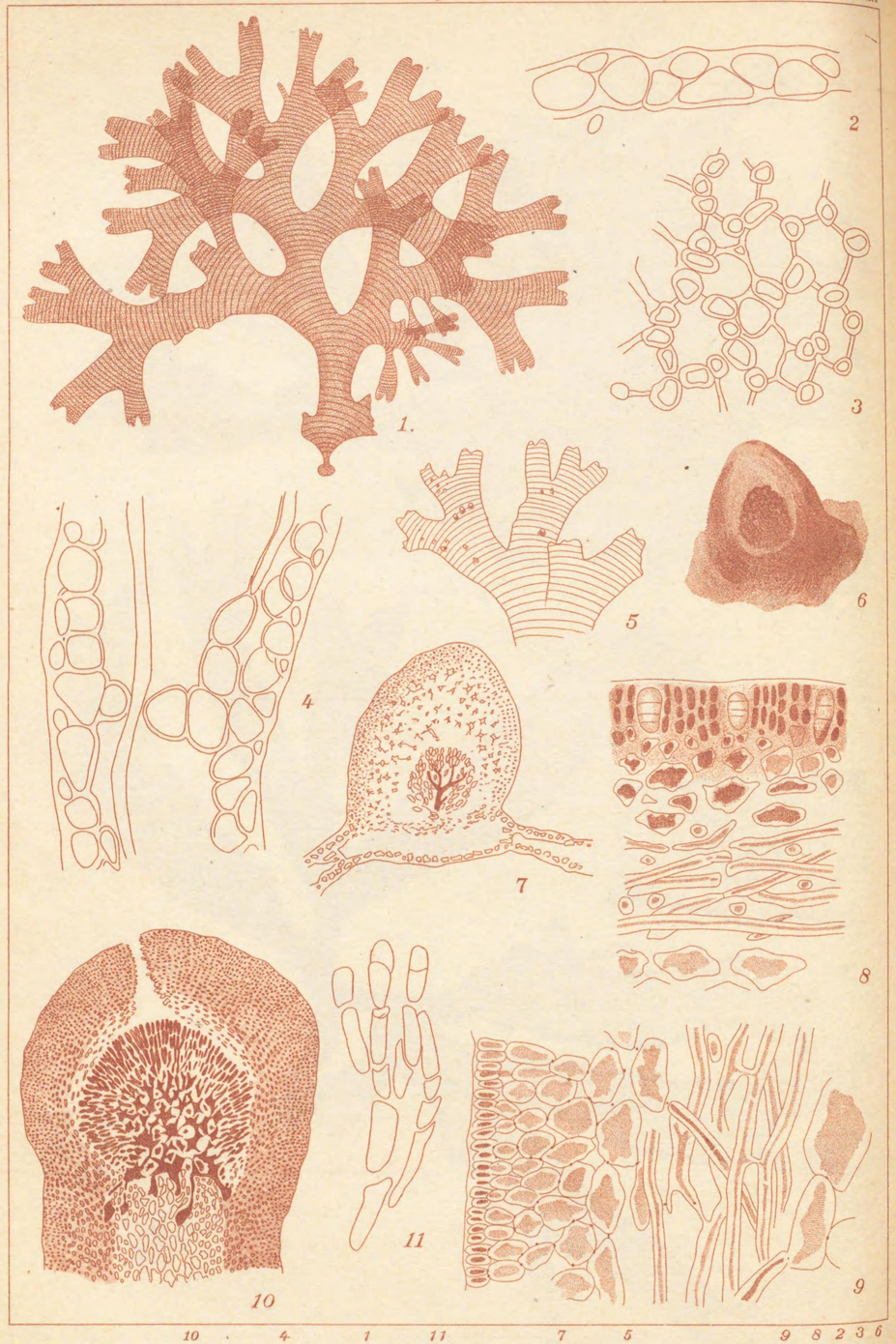
Halymenia dilatata Zanard ふいりぐさ.

Sarcodia Montagneana J.Ag. あつばのり. Fig.1-2.
Halymenia dilatata Zanard. ふいりぐさ Fig.3-4.



10 4 1 11 7 5 9 8 2 3 6

Champia expansa Yendo. うすばわつかぎさう Fig. 1-7.
Sarcodia Montagneana J.Ag. あつばのり Fig. 8-11.

Halymenia dilatata Zanard.

Nom. Jap.: *Fu-iri-gusa.*

PL. CLXXVI; PL. CLXXVII, Fig. 3-4.

Halymenia dilatata Zanard. Plant. Mar. Rubr. enum. p. 280, t. V, f. 1.—J. Ag. Anal. Alg. 1892, p. 53.—*Schizymenia dilatata* (Zanard.) De Toni Syll. Alg. IV, p. 531 (partim).

Fronds rising from a small scutate disc, with or without a short thickish stem, abruptly expanding with reniform base into a broad membrane which is mostly suborbicular or transversely expanded or sometimes broadly oblong, undulato-curled, simple or more or less lobed, attaining as much as 15-20 cm. in breadth and height. Margin entire, crenate or roughly subdentato-sinuose or fimbriated with ligulate lobules and more or less crisped, rarely proliferous from surfaces with small papillose or ligulate processes. Surface not evenly flat but roughly undulato-bullated. —*Tetraspores* scattered all over the surfaces of frond. *Cystocarps* minute dots, densely scattered all over the surface of frond. *Colour* purplish red, often variegated with irregularly shaped small patches. *Substance* gelatinoso-membranaceous and the plant firmly adheres to paper in drying except stem.

Hab.: In deep places at 3-9 fath. Ryukyu, Kyushu, Kishyu.

Structure of frond and cystocarp is that of *Halymenia*. Auxiliary cell which is rather large, oval or oblong, is formed as a branch of cortical filament and is situated at the point where some 5 or more cortical filaments converge (Pl. CLXXVII, fig. 3, *a*). Those filaments afterward

become the network surrounding the nucleus of cystocarp. De Toni puts this plant in *Sebdenia*; but I can not agree with him.

Pl. CLXXVI. Fig. **1**: Sterile frond of *Halymenia dilatata* Zanard.. $\frac{1}{1}$.—Fig. **2**: cross-section of frond, slightly magd.—Fig. **3**: cortical layer of frond, $\frac{353}{1}$.—Fig. **4**: tetrasporangia, $\frac{353}{1}$.

Pl. CLXXVII, Fig. 3-4. Fig. **3**: auxiliary cell *a* (alcoholic material), $\frac{353}{1}$.—Fig. **4**: cystocarp (alcoholic material), $\frac{48}{1}$.

Sarcodia Montagneana (H et H.) J. Ag.

Nom. Jap.: *Atsuba-nori*..

PL. CLXXVII, Fig. 1-2; PL. CLXXVIII, Fig. 8-11.

Sarcodia Montagneana (H. et H.) J. Ag. Sp. Alg. II, p. 623; Id. Epicr. p. 431; De Toni Syll. Alg. IV, p. 414; Yendo Notes on Alg. new to Jap. (Bot. Mag. Tokyo, Vol. XXXI, n. 363, 1917) p. 82.—*S. Ceylanica* Harv.; Kg. Tab. Phyc. XIX, t. 33, f. 1; J. Ag. Epicr. p. 431; De Toni Syll. Alg. IV, p. 415.

Plants solitary or a few tufted, rising from a scutate disc with cuneate base which often tapers into short, thickish stem, or almost stemless, expanding upward into 3-4 times dichotomous or irregularly lobed fronds, which are very variable in shape and size, some flabellate, others irregularly forked, attaining 10-20 cm. in height. Segments widely parted with round axils, some broadly linear, others widely cuneate, varying from 5-10 mm. to 4-5 cm. in breadth, with blunt, truncated, ligulate or bifid apices. Margin entire, smooth or provided in age with wart-like thicken-

ings or papillose processes, often furnished with simple ligulate or once or twice forked cuneate proliferations and in older plant frond becomes very much thickened.—*Tetraspores* scattered over the surfaces of frond. *Cystocarps* globoso-hemispherical, mostly situated along or within the margin, sometimes densely scattered all over the both surfaces. *Colour* brownish-red or yellowish. *Substance* thick membranaceous becoming almost leathery in age and the plant imperfectly adheres to paper in drying.

Hab.: Probably in deeper waters; Kii, Hachijo and Miyake Isls., Sagami, Rikuchyu.

Pl. CLXXVII, Fig. 1-2. Fig. **1**: sterile frond of *Sarcodia Montagneana* (H. et H.) J. Ag., $\frac{1}{1}$.—Fig. **2**: another frond bearing cystocarps, $\frac{1}{1}$.

Pl. CLXXVIII, Fig. 8-11. Fig. 8: portion of the cross-section of tetrasporic frond, $\frac{220}{1}$.—Fig. **9**: portion of the longitudinal section of frond, $\frac{152}{1}$.—Fig. **10**: vertical section of cystocarp, $\frac{48}{1}$.—Fig. **11** spore-filament, $\frac{353}{1}$.

Champia expansa Yendo.

Nom. Jap.: *Usuba-watsunagiso*.

PL. CLXXVIII, Fig. 1-7.

Champia expansa Yendo Three New Mar. Alg. from Jap. (Bot. Mag. Tokyo, Vol. XVII, 1903) p. 103, pl. III, f. 10-13.

Frond compresso-complanated, regularly dichotomous, expanding in a flabellate manner, with reniform outline, abruptly tapering below into

cuneate base, 6-10 cm. high. Segments broadly linear or cuneate, erecto-patent or patent with round axils, 6-10 mm. broad concentrically zonate in short distances, bifid at apices, and proliferating from margins of adult segments.—*Cystocarps* ovoid sessile on the surface of frond. *Colour* purplish-red. *Substance* membranaceous and the plant firmly adheres to paper in drying.

Hab.: On rocks about 8 fathoms deep below the tide marks at Misaki (K. Imamura); Choshi, Wagu.

Pl. CLXXVIII, Fig. 1-7. Fig. 1: frond of *Champia expansa* Yendo, $\frac{1}{1}$.—Fig. 2; cross-section of frond. $\frac{220}{1}$.—Fig. 3: surface view of frond, $\frac{220}{1}$.—Fig. 4: longitudinal section of frond through a dissepiment, $\frac{220}{1}$.—Fig. 5: portion of frond bearing cystocarps, $\frac{1}{1}$.—Fig. 6: cystocarp, $\frac{22}{1}$.—Fig. 7: vertical section of cystocarp, $\frac{48}{1}$.

Ceramium tenerrimum (Mart.) Okam.

Nom. Jap.: *Ke-igisu.*

PL. CLXXIX, Fig. 1-7.

Hormoceras tenerrimum Mart. Tange Preuss. Exped. nach Ost-Asien p. 146, t. VIII, f. 2.—*Hormoceras flaccidum* (non Harv.) Sur. Alg. Jap. Mus. bot. Lugd.-Bat. 1870, p. 28, Tab. XIII.—*Ceramium gracillimum* Griff. et Harv.; De Toni Syll. Alg. IV, p. 1483, (partim); Okam. Nippon Soruimeii (2nd. edit.) p. 98; Okam. Alg. Jap. Exsic., fasc. I, n. 28.

Fronds densely caespitose, very fine and capillary, 60-80 μ thick, very flaccid, deliquescently dichotomo-fastigiate, forming almost globular mass,

Ceramium tenerrimum (Mart) Okam. けいぎす Fig 1-7.
Ceramium paniculatum Okam. はりいぎす Fig. 8-16.

distantly dichotomous below, gradually becoming nearer above, strongly forcipated inward at apices, sometimes emitting short lateral ramuli and often root-fibres at geniculus. The articulations are 5-10 times as long as diameter, interstices pellucid, and with cells round the geniculus slightly prominent in the lower portion. Cortical cells at geniculus are sometimes small and numerous, sometimes larger and less numerous. – In one of the dried specimens I have seen *tetraspores*, 2-3 of which are verticillately arranged on one side and not much prominent, roundish and tripartite. *Cystocarps* unknown. *Colour* light pinkish red, often almost colorless. *Substance* soft and the plant closely adheres to paper in drying.

Hab.: Mostly entangled on *Sargassum* in calm places between tide-marks near high tide. Common along the both coasts of Honshyu and Kyushu; Fusan.

Hitherto I have passed in calling the present plant in the name of *Ceramium gracillimum* Griff. and Harv. after De Toni *l.c.* But on making study by comparing with a specimen lavelled *C. gracillimum* collected and determined by A. D. Cotton at Bovisand in 13, 9, 1905 (which is kept in the herbarium of Tokyo Imp. Univ.), I have found that our plant is quite different. *C. gracillimum* has dark reddish-brown colour, more erect apices, and more regularly alternate ramuli which are not widely spread out but rather standing nearer to one another. Moreover its filaments are much thicker than in the present plant which is capillary-fine and it has more or less traceable main stem or main branches.

Pl. CLXXIX, Fig. 1-7. Fig. **1**: small mass of *Ceramium tenerrimum* (Mart.) Okam., $\frac{1}{1}$.—Fig. **2**: portion of frond, $\frac{22}{1}$.—Fig. **3**: lower articulations, $\frac{83}{1}$.—Fig. **4**: apical portions of ramuli shooting forth colourless

hairs, $\frac{220}{1}$.—Fig. **5**: cortical cells at geniculus, $\frac{220}{1}$.—Fig. **6**: root-fibre, $\frac{220}{1}$.—Fig. **7**: tetraspores, $\frac{80}{1}$.

Ceramium paniculatum Okam.

Nom. Jap: *Hari-igisu.*

PL. CLXXIX, Fig. 8-16.

C. paniculatum Okam. Contr. Knowl. of the Mar. Alg. of Jap. II (Bot. Mag. Tokyo, Vol. X, 1896, no. 111), p. 36, pl. III, f. 22-23; Okam. Alg. Jap. Exsic. n. 2.

Fronds densely tufted, forming subglobose mass, capillary, ca. 3 cm. high, 130-200 μ thick, subdichotomo-alternately decompound, shooting forth lesser sorts of branches in every direction. The basal portion of frond lying on substratum emits from nodes monosiphonous root-fibres which are mostly simple or distantly branched, ending in a blunt apex or expanding into a small conical disc. Branches short, patent, often almost horizontal, of subequal length for the most part, becoming shorter above with short similarly arranged ramuli. The entire ramification is thus a panicle. Ramuli very patent, armed with a subulate, 2-4 celled, coloured spine at each node longitudinally seriated along the external side; the lower ones often slightly recurved, some forcipated at apex, others simple and straight; the upper ones often unequally forcipated and a little recurved at extremity, becoming very patent afterwards Articulations little shorter as the diameter in the basal portion of frond, $1\frac{1}{2}$-$2\frac{1}{2}$ times long in the median portion, becoming shorter above. Node corticated and subequal, not being prominent, leaving interstices hyaline.—

Dilsea edulis Stackh. あかば

Tetraspores typically verticillate around the node of ramuli in a single row, prominent, slightly bulging out from the cortical layer and bracteated by cortical cells, and enclosed in a hyaline membrane, roundish, triangularly or somewhat cruciately divided. They are often seriated in a longitudinal row, here along the external, there along the internal side or along the both sides at the same time. *Cystocarps* globular, formed on the upper portion of branch and imperfectly bracteated by a few ramuli. *Colour* light pinkish-red. *Substance* soft and flaccid, and the plant adheres to paper in drying.

Hab.: On various algae between tide-marks near high tide; common along the Pacific coast from Kyushu to Hakodate.

A distinct species belonging to the section *Ciliata* J. Ag. standing in the vicinity of *C. acanthonotum* Carm.

Pl. CLXXIX, Fig. 8-16.—Fig. **8**: fronds of *Ceramium paniculatum* Okam. growing on *Corallina*, $\frac{1}{1}$.—Fig. **9**: portion of frond, $\frac{3}{1}$.—Fig. **10**: lower articulations, $\frac{83}{1}$.—Fig. **11**: root fibres, $\frac{83}{1}$.—Fig. **12**: apices of ramuli, $\frac{152}{1}$.—Fig. **13**: branch bearing tetraspores, $\frac{50}{1}$.—Fig. **14**: cystocarps, $\frac{80}{1}$.—Fig. **15-16**: tetraspores, $\frac{220}{1}$.

Dilsea edulis Stackhouse.

Nom. Jap.: *Akaba.*

PL. CLXXX.

Dilsea edulis Stackh.; Yendo Notes on Alg. new to Jap. I, (Bot. Mag. Tokyo, Vol. XXIII, No. 270) 1909, p. 133; De Toni Syll. Alg. IV, p. 1635.—*Fucus edulis* Turner Fuci II, t. 114; Gmelin, Hist. Fuc. Tab.

26 (partim).—*Iridaea edulis* Harv. Phyc. Brit. pl. 97; Kg. Tab. Phyc. XVII, t. 3, f. a-c.—*Sarcophyllis lobata* Kg. Tab. Phyc. XVII, t. 97, f. a-c.—*Schizymenia edulis* J. Ag. Sp. Alg. II, p. 172.—*Sarcophyllis edulis* J. Ag. Epicr. p. 265; Kjellm. Alg. Arct. Sea p. 125.

Fronds tufted rising from a small scutate disc, broadly membranous, gradually tapering below into cuneate base in elongated forms and abruptly in roundish ones, rarely simple and not lobed, assuming oblong, obovate or almost roundish shape, often curved to one side, usually clefted radially into some irregularly cuneate lobes, in some almost palmately lobed. Apices are rarely entire, usually more or less worn away by waves. Frond attains the height of 15-60 cm. and breadth of 5-30 cm., and the lobes 3-10 cm. in the bradth of upper broader portion. Margin entire or irregularly crenated. *Colour* purplish-red, turning to dark red in some fully grown frond. *Substance* membranaceous, and the plant firmly adheres to paper in drying.

Hab.: Common along the coasts of Kurile Islands and Hokkaido.

Pl. CLXXX. Fig. 1: frond of *Dilsea edulis* Stackh., $\frac{1}{1}$.—Fig. 2: another form of frond, shown in the outline, $\frac{1}{1}$.—Fig. 3: portion of the cross-section of frond, showing two auxiliary-cell-branches; line *a a* indicates the median portion of the section, $\frac{353}{1}$.—Fig. 4: auxiliary cell branch, $\frac{567}{1}$.—Fig. 5: portion of the cross-section of frond showing procarp; line *a a* indicates the middle portion of the section, $\frac{353}{1}$.—Fig. 6: tetraspores in the cross-section of frond, $\frac{220}{1}$.—Fig. 7: cortical structure, $\frac{353}{1}$.

CORRECTION.

Vol. IV, No. 4, p. 75, 8 lines; for PL. CLXIV read PL. CLXIX.
Vol. IV. No. 5, Wrapper: for No. IV (PL. CLXVI-CLXX read
N . V (PL. CLXXI-CLXXV).

Halymenia dilatata Zanard.[1]

ふいりぐさ 岡村稱.

第CLXXVI圖版; 第CLXXVII圖版, 3-4圖.

體ハ小サキ盤狀根ヨリ立チ, 莖ヲ有シ又ハ之ヲ缺キ, 莖ハ短クシテ稍太ク, 急ニ腎臟形ノ基部ヲ有スル濶キ膜ニ擴ガル; 體ハ概ネ略ボ圓形又ハ橫ニ擴ガリ時トシテハ廣キ長橢圓形ヲナシ, 波狀ニ褶ヲナシテチヂレ, 單條又ハ多少分裂シ, 高サ幅サトモ 15-20 cm. ニ達ス. 緣邊ハ全緣, 又ハ粗ク鋸齒狀ニ出入シ, 鋸齒ハ或ハ鈍圓ナルコトアリ又ハ舌狀裂片ヲ以テ總ヲ着ケタル如クナリテ多少チヾレタリ, 稀ニ表面ヨリ小サキ乳嘴狀又ハ舌狀突起ヲ出ス; 而シテ表面ハ平滑ナレドモ平坦ナラズシテ粗ク凹凸シテ皺ヲナス.—四分胞子囊ハ體ノ表面ニ散在ス. 囊果ハ小サキ點狀ニシテ表面ニ散在ス. 色ハ紫紅色ニシテ往往不規則ナル形狀ノ小サキ斑紋ヲ呈スルコトアリ. 質ハ粘質アル膜質ニシテ莖ヲ除ク外紙ニ密着ス.

產地: 3-9尋ノ深所ニ在リ. 琉球中城灣, 種子島, 大隅佐多岬, (8-9尋), 薩摩坊, 日向, 肥前口ノ津字島ノ內(3尋), 紀洲瀨戶.

分布: 紅海.

體及囊果ハHalymenia屬ノモノナリ. 助細胞ハ稍大ニシテ長橢圓形又ハ卵形ヲナシ, 5條乃至數條ノ皮層絲ガ上ヨリ下垂シテ一點ニ集中セル所ニ存ス(第CLXXVII圖版, 3*a*); 此數條ノ皮層絲ハ後囊果ノ仁ヲ圍繞スル網狀ノ組織トナルナリ. De Toni氏ハ此植物ヲSebdenia中ニ置キタレドモ余ハ之ニ贊同スルコト能ハザルモノナリ.

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1) Halymenia屬ノ性質ハ第一卷 175 頁ニ在リ.

第CLXXVI圖版. 1: Halymenia dilatata Zanard., ふいりぐさ, ノ實ナキ體, $\frac{1}{1}$.—2: 體ノ橫斷面, 少シク廓大.—3: 皮層, $\frac{353}{1}$.—4: 四分胞子, $\frac{353}{1}$.

第CLXXVII圖版, 3-4 圖. 3: 助細胞, *a* (アルコール品), $\frac{353}{1}$.—4: 嚢果 (アルコール品), $\frac{48}{1}$.

Sarcodia J. Agardh 1852.

あつばのり屬.

MELANTHALIEAE, SPHAEROCOCCACEAE.

たまみ科, メランサリア亞科.

體ハ扁平又ハ葉狀ニシテ叉狀又ハ概ネ不規則ニ分裂シ, 往々緣邊ヨリ枝ヲ副出シ, 絲狀—細胞組織ニテ成ル; 即チ體ノ內部ニ於テハ絲狀細胞ヨリ成レル髓絲アリテ絲ハ長キ節間ヲ有シ可ナリ綴ク錯綜シ同樣ノ形セル根樣絲ヲ伴ナフ; 皮層ハ密ニ集マレル細胞ヨリ成リ, 外方ニ漸次小形トナル.—四分胞子ハ體ノ表面ニ散在シ, 橫ニ分裂ス. 嚢果ハ殆ド球狀ニシテ突出シ或ハ球狀ニシテ短キ柄ヲ有シ, 體ノ表面ニ散在シ又ハ緣邊ニ沿フテ存ス而シテ體ノ表面ニ直接ニ形成セラルルカ又ハ緣邊或ハ表面ニ存スル極メテ小ナル疣ニ形成セラル. 果皮ハ甚ダ厚ク, 仁ハ縱ニシテ其上部ハ穹狀ヲナシ下部ハ廣キ基底ヲ以テ僅ニ發達セル胎座ヨリ出ヅ. 胞子絲ハ可成リ密ニ集リ, 其下部ハ網狀ニ癒着セル短キ細胞ヲ存シ上部ハ甚シク密ニ相集リタル長キ束狀ヲナセル多數ノ絲トナリテ游離ス; 胞子ハ此束狀ノ絲ノ頂端ニ一個又ハ二個相連ナリテ成ル.——一個ノ嚢果ニ於テ時ニ二個ノ仁ノ形成セラルルコトアリ,

印度洋及オーストラリアノ海ノ暖部ニ產シ約5種アリ. 玆ニ圖說スルモノハニユージーランド, 錫蘭等ニ普通ノ種ナリ.——屬ノ名ハ Sarx, Sarcos (厚キ) ヨリ成ル.

Sarcodia Montagneana (H. et H.) J. Ag.

あつばのり 岡村稱,

第CLXXVII圖版, 1-2 圖; 第CLXXVIII圖版, 8-11 圖.

體ハ單獨又ハ僅ニ叢生シ, 小サキ盤狀根ヨリ立チ, 基部楔形ニシテ往々短キ稍太キ莖ヲ有シ又ハ殆ド莖ナク, 上方ニハ3-4回叉狀ニ分岐セル或ハ不規則ニ分裂セル體ニ擴ガル; 體形及大サトモ極メテ變化シ易ク, 或モノハ扇狀ヲナシ, 或モノハ不規則ニ分岐シ, 高サ10-20 cm. アリ. 枝ハ圓キ腋ヲ以テ廣開シ或ハ廣キ線狀ヲナシ或ハ廣キ楔形ニシテ幅ハ5-10 mm. ヨリ4-5 cm. ニ達シ, 枝端鈍圓, 舌狀, 截形又ハ二裂ス. 緣邊ハ全緣, 平滑又ハ成長スルニ隨ヒ疣狀若クハ乳嘴狀突起ヲ有シ, 往々單條ニシテ舌狀ナル若クハ1-2回叉狀ニ分レタル楔形ノ副枝ヲ生ジ, 老成セルモノニテハ體ハ極メテ厚クナレリ.——四分胞子ハ體ノ表面ニ散在ス. 嚢果ハ球狀—半球狀ニシテ概ネ緣邊ニ沿ヒ若クハ緣邊ニ近ク存シ, 時トシテハ兩面ニ密布ス. 色ハ褐紅色又ハ黃色ヲ帶ブ. 質ハ厚キ膜質ニシテ老成スルトキハ殆ド革質トナリ, 體ハ乾燥スルトキハ不充分ニ紙ニ附着ス.

產地: 往々海濱ニ打揚ゲラル. 紀州尾鷲 (德淵), 八丈島, 三宅島, 志州, 上總, 江ノ島, 三崎, 陸中宮古.

分布: ニユージーランド, セーロン島.

第CLXXVII圖版, 1-2 圖. 1: Sarcodia Montagneana (H. et H.) J. Ag., あつばのり, ノ實ナキ體, $\frac{1}{1}$.—2: 嚢果ヲ有スル他ノ體, $\frac{1}{1}$.

第CLXXVIII圖版, 8-11圖. 8: 四分胞子ヲ有スル體ノ横斷面ノ一部, $\frac{220}{1}$.—9: 縱斷面ノ一部, $\frac{152}{1}$.—10: 嚢果ノ縱斷面, $\frac{48}{1}$.—11: 成胞絲, $\frac{353}{1}$.

Champia expansa Yendo.[1]

うすばわつなぎさう 岡村稱.

第CLXXVIII圖版, 1-7圖,

體ハ扁平—扁壓, 正シク叉狀ニ分岐シ, 扇狀ニ擴ガリ, 全體ノ輪廓ハ腎臟形ヲナシ, 急ニ楔形ノ基部トナル, 高サ6-10 cm. アリ. 各部ハ廣キ紐狀又ハ楔形ニシテ直立—廣開シ又ハ廣開シ, 腹圓ク, 幅6-10 mm. アリ, 少距離ヲ距テテ重圈狀線アリ, 枝端二裂シ老成部ノ緣邊ヨリ副枝ヲ生ズ.——嚢果ハ卵圓形ニシテ體ノ表面ニ坐ス. 色ハ紫紅色. 質ハ膜質ニシテ體ハ乾燥スルトキハ密ニ紙ニ附着ス.

産地: 相洲三崎8尋ノ海底(今村), 銚子(成田), 志洲和具.

第CLXXVIII圖版, 1-7圖. 1: Champia expansa Yendo, うすばわつなぎさうノ體, $\frac{1}{1}$.—2: 體ノ横斷面, $\frac{220}{1}$.—3: 體ヲ表面ヨリ見タルモノ, $\frac{220}{1}$.—4: 横隔膜ヲ通シテ斷リタル縱斷面, $\frac{220}{1}$.—5: 嚢果ヲ有スル體ノ一部, $\frac{1}{1}$.—6: 嚢果, $\frac{22}{1}$.—7: 嚢果ノ縱斷面, $\frac{48}{1}$.

1) Champia 屬ノ性質ハ日本海藻圖說第一卷第五頁ニ在リ.

Ceramium tenerrimum (Mart.) Okam.

けいぎす.

第CLXXIX圖版, 1-7圖.

體ハ密叢シテ殆ド球狀ノ團塊ヲナシ, 複叉狀ニ分岐シ, 絲ハ極メテ纖細ニシテ60-80 μ太ク, 甚シク軟弱ニシテ下部遠ク叉狀ニ分レ漸々上方ニ近ツクニ從ヒ接近シテ分岐シ, 頂端强ク內方ニ刺叉ノ如ク屈曲シ, 時トシテハ短キ側枝ヲ出シ, 往々節々ヨリ絲狀根ヲ發出ス. 關節ハ徑ノ5-10倍長ク, 節間ハ無色ニシテ各節ニ細胞ヲ有シ, 體ノ下部ニテハ節ハ少シク隆起ス; 節ノ周圍ノ皮層細胞ハ時ニ小ニシテ多數ナルコトアリ時ニ大ニシテ小數ナルコトアリ. 乾燥標品ニテ四分胞子ヲ見タルニ, 胞子ハ圓クシテ三角錐形ニ分レ, 節ノ一方ノ側ニ於テ2-3輪狀ニ並ビ外部ニ隆起セズ. 嚢果ハ詳ナラズ. 色ハ淡紅色ニシテ往々極メテ淡シ. 質ハ軟弱ニシテ密ニ紙ニ附着ス.

産地: 靜ナル場所ニアリテ概ネほんだわら類ニ絡マリ, 高潮線ニ近ク潮線間ニ在リ. 長崎, 天草島, 島原, 神戶, 紀州瀨戶, 和歌浦, 鳥羽, 伊豆, 新島, 相模, 上總八幡, 安房, 磐城, 佐渡, 羽前由良, 越後背合; 釜山.

從來予ハ De Toni Syll. Alg. ニヨリテ本植物ヲ Ceramium gracillimum Griff. et Harv. ナリトシタレドモ, 東京帝國大學植物學敎室ニ藏スル A. D. Cotton 氏ガ英國 Bovisand ニテ採集シタル其種ノ標本ヲ見ルニ當テ其全ク本植物ト異ナルコトヲ知レリ. C. gracillimum ハ暗褐紅色ニシテ枝端ハ概ネ直立シ, 小枝ハ可ナリ正シク互生シ餘リ廣開セズシテ寧ロ互ニ近ク接近シテ出デ, 且ツ絲ハ本植物ヨリモ數倍太ク, 多少區別シ得ベキ主軸若クハ主枝ヲ見ル. 之ニ依テ予ハ今 Martens ガ命名シタル種名ヲ正シトシ此處ニ之ヲ革メタリ.

第CLXXIX圖版, 1-7圖. 1: Ceramium tenerrimum (Mart.) Okam. ノ小叢, $\frac{1}{1}$.—2: 體ノ一部, $\frac{22}{1}$.—3: 下部ノ關節, $\frac{83}{1}$.—4: 小枝ノ頂端ニシテ無色ノ毛ヲ出ス狀, $\frac{220}{1}$.—5: 節部ノ皮層細胞, $\frac{220}{1}$,—6: 絲狀根, $\frac{220}{1}$.—7: 四分胞子, $\frac{80}{1}$.

Ceramium paniculatum Okam.

はりいぎす.

第CLXXIX圖版, 8-16圖.

體ハ團叢ヲ爲シ, 毛細狀ニシテ, 約3 cm. 高ク, 130-200 μ太ク, 屢々稍叉狀樣—互生ニ分岐シ, 各方面ニ短キ枝ヲ出ス. 體ノ下部ハ他物ニ附着シ節々ヨリ單管絲狀ノ根ヲ出シ, 根ハ概ネ單條又ハ遠ク分岐シ, 先端鈍圓又ハ小サキ圓錐狀ノ盤ニ展ガル. 枝ハ短ク, 廣開シ, 往々略ボ水平ニ出デ, 大抵稍同一ノ長サニシテ體ノ上部ノ方ニ漸次短クナリ, 同樣ノ配列ヲナセル短キ小枝ヲ存ス. 枝態ハ斯クテ複總狀ナリ. 小枝ハ甚シク廣開シ, 2-4個細胞ヨリ成レル細尖ナル有色ノ刺ヲ各節ニ存シ, 刺ハ枝ノ外側ニ沿フテ縦ニ列ル: 下部ノ小枝ハ往々輕ク後方ニ反リ或モノハ頂端刺又ノ如ク屈曲シ, 或モノハ單條ニシテ直出ス; 上部ノ枝ハ先端往々不同ニ屈曲シ, 先端少シク後方ニ反リ後甚シク廣開ス.—四分胞子ハ規則トシテハ小枝ノ節ノ周圍ニ横ニ一列ニ輪生シ, 少シク皮層ヨリ膨出シテ隆起シ皮層細胞ヲ以テ苞ノ如ク蔽ハレ, 透明ナル膜中ニ存シ, 圓クシテ三角錐形又ハ稍十字樣ニ分裂ス. 四分胞子ハ往々縦ニ列シ, 此處ニハ枝ノ外側ニ, 彼處ニハ內側ニ沿ヒ又ハ同時ニ兩側ニ在ルコトアリ. 嚢果ハ球狀ニシテ, 枝ノ上都ニ形成セラレ2-3ノ小枝ヲ以テ不完全ニ苞ノ如ク圍マル. 關節ノ長サハ體ノ下部ニ於テ直徑ヨリ少シク短ク, 中央部ニテハ其一倍半乃至二倍長ク, 上部ニハ又短シ. 節々ハ皮層細胞ヲ存シテ隆起セズ, 節間部ハ透明ナリ. 色ハ淡キ紅色. 質ハ軟クシテ纖弱, 乾燥スルトキハ密ニ紙ニ附着ス.

産地: 高潮線ニ近ク潮線間ノ種々ノ海藻ニ附着ス. 豐後無垢島, 伊豆大島(白井), 房州白濱, 上總, 磐城, 函館. 果實:—夏季.

第CLXXIX圖版, 8-16圖. 8: さんごもニ附着セル Ceramium paniculatum Okam. ノ體, $\frac{1}{1}$.—9: 體ノ一部, $\frac{3}{1}$.—10: 下部ノ關節, $\frac{83}{1}$.—11: 絲狀根, $\frac{83}{1}$.—12: 小枝ノ頂端, $\frac{152}{1}$.—13: 四分胞子ヲ有スル枝, $\frac{50}{1}$.—14: 嚢果, $\frac{80}{1}$.—15-16: 四分胞子, $\frac{220}{1}$.

Dilsea Stackhouse 1809.

あかば屬.

DUMONTIACEAE. りうもんさう科.

體ハ扁平葉狀ニシテ莖ヲ有シ, 分裂スルコトナク又ハ不規則ニ分裂シ或ハ破レタリ; 髓層ハ厚ク, 屢々分岐セル關節セル絲ヨリ成リ其間々ニ根樣絲ノ錯綜スルモノアリ; 根樣絲ハ始ハ甚ダ緩ク, 後漸次密ナルニ至ル; 皮層ハ多少厚ク, 內方ニハ漸次大ナル細胞ヨリ成リ, 緩ク集リ, 漸々髓層ニ移リ, 外方ニハ小細胞ヨリ成リテ密ナリ, 時トシテハ念珠狀ニ連リテ表面ニ直角ニ列ス.—四分胞子ハ體ノ表面ニ一定ノ規則ナク境セラレタル場所ニ存シ, 僅ニ厚クナリタル皮層中ニ多數ニ形成セラレ, 十字樣ニ分裂ス. 胎原列及助細胞列ハ可ナリ長ク蠕蟲ノ如ク屈曲シ, 皮層ノ內側ノ界附近(髓層ニ移ル部分)ノ組織ノ幾分弛

緩セル部分ニ多數ニ形成セラレ,其附近ニ中性ノ絲ヲ多數ニ伴ナフ,其絲ハ關節短クシテ蠕蟲狀ヲナス. 囊果ハ體ノ絲狀組織中ニ極メテ多數ニ存シ,可ナリ小ニシテ全ク外方ニ隆起セズ;仁ハ球狀—腎臟形ニシテ多ク枝ヲ出シタル可ナリ緩ク集リタル多數ノ胞子絲ヨリ成リ,中性ノ組織ノ離レ離レノ絲之ヲ貫通ス.

太西洋及太平洋ノ北部ニ2-3種アリ. 此處ニ圖説スルモノ其模範種ナリ.—屬ノ名ハ Ireland ニテ此植物ヲ Dils ト稱スルニ因ル.

Dilsea edulis Skackh

あかば. 三陸方言.

第CLXXX圖版.

體ハ小サキ盤狀根ヨリ叢生シテ立チ,廣キ膜狀ニシテ,長キ體形ノモノニテハ漸々下方ニ細クナリテ楔形ヲナシ,圓キ形ノモノニテハ急ニ細リ,罕ニ單條ニシテ分裂セズ,體形ハ長橢圓形,倒卵形又ハ殆ド圓形ヲナシ往々一方ノ側ニ凸リ,通常放射狀ニ裂ケテ數片ノ不規則ナル楔形ノ裂片ヲナシ,時ニハ殆ド掌狀ニ分裂ス. 頂端ハ罕ニ全緣ニシテ,通常多少波浪ノ爲ニ損ス. 高サ15-60 cm. 幅5-30 cm. アリ. 裂片ノ幅ハ上部ノ廣キ所ニテ3-10 cm. アリ. 緣邊ハ全緣又ハ不規則ニ鈍鋸齒狀ヲナス. 色ハ紫紅色ニシテ老成セルモノニテハ暗紅色ナリ. 質ハ膜質ニシテ體ハ乾燥スルトキハ紙ニ附着ス,

產地: 潮線間ノ岩石ニ附着ス. 得撫島,根室,厚岸,沙流大室蘭,小樽,函館,陸中本吉郡,陸奥鮫,岩屋,(東).

分布: グリーンランド,ノルウエー,英,佛.

第CLXXX圖版. 1: Dilsea edulis Stackh., あかば,ノ體, $\frac{1}{4}$.—2: 他ノ形ヲ輪廓ノミニテ示ス, $\frac{1}{4}$.—3: 橫斷面ノ一部ニシテ2個ノ助細胞列ヲ示ス;*aa*線ハ斷面ノ中央ヲ示ス, $\frac{353}{1}$.—4: 助細胞列, $\frac{56}{1}$.—5: 體ノ橫斷面ノ一部ニシテ胎原列ヲ示ス;*aa*線ハ斷面ノ中央ヲ示ス, $\frac{353}{1}$.—6: 四分胞子, $\frac{220}{1}$, —7; 皮層, $\frac{353}{1}$.

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第四卷　第七集

理學博士　岡村金太郎著

ICONES OF JAPANESE ALGÆ.

Vol. IV. No. VII.

BY

K. Okamura *Rigakuhakushi.*

Contents of No. VII. (PL. CLXXXI—CLXXXV.)

Pikea californica Harv.	みちがへさう
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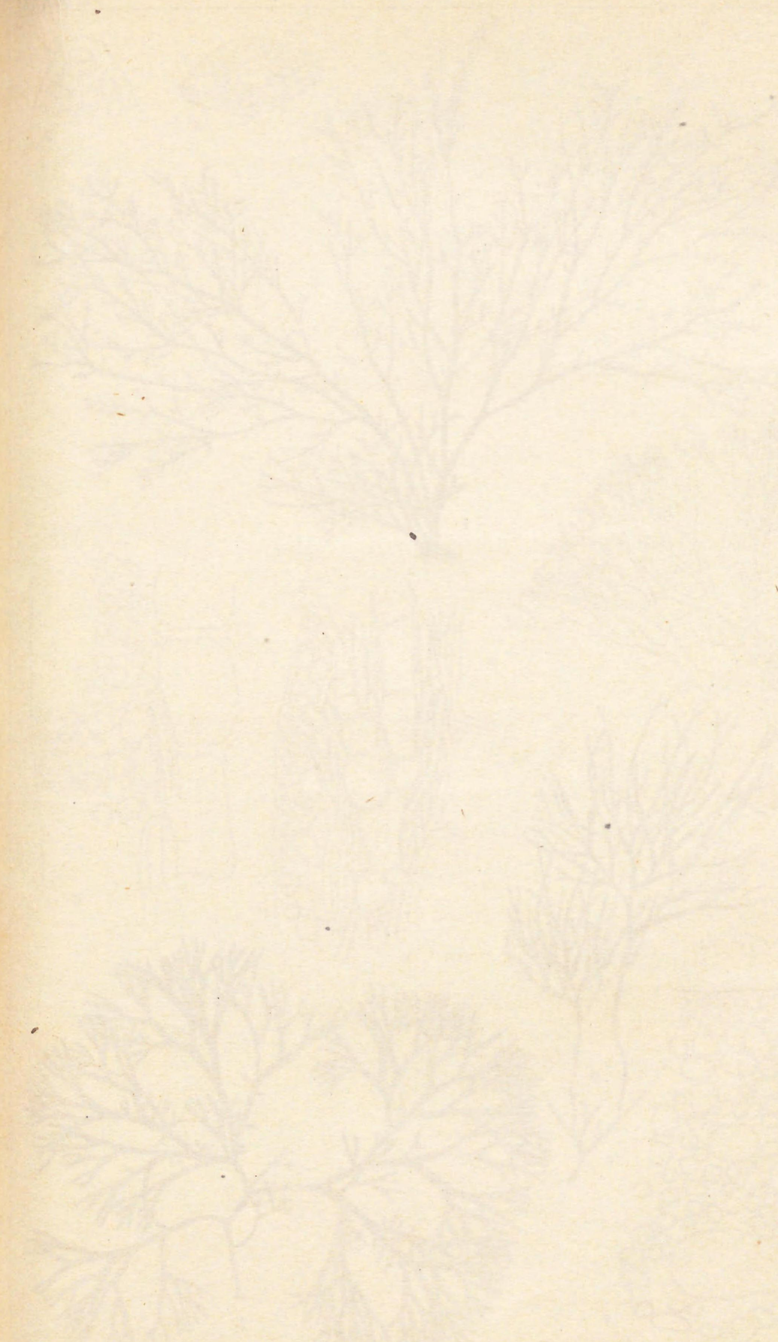
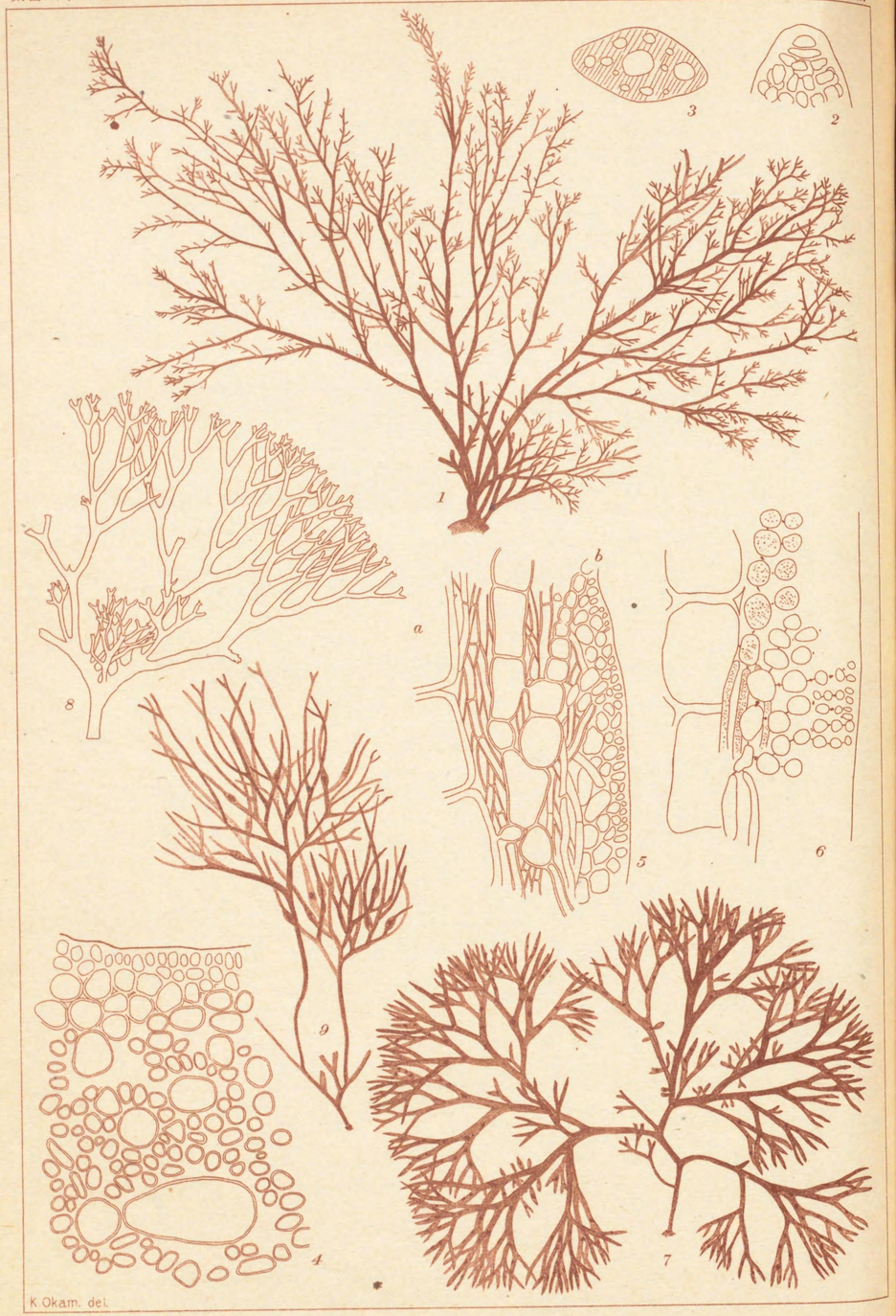




Pikea californica Harv. みちがへさう Fig. 1-6.
Gymnogongrus flabelliformis Harv. おきつのり Fig. 7-9.

Phyllophora intricata Okam. sp. nov. まさごしばり Fig. 1-8.
Gymnogongrus flabelliformis Harv. おきつのり Fig. 9-14.

Pikea californica Harv.

Nom. Jap. : *Michigaeso.*

PL. CLXXXI, Fig. 1-6.

Pikea californica Harv. Ner. Bor. Amer. II. p. 246; III. p. 131, tab. 49B; J. Ag. Epicr. p. 253; Id. Florid. Morph. t. 17, f. 6-10; DeToni Syll. IV, p. 1631; Coll., Hold. and Setch. Phycoth. Bor. Amer. XVIII, no. 897.—*Pikea? sp.* Okam. Nippon Sorui Meii (2nd., ed.) p. 114.

Fronds densely tufted rising from common scutate disc, ancipito-compressed, (1-1.5 mm. in diam.), thickened below to cylindrical stipe, without percurrent stem, but divided into many main segments which are subdichotomo-pinnately branched, 5-10 cm. high. Branches of every order widely parted, distichously disposed in an irregular manner, some alternate or opposite, others subfasciculate or subsecund, with longer and shorter ones intermixed without any definite order, and furnished with minute simple or branched ramuli. Central axis consists of cells of larger calible, from which branches arise on all sides; of them those standing on the frank give rise to the central axis of lateral branches, while those on the surface-side remain short without developing to branches. From the cells of axis cortical cell-filaments arise, and rhizoidal cells which fill up the inner cavity of frond are abundantly produced both from axial and infra-cortical cells. In growing apex terminal cells are horizontally articulated.—*Fruits* of both kinds unknown. *Colour* beautiful purplish-red. *Substance* soft-cartilaginous and the plant imperfectly adheres to paper in drying.

Hab.: Below low-tide; from Cape Inuboe to Kinkwasan.

PL. CLXXXI, Fig. 1-6. Fig. 1: sterile frond of *Pikea californica*

Harv., $\frac{1}{1}$.—Fig. 2: growing point of frond, $\frac{567}{1}$.—Fig. 3: outline of the cross-section of branch, $\frac{34}{1}$.—Fig. 4: portion of the cross-section, $\frac{353}{1}$.—Fig. 5: tangential section of frond through the central axis and an axial branch, $\frac{152}{1}$.—Fig. 6: portion of the same, showing rhizoids and the formation of cortical cell-filaments from axial cells, $\frac{353}{1}$.

Gymnogongrus flabelliformis Harv.

Nom. Jap.: *Okitsunori.*

PL. CLXXXI, Fig. 7-9; PL. CLXXXII, Fig. 9-14.

Gymn. flab. Harv. in Gray's List of Jap. Pl. p. 332 Sur. Alg. Jap. p. 36, t. XXIV B., DeToni Phyc. Jap. nov. p. 25; Id. Syll. Alg. IV, p. 248; Okam. Nippon Sorui Meii (2nd. ed.) p. 32; Id. Alg. Jap. Exsic. Fasc. I, n. 10.—*Gymn. japonicus* Sur. Alg. Jap. p. 36, tab. 24*a*.

Fronds caespitose, rising from callous disc, narrow-linear, compressed, many times regularly dichotomo-flabellate, fastigiate, closely forking, with segments erecto-patent standing on roundish axils, and attain the height of 4-8 cm. Segments are usually linear and equally broad or a little cuneate toward forks, 1-1.5 mm. in breadth, but sometimes become very slender and almost filiform; margin with or without proliferations which are either simple or once or 2-3 times forked. Dichotomous segments are usually near to each other, but in some widely separated. Apex obtuse or pointed, sometimes slightly dilated and emarginated or bifid. *Cystocarps* produced in ultimate and penultimate segments, often 3-4 seriated in one row, slightly prominent on both surfaces. *Colour* vinoso-purple, becoming almost black in drying. *Substance* cartilaginous and the plant does not adhere to paper in drying.

Hab.: on rocks near high tide. Common along both coasts of

the country from Kyushu to the southern part of Hokkaido; Chosen.

Pl. CLXXXI, Fig. 7-9. Fig. 7: cystocarpic fronds of *Gymnogongrus flabelliformis* Harv., $\frac{1}{1}$.—Fig. 8: portion of another frond, $\frac{1}{1}$.—Fig. 9: cystocarpic frond having distantly forked segments, $\frac{1}{1}$.

Pl. CLXXXII, Fig. 9-14. Fig. 9: apex of branch, $\frac{7}{1}$.—Fig. 10. cross-section of branch, $\frac{22}{1}$.—Fig. 11: portion of cross-section of frond, $\frac{220}{1}$.—Fig. 12: cystocarpicb ranch, $\frac{7}{1}$.—Fig. 13: section of cystocarp, $\frac{48}{1}$.—Fig. 14: portion of nucleus, $\frac{220}{1}$.

Phyllophora intricata Okam. n. sp.

Nom. Jap.: *Masago-tsunagi.*

PL. CLXXXII, Fig. 1-8.

Fronds forming intricated mass, erect, rising from creeping segments which are fixed to the substratum by small radical discs, flat, irregularly dichotomus, with or without short stipe, 5-7 cm. high. Fronds rather variable in shape, more or less dichotomous, but sometimes subpinnately branched. Segments patent with round axils. Branches adhere to each other at the places where they come in contact by forming root-like discs or simply by fusing together; they often become fixed to substratum by radical discs made on their apices and they emit, both from margins and surfaces, filiform or more or less broad and shortly stipitate segments, which more and more increase the intrication by the process just spoken about. Segments vary in breadth from 2 to 5 mm., some broadly linear, others almost leafy, while in extreme ones almost filiform (fig. 6). Apex of segments oblong, spatulate, ligulate or pointed. *Fruits* of both kinds unknown. *Colour* purplish-red. *Substance* soft cartilaginous and the plant does not adhere to paper in drying.

Hab.: washed ashore; Enoshima, Iwaki, Nō (Prov. Yechigo).

Late Mr. Yendo enumerates Phyllophora palmettoides J. Ag. in his Notes on Algae IV (Bot. Mag. Tokyo 1916, p. 59) which seems most probably to be the present plant. The present plant chiefly differs from that by having intricated and creeping segments and not having frond furnished with stem standing from callous disc.

Pl. CLXXXII, Fig. 1-8. Fig. 1-3: different forms of fronds of *Phyll. intricata* Okam. n. sp. from Enoshima, $\frac{1}{1}$.—Fig. 4-5: same from Prov. Iwaki, $\frac{1}{1}$.—Fig. 6: form with slender branches from Enoshima; from *b* to right more branches, not given in figure, $\frac{1}{1}$.—Fig. 7: branches fused together, $\frac{34}{1}$.—Fig. 8: cross section of frond, $\frac{353}{1}$. *r*, radical discs; *a*, adhering points.

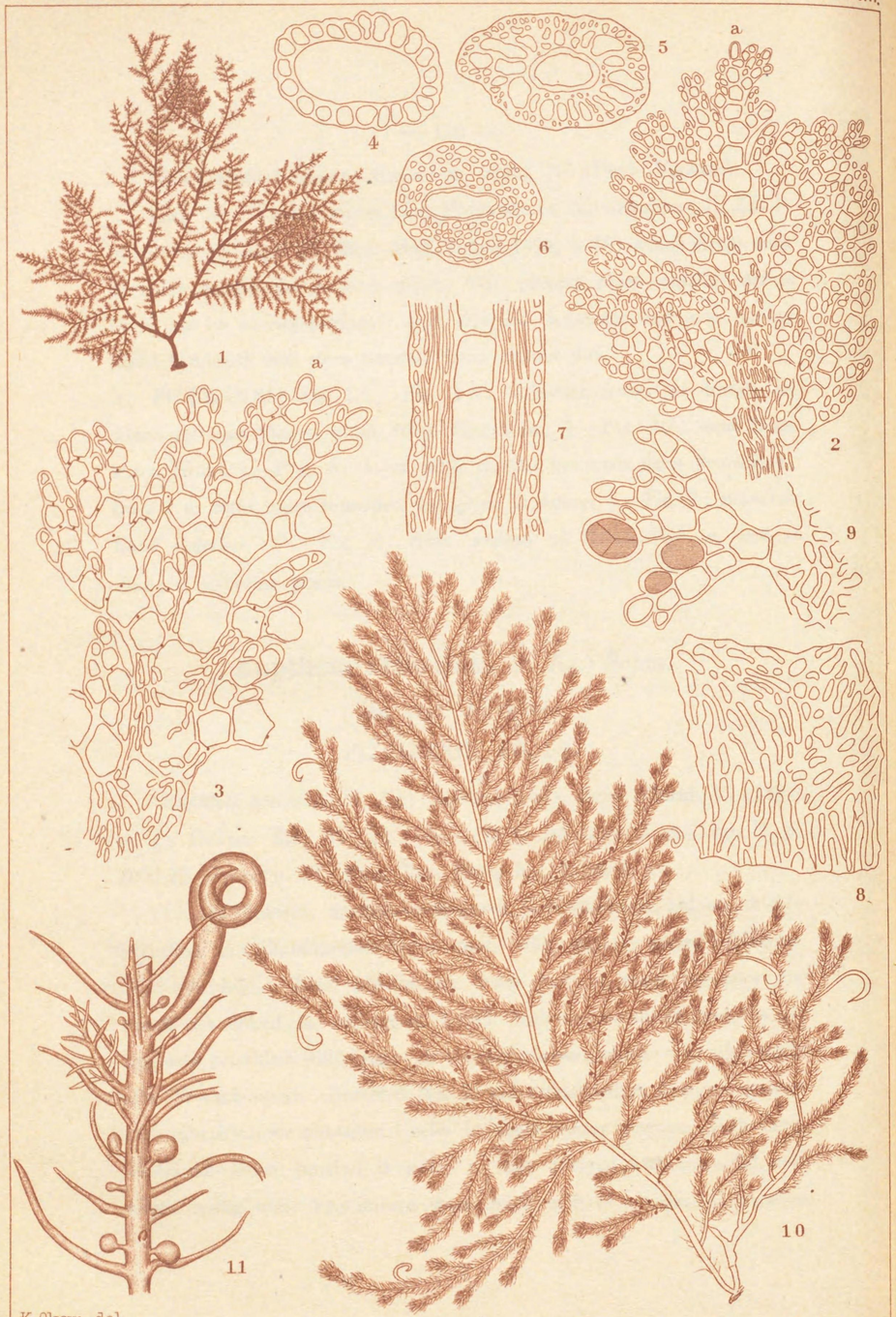
Euptilota articulata (J. Ag.) Schm.

Nom. Jap.: *Iso-shinobu*.

PL. CLXXXIII, Fig. 1-9.

Euptilota articulata (J. Ag.) Schmitz Klein. Beitr. Florid. VI (1896) p. 7; DeToni Syll. IV, p. 1370.—*Ptilota articulata* J. Ag. Sp. II, p. 100; Id. Epicr. p. 78; Kütz. Tab. Phyc. XII, t. 56, f. d-e.

Fronds filiform, ancipito-compressed, subcylindrical below, thickly branched in alternato-pinnate manner, with widely parted divisions, 5-10 cm. high. Basal portion or lower half of main branches are sometimes naked in well-grown frond, but the remaining portions are regularly provided with longer or shorter pinnae which arise alternately close to each other. Branches (fig. 2) are articulated in flexuose manner with subcubical or pentagonal cells in their upper portion of the axis, while the lower portion is more or less covered with rhizoidal cells which make their appearance from basal cells of pinnae. Cortication



K. Okam. del.

Euptilota articulata (J. Ag) Schm. いそしのぶ. Fig 1-9.
Asparagopsis hamifera (Hariot) Okam. かぎのり. Fig. 10-11.

Chrysymenia Uvaria (L.) J.Ag. はなのえだ. Fig. 1-9.
Asparagopsis hamifera (Hariot) Okam. かぎのり. Fig. 10-16.

becomes thicker and thicker below, and in the thicker portion of branches the central axis is thickly covered with longitudinally running rhizoidal cells, and the cortical layer of a thicker branch consists of filiform cells. Pinnulae throughly ecorticated, arise alternately from every articulation of pinnae, and pinnellae are in similar arrangement. As the age of plant proceeds, pinnae grow up to branches, and pinnulae to pinnae. Length of articulation is subequal to or a little longer than the diameter through the whole length of frond. *Tetraspores* produced on pinnellae, sessile, tripartite. *Cystocarps* unknown. *Colour* pinkish-red. *Substance* membranceous and the plant imperfectly adheres to paper in drying.

Hab.: Prov. Awa, Kii, and Shima.

Pl. CLXXXIII, Fig. 1-9. Fig. 1: frond of *Euptilota articulata* (J. Ag.) Schm., $\frac{1}{1}$.—Fig. 2: upper portion of branch showing the arrangement of pinnae; *a*, apical cell, $\frac{83}{1}$.—Fig. 3: terminal portion of fig. 2 showing the arrangement of pinnulae and beginning of rhizoidal cells from basal cells of pinnulae; *a*, apical cell; $\frac{152}{1}$.—Fig. 4: cross-section of the basal portion of branch, $\frac{220}{1}$.—Fig. 5: cross-section of the upper portion of stem, $\frac{48}{1}$.—Fig. 6: cross-section of the lower portion of stem, $\frac{105}{1}$.—Fig. 7: longitudinal section of stem shown in fig. 6, $\frac{105}{1}$.—Fig. 8: surface-view of stem; cells obliquely running are those from the base of branches, $\frac{152}{1}$.—Fig. 9: tetraspores formed on pinnellae $\frac{220}{1}$.

Asparagopsis hamifera (Hariot) Okam.

Nom. Jap.: *Kagi-nori*.

Pl. CLXXXIII, Fig. 10-11; Pl. CLXXXIV, Fig. 10-16.

Bonnemaisonia hamifera Hariot Alg. de Yokoska p. 223; Okam. Nippon Sorui-Meii (2nd. ed.) p. 62; De Toni Syll. IV, p. 768.—

Hypnea adunca J. Ag. Collins, Hold. and Setch. P. B. A n. 490.

Fronds forming en angled mass on other algae, with filiform, thicker, or cylindrical stem or main branches, 3-4 times pinnately branched, 10-15 cm. high. Branches alternate, patent, rising on all sides in pyramidal outline. They are densely covered with short, soft, hair-like ramuli. In spring, ramuli are very abundant and branches are penicillate, but, later they become less numerous and rather coarse, and assume somewhat comb-like appearance. Some of branches remain quite naked and swell up beneath the apex forming hooks by which branches entangle to each other. Ramuli are arranged in irregularly alternate (not strictly decussate) pairs; and main and lesser branches are also primarily arranged in the similar manner, but one of the pair being alternately suppressed, they become to assume alternate appaerance. In sterile frond, ramuli are alternate, but in fertile ones reproductive organs are formed on one of the pair.—*Tetraspores* unknown. *Antheridia* oblong, shortly pedicelled. *Cystocarps* ovato-globose or globular, shortly stipitate. *Colour* purplish-red often fading to yellowish. *Substance* soft and the plant closely adheres to paper in drying.

Hab.: entangled on various algae between tide marks and below low tide; rather common from Prov. Awa to Hakodate.

Present plant which was put under *Bonnemaisonia* by Hariot is indeed *Asparagopsis*, as one can see from its filiform and penicillate branches and structure of frond.

Pl. CLXXXIII, Fig. 10-11. Fig. 10: cystocarpic frond of *Asparagopsis hamifera* (Hariot) Okam., $\frac{1}{1}$.—Fig. 11: branch bearing cystocarps, $\frac{13}{1}$.

Pl. CLXXXIV, Fig. 10-16. Fig. 10: longitudinal section of branch, magd.—Fig. 11: cross-section of branch (from herbarium-specimen) magd. —Fig. 12: apex of main branch; *a*, apical cell; $\frac{353}{1}$.—Fig. 13: ramuli

bearing teeth-like processes near apex, $\frac{240}{1}$.—Fig. 14: branch bearing antheridia, $\frac{13}{1}$.—Fig. 15: cystocarp, $\frac{34}{1}$.—Fig. 16: Spores. magd.

Chrysymenia Uvaria (L) J. Ag.

Nom. Jap.: *Hanano-eda.*

PL. CLXXXIV, Fig. 1-9.

Chrysymenia Uvaria (L.) J. Ag. Sp. Alg. II. p. 214; Id. Epicr. p. 324; Id. Florid. Morph. t. XVI, f. 20-22; Harv. Ner. Bor. Amer. p. 191, t. XXb, f. 1-3; Hauck Meeresalg. p. 160, f. 66; Börgesen Some new or little Known W. Ind. Florid. II, p. 189, f. 10; De Toni Syll. IV, p. 543.—*Gastroclonium Uvaria* Kütz. Tab. Phy. XV, t. 97.—Fucus *ovalis β. botryoides* Turn. Fuci, p. 23 (partim).

Only one dried specimen now before us. *Frond* dichotomously branched, with slender cylindrical stem measuring ca. 1 mm. in thickness. Branches widely parted and flexuose, solid, provided with simple bladder-like obovate ramuli which are furnished with short pedicels, 1.5-3 mm. long taking both together. *Fruits* of both kinds unknown. *Colour* purplish vinoso-red. *Substance* membranaceous and rather firm in stem, and the plant pretty well adheres to paper in drying.

Hab.: Tanegashima (Egawa). Very rare.

The anatomical characters well agree with those illustrated in Börgesen's *l. c.*

Pl. CLXXXIV, Fig. 1-9. Fig. 1: frond of *Chrysymnenia Uvaria* (L.) J. Ag., $\frac{1}{1}$.—Fig. 2: bladder like ramuli or ramenta, $\frac{10}{1}$.—Fig. 3: cross-section of a young ramentum with a gland-cell, *g*., $\frac{353}{1}$.—Fig. 4: surface-view of a young ramentum, $\frac{353}{1}$.—Fig. 5: surface-view of an

older ramentum, $\frac{353}{1}$.— Fig. 6: inner surface of a rementum viewed from the inside showing two gland-cells, *g.g*, $\frac{152}{1}$.—Fig. 7: cross-section of stem, $\frac{8}{1}$.—Fig. 8: portion of the same, $\frac{83}{1}$.—Fig. 9: longitudinal section of stem, $\frac{83}{1}$.

Pterosiphonia bipinnata (P. et R.) Fkbg.

Nom. Jap.: *Ito-yanagi*.

PL. CLXXXV, Fig. 1-7.

Pterosiphonia bipinnata Fkbg. Rhod. p. 273; Setch. and Gardn. Alg. of northwest. Amer. p. 328; De Toni Syll. IV, p. 997.—*Polysiphonia bipinnata* Post. et Rupr Illustr. p. 22.—*Polyostea gemmifera* Rupr. Tange Ochot. Meer. p. 226, t. 11.

Fronds filiform, caespitose, soft, setaceous, 5-15 cm. high, erect, throughly ecorticated from the base, distinctly branched below in subdichotomopinnate manner and pinnately branched upward. Branches 2-3 times pinnate; in contracted upper portions of branches the arrangement of pinnae is more corymbose (fig. 3), while in elongated ones pinnae alternate on slightly flexuose rachis (fig. 2). Pinnules bend inward at the beginning, afterward becoming turned outward and patent; the apex of pinnae is almost level-topped with young pinnellae alternately arising from the inside of preceding ones. Pinnae and pinnulae stand on every third articulation, and end in an acute apex from broader base. Articulations in primary filament are shorter below, in the middle portion 3-5 times long as diameter, gradually diminishing in length upward, in upper branches becoming a little longer or shorter than the diameter. Axis is more or less torted with 13-14 pericentral cells. *Tetraspores* seriated in a longitudinal row in upper pinnae which are

Pterosiphonia bipinnata (P. et R.) Falkenb. いとやなぎ Fig. 1-7.
Pterosiphonia artica (J. Ag.) Setch. and Gardn. いなぼぐさ Fig. 8-16.

not changed in form. *Cystocarps* unknown. *Colour* dark brownish and almost black in dried state. *Substance* membranaceous and the plant imperfectly adheres to paper in drying.

Hab.: Chishima (Kurile Isls.)

Pl. CLXXXV, Fig. 1-7. Fig. 1: frond of *Pterosiphonia bipinnata* (P. et R.) Fkbg., $\frac{1}{1}$.—Fig. 2: terminal portion of branch, showing alternate arrangement of pinnae, $\frac{83}{1}$.—Fig. 3: contracted terminal branches, $\frac{16}{1}$,—Fig. 4: growing point of branch; *a*, apical cell; *b*, *b'*, *b''*, apices of lateral branches, $\frac{353}{1}$.—Fig. 5: cross-section of branch; compressed one is that of upper branch; cylindrical one, lower, $\frac{50}{1}$.— Fig. 6: longitudinal section of branch, $\frac{16}{1}$.—Fig. 7: branch bearing tetraspores, $\frac{48}{1}$.

Pterosiphonia arctica (J. Ag.) Setch. and Gardn.

PL. CLXXXV, Fig. 8-16.

Nom. Jap.: *Inabo-gusa.*

Pterosiphonia arctica (J. Ag.) Setch. and Gardn. Alg. north-west. Amer. p. 329.—*Polysiphonia arctica* J. Ag. Sp. II, p. 1034; Kjellm. Alg. Arct. Sea p. 123.

Only two ill-prepared specimens now before us. *Fronds* filiform, soft setaceous, complanated above, erect (?), dichotomo-pinnately branched below, subfastigiately approximated above in subcorymbose manner. Ramuli arise alternately at acute angles on slightly flexuose elongated rachis, short, distichous, ending in an acute apices from broader bases. Branches and ramuli are slightly united at base and stand intercepting mostly two articulations. On the dorsal side of branches and branchlets near their apical cells very short, almost rudimentary hairs are provided

(fig. 10 and 12). Often root-fibres are emitted from the apices of stunted or harmed ends of ramuli. Pericentral cells are 6 in ours and throughly ecorticated. Articulations 6 times long as diameter in main filaments (cells in that portion measure 2-3 mm. in length and 220-250 μ in thickness), gradually becoming shorter above, in upper ramuli becoming subequal to or shorter than the diameter. *Tetraspores* seriated in a longitudinal row in upper unaltered ramuli. *Cystocarps* unknown. *Colour* darkish-brown in dried state. *Substance* soft and the plant imperfectly adheres to paper in drying.

Hab.: Myedoni Isl. in Komandorski Ils.

Setchell and Gardner remark that *Pterosiphonia arctica* has no hair, but in ours it is provided though rather rudimentary. The presence of hairs in *Petrosiphonia*, contrary to Falkenberg's statement, has already been shown in *Pterosiphonia-fibrillosa* Okm. Icones Vol. II, p. 172-176, Pl XCVIII, 1912.

PL. CLXXXV, Fig. 8-16. Fig. 8: portion of frond of *Pter. arctica* (J. Ag.) Setch. and Gardn., $\frac{1}{1}$.—Fig. 9: upper portion of branch, $\frac{16}{1}$.—Fig. 10: apical portion of branch; *a*, apical cell of branch; *b*, that of ramulus; *h*, *h*, hairs, $\frac{353}{1}$.—Fig. 11: root-fibre produced from stunted ramuli, $\frac{83}{1}$.—Fig. 12: ramulus and dorsal hair, *h*, $\frac{152}{1}$.—Fig. 13: cross-section of branch, $\frac{83}{1}$.—Fig. 14: articulation of primary filament, $\frac{34}{1}$.—Fig. 15: portion of branch bearing tetraspores, $\frac{34}{1}$.—Fig. 16: ramuli bearing tetraspores, $\frac{34}{1}$.

Pikea Harvey 1852.

みちがへさう屬.

DUMONTIACEAE. りうもんさう科.

體ハ扁壓ニシテ兩緣ニ薄ク,兩緣ヨリ長短不同ノ枝ヲ發シ枝ハ體ノ上部ノ方ニ進ムニ從テ長大ナトル. 髓層ハ可ナリ厚ク,長キ絲ノ如キ細胞ヲ以テ密ニ埋マリ,輪狀ニ分岐セル太キ中軸ト外方ニ斜ニ關節セル太キ皮層絲トヲ有シ中軸ハ可ナリ太キ細胞ヨリ成ル; 皮部ハ薄ク內方ニハ大ナル細胞ヨリ成リテ稍弛緩シ外方ニハ小サキ細胞ヨリ成リテ密ナリ; 成長點ハ橫ニ關節ス.——四分胞子ハ不明. 胎原列及助細胞列ハ皮部ノ內層ノ一部ニ生ジ其部ノ甚シク弛緩シタル所ニ極メテ多數ニ形成セラレ, 同時ニ胎原列片クハ助細胞列ト同樣ノ形狀ヲナセル中性ノ細胞列ヲ伴ナフ; 此細胞列ハ後生的ニ生ズルモノニシテ蠕虫狀ニ屈曲シ,短シ. 囊果ハ上部ノ枝ノ髓層ト皮層トノ間ニ多數ニ密集シ,其部ノ厚クナラザル中央線ニ沿フテ其兩側ノ皮部ヲ外方ニ隆起セシム,故ニ實ヲ熟シタル部分ハ中央線ノ兩側ニ瘤々ノ如キ狀ヲ呈ス; 仁ハ球狀—腎臟形又ハ卵形ニシテ可ナリ大ナル分岐セル柄ヲ有シ多數ノ密ニ分岐セル胞子絲ノ密集セルモノヨリ成ル.

北米ノ西岸ニ唯一種アルノミ即チ下記ノモノ是ナリ.——屬名ハ Nicolao Pike 氏ノ名ニ因ム.

Pikea californica Harv.

みちがへさう[1] 岡村稱.

第 CLXXXI 圖版, 1-6 圖.

體ハ一ノ盤狀根ヨリ叢生シ,扁壓ニシテ兩緣ニ薄ク,幅 1-1.5

1) 和名ハ往々てんぐさト見做フヨリ名ヅク.

mm アリ,下部太キ圓柱狀ヲナシ,主幹ナク,多數ノ主枝ニ分レ,主枝ハ稍叉狀樣羽狀ニ分岐シ,體ノ高サハ5-10 cm. ニ達ス. 各部ノ枝ハ廣開シ,兩緣ヨリ不規則ニ出デ,互生シ,對生シ,或ハ相接近シテ出デ,或ハ偏在シ,長短混在シテ規律ナク,單條又ハ分岐セル刺狀ノ小枝ヲ存ス. 中軸ハ太キ細胞ヨリ成リ枝ヲ輪生ス;此輪生セル枝ノ中兩緣ノ方ニ出ルモノハ側枝ノ中軸トナレドモ枝ノ表面ノ方ニ出ルモノハ其マヽニシテ枝ノ中軸トナルコトナシ. 軸ノ細胞ヨリ皮層ヲ形成スル細胞列ヲ出シ,軸ト皮層ノ下部ノ細胞トヨリ多數ニ發出スル根樣絲ヲ以テ體ノ內腔ヲ埋ム. 成長點細胞ハ水平ニ關節ス.—囊果及四分胞子ハ不明. 色ハ美シキ紫紅色ナリ. 質ハ軟キ軟骨質ニシテ紙ニ附着スルコト充分ナラズ.

産地:深所ニアリ(常陸大津7尋),上總大東崎ヨリ陸前ニ至ル間ニ在リテ磐城小名濱邊ガ或ハ分布ノ中心點ニハアラザルカ. 大東崎,銚子,磐城,常陸,陸前松島,長渡,深沼.

分布:北米西岸.

第 CLXXXI 圖版. 1-6 圖. 1: Pikea californica Harv., みちがへさう,ノ實ナキ體; $\frac{1}{1}$.—2:體ノ成長點, $\frac{567}{1}$.—3:枝ノ橫斷面, $\frac{34}{1}$.—4:橫斷面ノ一部, $\frac{353}{1}$.—5:中軸ト其枝トヲ通シテ體ノ表面ニ並行シテ斷リタル斷面, $\frac{152}{1}$.—6;同上ノ一部ニシテ根樣細胞ト軸ノ細胞ヨリ皮層ヲ形成スル狀トヲ示ス, $\frac{353}{1}$.

Gymnogongrus Martius 1833.

おきつのり屬.

GIGARTINACEAE すぎのり科.

體ハ圓柱狀,扁壓又ハ扁平,數回叉狀ニ分岐シ且往々多少密ニ兩緣ヨリ分岐ス(多クハ副枝ヲ生ジテ),細胞組織ニテ成ル. 內部ノ組織(即チ髓ト皮下層)ハ大ナル細胞ノ密ニ結合セルモノヨリ成リ,皮層ハ小細胞列ノ表面ニ直角ニ列セルモノヨリ成ル;髓ト皮下層トハ時ニ或ハ唯僅ニ細胞ノ形狀ト大サトニテ區別スベシ;粘質ハ堅クシテ殆ド角質ノ如シ. 成長端ハ扇狀ニ射出セル絲狀ノ細胞列ヨリ成ル.—四分胞子ハ未詳. 胎原列ハ體ノ上部ノ枝ニ於テ扁キ疣ノ如クナリテ外皮ノ增厚セル部分ノ皮下ノ組織ノ少シク綴クナリタル所ニ集リ生ズ. 囊果ハ體ノ表面ニ散在シ,一方ノ面又ハ兩面ニ隆起ス. 仁ハ多少澤山ニ根樣絲ヲ以テ錯綜シ,時トシテハ根樣絲ナク,大ニシテ擴ガリタル細胞ノ網ヲ作リテ其網目々々ニ成胞絲ノ枝ヲ分岐シ其網ヲ形成スル體細胞ト連絡點ヲ作リテ連絡シ以テ多數ノ胞子ヲ形成ス. 果皮ニハ狹キ果孔ヲ開ク.

約40種諸所ノ海ニ產ス. 下ニ示スモノハ本邦ノ模範種トナスベシ. 本屬ノ植物ニハ未ダ四分胞子ヲ知ラズ. 或種ハ往々 Actinococcus ト稱スル寄生紅藻ヲ存スルコトアリテ從來ハ之ヲ本屬ノ「ネマセシア」ナリト記載シタリ. 本屬中ノ種類ハ精細ノ研究ノ後ニハ他屬ニ屬スルモノアルベシ.—屬ノ名ハ gymnos (裸)ト goggros (成長スル)トヨリ成ル. 從來本屬ノ和名ヲさいみ屬トシタレドモさいみハ Ahnfeltia 屬ノモノナルヲ以テ今おきつのり屬ト改ム.

Gymnogongrus flabelliformis Harv.

おきつのり.

第 CLXXXI 圖版 1-9 圖;第 CLXXXII 圖版 9-14 圖.

體ハ塊狀根ヨリ叢生シ,細線狀,扁平,數回正シク叉狀ニ分岐シテ扇狀ヲナシ,枝皆直立シ,密ニ相接近シテ分岐シ,枝ハ直立一廣開シ,腹圓ク,體ノ高サ4-8 cm. ニ達ス. 各部ハ通常線狀ニシテ同一ノ幅ヲ有シ或ハ分岐點ノ方ニ少シク楔形ヲナシ,幅1-1.5 mm. アリ,然レドモ時ニハ甚シク細クシテ殆ド絲狀ナルコトアリ;緣

邊ニ副枝アリ又ハ之ヲ缺ク;副枝ハ單條又ハ一回乃至2-3回分岐ス.分岐點ハ通常相接近スレドモ時ニ遠ク距ルコトアリ.枝端ハ直立シ,分岐シ,鈍圓又ハ尖リ,時トシテハ僅ニ開張シ,淺ク凹ミ又ハ二裂ス.一囊果ハ末位及其次位ノ部分ニ3-4個一列ニ連ナリテ生ジ,枝ノ兩方ノ面ニ隆起ス.色ハ葡萄酒樣紅色ニシテ乾燥スルトキハ殆ド黑色トナル.質ハ軟骨質ニシテ乾燥スルトキハ體ハ紙ニ附着セズ.

產地:高潮線ニ近ク岩石ニ生ズ.九州ヨリ函館附近ニ至ル兩沿岸ニ普通ナリ;釜山.

本種ハ古ヨリおきつのり又おきちのりト稱シ所ニヨリ糊料トス.

第CLXXXI圖版,7-9圖.7:Gymnogongrus flabelliformis Harv.,おきつのり,ノ囊果アル體,$\frac{1}{1}$.—8:別ノモノノ一部,$\frac{1}{1}$.—9:遠ク距リテ分岐セル體;$\frac{1}{1}$.

第CLXXXII圖版,9-14圖.9:枝ノ頂端,$\frac{7}{1}$.—10:枝ノ橫斷面,$\frac{22}{1}$.—11:橫斷面ノ一部,$\frac{220}{1}$.—12:囊果アル枝,$\frac{7}{1}$.—13:囊果ノ一面,$\frac{48}{1}$.—14:仁ノ一部,$\frac{220}{1}$.

Phyllophora Grev. 1830.

まさごしばり屬.

GIGARTINACEAE. すぎのり科.

體ハ下部莖狀ヲナシ上部扁平或ハ葉狀ナリ;扁平部ハ分裂セズ又ハ慨ネ叉狀ニ分岐シ往々緣邊又ハ表面ヨリ副枝ヲ出シ,時ニ中肋ヲ存ス.體ハ細胞組織ヲ以テ成リ,內部ノ組織ハ大ナル細胞ノ密ニ結合セル髓ニシテ,外部ハ小キ細胞列ノ體ノ表面ニ直角ニ列ナレル皮層ナリ;髓ト皮層トハ細胞ノ大サト形狀トニテ之ヲ區別スベシ;粘質ハ僅ニ存シ頗ル强靱ナリ.成長端ハ扇狀ニ射出セル絲狀ノ細胞列ヨリ成ル.—四分胞子ハ十字樣

ニ分裂シ,扁キ疣狀ノ「ネマセシア」ヲナシテ多數ニ集リ,葉ノ兩面ニ多少擴ガリ,或ハ特ニ四分胞子ヲ有スル扁キ部分ノ基部ノ莖ノ如ク成レル所ノ周圍ニ集リ生ズ;而シテ「ネマセシア」ヲ形成セル總テノ細胞列ノ絲ノ上部ノ關節ハ四分胞子トナリテ恰モ念珠ヲ見ルガ如キ觀ヲ呈ス.胎原列ハ實ヲ生ズル特別ノ小ナル枝ニ概ネ多數ニ形成セラレ,其枝ハ體ノ緣邊又ハ表面ヨリ出ヅ.仁ハ之ヲ圍繞スル絲組織ナク,實ヲ生ズル特別ノ枝ニ概ネ一個形成セラル.此故ニ囊果ハ短キ柄ヲ有シテ體ノ外部ニ座シ(緣邊又ハ表面ニ),厚キ壁ヲ有シ,往々瘤々ノ疣ヲナス.果皮ハ其部ノ皮層ノ厚クナリタルモノニシテ概ネ數多ノ後生的果孔ヲ開ク.

約10種アリテ,多クハ太西洋ノ北部ニ分布ス.此屬ニCoccotylus, Phyllophora及Phyllotylusノ三亞屬アリ,寧ロ夫々別屬ニ別ルヽモノニハアラザルカトノ說アリ.從來四分胞子及囊果ハ多數ノ種ニ於テ充分明ナラズ.—屬ノ名ハPhyllon(葉)トphoreo(持ツ)トヨリ成ル.

Phyllophora intricata Okam. 新種.

まさごしばり.岡村稱.

第CLXXXII圖版,1-8圖.

體ハ錯綜シ,匍匐スル部分ヨリ小サキ盤狀根ヲ以テ地盤ニ附着シ,其部ヨリ直立シ,扁平,不規則ニ叉狀ニ分岐シ,短莖アリ又ハ之ヲ欠キ,5-7 cm.高シ.體形ハ變化シ易ク,概ネ叉狀ナレドモ或ハ稍羽狀ニ近キ分岐ヲナセルモノナドアリ,各部ハ圓キ腋ヲ以テ廣開ス.枝ハ互ニ接觸スル所ニ於テ或ハ盤狀根ヲ作リ或ハ單ニ癒合シテ結合ス;又往々枝端ニ盤狀根ヲ作リテ地盤ニ附着シ且ツ其緣邊並ニ表面ヨリ絲狀又ハ多少廣クシテ柄アル枝ヲ副出シ此モノ更ニ上記ノ方法ニテ一層錯雜ナラシ

ム. 各部ノ幅ハ 2-5. mm. ニシテ廣キ線狀アリ時ニ葉狀ナルアリ其極端ノモノハ殆ド絲狀ナリ(6圖). 枝端ハ鈍圓,篦狀,舌狀,二裂シ又ハ尖レリ. 四分胞子及囊果ハ不明. 色ハ紫紅色, 質ハ膜質ニシテ强靱,乾燥スルトキハ紙ニ附着セズ.

産地:相模江ノ島,磐城,越後能生.

遠藤氏ハ氏ノ Notes on Algae new to Japan IV ニ Phyl. palmettoides J. Ag ヲ擧ゲタリ,其産地ヨリ見ルニ多分本種ニ外ナラザルガ如シ. 本種ハ其種トハ異ニシテ匍匐錯綜シ,該種ハ莖ヲ以テ各個直立ス;此性質ニヨリテ今新種トス.

第 CLXXXII 圖版, 1-8 圖. 1-3: Phyllophora intricata Okam. まさごしばり,ノ種々ノ形態(江ノ島産), $\frac{1}{1}$.—4-5: 同上,磐城産, $\frac{1}{1}$.—6: 細キ枝ヲ有スルモノ(江ノ島産);*b* ヨリ右ノ方ニ枝多ケレドモ圖ニ示サズ, $\frac{1}{1}$.—7: 枝ノ癒合スル狀, $\frac{34}{1}$.—8: 體ノ横斷面, $\frac{353}{1}$. *r*, 盤狀根; *a*, 癒着部.

Euptilota Kützing 1847.

いそしのぶ屬.

CERAMIACEAE. いぎす科.

體ハ直立シ,極メテ繁ク一平面ニ分岐ス;體ハ扁平ニシテ兩緣ニ薄ク,下部又ハ殆ド頂端マデ多少厚ク根樣細胞ヲ以テ蔽ハレ或ハ上ヨリ下マデ普通ノ皮層細胞ヲ以テ多少厚ク蔽ハル;無限成長ノ枝ハ羽狀ノ有限成長ノ枝ヲ互生ス,其有限枝ハ單條カ又ハ互生ニ羽狀ニ切レタルカ若クハ互生ノ羽枝ヲ有シ(單性又ハ複性),其中或ハ無限枝トナリテ伸長スルモノアリ;無限枝ノ頂細胞ハ交互セル斜面ノ分裂面ヲ以テ關節ス. 一四分胞子ハ體ノ上部ニ散在シ又ハ群集シ,短キ皮層ナキ關節セル柄ノ頂端ニ存シ,柄ハ一個一個カ又ハ集リテ互ニ接近シ,或ハ分岐セル小サキ叢ヲナシ,有限成長ノ羽枝ノ緣邊(即チ上側)ヨリ生ズ. 精子器(從來知レル所ニテ)ハ小サキ密集セル小枝ノ叢ニシテ有限ノ羽枝ノ緣邊ニ生ズ. 胎原列ハ枝ノ頂端ニ近キ有限ノ羽枝ノ短キ小羽枝若クハ羽狀齒(時トシテハ稍大キクナリタル)ニ形成セラレ,通常ノ側枝(ニ近ク或ハ)ノ下ニ於テ實ヲ有スベキ關節ノ側面ニ生ズ. 囊果ハ短キ小羽枝ノ頂端ニ形成セラレ,時トシテハ外觀上小羽枝ノ側面ニ坐シ,多少澤山ノ後生的ニ生ジタル苞枝ヲ以テ圍マル.

南方ノ海ニ產シ約6種アリ.—屬名ハ Eu (善キ)ト Ptilota (屬名 ptilotos 羽狀ヨリ成ル)トヨリ成ル.

Euptilota articulata (J. Ag.) Schm.

いそしのぶ. 岡村稱.

第 CLXXXIII 圖版, 1-9 圖.

體ハ絲狀,扁壓,兩緣ニ薄ク,下部稍圓柱狀,密ニ羽狀ニ互生シ,枝ハ廣開ス,高サ 5-10 cm. アリ. 主枝ノ基部又ハ下半部ハ時トシテハ充分成長セルモノニ於テ裸出シ,其他ノ部ハ正シク長キ又ハ短キ羽枝ヲ存シ羽枝ハ互ニ近ク互生ス. 枝(2圖)ノ上部ハ稍正方形又ハ五角形ノ細胞ヲ以テ雁木狀ニ關節シ,下部ハ多少根樣細胞ヲ以テ蔽ハル而シテ根樣細胞ハ羽枝ノ基部ノ細胞ヨリ起ル. 皮層ハ下部ホド厚ク成リ,枝ノ太キ部分ニテハ中軸ハ縱走セル根樣細胞ヲ以テ厚ク蔽ハレ,枝ノ表面ハ絲狀ノ皮層細胞ヲ呈ス. 小羽枝ハ全部關節シ,羽枝ノ各關節ヨリ互生シ,最末ノ小羽枝モ亦同樣ノ排列ヲナス. 成長スルニ從テ羽枝ハ伸ビテ枝トナリ,小羽枝ハ順次ニ羽枝トナル. 關節ノ長サハ全部略ボ其直徑ト同ジク或ハ稍長シ. 四分胞子ハ最小羽枝ニ生ジ,無柄ニシテ三角錐形ニ分裂ス. 囊果ハ不明. 色ハ淡紅色ナリ. 質ハ膜質ニシテ體ハ乾燥スルトキハ紙ニ附着スルコト充分ナラズ.

産地：阿波出羽島,紀州串本,志摩和具.

分布：タスマニア及ニウホルランド.

第 CLXXXIII 圖版, 1-9 圖. 1：Euptilota articulata (J. Ag.) Schm., いそしのぶノ體, $\frac{1}{1}$.—2：枝ノ上部ニシテ羽枝ノ配置ヲ示ス；*a* 成長點, $\frac{83}{1}$.—3：第 2 圖ノ頂部ニシテ羽枝ノ排置ト其基部ノ細胞ヨリ根樣細胞ノ起ル狀トヲ示ス；*a*, 成長點, $\frac{152}{1}$.—4：羽枝ノ基部ノ橫斷面, $\frac{220}{1}$.—5：莖ノ上部ノ橫斷面, $\frac{48}{1}$.—6：莖ノ下部ノ橫斷面, $\frac{105}{1}$.—7：第 6 圖ニ示シタル莖ノ縱斷面, $\frac{105}{1}$.—8：莖ノ表面；斜ニ走レル細胞ハ枝ノ基部ヨリ來レルモノナリ, $\frac{152}{1}$.—9：四分胞子ノ最末羽枝ニ生ゼル狀, $\frac{220}{1}$.

Asparagopsis[1] **hamifera** (Hariot) Okam.

かぎのり. 岡村稱.

第 CLXXXIII 圖版, 10-12 圖；第 CLXXXIV 圖版, 10-16 圖.

體ハ他ノ海藻ニ纏絡シ,絲狀又ハ稍太キ圓柱狀ノ莖若クハ主枝ヲ存シ, 3-4 回羽狀ニ分岐シ, 10-15-cm. 高シ. 枝ハ互生シ,廣開シ,各方面ニ出デテピラミツド形ヲナス. 枝ハ密ニ毛ノ如キ短キ小枝ヲ以テ蔽ハル. 春季ハ小枝極メテ多クシテ枝ハ筆頭狀ヲナセドモ,漸ク其數ヲ減ジ小枝ハ稍粗硬トナリ幾分櫛ノ齒ヲ見ルガ如クナルニ到ル. 或枝ハ全ク小枝ナクシテ頂端ノ方ニ膨レ屈曲シテ鉤狀ヲナシ之ヲ以テ枝ハ互ニ卷絡ス. 小枝ハ對生ニシテ不規則ニ交互シ(對生ノ枝交互ニ正シク直角ニ交ルニハアラズ),主枝及ビ次位ノ枝モ亦原來之ト同樣ニ配列ス,然レドモ對生セル片方ノ枝交互ニ其發育ヲ停メ伸長セザルヲ以テ枝ハ互生ノ觀ヲ呈ス. 實ヲ熟セザル體ニテハ小枝ハ互生ナレドモ,實アルモノニテハ生殖器ハ其一對ノ片方ノ枝ニ形成セラル.—四分胞子ハ不明. 精子器ハ長橢圓形ニシテ短柄ヲ有ス.

1) Asparagopsis 屬ノ性質ハ第一卷 136 頁ニ在リ.

囊果ハ卵圓形又ハ球狀ニシテ短柄アリ. 色ハ紫紅色ニシテ往々黃色トナル. 質ハ軟クシテ體ハ乾燥スルトキハ紙ニ密着ス.

産地：潮線間及潮線下ノ種々ノ海藻ニ寄絡ス. 阿波伊島,紀州椒村地ノ島(6 噸), 江ノ島, 松輪(相), 常陸,松島,岩井岬, 小友, 汐首,函館. 果實：六—七月.

分布：米國ワシントン州,ホヰドベー島, ビクトリア,英國.

本植物ハ從來 Bonnemaisonia ト稱シ來リタレドモ然ラズ；其圓柱狀ノ枝アルコト,筆頭狀ノ小枝アルコト及體ノ構造等一々 Asparagopsis ノ性質ヲ有ス；故ニ予ハ今之ヲ改ム. 本種ハ曩ニ英國ニ發見セラレタルヨリ本邦ノ船之ヲ彼ノ國ニ齎シタルモノナリト一般ニ信ジラレタレドモ其後廣ク英國內ニ分布スルコト明カナルニ到レルヨリ Cotton 氏ハ Clare Island Survey, 1912, p. 136 ニ之ヲ疑ヘリ.

第 CLXXXIII 圖版, 10-11 圖. 10：Asparagopsis hamifera (Hariot) Okam., かぎのりノ實アル體, $\frac{1}{1}$.—11：囊果ヲ有スル枝, $\frac{13}{1}$.

第 CLXXXIV 圖版, 10-16 圖. 10：枝ノ縱斷面(措葉品ヨリ), 廓大.—11：枝ノ橫斷面(措葉品ヨリ), 廓大.—12：主枝ノ成長點；*a*, $\frac{357}{1}$.—13：小枝ノ頂端ニ近ク齒狀ノ突起アルモノ, $\frac{240}{1}$.—14：精子器ヲ有スル枝, $\frac{13}{1}$.—15：囊果, $\frac{34}{1}$.—16：胞子,廓大.

Chrysymenia J. Agardh 1842.

はなのえだ屬.

RHODYMENIACEAE. だるす科.

體ハ圓柱狀或ハ扁ク,所々又ハ全體ヲ通ジテ中空,時トシテ所々クビレテ關節シ,種々ニ分岐シ,時トシテハ聯基的分岐ノ爲メ外觀上繁ク枝ヲ生ジ,短キ囊狀ノ小枝ヲ存ス,細胞組織ニテ成ル：髓ハ枝ニテハ稍長キ,幅廣キ,時ニ或ハ稍狹キ細胞ヨリ成リ,中空ノ部分ニテハ其部ノ皮部ノ强盛ナル表面成長ノ爲

ニ早ク既ニ細胞ハ脱離シ其多クハ概ネ皮部ノ内側ニ往々腺ノ如キ小サキ細胞トナリテ永ク懸ル;皮部ノ内部ノ細胞ハ大ニ,外方ニハ小ニシテ中空ノ部分ニテハ内方ニハ極メテ密ニ結合セル體壁ヲ爲ス(時トシテハ其最内層ノモノハ甚ダ薄ナル細胞ヨリ成ル);粘質ハ概ネ可ナリ強靭ナリ.—四分胞子ハ體ノ表面ニ散在シ,十字樣ニ分裂ス. 嚢果ハ散在シ,可ナリ大キク外部ニ隆起ス. 果腔ハ仁ヲ圍メル組織ノ僅ニ殘存セルモノヲ以テ圍マレ或ハ全ク之ヲ欠ク.

約10-15種アリテ弘ク各地ノ暖海ニ在リ.一屬ノ名ハ chryseos (黄金色) トhymen (膜) トヨリ成ル.

Chrysymenia Uvaria (L.) J. Ag.

はなのえだ. 岡村稱.

第CLXXXIV圖版, 1-9圖.

今唯一個ノ乾燥標品アルノミ. 體ハ叉狀ニ分岐シ,細キ圓柱狀ノ莖ヲ有シ,太サ約1 mm. アリ. 枝ハ廣開シ,雁木狀ニ屈曲シ,實質ニシテ,倒卵形ヲナセル嚢狀ノ分岐セザル小枝ヲ存ス,小枝ハ短キ柄ヲ有シ,柄ト嚢トニテ長サ1.5-3 mm. アリ. 嚢果及四分胞子ハ不明. 色ハ紫色アル葡萄酒紅ナリ. 質ハ膜質ニシテ莖ハ稍硬ク,體ハ乾燥スルトキハ可ナリ能ク紙ニ附着ス.

産地:種子ケ島(江川氏). 稀品ナリ.

分布:地中海及アドリアチック,チンギン,カナリー島,米國.

構造上ノ性質能クBörgesen氏(歐文欄文献參照)ノ圖説スル所ニ一致ス,故ニ極メテ稀品ナリト雖モ安全ニ本種ナリト斷定ス.

第CLXXXIV圖版, 1-9圖. 1: Chrysymenia Uvaria (L.) J. Ag., はなのえだ, ノ體, $\frac{1}{1}$.—2: 嚢狀ノ小枝, $\frac{10}{1}$.—3: 幼キ嚢狀小枝ノ横斷面

ニテ一個ノ腺細胞, g, ヲ示ス, $\frac{353}{1}$.—4: 幼キ嚢狀小枝ノ表面, $\frac{353}{1}$.—5: 稍老成セル嚢狀小枝ノ表面, $\frac{353}{1}$.—6: 嚢狀小枝ノ内側ヨリ見タル内面; g, g, 腺細胞, $\frac{152}{1}$.—7: 莖ノ横斷面, $\frac{8}{1}$.—8: 同上ノ一部, $\frac{83}{1}$.—9: 莖ノ横斷面, $\frac{83}{1}$.

Pter siphonia bipinnata (P. et R.) Fkbg.[1]

いとやなぎ. 岡村稱.

第CLXXXV圖版, 1-7圖.

體ハ絲狀ニシテ叢生シ, 5-15 cm. 高ク, 直立シ, 全部皮層ヲ被ムルコトナク,下部ハ稍叉狀樣--羽狀ニ分岐シ上部ハ羽狀ニ分岐ス. 枝ハ2-3回羽狀ニ分レ上部ノ短縮セル枝ニテハ羽枝ハ繖房狀ニ列シ(3圖),長ク伸ビタル枝ニテハ羽枝ハ輕ク雁木狀ニ屈曲セル軸ノ上ニ互生ス(2圖). 小羽枝ハ始メ内方ニ曲リ後外方ニ向キテ廣開ス. 羽枝ノ頂端ハ殆ド平坦ニシテ幼キ最小羽枝ハ其一回前ノ小羽枝ノ内側ヨリ互生ス. 羽枝及小羽枝ハ各第三番目ノ關節ヨリ出デ,基部太クシテ頂端尖レリ. 主枝ノ關節ハ下部ニ於テハ短ク, 中央部ニテハ直徑ノ3-5倍長ク,漸次上方ニ短クナリテ直徑ヨリ少シク長キカ又ハ稍短シ. 軸ハ多少ヨレテ周心細胞ハ13-14條アリ. 四分胞子ハ上部ノ羽枝ニ單縱列ヲナシ其羽枝ハ普通ノ羽枝ト異ナラズ. 嚢果ハ不明. 色ハ暗褐色ニシテ乾燥スルトキハ稍黑色ヲ帶ブ. 質ハ膜質ニシテ體ハ乾燥スルトキハ紙ニ附着スルコト充分ナラズ.

産地:樺太散江(北原),海豹島(松尾,久保)得撫島(北原)占守島,パラムシロ島,厚岸小島(岡村).

分布:北太平洋北部,カムサツカ,オホーツク.

第CXXXV圖版, 1-7圖. 1: Petrosiphonia bipinnata (P. et R.) Fkbg.,

1) Pterosiphonia, はねぐさ屬ノ性質ハ第一卷127頁ニ在リ.

ノ體, $\frac{1}{1}$.—2: 枝ノ上部ニシテ羽枝ノ互生スル狀, $\frac{83}{1}$.—3: 枝ノ上部ノ短縮シタルモノ, $\frac{16}{1}$.—4: 枝ノ成長點; *a*, 成長點細胞; *b*, *b'*, *b''*, 側枝ノ頂細胞, $\frac{353}{1}$.—5: 枝ノ橫斷面; 扁圓ノモノハ上部ノ枝; 圓キモノハ下部ノモノ, $\frac{50}{1}$.—6: 枝ノ縱斷面, $\frac{16}{1}$.—7: 四分胞子ヲ有スル枝, $\frac{48}{1}$.

Pterosiphonia arctica (J. Ag.) Setch. and Gardn.

いなぼぐさ. 岡村稱.

第 CLXXXV 圖版, 8-16 圖.

不注意ニ壓搾セラレタル唯二個ノ標品アルノミ. 體ハ絲狀,毛髮ノ如ク,上部扁壓シ,直立(?), 下部叉狀樣羽狀ニ分岐シ,上部ハ枝直立シテ稍纖房狀ニ接近ス. 小枝ハ輕ク雁木狀ニ屈曲セル長ク伸ビタル軸ニ互生シ, 銳角ノ腋ヲ以テ立チ, 短クシテ枝ノ兩緣ニ出デ,基部太クシテ頂端銳シ. 枝及小枝ハ基部ニ於テ僅ニ癒合シ概ネ二個ノ關節ヲ距テヽ第三ノモノヨリ出ヅ. 枝及小枝ノ背面ヨリ其頂細胞ニ近ク甚ダ短キ毛ヲ生ジ, 毛ハ殆ド痕跡ノ如ク微ナリ (10及12圖). 往々小枝ノイヂケタル若クハ害ヲ被レル端ヨリ絲狀根ヲ出ス. 周心細胞ハ6條ニシテ體ハ全ク皮層細胞ヲ存セズ. 關節ハ主枝ニ於テハ直徑ノ6倍長ク(其部ニテハ細胞ハ長サ 2-3 mm. ニシテ太サ 220-250 μ. アリ), 漸次上方ニ短ク, 上部ノ小枝ニテハ直徑ト略ボ等ク或ハ稍短シ. 四分胞子ハ上部ノ小枝ニ一縱列ヲナシテ生ジ其小枝ハ別ニ形狀ヲ變化セズ. 囊果ハ不明. 色ハ乾燥品ニテハ暗褐色ナリ. 質ハ軟クシテ體ハ乾燥スルトキハ紙ニ着クコト充分ナラズ.

産地: コムマンドルスキー島中ミエドニ島.

分布: 北氷洋, スピツツベルゲン, 北米.

Setchell and Gardner ハ本種ニハ毛ナシト記セリ, 然レトモ予ノ標本ニテハ幾分痕跡ノ如シトハ雖モ明ニ之ヲ存ス; 本屬ノ植物ニハ毛ナシトハ Falkenberg ノ云フ所ナレドモ其之アルコトハ既ニ予ノ Pterosiphonia fibrillosa (第二卷第 XCVIII 圖版) ニ圖說シタル所ナリ. 周心細胞ハ7條ナリトアリ. 本種ハ未ダ邦內ノ產アルヲ知ラズト雖モ將來之アルベシト思惟シテ玆ニ圖說ス.

第 CLXXXV 圖版, 8-16 圖. 8: Pterosiphonia arctica (J. Ag.) Setch. and Gardn. ノ體ノ一部, $\frac{1}{1}$.—9: 枝ノ上部, $\frac{16}{1}$.—10: 枝ノ成長點; *a*, 枝ノ成長點; *b*, 小枝ノ成長點; *h*, *h*, 毛; $\frac{353}{1}$.—11: イヂケタル小枝ヨリ絲狀根ヲ生ズル狀, $\frac{83}{1}$.—12: 小枝及其背面ニ生ズル毛, *h*, $\frac{152}{1}$.—13: 枝ノ橫斷面, $\frac{83}{1}$.—14: 主枝ノ關節, $\frac{34}{1}$.—15: 四分胞子ノ枝ノ一部, $\frac{34}{1}$.—16: 四分胞子ヲ有スル小枝, $\frac{34}{1}$.

K. OKAMURA.

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著作者兼發行者　岡村金太郎　小石川區雜司ヶ谷町百二十五番地
印刷者　齋藤千吉　東京市芝區新錢座町十番地
印刷所　日本印刷興業株式會社　東京市芝區新錢座町十番地
發賣所　丸善株式會社　東京市日本橋區通三丁目　神田，大阪，京都，福岡，仙臺，横濱各支店

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理學博士　岡村金太郎　著

ICONES OF JAPANESE ALGÆ.

Vol. IV. No. VIII.

BY

K. Okamura *Rigakuhakushi.*

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Rhodomela subfusca (Woodw.) Ag. いとふぢまつ

Rhodomela subfusca (Woodw.) Ag. いとふぢまつ Fig. 1-13.
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Rhodomela subfusca (Woodw.) C. Ag.

Nom. Jap.: *Ito-fujimatsu*.

PL. CLXXXVI; PL. CLXXXVII, Fig. 1-13.

Rhodomela subfusca (Woodw.) C. Ag. Sp. I, p. 378; J. Ag. Sp. Alg. II, p. 883; Harv. Phyc. Brit. tab. 264; Falkenb. Rhodom. p. 593, tab. XI, f. 2-17; Kjellm. Alg. Arct. Sea p. 113; Börgesen The Mar. Alg. of the Faeroes, 1902, p. 375; Hauck Meeresalg. p. 217, f. 94; Okam. Synop., 日本藻類名彙 (1st. edit.), p. 66.—*Fuscaria tenuissima* Rupr. Alg. Ochot. p. 221, tab. 10.—*Fucus subfuscus* Woodow., Turn. Fuci tab. 10.—*Rhodomela lycopodioides* (L.) Ag., Okam. Synop., 日本藻類名彙 (2nd. edit.), p. 81.

Many fronds rising from a common disc, 13-20 cm. high, 3-4 times pinnately branched in more or less regular manner from the lower portion of frond. Fronds are filiform, in some very slender, in others more thick. and in perennial older ones the lower portion of frond often becomes firm and stem-like (PL. CLXXXVI, fig. 1). Branches are patent, in some almost straight, in others slightly flexuose, the middle ones in general the longest and are more or less densely covered with ramuli. Ramuli simple or often furnished with few pinnate ramelli toward their apices; they are spirally arranged, subulate and incurved (fig. 2 and 4), in older ones often recurved (fig. 1). They are 10-12 mm. long in longer ones (fig 2), 0.5-1 mm. in shorter ones (fig. 3).—*Tetraspores* are formed in ramuli which become toruloso-prominent in maturing (Pl. CLXXXVII, fig. 9-10); in some fronds a small branch bearing tetrasporic ramuli becomes stunted appearing like fasciculately arising from the axil of a ramulus (fig. 8). *Antheridia* oblong, formed on

"Haarblättern" arising from the apices of ramuli. *Cystocarps* ovate provided with a wide ostiole, shortly stipitate on the side of ramuli. *Colour* dark or yellowish brown when fresh, turning to blackish in drying. *Substance* soft in younger part, becoming firmer in older portions and the plant imperfectly adheres to paper in drying.

Hab.: On rocks between tide-marks, rather near the high tide in the place where it is protected from the dashing of waves. Widely distributed within the boundaries from the Kurile to Kyushyu.

The specific determination of the species of *Rhodomela* is very difficult in *Rh. subfusca, virgata* and *lycopodioides*, and there are some confusions among them. To a certain extent I have followed Kjellman's definition of the species, and many forms are met with in our specimens differing in several minute characters chiefly according to their localities and they may be separated in other days into some numbers of varieties.

Plants illustrated in PL. CLXXXVI may be considered in some measures as the representatives of forms of the plant in this country. Of the two species of *Rhodomela* known in the boundaries the present plant has a wide range of distribution ranging from Shimushu to Kyushyu and as consequence there are many types of diffrent forms. Fig. 4 represents the southern form and fig. 1, the northern; fig. 3 may be considered as weakly grown form as it is collected at Abashiri where the coast is washed by a terminal branch of the warm current pouring into the Ochotsk Sea. The form shown in fig. 2 which I have collected at Muroran in the summar has a very robust frond having a very different appearance.

PL. CLXXXVI. Fig. **1**: plant from Shimushu Isl., bearing vernal shoots just growing from the hiemal frond, $\frac{1}{1}$.—Fig. **2**: plant collected at Muroran in summar, 1915, $\frac{1}{1}$.—Fig. **3**: plant from Abashiri in summar, 1915, $\frac{1}{1}$.—Fig. **4**: summar form from Iwaizaki, $\frac{1}{1}$.

Rhodomela larix (Turn.) C.Ag. ふぢまつも Fig. 1-4.
Roschera glomerulata (C.Ag.) Web.v.B. いとくづさ Fig. 5-10.

PL. CLXXXVII, Fig. 1-13. Fig. **1**: terminal portion of a sterile branch showing the arrangement of ramuli and ramelli, $\frac{13}{1}$.—Fig. **2**: growing apex of frond, $\frac{353}{1}$.—Fig. **3**: apical portion of a ramulus situated near the apex of an axis, showing „Haarblättern," *h*, and apical cell, *a*, $\frac{353}{1}$.—Fig. **4**: cross-section of frond; *c*, central cell, $\frac{220}{1}$.—Fig. **5**: longitudinal section of frond; *c*, central cell, $\frac{220}{1}$.—Fig. **6**: terminal portion of branch bearing antheridia, $\frac{16}{1}$.—Fig. **7**: antheridia, $\frac{83}{1}$.—Fig. **8**: tetrasporic ramuli on stunted branchlets, slightly magd.—Fig. **9**: tetrasporic ramuli on normal (not stunted) branch, $\frac{22}{1}$.—Fig. **10**: tetraspores viewed from the side of a stichidium, $\frac{48}{1}$.—Fig. **11**: tetraspore, showing cover-cells, $\frac{220}{1}$.—Fig. **12**: branch bearing cystocarps, $\frac{13}{1}$.—Fig. **13**: cystocarp, slightly magd. (Fig. 1, 3, 4-5, 11-12 drawn from alcoholic specimens from Onahama).

Nemalion multifidum (W. et. M.) J. Ag.

Nom. Jap.: *Tsukumo-nori*.

PL. CLXXXVII, fig. 14-16.

Nemalion multifidum (W. et M.) J. Ag. Sp. Alg. II, p. 419; Id. Epicr. p. 508; Id. Florid. Morph. t. 29, f. 1; Harv. Phyc. Brit. t. 36; Kütz. Tab. Phyc. XVI, Tab. 61; Farlow Mar. Alg. New England p. 117, t. 12, f. 1; De Toni Syll. Alg. IV, p. 78.

Fronds filiform, weak, few from a small disc, worm-like, about 10 cm. high, 1 mm. thick, gradually tapering above, many times irregularly and somewhat divaricately dichotomous with round and broadly obtuse axils. Peripheral filaments moniliform with the lower articulations little longer than thick, gradually becoming larger and globular above, attaining ca. 120 μ in thickness in the uppermost joint. *Colour* dark brownish

red in dried specimens. *Substance* gelatinous and the plant firmly adheres to paper in drying.

Hab..: Prov^{a} Awa in Shikoku. *Rare.*

PL. CLXXXVII, Fig. 14-16. Fig. **14**: two fronds of *Nemalion multifidum* (W. et M.) J. Ag., $\frac{1}{1}$.—Fig. **15**: cross-section of frond from herbarium-specimen, 0. 8 mm. in diam., $\frac{152}{1}$. —Fig. **16**: peripheral filaments and rhizoids, $\frac{353}{1}$.

Rhodomela Larix (Turn.) C. Ag.

Nom. Jap.: *Fujimatsumo.*

PL. CLXXXVIII, fig. 1-4.

Rhodomela Larix (Turn.) C. Ag.; Post. et Rupr. Illustr. p. 14, t. 38, f. *h*; Harv. Ner. Bor. Amer. II, p. 24; J. Ag. Sp. Alg. II, p. 886; Kjellm. Alg. Arct. Sea, p. 117; Falkenb. Rhodom. p. 600, t. XI, f. 1; Okam. Synop. (2nd ed.) p. 81; Okam. Alg. Jap. Exsic. no. 73; De Toni Syll. Alg. IV, p. 1131.—*Fuscaria Larix* Rupr. Alg. Ochot. p. 27. —*Lophura Larix* Kg. Sp. Alg. p. 850; Id. Tab. Phyc. XV, t. 39, f. a-c.—*Fucus Larix* Turn. Fuci IV, p. 24, tab. 207.

Fronds erect, coespitose rising from a callous disc with a cylindrical stem, 1-1.5 mm. thick, 15-25 cm. long, undivided, but beset from top to bottom with branches of the same nature and substance as itself, patent, disposed in an irregularly spiral alternate manner (some 10 cm., others scarcely 3-5 mm. long, the middle ones in general the longest), all like the stem beset with patent ramuli growing in small clusters with a very short interval between each cluster, simple, subulate, 2 or 3 mm. long, and scarcely thicker than hog's bristles. This clustered arrangement of the ramuli is more evident in the branches and toward the upper part

of the stem than near the base, where they grow rather solitary and are imbricated on all sides, but so loosely that the stem is everywhere seen through them.—*Stichidium* transformed from ramuli on shortened axis which grows from axil of a sterile ramulus, incurved and clustered, and half times as thin and as short as the sterile ramulus, cylindrical and filiform. *Colour* deep dark brown when recent, turning to almost black when dried. *Substance* cartilaginous, flexible and tough; in drying the plant scarcely changes its appearance and adheres though very slightly to paper.

Hab.: on rocks in open coast between tide-marks near high tide. From Kurile Isls. to Rikuzen.

Present plant grows on open coast where waves dash against. In a place where *Rhodomela subfusca* and *R. Larix* grow near to each other, the former prefers the sheltered sides, while the latter stands fronting the dash of waves.

PL. CLXXXVIII, fig. 1-4. Fig. **1**: frond of *Rhodomela Larix* (Turn.) C. Ag., $\frac{1}{1}$.—Fig. **2**: tetrasporic frond from Shimushu (6, May), $\frac{1}{1}$.—Fig. **3**: terminal portion of branch bearing tetraspores, $\frac{16}{1}$.—Fig. **4**: one of branchlets bearing stichidia shown in fig. 3, $\frac{48}{1}$.

Roschera glomerulata (C. Ag.) Web. v. Bosse.

Nom. Jap.: *Itokudsu-gusa.*

PL. CLXXXVIII, Fig. 5-10.

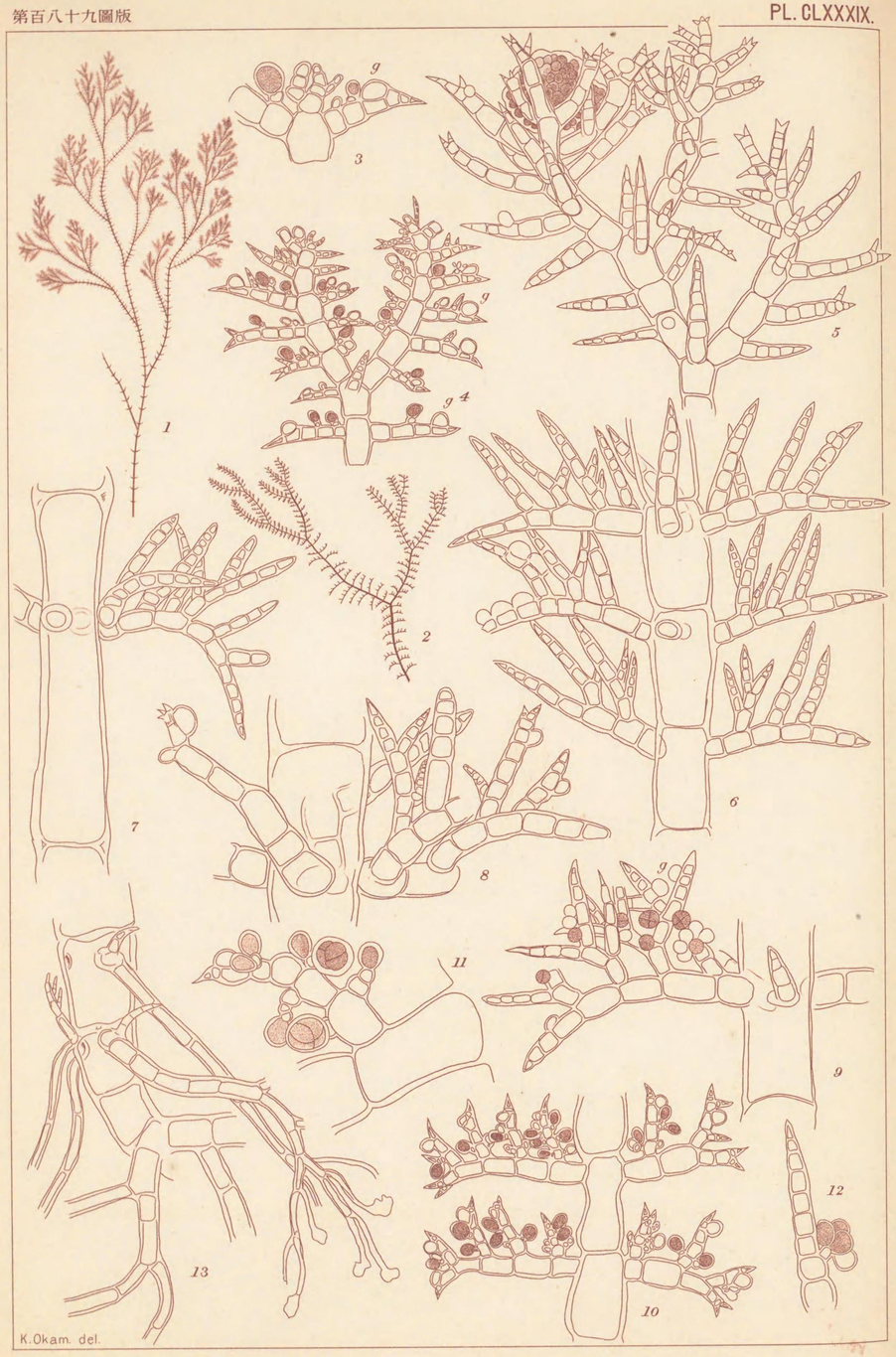
Roschera glomerulata (C. Ag.) Web. v. Bos. Percy Sladen Trust Exp., Rhodophyceae, 1914 (Trans. Linn. Soc., Vol. XVI, 3) p. 289; Okam. Synop. (2nd. ed.) p. 77.—*Tolypiocladia glomerulata* (C. Ag.) Schmitz in Engl. u. Prantl nat. Pflanzenfam. p. 442; Falkenb. Rhodom

p. 177, t. 21, f. 2-7; De Toni Syll. Alg. IV, p. 964.—*Bostrychia? crassula* Heydr. Algenf. v. Kais. Wilh. Land, p. 480, t. 26, f. 18-19.—*Polysiph.? inflata* Mart., Preus. Exped. n. Ost Asien p. 31, t. 7, f. 2.—*Polysiph. Calodictyon* Harv., Kütz. Tab. Phyc. XIV, t. 46, f. a-c.—*Polysiph. calacantha* Harv. Char. New Alg. p. 330.

Fronds entangled among other algae, erect, fine, filiform, laterally branched. "Langtriebe" surrounded throught the whole length with spirally arranged, $\frac{1}{4}$-alternatly branched "Kurztriebe" or lateral branches which have the appearance of short stipitated star-shaped glomerules. Branches widely parted or almost horizontal. Star-shaped glomerules consist of short, thick, conical, divaricately branched polysiphonous horns which are further branching. Sometimes elongated, single-celled, hair-like root-fibres are emitted from the middle of the cluster of star-shaped horns, which attach the plant to other bodies occasionally forming disc-shaped expanded holdfast at the apex. Articulations subequal to the diameter or a little shorter. Filaments cylindrical or more or less quadratic in cross-section. *Colour* dark brownish red. *Substance* soft membranous and the plant does not firmly adhere to paper in drying.

Hab.: entangled on algae. Ryukyu, Ogasawarajima, Boshyu.

PL. CLXXXVIII, fig. 5-10. Fig. **5**: frond of *Roschera glomerulata* (C. Ag.) Weber v. Bosse, $\frac{1}{1}$.—Fig. **6**: branch, $\frac{16}{1}$.—Fig. **7**: portion of branch magd., showing $\frac{1}{4}$-alternate arrangement of "Kurztriebe," $\frac{83}{1}$.—Fig. **8**: portion of branch bearing root-fibres, $\frac{48}{1}$.—Fig. **9**: growing apex of frond, $\frac{353}{1}$.—Fig. **10**: cross-section of frond, $\frac{48}{1}$.



Antithamnion Plumula (Ellis) Thur. よつがさね

Antithamnion Plumula (Ellis) Thur.

Nom. Jap.: *Yotsu-gasane.*

PL. CLXXXIX.

Antithamnion Plumula (Ellis) Thur. in Le Jolis List Alg. Cherb. (1863) p. 112; Hauck Meeresalg. p. 71; Okam. Synopsis (2nd. edit.) p. 95.—De Toni Syll. Alg. IV, p. 1400.—*Conferva Plumula* Ellis; Dillw. Brit. Conf., 1809, t. L.—*Callithamnion Plumula, refractum,* and *polyacanthum* Kütz. Tab. Phyc. XI, t. 83-84.

Fronds fine, filiform (some ca. 150 μ thick in the midle portion), deliquescently branched in dichotomo-pinnate manner, furnished beneath the apex of every articulation with opposite or 4-verticillate, tetrastichously arranged "Kurztriebe." "Kurztrieb" on its inner that is upper side carries laciniae arranged in a secund manner, and are almost horizontal or refracted in older and lower ones, patent or widely parted above; laciniae simple or furnished with a few similarly arranged divaricated lacinulae. "Kurztriebe" distichously arising on the frank of rachis are decompound, while those alternating with them on the same articulation are more simple or sparingly branched. Apices of all sorts of branches are acute and sharp. Root fibres are transformed from "Kurztriebe" arising from lower articulations of frond. Articulations 2-6 times long as diam., becoming shorter and subequal toward the apex as well as the base of frond, cylindrical or slightly narrowed in the middle. On the sides of upper articulations of young laciniae or "Kurztriebe" gland-cells containing hyaline or yellowish mass are usually seen.—*Tetraspores* globular or oval, mostly cruciate, situated solitary or a few aggregated on the side of laciniae or lacinulae, mostly sessile, rarely shortly pedicellated. *Cystocarps* large, globular, with 2-3 nuclei aggregated

on the apex of upper branches and surrounded by " Kurztriebe." *Colour* rosy-red. *Substance* membranaceous and the plant imperfectly adheres to paper in drying.

Hab.: entangled on other algae. Hakodate, Enoshima.

PL. CLXXXIX. Fig. **1**: frond of *Antithamnion Plumula* (Ellis) Thur., $\frac{1}{1}$.—Fig. **2**: portion of frond magd., $\frac{5}{1}$.—Fig. **3-4**: terminal portion of frond bearing tetraspores and gland-cells, *g*; 3, $\frac{220}{1}$, 4; $\frac{80}{1}$.—Fig. **5**; cystocarpic frond, $\frac{83}{1}$.—Fig. **6-8**: different portions of one and the same frond showing the mode of branching of laciniae; 6, middle portion, stem measuring ca. 150 μ in thickness; 7-8, lower portion; 6-7, $\frac{83}{1}$, 8, $\frac{110}{1}$.—Fig. **9-12**: laciniae bearing tetraspores, $\frac{83}{1}$, $\frac{80}{1}$, $\frac{220}{1}$, $\frac{110}{1}$, resp.—Fig. **13**: basal portion of frond, $\frac{80}{1}$. (Fig. 1, 5-9, and 13: same specimen from Enoshima col. 10, April, 1921; Fig. 2-4, 10-12: same specimen from the same place col. 6, May, 1900.)

Chondrococcus Hornemanni (Mert.) Schmitz.

Nom. Jap.: *Hosoba-naminohana.*

PL. CXC, fig.1-14.

Chondrococcus Hornemanni (Mert.) Schmitz Mar. Florid. v. Deuts. Ostafr. (1895) p. 170; De Toni Syll. Alg. IV, p. 1674; Okam. Synop. 日本藻類名彙 (2nd. ed.) p. 116.—*Desmia Hornemanni* J. Ag. Sp. Alg. II, p. 641.—*Desmia coccinea* Zanard. Plant Mar. Rubr. p. 55, t. 9, f. 1.

Fronds coespitose, rising from a small scutate disc, 4-5 times pinnately branched in disticho-alternate manner, subflabellately expanded, linear, compressed or a little thickened below, ecostated, 12 cm. high,

7 2 13 10 8 15 3 1 5 11 6 4 12 9 14

Chondrococcus Hornemanni (Mert.) Schitz ほそばなみのはな Fig. 1-14
Chondrococcus Japonicus (Harv.) Okam. なみのはな Fig. 15

1-2 mm. broad. Main branches irregularly alternate, rather naked below, with lower branches the usually longest, becoming gradually shorter above; branches of every order are in similar mode of ramification, furnished along the margins with sharpish or often deltoideo-obtuse simple or divaricated teeth. All the branches very patent arising on rather roundish axils, straight or rolled up at apices. Glandular cells full of yellowish contents are scattered beneath the cortex. In some cases fronds bearing slenderer branches are seen which have an appearance quite differing from the normal ones (fig. 2-3).—*Tetraspores* forming irregularly roundish nemathecia, slightly elevated, and arranged often in row along the margins or on the intramarginal surfaces of branches. *Cystocarpic* warts are similar in the shape and position as tetrasporic nemathecia. *Colour* deep red. *Substance* rigid when fresh, soon turning to subgelatinoso-membranaceous and the plant pretty well adheres to paper in drying.

Hab.: on rocks between tide-marks near low tide; from Ryukyu to Rikuzen; Tango and Echigo.

PL. CXC. fig. 1-14. Fig. **1**: frond of *Chondrococcus Hornemanni* (Mert.) Schm., $\frac{1}{1}$.—Fig. **2**: smaller frond bearing very slender segments, from Nō, $\frac{1}{1}$.—Fig. **3**: portion of fig. 2, magd., $\frac{5}{1}$.—Fig. **4**: rolled apices of a branch slightly magd.—Fig. **5**: apical cell of a branch, magd.—Fig. **6**: cross-section of frond; *a*, the central axis; *v*, vein, $\frac{48}{1}$.—Fig. **7**: glandular cell seen through the epidermis, $\frac{567}{1}$.—Fig. **8**: cortical layer bearing glandular cells, *a*, $\frac{353}{1}$.—Fig. **9**: portion of frond bearing tetrasporic nemathecia showing the central axis and veins, $\frac{34}{1}$.—Fig. **10**: cortical portion bearing tetraspores, magd.—Fig. **11**: branch bearing cystocarpic warts, $\frac{8}{1}$.—Fig. **12**: cystocarpic wart, $\frac{34}{1}$.—Fig. **13-14**: vertical section of cystocarpic wart; 13, $\frac{34}{1}$; 14, magd.

Chondrococcus japonicus (Harv.) Okam.

Nom. Jap.: *Namino-hana.*

PL. CXC, Fig. 15.

Chondrococcus japonicus (Harv.) Okam. Alg. Jap. Exsic. no. 35 (1899).—Matsumura and Miyoshi Cryptog. Jap. Icon. Illustr., 1901, vol. I. no. 12, pl. 58.—*Chondroc.? japonicus* (Harv.) De Toni Phyc. Jap. Nov. (1895) p. 39; Id. Syll. Alg. IV, p. 1677.—*Desmia japonica* Harv. Char. new Alg. (1859) no 23; Okam. in Bot. Mag. Tokyo, 1893, p. 321 (tetraspore).

Mode of ramification, characters of the both kinds of fruits are all similar to those of *Ch. Hornemanni*, only differing in the breadth of irond and form of ultimate pinnellae or marginal laciniae. Fronds are compresso-flat, broadly linear, 2-3 mm. broad, with often blunt and obtuse, crenulated and irregularly placed pinnellae or marginal processes. Often there are many forms having the appearance intermediate between the two species which are to be separated scarcely one from the other, fronds being more narrow and branches being sharply pointed.

Hab.: Boshyu and Sagami.

PL. CXC, fig. 15: frond of *Chondrococcus japonicus* (Harv.) Okam. in nat. size.

Rhodomela C. Ag. 1823. ふぢまつも屬.

RHODOMELACEAE. ふぢまつも科

體ハ直立シ，圓柱狀ニシテ各方面ニ分岐シ，可ナリ厚キ質ヲ有シ，細胞組織ニテ成ル：各軸ハ其頂部ニ近ク螺旋狀ニ互生セル單管狀ノ毛狀葉ヲ有スル頂端ヲ以テ眞直ニ成長ス，此毛狀葉ハ直ニ脫落ス．各軸ニ於テハ明ニ關節セル多管軸ハ見ルコトヲ得ズト雖モ，關節セル中軸ハ之ヲ認ムベク，其周圍ニ關節セザル細胞ヨリ成レル數層ノ皮部組織アリテ密ニ中軸ヲ圍ミ，其細胞ハ內部ノモノ大ニシテ外部ニハ小ナリ；唯成長點ニ近ク多少明ニ關節セル只一層ノ細胞ヨリ成レル皮層ヲ認ムルヲ得ベシ．各軸ノ成長部ハ成長點細胞ヲ有シ，其關節細胞ハ總テ各一條ノ枝ナル細胞ヲ生ズ．此枝ナル細胞ハ螺旋狀ニ互生シ後毛狀葉トナリ又ハ側面ニ伸長スル枝トナル，而シテ關節細胞ハ枝ナル細胞ノ外ニ 4-6 個ノ周心細胞ヲ分裂シ，其周心細胞ハ更ニ放射狀又ハ橫ニ分裂ス，故ニ中軸ノ關節細胞ハ早ク旣ニ不同ノ大サノ細胞ヨリ成レル，一層ノ管狀層ヲ以テ圍繞セラルヽニ至ル．次ニ此管狀層ヲナセル細胞ハ外方ニ細胞ヲ分裂シ，其細胞又更ニ外方ニ分裂シテ皮部組織ヲ形成ス．—生殖器ハ上部ノ枝ノ上部ニ形成セラル．四分胞子ハ普通ノ枝ト大シテ變形セザル小枝ニ多數ニ形成セラル；其枝ハ皮層組織ヲ存シ，毛狀葉ナシ；而シテ實ヲ熟スベキ各關節細胞ニ二個，稀ニ一個形成セラレ，一個ノ周心細胞ガ二個ニ分裂シタル其上部ノ細胞ニ於テ成リ，外方ニハ二個ノ同長ナル蓋細胞ヲ以テ蔽ハル，而シテ其之ヲ生ズル枝ニ於テ斷續セル螺旋縱列ヲナシテ不規則ニ交互シ或ハ不規則ニ斜ニ十字狀ニ交リ稀ニ同位置ニ對ヲナシテ存ス．精子器ハ多クハ長味ヲ有シ，短柄ヲ存シ，先端尖リ，表面ニ小サキ細胞ヨリ成レル精子細胞ヲ以テ蔽

ハレ，早晩有限的ニ伸長スル枝ノ頂部ニ近ク澤山ニ形成セラル，而シテ概ネ毛狀葉ナキ且分岐セザル短キ有限的成長ヲナセル側枝ノ軸ヨリ形成セラルヽカ或ハ側枝ノ如ク丈夫ニナリタル分枝セザル毛狀葉ヨリ形成セラル．胎原ハ毛狀葉ノ第二ノ關節細胞ヨリ多數ニ形成セラレ，可ナリ小ニシテ，僅ニ蔽ハレタル胎原列ヲナス．囊果ハ球狀—卵形ニシテ，多クハ可ナリ長キ柄ヲ有ス．果皮ハ可ナリ薄ク，胞子ハ棍棒狀ニシテ胞子絲ノ頂端ニ生ズ．

北半球ノ寒冷ナル海ニ產ス，約 5 種アリ．Rh. subfusca C. Ag. ハ模範種ナリ.—屬ノ名ハ rhodos (赤) ト melas (黑) トヨリ成ル，即チ體色ヨリ取レリ．

Rhodomela subfusca (Woodw.) C. Ag.

いとふぢまつ．　岡村稱．

第 CLXXXVI 圖版，第 CLXXXVII 圖版，1-13 圖．

體ハ數莖叢生シテ同一ノ小盤狀根ヨリ立チ，13-20 cm. 高ク'體ノ下部ヨリ多少規則正シク 3-4 回羽狀ニ分岐ス．體ハ圓柱狀又ハ絲狀ニシテ，極メテ細キアリ又ハ稍太キアリ，其越年セル老者ニアリテハ體ノ下部ハ往々堅クシテ莖ノ如キ觀ヲ呈ス (第 CLXXXVI 圖版，1 圖)．枝ハ廣開シ，或モノニテハ略ボ眞直ニ，他ノモノニテハ輕ク雁木狀ニ屈曲シ，中央ノモノ概ネ最モ長ク，多少密ニ小枝ヲ以テ蔽ハル；小枝ハ單條又ハ其頂端ニ近ク數條ノ最末小枝ヲ存ス；小枝ハ螺旋狀ニ列シ，錐ノ如クシテ內方ニ屈曲シ (2 及 4 圖)，老成セルモノハ往々反曲ス (1 圖)．小枝ハ其長キモノニテハ 10-12 mm. 長ク (2 圖)，短キモノニテハ 0.5-1 mm. 長シ.—四分胞子ハ小枝ニ形成セラレ，充分熟スルニ到レバ瘤狀ニ隆起ス (第 CLXXXVII 圖版，9-10 圖)；或植物

ニテハ四分胞子ヲ藏スル小枝ヲ有スル枝ハ矮小トナリ小枝ノ腋ヨリ束狀ニ出ル如ク見ユルコトアリ (8 圖)．精子器ハ長楕圓形ニシテ小枝ノ頂端ヨリ生ズル毛狀枝ニ形成セラル．囊果ハ卵圓形ニシテ廣キ果孔ヲ存シ，小枝ノ側面ニ座ス，短柄アリ．色ハ生鮮ノ時ハ暗褐色又ハ黃褐色ニシテ乾燥スル時ハ黑色トナル．質ハ幼キ部分ハ軟カナレドモ，老成部ハ稍硬ク，乾燥スル時ハ紙ニ附着スルコト充分ナラズ．

產地：潮線間ノ岩石ニ附着シ寧ロ高潮線ニ近ク波浪ノ衝ニ當ラザル所ニ生ズ．占守島ヨリ常陸；Imperatorskaya，樺太，北海道西岸ヨリ能登輪島ヲ經テ筑前志賀島，長崎縣南高來郡ニ至リ瀨戶內ニ入リ中ノ關 (山口縣)，伊豫新濱，明石 (兵庫縣) ニ達ス．朝鮮龍岩浦．

分布：太西洋及太平洋ノ北部．

Rhodomela 屬ノ各種ノ區別ハ極メテ困難ニシテ殊ニ Rh. subfusca, virgata 及ビ lycopodioides ニ於テ然リトス，隨テ從來夫等ノ間ニ往々錯雜ヲ生ジタリ．予ハ玆ニ本種ヲ查定スルニ當リ Kjellman 氏ガ本種ニ與ヘタル性質ニ準據セリ，即チ Rh. subfusca ノ小枝ハ基部クビレルコトナク且暖地迄モ產シ Rh. lycopodioides, ノ小枝ハ基部クビレ專ラ寒地ニ產スト云フニ依レリ．然レドモ予ノ有スル許多ノ標品中主トシテ產地ノ關係ヨリ種々微細ノ點ニ於テ異ナルモノアリテ他日精細ニ之ヲ調查セバ或ハ數個ノ變種ヲ爲スニ至ルベシト思ハルヽモノアリ．

第 CLXXXVI 圖版ニ示シタル體形ハ幾分邦內ニ產スル本種ノ代表ト見做スヲ得可シ．邦內ニ產スル本屬ノ二種中本種ハ弘キ分布ヲ有シ占守島ヨリ九州ニ亘ル，隨テ種々ノ體型アリ．第四圖ハ南方ノ形ニシテ第一圖ハ北方ノモノナリ，而シテ第三圖ハ纖弱ナル體形ノモノト考フルヲ得ベシ，蓋シ該種ハ北海道網走ニテ採集シタルモノニシテ其處ニハ暖流ノ末派ガオコツク海ニ注ク所ナレバナリ．第二圖ニ示シタルモノハ

大正四年ノ夏季室蘭ニ於テ採集シタルモノニシテ極テ強盛ナル體形ヲ有シ，他ノ體形ト甚シク異ナル外觀ヲ呈ス．

第 CLXXXVI 圖版．**1**：越冬セル體ヨリ方サニ春季ノ新條ヲ伸長シタルモノ，占守產，$\frac{1}{1}$.—**2**：夏季ノ室蘭品，$\frac{1}{1}$.—**3**：夏季ノ網走品，$\frac{1}{1}$.—**4**：夏季ノ陸前磐井岬品，$\frac{1}{1}$.

第 CLXXXVII 圖版，1-13 圖．**1**：實ナキ枝ノ頂部ニシテ小枝及最末枝ノ配列ヲ示ス，$\frac{13}{1}$.—**2**：體ノ成長點，$\frac{353}{1}$.—**3**：一ノ軸ノ頂端ニ近ク存スル小枝ノ頂端ニシテ毛狀枝，*h*，ト頂細胞，*a*，トヲ示ス，$\frac{353}{1}$.—**4**：體ノ橫斷面；*c*，中軸細胞，$\frac{220}{1}$.—**5**：體ノ縱斷面；*c*，中軸細胞，$\frac{220}{1}$.—**6**：枝ノ頂部ニシテ精子器ヲ有スルモノ，$\frac{16}{1}$.—**7**：精子器，$\frac{83}{1}$.—**8**：短縮セル枝ニ四分胞子ヲ有スル小枝ヲ附ケタルモノ，稍廓大.—**9**：通常ノ枝（短縮セザル）ニ在ル四分胞子ヲ熟セル小枝，$\frac{22}{1}$.—**10**：「ステイキジア」ノ側面ヨリ四分胞子ヲ見タルモノ，$\frac{48}{1}$.—**11**：四分胞子ト蓋細胞トヲ示ス，$\frac{220}{1}$.—**12**：囊果ヲ有スル枝，$\frac{13}{1}$.—**13**：囊果，稍廓大．（1, 3, 4-5, 11-12 圖ハ小名濱產ノ「アルコホール」品ヨリ畫ク）．

Nemalion multifidum (W. et M.) J. Ag.

つくものり．

第 CLXXXVII 圖版，14-16 圖．

體ハ絲狀，軟弱，數莖同一ノ小盤狀根ヨリ出デ，蠕虫狀ヲナシ，高サ約 10 cm. 太サ約 1 mm.，漸次上方ニ細ク，數回不規則ニ叉狀ニ分レ腋圓クシテ廣開ス．類化絲ハ念珠狀ヲナシ其下部ノ關節細胞ハ太サヨリモ稍長ク漸次上方ニ大キク且球狀ヲナシ，最上部ノ細胞ハ太サ約 120μ アリ．色ハ乾燥品ニテ暗褐紅色ナリ．質ハ粘柔ニシテ體ハ密ニ紙ニ附着ス．

產地：阿波那賀郡答島（明治十六年水產博覽會出品）；稀ナリ．

第 CLXXXVII 圖版，14-16 圖．**14**：つくものり，*Nemalion multifidum* (W. et M.) J. Ag. ノ體，$\frac{1}{1}$.—**15**：腊葉品ノ體ノ橫斷面，直徑 0.8 mm.；$\frac{152}{1}$.—**16**：類化絲ト根樣細胞，$\frac{353}{1}$.

Rhodomela Larix (Turn.) C. Ag.

ふぢまつも　岡村稱．

第 CLXXXVIII 圖版，1-4 圖．

根ハ小塊狀根．體ハ直立シ，圓柱狀ノ莖ヲ以テ叢生ス，高サ 15-25 cm, 1-1.5 cm. 太ク，一條ノ主幹ヲ存ス，而シテ頂端ヨリ基部ニ至ル迄幹ト同樣ノ枝ヲ存シ，枝ハ廣開シ，不規則ナル螺旋狀ヲナシテ互生ニ配置シ（或モノハ 10 cm，他ノモノハ 3-5 mm. 長ク，中央ノモノ一般ニ最モ長シ）幹ト同樣ニ總テ廣開セル小枝ヲ以テ蔽ハル；小枝ハ小サキ叢ヲナシ，各叢ノ間ニ極メテ短キ間隔ヲ存シ，單條ニシテ錐狀ヲナシ，2-3 mm. 長ク，獸毛（豚）程ノ太サアリ．小枝ノ此叢生セル排列ハ枝ニ於テ殊ニ明ニシテ且莖ノ下部ヨリモ上部ノ方ニ能ク視ルコトヲ得ベク，下部ノ方ニテハ各方面ニ覆瓦樣ニ並列スレドモ寧ロ疎トナリ爲ニ莖ハ全部露出スルニ至ル．—「スチキジア」ハ小枝ノ腋ヨリ生ズル短縮セル軸ニ在ル小枝ヨリ變成シ，內方ニ屈曲シテ叢生シ，中性ノ小枝ノ半分程ノ細サニシテ其ヨリモ短ク，圓柱狀絲狀ナリ．色ハ生鮮ノ時ハ濃キ暗褐色ニシテ乾燥スルトキハ殆ト黑色トナル．質ハ軟骨質ニシテ屈撓性ヲ有シ強靱ナリ；乾燥スルニ至ルモ體ハ餘リ外貌ヲ變セズ，紙ニ附着スルコト不完全ナリ．

產地：開濶ナル沿岸ノ岩石ニ生ジ高潮線ニ近ク潮線間ニ生ズ．千島ヨリ陸前ニ至ル．

分布：北部太平洋.

本植物ハ開濶ナル沿岸ニ於テ波浪ノ衝ニ當ル所ニ產ス. 本種ト Rh. subfusca ト互ニ近ク生ズル所ニテハ後者ハ波ノ蔭トナル所ニ在レドモ, 前者ハ其衝ニ當ル所ニ產ス.

第 CLXXXVIII 圖版, 1-4 圖. **1**: ふぢまつも, Rhodomela Larix (Turn.) C. Ag. ノ體, $\frac{1}{1}$.—**2**: 五月六日占守島產ノ四分胞子ヲ有スルモノ, $\frac{1}{1}$.—四分胞子ヲ有スル枝ノ頂部, $\frac{16}{1}$.—**4**: 第 3 圖ニ示シタル「スチキジア」ヲ有スル小枝ノ一ツ, $\frac{48}{1}$.

Roschera Sonder 1879. いとくづぐさ屬.

RHODOMELACEAE ふぢまつも科.

體ハ直立シ, 他ノ海藻ノ間ニ纏絡シテ立チ, 絲狀ニシテ各方面ニ分岐ス, 多管軸ハ 4 周心管ヲ有シ全部皮層細胞ヲ被ムラズ. 長條枝ハ其全長ニ於テ $\frac{1}{4}$ ノ列序ヲ以テ螺旋狀ニ交互ニ出タル短キ分岐セル側枝ヲ以テ蔽ハレ, 側枝ハ有限成長ノモノニシテ宛モ柄ヲ有シタル星狀ノ小塊ノ如キ形狀ヲナス. 長條ノ伸長ハ水平ノ分裂面ヲ有スル頂細胞ヲ有シ其各關節細胞ハ一條ノ毛狀葉トナルベキ初期ノ細胞ヲ分裂ス; 此初期ノ細胞ハ直ニ枝トナリテ伸ビ, 數個ノ枝ナキ關節細胞ヲ分裂シタル後其上部ハ更ニ同樣ニ分枝ス. 枝ノ短縮シテ分岐シタル部分ニ於テ下部ニアル 3-5 ノ毛狀葉トナルベキ初期ノ細胞ハ圓錐狀ノ, 太キ, 廣開セル, 多管軸ノ刺トナリ(其刺ハ更ニ分岐セントスル形跡ヲ有スルコトアリ)而シテ上部ノモノハ常ニ微弱ナル發育ヲナシテ, 單管ニシテ分岐セザル毛狀葉トナリテ各刺ノ中央ヨリ發出ス. 毛狀葉ト刺トノ間ヨリ往々毛ノ如キ根ヲ生ジ, 此根ハ折々其先端扁平ナル盤狀ニ展ガリ體ヲ他物ニ固着セシム. 側枝トナルベキ初期ノ細胞ハ星狀ニ短縮シタル枝トナル代リニ多少長ク伸タル長條枝トナルコトアリ.——生殖器

ハ星狀ノ小塊ヲナセル部分ニ形成セラレ, 其部ハ之ガ爲ニ特ニ變形スルコトナシ. 四分胞子ハ太キ刺ニ生ジ或ハ星狀ノ小塊ヲ有スル軸ニ形成セラルヽ微弱ナル星狀ノ小塊ニ生ジ, 時ニ一個, 時ニ 2-3 個形成セラル, 而シテ外方ニ突起セル瘤ノ如キ形狀ヲナシ, 其之ヲ生ズル關節ニ一個ヅヽ生ジ, 交互ニ配置セラレ, 外部ニハ 2-3 個ノ同長ナル蓋細胞ヲ以テ蔽ハル. 精子器ハ未詳. 胎原列ハ星狀塊ノ眞中ニ少數形成セラレ, 單管ナル毛狀葉ノ關節ニ存ス; 囊果ハ卵形ニシテ, 小サク, 星狀塊ノ眞中ニ通常一個形成セラレ, 殆ド無柄ニシテ, 星狀ノ枝ヲ以テ圍マル. 果皮ハ可ナリ薄シ; 胞子ハ割合ニ大ク, 棍棒狀ナリ.

印度洋及太平洋ノ暖部ニ 1 種若クハ 2 種ヲ產シ往々可ナリ變形ス. 下記ノモノハ模範種ナリ.—屬ノ名ハ Roscher 氏ノ名ニヨル.

Roschera glomerulata (C. Ag.) Web. v. Bosse.

いとくづぐさ 岡村稱.

第 CLXXXVIII 圖版, 5-10 圖.

體ハ他ノ海藻ノ間ニ錯綜シテ立チ, 絲狀ニシテ側面ニ分岐ス. 長條枝ハ其全長ニ於テ螺旋狀ニ配列セル, $\frac{1}{4}$ ノ序列ヲ以テ互生セル短條枝即チ側枝ヲ以テ圍繞セラレ, 其側枝ハ短キ柄ヲ有スル星狀ノ小塊ノ如キ觀ヲ呈ス. 枝ハ廣開シ或ハ殆ド水平ニ出ヅ. 刺狀ノ小塊ハ短キ太キ圓錐狀ノ廣開セル多管軸ノ刺ヨリ成リ, 刺ハ更ニ分岐スルコトアリ. 時トシテハ長キ單細胞ヨリ成レル毛狀ノ根アリテ, 星狀ノ小團塊ノ中央ヨリ出デ, 往々其頂端ニ盤狀ニ展ガリタル附着器ヲ形成シテ體ヲ他物ニ固着セシム. 關節ノ長サハ其徑ト略ホ同長若クハ稍短シ. 體ハ圓柱狀又ハ多少角張リタリ. 色ハ暗紅褐色ナリ. 質ハ軟キ膜質ニシテ乾燥スル時ハ紙ニ固着セズ.

産地：他ノ海藻ニ纏絡ス．琉球，小笠原島，房州．

分布：熱帯部オーストラリア，太平洋諸島，印度洋，亜弗利加，日本．

第 CLXXXVIII 圖版，5-10 圖．**5**：いとくづぐさ，Roschera glomerulata (C. Ag.) Weber v. Bos.，$\frac{1}{1}$.—**6**：枝，$\frac{16}{1}$.—**7**：枝ノ一部ニシテ短條枝ノ互生スル狀ヲ示ス，$\frac{83}{1}$.—**8**：毛狀ノ根ヲ有スル枝ノ一部，$\frac{48}{1}$.—**9**：體ノ成長點，$\frac{353}{1}$.—**10**：體ノ横斷面，$\frac{48}{1}$.

Antithamnion Nägeli 1947. よつがさね屬．

CERAMIACEAE.　いぎす科．

體ハ纖細ナル絲狀ニシテ，概ネ叉狀ニ分岐シ(聯基的伸長法ニテ)；主枝ハ一列ノ細胞ヨリ成リ，對生又ハ輪生セル，且ツ概ネ密ニ分岐セル短條枝ヲ存ス．此短條枝ノ枝ニ往々特殊ノ腺細胞ヲ形成ス.—四分胞子ハ十字樣ニ分裂シ，短條枝ノ小枝ノ頂端ニ形成セラル．精子器ハ小サキ小枝ノ叢ニシテ，短條枝ノ最末枝ノ頂端ニ在リ．胎原列ハ短條枝ノ基部ノ細胞ノ側面ニ形成セラル；實ヲナスベキ短條枝ハ一條ノ枝ノ其處此處ニ散在シ，或ハ短クナリタル枝ノ頂端ニ接近シテ團集ス，然ル時ハ漸次ニ簡省セラレ，遂ニ極メテ小ナル數個ノ胎原トナル．嚢果ハ多クハ枝ノ短クナリタル爲ニ其頂端ニ存スルニ到リ，時トシテハ後生的ニ生ジタル最上部ノ短條枝ヲ以テ苞枝ノ如ク圍マル．或種ニテハ四分胞子ヲ有スル體ガ枝ノ頂端ニ「パラスポール」(一種ノ無性胞子)ヲ生ジ僅少ノ若クハ多數ノ細胞ヨリ成レル不規則ナル團塊ヲナス．

温暖及寒冷ナル海ニ約 10 種アリ.—屬ノ名ハ anti (反對) トthamnos (小枝) トヨリ成ル，即チ對生スル小枝ノ意ニ取ル．

Antithamnion Plumula (Ellis) Thur.

よつがさね　岡村新稱．

第 CLXXXIX 圖版．

體ハ纖細ナル絲狀ニシテ(或モノハ中央部ニ於テ太サ約 150 μ アリ)不規則ナル叉狀樣羽狀ニ分岐シ，各關節ノ頂端ニ近ク對生又ハ四個ノ輪生セル短條枝ヲ發シ，此短條枝ハ四縦列ヲナス．短條枝ハ其内側即チ上部ノ側面ヨリ小枝ヲ偏生シ殆ド水平ニ出デ，或ハ下部ノ老成セルモノニアリテハ下方ニ反曲シ，廣開シ又ハ枝ノ上部ノ方ニ於テハ廣ク開出ス；小枝ハ單條又ハ同樣ニ配置セル，且廣開セル僅少ノ最末小枝ヲ存ス．軸ノ兩側ヨリ出ル短條枝ハ複性ニシテ枝ヲ分チ，同一ノ關節ヨリ出デヽ之ト交互スルモノハ概ネ單條又ハ僅ニ分枝ス．各部ノ枝ノ頂端ハ尖鋭ナリ．根ハ體ノ下部ノ關節ヨリ出ル短條枝ヨリ變成ス．關節ハ直徑ノ 2-6 倍長ク，體ノ頂部及ビ基部ノ方ニ漸次短ク又ハ徑ト略ボ同長トナリ，圓柱狀又ハ中央部ニ於テ輕ク狹細トナル．幼キ最末小枝又ハ短條枝ノ上部ノ關節ノ側面ニ通常腺細胞ヲ存シ，透明ナル若クハ黄色ナル物質ヲ含ム.——四分胞子ハ球狀又ハ卵圓形，概ネ十字樣ニ分裂シ，小枝又ハ最末小枝ノ側面ニ單獨若クハ數個集合シ，概ネ無柄，稀ニ短柄ヲ有ス．嚢果ハ大ニシテ，球狀，2-3 個ノ仁ハ上部ノ枝ノ頂端ニ聚合シ，短條枝ヲ以テ圍繞セラル．色ハ淡紅色．質ハ膜質ニシテ，體ハ乾燥スルトキハ紙ニ附着スルコト不充分ナリ

産地：他ノ海藻上ニ卷絡ス；函館，江ノ島．

分布：地中海，太西洋，濠洲，日本．

第 CLXXXIX 圖版．**1**：よつがさね，Antithamnion Plumula (Ellis) Thur. ノ體，$\frac{1}{1}$.—**2**：體ノ一部，$\frac{5}{1}$.—**3-4**：四分胞子及腺細胞，*g*，ヲ有スル體ノ頂部；3，$\frac{220}{1}$；4，$\frac{80}{1}$:—**5**：嚢果ヲ有スル體，$\frac{83}{1}$.—**6-8**：同一ノ

體ノ各部ニシテ，小枝ノ分枝スル容子ヲ示ス；6，中央部，莖ハ太サ約 150 μ；7-8，下部；6-7，$\frac{88}{1}$；8，$\frac{110}{1}$.—**9-12**；四分胞子ヲ有スル小枝，夫々 $\frac{83}{1}$，$\frac{80}{1}$，$\frac{220}{1}$，$\frac{110}{1}$.—**13**：體ノ下部，$\frac{80}{1}$．（1，5-9，及 13 圖：相州江ノ島産ノ同一標品，大正十年四月十日採；2-4，10-12 圖：同地産ノ同一體，明治三十三年五月六日採）．

Chondrococcus Kützing (1847) 1849.

なみのはな屬．

RHIZOPHYLLIDACEAE.　リゾフヰリス科．

體ハ扁平ニシテ兩緣ニ薄ク，羽狀ニ分岐シ，互生シ，下部時トシテハ明瞭ナラザル中肋ヲ存シ，上方ニハ鉤狀ニ屈曲セル成長端ヲ有シ，軟骨樣膜質ナリ；中軸ハ可ナリ太キ長キ關節細胞ヨリ成リテ其兩緣ヨリ枝ノ裂片及緣邊ノ刺狀部ニ互生ニ分岐シ，可ナリ密ナル皮部ヲ以テ蔽ハル，皮部ノ細胞ハ內方ニ大ニ，外方ニハ小ナリ；外部ノ皮層中ニ可ナリ大ナル腺樣細胞多數ニ散在ス；細胞間物質ハ極メテ速ニ粘化シ體ハ解頽ス．成長點ハ斜ニ若クハ橫ニ關節セル頂細胞ヲ有シ，其關節セル細胞ハ兩側ニ於テ交互ニ關節ス．——四分胞子ハ扁平ナル疣狀ニ隆起セル群ヲナシテ體ノ扁キ表面ニ散在シ，各群ノ間ニ中性ノ絲アリテ群ヲ分ツ如キコトアラズ，而シテ斜ニ（又ハ不規則ニ）十字樣ニ分裂ス．雌性「ネマセシア」ハ體ノ上部ニ於テ體ノ表面ニ若クハ兩緣ニ沿フテ散在ス．囊果ハ概ネ不規則ニ疣狀ニ厚クナリタル「ネマセシア」ノ內ニ多數ニ存シ，疣ハ往々互ニ癒合ス，而シテ「ネマセシア」ノ組織ノ上部ノ厚クナルコトニヨリテ果皮ノ如ク蔽ハル；成胞絲ハ長ク伸ビタル柄ヲ有シ，不規則ニ桑實狀ニ分レ，中性組織ヲ以テ互ニ隔離セラレタル小仁ヲナシ，小仁ハ多數ノ胞子ノ團集ヲ以テ成ル．

約 10 種アレドモ未ダ充分ニ研究セラレザルモノ多ク，印度洋及太平洋ノ暖部ニ存ス；本邦僅ニ二種アルノミ．—屬ノ名ハ chondros（軟骨樣）及 coccos（小粒）ヨリ成ル．

Chondrococcus Hornemanni (Mert.) Schmitz.

ほそばなみのはな　岡村稱．

第 CXC 圖版，1-14 圖．

體ハ叢生シ，小サキ盤狀根ヨリ立チ，兩緣ヨリ 4-5 回羽狀ニ互生ニ分岐シ，稍扇狀ニ擴ガリ，線狀ニシテ，扁壓シ又ハ下部稍太ク，中肋ナク，高サ 12 cm，幅 1-2 mm. アリ，主枝ハ不規則ニ互生シ，下部稍枝ナク，下部ノ枝通常最モ長ク，漸次上方ニ短ク成ル；各部位ノ枝モ亦同樣ニ分岐シ，緣邊ニ沿フテ銳キ若クハ往々三角形ノ鈍頭ナル單條又ハ不規則ニ分裂セル齒ヲ有ス．枝ハ總テ甚シク廣開シ，稍圓キ腋ヲ以テ立チ，頂端直出或ハ卷ク，上皮部ノ下ニ黃色ノ內容物アル腺細胞散在ス．或場合ニハ細キ枝ヲ有スル體アリテ普通ノモノトハ全ク異ナリタル外　形ヲ有スルモノアリ，殊ニ日本海ノモノニ多シ（2-3 圖）．—四分胞子ハ不規則ナル圓キ「ネマセシア」ヲ形成シテ少シク隆起シ，兩緣ニ往々一列ニ連リ又ハ緣邊ヨリ少シク內部ニ存ス．囊果モ亦疣狀ヲナシ其形狀並ニ位置ハ四分胞子ノ「ネマセシア」ニ同ジ．色ハ濃紅色ナリ．質ハ鮮時ハ硬ケレドモ少時ニシテ粘滑ナル膜質ニ變ジ乾燥スル時ハ可ナリ能ク紙ニ附着ス．

產地：低潮線ニ近ク潮線間ノ岩石上ニ在リ；琉球ヨリ陸前ニ至ル間，丹後及越後．

第 CXC 圖版，1-14 圖．**1**：ほそばなみのはな，Chondrococcus Hornemanni (Mert.) Schm.，$\frac{3}{4}$.—**2**：極メテ細キ各部ヲ有スル小サキ體，（能生產），$\frac{1}{2}$.—**3**：第 2 圖ノ一部，$\frac{5}{1}$.—**4**：枝ノ頂端ノ卷キタル狀，廓大.—**5**：成長點，廓大.—**6**：體ノ橫斷面；*a*，中軸；*v*，側脈；$\frac{48}{1}$.—**7**：上皮中ニ腺細胞ノ存スル狀，$\frac{567}{1}$.—**8**：腺細胞，*a*，ヲ有スル上

皮層, $\frac{353}{1}$.—9: 四分胞子ノ「ネマセシア」ヲ有スル體ノ一部ニシテ, 中軸ト脉トヲ示ス, $\frac{34}{1}$.—10: 四分胞子ヲ有スル皮層, 廓大.—11: 嚢果ノ疣狀ノ集團ヲ有スル枝, $\frac{8}{1}$.—12: 嚢果ノ疣狀集團, $\frac{34}{1}$.—13-14: 嚢果ノ集團ヲ縦斷シタルモノ; 13, $\frac{34}{1}$; 14, 廓大.

Chondrococcus japonicus (Harv.) Okam.

なみのはな　岡村稱.

第 CXC 圖版, 15 圖.

枝ノ打チ方, 四分胞子及嚢果ノ性質等總テほそばなみのはな, Ch. Hornemanni ニ類似ス, 唯枝ノ幅ト最末羽枝即チ緣邊ニアル小裂片ノ形狀ヲ異ニスルノミ. 體ハ扁壓—扁平ニシテ, 幅廣キ絲狀ヲナシ, 幅 2-3 mm. ヲ有シ, 最末羽枝即チ緣邊ノ小裂片ハ往々鈍圓ニシテ小波狀缺刻ヲ有シ, 其排列亦不規則ナリ. 往々ニシテ前種ト本種トノ中間ノ如キ形狀ヲ有スルモノ多數アリ; 其體形枝狹ク且尖鋭ナルヲ以テ何レノ種ニ屬スベキカ區別容易ナラザルモノアリ.

産地: 東海道沿岸殊ニ房州及相模ニ多シ.

第 CXC 圖版, 15 圖: なみのはな, Chondrococcus joponicus (Harv. Okam. ノ體, $\frac{1}{1}$.

K. OKAMURA.

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第四卷　第九集

理學博士　岡村金太郎著

ICONES OF JAPANESE ALGÆ.

Vol. IV No. IX.

BY

K. OKAMURA *Rigakuhakushi.*

Contents of No. IX. (PL. CXCI—CXCV)

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Laurencia pinnatifida (Gm.) Lam.	はねそゞ
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Sporochnus radiciformis (R. Br.) C. Ag.	たまけやり
Sporochnus scoparius Harv.	けやり

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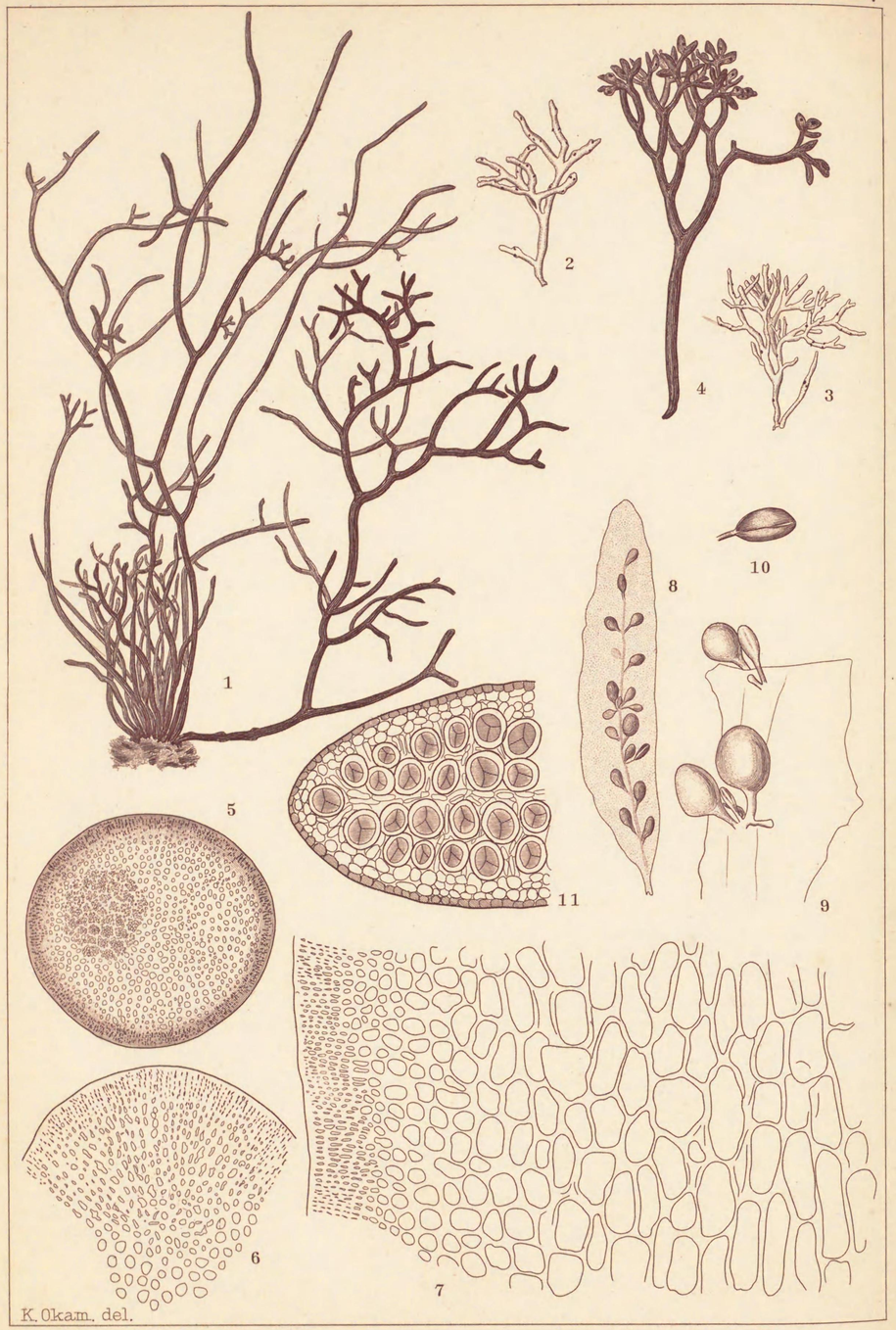


K. Okam. del.

Ahnfeltia concinna J. Ag. さいみ Fig. 1-7.
Delesseria Middendorffii Rupr. ふがこのはのり Fig. 8-11.

Ahnfeltia concinna J. Ag.

PL. CXCI. Fig. 1–7.

Nom. Jap.: *Saimi.*

Ahnfeltia concinna J. Ag. Sp. Alg. II, p. 312; Id. Epicr. p 207; De Toni Syll. Alg. IV, p. 256; Yendo Notes on Alg. new to Jap. V, p. 256.—*Gymnogongrus implicatus* Kütz. Sp. Alg. p. 789; Id. Tab. Phyc. XIX, t. 69; J. Ag. Sp. Alg. II, p. 312.

Fronds gregarious, covering a wide range of area, erect, horny, subcylindrical, 5-15 cm high, 1-2 mm in diam., substipitate for a more or less long distance from the base, sometimes quite simple, but more usually divaricately branched upward in a di-trichotomous manner, and provided with proliferous branches, which often arise fasciculately or are arrangad in secund manner. Segments cylindrical or slightly compressed, often corrugato-flexuose, and widely parted with an acute axil. *Cystocarps* many approximated in upper segments, slightly swollen out forming warty prominences. *Colour* dark purple or greenish, changing to blackish in drying. *Substance* horny and the plant does not adhere to paper in drying.

Hab.: On rocks extending from the mid-tide to little over the high tide mark, covering a wide range of area measuring 8-10 feet in height. Ogasawarajima, 7 islands of Idzu, Bosyu, Sagami, Ise.

PL. CXCI, fig. 1-7. Fig. **1**: fronds of *Ahnfeltia concinna*, J. Ag. in nat. state and size.—Fig. **2-3**: cystocarpic fronds in dried state, $\frac{1}{1}$.—Fig. **4**: cystocarpic frond from Saganoseki in dried state, $\frac{1}{1}$.—Fig. **5**: cross-section of branch bearing cystocarp, $\frac{48}{1}$.—Fig. **6**: portion of the cross-section, $\frac{83}{1}$.—Fig. **7**: portion of longitudinal section of branch, $\frac{353}{1}$.

Tetrasporic Sporopylls of **Delesseria Middendorffii** Rupr.

PL. CXCI, Fig. 8-11.

Addition to the description of *Delesseria Middendorffii* illustrated in the Icones Vol. II, no. 7, p. 118-120, PL. LXXXIV—LXXXV, fig. 1-7.

Tetrasporic sporophylls are proliferated solitarily or subfasciculately from the both sides of the midrib on both surfaces, globular, oval, oblong or obovate, thick and slightly depressed, shortly petiolated, sometimes winged along the margin, 1.5-2.5 mm long, 1.5-2 mm broad. In the cross-section of sporophyll two layers of tetraspores are observed on the upper and lower sides of the primary or fundamental layer and on both sides of the midrib. They are formed from sub-cortical cells lying between the epidermal and primary layers.

PL. CXCI, fig. 8-11. Fig. 8: leaf bearing tetrasporic sporophylls of *Delesseria Middendorffii*, Rupr., $\frac{1}{1}$.—Fig. 9: portion of the same, $\frac{5}{1}$.—Fig. 10: sporophyll seen from the marginal side, magd.—Fig. 11: half of the cross section of sporophyll, $\frac{48}{1}$.

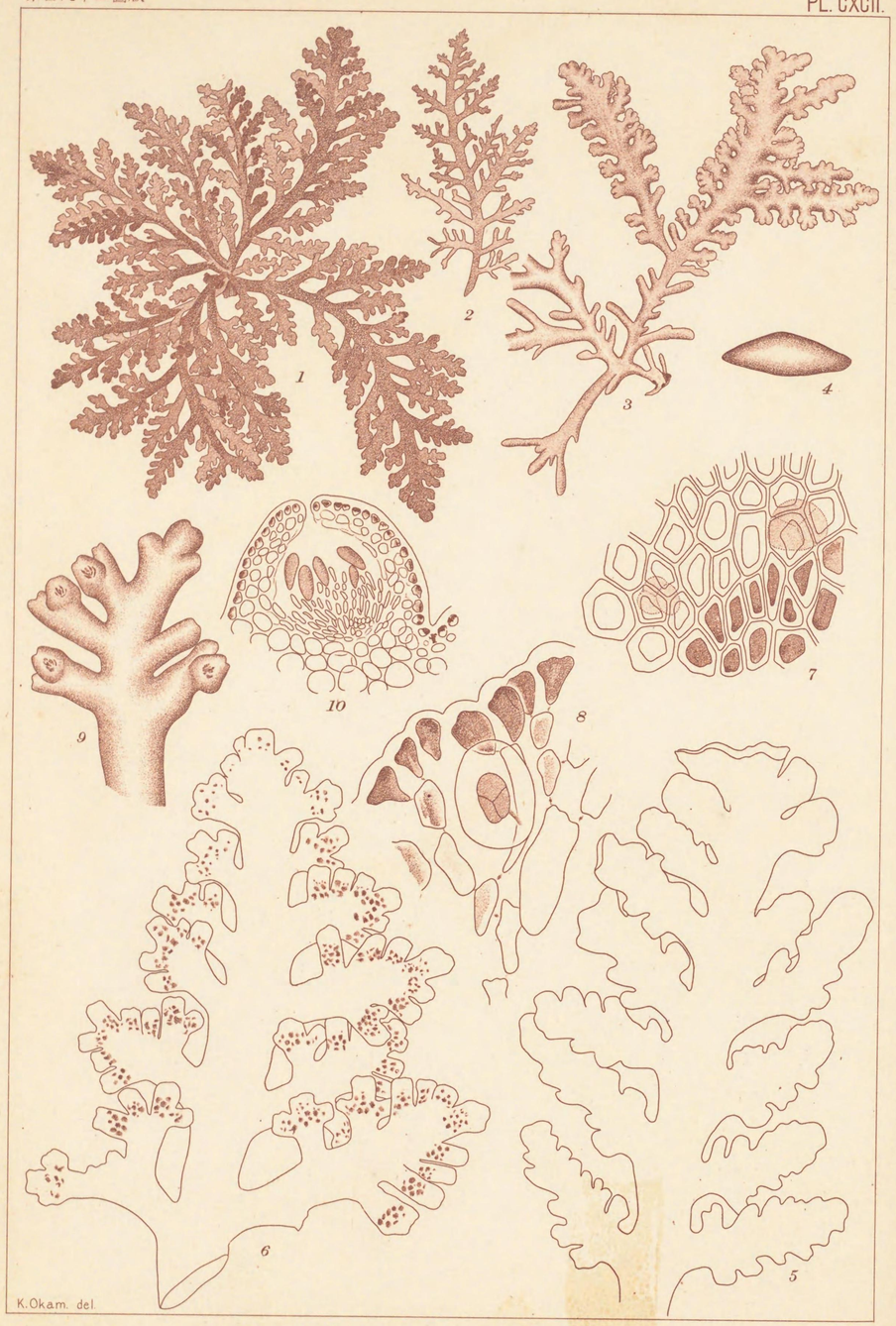
Laurencia pinnatifida (Gm.) Lam.

Nom. Jap: *hane-sozo*.

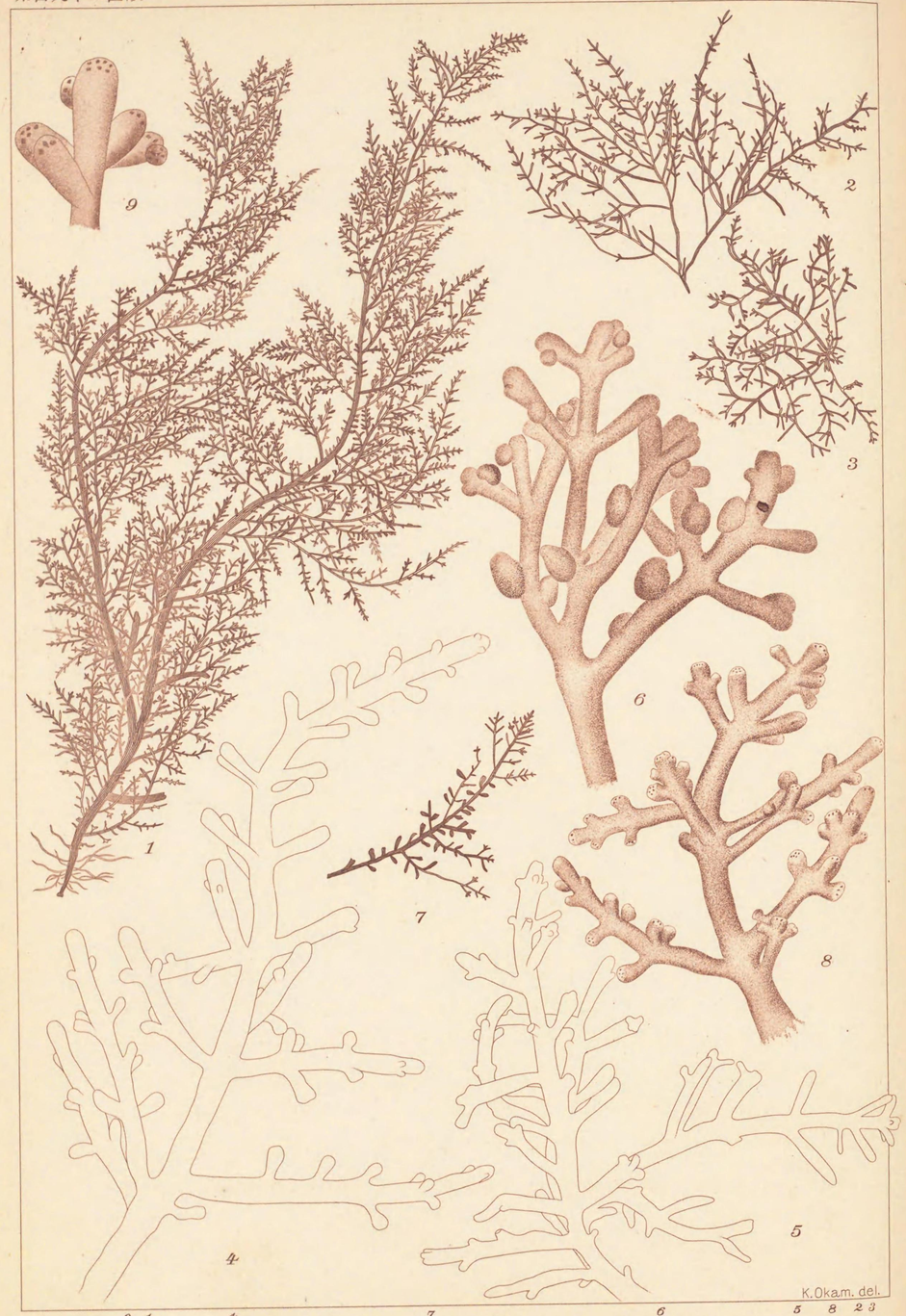
PL. CXCII.

Laurencia pinnatifida (Gm.) Lamour. Essai p. 42; J. Ag. Sp. Alg. II, p. 764; Id. Epicr. p. 656; Kütz. Sp. Alg. p. 856; Id. Tab. Phyc. XV, Tab. 66, f. a-c; Harv. Phyc. Brit., Tab. 55; Hauck Meeresalgen, p. 208; De Toni Syll. Alg. IV, p. 798; Okam. Synop. 日本藻類名彙 (2nd. ed.) p. 69.—*Fucus pinnatifidus* Gmel. Hist. Fuc. p. 156, t. 16, f. 3; Turn. Hist. Fuci, t. 20.

Fronds coespitose, rising from a scutate disc, 5-15 cm high, almost cylindrical at the base, more or less compressed upward,



Laurencia pinnatifida (Gm.) Lam. はねそぞ



Laurencia obtusa (Huds.) Lamour. みつでそゞ.

1-4 mm broad for the most part, 0.5-1 mm broad in the ultimate pinnellae, 2-3 times pinnately branched in disticho-alternate manner. Branches almost linear, often narrowed toward the base, or little broader upward, patent, standing on the angle of almost 45,° roundish or lobed at apices. Outline of branches is pyramidal, lower branches being the longest. Pinnellae simple, linear or linear-clavate, truncated or expanded toward apex, often much lobed. Tetraspores aggregated at the apical portion of pinnellae which do not change their form. *Cystocarps* ovato-urceolate with wide ostiole, sitting at the side of pinnulae. *Colour* dark purplish, often fading to greenish-yellow. *Substance* fleshy, soon becoming soft; the plant pretty well adheres to paper in drying.

Hab.: On rocks below low-tide. Common along the Pacific side from Ryukyu to Hakodate, and the Japan Sea.

PL. CXCII. Fig. **1-3**: different forms of the frond of *Laurencia pinnatifida* (Gm.) Lamour., $\frac{1}{1}$.—Fig. **4**: cross-section of branch, $\frac{8}{1}$.—Fig. **5**: portion of branch magd., $\frac{7}{1}$.—Fig. **6**: branch bearing tetraspores, $\frac{7}{1}$.—Fig. **7**: tetraspores seen through the surface of frond, $\frac{220}{1}$.—Fig. **8**: tetraspores, $\frac{220}{1}$.—Fig. **9**: cystocarps, $\frac{10}{1}$.—Fig. **10**: vertical section of a cystocarp, $\frac{48}{1}$.

Laurencia obtusa (Huds.) Lamour.

Nom. Jap.: *mitsude sozo.*

PL. CXCIII.

Laurencia obtusa (Huds). Lamour. Essai, p. 42; J. Ag. Sp. Alg. II, p. 750; Id. Epicr. p. 653; Harv. Phyc. Brit. t. 148; Kütz. Sp. Alg. p. 854; Id. Tab. Phyc. XV, t. 54-55; De Toni Syll. Alg. IV, p. 791; Hauck Meeresalg. p. 206.—*Fucus obtusus* Turn. Hist. Fuci t. 21.—Okam. Synop., 日本藻類名彙 (2nd. ed.) p. 69.

Fronds often forming somewhat intricated mass, cylindrical,

more than 0.5-1.5 mm thick, mostly branched pinnately in paniculate outline. Branches and branchlets alternate or opposite, here and there arising to 3 or more in almost verticillate manner, patent or almost horizontal. Ramuli cylindrical or clavate, truncated or almost round at apices, simple or longer ones again branched beneath their apices, 1-10 mm long and 300-900 μ thick, often triparted.—*Tetraspores* collected beneath a little thickened apex of ramuli. *Cystocarps* oval, sessile, sitting along the side of upper branches and branchlets. *Colour* dark purple, often fading to greenish or yellowish. *Substance* soft cartilaginous when recent, and the plant imperfectly adheres to paper in drying.

Hab.: On rocks between tide-marks often near high tide. Common along the warmer part of the country.

PL. CXCIII. Fig. 1-3: different forms of *Laurencia obtusa* (Huds.) Lamour. from different localities, $\frac{1}{1}$.—Fig. 4-5: portion of branch, magd., $\frac{10}{1}$, $\frac{5}{1}$, resp.—Fig. 6: cystocarp, $\frac{13}{1}$.—Fig. 7: tetrasporic branch, $\frac{1}{1}$.—Fig. 8: tetrasporic branch magd., $\frac{10}{1}$.

Sporochnus radiciformis (R. Br.) C. Ag.

Nom. Jap.: *tamakeyari.*

PL. CXCIV.

Sporochnus radiciformis (R. Br.) C. Ag.; J. Ag. Sp. Alg. I, p. 157; Kütz. Sp. Alg. p. 568; Harv. Phyc. Austr. t. 225; De Toni Syll. Alg. III, p. 382; Yendo Notes on Algae new to Jap. V, p. 249.—*Fucus radiciformis* R. Brown in Turn. Hist. Fuci t. 189.

Plants now before us not fully grown. *Root* a small conical disc covered with yellowish brown hairs. *Frond* erect with a cylindrical percurrent stem, ca. 0.5 mm in diam., becoming gradually narrower upward, 15-20 cm high, pinnately branched on

Sporochnus radiciformis (R.Br.) Ag. たまけやり

Sporochnus scoparius Harv. けやり

all sides with alternate, simple, very patent branches. *Receptacles* globular or oblong, shortly stipitate, furnished with long penicillate hairs at apex, abruptly attenuated to pedicel. *Colour* olive-brown fading to greenish. *Substance* rigid when fresh, and the plant imperfectly adheres to paper in drying.

Hab.: On rocks in deep tide. Amakusa (5-7 fath., Mr. Higashi), Iyo and Higo.

PL CXCIV. Fig. **1**: frond of *Sporochnus radiciformis* (R. Br.) C. Ag., $\frac{1}{1}$.—Fig. **2**: apex of young receptacle with penicillate hairs in logitudinal section, $\frac{336}{1}$.—Fig. **3**: base of penicillate hairs, showing some of them arising in dichotomy, $\frac{336}{1}$. —Fig. **4**: apical hair showing its basal growth, $\frac{48}{1}$.—Fig. **5-7**: receptacles in different stage of growth, $\frac{13}{1}$, $\frac{22}{1}$, $\frac{13}{1}$ resp.—Fig. **8**: longitudinal section of receptacle, $\frac{22}{1}$.—Fig. **9**: cross-section of receptacle, magd.—Fig. **10**: two sporangiophores bearing sporangia, $\frac{220}{1}$.

Sporochnus scoparius Harv.

Nom. Jap: *Keyari.*

PL. CXCV.

Sporochnus scoparius Harv. Phyc. Aust. t. 226; Kütz. Tab. Phyc. IX, t. 84, f. 1; De Toni Syll. Alg. IV, p. 383; Yendo Notes on Algae new to Jap. V, p. 249.—*Sp. herculeus* J. Ag.? in Okam. Synop., 日本藻類名彙 (2nd ed.) p. 161.

Root rather large conical disc covered with yellowish brown woolly hairs pretty above the disc. *Frond* robust, with a thick cylindrical, percurrent stem, densely branching pinnately on all sides in alternate manner, with simple elongated branches in our species. *Receptacles* oblong or clavate when fully grown, abruptly attenuated to pedicel which is 4-5 times long as receptacle (re-

ceptacle 1.5-7.5 mm long, and receptacle and pedicel taken together measure 7-9 mm in length, mostly 5 mm). *Colour* brown. *Substance* rigid and the palnt when fully grown does not adhere to paper in drying.

Hab.: Misaki, Tosa, Kii, Shima, Suruga.

PL. CXCV. Fig. **1**: fully grown frond of *Sporochnus scoparius* Harv., $\frac{1}{1}$.—Fig. **2-11**: receptacles in different stages of growth, $\frac{13}{1}$; 2-5, taken from the frond shown in the fig. 1; 6-9, from another specimen; 10-11, from still another one; the upper part of branch above the portion marked *a* in fig. 10 matures to receptacle.

Ahnfeltia Fries 1835.

さいみ属

GIGARTINACEAE. すぎのり科

體ハ圓柱狀，叉狀又ハ側面ヨリ分岐シ(時トシテハ不規則ニ)，角質ニシテ極メテ緻密ナル，小サキ細胞ヨリ成ル：皮層ハ極メテ小ナル細胞ノ表面ニ直角ニ絲狀ニ連ナレルモノヨリ成リ，漸次內層ニ移リ，內層ノ細胞ハ幾分大ク互ニ連絡點ヲ以テ連結シ，一定ノ順序ナク結合ス；寒天質ハ極メテ乏シク甚シク强靭ナリ.—四分胞子及精子ハ詳ナラズ. 囊果ハ枝ノ側面ニ疣狀ニ膨大シ，數多ノ小仁ヨリ成ル.

模範種ハ A. plicata (Huds) Fries ニシテ弘ク北半球ノ寒冷ノ海ニ分布シ，2–3 ノ他ノ種類ハ諸々ノ海ニ在リ.—屬ノ名ハ Ahnfelt 氏ノ名ニ依ル.—此屬ハすぎのり科ニ置カルヽト雖モ從來囊果ノ性質不明ナリシヨリ類緣明ナラザルモノトセラレ，構造ノ上ヨリ Gymnogongrus ニ近シトセラレタリ. 予ハ今此屬ノ一二ノ種ヲ研究シテ其 Gymnogongrus 屬ト異ナル點唯僅ニ體ノ概ネ圓柱狀ナルコト(但シ扁平又ハ扁圓ノ部分モアリ)ヲ以テ其全ク扁平ナル Gymnogongrus 屬ト異ナリト考フルノミ；然レドモ本屬ノモノト雖モ全部圓柱狀ノミニアラザルヲ以テ此點ニ依テ二屬ヲ別ツノ至當ナルカ否ヤヲ疑フモノナリ；尙將來ノ研究ニ俟ントス.

Ahnfeltia concinna J. Ag.

さいみ

第 CXCI 圖版，1–7 圖

體ハ簇生シテ廣キ區域ヲ蔽ヒ，直立，角質，稍圓柱狀，高サ 5–15 cm，直徑 1–2 mm ニシテ，基部ヨリ多少長キ間稍莖ノ如キ觀ヲ呈シ，時トシテハ全ク單條ニシテ枝ナキコトアリ，然レドモ通常ハ體ノ上部ノ方ニ 2–3 回叉狀ニ不規則ニ廣開シテ分枝シ，且ツ副枝ヲ存ス；副枝ハ往々相集リテ出デ或ハ偏在ス. 各部ハ圓柱狀又ハ輕ク扁壓シ，往々グネグネト屈曲シ，銳角ノ腋ヲ以テ廣開ス. 囊果ハ上部ノ枝ニ多數相接近シテ生ジ，少シク疣狀ニ

膨出ス. 色ハ暗紫色又ハ帶綠色ニシテ乾燥スルトキハ黑色トナル. 質ハ角ノ如ク硬ク, 乾燥スルトキハ紙ニ附着セズ.

產地: 潮線間ヨリ高潮線以上ニ及ベル岩石ニ簇生シ, 附着層ノ高サハ6–8 尺ニ達ス. 小笠原島, 七島, 房州, 紀模, 伊勢, 豊後佐賀關.

分布: 太平洋亞熱帶諸島; 布哇, ペルー.

第 CXCI 圖版, 1–7 圖. 1: Ahnfeltia concinna J. Ag., さいみ, ノ自然ノ態, $\frac{1}{1}$.—2–3: 嚢果ヲ有スル乾燥標品, $\frac{1}{1}$.—4: 佐賀ノ關產ノ嚢果ヲ有スルモノ (乾燥品), $\frac{1}{1}$.—5: 嚢果ヲ有スル枝ノ橫斷面, $\frac{48}{1}$.—6: 橫斷面ノ一部, $\frac{83}{1}$.—7: 縱斷面ノ一部, $\frac{353}{1}$.

ながこのはのり, Delesseria Middendorffii Rupr., ノ四 胞子ヲ有スル葉.

第 CXCI 圖版, 8–11 圖

ながこのはのり, Delesseria Middendorffii Rupr., (第二卷, 第七集, 第118–120 頁, 第 LXXXIV–LXXXV 圖版, 1–7 圖) ノ四分胞子ヲ熟スル成實葉ハ中肋ノ兩面ニ於テ其兩側ヨリ單獨ニ又ハ集リテ出デ, 球狀, 卵形, 俵狀又ハ倒卵形ニシテ, 厚ク, 且輕ク扁壓シ, 短柄ヲ有シ, 時トシテハ緣邊ニ沿フテ翼狀片ヲ存シ, 1.5–2.5 mm 長ク, 1.5–2 mm ノ幅アリ. 成實葉ヲ橫斷スルトキハ中肋ノ兩面ニ於テ, 始原ノ層即チ基礎ナル層ノ上下兩側ニ各二層ノ四分胞子層ヲ見ル. 四分胞子ハ皮層ト始原ナル中層トノ中間ニ存スル皮層組織ノ細胞ヨリ形成セラル.

第 CXCI 圖版, 8–11 圖. 8: ながこのはのり, Delesseria Middendorffii Rupr., ノ四分胞子ヲ熟スル成實葉ヲ有スル葉, $\frac{1}{1}$.—9: 同上ノ一部, $\frac{5}{1}$.—10: 成實葉ヲ緣邊ヨリ見タルモノ, 廓大—11: 成實葉ノ橫斷面ノ半分, $\frac{48}{1}$.

Laurencia pinnatifida (Gm.) Lam.

はねそゞ　　岡村稱

第 CXCII 圖版

體ハ扁平盤狀ノ根ヲ以テ叢生シ, 5–15 cm 高ク, 基部殆ド圓柱狀, 多少上方ニ扁壓シ, 大部分ハ 1–4 mm ノ幅ヲ有シ, 最末羽枝ニテ 0.5–1 mm ノ幅アリ, 2–3 回羽狀ニ兩緣ヨリ互生ス. 枝ハ略ボ線狀, 往々基部ノ方ニ細ク或ハ少シク上方ニ廣ク, 廣開シ, 殆ド 45° ノ角度ヲ以テ立チ, 枝端鈍圓又ハ分裂ス. 枝ノ輪廓ハピラミツド狀ニシテ最下部ノ枝最モ長シ. 最末羽枝ハ單條ニシテ線狀又ハ線狀—棍棒狀ヲナシ頂端ノ方ニハ截形又ハ少シク擴ガリ, 往々數個ニ淺ク分裂ス. 四分胞子ハ最末小枝ノ頂部ニ集リテ生ジ, 其枝ハ特ニ形ヲ變ルコトナシ. 嚢果ハ卵形—壺狀ニシテ廣キ果口ヲ有シ, 小羽枝ノ側面ニ座ス. 色ハ暗紫紅色ニシテ往々褪色シテ帶綠黃色トナル. 質ハ多肉ニシテ少時ニシテ軟化ス; 體ハ乾燥スルトキハ可ナリ能ク紙ニ附着ス.

產地: 低潮線以下ノ岩石ニ在リ. 琉球ヨリ函館ニ到ル太平洋岸ニ普通ナリ又日本海沿岸ニモアリ.

分布: 太西洋, 地中海.

第 CXCII 圖版. 1–3: Laurencia pinnatifida (Gm.) Lam. ノ體ノ種々ノ形態, $\frac{1}{1}$.—4: 枝ノ橫斷面, $\frac{8}{1}$.—5: 枝ノ一部, $\frac{7}{1}$.—6: 四分胞子ヲ有スル枝, $\frac{7}{1}$.—7: 體ノ表面ヲ透シテ視タル四分胞子, $\frac{220}{1}$.—8: 四分胞子, $\frac{220}{1}$.—9: 嚢果, $\frac{10}{1}$.—10: 嚢果ノ縱斷面, $\frac{48}{1}$.

Laurencia obtusa (Huds.) Lamour.

みつでそゞ　　岡村稱

第 CXCIII 圖版

體ハ往々稍錯綜シ, 圓柱狀ニシテ, 0.5–1.5 mm 以上太ク, 多クハ羽狀ニ分岐シ, 枝ハ複總狀ニシテピラミツド狀ノ輪廓ヲ有ス. 枝及小枝ハ互生又ハ對生シ, 其處此處ニ三ツヅヽ若クハ三ツ以上出デ, 殆ド輪生シ, 廣開

シ又ハ略ボ水平ナリ．小枝ハ圓柱狀又ハ棍棒狀ニシテ，頂端截形又ハ略ボ圓ク，單條又ハ稍長キモノハ其頂端下ニ於テ再ビ分枝シ，1–10 mm 長ク，300–900 μ 太ク，往々三裂ス．四分胞子ハ小枝ノ少シク太クナリタル頂部ニ集ル．囊果ハ卵形，無柄ニシテ上部ノ枝及小枝ノ側面ニ座ス．色ハ暗紫色ニシテ往々帶綠若クハ帶黃色ニ變ズ．質ハ鮮ノ時ハ軟キ軟骨質ニシテ，乾燥スルトキハ紙ニ附着スルコト充分ナラズ．

產地：潮線間ノ岩石ニ生ジ，往々高潮線近ク存ス．邦內溫暖ノ海ニ普通ナリ．

分布：太西洋，地中海．

第 CXCIII 圖版．1–3：Laurencia obtusa (Huds.) Lam.，みつでそゝノ諸所ノ產，$\frac{1}{1}$.—4–5：枝ノ一部，夫々 $\frac{10}{1}$，$\frac{5}{1}$.—6：囊果，$\frac{13}{1}$.—7：四分胞子ヲ有スル枝，$\frac{1}{1}$.—8：四分胞子ヲ有スル枝ヲ廓大シタルモノ，$\frac{10}{1}$.

Sporochnus C. Ag. 1817. けやり屬

SPOROCHNACEAE　　けやり科

體ハ絲狀ニシテ各方面ニ規則正シク分岐シ，多クハ明ニ長條枝ト短條枝トノ區別ヲ存ス．短條枝ハ後ニ實ヲ熟スルニ到リ，實ハ圓柱狀又ハ棍棒狀乃至楕圓狀又ハ畧ボ球狀ナリ．子囊托ハ短クシテ，僅少ノ關節ヨリ成リ，多少分岐シ，其ノ枝ハ棍棒狀ニシテ頂細胞ハ圓ク，子囊ハ枝ノ側面ニ平等ニ附着シ，實ヲ熟シタル短條枝ノ周圍ニ密集シテ其頂端ヨリ毛茸ノ束ヲ生ジ，短條枝ハ之ガ爲ニ圓柱狀又ハ棍棒狀等ノ實ヲ形成スルニ至ル．

約 13 種アリテ多數ハオーストラリアノ海ニ產シ，二三太西洋及地中海等ニ產ス．一屬ノ名ハ Spora (胞子) ト chnous (毛) トヨリ成ル．

Sporochnus radiciformis (R. Br.) C. Ag.

たまけやり　　岡村稱

第 CXCIV 圖版

今予ノ有スル標本ハ未ダ充分成長シタルモノニアラズ．根ハ小サキ圖

錐狀根ニシテ帶黃褐色ノ毛ヲ以テ蔽ハル．體ハ直立シ，圓柱狀ノ莖ヲ有シ，莖ハ直通シ，直徑約 0.5 mm，漸次上方ニ細ク，15–20 cm 高ク，各方面ニ羽狀ニ分岐シ，枝ハ單條ニシテ互生シ，甚シク廣開ス．實ハ球狀又ハ長楕圓狀ニシテ短柄ヲ有シ，頂端ニ長キ毛茸ヲ叢生シ下部急ニ柄トナル．色ハオリーブ褐色ニシテ，往々綠色トナル．質ハ鮮時ハ硬クシテ體ハ乾燥スルトキハ紙ニ附着スルコト充分ナラズ．

產地：潮線下ノ岩石ニ生ズ．天草島 (5–7 尋，東氏)，伊豫及肥後．

分布：ニウフホルランド．

第 CXCIV 圖版．1：Sporochnus radiciformis (R. Br.) C. Ag.，たまけやりノ體，$\frac{1}{1}$.—2：若キ實アル短條枝ノ縱斷ニシテ頂端ニ毛茸ヲ存スルモノ，$\frac{336}{1}$.—3：毛茸ノ基部ニシテ其叉狀ヲナシテ出ルモノアルコトヲ示ス，$\frac{336}{1}$.—4：一條ノ毛ノ基部分裂シテ伸長スルコトヲ示ス，$\frac{48}{1}$.—5–7：實ノ種々ノ成長度ニアルモノ夫々，$\frac{13}{1}$，$\frac{22}{1}$，$\frac{13}{1}$.—8：實ノ縱斷，$\frac{22}{1}$.—9：實ノ橫斷，廓大.—10：二個ノ胞子托，$\frac{220}{1}$.

Sporochnus scoparius Harv.

けやり　　岡村稱

第 CXCV 圖版

根ハ可ナリ大ナル圓錐狀盤ニシテ黃褐色ノ毛茸ヲ以テ蔽ハレ，毛ハ根ノ可ナリ上部ニ達ス．體ハ强大ニシテ太キ圓柱狀ノ直通セル莖ヲ有シ，密ニ各方面ニ羽狀ニ分岐シ枝ハ互生ニシテ，現在スル標本ニテハ，長クシテ單條ナリ．實ハ充分成長スルトキハ長楕圓形又ハ棍棒狀ヲナシ急ニ細クナリテ柄トナリ，柄ノ長サハ實ノ長サノ 4–5 倍ナリ (實ノ長サハ 1.5–7.5 mm. ニシテ，實ト柄ト一緒ニシテ 7–9 mm. アリ，多數ハ 5 mm ナリ)．色ハ褐色．質ハ硬ク，乾燥スルトキハ體ハ紙ニ附着セズ．

產地：相模三崎，土佐，紀伊，志摩，駿河．

分布：オーストラリア．

第 CXCV 圖版．1：充分成長シタル Sporochnus scoparius Harv.，けやり

ノ體, $\frac{1}{1}$.—2-11：實ノ種々ノ大サト形狀, $\frac{12}{1}$; 2-5, 1 圖ニ示シタル體ヨリ寫ス; 6-9, 他ノ標品ヨリ; 10-11, 又別ノ標品ヨリ; 10 圖ノ a ト印シタル部分ヨリ上部ハ實トナルコトヲ示ス.

K. OKAMURA.

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第四卷　第十集

理學博士　岡村金太郎　著

ICONES OF JAPANESE ALGÆ.

Vol. IV. No. X.

BY

K. OKAMURA *Rigakuhakushi.*

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,, var. lycopodioides f. elegans. びやくしんづた一品種
Derbesia Lamourouxii (J. Ag.) Solier. つゆのいと

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Odonthalia ochotensis (Rupr.) J.Ag. しのぶばのこぎりひば Fig. 1-6.
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Symphyocladia pennata Okam. ひめこざね Fig. 9-13.

Odonthalia ochotensis (Rupr.) J. Ag.

Nom. Jap.: *Shinobuba-nokogirihiba.*

PL. CXCVI, Fig. 1–6.

Odonthalia ochotensis (Rupr.) J. Ag. Sp. Alg. II, p. 897; De Toni Syll. Alg. IV, p. 1140.—*Atomaria ochotensis* Rupr. Alg. Ochot. p. 20 (212), tab. 9.

Fronds coespitose, rising from a common scutate disc (?), flat, linear, alternately decompound-pinnate, distichous, thickened below into sub-cylindrical stem, soon complanated above; in the lower portion of frond margins are rough by remains of dropped branches. In older frond the lower portion is transformed into a thick cylindrical stem, and the plant attains the height of 20-30 cm. Rachis scarcely exceeding 1 mm. in breadth, evidently provided with midrib and marginated, gradually becoming a little broader and more membranaceous upward, 1.5-2 mm. in breadth. Midrib becomes prominent by evolution of cortical layers almost occupying the median portion of branch and very gently flexouse. Pinnae arise from margin, and similarly shaped pinnae also proliferated from margins are attenuated at the base in young stage, but when fully grown become almost equally broad. Sterile ones are elongated, while fertile ones more contracted, more flabellate and all stand erecto-patent. Pinnulae dentiform or elongated, in some almost subulate, slightly incurved in upper ones.—*Stichidia* formed in terminal or lateral pinnae, flabellato-corymbose, pinnato-fasciculated, each provided or not provided with a short pedicel, linear-lanceolate, slightly contracted at every articulation, containing double row of tetraspores that is with two oppositely placed tetraspores in a single articulation. *Cystocarps* obliquely situated beneath the apex of pinnule and calcalated,

ovato-urceolate, somewhat contracted at orifice. *Colour* fuscous. *Substance* membranac ous and the plant does not adhere to paper in drying.

Hab: Kabafuto, Shumushu, Urupp; Robben Island.

Pl. CXCVI, fig. 1-6. Fig. **1**: frond of *Odonthalia ochotensis* (Rupr.) J. Ag., $\frac{1}{1}$.—Fig. **2**: portion of frond, $\frac{1}{1}$.—Fig. **3**: upper sterile portion of cystocarpic frond, $\frac{13}{1}$.—Fig. **4-5**: tetrasporic ramuli, one slightly attenuated below, the other not; 4: $\frac{34}{1}$, 5: $\frac{13}{1}$.—Fig. **6**: cystocarp, slightly magd.

Symphyocladia pennata Okam. Sp. nov.

Nom. Jap.: *Himé-kozané.*

PL. CXCVI, Fig. 7–9; PL. CXCVII, Fig. 9–13.

Pterosiphonia parasitica (non Fkbg.) Yendo Notes on Alg. New to Jap. VIII. (Bot. Mag. Tokyo Vol. 32, 1928, p. 78).

Fronds dwarf, filiform, creeping or erect, standing from basal creeping portion where the plant adheres to other algae by emiting root fibres from the under-surface, throughly ecorticated, alternato-pinnately decompound, with patent or widely parted branches densely arising near to each other. Longer shoots pinnately branched in disticho-alternate manner with broader or slenderer, shorter or longer laciniae, or with sooner or later limited similarly pinnated short lateral branches. Laciniae grow together in more or less congenital manner; in adult ones each lacinia furnished with isolated, well-defined single apical cell, while in younger ones 2 or 3 apical cells are seen growing in a congenital manner as shown in Pl. CXCVII, fig. 10 and older stunted branches on the basal portion of frond is often much expanded with flabellately running midribs (fig. 12). Monosiphonous hairs entirely wanting.

—*Tetraspores* formed in the laciniae of the upper segment in one longitudinal row. *Colour* vinoso-red. *Substance* membranaceous and the plant does not adhere to paper in drying.

Hab: on the frond of other algae, Noh (Prov. Echigo).

The present plant has been identifyed by late Prof. Yendo as *Pterosiphonia parasitica* Fkbg. It has a very close external appearance of *Pterosiphonia*, but as the congenital nature of apical portion of branches, especially of younger ones, tells its difference from that genus, it should be better to put the plant in question in *Symphyocladia.*

Of all the species of *Symphyocladia* known in this country the present plant stands very near by *S. linearis* Okam. which differs by having very much elongated fronds. With exception of the difference of size the two plants resemble in having much separated laciniae. On the other hand, the plant in question has an appearance very closely resembling the narrower form of *S. marchantioides* (Harv.) Fkbg., from which however it differs in having much separated laciniae.

Taking into consideration that the water of the Japan Sea is always a little colder than that of the Pacific of this country and that the plant of one and the same species often takes much a different form and appearance in the both waters, I am in doubt whether the present plant is not a dwarf variety of *S. linearis* Okam. or a narrower form of *S. marchantioides.* But at present I refer it provisionally as a new species.

Pl. CXCVI, fig. 7-9. Fig. **7**: two fronds of *Symphyocladia pennata* Okam. from Noh, $\frac{1}{1}$.—Fig. **8**: terminal segments of creeping portion, $\frac{83}{1}$.—Fig. **9**: portion of frond, $\frac{8}{1}$.

Pl. CXCVII, fig. 9-13: Fig. **9**: portion of branch, $\frac{83}{1}$.—Fig. **10**: apical cells of congenital ramuli, $\frac{353}{1}$.—Fig. **11**: tetrasporic

branch, $\frac{13}{1}$.—Fig. **12**: portion of fig. 11, to show congenital growth of ramuli, $\frac{83}{1}$.—Fig. **13**: tetrasporic laciniae, $\frac{83}{1}$.

Trichogloea lubrica (Harv.) J. Ag.

Nom. Jap.: *Akebonomozuku.*

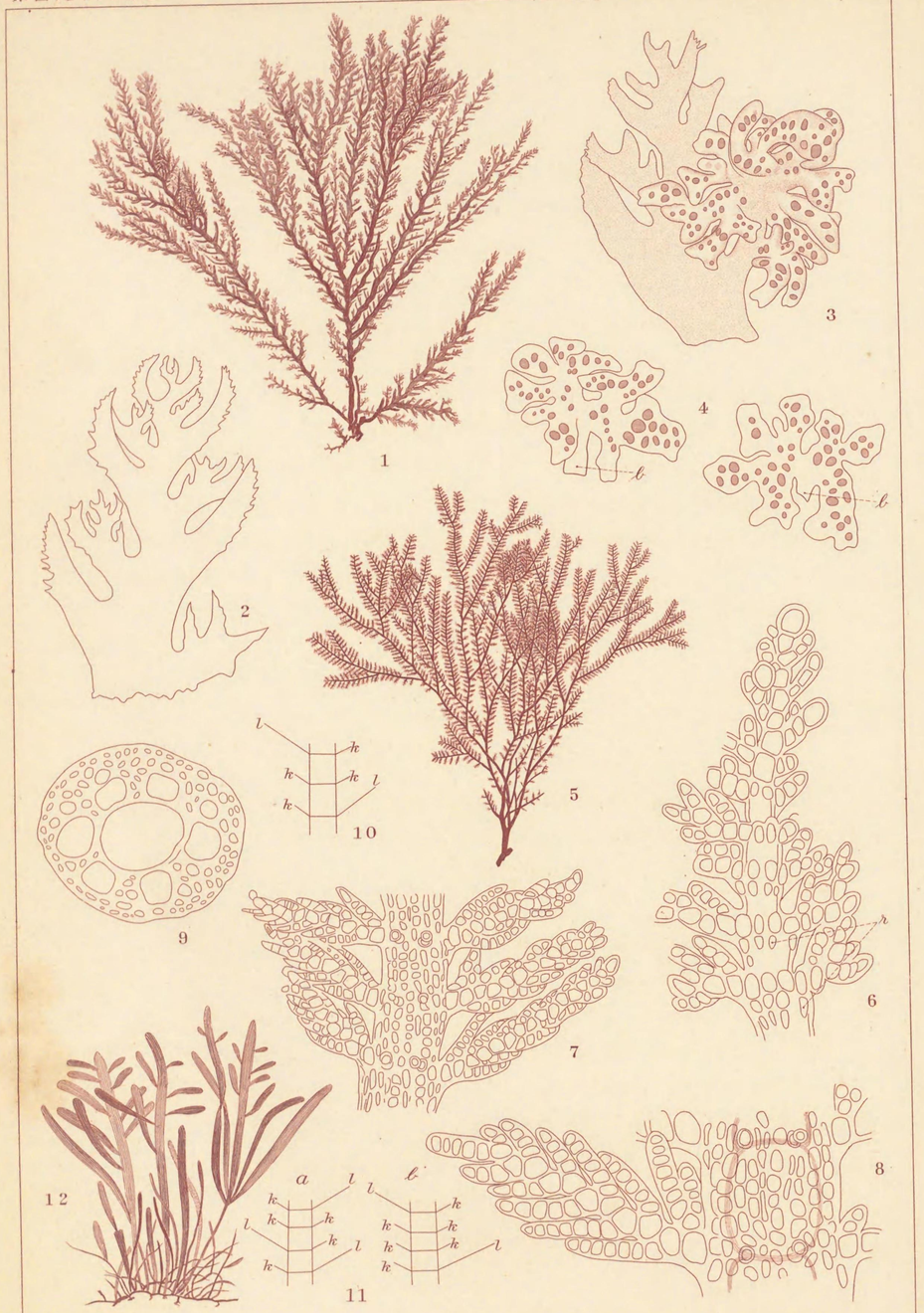
PL. CXCVII, Fig. 1–8.

Trichogloea lubrica (Harv.) J. Ag. Epicr. p. 514; Id. Till Alg. Syst. XI, p. 41; De Toni Syll. Alg. IV, p. 77.—*Helminthocladia Cassei* Crouan in Mazé and Schramm Alg. Guadel. p. 177.

Root a small soft disc. *Frond* mostly simple, filiform or cylindrical, weak, tapering at base, pinnately branched decompound, in irregularly alternate manner. Main stem mostly simple or parted, closely set throught its whole length with patent branches equally thick as stem, scarcely 1.5 mm. in thickness with thinnly encrustated axis whose diameter is much less than the thickness of peripheral layer. Branches worm-like, usually not attenuated at base, tapering to a slender apex, loaded with lateral simple or forked patent branchlets with longer or shorter ones mixed.—*Cystocarps* dot-like, situated in the peripheral layer and consist of a globular mass of spores. *Colour* beautiful red soon fading in freshwater. *Substance* soft, gelatinoso-mucose, lubricous and the plant closely adheres to paper in drying.

Hab.: on rocks between tide-marks near low tide. Ryukyu (Harv.), Nomo-zaki, Hachijo-Shima.

Pl. CXCVII, fig. 1-8. Fig. **1**: frond of *Trichogloea lubrica* (Harv.) J. Ag. from Hachijo, $\frac{1}{1}$.—Fig. **2**: optic longitudinal section of frond, $\frac{22}{1}$.—Fig. **3**: portion of the longitudinal section of frond, $\frac{45}{1}$.—Fig. **4**: cystocarp and peripheral filament, $\frac{220}{1}$.—Fig.



K. Okam. del.

Plocamium costatum Hook. et Harv. きざみゆかり Fig. 1 - 4.
Dasyphila plumarioides Yendo. おきしのぶ Fig. 5 - 11.
Gelidium crinale (Turn.) Lamour. f. latifolium n.f. いとてんぐさ新形 Fig. 12.

5: procarp (trichogyne is not bent in natural state), $\frac{567}{1}$.—Fig. **7-8**: portion of longitudinal and cross sections of cystocarp, diagramtic.

Plocamium costatum (J. Ag.) Hook. et Harv.

Nom. Jap.: *Kizami-yukari.*

PL. CXCVIII, Fig. 1–4.

Plocamium costatum (J. Ag.) Hook. et Harv.; Yendo Notes on Algae New to Jap. VIII, (Bot. Mag. Tokyo, vol XXXII, n. 376, p. 68, 1918); Harv. Ner. Aust. p. 122 partim; Kg. Sp. Alg. p. 886; Id. Tab. Phyc. vol. XVI, t. 52, f. *d-e*; J. Ag. Sp. Alg. II, p. 403; Id. Epicr. p. 344; De Toni Syll. Alg. IV, p. 597.

Only one specimen now before us. *Frond* flat, linear, thin membranaceous, about 7 cm. high, scarcely 1 mm. broad, gently flexuose. Branches distichous, 2-4 times decompound pinnate, alternate and erecto-patent, the lower ones longer than the upper and gradually becoming shorter above, so that the outline is somewhat corymbose; they are throught alternate in geminate manner (*i. e.* two on one side and as many on the other), of which the lower one is always simple, while the upper decompounded; the simple one 2-3 mm. long, tapering to a fine point from broader base, widely parted in lower or middle ones, and more or less incurved in upper ones. The lower simple lacina of geminate ones furnished with microscopically minute teeth-like serrations along the outer margin.—*Sporophylls* forming divaricato-dichotome stellate clusters provided with a short pedicel composed of sublanceolate or linear ramuli, which is transformed from lacinulae.

Hab.: Kōtōsho (Taiwan).

Our plant seems to differ from the typical one in not having the midrib and basal stem-like portion. Habit, texture and mode of branching are very similar to *Pl. abnorme* H. et H. (Pl. CI of the present Icones), only differing in having serrated margin on the outer side of the simple lacina of geminate ones. The plant now in consideration may probably be a form which grows on the northernmost limit of the distribution of the present species and as consequence having much smaller size, thin, fine and membranaceous texture, and the midrib invisible or not manifest. A hybrid of *Pl. abnorme* and *Pl. costatum?*

Pl. CXCVIII, fig. 1-4. Fig. **1**: frond of *Plocamium costatum* H. et H., $\frac{1}{1}$.—Fig. **2**: upper portion of branch, $\frac{22}{1}$.—Fig. **3**: sporophylls, $\frac{48}{1}$.—Fig. **4**: sporophyll; *b*, pedicel, $\frac{48}{1}$.

Dasyphila plumarioides Yendo.

Nom. Jap.: *Okishinobu.*

PL. CXCVIII, Fig. 5–11.

Dasyphila plumarioides Yendo Nov. Alg. Jap. Decas I–III (Bot. Mag. Tokyo Vol. 34, p. 7, 1920).

Frond filiform, little thickening below to subcylindrical stem, gradually compressed upward, irregularly alternately decompound with patent branches, expanding in a subflabellate manner. Branches are loaded with elegant pinnae (*k,k* in fig. 10-11). Pinnae which arise in opposite manner sooner or later make limited growth and are callithamnioid that is consist of single row of cells. They are alternately pinnulated with pinnulae arising from every articulation of the rachis. One of pinnae standing opposite may grow up into branch (*l,l* in fig. 10-11) and branch usually arises from every second node (*i.e.*, intervening a pair of

Homoeostrichus Sinclairii (H.et H.) J.Ag. やぶれあふぎ Fig. 1-4.
Desmarestia aculeata (L.) Lamour. とげうるしぐさ Fig. 5-9.

pinnae) (fig. 10); but this rule is often disturbed, there being some irregularities so as to intervene one or three articulations (fig. 11 *a*, *b*). On the surface of branches two weakly developed moniliform filaments or hairs are seen at articulations (fig. 7). That these hairs are really simple moniliform branch consisting of 2-4 articulations and remaining in non-developing state is seen in a very young branch which is composed of simple moniliform row of cells and still having no cortical cell (fig. 6). On the cross-section of branch a large central axis is seen surrounded by 6 larger cells, two of which standing at frank side give rise to pinnae and other remain either undeveloped or grow to simple moniliform hair-like branch consisting of a few articulations. Cortical layer is produced as rhizoid-cells arising from the basal cell of lateral branches (fig. 6).—*Tetraspores* produced on the terminal cell of pinnule, roundish, tripartite.

Hab.: Kōtōsho (Taiwan).

Pl. CXCVIII, fig. 5-11. Fig. **5**: frond of *Dasyphila plumarioides* Yendo, $\frac{1}{1}$.—Fig. **6**: young shoot, $\frac{353}{1}$.—Fig. **7**: pinnae and moniliform branches, $\frac{220}{1}$.—Fig. **8**: one of pinnae, $\frac{353}{1}$.—Fig. **9**: cross-section of branch, $\frac{220}{1}$.—Fig. **10-11**: diagramatic illustrations of mode of branching; *l*, non-limited branch; *k*,*k* limited branches or pinnae.

Gelidium crinale (Turn.) Lamour. f. latifolium n. f.

Nom. Jap.: *Itotengusa.*

PL. CXCVIII, Fig. 12.

Fronds linear, erect, standing from creeping and rooting stolon, filiform and naked below, 5-6 cm. long, dilating to narrow-linear segments; 1-1.5 mm. broad which give rise to slender similar-shaped linear branches irregularly arising in alternate,

clustered or scattered manner. They are gradually or abruptly tapering toward their bases and end in blunt apices.

Hab.: on shallow place at Kamakura (Higashi).

A form distinguished from the typical form by having a rather broader narrow-linear segments.

Pl. CXCVIII, fig. 12 : frond of *Gelidium crinale* (Turn.) Lamour. f. *latifolium* n. f., $\frac{1}{1}$.

Homoeostrichus Sinclairii (H. et H.) J. Ag.

Nom. Jap.: *Yabure-ōgi.*

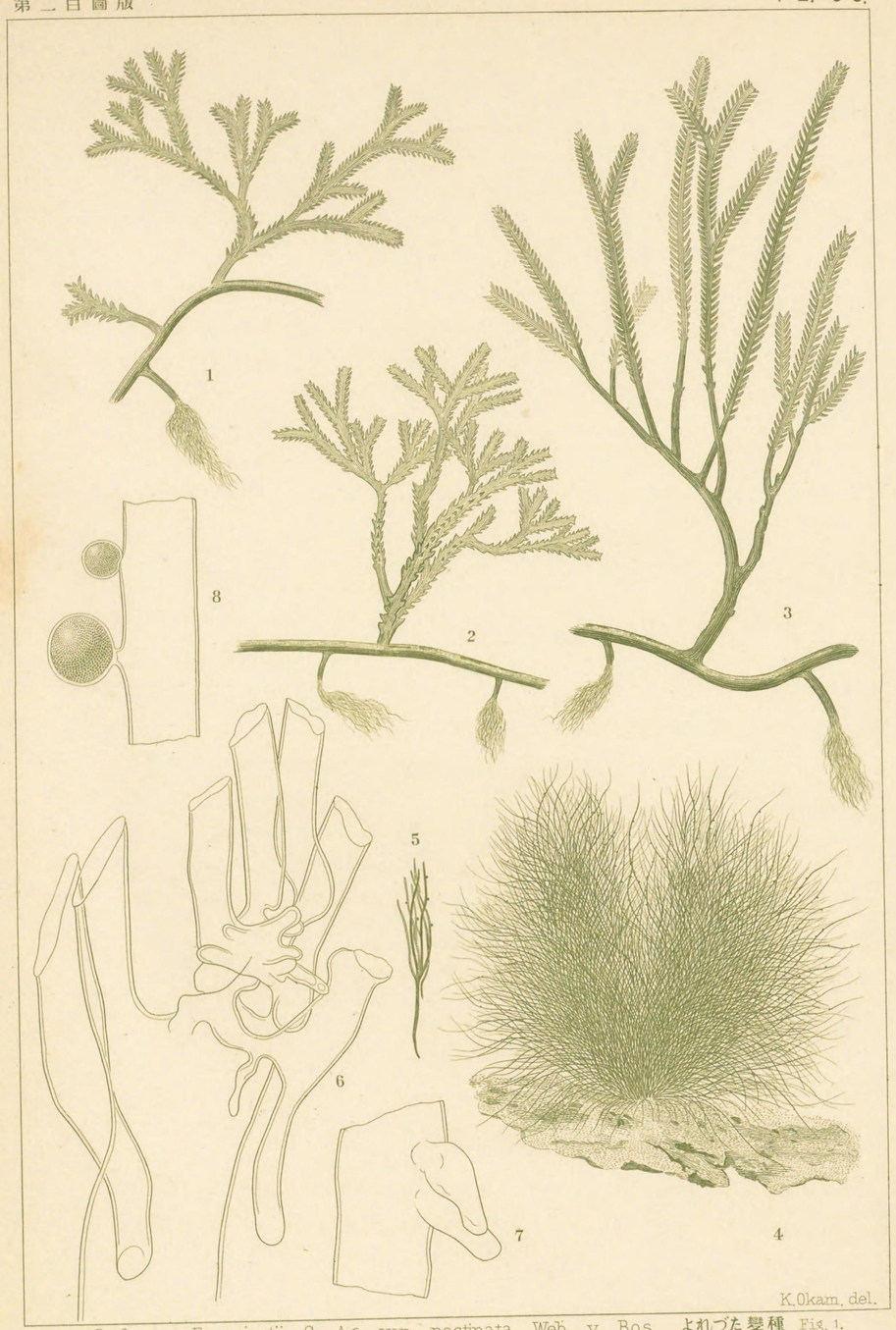
PL. CXCIX, Fig. 1–4.

Homoeostrichus Sinclairii (H. et H.) J. Ag. Anal. Alg. Cont. I, p. 15 ; De Toni Syll. Alg. III, p. 236.—*Zonaria Sinclairii* Harv. Phyc. Aust. t. 49 ; J. Ag. Sp. I, p. 111 ; Id. Till Alg. Syst. II, p. 50.—*Phycopteris Sinclairii* Kg. Tab. Phyc. IX, t. 68, f. 2.—*Stypopodium Sinclairii* Kg. Sp. p. 564.

Fronds erect standing from stupose conical disc, parted below into elongated stupose or naked slender segments which expand at apices into narrower or broader more or less clefted cuneate lamina. The lower portion of frond sometimes is for the most part thickly stupose. Lamina cuneate, long attenuated below into slender petiole, simple and entire or subpinnately or radially clefted. Stupose filaments are emitted from the cells of external layer of frond.

Hab.: Ryukyu.

Pl. CXCIX, fig. 1-4. Fig. **1**: frond of *Homoeostrichus Sinclairii* (H. et H.) J. Ag., $\frac{1}{1}$.—Fig. **2**: cross-section of frond, $\frac{33}{1}$.—Fig. **3**: portion of cross-section of frond, $\frac{353}{1}$.—Fig. **4**: stupose hairs, $\frac{83}{1}$.



Caulerpa Freycinetii C. Ag. var. pectinata Web. v. Bos. よれづた變種 Fig. 1.
C. cupressoides C. Ag. var. typica Web. v. Bos. びやくしんづた變種 Fig. 2.
C. cupressoides C. Ag. var. lycopodioides f. elegans Web. v. Bos. びやくしんづた變種 Fig. 3.
Derbesia Lamourouxii (J. Ag.) Solier. つゆのいと Fig. 4-8.

Desmarestia aculeata (L.) Lamour.

Nom. Jap.: *Togé-urushigusa.*

PL. CXCIX, Fig. 5–9.

Desmarestia aculeata (L.) Lam. Essai p. 25; Harv. Phyc. Brit., t. 49; Kg. Sp. p. 571; Kg. Tab. Phyc. IX, t. 94; De Toni Syll. Alg. III, p. 459.—*Fucus aculeatus* Turn. Fuci t. 187.

Root a small scutate disc. *Frond* high, linear, filiform, with subcylindrical stem, compressed, coriaceous, percursed with immersed midrib, densely decompound-pinnate in a distichous alternate manner, with ultimate pinnulae spinulose or subulate. Margin of main branches often armed with small blunt dot-like protuberances after decaying of marginal spinules. *Colour* dark brown. *Substance* coriaceous and the plant does not adhere to paper in drying.

Hab.: Kabafuto.

Pl. CXCIX, fig. 5-9. Fig. **5**: frond of *Desmarestia aculeata* (L.) Lam., $\frac{1}{1}$.—Fig. **6-7**: *a*, branch; *b*, part of *a*, magd. $\frac{7}{1}$.—Fig. **8**: branch with broader segments, $\frac{1}{1}$.—fig. **9**: portion of older branch, magd.

Caulerpa Freycinetii C. Ag. var. **pectinata** Web. v. Bos.

Nom. Jap.: *Yoré-dzuta.*

PL. CC, Fig. 1.

Caul. Freycinetii C. Ag. var. pectinata Web. v. Bos. Monog. Caul., p. 316, pl. xxvi, fig. 3-6.

Stolon generally robust, cylindrical, creeping and naked. *Fronds* cylindrical or somewhat compressed at basal portion, soon

complanated above, linear, dichotomous, not torted, not narrowed and dilated, with proliferations, distichously pectinated along margins. Teeth short and fine, arising near to each other.

Hab.: Kishyu.

Pl. CC, fig. 1 : portion of frond of *Caulerpa Freycintii* C. Ag. *var. pectinata* Web. v. Bos. in nat. size.

Caulerpa cupressoides C. Ag. var. **typica** Web. v. Bos.

Nom. Jap.: *Biakushin-dzuta.*

PL. CC, Fig. 2.

Caulerpa cupressoides C. Ag. *var. typica* Web. v. Bos. Monog. Caul. p. 327, Pl. XXVII, fig. 1-3 : Pl. XXVIII, fig. 1.

Only one specimen now before us. *Stolon* thick, cylindrical and naked. *Frond* cylindrical at base, complanated above. Ramenta distichous, here and there tristichously arranged, subnaviculoid, short, erect or slightly spreading.

Hab.: Kishyu.

Pl. CC, fig. 2 : portion of frond of *Caulerpa cupressoides* C. Ag. var. *typica* Web. v. Bos., $\frac{1}{1}$.

Caulerpa cupressoides C. Ag. var. **lycopodioides** f. **elegans** Web. v. Bos.

Nom. Jap.: *Biakushin-dzuta.*

PL. CC, Fig. 3.

Caulerpa cupressoides C. Ag. var. *lycopodioides* f. *elegans.* Web. v. Bos. Monog. Caul. p. 335, Pl. XXVII, fig. 8-13 ; Pl. XXVIII, fig. 10-12, 14.

Stolon thick and robust, naked and cylindrical. Aerial shoots high, cylindrical and thick below, branched, with branches naked at base. Ramenta distichous, subnaviculoid, 2-3 times long as the breadth of rachis.

Hab.: Kishyu.

Pl. CC, fig. 3 : portion of frond of *Caul. cupressoides* C. Ag. var. *lycopodioides* f. *elegans* Web.v. Bos. in nat. size.

Derbesia Lamonurouxii (J. Ag.) Solier.

Nom. Jap.: *Tsuyu-no-ito.*

PL. CC, Fig. 4–8.

Derbesia Lamourouxii (J. Ag.) Solier In Ann. Sc. nat., 1848, p. 162, t. 9 ; Hauck Meeresalg. p. 476 ; De Toni Syll. Alg. I. p. 424.—*Bryopsis Balbisiana* Lam. Essai p. 66, t. 7, f. 2 ; Kg. Sp. p. 490.—*Bryop. Balbisiana var. interrupta* Kg. Tab. Phyc. VI, t. 74, f. 2.—*Bryop. dalmatica* (*Bryop. adriatica*) Kg. Tab. Phy. VI, p. 26, t. 74, f. 1.

Fronds filamentous, capillary-form, densely tufted forming a globular mass, 5-6 cm. high. Filaments 170-615μ thick (in herbarial form), rooting at lower portions, naked and almost simple or irregularly put forth minute branches. *Zoosporangia* globular, *ca.* 350 μ in diameter, subsessile (or with a short and delicate pedicel), single or many formed near together or subsecund.

Hab.: Kishyu.

Pl. CC, fig. 4-8. Fig. **4**: tuft of *Derbesia Lamourouxii* (J. Ag.) Sol., $\frac{1}{1}$.—Fig. **5**: branch bearing sporangia, $\frac{1}{1}$.—Fig. **6**: rhizoids emitted from upper segments, $\frac{48}{1}$.—Fig **8**: sporangia, $\frac{48}{1}$.

Odonthalia ochotensis (Rupr.) J. Ag.*

しのぶばのこぎりひば　　岡村稱

第 CXCVI 圖版, 1–6 圖

體ハ叢生シ, 共同ノ扁平盤狀根(?)ヨリ立チ, 扁平, 線狀ニシテ複羽狀ニ互生シ, 兩緣ヨリ枝ヲ分チ, 下部稍圓柱狀ノ莖トナリ, 上部直ニ扁壓ス; 體ノ下部ノ兩緣ハ枝ノ落チタル痕ノ爲ニ粗クナレリ. 老成セル體ノ下部ハ太キ圓柱狀ノ莖トナリ高サ 20–30 cm ニ達ス. 枝ノ幅ハ幸フシテ 1 mm. ニシテ明ニ中肋ヲ存シ, 中肋ノ左右ハ薄キ膜狀ヲナシ, 漸次上方ニ一際扁平トナリ且ツ少シク廣クシテ幅 1–2 mm トナル. 中肋ハ皮層組織ノ增厚スル爲メ隆起シ, 殆ド中央ヲ占メ, 極メテ微ニ雁木狀ニ屈曲ス. 羽狀枝ハ枝ノ兩緣ヨリ出デ, 緣邊ヨリ亦同樣ノ枝ノ副出スルモノアリテ, 始メハ基部ノ方ニ細ケレドモ, 充分成長スルトキハ各部略ボ同樣ノ幅トナル. 實ヲ熟スルニ到ラザル羽狀枝ハ長ク挺伸スレドモ實ヲ有スルモノハ短ク止リ扇狀ニシテ總テ直立樣ニ廣開ス. 小羽枝ハ歯狀ヲナシ又ハ少シク長ク伸ビ, 或者ニテハ殆ド錐狀ヲナシ其上部少シク內方ニ屈曲ス.—四分胞子托ハ頂端附近ノ羽狀枝若クハ側面ヨリ出ル羽枝ニ形成セラレ, 扇狀—纖房狀ヲナシ, 羽狀ニ分レ枝皆束狀ニ相集リ, 各短キ柄ヲ有スルカ或ハ有セズシテ細キ披針狀ヲナシ, 各節部ニ於テ輕ククビレ, 二列ノ胞子ヲ藏ス; 卽チ各節間ニ 2 個宛相對シテ胞子ヲ藏ス. 囊果ハ小羽枝ノ頂端ノ下ニ斜ニ坐シ距狀部ヲ存ス; 囊果ハ卵形ノ壺狀ニシテ口部稍狹シ. 色ハ黑味ヲ帶ビタル紅褐色ナリ. 質ハ膜質ニシテ乾燥スルトキハ紙ニ附着セズ.

產地: 樺太, 占守, 雷撫. ロツベン島.

第 CXCVI 圖版, 1–6 圖. 1: Odonthalia ochotensis (Rupr.) J. Ag., しのぶばのこぎりひば, ノ體, $\frac{1}{1}$.—2: 體ノ一部, $\frac{1}{1}$.—3: 囊果ヲ有スル體ノ上部ノ實ナキ部分, $\frac{13}{1}$.—4–5: 四分胞子ヲ有スル小枝, 一ハ下部少シク細ク, 一ハ然ラズ; 4: $\frac{34}{1}$, 5: $\frac{13}{1}$.—6: 囊果, 廓大.

Pl. CXCVI–CC, Feb. 1923.

*Odonthalia Lyngbye, のこぎりひば屬, ノ性質ハ第二卷 144 頁ニアリ.

Symphyocladia pennata Okam. 新種 †

ひめこざね　　岡村稱

第 CXCVI 圖版, 7–9 圖, 第 CXCVII 圖版, 9–13 圖

體ハ矮小, 絲狀, 匍匐シ又ハ直立シ, 下部ノ匍匐スル部分ヨリ立チ, 其匍匐スル部分ニテ體ノ裏面ヨリ絲狀根ヲ出シテ他ノ海藻ニ附着シ, 全部皮層ヲ被ムルコトナシ; 枝ハ複羽狀ニ互生シ, 廣開シ, 密ニ互ニ相接近シテ出ヅ. 長キ枝ハ兩緣ヨリ羽狀ニ互生ニ分岐シ, 幅廣キ又ハ狹キ, 短キ又ハ長キ歯狀枝ヲ有シ, 又ハ他ノ部ト同樣ニ羽狀ヲナセル短キ枝ヲ出ス, 其枝ハ早晩其伸長ニ限リアルモノトス. 歯狀枝ハ相隣接スル緣邊ヲ以テ多少癒着シ, 充分成長シタルモノニ於テハ其各歯片一々分離シテ能ク判明セル一個ノ頂細胞ヲ存スレドモ幼者ニアリテハ 2–3 個ノ頂細胞ハ第百九十七圖版第 10 圖ニ示ス如ク癒合シテ存ス而シテ體ノ基部ニ在ル老キイジケタル枝ハ往々幅廣クナリ數條ノ扇狀ニ走レル中肋ヲ存ス (12 圖). 單管狀ノ毛ハ全ク缺如ス.—四分胞子ハ上部ノ枝ノ歯狀枝ニ縱ニ一列ニ形成セラル. 色ハ葡萄酒紅. 質ハ薄キ膜質ニシテ乾燥スルトキハ紙ニ附着セズ.

產地: 越後能生, 他ノ海藻上ニアリ.

遠藤博士ハ曩ニ本植物ヲ Pterosiphonia parasitica Fkbg. (植物學雜誌, 三十二卷, 78 頁) トシテ發表セリ; 如何ニモ外見ハ夫ニ酷似スレドモ枝ノ頂端部ノ互ニ癒合スルコト, 特ニ幼キ枝ニ於テ著シク明ニシテ, 此點ヲ以テ該屬ト異ナルコト瞭然タリ; 故ニ寧ロ Symphyocladia ニ配スルヲ至當トス. 從來知ラレタル Symphyocladia ノ種類中本植物ハ S. linearis Okam. ニ近シト雖モ其種ハ極メテ長ク伸ビタル體ヲ有スルヲ以テ異ナリトス. 此體長ノ差ヲ別トシテ考フレバ, S. linearis ト本種トハ其歯狀片ノ癒着ノ度ノ少ナキ點ニ於テ相類似ス. 又一方ニハ本種ハ S. marchantioides (Harv.) Fkbg. ノ狹キ體形ノモノト酷似スル所アリ, 然レドモ之レト異ナル點ハ歯狀片ノ癒合ノ度ノ彼ニ於テ多ク是ニ於テ少ナキニアリ.

由來日本海ノ水ハ太平洋側ノ水温ヨリ常ニ低ク且同一種ノ植物ニシテ

† Symphyocladia Fkbg., こざね屬, ノ性質ハ第二卷 154 頁ニアリ.

兩洋ニ產スルモノ往々形狀及外貌ヲ異ニスルモノアルコトヲ考慮スルトキ，予ハ本種ノ植物ハ S. linearis Okam. 又ハ S. marchantioides ノ細キ形體ノモノヽ矮小形トナリタル變種ニハアラザルカトノ疑ヲ存ス；然レドモ今ハ假ニ之ヲ新種トシテ發表ス.

第 CXCVI 圖版，7–9圖. 7：Symphyocladia pennata Okam.，ひめこざね，ノ二個體；能生產，$\frac{1}{1}$.—8：匍匐スル部分ノ頂端部，$\frac{83}{1}$.—9：體ノ一部，$\frac{8}{1}$.

第 CXCVII 圖版，9–13 圖. 9：枝ノ一部，$\frac{83}{1}$.—10：癒着シタル小枝ノ頂細胞，$\frac{353}{1}$.—11：四分胞子ヲ有スル枝，$\frac{13}{1}$.—12：11 圖ノ一部ニシテ小枝ノ癒着シタル樣子ヲ示ス，$\frac{87}{1}$.—13：四分胞子ヲ有スル歯狀片，$\frac{83}{1}$.

Trichogloea Kützing, 1849.

あけぼのもづく屬

HELMINTHOCLADIACEAE. べにもづく科

體ハ絲狀，側面ニ分岐シ，粘柔ナリ. 體ノ中軸ヲ造レル絲ハ縱ニ集リテ走リ，其處此處ニ叉狀ニ分岐セル細キ絲狀細胞ヨリ成ル；此モノ髓部ヲナシ此ヨリ周圍ニ向テ放射狀ニ皮層ノ絲ヲ發出シ，皮層ヲナス絲ハ屢々叉狀ニ分岐シ外部ノ方ニ進ムニ從テ漸次小サキ細胞トナル. 粘質ハ極メテ粘柔ニシテ，髓ノ周圍ニ石灰質ヲ存ス. 成長部ハ扇狀ニ放射ス.—四分胞子ハ知ラレズ.「カルポゴニウム」ハ皮層ノ絲ノ幼キ枝ノ頂端ニ形成セラル. 成胞絲ハ球狀ヲナシテ密ニ圍集シ放射狀ニ出タル分岐セル短キ絲ヨリ成リ，其頂細胞胞子トナル. 仁ヲ圍ム特別ノ組織ナシ.

熱帶ニ產スル 2 種アルノミ.—屬ノ名ハ thrix (絲) ト gloia (粘質) トヨリ成ル.

Trichogloea lubrica (Harv.) J. Ag.

あけぼのもづく　　岡村稱

第 CXCVII 圖版，1–8 圖.

根ハ小サキ軟キ盤狀根ナリ. 體ハ概ネ單條，絲狀又ハ圓柱狀ニシテ軟弱，基部細ク，複羽狀ニ分岐シ，不規則ニ互生ス. 主軸ハ概ネ單條又ハ分岐シ，下部ヨリ上部迄殆ド全部廣開セル枝ヲ存シ，枝ハ主軸ト同ジ位太ク，太サ約 1.5 mm アリ，而シテ體ノ內部ヲ縱ニ走レル絲ヨリ成レル軸ハ輕ク石灰質ヲ存シ，其直徑ハ體ノ皮層ノ厚サヨリモ細シ. 枝ハ蠕虫狀ニシテ，通常基部細カラズ，頂端尖リ，單條又ハ叉狀ニ分岐セル廣開セル小枝ヲ側面ヨリ分岐シ，枝ハ長短不同ナリ. 囊果ハ點狀ニシテ皮層中ニ存シ，圓塊ノ胞子ヨリ成ル. 質ハ軟弱，粘質，滑澤ニシテ乾燥スルトキハ紙ニ固着ス. 色ハ美キ紅色ニシテ淡水ニ浸ストキハ容易ニ褪色ス.

產地：潮線間ノ岩石ニ生ジ，低潮線附近ニ在リ. 琉球 (Harv.)，野母崎，八丈島.

第 CXCVII 圖版，1–8 圖. 1：Trichogloea lubrica (Harv.) J. Ag，あけぼのもづく，ノ體，八丈島產，$\frac{1}{1}$.—2：體ノ透視縱斷面，$\frac{22}{1}$.—3：縱斷面ノ一部，$\frac{48}{1}$.—4：囊果及皮層，$\frac{220}{1}$.—5：胎原列（トリコジーンハ自然ニハ屈曲セズ）$\frac{567}{1}$.—6：囊果，$\frac{353}{1}$.—7–8：囊果ノ縱斷及橫斷面ノ一部ヲ圖式ニテ示ス.

Plocamium costatum (J. Ag.) Hook. et Harv.*

きざみゆかり　　岡村稱

第 CXCVIII 圖版，1–4 圖.

今唯一個ノ標品アルノミ. 體ハ扁平，細キ線狀，薄キ膜狀ニシテ，約 7 cm. 高ク，幅僅ニ 1 mm. ヲ有シ，輕ク雁木樣ニ屈曲ス. 枝ハ兩緣ヨリ出デ，2–4 回複羽狀ニ分岐シ，互生ニシテ直立—廣開ス. 下部ノ枝ハ上部ノ枝ヨリ稍長ク漸次上方ニ短シ，故ニ枝態ハ稍紡房狀ノ輪廓ヲ有ス；枝ハ總

* Plocamium Lyngbye，ゆかり屬，ノ性質ハ第三卷 3 頁ニ在リ.

テ二個ヅヽ互生ス（卽チ一方ノ側ヨリ二個出デ之ト互生シテ他ノ側ヨリ又二個ヅヽ出ヅ）; 其二個ノ內下ノ枝ハ常ニ單條ナレドモ, 上部ノモノハ更ニ分岐ス; 其單條ナルモノハ 2–3 mm. 長ク, 基部廣クシテ上端細ク, 枝ノ下部又ハ中央部ヨリ出ルモノハ廣開スレドモ, 上部ノモノハ多少內方ニ屈曲ス. 此二個ヅヽ出ル下部ノ單條ノモノヽ外緣ハ顯微鏡的ニ小ナル鋸齒狀ノ突起ヲ有ス.—四分胞子ヲ有スル枝ハ複叉狀ニ分岐シテ星形ニ團聚シ短キ柄ヲ有ス; 其各枝ハ稍披針狀又ハ線狀ノ小技ヨリ成リ, 枝ノ最末位ノ小齒狀片ヨリ變成ス.

產地： 紅頭嶼.

此植物ハ中肋ヲ缺クコト及基部莖狀ヲナサヾルコトニ於テ原種ト異ナルガ如ク, 體ノ外觀, 枝態ノ容子, 體質ノ工合等普通ノゆかり, Pl. abnorme H. et H. (第 CI 圖版), ニ酷似スレドモ, 唯二個ヅヽ出ル齒狀片ノ單條ノモノヽ外緣ニ鋸齒アルコトヲ以テ異ナリトス. 本植物ハ多分本種植物ノ分布ノ最北限ニ生ズル一形態ナランカ, 從テ體ハ小サク, 質ハ纖弱, 薄クシテ膜質ヲナシ, 中肋ハ不明トナレルモノナラン. 蓋シ或ハ Pl. abnorme ト Pl. costatum トノ間生ナランカ.

第 CXCVIII 圖版, 1–4 圖. 1: Plocamium costatum (J. Ag.) H. et H. きざみゆかり, ノ體, $\frac{1}{1}$.—2: 枝ノ上部, $\frac{22}{1}$.—3: 成實葉, $\frac{48}{1}$.—4: 成實葉; *b*, 柄, $\frac{48}{1}$.

Dasyphila plumarioides Yendo †

おきしのぶ　　岡村稱

第 CXCVIII 圖版, 5–11 圖.

體ハ絲狀, 下部少シク稍圓柱狀ノ莖ノ如ク成リ, 漸次上方ニ扁壓シ, 屢不規則ニ互生シ, 枝ハ廣開シ, 稍扇狀ニ擴ガル. 枝ハ美シク羽枝ヲ存ス (10–11 圖 *b*,*b*). 羽枝ハ對生シ, 早晩有限成長ヲナシ, Callithamnion 狀ナリ, 卽チ一列ノ細胞ヨリ成ル. 羽枝ハ各關節ヨリ生ズル小羽枝ヲ互生ス.

†Dasyphi'a Sonder, たごのり屬, ノ性質ハ第二卷 134 頁ニ在リ.

對生セル羽枝ノ一ハ長キ枝ニ伸ルコトアリテ (10–11 圖, *l*, *l*), 枝ハ通常各第二ノ節ヨリ出ヅ(卽チ一對ノ羽枝ヲ隔テヽ出ヅ, 10 圖); 然レドモ此規則ハ往々亂ルヽコトアリテ 11 圖 *a*, *b*, ニ示ス如ク 1 乃至 3 關節ヲ隔テヽ出ル如キ不規則ナル場合アリ. 枝ノ表面ニハ單列ノ細胞ヨリ成レル二條ノ纖弱ナル絲又ハ毛ガ各節ヨリ出ルヲ見ル (第 7 圖). 此等ノ毛ハ實際一列ノ細胞ヨリ成レル單條ナル枝ニシテ2–4關節ヨリ成リ, 未發達ノ狀態ニ停マレルコトハ極メテ幼キ枝ニ於テ視ルコトヲ得 (第 6 圖), 其枝ハ未ダ皮層細胞ヲ有セザル一列ノ細胞ヨリ成レルモノナリ. 枝ノ橫斷面ニハ一條ノ大ナル中軸細胞アリテ其周圍ニ 6 個ノ稍大ナル細胞ヲ存ス, 其內枝ノ兩緣ノ處ニ在ル 2 個ノモノハ羽枝トナリ, 他ノ 4 個ハ未發ノ狀態ニアルカ又ハ數個ノ關節ヨリ成レル單列ノ毛ノ如キ枝ト成ル. 皮層ハ側枝ノ基部ノ細胞ヨリ起ル根樣細胞トシテ形成セラル.—四分胞子ハ小羽枝ノ頂端ノ細胞ニ形成セラレ, 球狀ニシテ三角錐形ニ分裂ス.

產地： 紅頭嶼.

第 CXCVIII 圖版, 5–11 圖. 5: Dasyphila plumarioides Yendo, おきしのぶ, ノ體, $\frac{1}{1}$.—6: 若キ枝ノ上部, $\frac{353}{1}$.—7: 羽枝及單列細胞ノ枝, $\frac{220}{1}$.—8: 羽枝ノ一個, $\frac{353}{1}$.—9: 枝ノ橫斷面, $\frac{220}{1}$.—10–11: 枝ノ出方ノ圖式說明; *l*, 無限成長ノ枝; *b*, *b*, 有限成長ノ枝卽チ羽枝.

Gelidium crinale (Turn.) Lam. *f.* **latifolium** n. f.*

いとてんぐさノ一型

第 CXCVIII 圖版, 12 圖.

體ハ線狀, 匍匐シテ根ヲ出セル匍枝ヨリ直立シ, 下部絲狀ニシテ枝ナク, 體ノ長サ 5–6 cm., 上部直ニ細線狀ニ擴ガリ, 幅 1–1.5 mm. ニシテ同樣ノ形セル枝ヲ分岐ス; 枝ハ不規則ニ互生シ, 密聚シ又ハ散在ス. 枝ハ基部急ニ又ハ漸次ニ細クナリ鈍圓頭ニ終ル.

產地： 相州鎌倉ノ淺所(東氏)

*Gelidium, Lam., てんぐさ屬, ノ性質ハ日本海藻圖說第五頁ニ在リ.

稍廣キ細線狀ノ枝ヲ有スルコトヲ以テ模範種ト區別セラル.

第 CXCVIII 圖版, 12 圖: Gelidium crinale f. latifolium n. f., いとてんぐさノ一型ノ體, $\frac{1}{1}$.

Homoeostrichus J. Ag. 1894.

やぶれあふぎ屬

DICTYOTACEAE あみぢぐさ科

體ハ扁平, 傾臥シ又ハ直立シ, 單條又ハ數回分裂シ, 上方ハ多少明ニ扇狀ヲナス. 體ノ扁平ナル部分ハ數層ノ細胞ヨリ成リ, 內部ノ各個ノ細胞ニ對シテ大サ及形狀トモ同樣ナル各一個ノ皮層細胞アリテ之ヲ表面ヨリ見ル時ハ放射狀ニ列ス. 子囊群ハ表面ニ隆起シ, 往々縱ニ放射狀ニ列シ, 倒卵形ノ胞子ト竪ニ稍棍棒狀ヲナセル關節セル「パラネマタ」トヨリ成リ, 群ヲ蔽ヘル被膜ハ之ヲ存セズ.—屬ノ名ハ homoios (同樣) ト thrix, trichos (絲又ハ毛) トヨリ成ル.

5 種アリテ喜望峯及オーストラリアニ產ス.

Homoeostrichus Sinclairii (H. et H.) J. Ag.

やぶれあふぎ 岡村稱

第 CXCIX 圖版, 1–4 圖.

體ハ毛萯アル圓錐狀根ヨリ立チ, 下部ハ長キ細キ部分ニ分レ, 其部ハ毛萯ヲ以テ蔽ハルヽコトアリ又ハ毛萯ナク, 其上部ハ多少裂ケタル廣キ又ハ狹キ楔形ノ葉ニ展ガル. 體ノ下部ハ時ニ大部分厚ク毛萯ヲ存スルコトアリ. 葉ハ楔形ニシテ, 下部ハ細ク長キ柄トナリ, 分裂セズシテ全形又ハ稍羽狀若シクハ放射狀ニ裂ケタリ. 毛萯ハ體ノ外層 (卽チ皮層) ノ細胞ヨリ發ス.

產地: 琉球.

第 CXCIX 圖版, 1–4 圖. 1: Homoeostrichus Sinclairii (H. et H.) J. Ag. ノ體, $\frac{1}{1}$.—2: 體ノ橫斷面, $\frac{33}{1}$.—3: 體ノ橫斷面ノ一部, $\frac{353}{1}$.—4: 毛萯, $\frac{83}{1}$.

Desmarestia aculeata (L.) Lamour.*

とげうるしぐさ 岡村稱

第 CXCIX 圖版, 5–9 圖.

根ハ小サキ扁平ナル盤狀根ナリ. 體ハ長大, 線狀, 絲狀, 稍圓柱狀ノ莖ヲ有シ, 扁壓, 硬ク, 下部ヨリ上部マデ埋在セル中肋ヲ以テ貫通シ, 密ニ複羽狀ニ互生シ, 枝ハ兩緣ヨリ出ヅ, 而シテ最末ノ小羽枝ハ刺狀又ハ錐狀ナリ. 主枝ノ緣邊ハ刺狀突起卽チ最末小羽枝ノ脫落シタル痕ノ爲ニ往々小サキ點狀ノ突起ヲ存ス. 色ハ暗褐色. 質ハ硬クシテ乾燥スル時ハ紙ニ附着セズ.

產地: 樺太.

第 CXCIX 圖版, 5–9 圖. 5: Desmarestia aculeata (L.) Lam., とげうるしぐさ, ノ體, $\frac{1}{1}$.—6–7: *a*, 枝; *b*, *a* ノ一部, $\frac{7}{1}$.—8: 枝ノ幅廣キモノ, $\frac{1}{1}$.—9: 老枝ノ一部, 廓大.

Caulerpa Freycinetii C. Ag. var. **pectinata** Web. v. Bos.†

よれづたノ一品種

第 CC 圖版, 1 圖

匍枝ハ大抵太ク, 强ク, 圓柱狀, 匍匐シ, 裸出ス (毛莩ナキヲ云フ). 體ハ圓柱狀又ハ基部ノ方ニ於テ稍扁壓シ, 上方ニ直ニ扁平トナリ, 線狀, 叉狀ニシテ捻レズ, 且ツ所々狹ク又ハ廣クナルコトナシ, 而シテ副枝ヲ出シ, 兩緣ハ櫛齒狀ヲナス. 齒ハ短クシテ細カク, 互ニ相接近シテ出ヅ.

產地: 紀州椶村.

第 CC 圖版, 1 圖: Caulerpa Freycinetii C. Ag. var. pectinata Web. v. Bos. ノ體, $\frac{1}{1}$.

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*Desmarestia, Lam., うるしぐさ屬, ノ性質ハ第一卷, 190 頁ニ在リ.
†Caulerpa Lam., いわづた屬, ノ性質ハ第三卷, 19 頁ニ在リ.

Caulerpa cupressoides C. Ag. var. **typica** Web. v. Bos.

びやくしんづたノ一品種

第 CC 圖版, 2 圖.

今唯一個ノ標品アルノミ. 匍枝ハ太ク, 圓柱狀ニシテ裸出ス. 體ハ基部圓柱狀ニシテ上方ニ扁壓ス. ラメンタ(卽チ羽狀ニ出ル鋸刻)ハ兩緣ヨリ出デ其處此處ニ三列ヲナシ, 稍小舟狀ニシテ短ク, 直立シ又ハ少シク廣開ス.

產地: 紀州椶村.

第 CC 圖版, 2 圖: Caulerpa cupressoides C. Ag. var. typica Web. v. Bos. **ノ體ノ一部,** $\frac{1}{1}$.

Caulerpa cupressoides C. Ag. var. **lycopodioides** f. **elegans** Web. v. Bos.

びやくしんづたノ一品種

第 CC 圖版, 3 圖.

匍枝ハ太ク, 强ク, 裸出シ, 圓柱狀ナリ. 體ハ高ク挺出シ, 圓柱狀ニシテ下部太ク, 枝ヲ出シ, 枝ハ基部ニ「ラメンタ」ナシ. ラメンタ(櫛齒狀ノ枝)ハ兩緣ヨリ出デ, 稍小舟狀ヲナシ, 枝ノ軸ノ幅ノ 2–3 倍長シ.

產地: 紀州椶村.

第 CC 圖版, 3 圖: Caulerpa cupressoides C. Ag. var. **lycopodioides f. elegans ノ體ノ一部,** $\frac{1}{1}$.

Derbesia Solier つゆのいと屬.

DERBESIACEAE つゆのいと科

體ハ實ナキ狀態ニテハ單細胞ニシテ, 單條又ハ不規則ニ若クハ叉狀ニ分岐シ, 莖及葉ノ如キ明ナル區別ヲ有セズ. 游走子ハ體ノ側面ニ特ニ形成セラレタル子囊中ニ形成セラレ, 他ノ部ト隔膜ヲ以テ分タル. 游走子ハ大

ニシテ無色ナル前端ノ基部ニ環狀ニ纖毛ヲ冠ス.—屬ノ名ハ佛國ノ海藻學者 E. Derbes 氏ノ名ニ因ル.

8–10 種アリテ石又ハ他ノ海藻上ニ存シ, 海產ニシテ歐州, 北米, オースタラリアニ知ラレタリ.

Derbesia Lamourouxii (J. Ag.) Sol.

つゆのいと　　岡村稱

第 CC 圖版, 4–8 圖

體ハ絲狀, 毛細狀, 密ニ叢生シテ圓塊ヲナシ, 高サ 5–6 cm. アリ. 絲ハ 170–615 μ 太ク(乾燥標品ニテ), 下部ヨリ根ヲ出シ, 枝ナクシテ殆ド單條又ハ不規則ニ小サキ枝ヲ出ス. 子囊ハ球狀ニシテ直徑約 350μア, 無柄(或ハ短キ柄アリ), 單獨又ハ數個相接シテ出デ又ハ一方ノ側ニ偏在ス.

產地: 紀州椶村.

第 CC 圖版, 4–8 圖. 4: Derbesia Lamourouxii, (J. Ag.) Sol., つゆのいと, ノ叢, $\frac{1}{1}$.—5: 子囊ヲ有スル枝, $\frac{1}{1}$.—6: 枝ノ上部ヨリ出タル根, $\frac{48}{1}$.—7: 子囊, $\frac{48}{1}$.

正　　誤

78 頁下ヨリ七行: Cladophoropsis fasciculatus ハ Cl. coriacea ノ誤.

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