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## New Caulerpas and Halimedas from Micronesia

By

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With Plates I-V.

### *Caulerpa antoensis* spec. nov.

Plate I, fig. 1.

Frons gracilis; rhizomatis gracilibus, cylindraceis, ca.  $370\mu$  crassis, irregulariter ramosis, radicibus dense obtectis; foliis 1-4 cm altis, hic illic ramos breves emittentibus, eorumque axibus filiformibus, ramulis pinnatis, cylindraceis, ca. 3-4 mm longis, leviter curvatis, basi non constrictis, apice acutis.

Frond small and slender; horizontal axis slender, cylindrical, ca.  $370\mu$  in diam., irregularly branched, covered with a comparatively dense hair-like rhizoids; assimilators 1-4 cm high, sending off here and there short branches, axis of the assimilators and branches filiform, sending off densely short ramuli in pinnate manner, in the lower portion covered with hair-like short rhizoids; ramuli cylindrical, about 3-4 mm long, slightly curved upwards, not constricted at the base, acute at apices.

Hab.: Creeping on the sandy bottom of about 2 m depth in the lagoon, Atoll of Ants, near the Island of Ponape.

The new species reminds one of a small form of *C. sertularioides* Howe but it can be distinguished from the latter with great ease by its small frond, somewhat irregularly arranged pinnules and by the fact that horizontal axis and also the lower parts of the assimilators are covered with dense roots.

Plate I, fig. 2.

### *Caulerpa lentillifera* J. AGARDH var. *condensata* var. nov.

Folia usque ad 10 cm alta; ramulis sphaericis, ca. 2 mm diam., breviter stipitatis, dense dispositis.

Assimilators up to about 10 cm high, provided densely with many rows of ramuli, ramuli nearly spherical, about 2 mm in diam., shortly stipitate.

Hab.: Color, Island of Palao.

Me. WEBER VAN BOSSE divided *C. lentillifera* J. Ag. into three varieties, var. *typica*, var. *Kilneri*, and var. *longistipitata* and the last one is con-

sidered by SVEDELIUS as an independent species. Our specimens seem to approach to the variety *longistipitata* especially in the form of the stalks of the ramuli, but in them ramuli are much more densely arranged than in var. *longistipitata*.

**Caulerpa Matsueana** spec. nov.

Plate II.

Frons magna, flavo-viridis; rhizomatis levibus, cylindraceis, 3-4 mm in diam., irregulariter ramosis; foliis erectis, longis, usque ad 20 cm altis, saepe semel bisve dichotomis; ramulis forma pilo similibus apice planis, saepe asymmetricis, 4-5 mm in diam., breviter stipitatis, in 3-4 seriebus irregularibus, dense dispositis; stipitibus ad apicem constrictis.

Frond large, comparatively soft, yellowish green in colour. Horizontal axis smooth, cylindrical, 3-4 mm in diam., irregularly branched. Assimilators erect, long, attaining about 20 cm, often once or twice divided in dichotomous manner; provided with many ramuli, ramuli nearly pestle-shaped, flattened at apices, often asymmetrical, 4-5 mm in diam. shortly stalked, arranged not very densely in 3-4 rather irregular rows, stalks constricted at the top.

Hab. On the sandy bottom of 2 m depth in the lagoon, Atoll of Ants.

**Halimeda gracilis** HARVEY f. *elegans* f. n.

Plate III.

Frons internodiis costatis e f. typico dignoscenda.

Frond large, forming a large, not very dense tuft, 25 cm high or higher, di- or trichotomously branched, branches long. Internodes strongly calcified, flabelliform, attaining nearly 1 cm in diam., often cuneate at the base, slightly undulate at the margin, often provided with a ridge on the surface.

Hab. Color, Islands of Palao.

The new form resembles f. *typica* BARTON in the outer appearance, but it has a ridge on the surface of the internodes, which lacks, according to the original description, in f. *typica*.

**Halimeda incrassata** LAMOUROUX f. *distorta* f. n.

Plate IV.

Frons ca. 20 cm alta, repetite di- vel trichotoma, internodiis crassis, valde incrustatis, semicirculatis vel discoideis, costatis, distortis, margine leviter undulatis.

Frond about 20 cm high, repeatedly di- or trichotomously branched. Internodes thick, strongly calcified, semicircular or discoid, about 1 cm in diam., strongly distorted, provided with a ridge on the convex surface, slightly undulate at margin.

Hab. In the lagoon of the atoll of Ants.

In the form of the internodes the new form resembles f. *rotunda* BART. but is distinguishable from the latter by the larger frond and by the strongly calcified and distorted internodes.

**Halimeda micronesica** spec. nov.

Plate V.

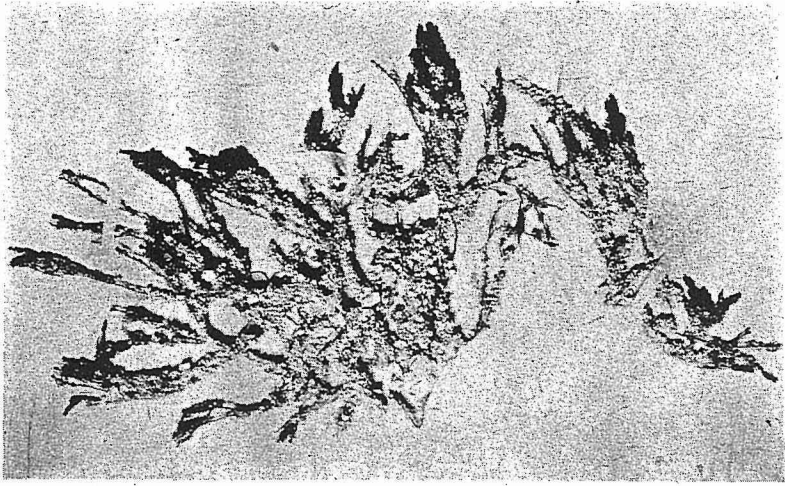
Radix fibrosa, longa. Frons 4-9 cm alta et ultra, flabellata, repete trichotoma; internodiis discoideis, margine integriusculis vel leviter undulatis, 4-8 mm diam. inferioribus saepe leviter 1-3-costatis; filamentis centralibus non communicantibus; utriculis calce separatis.

Root fibrous, long. Frond 4-9 cm high or more, flabellate in outline, repeatedly trichotomously branched. Internodes discoid, nearly entire or slightly undulate at margin, 4-8 mm in diam., lower ones often provided with 1-3 weak ribs. Central filaments do not fuse in the upper portion of the internode; utricles 25-45 $\mu$  in diam. in surface view, not touching side by side, but separated with lime from each other.

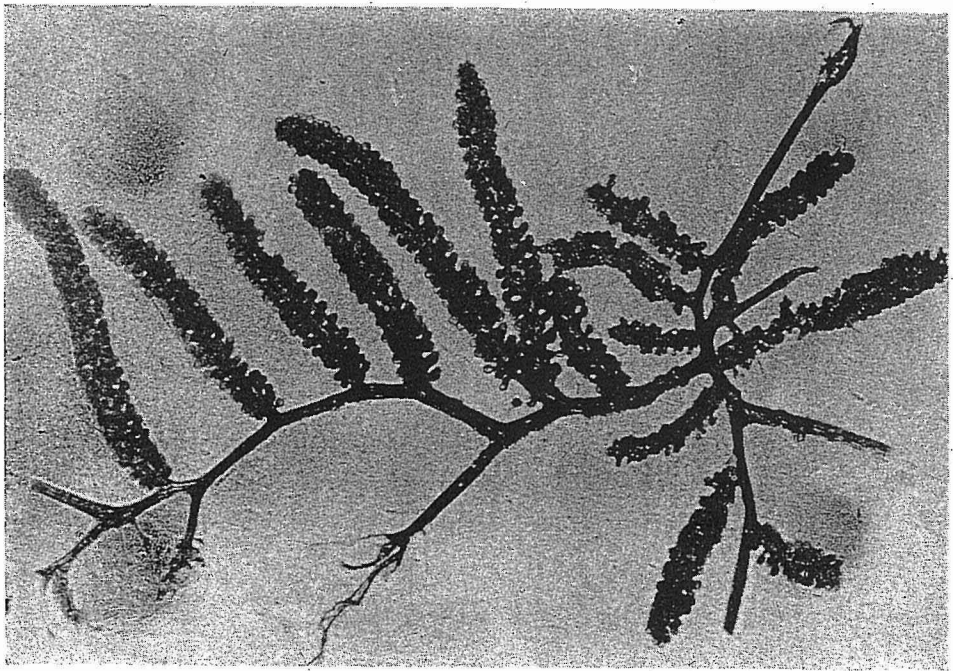
Hab. In the lagoon of the atoll of Ants.

The new species shows a strong resemblance to *H. incrassata* f. *ovata* BARTON in the outer appearance as well as in the fact that the central filaments do not communicate either by the open pits or by the fusion. But in the species in question the neighbouring utricles are separated by the deposit of lime from each other, therefore after decalcification they become free very easily. In this important point these two species are distinguishable from each other.

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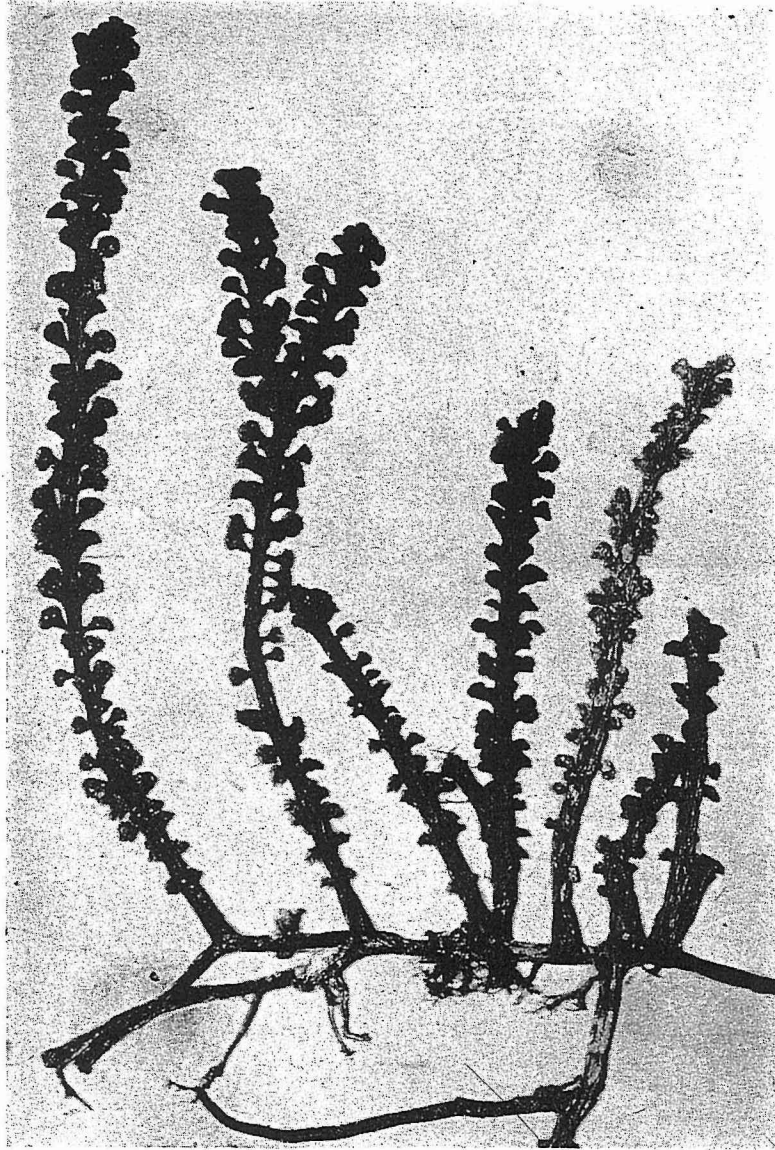


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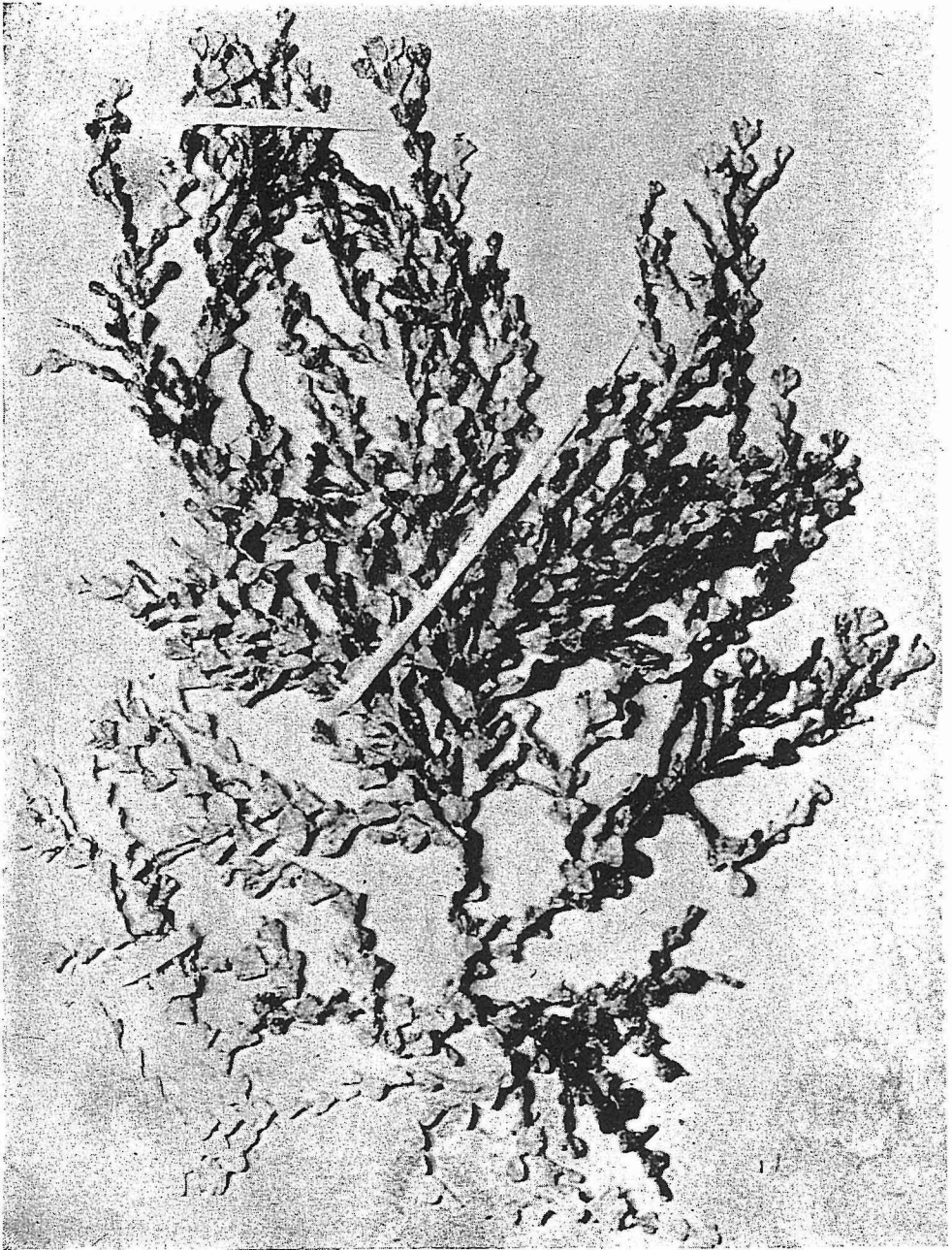


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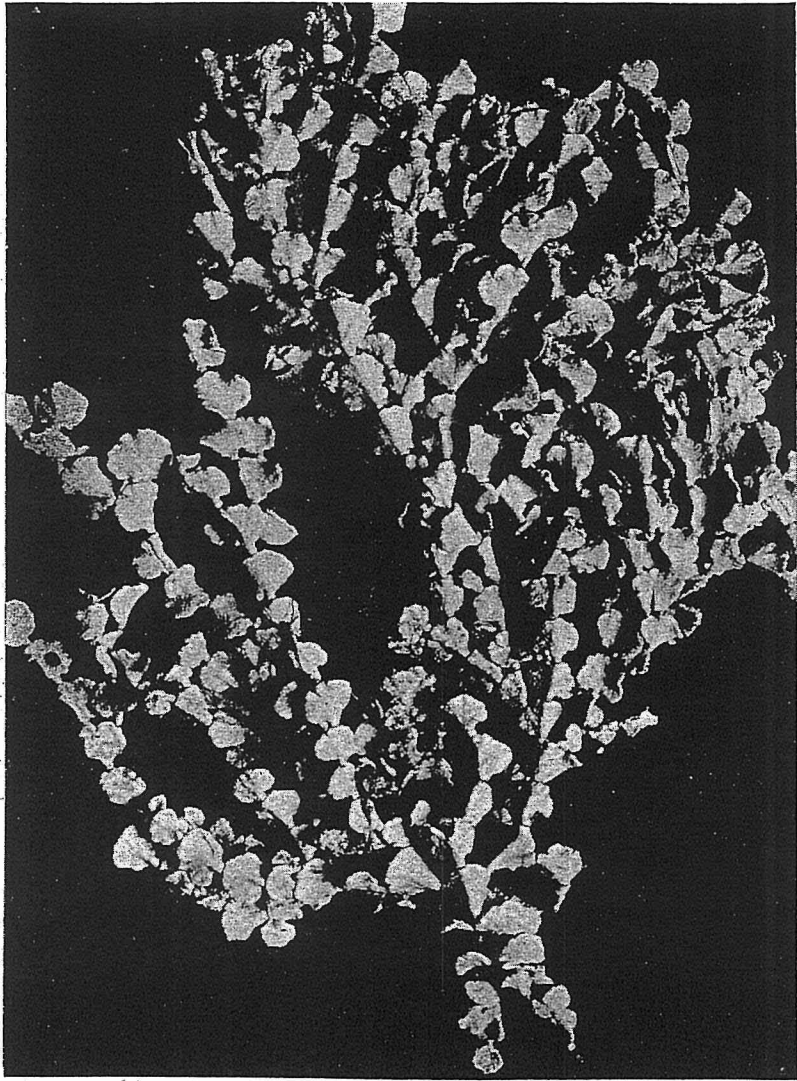
1. *Caulerpa antoensis* YAMADA.  $\times \frac{17}{16}$ .
2. *Caulerpa lentillifera* J. AG. var. *condensata* YAMADA.  $\times \frac{11}{16}$ .



*Caulerpa Matsueana* YAMADA. Slightly reduced.

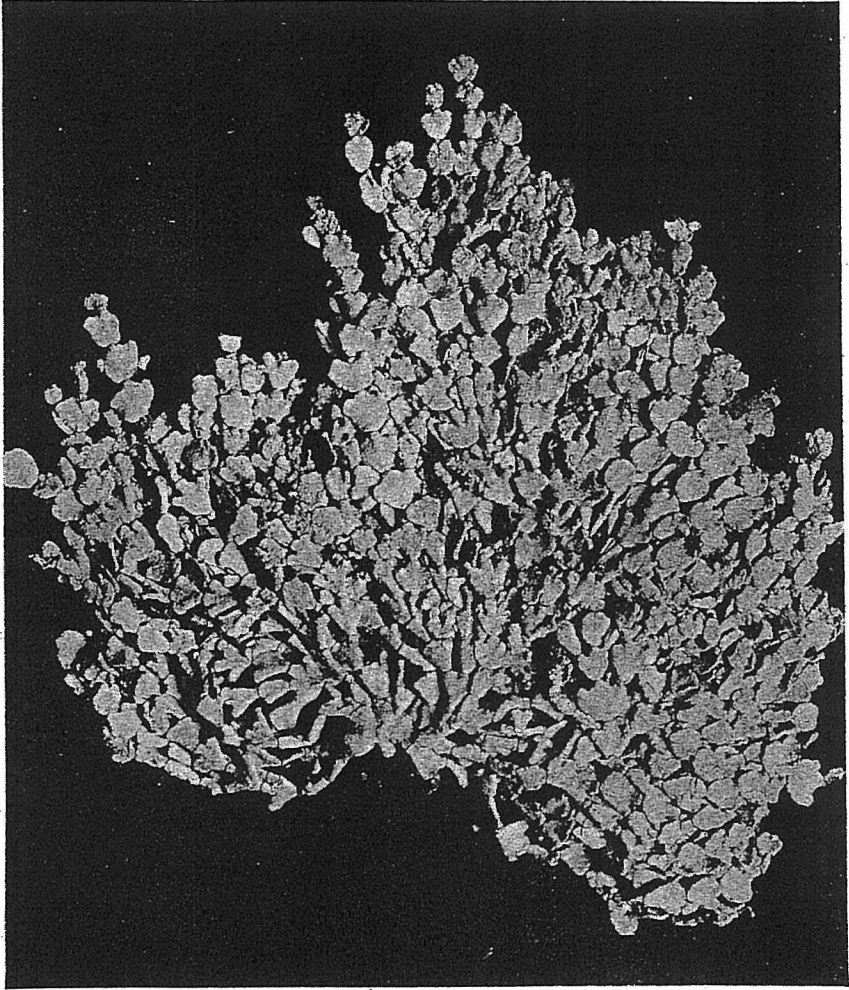


*Halimeda gracilis* HARV. f. *elegans* YAMADA.  $\times \frac{12}{17}$ .



*Halimeda incrassata* LAMX. f. *distorta* YAMADA. Slightly reduced.





*Halimeda micronesica* YAMADA. ca.  $\times 1$ .