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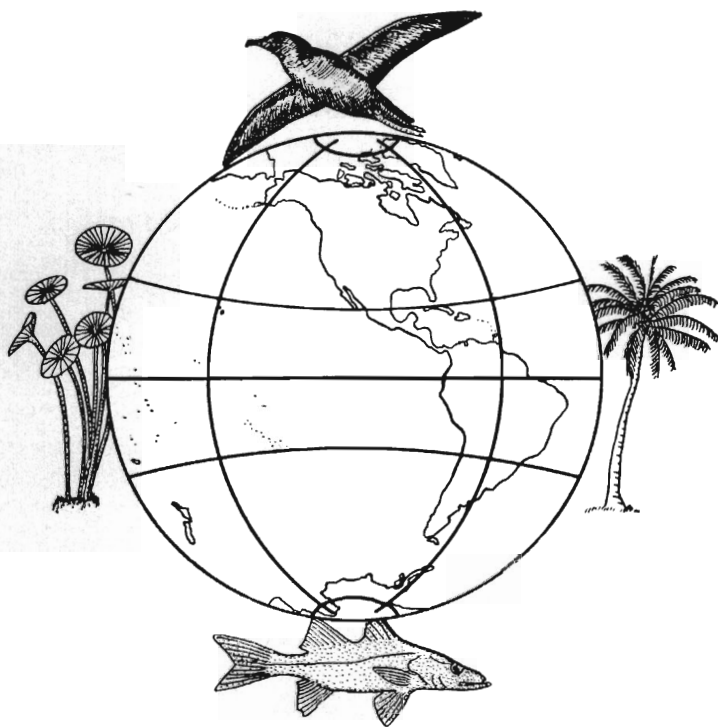
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By E. YALE DAWSON



FOREWORD

The Beaudette Foundation for Biological Research was incorporated as a non-profit research organization in June 1958 and has proceeded to develop a program of inquiry into the systematics, distribution and utilization of marine and littoral organisms, particularly the plants, of the eastern tropical and subtropical Pacific. It is a pleasure to present the *PACIFIC NATURALIST* as the new serial medium for the publication of results of this and future programs. It is intended to issue these papers at irregular intervals as the occasion arises. Copies are available for exchange with interested libraries, institutions and individuals. They may also be purchased at cost from the Foundation offices at Box 227, RFD 1, Solvang, California.

Palmer T. Beaudette, President

E. Yale Dawson, Research Director

A NEW GIGARTINOID GRATELOUPIA (RED ALGA) FROM HAWAII

By E. YALE DAWSON

During a visit to the University of Hawaii in October, 1958, enroute to Palmyra Island, a remarkable alga from the Island of Maui, Hawaii, was brought to my attention by Dr. Maxwell S. Doty. This plant had been collected on three occasions in 1955, once at Kahului Harbor, Maui, where it was the dominant drift weed, once outside the breakwater at Maalaea, Maui, where it was dominant from below low water to about -4 feet, and again in drift at Hilo, Hawaii. Despite the abundance and large size of the plant it seems not heretofore to have been recognized in the literature.

At first impression the size, color and coarseness appeared remarkably suggestive of a dichotomous *Gigartina*, even to the presence of abundant marginal and surface proliferations and short, almost papilloid branches. A transection of the cystocarpic thallus, however, immediately revealed the characteristics of *Grateloupia* and brought to mind two other gigartioid species of this genus, namely, *Grateloupia howei* Setchell & Gardner from the Gulf of California, and *G. denticulata* Montagne from Peru. The present plant is amply distinct from both of these by its divaricately dichotomous form, and seems clearly to be an undescribed and easily recognized species.

Another broad *Grateloupia* species, occupying a somewhat similar habitat in the Atlantic tropics, is *G. cuneifolia* J. Ag. from the West Indies.

Grateloupia hawaiiiana sp. nov.

Pl. 1, Figs. 1-5

Thalli ad 16 cm. altitudine, complanati dichotomo-flabellati; laminae supra 2-10 mm., infra 7-25 mm. lat., ramosi intervallis 5-10 (20) mm., obtusi, 230-480 μ crass., marginibus plantarum plurimarum oram propriam habentibus; margines ac superficies laminarum in plantis cystocarpicis excrescentias multas breves laminaformes papillosasve habentes.

Thalli to 16 cm. tall, forming a rounded clump of complanate, dichotomously branched subflabellate blades, cuneate at the base to a very slender, cylindrical stipe 5-6 mm. long, apparently attached by a small disc; blades of variable width on different plants, from 2 mm. to 10 mm. in outer portions, usually broader below and from 7 mm. to 25 mm. wide, branched at close intervals of 5-10 (or even 20) mm. depending upon the coarseness of the plant, but the segments usually reduced toward the blunt, rounded apices; margins commonly thickened, selvage-like, largely entire, especially in tetrasporangial plants, but often, especially in cystocarpic

plants, provided with numerous papillate or blade-like small outgrowths 1-3 (4) mm. long, these sometimes densely aggregated and often scattered, or in dense groups on the flattened surfaces of the blades as well; blades 230-480 μ thick in mid-parts, usually about 50% thicker at the margins, consisting of a dense cortex of anticlinally arranged small cells and a medulla of moderately loosely arranged slender filaments; cystocarps characteristic of *Grateloupia*, scattered in irregular patches throughout all but the uppermost and lowermost parts of blades; tetrasporangia scattered through the cortex, elongate, about 35 μ long by 8-9 (13) μ wide; antheridia superficial, produced in indefinite areas over much of the blade surfaces, about 2.0-2.5 μ in diameter.

TYPE: *M. S. Doty 12842*, cast up in beach drift at Kahului Harbor, Kahului, Maui, Hawaii, August 24, 1955. Cystocarpic and tetrasporic plants deposited in the Herbarium of the University of California, Berkeley.

ADDITIONAL MATERIAL: *Doty 12991*, growing on the outside of the breakwater at depths of 1-4 feet at Maalaea, Maui, August 27, 1955. Cystocarpic and tetrasporic. *Doty 12812*, in beach drift on shores of Liliokalani Park, Hilo, Hawaii, June 19, 1955. Tetrasporic and antheridial.

Specimens of each of the three collections are deposited in the Bernice P. Bishop Museum, Honolulu, as well as in the Herbarium of the University of California. Paratype material of *Doty 12842* and *12812* is deposited in the U.S. National Museum, and of *12812*, only, in the Farlow Herbarium and in the Herbarium of the New York Botanical Garden.

PLATE 1



Figs. 1-3. *Grateloupia hawaiiiana* sp. nov. $\times 0.5$ 1: A cystocarpic plant from the type collection; 2: a tetrasporangial plant from the type collection; 3: an antheridial plant from *Doty 12812*. Photograph, courtesy of M. S. Doty.

