cells; a few empty unipored conceptacles were seen. Further material is needed for determination but it is probably referable to *Heteroderma*.

Genus *LITHOPHYLLUM* Philippi

Lithophyllum moluccense Foslie 1897: 12; 1904: 67, figs. 25, 26, pl. 12, fig. 2–13; 1929: 36, pl. 55, figs. 14–21.

(Figure 19, plate 26)

Type. From the Molucca Is. (in TRH).

Distribution. Mauritius, tropical Indo-Pacific region (var. from Galapagos Is.).

Solomon Is. New Georgia: Matiu Is. (465, 468b), Ulukoro (497c). Russell Is.: Avuna (789b). Florida Is.: Kokomtambu Is. (20), Tetel Is. (42b). Guadalcanal: Komimbo (291, 332c), Mamara (168), Honiara (202), Paruru (753c), Maraunibina Is. (567b, 603), Untava (713), Waimia (652a, 733).

This is the most striking branched coralline of the reef rim under conditions of moderate wave action, but does not occur either in very calm conditions or in heavy surf. It is usually emergent between waves at low tide.

Most material is of Foslie's f. *typica*, but varying in the one collection, and even in one plant, to f. *flabelliformis* and f. *pygmaea*; the latter appears to be a young growth form in some cases. No. 168, from moderate wave action, showed striking flattening of the thallus in the form of tubular growth with a central space about 1 cm across (figure 19, plate 26). This may have originated by growth around coral branches which were later destroyed, with the alga continuing upward growth.

Lithophyllum okamurai Foslie 1900: 4; 1904: 59, pl. 11, figs. 11–19; 1929: 36, pl. 64, figs. 1–6. Dawson 1954*a*: 427, fig. 39a.

Type. From Sagami, Japan (in TRH).

Distribution. Japan, Ceylon, Indonesia.

Solomon Is. NEW GEORGIA: Matiu Is. (426), Ulukoro Is. (498b). GUADALCANAL: Komimbo (332c), Maraunibina Is. (569), Untava (728).

Occasional plants on coral debris in the moat area, or pools near the rim under slight to moderate wave wash.

Apart from 569 which was common in a rubble patch in the moat, this is not a common alga. The few sporangia seen were bisporic.

Lithophyllum sp.

(Figure 20, plate 26)

Solomon Is. GUADALCANAL: Maraunibina Is. (571).

A single specimen from the reef edge, upper sublittoral. The specimen is fairly coarse, branched, to 9 cm high with branches to 5 mm thick. The conceptacles are not well developed but appear uni-pored and the internal structure is of bands of larger and smaller cells, often alternating or with concentric bands of several rows of larger cells. Typical megacell patches of *Porolithon* were not seen. This single specimen is scarcely adequate for determination but may be related to *L. okamurai.*

Genus *LITHOPORELLA* Foslie

Lithoporella melobesioides (Foslie) Foslie 1909: 58.

Mastophora melobesioides Foslie 1904: 73, figs. 30–32; 1929: 48, pl. 73, figs. 1–4.

Type. From the Maldive Is. (in TRH).

Distribution. Maldive and Laccadive Islands, Red Sea, Indonesia, Samoa.

Solomon Is. FLORIDA Is.: Tetel Is. (44). GUADALCANAL: Untava (689c).

Growing on coral debris in the reef moat, under slight to moderate wave wash.

The two collections consist of many overgrowing layers forming a solid crustose thallus; the layers are separate on decalcifying and are monostromatic except where the single-pored conceptacles occur. This alga superficially resembles others such as *Neogoniolithon myriocarpum* and may be commoner than indicated by these two records. It is readily recognized in sectional view.

Genus *NEOGONIOLITHON* Setchell & Mason

Neogoniolithon fosliei (Heydrich) Setchell & Mason 1943: 90.

Goniolithon fosliei (Heydrich) Foslie 1904: 46, fig. 19, pl. 9, figs. 1–5; 1929: 29, pl. 46, figs. 1–5.

Type. From El Tor, Red Sea.

Distribution. Tropical Indian Ocean, Indonesia.

Solomon Is. New Georgia: Matiu Is. (464b). Guadalcanal: Maraunibina Is. (567f, 568c, 757c).

A single specimen in each collection. The thallus is moderately thick, white, with numerous, well defined, vertical rows of megacells. Large conceptacles present appear to have undivided reproductive bodies and thus may be cystocarps. Foslie commented that this species may comprise female plants and *N. myriocarpum* the asexual plants of one species.

Neogoniolithon megalocystum (Foslie) Setchell & Mason 1943: 90.

Goniolithon megalocystum Foslie 1904: 48, fig. 20, pl. 9, figs. 8–9; 1929: 30, pl. 46, fig. 9. Setchell 1926: 110.

(Figure 21, plate 26)

Type. From Kawio Is. (south of the Philippines) (in TRH).

Distribution. Only known from the type locality, the Sulu Archipelago and Tahiti.

Solomon Is. New Georgia: Matiu Is. (452). Florida Is.: Kokomtambu Is. (11). Guadalcanal: Paruru (633d?), Maraunibina Is. (604?).

The main collection (452) of several well-developed specimens, to 6 cm across, occurred to a depth of 1 m in a deep, completely shaded pool at the rear of the outer reef on Matiu Is. This pool had under-reef connexion with the sea and was subject to surges even at low tide. The other collections (especially 604 and 633d) are fragmentary and from coral rubble in the reef moat, but in structure and lamellations agree with the Matiu Is. specimens.

The Matiu Is. specimens form thin ($\frac{1}{2}$ mm thick) flattish undulate disks, showing concentric markings on both sides and in most specimens with numerous lamellate proliferations 2–4 mm long, especially on the underside and often (but not always) on the upper surface. The thallus adheres only in the older parts, by the proliferations, and is easily removed from the rock substrate.

These appear to be older and better developed plants than the single type specimen, which does not show lamellate proliferations (nor the megacells illustrated by Foslie (1904, fig. 20B) in a doubtful specimen). In transverse structure and in conceptacles the Matiu Is. specimens agree well with Foslie's figures and descriptions, though some of the conceptacles have an extremely long neck.

This alga may be the same as that described by Denizot (1968, p. 258, figs. 222, 223) as *Riquetophycus polypus*; fertile specimens were not available to Denizot.

Neogoniolithon myriocarpum (Foslie) Setchell & Mason 1943: 90. Dawson 1954*a*: 428, fig. 39b.

Lithothamnium myriocarpum Foslie 1897: 19.

Goniolithon myriocarpon Foslie 1904: 45, pl. 9, figs. 6–7; 1929: 30, pl. 46, fig. 6.

Type. From the Red Sea (in TRH).

Distribution. The Red Sea and Indo-Pacific tropics; Easter Island.

Solomon Is. GIZO Is.: New Manra (535, 543a, 549b, 550). NEW GEORGIA: Matiu Is. (390b, 422a, 423a, 425b, 434a, 468a?), Ulukoro Is. (498a), Batuona Is. (509a). RUSSELL Is.: Yandina (855), Avuna (780, 787, 789a), Sifola (842a, 876?, 889?). FLORIDA Is.: Tetel Is. (142b, 205). GUADALCANAL: Komimbo (332a, 333), Mamara (165b, 169, 227b), Rove (372b), Honiara (203a), Kukum (192, 221), Paruru (633c, 634a, 635, 753b, 754c), Maraunibina Is. (559, 567d, 568b, 758a, 760b), Untava (689b), Waimia (652b, 653), Kopiu (750).

This is the common cementing species on the rubble in the moat and to a less extent on the reef rim (where *Porolithon* is dominant). No. 425b occurred at a depth of 32 m on the outside of Matiu Is.

The thallus forms fairly thin crusts, 300–500 (–2000) mm thick with a well-developed hypothallium and usually a relatively thin perithallium. Megacells are often absent or virtually so, as noted by Foslie & Dawson, but appear in some specimens (e.g. 192). Few to crowded conceptacles are usually present, slightly convex, and the thallus surface is often an off-white colour in contrast to the white thallus and only occasional conceptacles on the surface of *Porolithon.*

Genus *POROLITHON* Foslie

Porolithon onkodes (Heydrich) Foslie 1909: 57. Dawson 1957: 114. Lee 1967: 991, figs. 8–10. Taylor 1950: 125, pls. 9, 61–63.

Lithothamnion onkodes Heydrich 1897*a*: 6, pl. 1, fig. 11.

Lithophyllum onkodes Heydrich. Foslie 1904: 57, pl. 11, figs. 5–10; 1929: 36, pl. 67, figs. 3, 4, 6, 7.

Type. From Tami Is., New Guinea.

Distribution. Tropical Indian and Pacific Oceans (varieties in the tropical Atlantic).

Solomon Is. GIZO Is.: New Manra (543b, 546, 549a). NEW GEORGIA: Matiu Is. (408d, 423b, 434b, 461, 464a, 467), Batuona Is. (505, 509b). RUSSELL Is.: Sifola (843, 875), Lingatu Pt. (820f, 822a, 825, 826). FLORIDA Is.: Kokomtambu Is. (29a). GUADALCANAL: Naro Pt. (273b), Komimbo (332b), Cape Esperance (319, 321, 357), Mamara (165a), Rove (372a), Kukum (191, 218), Paruru (633a, 634b, 638, 753a, 754a), Maraunibina Is. (567a, 568a, 603b, 759a, 760a, 762a), Lauvie Is. (610), Untava (688, 689a, 690, 707, 717), Waimia (652c), Kopiu (669, 751). SAN CRISTOBAL: Kira Kira (384a).

Porolithon occurs on the reef rim, where it is the basic organism, under moderate to strong surf action, and it is found to a lesser extent as a cementing organism on the rubble in the moat area. On the outside of Matiu Is. it occurred at a depth of 8 m.

The characteristic plates of megacells, parallel to the surface, and thick crusts, make this an easily recognized species.

Corallinae

Genus *AMPHIROA* Lamouroux

Amphiroa anastomosans Weber van Bosse 1904: 91, pl. 16, figs. 3, 4. Dawson 1956: 50, fig. 45.

Lectotype. From Sikka, Flores (in L, 935, 207...17).

Distribution. Ceylon, Indonesia, Marshall Is.

Solomon Is. RUSSELL Is.: Sifola (808). GUADALCANAL: Mamara (162).

Growing under moderate to heavy surf on the reef rim, forming a dense turf about 1.5 cm thick.

It is possible that this species is an ecological form of *A. fragilissima*, anastomosing between the erect and tightly packed branches of the turf. *A. anastomosans* does not show thickened nodes at all, whereas *A. fragilissima* shows them only in older parts.

Amphiroa anceps (Lamarck) Decaisne. Harvey 1847: 98, pl. 37. Weber van Bosse 1904: 93, pl. 16, figs. 6–8.

Type. From Australia (in PC).

Distribution. Widespread in tropical, subtropical and warm temperate seas.

Solomon Is. SAN CRISTOBAL: Kira Kira (382).

Growing in a surge channel under fairly rough conditions, shaded.

A single collection only, indicating that *A. anceps* is not a common alga in the Solomon Islands.

Amphiroa foliacea Lamouroux. Dawson 1954*a*: 430, fig. 40c. Weber van Bosse 1904: 92, pl. 14, figs. 1–11.

Type. From the Mariannas Is.

Distribution. Tropical oceans in general.

Solomon Is. GIZO Is.: New Manra (539). NEW GEORGIA: Matiu Is. (425c). RUSSELL Is.: Yandina (854), Avuna (778), Sifola (448, 806), Lingatu Pt. (817). FLORIDA Is.: Kokomtambu Is. (21), Haroro (51). GUADALCANAL: Komimbo (293), Cape Esperance (317), Mamara (167), Rove (894o), Kukum (201), Maraunibina Is. (570, 602), Waimia (656, 732).

Common in the outer moat and in pools and crevices near the reef rim, under slight to strong wave action.

Amphiroa fragilissima (L.) Lamouroux. Dawson 1954*a*: 430, fig. 40g, h. Manza 1940: 299. Taylor 1960: 403, pl. 47, figs. 1, 2. Weber van Bosse 1904: 89, pl. 16, figs. 1, 2, 5.

Type. From the Caribbean (in LINN).

Distribution. Tropical oceans in general.

Solomon Is. RUSSELL Is.: Sifola (872), Lingatu Pt. (829d). FLORIDA Is.: Tetel Is. (129), Haroro (61). GUADALCANAL: Naro Pt. (273a), Cape Esperance (323b, 339), Rove (894a), Maraunibina Is. (573), Pigeon Is. (725), Untava (685, 686).

Common in the moat and near the reef rim, under slight to moderate wave action.

Genus *CHEILOSPORUM* Areschoug

Cheilosporum jungermannioides Ruprecht ex J. Agardh 1852: 546. Boergesen 1950: 8; 1953: 26, fig. 7. Manza 1940: 295. Setchell 1924: 153; 1926: 106.

Type. From Tahiti (probably in Herb. Agardh, LD).

Distribution. Tropical Indo-Pacific, Mauritius, Japan.

Solomon Is. NEW GEORGIA: Ulukoro Is. (497h). RUSSELL Is.: Sifola (486, 487). GUADALCANAL: Cape Esperance (323a).

Forming dense mats on the reef rim and in pools, under fairly strong wave action.

When stunted, the characteristic *Cheilosporum* form with flat lobes is not apparent, but well developed specimens show this and agree with Setchell's specimens of *C. jungermannioides* in UC.

Cheilosporum spectabile Harvey ex Grunow 1874: 41. Boergesen 1935: 51, fig. 23. Pham-hoang 1969: 146, fig. 2.75. Setchell 1924: 152. Weber van Bosse 1904, 106.

(Figure 22, plate 26)

Type. From Tonga (Isotype material in TCD, BM, etc).

Distribution. Tropical Indo-Pacific.

Solomon Is. GIZO Is.: New Manra (533). NEW GEORGIA: Matiu Is. (409). SAN CRISTOBAL: Kira Kira (383).

Growing in surge channels in the reef rim, often shaded, under fairly rough conditions.

This alga, distributed by Harvey as 'Friendly Islands Algae no. 31' was apparently first referred to in print by Grunow, though his comments are very brief. Weber van Bosse gave a more adequate description, also basing the species on Harvey's no. 31.

The Solomon Islands collections are similar to Harvey's type material but the segments are somewhat smaller in size. The lobes in 409 are acute but in 533 are mostly broad-ended (as in Boergesen 1935, fig. 23). No. 383, which may prove to be distinct, comprises smaller surf-beaten plants also with terminally broad lobes. Lobe form appears to be a subspecific, possibly ecological, character.

Grunow, Setchell and Weber van Bosse remark on similarities to *Amphiroa multifida* Kuetzing, and Boergesen (1943, p. 21) compares it also with *C. acutilobum* Decaisne. *C. proliferum* (Lamx.) De Toni is also similar and is one of the earliest species referable to *Cheilosporum*. Until the Indo-Pacific species of *Cheilosporum* are monographed, the correct name of the Solomon Islands species must remain tentative.

Genus *JANIA* Lamouroux

Jania capillacea Harvey. Boergesen 1917: 198, fig. 188. Dawson 1953: 116, pl. 9, fig. 1; 1954*a*: 432, fig. 41 a, b. Taylor 1950: 133.

Type. From Bahia Honda, Florida (in Herb. Harvey, TCD).

Distribution. Widespread in tropical seas.

Solomon Is. GUADALCANAL: Kopiu (668).

Growing in dense mats in the inner moat area, under slight wave action.

Jania rubens (L.) Lamouroux. Askenasy 1889: 54. Levring 1960: 123. Sonder 1871: 54. Taylor 1950: 133.

Type. From Europe (in LINN?).

Distribution. Cosmopolitan in temperate and tropical waters.

Solomon Is. RUSSELL Is.: Sifola (869b), Lingatu Pt. (819). GUADALCANAL: Cape Esperance (338, 342b). [Rennell Is. (Levring).]

Growing at a lower eulittoral level on well-washed rocks or on the rim.

These specimens seem to be the same as tropical specimens referred to *J. rubens* by other authors. However, though similar in dimensions, branching etc. to the European plant, the branches are of almost uniform thickness throughout, in contrast to the tendency for them to taper in the upper parts of the European *J. rubens*.

Family Cryptonemiaceae

Genus *HALYMENIA* C. Agardh

Halymenia durvillaei Bory 1828: 100, pl. 15. Weber van Bosse 1921: 232, fig. 72, pl. 8, figs. 1, 2.

Type. From Port Praslin, New Ireland (in PC).

Distribution. Tropical Indo Pacific: Japan.

Solomon Is. New Georgia: Ulukoro Is. (494). Florida Is.: Kokomtambu Is. (9, 10, 15, 18, 27). Guadalcanal: Naro Pt. (269), Komimbo (231), Kukum (185, 891e), Paruru (637, 765), Maraunibina Is. (583), Lauvie Is. (614a).

Growing as isolated or scattered plants in the reef moat and to 3 m depth in calm to slight wave action. This is one of the largest algae found in the Solomon Islands, reaching 50 cm in height.

Weber van Bosse gives the synonomy of this species and recognizes five varieties. These appear to be no more than age or ecological variations and not worth distinguishing.

Halymenia dilatata Zanardini. Balakrishnan 1961: 197, figs. 20–27. Dawson 1954*a*: 443, fig. 43. Durairatnam 1961: 54. Okamura 1921: 109, pls. 176, 177, figs. 3, 4. Weber van Bosse 1921: 236.

Type. From the Red Sea (in Museo Civico, Venice, Italy).

Distribution. Tropical Indian and Western Pacific Oceans.

Solomon Is. New Georgia: Matiu Is. (444).

A single plant growing at about 2 m deep in a deep, shaded pool at the rear of the reef on the outside of Matiu Is.

Genus *CARPOPELTIS* Schmitz

Carpopeltis maillardi (Montagne et Millardet) Chiang 1970: 68.

Phyllophora maillardi Montagne & Millardet 1862: 8, pl. 24.

Cryptonemia rigida Harvey ex J. Agardh 1876: 163.

Carpopeltis rigida (Harvey) Schmitz 1895: 167. Boergesen 1943: 27, fig. 9. Durairatnam 1961: 52. Okamura 1909: 63, pl. 66. Weber van Bosse 1921: 246.

Suhria? zollingeri Sonder ex Grunow 1870: 82, pl. 10, fig. 3.

Type. From Reunion Is. (near Mauritius) (in PC).

Distribution. Tropical Indian and western Pacific Oceans; Japan.

Solomon Is. Guadalcanal: Waimia (657), Rove (894f). San Cristobal: Kira Kira (378), Huni R. mouth (895f).

Growing in a surge channel and low level pools, best developed under fairly strong wave action (895f).

Boergesen (1943, p. 27) discusses the synonomy but uses the name *rigida* (based on Harvey's nomen nudum as Alg. Ceylon Exsicc. no. 51), as have other authors. However *maillardi* must take priority as the earliest valid specific name.

Genus *CRYPTONEMIA* J. Agardh

Cryptonemia decolorata Taylor 1945: 202, pl. 83, fig. 1. Dawson 1954*c*: 264, pl. 2, fig. 15.

(Figure 23, plate 27)

Type. From I. Maria Magdalena, Pacific Mexico (in AHFH).

Distribution. Only known from the type locality.

Solomon Is. NEW GEORGIA: Matiu Is. (449a). GUADALCANAL: Kukum (214).

Growing in a deep, shaded pool at the reef rear on Matiu Is. and under a coral overhang near the reef rim at Kukum.

These specimens agree well with Taylor's description and figures though they reach a greater height with upper branches more elongate. The only conspicuous difference is that the Solomon Is. specimens are stipitate (stipes often branched, up to 1 cm long and about 1 mm thick) but this may be the result of more than one seasons growth.

This species was previously (Womersley & Bailey 1969, p. 435) referred to as *Carpopeltis?*

Cryptonemia ? subdichotoma sp.nov.

(Figure 24, plate 27)

Thallus to 12 cm high, medium to dark red in colour. Holdfast small, with a very short stipe giving rise to several entangled fronds which are subdichotomously to laterally branched at intervals of 0.5–2 cm, the branches sub-linear, entire, mostly 1.5–3 mm broad and with rounded apices. Branches usually 100–130 μm thick, with a filamentous medulla containing thick-walled stellate cells and a cortex of three layers, the outermost cells rounded and 3–4 μm across in surface view, slightly elongate in sectional view. Reproduction unknown.

Thallus ad 12 cm alt., roseus. Tenaculum pusillum, stipes brevis frondibus plures, rami subdichotomi ad laterales, sublineares, integri, plerumque 1.5–3 mm lat., apicibus rotundatis. Rami plerumque 100–130 μm crassi, medulla filamentosa cellulis stellatis, cortex tristromaticus, cellulae exteriores rotundatae 3–4 μm diam., plus minusve elongatae in sectione transversa. Reproductio incognita.

Named from the subdichotomous branching of the thallus.

Type. NEW GEORGIA: Matiu Is. (445). This abundant collection was from a deep, shaded pool at the rear of the outer reef. A further collection (402) came from shaded surge channels in the reef rim. Isotype specimens have been distributed to the herbaria indicated in the Introduction.

This species is referred to *Cryptonemia* with some doubt and mainly on the basis of its thin thallus and internal structure; the thin cortex of small cells and filamentous medulla with thick walled stellate cells are characteristic of *Cryptonemia*, but the branched, linear thallus is unusual. Unfortunately no reproductive material was observed. Previously (Womersley & Bailey 1969, p. 435) it was doubtfully referred to *Polyopes ligulatus.*

Order GIGARTINALES

Family Nemastomaceae

Genus *TITANOPHORA* (J. Agardh) Feldmann

Titanophora weberae Boergesen 1943: 39, fig. 13; 1949: 4.

Platoma pikeana sensu Weber van Bosse 1921: 253, figs. 80–83. Feldmann 1942: 111.

Type. From Seget, western end of New Guinea (in L).

Distribution. New Guinea.

Solomon Is. GUADALCANAL: Komimbo (96), Kukum (213), Paruru (752).

Sublittoral (1–3 m deep) in pools or off the reef edge, under slight to moderate water movement; a few isolated plants only.

Family Gracilariaceae

Genus *GRACILARIA* Greville

Gracilaria eucheumioides Harvey 1859*b*: 331. Dawson 1954*a*: 438, fig. 48e. Weber van Bosse 1928: 433.

Type. From Ousima, Ryukyu Is. (in TCD).

Distribution. Andaman Is., Ryukyu Is., Viet Nam, Palao Is., Philippine Is. (in UC).

Solomon Is. GUADALCANAL: Komimbo (116, 232).

Growing amongst and under the reef rubble in the outer moat, usually just covered at low tide, and 'holding' the coral debris firmly together but not cementing it. The thallus is inconspicuous from above (probably being eaten down by fishes, etc.) but conspicuous on breaking and turning over patches of debris.

The thallus is dark red, irregularly branched, with branches ovoid in section, adhering to the debris in numerous places. The thallus is cellular throughout, and the Solomon Island material was apparently sterile.

G. eucheumioides has not been recorded on many occasions, but resembles other species which need critical comparison. *G. arcuata* var. *snackeyi* Weber van Bosse (1928, p. 430, fig. 173) from Indonesia (reported by Boergesen 1943, p. 69, fig. 35, from Mauritius) shows considerable similarity to *G. eucheumioides*, as evidenced by specimens of Boergesen 1077 from Mauritius. *G. arcuata* var. *snackeyi* from Puerto Rico (Ficoteca Puertorriquena no. 2543) is also similar. *G. crassissima* Crouan ex J. Agardh from the western tropical Atlantic (Taylor 1960, p. 443, pl. 55, fig. 4, pl. 57, fig. 4) also merits comparison.

Gracilaria salicornia (C. Agardh) Dawson 1954*b*: 4, fig. 3.

Corallopsis salicornia (C. Ag.) Greville 1830, synop: 53. J. Agardh 1876: 408. Ohmi 1958: 27, fig. 12, pls. 5F, 6A. Weber van Bosse 1928: 439.

G. salicornia var. *minor* Sonder 1871: 24, pl. 3, figs. 6–11.

G. minor (Sonder) Durairatnam 1961: 64, pl. 14, figs. 1–3.

Type. Probably from the Philippines (see Dawson 1954*b*, p. 5).

Distribution. Tropical Indo-Pacific ocean.

Solomon Is. GUADALCANAL: Komimbo (120, 233). Cape Esperance (892e).

Common in the moat area at Komimbo, under slight wave action. Dawson (1954*b*, p. 5) shows that the stated type locality (Unalaska Is. in the Aleutians) is probably incorrect and that the type more likely is from Manila in the Philippines. *Corallopsis opuntia* of Japanese authors (Okamura 1933, p. 13, pl. 308, figs. 6–11. Segawa 1956, p. 90, pl. 55 (no. 423) appears to be *G. salicornia*.

Dawson also relegates *Corallopsis* to the synonomy of *Gracilaria*, considering that generic separation on the basis of a constricted thallus (*Corallopsis*) is unsatisfactory.

Gracilaria edulis (Gmelin) Silva 1952: 293. Durairatnam 1961: pl. 14, figs. 4, 5. Ohmi 1958: 16, fig. 6, pl. 3B.

G. lichenoides (L. ex Turner) Harvey. May 1948: 27. Weber van Bosse 1928: 436.

Type. From the East Indies.

Distribution. Widespread in tropical and subtropical seas.

Solomon Is. GUADALCANAL: Komimbo (252a).

A single collection of several poorly developed plants growing on coral debris in the inner moat, under fairly calm conditions, which are probably referable to *G. edulis*.

Genus *GELIDIOPSIS* Schmitz

Gelidiopsis intricata (C. Agardh) Vickers. Boergesen 1943: 53, fig. 24. Dawson 1954*a*: 423, fig. 34. Taylor 1960: 353. Weber van Bosse 1928: 425. Yamada & Tanaka 1938: 74, fig. 6.

Type. Material from Mauritius, Hawaiian Islands and Rawak Is. (in Herb. Agardh, LD). A lectotype needs selecting.

Distribution. Widespread in the tropical Indian, Pacific and western Atlantic oceans.

Solomon Is. RUSSELL Is.: Avuna (777), Sifola (883). FLORIDA Is.: Kokomtambu Is. (13, 29b), Tetel Is. (80), Haroro (60). GUADALCANAL: Naro Pt. (285), Komimbo (104, 257), Kukum (196), Untava (687a). [Arawa Bay, Bougainville Is. (Jordan and Schroeder, in US).]

On debris or rock in the moat or near the rim, below or just above low tide level, under slight to moderate wave action.

Gelidiopsis scoparia (Montagne & Millardet) Schmitz 1895: 149. Boergesen 1952: 26, figs. 13, 14; 1954: 22, fig. 7.

Type. From Reunion Is., near Mauritius (in PC).

Distribution. Mauritius, Reunion Is.

Solomon Is. GIZO Is.: New Manra (533b, 540). NEW GEORGIA: Ulukoro Is. (497i). GUADALCANAL: Komimbo (105), Cape Esperance (324, 892h), Paruru (640), Untava (703), Waimia (649).

Growing on the reef rim, in crevices and in pools, sometimes in the moat, under moderate to strong wave action.

The Solomon Island specimens agree well with Boergesen's illustrations.

Gelidiopsis variabilis (Greville ex J. Agardh) Schmitz 1895: 148. Feldmann 1931: 156, fig. 2B. Weber van Bosse 1928: 426.

Gelidium variabile Greville ex J. Agardh 1852: 468.

Type. From the East Indies (Wight)—in K (now in BM) and E. (see Weber van Bosse re J. Agardh's incorrect citation of 'Indes occidentales' in the original description).

Distribution. Tropical Indian, western Pacific and eastern Atlantic oceans.

Solomon Is. FLORIDA Is.: Tetel Is. (126a). GUADALCANAL: Komimbo (251c), Paruru (768b).

A few specimens from relatively calm habitats in shallow water of the moat. Tetrasporangial specimens are present and agree well with the species.

Family Solieriaceae

Genus *CALLOPHYCUS* Trevisan

Callophycus serratus (Harvey ex Kuetzing) Silva 1957: 143.

Thysanocladia serrata Harvey ex Kuetzing 1869: 10, pl. 29a, b. Kylin 1932: 14.

Type. From Tonga (in MEL).

Distribution. Tonga Is. (Harvey, Alg. Friendly Is. no. 34).

Solomon Is. NEW GEORGIA: Matiu Is. (435b). GUADALCANAL: Kukum (212).

Small, apparently sterile, collections from surge channels in the rim, to about 1 m deep, under moderate wave action.

Genus *EUCHEUMA* J. Agardh

Eucheuma horizontale Weber van Bosse 1928: 416, fig. 166.

Type. From Saleyer Is. (south of the Celebes) (in L, 938, 7...320).

Distribution. Only known from the type.

Solomon Is. NEW GEORGIA: Matiu Is. (400a).

Growing in a surge channel, shaded, on the outer side of Matiu Is., under strong wave action.

Family Hypneaceae

Genus *HYPNEA* Lamouroux

Hypnea cervicornis J. Agardh 1852: 451. Dawson 1961: 234, pl. 34, figs. 3, 4, pl. 35, fig. 3. Durairatnam 1961: 56. Tanaka 1941: 240, fig. 13. Tanaka & Pham-hoang 1962: 38, fig. 14. Taylor 1960: 466, pl. 73, fig. 2. Weber van Bosse 1928: 454.

Type. Lectotype needs selecting in Herb. Agardh, LD.

Distribution. Tropical and subtropical oceans.

Solomon Is. GUADALCANAL: Untava (712), Kopiu (667).

These two collections of small, rather poorly developed plants appear best placed in *H. cervicornis*. Dawson (1961, p. 235) has discussed erroneous records of this species as *H. esperi*.

Hypnea pannosa J. Agardh 1847: 14. Dawson 1961: 236, pl. 35, figs. 4–5. Durairatnam 1961: 56, pl. 15, fig. 9. Tanaka 1941: 247, fig. 20. Tanaka & Pham-hoang 1962: 37, fig. 13. Taylor 1945: 227, pl. 71, fig. 2.

H. nidulans Setchell 1924: 161, fig. 30; 1926: 100. Boergesen 1943: 62. Dawson 1954*a*: 438, fig. 46e–g. Tanaka 1941: 246, figs. 18–19. Weber van Bosse 1928: 454, fig. 192. Womersley & Bailey 1969: 436.

Type. From Pacific Mexico (in Herb. Agardh, LD, 33891 (a1) and 33892).

Distribution. Tropical Indian and Pacific Oceans.

Solomon Is. GIZO IS.: New Manra (532). NEW GEORGIA: Ulukoro Is. (497f). Batuona Is. (507a). RUSSELL IS.: Avuna (779), Sifola (807, 871, 884). FLORIDA IS.: Kokomtambu Is. (22, 25a), Tetel Is. (73). GUADALCANAL: Naro Pt. (276b, 282), Komimbo (114, 236b, 262), Cape Esperance (326b), Mamara (159), Kukum (172b, 188), Paruru (636), Maraunibina Is. (586), Pigeon Is. (722), Untava (693), Waimia (655). SAN CRISTOBAL: Huni R. mouth (895k).

A very common alga in the coral debris in the moat and near the reef rim, or in pools, forming irregularly branched, prostrate or low masses. The branches anastomose by small, compact, adhesive cushions of cells and the tetrasporangial sori occur on one side, near the base, of short laterals.

Dawson (1961, p. 236) places *H. nidulans* Setchell as a synonym of *H. pannosa*, and the illustration by Taylor (1960, p. 73, fig. 2) of *H. pannosa* shows a plant very similar to both Setchell's illustration of *H. nidulans* and to the Solomon Islands plants. Study of the types of *H. pannosa* and *H. nidulans* (in UC) supports the identity of these taxa. The type material of *H. pannosa* in LD (sheet 33891) includes a specimen labelled 'b. 1' which does not agree with J. Agardh's description and is not this species.

Order RHODYMENIALES

Family Rhodymeniaceae

Genus *BOTRYOCLADIA* Kylin

Botryocladia skottsbergii (Boergesen) Levring. Dawson 1956: 52, fig. 48. Feldmann, G. 1945: 54, 55. Srinivasan 1962: 49, figs. 1–8.

Chrysymenia skottsbergii Boergesen 1924: 307, figs. 49–50.

C. kuckuckii Weber van Bosse 1928: 466, fig. 199.

Botryocladia kuckuckii (W.v.B.) Yamada & Tanaka 1938: 77, figs. 8, 9. Boergesen 1944: 23, figs. 16–18. Taylor 1950: 135.

Type. From Easter Island (in C).

Distribution. From Mauritius and the Laccadive Islands through the Indo-Pacific tropics to the Marshall Islands and Easter Island.

Solomon Is. GIZO IS.: New Manra (534a). GUADALCANAL: Komimbo (108).

In surge channels, shaded or 2–3 m deep (Komimbo) as occasional plants growing under slight to moderate wave action.

Genus *COELARTHRUM* Boergesen

Coelarthrum boergesenii Weber van Bosse 1928: 473, figs. 207, 208. Boergesen 1944: 18, fig. 12. Dawson 1956: 51, fig. 47.

Type. From Ile Saleyer, Indonesia (in L)—selected as lectotype by Abbott & Littler (pers. comm.).

Distribution. Mauritius, Indonesia, southern Marshall Is., Hawaiian Is.

Solomon Is. GUADALCANAL: Rove (359, 894c).

Growing as a mat under an old table *Acropora*, just below low tide level, under slight wave action.

The other records of this species are also from under overhanging coral. The Solomon Is. specimens agree with f. *minima* Weber van Bosse.

Genus *ERYTHROCOLON* (J. Agardh in Grunow) J. Agardh

Erythrocolon podagricum (J. Agardh in Grunow) J. Agardh 1896: 90. Kylin 1931: 14, fig. 4a, b, pl. 6, fig. 13. Yamada & Tanaka 1938: 78, figs. 10, 11.

Chylocladia podagrica J. Agardh in Grunow 1874: 33.

Chrysymenia podagrica (J. Agardh) Svedelius. Weber van Bosse 1928: 471, fig. 204.

Type. From Tonga (in LD).

Distribution. Tonga Is., Indonesia, Ryukyu Arch., Hawaiian Is.

Solomon Is. RUSSELL Is.: Avuna (795).

Growing under a table *Acropora* and interstitial in debris near the reef rim, infrequent, under moderate wave action.

This species is based on Harvey's 'Friendly Islands Algae no. 53' of *Chylocladia podagrica*, and was first published by Grunow using J. Agardh's information, with *Erythrocolon* established as a section (?) separated from *Chylocladia*. J. Agardh (1896) formally established *Erythrocolon* as a genus, and clearly inferred the combination *E. podagricum*.

Genus *RHODYMENIA* Greville

Rhodymenia anastomosans Weber van Bosse 1926: 150, fig. 39. Dawson 1956: 52, fig. 49.

Type. From the Kei Islands (in L?).

Distribution. Kei Islands, southern Marshall Is.

Solomon Is. NEW GEORGIA: Batuona Is. (508f). GUADALCANAL: Mamara (163), Rove (362), Kukum (173b, 189), Waimia (651).

Growing under coral, heavily shaded, uppermost sublittoral, under slight to moderate wave action.

Family Lomentariaceae

Genus *CHAMPIA* Desveaux

Champia parvula (C. Agardh) Harvey. Boergesen 1920: 407, figs. 392, 393. Dawson 1954*a*: 443, fig. 52c. Weber van Bosse 1928: 476.

Type. From Cadiz, Spain (in Herb. Agardh, LD).

Distribution. Tropical, subtropical and warm temperate waters generally.

Solomon Is. GIZO Is.: New Manra (526). NEW GEORGIA: Matiu Is. (439). RUSSELL Is.: Avuna (794). FLORIDA Is.: Tetel Is. (79). GUADALCANAL: Komimbo (235), Pigeon Is. (724), Untava (691).

Growing in shallow areas of the reef moat and pools under slight to moderate wave action. The plants are small (usually 1–3 cm high) and strongly iridescent.

Champia vieillardii Kuetzing 1866: 14, pl. 37e, f. Dawson 1954*a*: 443, fig. 52e, 53.

Type. From New Caledonia (in L, 938, 303...132).

Distribution. New Caledonia, Viet Nam.

Solomon Is. RUSSELL Is.: Avuna (784). GUADALCANAL: Mamara (166), Rove (361), Kukum (177), Paruru (642), Untava (702), Waimia (648).

Occasional on debris or in pools near the reef rim, under moderate wave action.

This species appears distinct from *C. compressa* from South Africa as Dawson recognized, but is probably that recorded as *C. compressa* by Weber van Bosse (1928, p. 477).

Order CERAMIALES

Family Ceramiaceae

Antithamnieae

Genus *ANTITHAMNION* Naegeli

Antithamnion antillanum Boergesen 1917: 226, figs. 213–216.

A. lherminieri (Crouan & Crouan) Nasr 1941: 66, figs. 9–10. Dawson 1956: 53, fig. 51.

Callithamnion lherminieri Crouan & Crouan ex Maze & Schramm 1870–7: 144 (nomen nudum).

Type. From St Thomas, West Indies (in C).

Distribution. West Indies, Canary Is., Marshall Is., Johnston Atoll.

Solomon Is. GUADALCANAL: Honiara (375).

Growing on a shell on the jetty piles, just below low tide level.

Nasr placed *A. antillanum* as a synonym of *A. lherminieri* from Guadeloupe Island. However Maze & Schramm, in using the Crouan's m.s. name, did not give a description validating the name *C. lherminieri*, nor did De Toni (1903, p. 1341). The earliest valid name for the taxon is *A. antillanum* Boergesen.

The Solomon Is. material agrees well with *A. antillanum* and is a true *Antithamnion* in the sense of Wollaston (1968). The loose form of branching, few gland cells on relatively unspecialised branches, and large, cruciate tetrasporangia are characteristic.

Antithamnion percurrens Dawson 1957: 116, fig. 24a, b.

Type. From Eniwetok Atoll, Marshall Is. (Dawson 13633 in BISH).

Distribution. Only known from the type locality.

Solomon Is. NEW GEORGIA: Matiu Is. (449c).

Epiphytic on *Cryptonemia decolorata* in a deep, shaded pool at the reef rear.

Genus *ACROTHAMNION* J. Agardh

Acrothamnion butleriae (Collins) Kylin 1956: 375.

Antithamnion butleriae Collins. Boergesen 1920: 465, fig. 425. Taylor 1960: 499.

Type. From Kingston, Jamaica.

Distribution. Western tropical Atlantic.

Solomon Is. GUADALCANAL: Maraunibina Is. (594a).

Growing at a mid-eulittoral level in the algal turf, on the sheltered side of a rock, with slight wave action.

Heterothamnieae

Genus *ANTITHAMNIONELLA* Lyle

Antithamnionella breviramosa (Dawson) Wollaston comb.nov.

Antithamnion breviramosus Dawson 1949: 14, figs. 28, 57; 1957: 117, fig. 24c, d. (as var. *simplex*).

Type. From Santa Catalina Is., California (in AHFH, 26521).

Distribution. Santa Catalina Is., Marshall Is.

Solomon Is. New Georgia: Matiu Is. (449d). Guadalcanal: Cape Esperance (355b).

Growing with *Rhodolachne* in a lower eulittoral band on igneous rock, partly shaded, under moderate wave action (335b) and on *Cryptonemia decolorata* (449d).

This material agrees well with Dawson's description. His var. *simplex* appears to be only a small, slender, possibly juvenile, form and not worth recognition.

The vegetative characteristics place it under *Antithamnionella* as recognized by Wollaston (1968). Some plants, however, have only one branch from each axial cell instead of 3, and very few gland cells; such variation is often found in *Antithamnionella*. The sporangia are cruciate and this, though atypical, is also not unusual for the genus.

Ceramieae

Genus *CENTROCERAS* Kuetzing

Centroceras clavulatum (C. Agardh) Montagne. Dawson 1954*a*: 446, fig. 54h. Levring 1960: 123.

Type. From Callao, Peru (in Herb. Agardh, LD).

Distribution. Cosmopolitan in tropical and temperate waters.

Solomon Is. New Georgia: Matiu Is. (435a). Guadalcanal: Rove (894h), Kopiu (664, 747). [Rennell Is. (Levring).]

From a sheltered, mid-eulittoral level, inside the point of Matiu Is. and from pools near the rim at Kopiu, under moderate wave action.

Fragments in other collections indicate that this species is probably widely distributed in the Solomon Islands.

Centroceras minutum Yamada 1944: 42? Dawson 1956: 54, fig. 54.

Type. From Ant Atoll, East Caroline Is. (in SAP).

Distribution. Caroline Is., southern Marshall Is.

Solomon Is. Guadalcanal: Komimbo (244).

Growing on old finger *Acropora* coral, in pools of the mid to outer moat, under slight wave action.

In habit, lack of dichotomous branching, segment length and cortical cell arrangement, this material agrees with the descriptions of *C. minutum*. However, the thallus is only 80–90 μm broad (130 μm in Yamada) and only an occasional spine occurs at the nodes. The tetrasporangia do not appear to have an involucral filament around them.

The Komimbo collection includes male specimens. Dense spermatangial clusters form distinct annular masses at the nodes.

Genus *CERAMIUM* Roth

Ceramium fimbriatum Setchell & Gardner 1924: 777, pl. 26, figs. 43. 44. Dawson 1950: 123; 1954*a*: 446, fig. 55a; 1956: 53.

Type. From the Gulf of California (in UC).

Distribution. Tropical Pacific Ocean; Maldive Is.

Solomon Is. New Georgia: Matiu Is. (441b).

Growing with *Tolypiocladia* in small, scattered mats at an upper sublittoral level under slight wave action, inside the point of Matiu Is.

These specimens show the characteristic swollen hairs and rather distinct transverse cells in 1–3 rows at the base of the nodal cortication, as noted by Dawson (1950).

Ceramium maryae Weber van Bosse 1923: 324, figs. 117, 118. Dawson 1954*a*: 448, fig. 56g–i.

Type. From Ile Kawasa, Paternoster Is., Indonesia (in L, 934, 263...13).

Distribution. Indonesia, Viet Nam.

Solomon Is. GUADALCANAL: Cape Esperance (322b).

Growing in a pool with *Polysiphonia howei* at a mid-eulittoral level on a reef.

A single collection of small plants only a few mm high, agreeing well with the species.

Ceramium mazatlanense Dawson 1950: 130, pl. 2, figs. 14–15; 1954*a:* 448, fig. 55g–j; 1956: 53.

Type. From Mazatlan, Sinaloa, Pacific Mexico (in AHFH 48798).

Distribution. Tropical Pacific Mexico, Marshall Is., Viet Nam.

Solomon Is. NEW GEORGIA: Matiu Is. (400b, 415, 442). GUADALCANAL: Untava (705, 730), Waimia (731).

Growing on or near the reef rim under strong wave action.

These collections agree well with Dawson's descriptions and have tetrahedral (sometimes appearing cruciate) sporangia. Dawson (1954*a*, p. 448) notes that *C. mazatlanense* is related to *C. cruciatum* Collins & Hervey from Bermuda, which differs in having more elongate cortical cells and cruciate tetrasporangia. Weber van Bosse (1923, p. 331, fig. 122) recorded *C. cruciatum* from the Celebes, and her illustration agrees with the Solomon Is. plants in nodal structure. Detailed comparisons may show that these taxa belong to one species, but the nodal structure and mainly tetrahedral sporangia may distinguish the Pacific Ocean plant.

Ceramium sympodiale Dawson 1957: 121, fig. 27c, d.

Type. From Eniwetok Atoll, Marshall Is. (Dawson 14014, in BISH).

Distribution. Only known from the type collection.

Solomon Is. NEW GEORGIA: Matiu Is. (391, 401b). GUADALCANAL: Untava (714b).

Growing on *Acropora* coral and on *Chondria* near a surge channel, under strong wave action.

This small, slightly iridescent, species (a few mm high) has prostrate filaments attached by rhizoids, producing erect, pseudo-sympodial branches lying in one plane. The apices are straight, not involute, with nodes of fairly uniform small cells, and numerous gland cells in most, but not all, specimens. The only reproductive structures seen were spermatangia, formed densely around the nodal cortical cells.

The material agrees well with Dawson's description, though he did not observe gland cells. The apices are not truly sympodial since the apex continues growth, cutting off laterals alternately on two sides.

Other records

Ceramium gracillimum Griff. & Harvey from Rennell Is. by Levring (1960, p. 123).

Ceramium tenuissimum (Lyngb.) J. Agardh from Rennell Is. by Levring (1960, p. 123).

Spyrideae

Genus *SPYRIDIA* Harvey

Spyridia filamentosa (Wulfen) Harvey. Boergesen 1917: 233, figs. 222–226. Dawson 1954*a*: 444, fig. 54i. Levring 1960: 124. Taylor 1950: 139; 1960: 539, pl. 66, fig. 15. Weber van Bosse 1923: 320.

Type. From Europe.

Distribution. Cosmopolitan in tropical and temperate waters.

Solomon Is. FLORIDA Is.: Tetel Is. (71b). GUADALCANAL: Honiara (373a), Kukum (891f). [Rennell Is. (Levring).]

Growing at or below low tide level under slight wave action.

Wrangelieae

Genus *WRANGELIA* C. Agardh

Wrangelia argus (Mont.) Montagne. Boergesen 1916: 116, fig. 125–126. Dawson 1954*a*: 444, fig. 54g; 1957: 119. Taylor 1960: 502, pl. 66, figs. 7–8. Weber van Bosse 1921: 220.

Type. From the Canary Is. (in PC).

Distribution. Widespread in tropical Atlantic, Indian and Pacific oceans.

Solomon Is. NEW GEORGIA: Matiu Is. (440b). GUADALCANAL: Untava (714a).

No. 440b includes several sporangial specimens to 3 cm high, growing just below low tide level under slight wave action on the inside of the point of Matiu Is.; 714a is a single small plant from near the reef edge, under moderate wave action.

These specimens agree fairly well with the descriptions of Boergesen, Dawson etc., but in axis width, heavier lower cortication and in having 2–3 cells in each (usually simple) involucral filament around the tetrasporangia, they approach *W. tayloriana* Tseng (1942*b*, p. 268).

Compsothamnieae

Genus *PLEONOSPORIUM* Naegeli

Pleonosporium pusillum Yamada 1932: 121, fig. 5.

Type. From the Ryukyu Is.

Distribution. Only known from the type locality.

Solomon Is. GUADALCANAL: Cape Esperance (355c).

Growing in a mat of *Rhodolachne* at a lower eulittoral level on a large igneous rock outcrop, under moderate wave action.

Male and polysporangial plants are present. In size and dimensions they agree well with Yamada's description, but the branching varies from subdistichous to radial.

Griffithsieae

Genus *GRIFFITHSIA* C. Agardh

Griffithsia heteromorpha Kuetzing 1863*a*: 2, pl. 3; 1863*b*: 14.

G. rhizophora Grunow ex Weber van Bosse 1923: 313. Abbott 1946: 443, pl. 1, figs. 5–9. Taylor 1950: 137. Thivy & Iyengar 1963: 33, figs. 1–24. Tseng 1942*a*: 110.

Type. From New Caledonia (in L, 941,61...42).

Distribution. Tropical Indo-Pacific.

Solomon Is. New Georgia: Matiu Is. (440d).

Small plants growing at an upper sublittoral level in calm water inside the point. Fragments, probably of this species, were seen in other collections and it probably is more widespread than indicated.

Kuetzing's type in L appears identical with the Siboga material of Weber van Bosse of *G. rhizophora.*

Griffithsia tenuis C. Agardh. Dawson 1954*a*: 450, fig. 56e. Okamura 1933: 2, pl. 302, figs. 1–6. Tseng 1942*a*: 106, fig. 1.

Type. From Venice, Italy (in Herb. Agard, LD, 19891).

Distribution. Widespread in tropical and subtropical seas, extending into warm temperate regions.

Solomon Is. Guadalcanal: Untava (729).

A single collection of tetrasporangial material from coral debris on the reef rim, under fairly strong wave action.

Dasyphileae

Genus *DASYPHILA* Sonder

Dasyphila plumarioides Yendo. Okamura 1923*a*: 190, pl. 198, figs. 5–11; 1931: 52, pl. 277, fig. 11.

(Figure 9; figure 25, plate 27)

Type. From Taiwan (in SAP).

Distribution. Apparently only known from the type locality.

Solomon Is. New Georgia: Matiu Is. (418).

A collection of numerous plants (tetrasporangial only) from 0 to 1 m depth in a deep, heavily shaded pool at the rear of the outer reef.

The Solomon Is. plant agrees well with Okamura's illustrations. Each axial cell of the branches forms six whorl-branchlets, with the two lateral ones developing into longer branchlets themselves alternately distichous, and the two on each face of the branch becoming only a few cells long (figure 9*A*). On the main branches, determinate laterals occur on alternate sides of the axis from (usually) each second cell, in the position of one of the lateral whorl-branchlets. The result is a plant branched almost entirely in one plane. This developmental pattern is similar to that of the type species (*D. preissii* from southern Australia), in which determinate laterals occur usually four cells apart and all six whorl-branchlets develop to a similar extent, resulting in terete lateral branches with the major branches lying in one plane. In *D. plumarioides,* descending rhizoidal filaments grow from the basal cells of the whorl-branchlets, forming a compact, pseudoparenchymatous cortex which does not cover the lateral whorl-branchlets and partly buries the shorter whorl-branchlets. In contrast, the six whorl-branchlets in *D. preissii* all develop to a similar extent and are slender and not distichous; they project (in younger parts) as monosiphonous branched filaments through the cortex, which in this species consits of a loose, spongy mass of rhizoidal filaments. The tetrahedral sporangia are borne on the ends of the whorl-branchlet filaments in both species (figure 9*B*).

D. plumarioides shows the same basic developmental pattern as *D. preissii* and although the specific differences are striking they appear to be co-generic. More detailed comparison must await studies on their sexual reproduction.

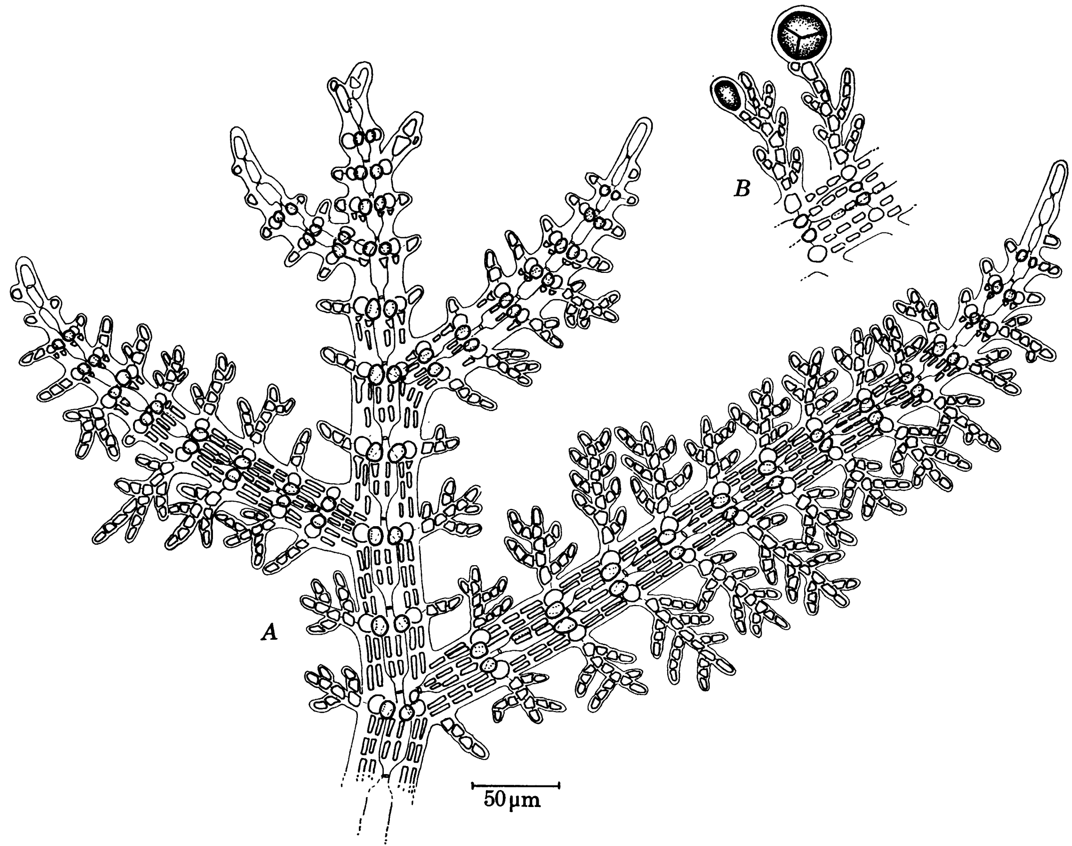

FIGURE 9. *Dasyphila plumarioides* (no. 418). *A*, Apex of axis showing laterals, whorl-branchlets and cortication; *B*, whorl-branchlets bearing tetrasporangia.

Family Delesseriaceae

Genus *CALOGLOSSA* J. Agardh

Caloglossa beccarii (Zanardini) De Toni 1900: 730. Post 1936: 64.
Delesseria beccarii Zanardini 1872: 140, pl. 5A, figs. 1–3.
C. amboinensis Karst. Weber van Bosse 1923: 390.

Type. From a river in Sarawak, Borneo.
Distribution. India, Indonesia, New Guinea.
Solomon Is. GUADALCANAL: Mamara (897).
Growing in a swimming hole near the mouth of a stream. This is essentially a freshwater alga, possibly subject to sea influence at high tide.

Caloglossa leprieurii (Montagne) J. Agardh. Boergesen 1919: 341, figs. 338, 339. Dawson 1956: 57, fig. 59. Papenfuss 1961: 8, figs. 1–30. Post 1936: 46.

Type. Cayenne, French Guiana (in PC).
Distribution. Widely distributed in tropical to cool temperate waters.
Solomon Is. NEW GEORGIA: Matiu Is. (449b).
Epiphytic on *Cryptonemia decolorata* in a deep, shaded pool at the reef rear.

These specimens approach f. *pygmaea* (Martens) Post and are similar in habit to the illustration of Dawson (1956, fig. 59). This appears to be an extreme form of the species and may merit specific recognition. The erect shoots are unbranched, up to 6 mm long and about 1 mm broad and the prostrate parts are attached by multicellular, discoid holdfasts. The spermatangia occur in a series of bands running from midrib to margin, separated by sterile tissue.

Genus *TAENIOMA* J. Agardh

Taenioma nanum (Kuetzing) Papenfuss 1952: 179. Desikachary & Balakrishnan 1957: 341, figs. 19, 21–26. Lawson 1960: 361, fig. 11, m, pl. 11, figs. i, j.

Type. From Naples, Italy (in L, 941, 313...680).

Distribution. Widely distributed in tropical to warm temperate waters.

Solomon Is. NEW GEORGIA: Ulukoro Is. (493).

Growing in a pool near the reef rim under strong wave action. This collection consistently shows two hairs on each determinate lateral in contrast to the three terminal hairs of *T. perpusillum*. However, Hollenberg (1967, p. 1202) has thrown doubt on whether *T. nanum* is specifically distinct from *T. perpusillum*.

Genus *MARTENSIA* Hering

Martensia flabelliformis Harvey ex J. Agardh 1863: 826. Svedelius 1908: 35, figs. 35–39. Weber van Bosse 1923: 385. Yamada 1936: 140, fig. 3.

Type. From Tonga (Harvey, Friendly Is. Alg. no. 11, in Herb. Agardh, LD).

Distribution. Tropical Western Pacific.

Solomon Is. GIZO Is.: New Manra (531). NEW GEORGIA: Matiu Is. (410). GUADALCANAL: Untava (718).

Growing on the reef rim and in slight pools, under strong wave action.

Martensia fragilis Harvey 1854: 145. Dawson 1956: 56, fig. 58. Svedelius 1908: 11, figs. 8, 10–28, 43–48, 55–62, pl. 1, figs. 1–10, pl. 2. figs. 6–10, pls. 3–4.
Hemitrema fragilis (Harvey) Dawson 1957: 123, fig. 28.

Type. From Ceylon (in Herb. Harvey, TCD).

Distribution. Ceylon, Indonesia, Marshall Is.

Solomon Is. NEW GEORGIA: Matiu Is. (411).

Growing in a surge channel, shaded, on the outside reef of the island.

Genus *ZELLERA* Martens

Zellera tawallina Martens 1866: 33, pl. 8, fig. 3. Weber van Bosse 1923: 391, fig. 142.

Type. From Tawalli Is., Molucca Is.

Distribution. Molucca Is., Philippines, Indonesia.

Solomon Is. GUADALCANAL: Cape Esperance (334).

Growing on an igneous rock, upper sublittoral, under moderate wave action.

A single collection of a number of plants with rhizomatous bases, all tetrasporangial.

Family Dasyaceae

Genus *DASYA* C. Agardh

Dasya adhaerens Yamada 1944: 43, pl. 7, fig. 1. Dawson 1957: 123. Levring 1960: 124. Taylor 1950: 141, pl. 79, fig. 1.

Type. From Ant Atoll, East Caroline Is. (in SAP).

Distribution. Caroline Is., Marshall Is.

Solomon Is. New Georgia: Matiu Is. (405). [Rennell Is. (Levring).]

A single, small cystocarpic plant (about 2 cm high) from a surge channel on the outside reef. This plant is not adequate for sure determination. The thallus is heavily corticated to the apices, with scattered trichoblasts which are basally branched 1–3 times (basal cells 15–26 μm × 15–45 μm, upper cells 13–15 μm × 50–60 μm), and while distinct anastomoses are not present, the ends of some laterals appear as though they may have been adhering. The axis has 5 pericentral cells, not intermixed with rhizoids.

Genus *HETEROSIPHONIA* Montagne

Heterosiphonia wurdemanni (Bailey) Falkenberg var. *laxa* Boergesen 1919: 324, figs. 327, 328. Dawson 1956: 57, fig. 60; 1963: 404, pl. 129, fig. 1. Taylor 1950: 140.

Type. From St Croix, West Indies (in C).

Distribution. Probably in most tropical oceans.

Solomon Is. New Georgia: Matiu Is. (449e).

Small plants, epiphytic on *Cryptonemia decolorata* in a deep, shaded pool at the reef rear.

Family Rhodomelaceae

Polysiphonieae

Genus *POLYSIPHONIA* Greville

Polysiphonia howei Hollenberg in Taylor 1945: 302, fig. 3. Hollenberg 1968*a*: 203, figs. 1D, E, 2A.

Lophosiphonia reptabunda (Suhr ex Kuetzing) Cribb 1956: 140, pl. 4, figs. 6–8.

L. obscura (C. Agardh) Falkenberg. Dawson 1954*a*: 451, fig. 58d–e. Weber van Bosse 1923: 367.

Type. From the Bahamas (Howe 3478 in NY).

Distribution. Tropical and subtropical Atlantic, Pacific and Indo-Pacific oceans.

Solomon Is. New Georgia: Matiu Is. (456). Florida Is.: Kokomtambu Is. (33a). Guadalcanal: Cape Esperance (322a), Mamara (225a), Kukum (222c).

Growing at a mid-eulittoral level in shade, under slight wave action.

Polysiphonia savatieri Hariot. Hollenberg 1968*a*: 77, figs. 37, 38.

Type. From Yokosuka, Japan (in PC).

Distribution. Tropical western and central Pacific; Japan.

Solomon Is. Russell Is.: Sifola (805b, 868c, 873). Guadalcanal: Komimbo (251b, 252b, 288b).

Growing on other algae on coral debris in the moat area under slight wave action (Komimbo) or near the rim under moderate wave action (Sifola).

Polysiphonia scopulorum Harvey. Hollenberg 1968*a*: 79, fig. 7A. Setchell 1924: 160.

Lophosiphonia scopulorum (Harv.) Womersley 1950: 188, Cribb 1956: 138, pl. 1, pl. 2, figs. 8–12.

L. villum (J. Agardh) Setchell & Gardner. Dawson 1944: 332, pl. 48, figs. 1–6; 1954*a*: 451, fig. 58f, g.

Type. From Rottnest Is., W. Aust. (in Herb. Harvey, TCD).

Distribution. Tropical, subtropical and temperate waters in general.

Solomon Is. Russell Is.: Avuna (793d). Guadalcanal: Naro Pt. (287), Cape Esperance (344).

Growing at a mid-eulittoral level, under moderate wave splash.

Hollenberg (1968*a*, p. 57) clarifies the generic concept of *Lophosiphonia* and believes that this species is best referred to *Polysiphonia*. The Solomon Is. specimens belong to var. *villum* (J. Agardh) Hollenberg.

Polysiphonia sphaerocarpa Boergesen 1918: 271, figs. 267–271.

Var. *filifera* Hollenberg 1968*a*: 91, figs. 10, 24, 27, 28.

Type (of species) from St Thomas, Virgin Is. (in C); of var., from Maui, Hawaiian Is. (in US).

Distribution. Tropical oceans in general (variety from Hawaiian Is.).

Solomon Is. New Georgia: Matiu Is. (401c, 462a, 463f). Guadalcanal: Komimbo (292d).

Growing on rock and in pools at a mid-eulittoral level on the outside reef and on *Chondria* (401c) just below low tide level, under fairly strong wave action. Two further collections from Matiu Is. (390a, 401d) are sterile but agree structurally with var. *sphaerocarpa*, and Matiu Is. 435c and Maraunibina Is. 594c are probably also referable to *P. sphaerocarpa* but are sterile.

Polysiphonia upolensis (Grunow) Hollenberg 1968*a*: 94, figs. 6D, E, 29, 35, 42.

Type. From Upolu, British Samoa. (in W).

Distribution. Western and central tropical Pacific Ocean.

Solomon Is. Florida Is.: Tetel Is. (126c).

On debris at a low eulittoral level under calm conditions.

The material is sterile but agrees well in dimensions, branching and the presence of scar cells on usually every second segment.

Other record

Polysiphonia mollis Hooker & Harvey from Rennell Is. by Levring (1960, p. 124).

Genus *TOLYPIOCLADIA* Schmitz

Tolypiocladia glomerulata (C. Agardh) Schmitz. Falkenberg 1901: 177, pl. 21, figs. 27–29. Silva 1952: 308. Womersley 1958: 157.

Roschera glomerulata (C. Ag.) Schmitz. Krishnamurthy 1962: 53, figs. 1–33. Kylin 1956: 504, fig. 400. Weber van Bosse 1923: 359.

Type. From Shark Bay, W. Aust. (in Herb. Agardh, LD, 40743).

Distribution. Tropical Indo-Pacific Ocean.

Solomon Is. New Georgia: Matiu Is. (441a). Russell Is.: Sifola (874a). Guadalcanal: Paruru (636b).

Near the reef rim and sublittoral under calm to moderate wave action; small plants.

Lophothalieae

Genus *MURRAYELLA* Schmitz

Murrayella periclados (C. Agardh) Schmitz 1893: 227. Taylor 1960: 593. Weber van Bosse 1923: 363.

M. squarrosa (Harvey) Schmitz 1893: 228. Setchell 1926: 102. Yamada 1936: 140.

Type. From the West Indies (in Herb. Agardh, LD).

Distribution. Tropical oceans.

Solomon Is. FLORIDA Is.: Tetel Is. (140a). GUADALCANAL: Untava (755b).

Growing on *Rhizophora* roots, infrequent, under slight wave action. Comparison of Harvey's Friendly Islands algae no. 21 (in BM), on which *M. squarrosa* is based, shows no real differences from specimens of *M. periclados* from the West Indies. The distinctness of these two species has been questioned also by Hollenberg (1968*c*, p. 80).

Rhodolachneae Womersley tribus nov.

Apices radially symmetrical; pericentral cells four, each divided into two, the lower in pit-connexion with the central cell; trichoblasts absent. Tetrasporangia two per segment, in longitudinal rows; sexual reproductive structures developed from pericentral cells.

Apices radiales symmetricales; cellulae pericentrales quatuor, quaeque in duabus divisae, inferior cum cellula centrali connexa; trichoblasti absentes. Tetrasporangia duo per segmentum, in seriebus longitudinalibus; structurae sexuales reproductivae ex cellulis pericentralibus exorientes.

Type genus. *Rhodolachne* Wynne.

Genus *RHODOLACHNE* Wynne*

Rhodolachne decussata Wynne 1970: 1780

(Figure 10)

Thallus turf-like, to 7 mm high, with erect branches in groups of 1–5 from semi-prostrate branches attached by unicellular rhizoids. Branches simple or slightly branched, ecorticate, with four pericentral cells each divided into two, the lower cell in pit connection with the central cell. Trichoblasts absent. Apices radially symmetrical. Apical branching exogenous, erect branches proably arising endogenously. Stichidia long, with two rows of tetrasporangia from the 'lateral' pericentral cells; primary cover cells cut off before tetrasporangia but dividing later. 'Transverse' subdivided pericentral cells not dividing further. Spermatangia from pericentral cells on an erect branch. Cystocarps sessile, globular, 200–300 μm across; pericarp of 9–12 erect filaments with each cell forming two cells outwardly. Carposporophyte much branched, with terminal carposporangia.

Holotype. From Anse aux Pins, Mahé, Seychelles. (Wynne 3128, 19 Oct. 1964) (in TEX, no. 269868).

Distribution. Known only from the type locality, and as below.

* *Added in proof. June 1970.* The following account applies to the Solomon Islands collection which had been described as a new genus and species. The paper of Wynne on the same taxon from the Seychelles became available prior to proof corrections. Wynne's name has been used in the present account, which extends his in describing cystocarpic and spermatangial material and establishing a new tribe for the genus.

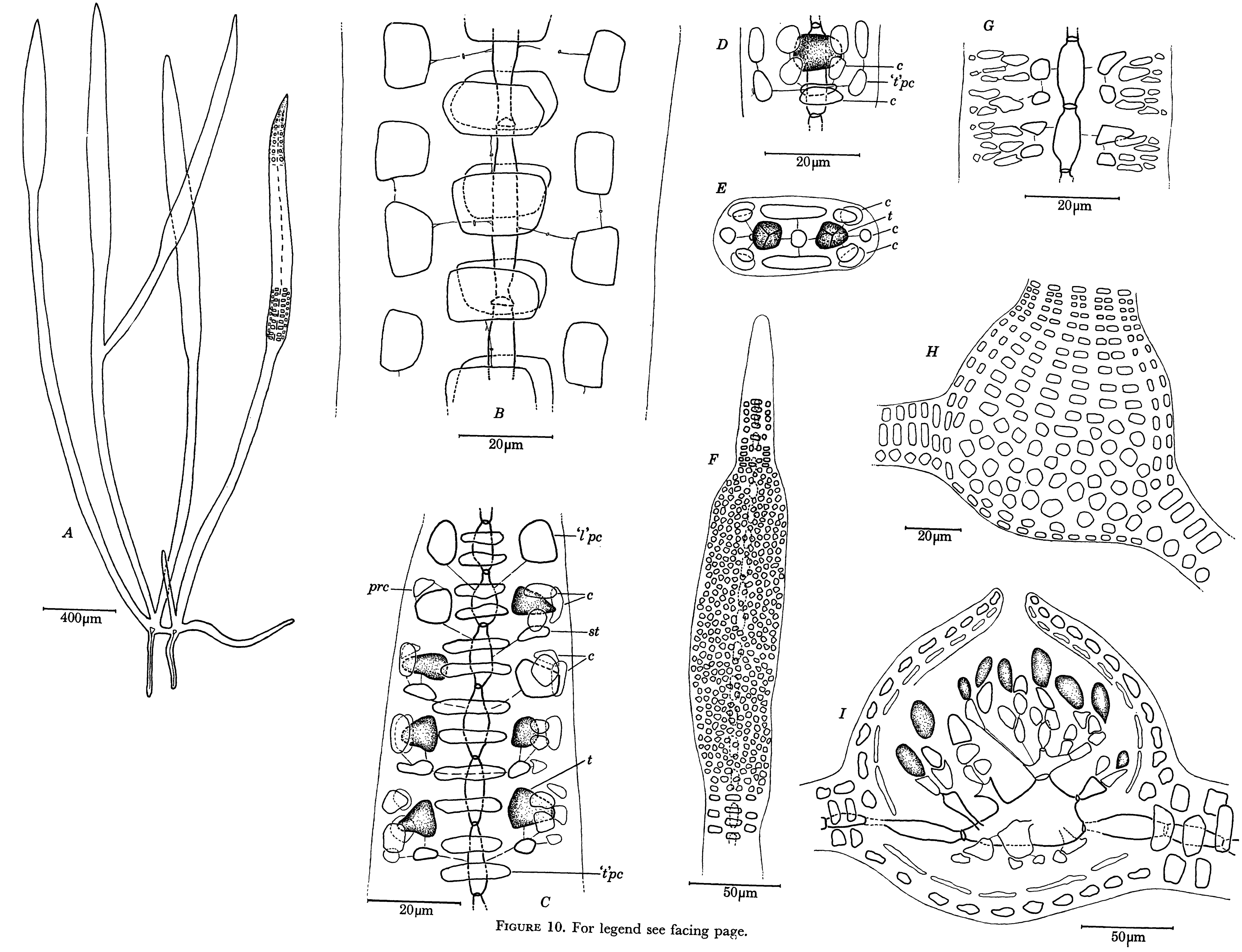

FIGURE 10. For legend see facing page.

Solomon Is. Cape Esperance, Guadalcanal (355a). Mid-eulittoral around an igneous boulder.

Vegetative structure. The thallus forms a low, dense and soft turf to 7 mm high, growing on encrusting coralline algae (probably mainly *Neogoniolithon myriocarpum*) and spreading by semi prostrate branches attached by unicellular rhizoids formed by extensions of pericentral cells (figure 10A). The rhizoids are not cut off from the pericentral cells. Erect branches arise in groups of up to five opposite to or near each rhizoid group, and are simple or a few times branched, terete, linear and 50–60 μm diam. (figure 10*A*).

The thallus is ecorticate, with four pericentral cells per axial cell each divided transversely into two, the lower of which remains in pit-connection with the central cell. The cells at branch apices are very small and the order of pericentral cell formation has not been clearly observed; it appears likely that they are cut off in alternating sequence. The mature pericentral cells and their derivatives alternate in position as seen laterally (figure 10*B*). Apart from pit connexions between the central cells, all other pit connexions are extremely tenuous in the material available.

Trichoblasts are completely absent. Branching of the erect axes is apical and exogenous, the initial cell of the lateral being cut off from an axial cell within two or three cells of the apical cell of the older branch. New erect branches arise from the semi-prostrate branches adjacent to rhizoids or other branches and appear to originate endogenously from the central cell.

Stichidia and tetrasporangia development

Stichidia comprise the upper part of erect branches, 75–100 μm broad, and tetrasporangium production continues almost indefinitely giving very long stichidial regions (figure 10*A*). Tetrasporangia develop in two longitudinal rows from 'lateral' pericentral cells, the divided 'transverse' pericentral cells not dividing further; the stichidium is thus slightly broader than thick (figure 10*C–E*).

Division of the 'lateral' pericentral cells in a stichidium commences several segments further from the apex than does division of the 'transverse' pericentral cells. The 'lateral' pericentral cells first cut off two primary cover cells on each side of the branch (figure 10*C*), following which the tetrasporangium is cut off, leaving an elongate stalk cell to which the two cover cells remain attached. Each of the primary cover cells divides into two and the stalk cell cuts off outwardly a further cover cell (figures 10*C*, *D*, *E*). Thus the stalk cell and tetrasporangium are covered outwardly by five cover cells, and occasional further divisions of those cells may occur following loss of the tetrasporangium. The tetrasporangia are tetrahedrally divided and about 25 μm in diameter when mature.

FIGURE 10. *Rhodolachne decussata* (no. 355a). *A*, Tetrasporangial plant with stichidia and showing erect branches arising from a semi-prostrate basal filament with rhizoids at the base of a group of erect branches. *B*, Face view of an older branch showing the four pericentral cells subdivided; *C*, detail of young part of a stichidium; *D*, edge view of a stichidium (semi-diagrammatic); *E*, transverse section of a stichidium (diagrammatic); *F*, a spermatangial branch in face view; *G*, detail of spermatangia development in median view of branch; *H*, a branch with a semi-mature cystocarp; *I*, median view of a semi-mature cystocarp with carposporophyte. *c*, cover cell; '*l*'*pc*, 'lateral' pericentral cell; *pr c*, primary cover cell; *st*, stalk cell; *t*, tetrasporangium; '*t*' *pc*, 'transverse' pericentral cell.

Spermatangial branches

Only one spermatangial branch has been observed (figure 10*F*). It is terete, slender (about 300 μm long and 40–50 μm broad), and the divided pericentral cells cut off outwardly several elongate spermatangial mother cells, the ends of which are cut off as spermatangia (figure 10*G*); further spermatangial mother cells are cut off laterally from the earlier ones.

Cystocarp structure

Only a few mature cystocarps were found. Carpogonial branches and post-fertilization stages have not been observed, though divisions of the pericentral cells, probably representing early stages, have been seen in branches bearing cystocarps.

The cystocarps are sessile, globular, osteolate, 200–300 μm across and slightly less in height (figure 10*H*). They are usually single though in one case three were closely adjacent with two carposporophytes within one enlarged pericarp, indicating that more than one carpogonial branch had occurred on that branch. The pericarp is two-layered (figure 10*I*) with the cells of the 9–12 erect filaments becoming inconspicuous after each cell cuts off outwardly two isodiametric cells, one to each side of the inner cell; these may subdivide further to form a single outer layer of cells.

The carposporophyte is much branched and arises from an enlarged central cell of the branch. The carposporangia are terminal, ovoid to pyriform, about 20 μm long, and further carposporangia develop from cells below earlier formed ones (figure 10*I*).

Discussion

R. decussata is a most interesting alga in that it shows features both characteristic of the family Rhodomelaceae and unusual for this family. Unfortunately detail of several features is still unknown, especially those of the carpogonial branch and post-fertilization development, but the known features enable its position to be assessed.

Features which ally *Rhodolachne* to the Rhodomelaceae are the probably alternating sequence of pericentral cell formation, the exogenous apical branching, the form of the carposporophyte and nature of the pericarp; and in the stichidium the formation of the main cover cells prior to formation of the tetrasporangium, with the latter arising only from pericentral cells. Features which are unusual for the Rhodomelaceae (though known in some genera) are the entire lack of trichoblasts, formation of all reproductive organs from pericentral cells of the thallus and presence of only four pericentral cells even (as far as known) in fertile segments. These latter features are in general more characteristic of the Delesseriaceae (Delesserioideae), but the lack of flanking cells as well as the definitely rhodomelaceous features relate *Rhodolachne* to the Rhodomelaceae.

Distinctive features of *Rhodolachne* which may indicate its relationships within the Rhodomelaceae are the radial symmetry of the apices, complete lack of trichoblasts, transverse division of the pericentral cells into two with the lower retaining pit connexion with the central cell, formation of all reproductive organs from pericentral cells, and restriction of sporangia formation to the 'lateral' pericentral cells in two longitudinal rows. Two groups of Rhodomelaceae in particular, the Rhodomeleae and the Bostrychieae, show some of these features.

Similarities with the Bostrychieae (Hommersand 1963, p. 335; Kylin 1956; Scagel 1953, p. 17) include the entire absence of trichoblasts (though *Bostrychia* may have monosiphonous branch ends), division of the pericentral cells with the lower cell retaining connexion with the central cell, and formation of the reproductive organs from pericentral cells. Differences are however equally prominent in that *Rhodolachne* has a radially symmetrical apex in contrast to the dorsiventral apex of *Bostrychia*, the pericentral cells in *Bostrychia* are more than four per axial cell and are further divided and commonly form a cortex, the stichidia usually form more than two tetrasporangia per segment and become corticated, and the pericarp of *Bostrychia* is comparable to the cortex in structure (Hommersand 1963, p. 337; Kylin 1956; Scagel 1953, p. 18).

Similarities of *Rhodolachne* with the Rhodomeleae (Hommersand 1963, p. 337; Kylin 1956; Scagel 1953, p. 18) lie in the radially developed apex, the lack of trichoblasts (in *Odonthalia*), the presence of four pericentral cells (in *Odonthalia*), the transverse division of pericentral cells, the formation of reproductive organs from pericentral cells and the presence of two longitudinal rows of tetrasporangia (in *Odonthalia*). These features however are mostly not uniformly present in both the genera placed in the Rhodomeleae, and other differences are conspicuous—e.g. in the Rhodomeleae the upper cell of the subdivided pericentral cells retains attachment to the central cell, and more than four pericentral cells are formed at some stage in both genera. Although *Rhodolachne* has several features in common with *Odonthalia*, the latter shows marked bilateral symmetry.

These differences, together with the very different habit of *Rhodolachne*, indicate that it should not be placed in either the Bostrychieae or Rhodomeleae, but is better placed provisionally in a separate tribe, the Rhodolachneae. A study of further collections and especially young female material of *Rhodolachne* would help in assessing its relationships.

Comparison is also warranted with *Oligocladus* Weber van Bosse 1910, p. 25; 1923, p. 368, fig. 136 (type *O. boldinghii* from Timor, on corallines) which is similar in habit, number of pericentral cells and arrangement of tetrasporangia. It differs, from Weber van Bosse's description, in that the pericentral cells are not divided and the erect filaments bear trichoblasts. Unfortunately no type material now exists in Leiden, but a slide specimen in L from the Sulu Archipelago (406), determined by Weber van Bosse as *O. boldinghii*, is probably a species of *Polysiphonia*. *Oligocladus* is placed by Kylin (1956, p. 540) in the Lophosiphonieae and appears not to be closely related to *Rhodolachne*.

Bostrychieae

Genus *BOSTRYCHIA* Montagne

Bostrychia binderi Harvey 1847: 68, pl. 28. Post 1936: 28. Tseng 1943: 177, pl. 1, figs. 7–8.

Type. From Port Natal, South Africa (in Herb. Harvey, TCD).

Distribution. Tropical and subtropical oceans generally.

Solomon Is. GUADALCANAL: Kukum (220).

Forming a small patch at an upper eulittoral level under slight wave action.

The distinctions between this species and *B. tenella*, discussed by Tseng, apply to the above collection.

Bostrychia tenella (Vahl) J. Agardh. Boergesen 1918: 300, figs. 299–302; 1937: 351. Post 1936: 25. Taylor 1960: 599. Tseng 1943: 176, pl. 1, fig. 6. Weber van Bosse 1923: 363.

Type. From St Croix, Virgin Is.

Distribution. Tropical and subtropical oceans generally.

Solomon Is. NEW GEORGIA: Matiu Is. (429). FLORIDA IS.: Tetel Is. (139, 144). GUADALCANAL: Komimbo (259, 331), Maraunibina Is. (597), Waimia (647).

Growing at a high intertidal level (littoral fringe or upper eulittoral), especially where shaded; often on old logs.

Herposiphonieae

Genus *HERPOSIPHONIA* (Kuetzing) Naegeli

Herposiphonia crassa Hollenberg 1968*b*: 539, figs. 12, 13.

Type. From Maui, Hawaiian Islands (D 22538, in US).

Distribution. Hawaiian Islands.

Solomon Is. GUADALCANAL: Komimbo (292e).

Although sterile, this collection agrees well with Hollenberg's description.

Herposiphonia pacifica Hollenberg 1968*b*: 549, figs. 2A, B, 4, 19.

Type. From Maui, Hawaiian Islands (D 22396, in US).

Distribution. Tropical Indo-Pacific Ocean (Maldive Islands to the Tuomotu Archipelago).

Solomon Is. NEW GEORGIA: Matiu Is. (401e). FLORIDA Is.: Tetel Is. (126d). GUADALCANAL: Komimbo (296d).

Epiphytic on other algae.

Herposiphonia tenella (C. Agardh) Schmitz. Boergesen 1918: 286, figs. 287–289. Dawson 1954*a*: 452, fig. 59a. Hollenberg 1968*b*: 555, fig. 14.

Type. From Sicily (in LD).

Distribution. Widespread in tropical oceans.

Solomon Is. Matiu Is. (401f).

A small sterile fragment which agrees with Hollenberg's description. *H. tenella* forma *secunda* (C. Ag.) Hollenberg (1968*b*, p. 556), was recorded from Rennell Is. by Levring (1960, p. 124) as *H. secunda*.

Polyzonieae

Genus *LEVEILLEA* Decaisne

Leveillea jungermannioides (Martens & Hering) Harvey. Dawson 1954*a*: 461, fig. 63a. Scagel 1953: 51, fig. 8. Weber van Bosse 1923: 365.

Type. From the Red Sea.

Distribution. Tropical, subtropical waters of the Indian and western Pacific Oceans.

Solomon Is. KOLOMBANGARA: Dolo Cove (896f). NEW GEORGIA: Lumaliha Pass (474b). RUSSELL Is.: Sifola (841b, 868b), Lingatu Pt. (820d). GUADALCANAL: Maraunibina Is. (580c, 528c).

Epiphytic on other algae on the reef rim under moderate wave action.

Amansieae

Genus *AMANSIA* Lamouroux

Amansia glomerata C. Agardh. Boergesen 1945: 43. Falkenberg 1901: 416, pl. 1, figs. 20–21, pl. 6, figs. 14–29. Sonder 1871: 17. Weber van Bosse 1923: 369.

Type. From the Hawaiian Islands (in Herb. Agardh, LD).

Distribution. Tropical and subtropical Indo-Pacific.

Solomon Is. KOLOMBANGARA: Dolo Cove (896c). GUADALCANAL: Komimbo (294).

Growing just below low tide level under slight to moderate wave action.

Genus *NEURYMENIA* J. Agardh

Neurymenia fraxinifolia (Mertens ex Turner) J. Agardh. Boergesen 1933*b:* 137, figs. 17–20. Falkenberg 1901: 444, pl. 7, figs. 20–29. Harvey 1860, pl. 124. Kylin 1956: 547, fig. 437B–D. Sonder 1871: 17. Weber van Bosse 1923: 374, pl. 10, fig. 9.

Type. From Indonesia (in C—fragment in K).

Distribution. Tropical and subtropical Indo-Pacific Ocean.

Solomon Is. San Cristobal: Kira Kira (377).

Growing in a surge channel, shaded, under fairly strong wave action.

A collection of small plants, to 5 cm high with fronds to 1 cm broad.

Chondrieae

Genus *ACANTHOPHORA* Lamouroux

Acanthophora spicifera (Vahl) Boergesen 1918: 259, figs. 253–258; 1945: 61. Dawson 1954*a*: 456, fig. 61a, b. Doty 1961: 547. Taylor 1960: 620, pl. 71, fig. 3, pl. 72, figs. 1, 2 Weber van Bosse 1923: 347, figs. 131, 132.

Type. From St Croix, Virgin Is. (in C).

Distribution. Tropical and subtropical oceans generally.

Solomon Is. Gizo Is.: New Manra (521d, 528). New Georgia: Matiu Is. (414), Batuona Is. (507c). Russell Is.: Avuna (805a), Sifola (868a). Guadalcanal: Komimbo (121, 288a), Untava (708), Kopiu (663, 745a).

In the moat and pools near the rim, under moderate to strong wave action.

Genus *CHONDRIA* C. Agardh

Chondria armata (Kuetzing) Okamura 1909: 72, pl. 16, figs. 9–19. Thivy & Sreenivasa Rao 1964: 15, figs. 1–18, pl. 2. Weber van Bosse 1923: 353.

Lophura armata Kuetzing 1866: 2, pl. 3a, b.

Rhodomela crassicaulis Harvey ex J. Agardh 1892: 161. Svedelius 1906*b:* 191, figs. 3, 9.

Type. From Wagap, New Caledonia (in L, 940, 284...299).

Distribution. Tropical Indian and western Pacific oceans.

Solomon Is. Gizo Is.: New Manra (527). New Georgia: Matiu Is. (421, 463b), Ulukoro Is. (495), Batuona Is. (508d). Guadalcanal: Cape Esperance (318b, 325), Waimia (650).

Common on rough reefs just above low tide level—on the rim or low eulittoral of steeply sloping areas.

Chondria intricata Okamura 1912: 180, pl. 99, figs. 10–18. Segawa 1956: 114, fig. 551.

(Figure 26, plate 27)

Type. From Abura-tsubo and Enoshima, Japan (in Tokyo Imp. Fish. Inst.).

Distribution. Apparently only known from Japan.

Solomon Is. New Georgia: Matiu Is. (401a).

Forming a mat up to 2 cm thick just below low water level in a surge channel, on the outer side of Matiu Is.

The alga forms rose-red, low, dense mats, with the main branches distinctly compressed and the lesser branches becoming subterete. Numerous lateral connexions occur between the branches by means of small pads of tissue. Branching is irregularly alternate, mainly from the edges of the compressed branches which are 1–1.5 mm broad; the lesser branches are not or only slightly basally constricted. The branch apices are usually obtuse, with a slight apical depression with the apical cell often slightly projecting. Trichoblasts are not conspicuous. Tetrasporangial and male plants are present and are typical for the genus.

These features agree well with Okamura's description though the Solomon Is. algae has more compressed branches and is a shorter, more entangled form; it agrees well in habit with Segawa's illustration and also with a specimen from Hirado, Pref. Nagasaki (in UC, 418217). *C. sibogae* Weber van Bosse (1923, p. 350, fig. 134) is allied but is a larger plant without anastomoses. Until the numerous species of *Chondria* described from tropical and temperate waters have been monographed, reference of this material to *C. intricata* must be regarded as tentative.

Laurenciae

Genus *LAURENCIA* Lamouroux

Laurencia cartilaginea Yamada 1931: 230, fig. 0, pl. 19a. Saito 1967: 53, figs. 43–47, pls. 17, 18; 1969: 154, fig. 8B.

Type. From Japan (in Herb. Yamada, SAP?).

Distribution. Japan, Korea, Philippines, Singapore, Hawaiian Is.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (7). GUADALCANAL: Komimbo (289), Kopiu (665, 745b).

Growing in the moat or sublittoral (to 3 m) under slight to moderate wave action.

Laurencia flagellifera J. Agardh 1863: 747. Cribb 1958: 165. Saito 1969: 159. Yamada 1931: 197, pl. 4*b*.

Type. From India, *Wight* (in LD, 36604).

Distribution. India, Hawaiian Is.

Solomon Is. GUADALCANAL: Kopiu (666). SAN CRISTOBAL: Kira Kira (385d), Huni R. mouth (895j).

Found in the reef moat and pools under moderate to heavy wave action.

These collections agree well with the species; however the surface cortical cells are only slightly elongate though they are compactly arranged in a palisade-like manner.

Laurencia obtusa (Hudson) Lamouroux. Cribb 1958: 173, pl. 9. Saito 1967: 5, figs. 1–5, pls. 1, 2; 1969: 150. Weber van Bosse 1923: 341. Yamada 1931: 222, pl. 16(b).

Type. From Hastings, England.

Distribution. Cosmopolitan in tropical and temperate waters.

Solomon Is. FLORIDA Is.: Tetel Is. (36a, 84).

Sublittoral under calm conditions.

Laurencia sp.

Solomon Is. NEW GEORGIA: Matiu Is. (417). RUSSELL Is.: Avuna (796b). GUADALCANAL: Mamara (227c), Rove (369), Maraunibina Is. (584).

Isolated, small plants (to 2 cm high) growing just below low tide level under moderate wave action, often shaded.

These small, probably juvenile plants are inadequate for determination. The branches are compressed and the epidermal cells more or less isodiametric.

Laurencia sp.

Small, often fragmentary, plants of *Laurencia* are common on the rubble in the moat and near the reef rim at most localities. They often grow entangled with other algae and are usually less than 1 (–2) cm high. Short, irregular branches occur on most plants and in some anastomoses occur by means of small attachment pads. The sectional view usually shows a cortical layer of small, fairly regular but not radially elongate cells and medullary cells without lenticular thickenings.

Such plants appear inadequate for determination, and may represent young or stunted examples of more than one species. The following collections were made:

Solomon Is. New Georgia: Ulukoro Is. (508e). Russell Is.: Avuna (785), Sifola (841a, 870), Lingatu Pt. (816). Florida Is.: Tetel Is. (211). Guadalcanal: Komimbo (99, 262b), Cape Esperance (892k), Untava (684). San Cristobal: Huni R. mouth (895g).

Other record

Laurencia mariannensis Yamada from Sikaiana Is. by Setchell (1935, p. 268), and from Rennell Is. by Levring (1960, p. 124).

Phylum **CYANOPHYTA**

Blue-green algae were conspicuous in most localities visited, but were collected largely from an ecological viewpoint. Determinations were kindly provided by Dr Francis Drouet, with further determinations of some common species by the senior author.

The recent monograph of Drouet (1968) on the Oscillatoriaceae has been followed and no attempt has been made to incorporate records of other names in this family as published in other accounts (e.g. Levring 1960 and Setchell 1935). Drouet's species in some cases cover several previously recognized species and have also resulted in disappearance into synonymy of such well known names as *Lyngbya* and *Hydrocoleum*. Records in other accounts usually cannot be satisfactorily placed without re-examination of the specimens concerned. In general and from an ecological viewpoint, Drouet's system appears to have much merit.

Many of the collections from the Solomon Islands, especially those from the moat, included more than one species—e.g. *Microcoleus lyngbyaceus* was commonly accompanied by one or both of the species of *Schizothrix*. Further collecting, or detailed study of the present collections, would probably increase the range of species and records considerably.

Order CHROOCOCCALES

Family Chroococcaceae

Genus *COCCOCHLORIS* Sprengel

Coccochloris stagnina Sprengel. Dawson 1957: 125, fig. 31b. Drouet & Daily 1956: 15, figs. 145–163. Umezaki 1961: 10, pl. 1, fig. 1. Velasquez 1962: 275, pl. 1, fig. 2.

Type. From Dieskau, Germany.

Distribution. Cosmopolitan in aerial, freshwater and marine habitats.

Solomon Is. New Georgia: Matiu Is. (438a). Florida Is.: Kokomtambu Is. (32c). Guadalcanal: Maraunibina Is. (608a).

Usually intertidal under fairly calm conditions.

Order CHAMAESIPHONALES

Family Chamaesiphonaceae

Genus *ENTOPHYSALIS* Kuetzing

Entophysalis conferta (Kuetzing) Drouet & Daily. Dawson 1954*a*: 379, fig. 3r. Drouet & Daily 1956: 111, figs. 196–213. Umezaki 1961: 18, pl. 2, fig. 2.

Type. From Cuxhaven, Germany (in L).

Distribution. Widely distributed in tropical and temperate oceans.

Solomon Is. Guadalcanal: Cape Esperance (on *Gelidium pusillum*, 892i), Kopiu (on *Gelidiella ligulata*, 749).

Also epiphytic, at least in small amounts, on many other firm-surfaced algae and probably present throughout the Solomon Islands.

Entophysalis deusta (Meneghini) Drouet & Daily. Dawson 1957: 125, fig. 31d. Drouet & Daily 1956: 103, figs. 185–194, 247–250. Umezaki 1961: 16, pl. 2, fig. 1.

Type. From Genoa, Italy (in FI).

Distribution. Widely distributed in temperate and tropical waters, largely marine.

Solomon Is. New Georgia: Matiu Is. (459c). Russell Is.: Lingatu Pt. (on *P. onkodes*, 822a). Guadalcanal: Paruru (on *P. onkodes* 638), Lauvie Is. (on *P. onkodes*, 610), Untava (on *P. onkodes*, 689a, 690), Kopiu (659b).

At Matiu Is., growing with other *Cyanophyta* on dead *Goniastrea* coral at a lower eulittoral level and at Kopiu in the upper eulittoral on basaltic rock; other collections from *Porolithon onkodes*, mostly from fairly rough coast. Such microscopic algae are readily overlooked and are probably widespread in the Solomon Islands.

Order HORMOGONALES

Family Oscillatoriaceae

Genus *OSCILLATORIA* Vaucher

Oscillatoria lutea C. Agardh. Drouet 1968: 185, figs. 51–57.

Type. From Sweden (in LD).

Distribution. Widespread in tropical and temperate regions, both freshwater and marine.

Solomon Is. Florida Is.: Tetel Is. (134a).

A collection from the lower eulittoral zone on an igneous rock.

Oscillatoria submembranacea Ardissone & Strafforello. Drouet 1968: 203, figs. 62–64.

Type. From Maine, U.S.A. (in FH).

Distribution. Tropical and temperate regions, freshwater and marine.

Solomon Is. Gizo Is.: New Manra (545b). New Georgia: Matiu Is. (473b).

Collections from a low intertidal level, on dead *Acropora* coral or in shallow pools; probably much more widely distributed.

Genus *MICROCOLEUS* Desmazieres

Microcoleus lyngbyaceus (Kuetzing) Crouan. Drouet 1968: 262, figs. 101, 129.

Type. From Venice, Italy (in L).

Distribution. Cosmopolitan in aquatic or subaquatic habitats.

Solomon Is. GIZO Is.: New Manra (541, 545a). NEW GEORGIA: Matiu Is. (438b, 440c, 459a, 460a, 463a, 473c). RUSSELL Is. Avuna (776a, 788), Sifola (842e, 887a, 888), Lingatu Pt. (821). FLORIDA Is.: Kokomtambu Is. (17, 23, 25b), Tetel Is. (36c, 47a, 124, 138). GUADALCANAL: Naro Pt. (271c, 274b, 284c, 286), Komimbo (267), Cape Esperance (316, 892d), Mamara (226), Maraunibina Is. (596), Untava (706).

The common filamentous and loosely tufted blue-green placed in this species probably occurs in all areas of the Solomon Islands, especially in the moat or near the reef edge under calm conditions, but sometimes to a supralittoral level. Several species recognized by other authors are grouped under *M. lyngbyaceus*.

Genus *SCHIZOTHRIX* Kuetzing

Schizothrix arenaria (Berkeley) Gomont. Drouet 1968: 109, figs. 28–34.

Type. From Tasmania (in K, now in BM).

Distribution. Widely distributed in both freshwater and marine habitats.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (32a). GUADALCANAL: Naro Pt. (271a, 284b).

Usually at a supralittoral level on cliffs or rocks.

Schizothrix calcicola (C. Agardh) Gomont. Drouet 1968: 27, figs. 8–19. Velasquez 1962: 327, pl. 4, fig. 76.

Type. From Sweden (in LD).

Distribution. Cosmopolitan, in almost any moist to aquatic habitat.

Solomon Is. NEW GEORGIA: Matiu Is. (438c, 459b, 460b). RUSSELL Is.: Avuna (776b), Sifola (887b). FLORIDA Is.: Kokomtambu Is. (32b), Tetel Is. (47b, 134b). GUADALCANAL: Naro Pt. (271b, 284a), Paruru (on *Porolithon onkodes*, 638), Maraunibina Is. (608e), Lauvie Is. (on *P. onkodes*, 610), Untava (on *P. onkodes*, 690), Kopiu (659c).

A very common species, usually associated with *Microcoleus lyngbyaceus* and other species, at an intertidal or supralittoral level, occasionally where always immersed.

Schizothrix mexicana Gomont. Drouet 1968: 87, figs. 20–22.

Type. From Oaxaca, Mexico (in PC).

Distribution. Tropical and warm temperate regions, in marine and freshwater habitats.

Solomon Is. NEW GEORGIA: Matiu Is. (448, 460b). RUSSELL Is.: Yandina (853). FLORIDA Is.: Tetel Is. (43, 87). GUADALCANAL: Naro Pt. (274a), Komimbo (290), Cape Esperance (356), Paruru (639), Maraunibina Is. (566), Untava (695, 696, 755e).

Growing in the moat or near the rim, generally immersed. Nos. 43, 87, 290, 566, 639, 696, 755e and 853 are penicillate, tufted plants; the other numbers are loosely tangled filaments.

Family Stigonemataceae

Genus *MASTIGOCOLEUS* Lagerheim

Mastigocoleus testarum Lagerheim. Geitler 1932: 473, fig. 284. Umezaki 1961: 81, pl. 12, fig. 5.

Type. From Europe.

Distribution. Widely distributed in tropical and temperate oceans, in mollusc shells and calcareous algae.

Solomon Is. Conspicuous in the following collections of *Porolithon onkodes*. NEW GEORGIA: Matiu Is. (434b, 461). RUSSELL Is.: Sifola (843), Lingatu Pt. (820f, 826). GUADALCANAL: Naro Pt. (273b, 284d), Komimbo (332b), Paruru (634b, 638), Maraunibina Is. (568a), Untava (690, 717).

Probably this boring alga is always present in *Porolithon onkodes*, growing under surf conditions. Other boring blue-green algae may also be present in lesser amounts.

Family Rivulariaceae

Genus *CALOTHRIX* C. Agardh

Calothrix crustacea Thuret. Dawson 1957: 127, fig. 31e. Fan 1956: 172, fig. 5. Geitler 1932: 601, fig. 375b. Umezaki 1961: 95, pl. 17, fig. 2, pl. 18, fig. 1.

Type. From Cherbourg, France (in PC).

Distribution. Cosmopolitan in all oceans.

Solomon Is. GIZO Is.: New Manra (544b). GUADALCANAL: Lauvie Is. (on *Porolithon onkodes*, 610), Kopiu (659a).

Collections 544b and 659a were from mid- to upper eulittoral levels, forming a slippery felt on rock.

Calothrix pilosa Harvey 1858: 106, pl. 48c. Dawson 1954*a*: 379, fig. 3e. Fan 1956: 170, fig. 2. Umezaki 1961: 97, pl. 18, fig. 2.

Type. From Key West, Florida (in herb. Harvey, TCD).

Distribution. Widespread in tropical and subtropical oceans at high intertidal levels.

Solomon Is. NEW GEORGIA: Batuona Is. (504). GUADALCANAL: Kopiu (658).

Both collections were from the upper eulittoral or supralittoral in rough localities.

Genus *GARDNERULA* J. de Toni

Gardnerula corymbosa (Harvey) J. de Toni. Umezaki 1961: 99, pl. 19. Velasquez 1962: 355, pl. 10, fig. 128.

Type. From Key West, Florida, U.S.A. (in herb. Harvey, TCD).

Distribution. Widely distributed in tropical and subtropical oceans.

Solomon Is. FLORIDA Is.: Kokomtambu Is. (30).

Growing in the supralittoral zone in a belt up to 1 m high on a cliff.

Genus *BRACHYTRICHIA* Zanardini

Brachytrichia maculans Gomont. Dawson 1954*a*: 380, fig. 3i, j. Velasquez 1962: 356.

Type. From Koh Chang, Siam (in PC).

Distribution. Probably widespread in the Indo-Pacific tropics.

Solomon Is. Gizo Is.: New Manra (544a). Guadalcanal: Cape Esperance (341).

Growing at a mid- to upper eulittoral level on rock.

MARINE ANGIOSPERMS ('SEA GRASSES')

Determinations of the sea grasses were kindly made by Dr C. den Hartog.

Family Potamogetonaceae

Genus *CYMODOCEA* Konig

Cymodocea rotundata Aschers & Schweinf. Isaac, F. M. 1968: 36, pl. 4a, b.

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. Guadalcanal: Komimbo (242c), Paruru (641b).

Locally dense on silt, inshore on reef; not quite emergent.

Other record

Cymodocea ciliata (Forsskål) Ehrenberg was recorded by Setchell (1935, p. 269) from Uras Cove, Malaita.

Genus *HALODULE* Endlicher

Halodule uninervis (Forsskål) Aschers. Isaac, F. M. 1968: 40, pl. 1e–k.

Distribution. Tropical Indian and western Pacific Ocean.

Solomon Is. Guadalcanal: Maraunibina Is. (608d).

Growing in a sand patch on shore side of main reef, under fairly calm conditions.

Family Hydrocharitaceae

Genus *ENHALUS* Rich.

Enhalus acoroides (L.) Rich. Hartog 1957: 402, fig. 13. Isaac, F. M. 1968: 45, pl. 8.

Distribution. Tropical Indian and Western Pacific Oceans.

Solomon Is. Florida Is.: Tetel Is. (34). Guadalcanal: Komimbo (242b): also observed at Naro Pt., Paruru, Maraunibina Is., and Untava.

Forming fairly extensive beds in sandy mud on the inshore area of the moat, often near mangroves (*Rhizophora*), with the leaves lying on the water surface at low tide. Occasional plants often occur between micro atolls, e.g. at Untava.

Genus *THALASSIA* Banks ex Konig

Thalassia hemprichii (Ehrenb.) Aschers. Hartog 1957: 406, figs. 14, 15. Isaac, F. M. 1968: 44, pl. 7. Setchell 1935: 269.

Distribution. Tropical Indian and western Pacific Oceans.

Solomon Is. Florida Is.: Tetel Is. (35). Guadalcanal: Komimbo (242a), Paruru (641a), Maraunibina Is. (608b) (also observed at Untava). [Bellona Is. (Setchell).]

Common as rather sparse beds of plants with short leaves (6–12 cm long) in sandy-mud shoreward areas of the moat, under fairly calm conditions.

Genus *HALOPHILA* Petit-Thouars

Halophila minor (Zoll.) Hartog 1957: 410, fig. 17b. Isaac, F. M. 1968: 42, pl. 6h–p.

Distribution. Indian and western Pacific Ocean tropics.

Solomon Is. GUADALCANAL: Maraunibina Is. (608c).

Growing with *Thalassia* and *Halodule* in a sandy patch on the inshore side of the main reef, under calm conditions.

Halophila ovalis (R. Br.) Hooker. Doty & Stone 1967: 415, fig. 2. Hartog 1957: 408, fig. 16.

Distribution. Indo-Pacific tropics.

Solomon Is. FLORIDA Is.: Tetel Is. (91).

Occasional plants on sand patches at bottom of large pools on main reef, at 1–2 m depth. Sometimes growing on silt at inshore edge of reef and almost emergent.

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References

Abbott, I. A. 1946 The genus *Griffithsia* (Rhodophyceae) in Hawaii. *Farlowia* **2**, 439–453.

Abbott, I. A. 1947 Brackish-water algae from the Hawaiian Islands. *Pacif. Sci.* **1** (4), 193–214.

Abbott, I. A. 1962 Some *Liagora*-inhabiting species of *Acrochaetium*. *Occ. Pap. Bernice P. Bishop Mus.* **23**, 77–120.

Agardh, C. A. 1820 *Species Algarum Rite Cognitae cum Synonymis, Differentiis Specificis et Descriptionibus Succinctis*, vol. 1, pt. 1, pp. 1–68. Lund.

Agardh, C. A. 1824 *Systema Algarum*. xxxviii + 312. Lund: Literis Berlingianis.

Agardh, J. G. 1847 Nya alger från Mexico. *Öfvers. K. VetenskAkad. Förh.* **4** (1), 5–17.

Agardh, J. G. 1848 *Species, Genera et Ordines Algarum*, vol. 1, pp. 1–363. Lund: Gleerup.

Agardh, J. G. 1852 *Species, Genera et Ordines Algarum*, vol. 2, pt. 2, pp. 337–720. Lund: Gleerup.

Agardh, J. G. 1863 *Species, Genera et Ordines Algarum*, vol. 2, pt. 3, pp. 701–1291. Lund: Gleerup.

Agardh, J. G. 1876 *Species, Genera et Ordines Algarum*, vol. 3, pt. 1. *Epicrisis systematis Floridearum*. Lund: Gleerup.

Agardh, J. G. 1887 Till Algernes Systematik. VIII. Siphoneae. *Acta Univ. lund.* **23** (2), 1–180, pls. 1–5.

Agardh, J. G. 1889 Species Sargassorum Australiae. *K. svenska Vetensk-Akad. Handl.* **23** (3), 1–133, pls. 1–31.

Agardh, J. G. 1892 Analecta algologica. *Acta Univ. lund* **28**, 1–182, pls. 1–3.
Agardh, J. G. 1896 Analecta Algologica. Cont. III. *Acta Univ. lund.* Avd 2 (**7**), 1–140, pl. 1.
Askenasy, E. 1889 *Forschungsreise S.M.S. 'Gazelle'*. Th. IV, Bot. Algen. (Berlin).
Baardseth, E. 1941 The marine algae of Tristan da Cunha. In *Results of Norwegian scientific Expedition to Tristan da Cunha*, vol. 9, pp. 1–173. Oslo: Norske VidenskAkad.
Balakrishnan, M. S. 1961 Studies on Indian Cryptonemiales–III. Halymenia C. A. Ag. *J. Madras Univ.* B. **31**, 183–217.
Barton, E. S. 1891 A systematic and structural account of the genus *Turbinaria* Lamx. *Trans. Linn. Soc. Lond.* (Ser. 2, *Bot*) **3**, 215–226, pls. 54, 55.
Barton, E. S. 1901 The genus *Halimeda*. *Siboga-Exped. Monogr.* **60**, 1–32, pls. 1–4.
Biswas, K. & Sharma, S. A. K. 1950 Sargassa of Indian seas. *Jl R. Asiat. Soc. Beng.* **16**, 79–97, pls. 1–3, map.
Blackler, H. 1964 Some observations on the genus *Colpomenia* (Endlicher) Derbes et Solier 1851. *Proc. Fourth Int. Seaweed Symposium, Biarritz*, Sept. 1961, pp. 50–54.
Blackler, H. 1967 The occurrence of *Colpomenia peregrina* (Sauv.) Hamel in the Mediterranean (Phaeophyta, Scytosiphonales). *Blumea* **15**, 5–8.
Bliding, C. 1963 A critical survey of European taxa in Ulvales. Part. I. *Capsosiphon*, *Percursaria*, *Blidingia*, *Enteromorpha*. *Op. bot. Soc. bot. Lund.* **8** (3), 1–160.
Boergesen, F. 1905 Contributions a la connaissance du genre *Siphonocladus* Schmitz *K. danske Vidensk. Selsk. Forh.*; 1905 (3), 259–291.
Boergesen, F. 1907 An ecological and systematic account of the *Caulerpas* of the Danish West Indies. *K. danske vidensk. Selsk. Skr.* **7** (Nat. Math.) **4**, 337–392.
Boergesen, F. 1913 The marine algae of the Danish West Indies. Vol. I. Chlorophyceae. *Dansk bot. Ark.* **1**, 1–160, map.
Boergesen, F. 1914 The marine algae of the Danish West Indies. Part 2. Phaeophyceae. *Dansk bot. Ark.* **2**, 157–226.
Boergesen, F. 1915 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 1. *Dansk bot. Ark.* **3**, 1–80.
Boergesen, F. 1916 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 2. *Dansk bot. Ark.* **3**, 81–144.
Boergesen, F. 1917 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 3. *Dansk bot. Ark.* **3**, 145–240.
Boergesen, F. 1918 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 4. *Dansk bot. Ark.* **3**, 241–304.
Boergesen, F. 1919 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 5. *Dansk. bot. Ark.* **3**, 305–368.
Boergesen, F. 1920 The marine algae of the Danish West Indies. Vol. II. Rhodophyceae, Part 6. *Dansk bot. Ark.* **3**, 369–504.
Boergesen, F. 1924 Marine algae from Easter Island. In *The Natural History of Juan Fernandez and Easter Island*, Vol. 2, pp. 247-309.
Boergesen, F. 1927 Marine algae from the Canary Islands. III. Rhodophyceae. Part I. Bangiales and Nemalionales. *Biol. Meddr* **6** (6), 1–97.
Boergesen, F. 1932 A revision of Forsskals algae mentioned in Flora Aegyptico-Arabica and found in his herbarium in the Botanical Museum of the University of Copenhagen. *Dansk bot. Ark.* **8** (2), 1–15, pl. 1.
Boergesen, F. 1933*a* Some Indian green and brown algae especially from the shores of the Presidency of Bombay. III. *J. Indian bot. Soc.* **12**, 1–16, pl. 1–5.
Boergesen, F. 1933*b* Some Indian Rhodophyceae especially from the shores of the Presidency of Bombay. *Kew Bull.* pp. 113–142, pls. 5–9.
Boergesen, F. 1934 Some marine algae from the northern part of the Arabian Sea with remarks on their geographical distribution. *Biol. Meddr* **11** (6), 1–72, pl. 1, 2.
Boergesen, F. 1935 A list of marine algae from Bombay. *Biol. Meddr* **12** (2), 1–64, pl. 1–10.
Boergesen, F. 1936 Some marine algae from Ceylon. *Ceylon J. Sci.* A, **12**, 57–96.
Boergesen, F. 1937 Contributions to a South Indian marine algal flora, II. *J. Indian bot. Soc.* **16**, 311–357.
Boergesen, F. 1940 Some marine algae from Mauritius. I. Chlorophyceae. *Biol. Meddr* **15** (4), 1–81, pl. 1-3.
Boergesen, F. 1941 Some marine algae from Mauritius. II. Phaeophyceae. *Biol. Meddr* **16** (3), 1–81, pls. 1–8.
Boergesen, F. 1942 Some marine algae from Mauritius. III. Rhodophyceae Part I. Porphyridiales, Bangiales, Nemalionales. *Biol. Meddr* **17** (5), 1–64.
Boergesen, F. 1943 Some marine algae from Mauritius. III. Rhodophyceae. Part 2. Gelidiales, Cryptonemiales, Gigartinales. *Biol. Meddr* **19** (1), 1–85, pl. 1.
Boergesen, F. 1944 Some marine algae from Mauritius. III. Rhodophyceae. Part 3. Rhodymeniales. *Biol. Meddr* **19** (6), 1–32.
Boergesen, F. 1945 Some marine algae from Mauritius. III. Rhodophyceae. Part 4. Ceramiales. *Biol. Meddr* **19** (10), 1–68.

Boergesen, F. 1946 Some marine algae from Mauritius. An additional list of species to Part I. Chlorophyceae. *Biol. Meddr* **20** (6), 1–64.

Boergesen, F. 1948 Some marine algae from Mauritius. Additional lists to the Chlorophyceae and Phaeophyceae. *Biol. Meddr* **20** (12), 1–55, pls. 1–2, map.

Boergesen, F. 1949 On the genus *Titanophora* (J. Ag.) Feldm. and description of a new species. *Dansk bot. Ark.* **13** (4), 1–8, pls. 1–2.

Boergesen, F. 1950 Some marine algae from Mauritius. Additions to the parts previously published. II. *Biol. Meddr* **18** (11), 1–46.

Boergesen, F. 1951 Some marine algae from Mauritius. Additions to the parts previously published. III. *Biol. Meddr* **18** (16), 1–44, pls. 1–7.

Boergesen, F. 1952 Some marine algae from Mauritius. Additions to the parts previously published. IV. *Biol. Meddr* **18** (19), 1–72, pls. 1–5.

Boergesen, F. 1953 Some marine algae from Mauritius. Additions to the parts previously published. V. *Biol. Meddr* **21** (9), 1–62, pls. 1–3.

Boergesen, F. 1954 Some marine algae from Mauritius. Additions to the parts previously published. VI. *Biol. Meddr* **22** (4), 1–51.

Bory de St Vincent, J. B. 1827 Padine. *Dict. Class. Hist. nat.* **12**, 589–591 (Paris).

Bory de St Vincent, J. B. 1828 In M.L.I. Duperrey, *Voyage autour du Monde, execute par ordre du Roi, sur la Corvette de Sa Majeste, la Coquille, pendant les années 1822–5* (Botanique, Cryptogamie), pp. 1–300, pls. 1–39.

Brand, F. 1905 Ueber die Anheftung der Cladophoraceen und ueber verschiedene polynesische Formen dieser Familie. *Bot. Zbl.* **18**, 165–193, pls. 5, 6.

Butters, F. K. 1911 Notes on the species of *Liagora* and *Galaxaura* of the central Pacific. *Minn. bot. Stud.* II, **4**, 161–184, pl. 24.

Cardinal, A. 1964 Étude sur les Ectocarpacées de la Manche. *Nova Hedwigia* **15**, 1–86, figs. 1–41.

Chamberlain, Y. M. 1965 Marine algae of Gough Island. *Bull. Br. Mus. nat. Hist. Bot.* **3** (5), 173–232, pls. 16–19.

Chiang, Young-Meng. 1970 Morphological studies of red algae of the family Cryptonemiaceae. *Univ. Calif. Publs Bot.* **58**, vi + 95 pp., 10 pls.

Chihara, M. 1955 Studies on the life-history of the green algae in the warm seas around Japan. (3). On the life-history of *Boodlea coacta* (Dickie) Murray et De Toni. *J. Jap. Bot.* **30**, 9–18.

Chou, R. C-Y. 1945 Pacific species of *Galaxaura*. I. Asexual types. *Pap. Mich. Acad. Sci.* **30**, 35–55, pls. 1–11.

Chou, R. C-Y. 1947 Pacific species of *Galaxaura*. II. Sexual types. *Pap. Mich. Acad. Sci.* **31**, 3–24, pls. 1–13.

Cribb, A. B. 1954 Records of marine algae from south-eastern Queensland. I. *Pap. Dep. Bot. Univ. Qd* **3** (3), 15–37.

Cribb, A. B. 1956 Records of marine algae from south-eastern Queensland. II. *Polysiphonia* and *Lophosiphonia*. *Pap. Dep. Bot. Univ. Qd* **3** (16), 131–147.

Cribb, A. B. 1958 Records of marine algae from south-eastern Queensland. III. *Laurencia* Lamx. *Pap. Dep. Bot. Univ. Qd* **3**, 159–191.

Cribb, A. B. 1960 Records of marine algae from south-eastern Queensland. V. *Pap. Dep. Bot. Univ. Qd* **4** (1), 3–31.

Cribb, A. B. 1965 An ecological and taxonomic account of the algae of a semi-marine cavern, Paradise Cove, Queensland. *Pap. Dep. Bot. Univ. Qd.* **4** (16), 259–282.

Dawson, E. Y. 1944 The marine algae of the Gulf of California. *Allan Hancock Pacif. Exped.* **3** (10), 187–452, pls. 31–77.

Dawson, E. Y. 1949 Contributions toward a marine flora of the southern California Channel Islands, I–III. *Occ. Pap. Allan Hancock Fdn* no. 8, pp. 1–56, pls. 1–15.

Dawson, E. Y. 1950 A review of *Ceramium* along the Pacific coast of North America with special reference to its Mexican representatives. *Farlowia* **4**, 113–138.

Dawson, E. Y. 1953 Marine red algae of Pacific Mexico. Part I. Bangiales to Corallinaceae Subf. Corallinoideae. *Allan Hancock Pacif. Exped.* **17** (1), 1–239, pls. 1–33.

Dawson, E. Y. 1954*a* Marine plants in the vicinity of the Institut Oceanographique de Nha Trang, Viet Nam. *Pacif. Sci.* **8**, 371–481.

Dawson, E. Y. 1954*b* Notes on tropical Pacific marine algae. *Bull. Sth. Calif. Acad. Sci.* **53** (1), 1–7.

Dawson, E. Y. 1954*c* Marine red algae of Pacific Mexico. Part 2. Cryptonemiales (cont.). *Allan Hancock Pacif. Exped.* **17** (2): 241–396, pls. 1–44.

Dawson, E. Y. 1956 Some marine algae of the Southern Marshall Islands. *Pacif. Sci.* **10**, 25–66.

Dawson, E. Y. 1957 An annotated list of marine algae from Eniwetok Atoll, Marshall Islands. *Pacif. Sci.* **11**, 92–132.

Dawson, E. Y. 1960*a* New records of marine algae from Pacific Mexico and Central America. *Pacif. Nat.* **1** (20), 31–52.

Dawson, E. Y. 1960*b* Marine red algae of Pacific Mexico. Part 3. Cryptonemiales, Corallinaceae subf. Melobesioideae. *Pacif. Nat.* **2**, 1–125, pls. 1–50.

Dawson, E. Y. 1961 Marine red algae of Pacific Mexico. Part 4. Gigartinales. *Pacif. Nat.* **2**, 191–280, pls. 1–63.

Dawson, E. Y. 1963 Marine red algae of Pacific Mexico. Part 8. Ceramiales: Dasyaceae, Rhodomelaceae. *Nova Hedwigia* **6**, 401–481, pls. 126–171.

Dawson, E. Y., Aleem, A. A. & Halstead, B. W. 1955 Marine algae from Palmyra Island with special reference to the feeding habits and toxicology of reef fishes. *Occ. Pap. Allan Hancock Fdn* no. 17, 1–39.

Denizot, M. 1968 *Les algues Floridées encroutantes (a l'exclusion des Corallinacées)*. Paris.
Desikachary, T. V. 1962 *Cumagloia* Setchell et Gardner and *Dermonema* (Grev.) Harv. *J. Indian bot. Soc.* **41**, 132–147.
Desikachary, T. V. & Balakrishnan, M. S. 1957 *Taenioma* J. Ag. from India. *Proc. Indian Acad. Sci.* **46**, 336–345.
De Toni, J. B. 1900 *Sylloge Algarum omnium hucusque Cognitarium*, vol. 4, pp. 389–776. Padua.
De Toni, J. B. 1903 *Sylloge Algarum omnium hucusque Cognitarium*, vol. 4. (Florideae. Sec. III), pp. 775–1525. Padua.
Diaz-Piferrer, M. 1965 A new species of *Pseudobryopsis* from Puerto Rico. *Bull. mar. Sci. Gulf Caribb.* **15**, 463–474.
Dickie, G. 1877 Notes on algae collected by H. N. Moseley, M.A., of H.M.S. *Challenger* chiefly obtained in Torres Straits, Coasts of Japan and Juan Fernandez. *J. Linn. Soc.* **15**, 446–455.
Doty, M. S. 1961 *Acanthophora*, a possible invader of the marine flora of Hawaii. *Pacif. Sci.* **15**, 547–552.
Doty, M. S. & Stone, B. C. 1967 Typification of the generic name *Halophila* Thouars. *Taxon* **16**, 414–418.
Drouet, F. 1968 Revision of the classification of the Oscillatoriaceae. *Monogr. Acad. nat. Sci. Philad.* **15**, 1–370.
Drouet, F. & Daily, W. A. 1956 Revision of the coccoid Myxophyceae. *Butler Univ. bot. Stud.* **12**, 1–218.
Ducker, S. C. 1967 The genus *Chlorodesmis* (Chlorophyta) in the Indo-Pacific region. *Nova Hedwigia* **13**, 145–182, pls. 25–43.
Ducker, S. C. 1969 Additions to the genus *Chlorodesmis* (Chlorophyta). *Phycologia*, **8**, 17–19.
Durairatnam, M. 1961 Contribution to the study of the marine algae of Ceylon. *Bull. Ceylon Fish.* **10**, 1–181.
Egerod, L. E. 1952 An analysis of the siphonous Chlorophycophyta, with special reference to the Siphonocladales, Siphonales, and Dasycladales of Hawaii. *Univ. Calif. Publs Bot.* **25**, 325–454, pls. 29–42.
Eubank, L. L. 1946 Hawaiian representatives of the genus *Caulerpa*. *Univ. Calif. Publs Bot.* **18**, 409–32, pl. 22.
Falkenberg, P. 1901 Die Rhodomelaceen des Golfes von Neapel. In *Fauna und Flora des Golfes von Neapel*. Monogr. no. 25. Berlin: Friedländer.
Fan, K. C. 1956 Revision of *Calothrix* Ag. *Rev. algol.* (*N.S.*) **2**, 154–178.
Feldmann, G. 1945 Revision du genre *Botryocladia* Kylin (Rhodophycées-Rhodyméniacées). *Bull. Soc. Hist. nat. Afr. N.* **35**, 49–61.
Feldmann, J. 1931 Remarques sur les genres *Gelidium* Lamour., *Gelidopsis* Schmitz et *Echinocaulon* (Kuetz.) emend. *Travaux cryptogamiques ded. L. Mangin*, pp. 151–166. Paris.
Feldmann, J. 1938 Sur la classification de l'Ordre des Siphonocladales. *Revue gén. Bot.* **50**, 571–597.
Feldmann, J. 1942 Remarques sur les Nemastomacées. *Bull. Soc. bot. Fr.* **89**, 104–113.
Feldmann, J. & Hamel, G. 1934 Observations sur quelques Gelidiacees. *Revue gén. Bot.* **46**, 1–22.
Foslie, M. 1897 On some *Lithothamnia*. *K. norske vidensk. Selsk. Skr.* 1897 (1), 1–20.
Foslie, M. 1900 Five new calcareous algae. *K. norske vidensk. Selsk. Skr.* 1900 (3), 1–6.
Foslie, M. 1904 The Corallinaceae of the Siboga Expedition. I. Lithothamnioneae, Melobesieae, Mastophoreae. *Siboga Exped. Monogr.* **61**, 10–77, pls. 1–13.
Foslie, M. 1909 Algologiske Notiser VI. *K. norske vidensk. Selsk. Skr.* 1909 (2), 1–63.
Foslie, M. 1929 *Contributions to a monograph of the Lithothamnia*. (ed. H. Printz), 60 pp., 75 pls. Trondheim.
Geitler, L. 1932 Cyanophyceae. In Rabenhorst, L. *Kryptogamen-Flora von Deutschland, Österreich und der Schweiz*, vol. 14. Leipzig.
Gepp, A. & Gepp, E. S. 1908 Marine algae (Chlorophyceae and Phaeophyceae) and marine phanerogams of the 'Sealark' Expedition, collected by J. Stanley Gardiner, M.A., F.R.S., F.L.S. *Trans. Linn. Soc. Lond.* (Ser. 2. Bot.) **7**, 163–188, pls. 22–24.
Gepp, A. & Gepp, E. S. 1911 The Codiaceae of the Siboga Expedition. *Siboga Exped. Monogr.* **62**, 1–150, pls. 1–22.
Gerloff, J. 1960 Meeresalgen aus Kenya. I. Cyanophyta und Chlorophyta. *Willdenowia* **2**, 604–627.
Gilbert, W. J. 1961 An annotated checklist of Philippine marine Chlorophyta. *Philipp. J. Sci.* **88**, 413–451, pl. 1.
Gilbert, W. J. 1962 Contribution to the marine Chlorophyta of Hawaii. I. *Pacif. Sci.* **16**, 135–144.
Gilmartin, M. 1966 Ecology and morphology of *Tydemania expeditionis*, a tropical deep-water siphonous green alga. *J. Phycol.* **2**, 100–105.
Gray, J. E. 1866 On *Anadyomene* and *Microdictyon*, with description of three new allied genera, discovered by Menzies in the Gulf of Mexico. *J. Bot., Lond.* **4**, 41–51, 65–72, 1 pl.
Greville, R. K. 1830 *Algae Britannicae*. Edinburgh.
Greville, R. K. 1848 Algae Orientales—descriptiones of new species belonging to the genus Sargassum. *Ann. Mag. nat. Hist.* (Ser. 2) **2**, 274–277, pl. 5, 431–434, pl. 13.
Greville, R. K. 1849 Algae orientales—descriptions of new species belonging to the genus *Sargassum*. *Ann. Mag. nat. Hist.* (Ser. 2) **3**, 106–109, pl. 4.
Grunow, A. 1870 *Reise der Österreichischen Fregatte 'Novara' um die Erde in den Jahren 1857, 1858, 1859*. Bot. Theil, I. Algae, pp. 1–104, pls. i–xi.
Grunow, A. 1874 Algen der Fidschi-, Tonga- und Samoa-Inseln. *J. Mus. Godeffroy* **3**, 23–50.
Grunow, A. 1915 Additamenta ad cognitionem Sargassorum. *Verh. zool. bot. Ges. Wien* **65**, 329–448.
Hamel, G. 1937 *Phaeophycées de France*. Fasc. III, pp. 177–240. Paris.
Hamel, G. 1939 *Phaeophycées de France*. Fasc. V, pp. 337–432, i–xlvii. Paris.
Hartog, C. den 1957 Hydrocharitaceae. *Flora Malesiana* **5**, 381–413.
Harvey, W. H. 1847 *Nereis Australis*. London.

Harvey, W. H. 1854 Short characters of three new algae from the shores of Ceylon. *J. Bot.* (*Hooker*) **6**, 143–5, pls. 5, 6.

Harvey, W. H. 1858 Nereis Boreali-Americana. Pt. III. Chlorospermae. *Smithson. Contr. Knowl.* **10**, 1–140, pls. 37–50.

Harvey, W. H. 1859*a* *Phycologia Australica*, vol. 2, plates 61–120. London: Reeve.

Harvey, W. H. 1859*b* Characters of new algae, chiefly from Japan and adjacent regions. *Proc. Am. Acad. Arts Sci.* **4**, 327–335.

Harvey, W. H. 1860 *Phycologia Australica*, vol. 3, plates 121–180. London: Reeve.

Hauck, F. 1887 Ueber einige von J. M. Hildebrandt im Rothen Meere und Indischen Ocean gesammelte Algen, III–VI. *Hedwigia* **26**, 18–21, 41–45, 86–93, 188–190.

Heydrich, F. 1897*a* Neue Kalkalgen von Deutsch-Neu-Guinea (Kaiser Wilhelms-Land). *Biblthca bot.* **8** (41), 1–11, pl. 1.

Heydrich, F. 1897*b* Corallinaceae, inbesondere Melobesieae. *Ber. dt. bot. Ges.* **15**, 34–70, pl. 3.

Heydrich, F. 1897*c* Melobesieae. *Ber. dt. bot. Ges.* **15**, 403–420, pl. 18.

Hillis, L. W. 1959 A revision of the genus *Halimeda* (Order Siphonales). *Publs Inst. mar. Sci. Univ. Tex.* **6**, 321–403.

Hollenberg, G. J. 1967 New marine algae from the central tropical Pacific Ocean. *Am. J. Bot.* **54** (10), 1198–1203.

Hollenberg, G. J. 1968*a* An account of the species of *Polysiphonia* of the central and western tropical Pacific Ocean. *Pacif. Sci.* **22**, 56–98, 198–207.

Hollenberg, G. J. 1968*b* An account of the species of the red alga *Herposiphonia* occurring in the central and Western tropical Pacific Ocean. *Pacif. Sci.* **22**, 536–559.

Hollenberg, G. J. 1968*c* Phycological notes III. New records of marine algae from the central tropical Pacific Ocean. *Brittonia* **20**, 74–82.

Hommersand, M. H. 1963 The morphology and classification of some Ceramiaceae and Rhodomelaceae. *Univ. Calif. Publs. Bot.* **35** (2), 165–366, pls. 1–6.

Howe, M. A. 1907 Phycological Studies III. Further notes on *Halimeda* and *Avrainvillea*. *Bull. Torrey bot. Club* **34**, 491–516, pls. 25–30.

Howe, M. A. 1909 Phycological Studies IV. The genus *Neomeris* and notes on other Siphonales. *Bull. Torrey bot. Club.* **36**, 75–104, pls. 1–8.

Howe, M. A. 1914 The marine algae of Peru. *Mem. Torrey bot. Club* **15**, 1–185, pls. 1–66.

Howe, M. A. 1918 Further notes on the structural dimorphism of sexual and tetrasporic plants in the genus Galaxaura. *Brooklyn bot. Gdn Mem.* **1**, 191–197, pls. 3, 4.

Isaac, F. M. 1968 Marine Botany of the Kenya coast. 4. Angiosperms. *Jl E. Africa nat. hist. Soc.* **27**, 29–47.

Isaac, W. E. 1956 Marine algae of Inhaca Island and of the Inhaca Peninsula. I. *Jl. S. Afr. Bot.* **22**, 161–193, pls. 36–43.

Isaac, W. E. & Chamberlain, Y. M. 1958 Marine algae of Inhaca Island and of the Inhaca Peninsula. II. *Jl. S. Afr. Bot.* **24**, 123–158.

Kanda, T. 1944 Ecological studies on marine algae from Kororu and adjacent Islands in the South Sea Islands. *Palao trop. biol. Stn Stud.* **2** (4), 733–800 and map.

Kjellman, F. R. 1900 Om Floride-slägtet *Galaxaura*. *K. svenska VetenskAkad. Handl.* **33** (1), 1–109, pls. 1–20.

Koster, J. Th. 1937 Algues marines des ilots Itu-aba, Sand Caye et Nam-Yit, situes a l'ouest de l'Ile Palawan. *Blumea* (Suppl. I), 219–228, pl. 15.

Krishnamurthy, V. 1962 On the morphology of *Roschera glomerulata* (C. Agardh) Weber van Bosse. *Phykos* **1**, 53–60.

Kuckuck, P. 1907 Ueber den Bau und die Fort pflanzung von *Halicystis* Areschoug und *Valonia* Ginnani. *Z. Bot.* **65**, 139–185, pls. 3, 4.

Kuckuck, P. & Kornmann, P. 1963 Ectocarpaceen-Studien. VIII. Einige Arten aus warmen Meeren. *Helgoländer wiss. Meeresunters* **8** (4), 361–382.

Kuetzing, F. T. 1843 *Phycologia Generalis; oder Anatomie, Physiologie und Systemkunde der Tange.* Leipzig.

Kuetzing, F. T. 1849 *Species Algarum.* (Leipzig).

Kuetzing, F. T. 1853 *Tabulae Phycologicae*, vol. 3. Nordhausen.

Kuetzing, F. T. 1854 *Tabulae Phycologicae*, vol. 4. Nordhausen.

Kuetzing, F. T. 1863*a* *Tabulae Phycologicae*, vol. 13. Nordhausen.

Kuetzing, F. T. 1863*b* Diagnosen und Bemerkungen zu drei und siebenzig neuen Algenspecies. *Offentlichen Pruefung Realschule Nordhausen*, 1863, 1–19.

Kuetzing, F. T. 1866 *Tabulae Phycologicae*, vol. 16. Nordhausen.

Kuetzing, F. T. 1868 *Tabulae Phycologicae*, vol. 18. Nordhausen.

Kuetzing, F. T. 1869 *Tabulae Phycologicae*, vol. 19. Nordhausen.

Kylin, H. 1931 Die Florideenordnung Rhodymeniales. *Acta Univ. lund* **27** (11), 1–48, pls. 1–20.

Kylin, H. 1932 Die Florideenordnung Gigartinales. *Acta Univ. lund* (N.F. Avd. 2), **28** (8), 1–88, pls. 1–28.

Kylin, H. 1956 *Die Gattungen der Rhodophyceen.* Lund: Gleerups.

Lawson, G. W. 1960 The genus *Taenioma* in West Africa. *New Phytol.* **59**, 361–6, pl. 11.

Lee, R. K. S. 1967 Taxonomy and distribution of the melobesioid algae on Rongelap Atoll, Marshall Islands. *Can. J. Bot.* **45**, 985–1001, pls. 1–9.

Lemoine, P. 1928 Un nouveau genre de Mélobésiées: *Mesophyllum*. *Bull. Soc. bot. Fr.* (5) **4**, 251–254.

Levring, T. 1938 Verzeichnis einiger Chlorophyceen und Phaeophyceen von Süd Africa. *Acta Univ. lund* (N.F Avd. 2), **34**, 1–25, pls. 1–4.
Levring, T. 1960 A list of marine algae from Rennell Island. *The Natural History of Rennell Island, British Solomon Islands* **3**, 121–125.
Lucas, A. H. S. 1935 The marine algae of Lord Howe Island. *Proc. Linn. Soc. N.S.W.* **60**, 194–232, pls. 5–9.
Lyngbye, H. C. 1819 *Tentamen Hydrophytologiae Danicae.* Copenhagen.
Manza, A. V. 1940 A revision of the genera of articulated Corallines. *Philipp. J. Sci.* **71**, 239–316, pls. 1–20.
Martens, G. von 1866 Die Preussische Expedition nach Ost-Aisen. *Bot. Th. Die Tange*, pp. 1–152, pls. 1–8.
May, V. 1938 A key to the marine algae of New South Wales. Part I. Chlorophyceae. *Proc. Linn. Soc. N.S.W.* **63**, 207–218.
May, V. 1948 The algal genus *Gracilaria* in Australia. *C.S.I.R. Bull.* **235**, 1–64, pls. 1–15.
Maze, H. & Schramm, A. 1870–7 *Essai de classification des Algues de la Guadeloupe*, ed. 2.
Montagne, J. F. C. 1845 *Voyage au Pole Sud et dans l'Oceanie.* Botanique I. Plantes Cellulaires. Paris.
Montagne, C. & Millardet, M. 1862 Botanique, Cryptogamie, Algues. In L. Maillard, *Notes sur l'Ile de la Réunion*, pp. 1–25, pls. 24–27. Paris.
Murray, G. 1889 On *Boodlea*, a new genus of Siphonocladaceae. *J. Linn. Soc.* **25**, 243–245, pl. 49.
Murray, G. & Boodle, L. A. 1888*a* On the structure of *Spongocladia*, Aresch. (Spongodendron, Zanard.), with an account of new forms. *Ann. Bot.* **2**, 169–175, figs. 8–11.
Murray, G. & Boodle, L. A. 1888*b* A structural and systematic account of the genus *Struvea. Ann. Bot.* **2**, 265–282, pl. 16.
Murray, G. & Boodle, L. A. 1889 A systematic and structural account of the genus *Avrainvillea* Decne. *J. Bot. Lond.* **27**, 67–72, 97–101, pls. 288, 289.
Nakamura, Y. 1944 The species of *Rhodochorton* from Japan. II. *Scient. Pap. Inst. algol. Res. Hokkaido Univ.* **3**, 99–119.
Nasr, A. H. 1941 Some new or little known algae from the Red Sea. *Revue algol.* **12**, 57–76, pl. 2.
Nasr, A. H. 1947 Synopsis of the marine algae of the Egyptian Red Sea coast. *Bull. Fac. Sci. Egypt. Univ.* **26**, 1–155, pls. 1–14.
Nizamuddin, M. 1964 The life history of *Acetabularia mobii* Solms-Laubach. *Ann. Bot.* N.S. **28**, 77–81.
Nizamuddin, M. 1967 *Caulerpa* from Karachi Coast. II. *Botanica mar.* **10**, 158–166.
Ohmi, H. 1958 The species of *Gracilaria* and *Gracilariopsis* from Japan and adjacent waters. *Mem. Fac. Fish. Hokkaido Univ.* **6** (1), 1–66, pls. 1–10.
Okamura, K. 1909 *Icones of Japanese Algae* **2** (4), 60–76, pls. 66–70. Tokyo.
Okamura, K. 1912 *Icones of Japanese Algae* **2** (10), 167–186, pls. 96–100. Tokyo.
Okamura, K. 1915 *Icones of Japanese Algae* **3** (10), 195–218, pls. 146–150. Tokyo.
Okamura, K. 1916*a* List of marine algae collected in Caroline and Mariana Islands, 1915. *Bot. Mag., Tokyo* **30**, 1–14, pl. 1.
Okamura, K. 1916*b* *Icones of Japanese Algae* **4** (2), 21–40, pls. 156–160. Tokyo.
Okamura, K. 1921 *Icones of Japanese Algae* **4** (6), 109–125, pls. 176–180. Tokyo.
Okamura, K. 1923*a* *Icones of Japanese Algae* **4** (10), 185–195, pls. 196–200. Tokyo.
Okamura, K. 1923*b* *Icones of Japanese Algae* **5** (1), 1–19, pls. 201–205. Tokyo.
Okamura, K. 1931 *Icones of Japaese Algae* **6** (5), 39–47, pls. 271–275, and (6), 49–62, pls. 276–280. Tokyo.
Okamura, K. 1933 *Icones of Japanese Algae* **7** (1), 1–7, pls. 301–305, and (2), 9–17, pls. 306–310. Tokyo.
Papenfuss, G. F. 1940 Notes on South African Marine Algae I. *Bot. Not.* 1940, pp. 200–226.
Papenfuss, G. F. 1943 Notes on algal nomenclature. II. *Gymnosorus* J. Agardh. *Am. J. Bot.* **30**, 463–8.
Papenfuss, G. F. 1950 On the identity of *Spongocladia* and *Cladophoropsis. Pacif. Sci.* **4**, 208–213.
Papenfuss, G. F. 1952 Notes on South African marine algae. III. *Jl S. Afr. Bot.* **17**, 167–88.
Papenfuss, G. F. 1956 Notes on South African marine algae. IV. *Jl S. Afr. Bot.* **22**, 65–77.
Papenfuss, G. F. 1958 Notes on algal nomenclature. IV. *Taxon* **7** (4), 104–109.
Papenfuss, G. F. 1961 The structure and reproduction of *Caloglossa leprierii. Phycologia* **1**, 8–31.
Papenfuss, G. F. 1967 Notes on algal nomenclature. V. Various Chlorophyceae and Rhodophyceae. *Phykos* **5**, 95–105.
Papenfuss, G. F. 1968 A history, catalogue, and bibliography of Red Sea Benthic algae. *Israel J. Bot.* **17**, 1–118+ map.
Papenfuss, G. F. & Egerod, L. E. 1957 Notes on South African marine Chlorophyceae. *Phytomorphology* **7** (1), 82–93.
Pham-hoang Ho. 1967 Contribution à l'étude des algues littorales du Vietnam I: Le genre *Sargassum. Annls Fac. Sci. Saigon* 1967, pp. 259–332.
Pham-hoang, H. 1969 *Marine algae of South Vietnam.* Saigon: Study Centre.
Pilger, R. 1911 Die Meeresalgen von Kamerun. *Bot. Jb.* **46**, 294–323.
Post, E. 1936 Systematische und pflanzengeographische Notizen zur *Bostrychia–Caloglossa*-Assoziation. *Rev. Algol.* **9**, 1–84.
Reinbold, T. 1905 Einige neue Chlorophyceen aus dem Ind. Ocean (Niederl. Indien), gesammelt von A. Weber van Bosse. *Nuova Notarisia* **16**, 145–149.

Rosenvinge, L. K. 1909 The marine algae of Denmark. I. Introduction. Rhodophyceae I. (Bangiales and Nemalionales). *K. danske vidensk. Selsk. Skr.* 7 (*Nat. Math.*) **7**, 1–151, pls. 1–2, 2 maps.

Saito, Y. 1967 Studies on Japanese species of *Laurencia*, with special reference to their comparative morphology. *Mem. Fac. Fish. Hokkaido Univ.* **15** (1), 1–81, pls. 1–18.

Saito, Y. 1969 The algal genus *Laurencia* from the Hawaiian Islands, the Philippine Islands and adjacent areas. *Pacif. Sci.* **23**, 148–160.

Sakai, Y. 1964 The species of *Cladophora* from Japan and its vicinity. *Sci. Pap. Inst. algol. Res. Hokkaido Univ.* **5** (1), 1–104, pls. 1–17.

Sauvageau, C. 1901 Remarques sur les Sphacelariacées. *J. Bot., Paris* **15**, 51–167.

Scagel, R. F. 1953 A morphological study of some dorsiventral Rhodomelaceae. *Univ. Calif. Publs. Bot.* **27** (1), 1–108.

Schmidt, O. C. 1923 Beiträge zur Kenntnis der Gattung *Codium* Stackh. *Biblthca bot.* **91**, 1–68.

Schmitz, F. 1893 Die gattung *Lophothalia* J. Ag. *Ber. dt. bot. Ges.* **11**, 212–232.

Schmitz, F. 1895 Marine Florideen von Deutsch-Ost Africa. *Bot. Yb.* **21**, 137–177.

Segawa, S. 1956 *Coloured illustrations of the Seaweeds of Japan.* Osaka.

Setchell, W. A. 1924 American Samoa: Part 1. Vegetation of Tutuila Island. *Pap. Dep. mar. Biol. Carnegie Instn Wash.* **20**, 1–188, pls. 1–20.

Setchell, W. A. 1926 Tahitian algae. *Univ. Calif. Publs Bot.* **12**, 61–142, pls. 7–22.

Setchell, W. A. 1929 The genus *Microdictyon*. *Univ. Calif. Publs Bot.* **14**, 453–588.

Setchell, W. A. 1935 Some marine plants of southeastern Melanesia. *Proc. Calif. Acad. Sci.* (Ser. 4) **21**, 259–276, pls. 11–15.

Setchell, W. A. & Gardner, N. L. 1924 New marine algae from the Gulf of California. *Proc. Calif. Acad. Sci.* (*4th Ser.*) **12**, 695–949, pls. 12–88, map.

Setchell, W. A. & Mason, L. R. 1943 *Goniolithon* and *Neogoniolithon:* two genera of crustaceous coralline algae. *Proc. natn. Acad. Sci. U.S.A.* pp. 87–92.

Silva, P. C. 1952 A review of nomenclatural conservation in the algae from the point of view of the type method. *Univ. Calif. Publs Bot.* **25** (4), 241–324.

Silva, P. C. 1957 Remarks on algal nomenclature. *Taxon* **6**, 141–145.

Söderström, J. 1963 Studies in *Cladophora*. *Bot. Gothoburgensia* **1**, 1–147 and map.

Solms-Laubach, H. Graf zu 1895 Monograph of the Acetabularieae. *Trans. Linn. Soc. London* (Bot. ser 2) **5**, 1–39, pls. 1–4.

Sonder, O. G. 1846 Algae. In C. Lehmann, *Plantae Preissianae sive Enumeratio Plantarum quas in Australasia Occidentali et Meridionali-occidentali Annis 1838–1841 Collegit Ludovicus Preiss*, **2**, 148–195.

Sonder, O. G. 1871 Die Algen des tropischen Australiens. *Abh. naturw. Ver. Hamburg* **5** (2), 33–74, pls. 1–6.

Srinivasan, K. S. 1962 On *Botryocladia skottsbergii* (Boergs.) Levr.—a red alga new to Indian region. *Phytomorphology* **12**, 49–53.

Steentoft, M. 1967 A revision of the marine algae of Sao Tome and Principe (Gulf of Guinea). *J. Linn. Soc.* (*Bot.*) **60**, 99–146, pls. 1, 2.

Stockmayer, S. 1890 Ueber die Algengattung *Rhizoclonium*. *Verh. zool-bot. Ges. Wien* **40**, 571–586.

Svedelius, N. 1906*a* Ecological and systematic studies of the Ceylon species of *Caulerpa*. *Rep. Ceylon mar. biol. Lab.* **4**, 81–144.

Svedelius, N. 1906*b* Ueber die algenvegetation eines ceylonischen Korallenriffes mit besonderer Rücksicht auf ihre Periodizitat. *Botaniska Studier tillägnade F. R. Kjellman*, pp. 184–221, pl. 6. Uppsala.

Svedelius, N. 1908 Ueber den Bau und die Entwicklung der Florideen-gattung *Martensia*. *K. svenska vetensk. Akad. Handl.* **43** (7), 1–101, pls. 1–4.

Svedelius, N. 1939 Anatomisch-entwicklungsgeschichtliche Studien ueber die Florideengattung *Dermonema* (Grev.) Harv. *Bot. Notiser* pp. 21–39.

Svedelius, N. 1945 Critical notes on some species of *Galaxaura* from Ceylon. *Ark. Bot.* **32** A (6), 1–74, pls. 1–9.

Svedelius, N. 1952 Notes on the structure and reproduction of the genus *Actinotrichia*. *Svensk. bot. Tidskr.* **46** (1), 1–17.

Svedelius, N. 1953 Critical studies on some species of *Galaxaura* from Hawaii. *Nova Acta R. Soc. Scient. upsal.* 4, **15** (9), 1–92.

Tanaka, T. 1936 The genus *Galaxaura* from Japan. *Sci. Pap. Inst. Alg. Res. Hokkaido Univ.* **1**, 141–173, pls. 34–45.

Tanaka, T. 1941 The genus *Hypnea* from Japan. *Sci. Pap. Inst. Alg. Res. Hokkaido Univ.* **2** (2), 227–250, pls. 53, 54.

Tanaka, T. 1967 Some marine algae from Batan and Camiguin Islands, Northern Philippines. I. *Mem. Fac. Fish. Kagoshima Univ.* **16**, 13–27.

Tanaka, T. & Pham-Hoang Ho 1962 Notes on some marine algae from Viet-Nam. I. *Mem. Fac. Fish. Kagoshima Univ.* **11**, 24–40.

Taylor, W. R. 1928 The marine algae of Florida with special reference to the Dry Tortugas. *Pap. Tortugas Lab.* **25**, 1–219, pls. 1–37.

Taylor, W. R. 1945 Pacific marine algae of the Allan Hancock Expeditions to the Galapagos Islands. *Allan Hancock Pacif. Exped.* **12**, 1–528, incl. pls. 1–100.

Taylor, W. R. 1950 *Plants of Bikini and other Northern Marshall Islands*. Ann Arbor, Mich.
Taylor, W. R. 1960 *Marine algae of the eastern tropical and subtropical coasts of the Americas*. Ann Arbor.
Taylor, W. R. 1962 Observations on *Pseudobryopsis* and *Trichosolen* (Chlorophyceae–Bryopsidaceae) in America. *Brittonia* **14**, 58–65.
Taylor, W. R. 1963 The genus *Turbinaria* in eastern seas. *J. Linn. Soc. Bot.* **58**, 475–487, pls. 1–3.
Taylor, W. R. 1966*a* Notes on Indo-Pacific *Turbinarias*. *Hydrobiologia* **28**, 91–100.
Taylor, W. R. 1966*b* Records of Asian and western Pacific marine algae, particularly from Indonesia and the Philippines. *Pacif. Sci.* **20**, 342–359.
Taylor, W. R. 1967 Caulerpas of the Israel south Red Sea Expedition. *Bull. Sea Fish. Res. Sta. Haifa* **43**, 13–17.
Thivy, F. 1959 On the morphology of the gametophytic generation of *Padina gymnospora* (Kuetz.) Vickers. *J. mar. biol. Ass. India* **1**, 69–76.
Thivy, F. & Iyengar, E. R. R. 1963 A new record of *Griffithsia rhizophora* Grunow ex Weber van Bosse, for India. *Botanica mar.* **5**, 33–37.
Thivy, F. & Sreenivasa Rao, P. 1964 On *Chondria armata* (Kütz) Okamura var. *plumaris* Boergesen from Gujarat. *Phykos* **2**, 15–18, pl. II.
Tseng, C. K. 1936 Studies on the marine Chlorophyceae from Hainan. *Amoy mar. biol. Bull.* **1**, 129–200.
Tseng, C. K. 1942*a* Studies on Chinese species of *Griffithsia*. *Pap. Mich. Acad. Sci.* **27**, 105–116.
Tseng, C. K. 1942*b* Two new species of *Wrangelia* from China. *Lingnan Sci. J.* **20**, 261–270, pls. 9–10.
Tseng, C. K. 1943 Marine algae of Hong Kong III. The genus *Bostrychia*. *Pap. Mich. Acad. Sci.* **28**, 165–183, pls. 1–3.
Tseng, C. K. 1945 New and unrecorded marine algae of Hong Kong. *Pap. Mich. Acad. Sci.* **30**, 157–171, pls. 1–2.
Turner, D. 1808 *Fuci sive Plantarum Fucorum Genesi a Botanicis Ascriptarum Icones Descriptiones et Historia*, vol. 1, 1–164, pls. 1–71. London.
Umezaki, I. 1961 The marine blue-green algae of Japan. *Mem. Coll. Agric. Kyoto Univ.* **83**, 1–149.
Valet, G. 1966 Les *Dictyosphaeria* du groupe *versluysii* (Siphonocladales, Valoniacees). *Phycologia* **5**, 256–260.
Valet, G. 1968 Algues marines de la Nouvelle-Calédonie. I. Chlorophycées. *Nova Hedwigia* **15**, 29–63, pls. 6–15.
Valet, G. 1969 Contribution à l'étude des Dasycladales 2–3. *Nova Hedwigia* **17**, 551–644, pls. 133–162 (22–51).
van den Hoek, C. 1963 *Revision of the European species of* '*Cladophora*'. Leiden.
Velasquez, G. T. 1962 The blue-green algae of the Philippines. *Philipp. J. Sci.* **91**, 267–380, pls. 1–13.
Vickers, A. & Shaw, M. H. 1908 *Phycologia Barbadensis. Iconographie des Algues Marines récoltées à l'Ile Barbade* (*Antilles*) (*Chlorophycées et Phéophycées*). Paris.
Weber van Bosse, A. 1898 Monographie des Caulerpas. *Annls Jard. bot. Buitenz.* **15**, 243–401, pls. 20–34.
Weber van Bosse, A. 1904 Corallineae verae of the Malay Archipelago. *Siboga Exped. Monogr.* **61**, 78–110, pls. 14–16.
Weber van Bosse, A. 1905 Note sur le genre *Dictyosphaeria* Dec. *Nuova Notarisia* **16**, 142–144.
Weber van Bosse, A. 1910 Notice sur quelques genres nouveau d'algues de l'Archipel Malaisien. *Annls Jard. bot. Buitenz.* (Ser. 2) **9**, 25–33.
Weber van Bosse, A. 1913*a* Liste des algues du Siboga. I. Myxophyceae, Chlorophyceae, Phaeophyceae. *Monogr. Siboga Exped.* **59***a*.
Weber van Bosse, A. 1913*b* Marine algae, Rhodophyceae, of the 'Sealark' Expedition, collected by Mr J. Stanley Gardiner, M.A. *Trans. Linn. Soc.* (Ser. 2. Bot.) **8**, 105–142, pls. 12–14.
Weber van Bosse, A. 1921 Liste des algues du Siboga. II. Rhodophyceae. Pt. I. Protoflorideae, Nemalionales, Cryptonemiales. *Monogr. Siboga Exped.* **59***b*, 187–310, pls. 6–8.
Weber van Bosse, A. 1923 Liste des algues du Siboga. III. Rhodophyceae. Pt. II. Ceramiales. *Monogr. Siboga Exped.* **59***c*.
Weber van Bosse, A. 1926 Algues de l'Expédition danoise aux îles Kei. *Vidensk. Meddr dansk. naturh. Foren.* **81**, 57–155.
Weber van Bosse, A. 1928 Liste des algues du Siboga. IV. Rhodophyceae. Pt. III. Gigartinales et Rhodymeniales. *Monogr. Siboga Exped.* **59***d*.
Wollaston, E. M. 1968 Morphology and taxonomy of southern Australian genera of Crouanieae Schmitz (Ceramiaceae, Rhodophyta). *Aust. J. Bot.* **16**, 217–417, pls. 1–10.
Womersley, H. B. S. 1950 The marine algae of Kangaroo Is. III. List of species 1. *Trans. R. Soc. S. Aust.* **73**, 137–197.
Womersley, H. B. S. 1956 A critical survey of the marine algae of southern Australia. I. Chlorophyta. *Aust. J. mar. Freshw. Res.* **7**, 343–383.
Womersley, H. B. S. 1958 Marine algae from Arnhem Land, North Australia. *Rec. Am.-Aust. scient. Exped. Arnhem Ld* **3**, 139–161.
Womersley, H. B. S. 1967 A critical survey of the marine algae of southern Australia. II. Phaeophyta. *Aust. J. Bot.* **15**, 189–270.
Womersley, H. B. S. & Bailey, A. 1969 The marine algae of the Solomon Islands and their place in biotic reefs. *Phil. Trans. Roy. Soc. Lond.* B **255**, 433–442.

Wynne, M. J. 1970 A propos d'un genre nouveau, Rhodolachne (Rhodomelaceae), de l'Océan Indien. *C. R. hebd. Acad. Sci.* (*Paris*), **270D**, 1780–1782.

Yamada, Y. 1931 Notes on *Laurencia*, with special reference to the Japanese species. *Univ. Calif. Publs Bot.* **16**, 185–310, pls. 1–30.

Yamada, Y. 1932 Notes on some Japanese algae. III. *J. Fac. Sci. Hokkaido Univ. 5*, **1**, 109–123, pls. 21–25.

Yamada, Y. 1934 The marine Chlorophyceae from Ryukyu, especially from the vicinity of Nawa. *J. Fac. Sci. Hokkaido Univ.* (Ser. 5) **3** (2), 33–88.

Yamada, Y. 1936 Notes on some Japanese algae. VII. *Scient. Pap. Inst. algol. Res. Hokkaido Univ.* **1**, 135–140, pls. 30–33.

Yamada, Y. 1944 A list of marine algae from the Atoll of Ant. *Scient. Pap. Inst. algol. Res. Hokkaido Univ.* **3** (1), 31–45, pls. 6, 7.

Yamada, Y. 1950 A list of marine algae from Ryukyusho, Formosa. I. *Scient. Pap. Inst. algol. Res. Hokkaido Univ.* **3**, 173–194.

Yamada, Y. & Tanaka, T. 1938 The marine algae from the island of Yonakuni. *Scient. Pap. Inst. algol. Res. Hokkaido Univ.* **2** (1), 53–86.

Zanardini, J. 1872 Phycearum Indicarum pugillus. *Memorie R. Ist. veneto Sci.* **17**, 129–170, pls. 1–12.

Zanardini, J. 1878 Phyceae Papuanae novae vel minuo cognitae. *Nuovo G. bot. ital.* **10**, 34–40.

Zollinger, H. 1954 *Systematisches verzeichniss der im Indischen Archipel in den Jahren 1842–1848 gesammelten sowie der aus Japan empfangenen Pflanzen.* Heft 1, Algae, 1–4. Zurich: Kiesling.