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NOTE ON A NEW FORM OF LAMINARIA JAPONICA ARESCH.

BY

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(With two text-figures)

When the junior author made a trip in the summer of 1933 for the collection of marine algae along the coasts of the northeastern district of Honshu, he had an opportunity to visit the museum at Sendai which has been newly erected under the management of the Saito Hô-on-kai (Saito Gratitude Foundation). There had already been placed in the museum at that time a great number of natural



specimens including land and marine plants. By the courtesy of Mr. M. TAKAMATSU, a member of the museum staff, the junior author was able to examine the specimens of marine algae collected mostly in this district. Amongst them, he saw two sheets of specimens of Laminaria which have large, membranaceous fronds but lack their holdfasts and the lower portions of the stipe. Inasmuch as a species of Laminaria having such a membranaceous frond was not familiar to the junior author in this district, he had an interest in studying the present alga more closely.

This alga was said to grow in the Bay of Onagawa which invades deeply into the land at the basal portion of the northern side of the Ojika peninsula, not far from Sendai. Upon a visit

Fig. 1. *Laminaria japonica* ARESCH., f. *membranacea*
MIYABE et NAGAI, f. nov.
Entire view of the plant. $\times ca \frac{1}{2}$

[Trans. Sapporo Nat. Hist. Soc., Vol. XIII, Pt. 3, 1934]

to Onagawa in the latter part of August a large number of specimens of this kelp were obtained growing in abundance in the muddy sea bottom covered with small gravel and shells. They were then found abundantly encrusted with Bryozoa and Hydrozoa epiphytic on the frond.

When examining the materials collected in this tour afterwards in the laboratory, the authors became aware that the specimens of *Laminaria* from the Bay of Miyako in the Prefecture of Iwate, where it is known by the local name, "Doteme", were nothing but another kelp belonging to one and the same species. After careful examinations, the authors came to the conclusion that these specimens from the two localities should be treated as a new form of *Laminaria japonica* ARESCH. which is one of the largest among the Japanese species of *Laminaria*. *Laminaria japonica* ARESCH. is the kelp that grows abundantly on the southern coast of Hokkaido from the Strait of Tsugaru to the Pacific coast as far as Mororan and is harvested in these localities for sale as a first rate kelp for food on the market under the name of "Makombu". This kelp is biennial and characteristic in having a broad-(mostly in two year old fronds) to linear-lanceolate (in one year old one), thick frond with rounded base (in the case of the juvenile narrowly cuneate, and in the one grown in the open sea often broadly cuneate), flattened stipe, and branched hapteres which are arranged in vertical rows.

In the alga in question, the hapteres are thin, and finely branched, and arranged in two vertical rows oppositely on the very base of the stipe. The stipe is thin, and much flattened, and measures 4.5-7 cm. in length, 3-5 mm. in width and 0.6-1 mm. in thickness. The mucilage lacunae in the stipe of the typical form are, in cross section, rather large, ovate or obovate in vigorously grown individuals but in younger ones more or less narrower, and closely arranged in a row just beneath the peripheral tissue. The lacunae of the present specimens, however, are not so large and rounded, but rather narrow to slightly wide and closely arranged in a row in the cortical layer as in the latter case of the typical form. The frond of this form resembles closely that of the typical one, especially of its one year old form, in general shape. However the alga in question is remarkably different from the typical form in the thin and membranaceous texture of its frond. The thickness of the frond in the typical form measures 0.35-1mm., mostly 0.4-0.9 mm. near the base and 0.05-0.15 mm. on the margin of the upper part, while in the present specimens merely 0.2-0.3 mm. near the base and 0.05-0.1 mm. on the margins. The lacunae in the frond are observed, in a cross section, to be more or less small and rounded and arranged in a row in the subcortical layer as in the case of the one year old frond of the typical form. The sori are not found on the present specimens.

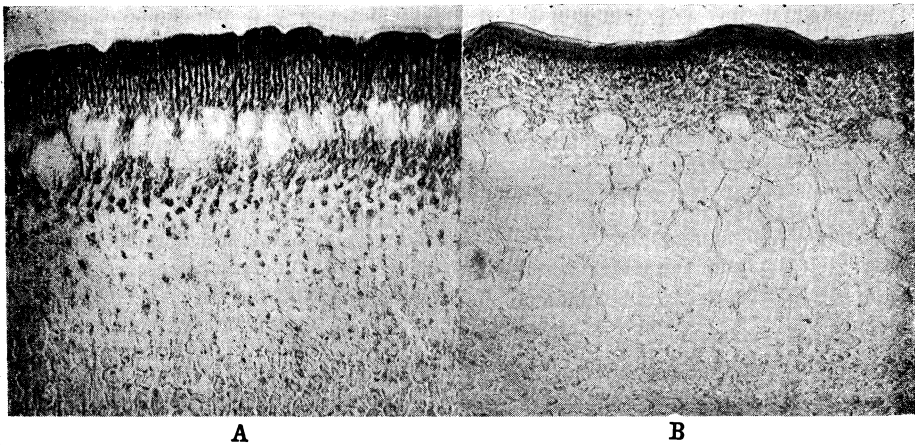


Fig. 2. *Laminaria japonica* ARESCH., f. *membranacea* MIYABE ET NAGAI, f. nov. $\times 90$

A. Cross section of the stipe.

B. Cross section of the frond at the median portion near the base.

The diagnosis of the present form is given as follows.

***Laminaria japonica* ARESCH.,
f. *membranacea* MIYABE ET NAGAI, f. nov.**

Radice fibrosa, ramis cylindræis vel sensim complanatis et multis dichotome ramosis, in infima parte basilari stipitis opposite in verticales ordines dispositis; stipite complanato, 4.5-7 cm. longo, 3-5 mm. lato, 0.6-1 mm. crasso, lacunis muciferis numerosis, in orbem regularem subcorticalem dense dispositis; lamina membranacea, lineari-lanceolata, ad fasciam mediam plana et ad marginem leviter undulata, basi late cuneata vel prope rotunda, 113-365 cm. longa, 15-19 cm. lata, ad fasciam mediam 0.2-0.3 mm. et ad marginem 0.05-0.1 mm. crassa, lacunis muciferis rotundatis, minutiusculis, inter medullam prope superficiem seriatim dispositis; soris ignotis.

NOM. JAP. Doteme.

HAB. Prov. Rikuzen: Onagawa (Aug. 23, 1933). Prov. Rikuchu: Kanegasaki prope Miyako (Aug. 15, 1933).

The present form may probably be found growing and distributing more widely in other bays in the northeastern district of Honshu.