SMITHSONIAN MISCELLANEOUS COLLECTIONS
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(With Two Plates)

BY
WM. RANDOLPH TAYLOR
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The algae collected on the 1938 Presidential Cruise of the Honorable Franklin D. Roosevelt by Waldo L. Schmitt, Curator of Invertebrates at the United States National Museum, consist of eight lots from five places visited. Ordinarily, so few samples would have yielded little, but it so happened that three of the eight were productive of novelties, and two, coming from places without previous algal record and quite unlikely soon again to yield collections, were of considerable special interest. By reason of lack of previous visits by phycologists nearly all of the records are new for their stations. For the opportunity of studying these algae the writer is indebted to the collector and the authorities of the National Museum. Type material of the new species has been deposited in the United States National Herbarium.

Of the collections from Magdalena Bay little need be said. They supplement each other and were dominated by *Chaetomorpha* and *Griffithsia*. The former genus is represented by *C. crassa,* a species more familiar from the West Indies, and one of a number of tropical Atlantic species turning up in collections from Pacific Central America and neighboring warm waters. The *Griffithsia* is even more interesting. On the west coast, species of this genus have given systematists trouble because they are persistingly sterile. On the east coast they are few in number but better known. On the European west coast they are more numerous. Here we have a species which is sufficiently characterized by its sporophytic phase to add a recognizable report to the American flora of a section of the genus as yet not reported there. It is very much simpler than any of the east-coast species and appears to be undescribed.

The Clipperton Island collections are unique, for landing on this isolated atoll is specially difficult. The jars of mixed algae from the lagoon were very surprising to the author. He had incorrectly assumed

that the water was salt, by seepage or other admixture from the sea. The plants found indicate on the contrary that it is at least nearly fresh, at any rate near the surface and in shallows, though probably heavily polluted with nitrogenous matter from the bird colonies. The bulk of the material was of Myxophyceae, which is appropriate under such conditions, and apparently great masses of *Lyngbya versicolor* must have been present at least near the shore. This is not a definitely marine species. With it were other Myxophyceae of cosmopolitan habits. In sparing amounts an undeterminable *Chara* appeared. Finally, four desmids were found in considerable numbers, one in particular (*Cosmarium clippertonensis*) which the writer inclines to treat as new. It should be observed that these species of desmids (which are as a group intolerant of salt) showed rather weak surface markings and considerable irregularity, so that perhaps they were adapted to slightly brackish conditions. This is supported by the presence of the only phanerogam associate, *Najas marina,* which is normally an inhabitant of brackish water. No hydrometer readings were made, unfortunately.

The algae of Old Providence Island, Colombia, off the Nicaraguan coast, were collectively quite in accord with what would have been expected in any productive locality in the Gulf of Mexico and adjacent waters. One minute encrusting *Fosliella* was particularly attractive and exhibited a type of variation not known in *F. farinosa* or the group to which it belongs, so it is described as new. These add a few welcome records to an unexplored section of the Atlantic Central American coast. Apparently material from various spots were mingled, so it is impossible to indicate exactly the habitat in the appended list.

SYSTEMATIC LIST

MYXOPHYCEAE

CHROOCOCCACEAE

Chroococcus turgidus (Kützing) Nägeli

Occasional among filamentous algae in the lagoon, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.[1]

Microcystis flos-aquae (Wittrock) Kirchner

Colonies infrequent among filamentous algae in the lagoon, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

[1] The collection numbers were assigned by the author after the material had been sorted and mounted.

Gomphosphaeria aponina Kützing

Infrequent colonies among filamentous algae in the lagoon, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

CHAMAESIPHONACEAE

Xenococcus pyriformis Setchell & Gardner

With other, indeterminable, Myxophycean epiphytes on *Bostrychia binderi,* probably from mangrove roots, south end of black beach, Elizabeth Bay, Isabela Island, Archipelago de Colon, Ecuador (Albemarle Island, Galápagos Islands) (*Schmitt 27*), July 28, 1938.

OSCILLATORIACEAE

Lyngbya aestuarii (Mertens) Liebmann

Scattered trichomes in and among the masses of *L. versicolor,* lagoon back from the landing place, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938. Determined by the kindness of Dr. Francis Drouet.

Lyngbya lagerheimii (Möbius) Grunow

Scattered trichomes among the masses of *L. versicolor,* particularly evident in sediment of liquid from which the *L. versicolor* had been strained, from the lagoon back from the landing place, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938. Determined by F. Drouet.

Lyngbya versicolor (Wartmann) Gomont

Forming large masses, and probably extremely abundant, associated with smaller amounts of other species of algae and phanerogams, particularly *Najas marina,* in the lagoon back from the landing place, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938. Determined by F. Drouet.

RIVULARIACEAE

Calothrix stellaris Bornet & Flahault

On leaves of *Najas marina* from the lagoon back from the landing place, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938. Determined by F. Drouet.

CHLOROPHYCEAE

DESMIDIACEAE

Closterium parvulum Nägeli, forma. Text fig. 8.

These plants are consistently larger (length 150 μ, width 22 μ) than the species as described by West and West (1905, p. 133) and they curve through a greater arc. Krieger (1935, p. 277, *pl. 16, fig. 18*) in var. *majus* West admits larger forms and in var. *angustum* West and West forms as curved; the present type probably represents yet another minor variant of the species. Rich's African *C. prolongum* figured on the same plate has more pyrenoids, is somewhat larger and has a greater median swelling, but is otherwise similar.

Infrequent in the lagoon, particularly in strainings from the *Lyngbya* masses, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

Closterium parvulum, near var. **majus** West. Text fig. 9.

These plants were a little more tapering and curved than figured by Krieger (1935, p. 277, *pl. 16, fig. 18*), but apparently were within his concept of the species and perhaps of the variety. Length 170 μ, width 21.5 μ.

Frequent in the lagoon, particularly in strainings from the *Lyngbya* masses, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

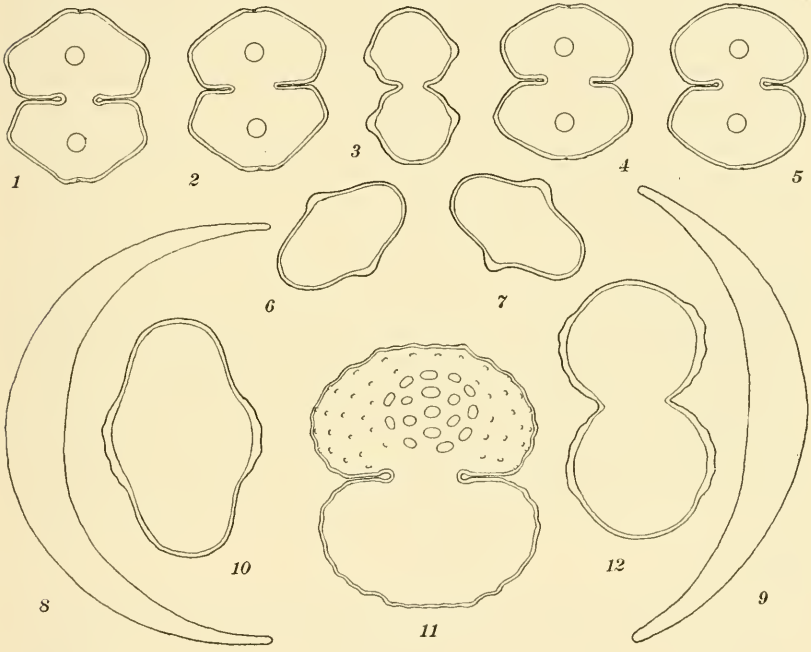
Cosmarium clippertonensis, n. sp.[2] Text figs. 1-7.

Cells small, semicells subtriangular, much wider than long, the end narrowly transversely truncate or slightly retuse, the basal angles obliquely truncate, the sinus closed; in polar view oval with a prominent lateral thickened swelling; in edge view the semicells subcircular with the same swelling visible; pyrenoids single in each semicell, the wall smooth. Length 22-24 μ, width 19-20 μ, thickness 13.2 μ, isthmus 4.5 μ.

These plants seem closest to *C. wembaerense* forma of Borge (1933, p. 14, *pl. 1, fig. 11*). They are not so like his *C. scopulorum* (1923, p. 12, *pl. 1, fig. 4*), to which he refers, and even less like the

[2] **Cosmarium clippertonensis,** spec. nov.—Cellulae parvae, semicellulis subtriangulis, latioribus quam longioribus, transverse truncatis vel retusiusculis; angulis basalibus obliquiter truncatis; sinu inaperto; aspectu polari ovalibus, lateraliter incrassatis bullatisque; aspectu laterali semicellulis subglobosis etiamque cum incrassationibus visibilibus; pyrenoideis in semicellula singulis; membrana laevi.

original *C. wembaerense* Schmidle (1898, p. 33, *pl. 2, fig. 8*), although of about the same size. The lateral semicell faces are not as distinctively elevated and thickened in these plants as they are in those from the Clipperton lagoon. There are a number of other forms recorded with approximately the same size and practically the same contour from face view (or with but slightly more broadly truncate apices),



FIGS. 1-12.

1-7, *Cosmarium clippertonensis,* face (1, 2, 4, 5), edge (3) and polar views (6, 7), all × 940. 8, *Closterium parvulum* forma, × 375. 9, *Closterium parvulum* near v. *majus,* × 375. 10-12, *Cosmarium subprotumidum,* polar (1), face (11), and edge (12) views, × 940.

but usually the lateral faces are not markedly elevated, or evidence on this point, from a good polar view, is quite lacking.

Very common in the lagoon, particularly in the strainings from the *Lyngbya* masses, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

Cosmarium subprotumidum Nordstedt, forma. Text figs. 10-12.

These plants were generally a little large for the species, with the lateral granules very small and obscure, those on the central protuberance large but low and not very refractive.

Common in the lagoon, particularly in the strainings from the *Lyngbya* masses, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

OÖCYSTACEAE

Oöcystis solitaria Wittrock, approaching forma **major** Wille

Generally solitary, occasionally 2-8 individuals in a common membrane, the cells to 24 μ wide, 36 μ long, broadly round-oval; wall firm, with well-defined knobs at each pole, both of the individual cells and the colonial envelope when it is present.

Frequent among filamentous algae in the lagoon, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

ULVACEAE

Ulva sp.

Juvenile, only about 15 mm. tall, thickness above to 45 μ, cells in section a little deeper than broad. Apparently abundant.

From rocks, shallow water along the shore of Fernandina Island, Archipelago de Colon, Ecuador (Narborough Island, Galápagos Islands) (*Schmitt* 23), July 25, 1938.

OEDOGONIACEAE

Oedogonium sp.

Sterile and not determinable. Filaments about 8.5 μ diameter.

Filaments frequent, among other algae in the lagoon, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

VALONIACEAE

Halicystis ovalis (Lyngbye) Areschoug

With *Amphiroa annulata,* from rocks, shallow water along the shore of Fernandina Island, Archipelago de Colon, Ecuador (Narborough Island, Galápagos Islands) (*Schmitt* 24), July 25, 1938.

Valonia ventricosa J. Agardh

In shallow water, probably from reefs, and bearing numerous epiphytes, Old Providence Island, Colombia (*Schmitt* 32), August 6, 1938.

CLADOPHORACEAE

Chaetomorpha crassa (C. Agardh) Kützing

Unattached, the filaments long, moderately flexuous but not conspicuously entangled, adhering well to paper; cells 480-640 μ diameter, 1-2 diameters long, the nodes little constricted, the walls moderately thick.

Dredged in quantity at 20-30 m. over a sandy, weedy bottom in Magdalena Bay, Baja California, Mexico (*Schmitt* 6), July 18, 1938.

CAULERPACEAE

Caulerpa racemosa (Forsskål) J. Agardh, forma

Apparently a reduced form. The erect branches were 1-3 cm. tall. The branchlets were cylindrical, with the tips slightly tapered, about 1.5 mm. diameter, 3-10 mm. apart on the axis, often opposite, with slight tendency to a bilateral arrangement. Without more ample material it seems unwise to describe even a new form in this difficult genus.

On rocks in shallow water to the south of the landing place, Clipperton Island, Mexico (*Schmitt* 14), July 21, 1938.

Caulerpa sertularioides var. **brevipes** (J. Agardh) Svedelius

In shallow water, Old Providence Island, Colombia (*Schmitt* 38), August 6, 1938.

CODIACEAE

Codium decorticatum (Woodward) Howe

Branching irregular, the branches to 5 mm. diameter when dried, the utricles unarmed, to 360-480 μ diameter.

One piece dredged at 20-30 m. between Belcher Point and the anchorage, Magdalena Bay, Baja California, Mexico (*Schmitt* 1), July 18, 1938.

Halimeda opuntia (Linnaeus) Lamouroux

On a bottom of coral sand, shallow water, Old Providence Island, Colombia (*Schmitt* 37), August 6, 1938.

Halimeda simulans Howe

In shallow water, Old Providence Island, Colombia (*Schmitt* 37), August 6, 1938.

Penicillus capitatus Lamarck

Old Providence Island, Colombia; bottom sample at anchorage (*Schmitt* 30), in coral sand in shallow water (*Schmitt* 36); August 6, 1938.

Penicillus dumetosus (Lamouroux) Blainville

In coral sand, shallow water, Old Providence Island, Colombia (*Schmitt* 35), August 6, 1938.

Rhipocephalus phoenix (Ellis & Solander) Kützing, near f. **typicus** Gepp.

On coral sandy bottom in shallow water, Old Providence Island, Colombia (*Schmitt* 33), August 6, 1938.

Udotea conglutinata (Solander) Lamouroux

On shells in coral sandy bottom in shallow water, Old Providence Island, Colombia (*Schmitt* 34), August 6, 1938.

CHAROPHYCEAE

CHARACEAE

Chara sp.

Sterile, and so quite undeterminable. However, the leaves had naked basal internodes more than twice as long as broad, much exceeding the bracteoles, so it is probable that the plants belong to the same group as *C. elegans.*

Scanty, with *Lyngbya versicolor,* from the lagoon back from the landing place, Clipperton Island, Mexico (*Schmitt* 21), July 21, 1938.

PHAEOPHYCEAE

DICTYOTACEAE

Dictyopteris delicatula Lamouroux

On the basal parts of *Zonaria variegata,* rocks south of the landing place, Clipperton Island, Mexico (*Schmitt* 15), July 21, 1938; probably from reef pools, Old Providence Island, Colombia, with *Valonia ventricosa* (*Schmitt* 32) and with *Amphiroa fragilissima* (*Schmitt* 49), August 6, 1938.

Dictyota crenulata J. Agardh

Dredged sparingly with *Griffithsia* in 12-20 m. on a sandy bottom off Punta Gorda and nearby, Cap San Lucas, Baja California, Mexico (*Schmitt* 7), July 19, 1938.

Dictyota divaricata Lamouroux

In shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 41), and with *Laurencia obtusa* (*Schmitt* 51), August 6, 1938.

Padina durvillaei Bory

Sparingly dredged with *Griffithsia* in 12-20 m. over a sandy bottom off Punta Gorda and nearby, Cap San Lucas, Baja California, Mexico (*Schmitt* 8), July 19, 1938.

Zonaria variegata (Lamouroux) Mertens

With sori. Apparently abundant, from rocks in shallow water south of the landing place, Clipperton Island, Mexico (*Schmitt* 16), July 21, 1938; in shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 40), August 6, 1938.

ASPEROCOCCACEAE

Colpomenia sinuosa (Roth) Derbès & Solier

From rocks, shallow water along the shore of Fernandina Island, Archipelago de Colon, Ecuador (Narborough Island, Galápagos Islands) (*Schmitt* 25), July 25, 1938.

FUCACEAE

Sargassum polyceratium Montagne

In shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 42), August 6, 1938.

RHODOPHYCEAE

CHAETANGIACEAE

Galaxaura lapidescens (Ellis & Solander) Lamouroux

In shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 47), August 6, 1938.

Galaxaura squalida Kjellman

In shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 48), August 6, 1938.

GELIDIACEAE

Gelidium pusillum var. **conchicola** Piccone & Grunow

From bottom sample at anchorage, Old Providence Island, Colombia (*Schmitt* 31), August 6, 1938.

CORALLINACEAE

MELOBESIEAE

Fosliella farinosa (Lamouroux) Howe

In shallow water, Old Providence Island, Colombia, epiphytic on *Cymodocea manatorum* (*Schmitt* 44 *p. p.*), probably on reefs; epiphytic on *Valonia ventricosa* (*Schmitt* 32); and on *Laurencia obtusa* (*Schmitt* 51), August 6, 1938.

Fosliella farinosa (Lamouroux) Howe, n. var. **chalicodictya**[3]

Text figs. 13, 14, plate 1, figs. 1-3.

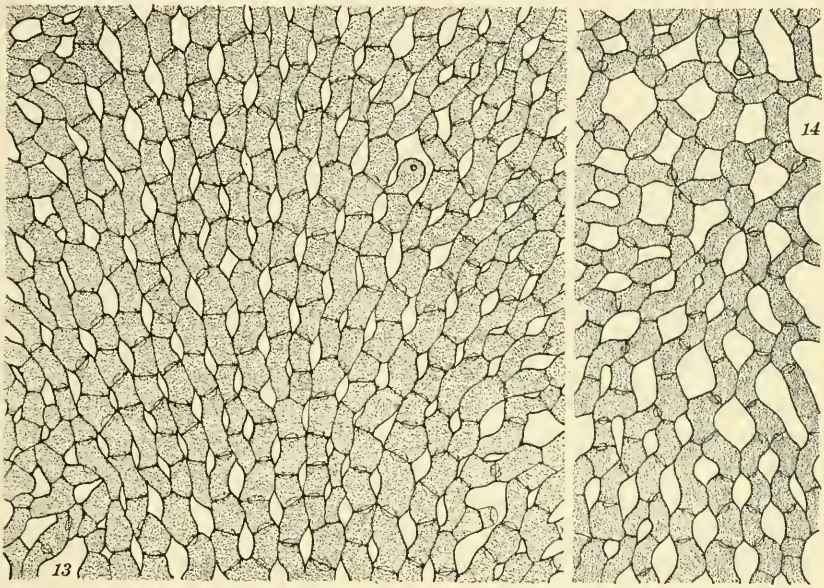
Plants small, forming minute coalescent lightly calcified crusts which individually may reach 1, rarely 2 mm. in diameter; crusts filamentous, the filaments sinuous to angularly bent, laterally cohering at the points of contact, or anastomosing, to form a definite network, the cells generally 10-12 μ diameter, 15-20 μ long, with small superficial cortical cells superposed at the ends; occasional hyaline hair-bearing cells 18-22 μ diameter also present.

In shallow water, Old Providence Island, Colombia; probably on reefs as epiphytic on *Valonia ventricosa* (*Schmitt* 32), August 6, 1938.

This plant was mixed with *F. farinosa* var. *solmsiana* and other, unidentifiable Melobesieae, but usually monopolized the cell upon which it grew. The variety *solmsiana* characteristically forms small fanlike patches a few to several filaments wide (*pl. 1, fig. 1c*), the patches linked by some filaments which far outstrip the rest and spread out to form new fans at their ends. The plant here specially described forms close crusts which often coalesce (*pl. 1, fig. 1*). It is quite impossible to separate from the host for mounting those with the largest meshes, but these meshes are frequently quite regular and 40-60 μ or more in diameter. Those crusts which have smaller

[3] **Fosliella farinosa**, var. nov. **chalicodictya**—Plantae pusillae, 1-2 mm. diam., inter se coalescentes, modice calce incrustatae, filamentosae; filamentis flexuosis reticulum fere regulare formantibus; cellulis 10-12 μ diam., 15-20 μ longis, ad apices praeditis cum superficialibus cellulis superpositis; piliferis cellulis hyalinis 18-22 μ diam.

meshes are more easily detached in relatively large pieces, and show the dichotomous filamentous structure better (*pl. 1, figs. 2, 3*). The latter type appears in text figure 13, and a transition zone between small and larger meshes in figure 14. Occasionally in crowded areas a three-dimensional sponge is formed, but this is restricted. As originally described, *M. solmsiana* Falkenberg (1901, p. 109) was intended



FIGS. 13, 14.—*Fosliella farinosa* var. *chalicodictya*, views of portions of two nets, × 300.

The net shown in fig. 13 is one with a rather small mesh. The small corticating cells show at the ends of the cells making up the constituent filaments, and one young hair-bearing cell appears in the upper right-hand quarter of the drawing. The net shown in fig. 14 illustrates the transition between a coarser mesh above and a smaller one below.

to apply to a plant with irregular, lacunose growth of the filaments, so that a continuous plate was not formed; there is nothing about the figures of Solms-Laubach (1881, p. 11, *pl. 1, fig. 13*) to indicate that he had met a plant forming a regular net of the type observed in this material from Old Providence Island.

Fosliella farinosa var. **solmsiana** (Falkenberg), n. comb.

On *Valonia ventricosa*, from shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt 32*), August 6, 1938.

The nomenclatorial status of this plant seems somewhat confused. Falkenberg in using the name *callithamnioides* for it thought his plant was the same as that of the Crouans; he therefore simply made a new combination in attaching the specific name to *Melobesia* and did not describe his plant. When he admitted the error in identification, he named his plant *M. solmsiana;* he did not describe it even then, but did refer to Solms-Laubach's excellent account. It would seem that the name *Solmsiana* alone signifies, though perhaps its title is not quite regular. Whether one considers it a form or a variety is a matter of opinion, and the writer is not sure that the name may not have been used as that of a variety before Lemoine did so. Since she used the name in the genus *Melobesia,* it is unfortunately necessary to make a new combination in the genus *Fosliella.* The more important records consulted follow: *Melobesia callithamnioides* Falkenberg 1879, p. 265, regarding the plant. Neither *Hapalidium callithamnioides* Crouan 1859, p. 287, *pl. 21, figs. 21-24,* nor 1867, p. 149, *pl. 20, figs. 1-3.* Not *Melobesia callithamnioides* (Crouan) Falkenberg *loc. cit.,* regarding the name. Not *Guerinea callithamnioides* (Crouan) Picquenard, *cf.* DeToni 1924, p. 530. *M. callithamnioides* Falkenberg, Solms-Laubach 1881, p. 11, *pl. 1, fig. 13,* and Hauck 1885, p. 262, *fig. 106* (after Solms-Laubach). *M. solmsiana* Falkenberg 1901, p. 109 (no illustrations, no description). *M. farinosa* forma *solmsiana* (Falkenberg) Foslie 1908, p. 16. *M. callithamnioides* Falkenberg, Migula 1909, p. 155, *pl. 53M, fig. 6,* and Schiffner 1916, p. 151. *M. farinosa* var. *solmsiana* Lemoine in Børgesen 1917, p. 173, *fig. 165 d, e,* and Taylor 1928, p. 211. *M. farinosa* var. *callithamnioides* Foslie, Newton 1931, p. 301.

Lithophyllum alternans Lemoine

Collected along the shore, Fernandina Island, Archipelago de Colon, Ecuador (Narborough Island, Galápagos Islands) (*Schmitt 26*), July 25, 1938.

Lithophyllum pustulatum (Lamouroux) Foslie

On *Laurencia obtusa* in shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 51), August 6, 1938.

Lithothamnion mesomorphum Foslie

Probably on the reef, Old Providence Island, Colombia (*Schmitt* 52), August 6, 1938.

Melobesia membranacea (Esper) Lamouroux

In shallow water, Old Providence Island, Colombia; on sandy bottom epiphytic on *Thalassia testudinum* (*Schmitt* 43), epiphytic on *Cymodocea manatorum* (*Schmitt* 44 *p. p.*).

CORALLINEAE

Amphiroa annulata Lemoine

From rocks, shallow water along the shore of Fernandina Island, Archipelago de Colon, Ecuador (Narborough Island, Galápagos Islands) (*Schmitt* 24), July 25, 1938.

Amphiroa fragilissima (Linnaeus) Lamouroux

Probably from reef pools, Old Providence Island, Colombia (*Schmitt* 49), August 6, 1938.

Jania capillacea Harvey

In shallow water, on *Zonaria*, rocks south of the landing place, Clipperton Island, Mexico (*Schmitt* 17), July 21, 1938; in shallow water, probably on reefs, Old Providence Island, Colombia, on *Acanthophora spicifera* (*Schmitt* 45) and with *Laurencia obtusa* (*Schmitt* 51), August 6, 1938.

GRATELOUPIACEAE

Prionitis lyallii Harvey

Dredged at 20-30 m. between Belcher Point and the anchorage, Magdalena Bay, Baja California, Mexico (*Schmitt* 2), July 18, 1928.

RHABDONIACEAE

Catenella opuntia Greville

With *Bostrychia binderi,* probably from mangrove roots, south end of black beach, Elizabeth Bay, Isabela Island, Archipelago de Colon, Ecuador (Albemarle Island, Galápagos Islands) (*Schmitt* 27), July 28, 1938.

GRACILARIACEAE

Gracilaria confervoides (Linnaeus) Greville

Fragments, apparently of this species, dredged in 20-30 m. between Belcher Point and the anchorage, Magdalena Bay, Baja California, Mexico (*Schmitt* 4), July 18, 1938.

Gracilaria pinnata Setchell & Gardner

Small pieces dredged at 20-30 m. between Belcher Point and the anchorage, Magdalena Bay, Baja California, Mexico (*Schmitt* 3), July 18, 1938.

CERAMIACEAE

Centroceras clavulatum (C. Agardh) Montagne

Probably from reef pools, Old Providence Island, Colombia, with *Valonia ventricosa* (*Schmitt* 32), with *Amphiroa fragilissima* (*Schmitt* 49), August 6, 1938.

Ceramium byssoideum Harvey

In shallow water, probably on reefs, Old Providence Island, Colombia, on *Acanthophora spicifera* (*Schmitt* 46), on *Laurencia obtusa* (*Schmitt* 51), August 6, 1938.

Ceramium fastigiatum Harvey, forma

Small tufts scattered among masses of *Griffithsia,* 1-2 cm. tall. The older filaments usually reached a diameter of about 85 μ, with internodes about 240 μ long, and only exceptionally did the diameter reach 180 μ, when the internodes were but 150 μ long and the nodes only 30 μ deep; nodes of only 1-2 rows of cells, even in the largest.

These plants in diameter of the filaments and character of the forcipate apices are intermediate between the northern Atlantic *C. fastigiatum* and the tropical forma *flaccidum* Petersen, the nodes particularly resembling the latter.

Dredged sparingly at 12-20 m. with *Griffithsia* over sandy bottom off Punta Gorda and nearby, Cap San Lucas, Baja California, Mexico (*Schmitt* 12), July 19, 1938.

Griffithsia multiramosa (Setchell & Gardner), n. comb., n. var. **minor**[4]

Plants forming gregarious tufts about 2-4 cm. tall, extremely soft, almost lubricous in texture, bright rose pink when dried; filaments

[4] **Griffithsia multiramosa** n. var. **minor**.—Plantae gregareae, ramosae, grandiores 2-4 cm. altae, flaccidae, filamentis plerumque pseudodichotomis, dichotomiis deorsum obtuse sursum acute angulatis; cellulis cylindricis, eis infra dichotomias positis subclavatis, eis ramorum inferiorum ad nodos paululum distentis; filamentis plantae basin interdum 300 μ diam., cellulis inferioribus longitudine usque ad 1260 μ, in media plantae parte crassitudine usque ad 125 μ, longitudine usque ad 970 μ, in ramulis ultimis crassitudine 15-20 μ, longitudine 100-200 μ; ramulis sursum angustatis, apice rotundatis; tetrasporangiis lateralibus, solitariis, in pedicellis unicellulis sedentibus, absque involucris; pilis pellucidis nullis. Plantae sexuales ignotae.

branching pseudodichotomously, or occasionally slightly irregularly in upper portions; lower parts of the plant of coarse filaments which measure to 300 μ diameter at the slightly swollen nodes, the thick-walled cells to 1260 μ long, and which branch at wide angles; middle and upper portions of the plant of very erect more slender filaments branching at very acute angles, the cells when supporting a fork somewhat clavate, otherwise subcylindrical, about 125 μ diameter, the cells to 970 μ long; ultimate branching more often alternate than anywhere else in the plant, the branchlets to 15-20 μ diameter, their cells to 100-200 μ long, those at the apices of the filaments tapered, rounded-acute; colorless hairs absent; spherical tetrasporangia 50-75 μ diameter, on one-celled stalks, solitary at the nodes of the upper middle parts of the plant, apparently very infrequent, without any trace of involucral cells; sexual organs not seen.

Dredged in abundance at 12-20 m. over sandy bottom, off Punta Gorda and nearby, Cap San Lucas, Baja California, Mexico (*Schmitt* 13), July 19, 1938.

This plant probably represents the species described by Setchell and Gardner (1937, p. 87) as *Neomonospora multiramosa* Setchell & Gardner. It is shorter, and the ultimate branchlets are more slender than they report; the tetrasporangia are a little larger in their greatest dimension reached, and in particular, they divide in tetrahedral (tripartite) fashion, not cruciately. The dimensional differences are of but secondary importance; the fashion of division of the sporangia is important and the writer has most carefully confirmed his observation on material conserved in formalin. He sees no need for placing these plants in the old algal genus Monospora (or a substitute for it), since the sporangia there are borne laterally on special branchlets of a well-defined type, not present here. The species appears to belong to a small section of the genus Griffithsia ill-known by reason of the infrequence of reproductive organs, but characterized among other features by the lack of any involucral cells about the tetrasporangia. It is smaller than *G. arachnoidea* C. Agardh (*G. furcellata* J. Ag.) (Børgesen 1930, p. 29; Funk 1922, p. 226, *pl. 5, fig. 3*) with shorter and probably more clavate cells. This is a species of the Mediterranean and the Canary Islands. It shows marked resemblance to the larger *G. comosa* Grunow (1867, p. 62, *pl. 10, fig. 2*) from New Zealand, which has the same swollen ends to the apparently longer cells, but tetrasporangia are not known for that species. In the lack of sufficient evidence to link these specimens with either of the earlier-described plants it seems best to treat them as new, since they can, with the aid of the tetrasporangia, be fairly clearly defined.

RHODOMELACEAE

Acanthophora spicifera (Vahl) Børgesen

In shallow water, probably on reefs, with *Ceramium byssoideum,* Old Providence Island, Columbia (*Schmitt* 46), August 6, 1938.

Bostrychia binderi Harvey

Probably from mangrove roots, south end of black beach, Elizabeth Bay, Isabela Island, Archipelago de Colon, Ecuador (Albemarle Island, Galápagos Islands) (*Schmitt* 27), July 28, 1938.

Bryothamnion triquetrum (Gmelin) Howe

In shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 50), August 6, 1938.

Laurencia obtusa (Hudson) Lamouroux

Bearing numerous epiphytes, in shallow water, probably on reefs, Old Providence Island, Colombia (*Schmitt* 51), August 6, 1938.

Pterosiphonia dendroidea (Montagne) Falkenberg

Dredged in 6-10 fathoms off Punta Gorda, off rocky shore to west, and San Jose del Cabo Bay, Cap San Lucas, Baja California, Mexico (*Schmitt* 10), July 19, 1938.

These pieces, though slender in axis and branchlets, otherwise compare very closely with the specimens from Peru collected by Coker and reported upon by Howe (1914, p. 144), which the writer has been able to examine through the kindness of the Curator, New York Botanical Garden.

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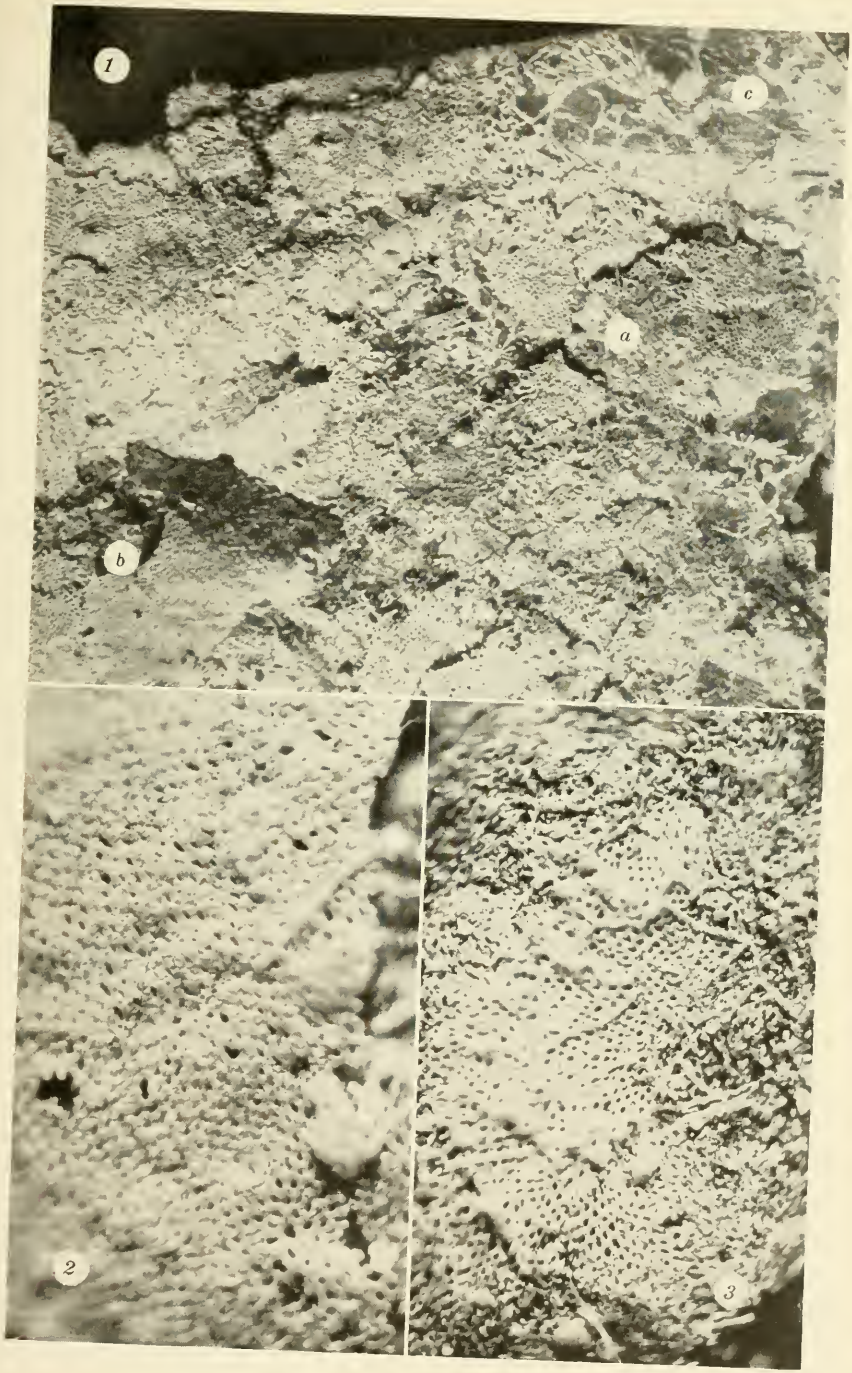
EXPLANATION OF PLATES

Plate 1

Fosliella farinosa var. *chalicodictya.* Fig. 1, surface of dried *Valonia* with *Fosliella,* × 25. Near "a" appears a group of good, large-meshed crusts of var. *chalicodictya,* and near "b" a group of crusts with very small meshes, hardly visible in the reproduction. Near "c" are some individuals of the var. *solmsiana,* of which other patches appear among the crusts of var. *chalicodictya.* Fig. 2, surface of a moderately small-meshed net, × 110. Fig. 3, surface of rather larger meshed net, × 70. Occasional strands of var. *solmsiana* overlie the nets.

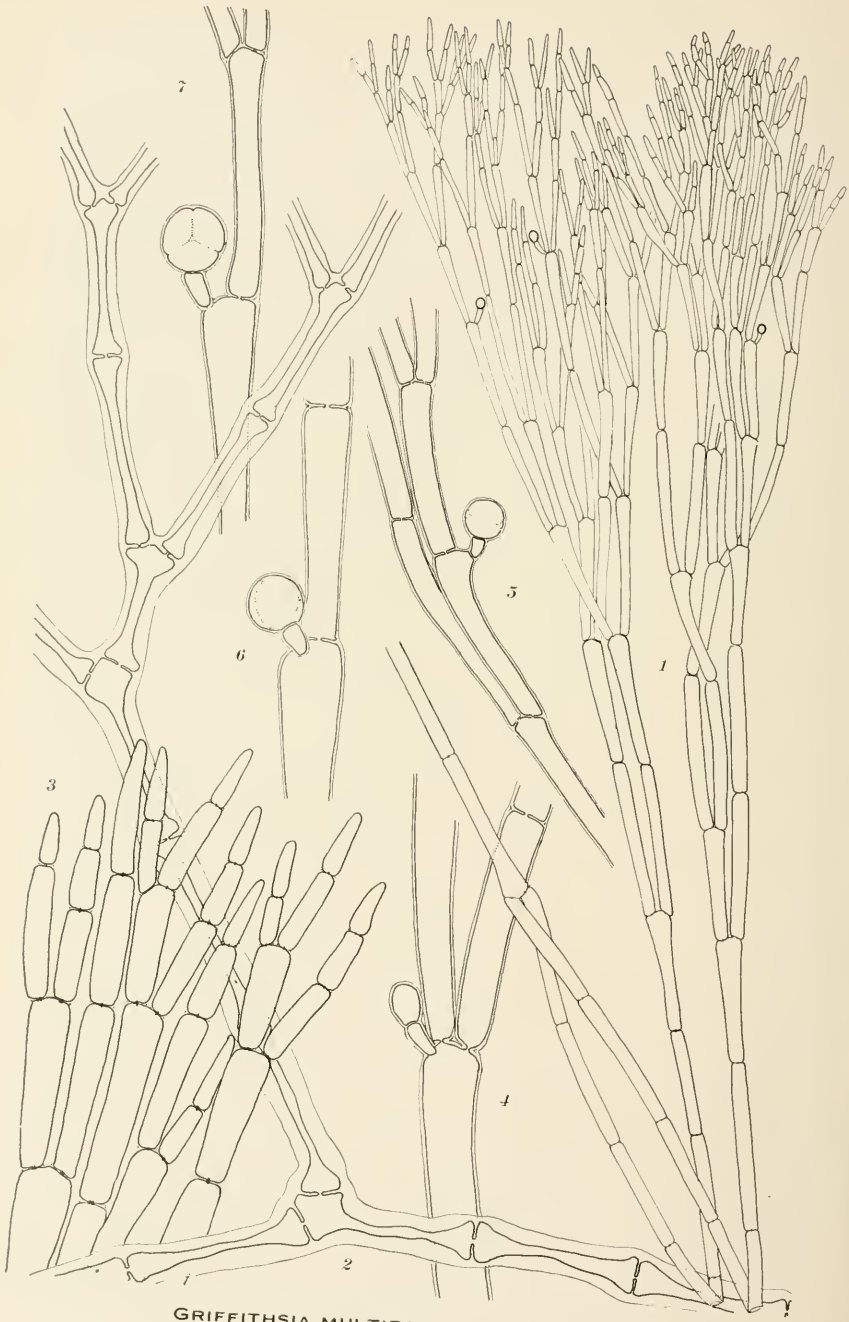
Plate 2

Griffithsia multiramosa var. *minor.* Fig. 1, habit of upper branching of a tetrasporangium-bearing plant, the branches slightly spread from the normally erect position, × 33. Fig. 2, lower branches of the same plant, the protoplasts as outlined considerably shrunken, × 33. Fig. 3, tips of a few branchlets, × 195. Figs. 4-7, portions of branches with tetrasporangia, × 130 except fig. 5, × 75.



FOSLIELLA FARINOSA VAR. CHALICODICTYA

(For explanation, see p. 18.)



GRIFFITHSIA MULTIRAMOSA VAR. MINOR

(For explanation, see p. 18.)