Observations on the Flora of Japan.

(Continued from p. 95.)

By

T. Makino.

*Assistant in Botany, Science College,
Imperial University of Tokyo.*

Viola (Nomimium) **Thibaudieri** Franch. et Sav. Enum. Pl. Jap. I. (1875) p. 43, et II. (1879) p. 290; Maxim. in Mél. Biol. IX. p. 756 (1876).

Caulescent, attaining about 37 cm. in height after flowering. Rhizome ascending or repent-ascending, with many short old bases of the stem, hard, stramineous, densely rooting, nodes closed. Stem erect, solitary to few to a stock, more or less flexuous, terete, glabrous, smooth, green but violaceous towards the base, about $2\frac{1}{2}$ –4 mm. in diameter in the basal portion; nodes somewhat turgid. Leaves sparse, but those of the summit of the stem tufted, spreading, much longer than internodes (which are attaining about $6\frac{1}{2}$ cm. in length), lanceolate, broad-lanceolate, or ovato-lanceolate, attenuatedly acuminate at the apex, cuneato-attenuated and alato-decurrent to the short petiole at the base, very subtilely broad and depressed-crenate, glabrous but sometimes puberulent on the margin, subbullate between the veins, green above, paler beneath, $3\frac{1}{2}$ –10 cm. long, $1\frac{1}{2}$ – $3\frac{2}{3}$ cm. broad; midrib prominent on both sides; veins erect-patent, arcuate upwards, 5–7 on each side; veinlets inconspicuous; petiole about 1 – $1\frac{2}{3}$ cm. long; stipules adpressed along the stem, as long as or slightly longer than the petiole, free but adnate below in those of the basal leaves, deltoid-subulate or angustato-subulate, long-acuminate, laxly and erect-patently and deeply pinnato-ciliated, thinly membranaceous, 2–5-nerved, 7–22 mm.

Viola Thibaudieri Franch. et Sav.

long. Pedicel gracile, usually elongate, slightly enlarged under the flower, angulate, glabrous, green, often violaceous above, erect-patent or spreading, attaining about $6\frac{1}{2}$ cm. long, shorter than the leaves in fruit, bracteolate above the middle; bracteoles 2, minute, linear-subulate, tapering, adpressed. Calyx (in fruit) about 7 mm. long, glabrous, viridescent; sepals subulato-lanceolate, long-acuminate, the lateral 2 smaller and the lower 2 broader; auricles short, ovato-deltoid or truncato- or retuso-semiorbicular. Capsule about 13–15 mm. long, oblong-elliptical, obtusely triquetrous, shortly subrostrato-acute at the apex; carpels oblong-lanceolate, boat-shaped, acute at the apex. Seeds glabrous, smooth, obovoid-globose, with a short funicle, $2-2\frac{1}{2}$ mm. long.

Nom. Jap. *Tade-sumire* (T. Makino), *Ko-tachisumire* (R. Yatabe).

Hab. Prov. SHINANO (Herb. ! Imp. Mus. Tokyo), Mizooto on Mt. Eboshi (*K. Kurashima* ! June 1909).

A rare species. A characteristic point is the possession of the attenuated base of the leaves. The superficial appearance reminds some species of *Polygonum*.

Viola nipponica Makino in Bot. Mag., Tokyo, XXI. (1907) p. 56, reprint. p. 9, non Maxim. = ***Viola phalacrocarpoides*** Makino, nom. nov.

Didymoplexis pallens Griff. in Calc. Journ. Nat. Hist. IV. p. 383, tab. 17 (1844); Kurz in Seem. Journ. Bot. (1866) p. 40, excl. syn. *Epiphanes* et *Gastrodia*; Hemsl. in Journ. Linn. Soc. XX. p. 311, tab. 28; Hook. fil. Fl. Brit. Ind. VI. p. 122; Wright in Journ. Linn. Soc. XXXVI. p. 47 (1903); King et Pantl. Orchid. Sikkim-Himal. in Ann. Roy. Bot. Gard. Calcutta, VIII. (1898) p. 260, tab. 346.

Epiphanes pallens Reichb. fil. in Seem. Fl. Vit. (1865–73) p. 296.

Leucorchis sylvatica Blume, Mus. Bot. Lugd. Bat. I. p. 31 (1849), et Fl. Jav. IV. Orchid. (1858) p. 146 cum xylog.

Apetalon minutum Wight, Ic. Pl. Ind. Or. V. (1852) tab. 1758; Bl. Fl. Jav. IV. Orchid. p. 146 cum xylog.

Arethusa ecristata Griff. Notul. Pl. As. III. (1851) p. 378, et Ic. Pl. As. tab. 343, 344 (1851).

Arethusa bengalensis herb. hort. bot. Calcut. ex Kurz.

Nom. Jap. *Yatsushiro-ran* (T. Makino).

Hab. Prov. Higo: Near Yatsushiro (T. Yamada!).

Very rare. New to the Japanese Flora. It was also found in Formosa.

Goodyera Maximowicziana Makino, nom. nov.

Goodyera bifida Maxim. in Mém. Biol. XII. p. 926 (1888); Makino, Ill. Fl. Jap. I. 6 (1890) p. 2. tab. 37 *a, b*, non Blume.

Goodyera foliosa var. *lævis* Finet in Bull. Soc. Bot. France, XLVII. (1900) p. 272.

Nom. Jap. *Akebono-shusuran* (T. Makino).

Hab. Japan (T. Makino!).

Gymnadenia Kinoshitai Makino, nom. nov.

Gymnadenia Keiskei var. *Kinoshitai* Makino in Bot. Mag., Tokyo, XVII. (1903) p. 113.

Gymnadenia gracilis var. *angustifolia* Finet in Bull. Soc. Bot. Fr. XLVII. (1900) p. 280.

Gymnadenia Keiskei var. *angustifolia* Makino, l. c. p. 152.

Nom. Jap. *Tomo-chidori*, *Koani-chidori*.

Hab. Japan, northern.

Pogonia minor Makino, nom. nov.

Pogonia ophioglossoides var. *minor* Makino in sched, herb. Sc. Coll. Imp. Univ. Tokyo.

Pogonia japonica var. β . *minor* Makino in Bot. Mag., Tokyo, XII. (1898) p. 103.

Nom. Jap. *Yama-tokisō*.

Hab. Japan.

This species is always found in dry places.

***Nervilia nipponica* Makino, sp. nov.**

Nervilia punctata Makino in Bot. Mag., Tokyo, XVI. (1902) p. 199, excl. syn. *Pogonia punctata* Bl.

Pogonia punctata Makino l.c. III. (1889) p. 448, non Blume.

A small Orchid, attaining about 9 cm. in height, with a subterranean globular tuber. Leaf solitary, long-petiolate, cordato-orbiculate, subacute, 7-9-nerved, evolving after flowering, about $3\frac{1}{2}$ - $4\frac{1}{2}$ cm. broad. Scape aphyllous, erect, purpurascens, glabrous, laxly with a few vaginae and with a few nodes; the upper internodes elongate and longer than the vaginae; vaginae purpurascens, long but the lower ones short, tapering. Flower solitary, terminal, shortly pedicellate, obliquely erect then nutant, about $1\frac{1}{2}$ cm. long exclusive of the ovary, the alabastrus narrow; pedicel curved, often longer than the ovary; bract small, usually a little longer than the pedicel, ovato-lanceolate, tapering purpurascens. Perianth connivent-erect-patent, purpurascens, but purple-punctate internally, angustate, acuminate. Petals slightly shorter than the sepals. Labellum narrow, about as long as the perianth, purpurascens below, trilobed; lateral lobes very small and obtuse, white; midlobe elliptical, obtuse (slightly emarginate?), crispate, white, purple-punctate in the upper face. Ovary obovoid-elliptical, dark-purple.

Nom. Jap. *Mukago-saishin*.

Hab. Japan.

Very rare.

***Tainia laxiflora* (Ito) Makino, sp. nov.**

Oreorchis laxiflora Ito in Herb. Sc. Coll. Imp. Univ. Tokyo, nomen.

Calanthe laxiflora Makino in Herb. Sc. Coll. Imp. Univ. Tokyo; Matsum. Ind. Pl. Jap. II. 1 (1905) p. 237, nomen.

A terrestrial Orchid. Roots slender, flexuous, terete, tomentose, not dense. Rhizome repent, flexuous, viridescent or whitish, terete, with 3–5-nodes; the intervals of the pseudo-bulbs short and about 3–14 mm. in length; pseudo-bulbs erect or more or less inclined, small, ovoid or elongato-ovoid, sometimes angustate, straight or slightly curved, 6–1 $\frac{1}{3}$ cm. or rarely 2 cm. long, 2 $\frac{1}{2}$ –7 cm. across, green, smooth, attaining about 13 in number to a stock, loosely covered with old fibres of sheath at the base and with those of leaves at the top. Leaves long- or short- petiolate, one to a pseudo-bulb, lanceolate, oblong-lanceolate, acuminate, acutely attenuated at the base, entire and crispulate on margin, membranaceous, plicate, green and albo-maculate above, purpurascens beneath, 4–13 cm. long, 1–2 $\frac{3}{8}$ cm. broad; main nerves 3 and subacutely prominent beneath and impressed above; veins 2–3 sometimes 5 between the main nerves; transverse veinlets loose, usually oblique, often curved or flexuous, green along the veinlets and pale between them. Scape erect, aphyllous, slightly or considerably longer than leaves, lateral at the base of the pseudo-bulb, subtuberosus (provided with a lateral bud) and sheathing at the base, slender, terete, about 8–39 cm. long, with a few nodes and elongated internodes, glabrous, light purple, sheathing in the basal portion and the middle; sheath few, membranaceous, purpurascens, the basal one smaller and the upper tubular (the uppermost one 1 $\frac{3}{8}$ –3 $\frac{3}{8}$ cm. long), oblique at the mouth, acutish at the apex. Raceme erect, 3–5-flowered, about 2–10 cm. long; rachis flexuous or not so, often slender, often purplish, glabrous, slightly compressed; bract a little or much more shorter or somewhat longer than the pedicel, membranaceous, lanceolate, acuminate, 3–6 mm. long, distantly 3-nerved, purpurascens. Flower pedicellate, small, rather loosely or much loosely disposed, usually secund, turned outwards, glabrous. Perianth erect-patent, subpadio-purpurascens but yellowish towards the base, entire, 3-nerved. Sepals subequal; dorsal one free, linear or lato-linear, acute or sub-obtuse at the apex, 10–12 $\frac{1}{2}$ mm. long, 1 $\frac{4}{5}$ –2 mm. wide; lateral ones subequal to the dorsal one, linear or linear-lanceolate, hardly falcate, acute, adherent to the lateral sides of the basal

short foot of the column. Petals a little shorter and somewhat broader than the sepals, $2-2\frac{2}{3}$ mm. long, linear-lanceolate, hardly falcate, acute or sometimes obtuse. Labellum slightly shorter than the perianth, affixed to the end of the basal foot of the column, yellow above and white below, submaculato-striate with purple colour on sides internally, glabrous, erect, about 8–9 mm. long, 6–7 mm. broad, broadly elliptical-obovate, obtuso-cuneate with entire margins towards the base, but 3-lobed with obtuse sinuses above, the lateral lobes far forwards, embracing the column, small and short, ovate or ovato-subulate, acutish or obtuse, the midlobe much larger and broader, broadly retuse with the entire or obscurely crenate and sometimes obscurely crisped margin; upper surface (of the disk and midlobe) longitudinally 3-ridged, ridges towards the centre, angustate, the side ones slightly curved, stronger, lamellate in the disk, the middle one very slightly exceeding beyond the others at the apical end; nerves 4, the median 3 with ridges, each lateral one with branches in the outside above. Mentum very short, obtuse. Colume longish, shorter than and parallel to the labellum, about $\frac{2}{3}$ as long as the labellum, about 6–7 mm. long, arcuately incurved, subtrigono-semiterete, plane and scarcely concaved in front, stigmatiferous under the top, white, but often very slightly yellowish-viridescent above, with a short and compressed foot at the base, subulate on both sides towards the top; clinandrium very deeply concave, with nearly entire erect margin; rostellum short and broad, obtuse. Anther terminal, operculate, depressed-convex, rounded, distinctly 2-celled, yellowish, about $1\frac{1}{3}$ mm. across, furnished with distant obtuse short-conical purple two bosses towards the front. Pollinia waxy, yellow, 8, 4 in pair, cohering in fours to a granular viscous membrane below, unequal and orbicular oval and ovate in form, parallel and compressed. Ovary subobconico-oblong, glabrous, $2\frac{1}{2}$ –3 mm. long, 3-ribbed, virid-purpurascens; pedicel curved, scarcely or rather much longer (attaining about 8 mm. long) than the ovary.

Nom. Jap. *Hime-tokenran*.

Hab. LIUKIU: Kunchan (*Y. Tashiro*! herb. Sc. Coll. Imp.

Univ. Tokyo, March 1887); Prov. HIZEN: Mt. Nanan-dake in Isl. Fukaye (*H. Imai!* Jan. 2, 1909); Prov. TSUSHIMA (*N. Shingawa*; commun. *T. Hara!* 1907; *Z. Tashiro!* 1909); Prov. MUSASHI: Tokyo, cult from Isl. Mikura, prov. IDZU (*T. Makino!* 1909).

This Orchid comes very near to *Tainia minor* Hook. fil. of Sikkim-Himalaya, but the present species is much smaller in every respect.

Pasania cuspidata (Thunb.) Ørst. in Kjoeb. Vidensk. Meddel. (1866) p. 81.

α. Thunbergii Makino.

Quercus cuspidata Thunb. Fl. Jap. (1784) p. 176, et Icon. Pl. Jap. Decas 5, tab. 47; Willd. Sp. Pl. IV. p. 430; Pers. Syn. Pl. II. p. 568; Spreng. Syst. Veg. III. p. 859; Bl. Mus. Bot. Lugd. Bot. I. p. 288.

Quercus cuspidata Sieb. et Zucc. Fl. Jap. I. p. 8; A. DC. Prodr. XVI. 2, 103, pro parte, non Thunb.

Acone sphærical or subsphærical.

Nom. Jap. *Tsubura-jii*.

Hab. Prov. TOSA (*T. Makino!*).

Common in southern Japan. Chinese *Quercus Carlesii* Hemsl. (in Hook. fil. Icon. Pl. XXVI. tab. 2591) resembles very closely the present one.

β. Sieboldii Makino.

Quercus cuspidata Sieb. et Zucc. l. c. p. 8; A. DC. l. c., pro parte, non Thunb.

Quercus cuspidata Sieb. et Zucc. l. c. tab. 2, non Thunb.

Pasania cuspidata Prantl in Engler et Prantl, Nat. Pfl.-Fam. III. 1 (1894) p. 55, fig. 33 H; Shirasawa, Nippon-Shinrin-Jumoku-Dzufu, I. tab. 34, 1-13.

Leaves thicker, often ferruginous beneath. Acone oblong, acutish at the apex, about 15-18 mm. long.

Nom. Jap. *Suda-jii*.

Hab. Japan (*T. Makino!*).

Common in Central Japan.

forma pusilla (Bl.) Makino.

Quercus cuspidata var. β . *pusilla* Bl. l. c. ; A. DC. l. c.

Hab. Japan, cultivated.

A garden form.

forma rotundifolia Makino.

Shrubby, densely ramose and folious. Leaves very shortly petiolate, distichous, reflexo-patent, elliptical or rotundate, obtuse or rounded at the apex, rounded and somewhat oblique at the base, obscurely crenate on the upper margin, deep-green above, avellaneous beneath, thinly coriaceous, $2\frac{2}{3}$ – $4\frac{1}{2}$ cm. long, $1\frac{1}{4}$ –3 cm. wide ; veins obliquely parallel.

Hab. Prov. MUSASHI : Tokyo, cultivated (*T. Makino*!).

A garden form.

Eupatorium japonicum Thuub. Fl. Jap. (1784) p. 308.

var. tripartitum Makino, var. nov.

Leaves triparted. Others as in the type (= *a. simplicifolia*).

Nom. Jap. *Mitsuba-hiyodoribana* (nov.).

Hab. Japan (*T. Makino*!).

Not uncommon.

Epimedium Youngianum Fisch. emend.

a. typicum Makino.

Epimedium Youngianum Fisch. Sert. Petrop. fol. 1, verso ; Franch. in Bull. Soc. Bot. France, XXXIII. (1886) p. 115.

Epimedium Musschianum Graham in Bot. Mag. (1840) tab. 3745, non Morr. et Decne.

Flower yellowish-white. Inner petals very shortly calcarate.

Nom. Jap. *Shirobana-umezakiikarisō* (nov.).

Hab. Japan.

β . **concinnum** (Votke) Makino.

Epimedium concinnum Votke in Regel's Gartenfl. (1872) p. 165, tab. 726.

Leaflets very loosely spinuloso-ciliated on margin. Flowers light-purple. Inner petals obovate or obovato-orbiculate, at-

tenuated and cuneate towards the base, very shortly calcarate below the middle externally; calcar erect-patent, straight or hardly curved upwards, subulato-conical, slightly compressed, about 1–2 mm. long.

Nom. Jap. *Murasaki-umezakiikarisō* (nov.).

Hab. Prov. MUSASHI: Tokyo, cultivated.

γ. **aceranthoides** Makino, var. nov.

Leaflets ovate, ovato-oblong or oblong-lanceolate, cordate at the base but obliquely sagittato-cordate in the lateral ones, very sparingly spinuloso-ciliated towards the base but entire elsewhere, green and glabrous above, very thinly pubescent and subglaucous beneath; petiole as is the stem patently thin-pilose but the hairs dense at the node. Panicle few-ramose or simply racemose, peduncled; rachis slender, glabrous. Flowers laxly disposed, ecalcarate; pedicel more or less longer or shorter than the flower, erect-patent. Petals light-purple, but white towards the base; outer ones patent, ovato-lanceolate, acuminate with an obtuse or acutish point, about 9–10 mm. long; inner ones shorter than the outer, erect or connivent, obovato-cuneate, rounded at the apex, attenuated below, narrowly concave vertically in centre internally and strongly ridged and very obscurely projecting below the middle externally, very angustately involuted on the apical margin, about 8 mm. long, 5 mm. broad. Genitals included.

Nom. Jap. *Umezaki-ikarisō*.

Hab. Prov. MUSASHI: Tokyo, cultivated.

Epimedium macranthum Morr. et Decne. in Ann. Sc. Nat. Sér. 2, II. (1834) p. 352, tab. 13.

Nom. Jap. *Shiro-ikarisō*.

Hab. Japan.

var. Musschianum (Morr. et Decne.) Makino.

Epimedium Musschianum Morr. et Decne. l. c. p. 353, non Bot. Mag. tab. 3745.

Hab. Japan.

This seems to me to stand apart scarcely from the *typica*.

var. violaceum (Morr. et Decne.) Franch. in Bull. Soc. Bot. France, XXXIII. (1886) p. 106.

Epimedium violaceum Morr. et. Decne. l. c. p. 354, tab. 12 ; Sieb. Fl. d. Jard. II. p. 81, tab. 8 (*var. grandiflorum*) ; Bot. Reg. XXVI. tab. 13 ; Bot. Mag. tab. 3751.

Nom. Jap. *Ikari-sō*.

Hab. Japan.

Aspidium Yaeyamense Makino in Bot. Mag., Tokyo, XI (1897) p. 18. = **Polystichum yaeyamense** Makino, nom. nov.

Nom. Jap. *Yaeyama-toranoo*.

Hab. YAEYAMA ARCHIP. (*H. Kuroiwa*!).

Aspidium Yoshinagæ Makino in Bot. Mag., Tokyo, VI. (1892) p. 46, et XIII. (1899) p. 57. = **Polystichum Yoshinagæ** Makino, nom. nov.

Nom. Jap. *Otoko-shida*.

Hab. Prov. TOSA.

Aspidium tosaense Makino in Bot. Mag., Tokyo, VI. (1892) p. 46, et XIII. (1899) p. 61. = **Polystichum tosaense** Makino, nom. nov.

Nom. Jap. *Tachi-denda*.

Hab. Prov. TOSA.

Dryopteris erythrosora (Eat.) Kuntze, Rev. Gen. Pl. II. p. 812.

var. obtusa Makino.

Nephrodium erythrosorum var. obtusum Makino in Bot. Mag., Tokyo, (1899) p. 79.

Nom. Jap. *Maruba-benishida*.

Hab. TOSA and AWA in Shikoku.

var. cystolepidota (Miq.) Makino.

Aspidium cystolepidotum Miq. Prol. Fl. Jap. p. 341; Franch. et Sav. Enum. Pl. Jap. II. p. 239.

Aspidium erythrosorum var. *cystolepidotum* Maxim. in litt. Nom. Jap. *Tōgoku-shida*.

Hab. Japan.

var. prolifica (Maxim.) Makino.

Aspidium prolificum Maxim. in litt. ex Franch. et Sav. Enum. Pl. Jap. II. p. 239, 632.

Nephrodium prolificum Diels in Engler et Prantl, Nat. Pfl.-Fam. I. 4, p. 173.

Nephrodium erythrosorum var. *prolificum* Makino in Bot. Mag., Tokyo, XX. (1906) p. 31.

Nom. Jap. *Chirimen-shida*.

Hab. Prov. MUSASHI: Tokyo, cultivated.

Dryopteris uniformis Makino, nom. nov.

Nephrodium lacerum β . *uniforme* Makino in Bot. Mag., Tokyo, XVII. (1903) p. 79.

Nom. Jap. *O-kumawarabi* (nov.).

Hab. Japan.

This comes between *Dryopteris lacera* (Thunb.) Kuntze and *D. Filix mas* (Linn.) Schott.

Stellaria paniculigera Makino, sp. nov.

Stellaria monosperma var. *japonica* Maxim. in Mém. Biol. IX. p. 50 (1872).

Perennial, attaining about $12\frac{1}{2}$ decim. in height. Stem erect, or subdiffuse, slender, loosely ramose, 4-angled, with a pubescent line on both sides; nodes pubescent; internodes usually shorter than the leaves. Leaves opposite, all short-petiolate, lanceolate, oblong-lanceolate or oblong-ob lanceolate, attenuatedly long-acuminate, acute or cuneate at the base, crispulate, with a intramarginal veins, nearly glabrous, membranaceous, green above, paler beneath, attaining about 13 cm. long, $3\frac{1}{2}$ cm. broad; veins not conspicuous, erect-patent, arcuate upwards; veinlets inconspicuous superficially, anastomosing; petiole marginal,

thinly pubescent and sparingly ciliated, 2–13 mm. long. Cymes paniculate, axillary and terminal, many-ramose, glanduloso-pubescent with patent several-celled simple hairs; branches erect-patent, gracile; bracts small, spreading, lanceolate, ovato-lanceolate, or subulato-ovate, attenuato-acuminate, ciliated. Flowers small, numerous, pedicellate, 7–8 mm. across; pedicel about as long as the flowers, glanduloso-pubescent. Sepals narrowly lanceolate, attenuated-acuminate, glanduloso-pubescent in the back with spreading several-celled simple hairs, hyaline towards the margin, 1-nerved. Petals shorter than the sepals, bifid to the middle, attenuated below, 2–3-nerved; lobes acute, falcato-lanceolate, erect. Stamens 5, longer or shorter than the petals but shorter than the sepals; filament linear-subulate; anther oblong. Annulus conspicuous, thick. Ovary globose, 1-celled with a central axis, 3-ovuled towards the bottom; styles 3, slightly longer than the ovary. Capsule ovoid, membranaceous, composed with 6-valves, slightly shorter than the persistent calyx, monospermous. Seeds large, rounded, glabrous, smooth, castaneous.

Nom. Jap. *O-yamahakobe*.

Hab. Japan, mountains.

This species comes very near to *Stellaria crispata* Wall. (= *S. monosperma* Buch.-Ham.; *S. paniculata* Edgew.), but my species has the 2-lined-pubescent stem, acuminate sepals, 5-stamens, longer styles and 1-celled ovary.

Artemisia (Dracunculus) **Fukudo** Makino, sp. nov.

? *Artemisia campestris* Maxim. in Mém. Biol. VIII. p. 524, quoad pl. Lutschu., non Linn.

Biennial or subperennial herb, not aromatic, glabrous, erect, pyramidally paniculato-ramose, attaining about 8 decim. in height. Stem stout, terete and striate; branches slender, numerous, erect-patent, usually arcuate upwards, striato-angulate. Leaves thickish; radical ones tufted, elongato-petiolate, erect, broad, 3–4-pinnatifid; lacinae narrow and linear, flat, acute, entire, 1–3½ mm. broad; midrib only visible; petiole slender,

straight, dilated at the base, attaining about 16 cm. in length; cauline ones less parted, superior ones sessile with narrower lacinæ, floral ones simple. Heads numerous, distinctly pedicellate, racemoso-paniculate, nutant, shortly obconical, 3–5 mm. across; pedicel 3–12 mm. long, curved, gracile, loosely disposed with small subulato-linear acute or acutish entire thick bracts. Involucre broadly obconical; scales imbricated, obtuse, entire, scarious on margin, thick and green towards the centre, the outer ones smaller and deltoid or lanceolato-deltoid, the middle ones deltoid-ovate, but the inner ones larger and broad-ovate; veins pinnate. Receptacle ovoid-conical, glabrous. Flowers yellow, subnumerous, slightly exserted, heterogamous. Female-flowers 1-serial, outer, about 2 mm. long; corolla smaller, enlarged below, dispersed with granular glands, lobes minute and deltoid; style shortly exserted, arms oblong-linear, truncate. Hermaphrodite-flowers many and very slightly larger than the female, $2\frac{1}{2}$ mm. long; corolla campanulato-tubular, sparingly dispersed with granular glands, lobes deltoid; anthers included, connective-tip deltoid; style short, arms rectangular, truncate and ciliated at the apex, thickish. Ovary obovoid, glabrous. Achenium oblong-obovoid, compressed, about $1\frac{1}{2}$ mm. long.

Nom. Jap. *Fukudo*, *Hama-yomogi*.

Hab. Prov. ISE: Near Yokkaichi (*Y. Uyematsu*!; *T. Makino*!); Prov. IYO (*Z. Umemura*!); Prov. AWA in Shikoku: Tokushima (*G. Kuradzuka*!); Prov. CHIKUZEN (*Y. Tsuda*!).

This species grows on the beaches of sea or of river-mouth. It differs from *Artemisia campestris* Linn., which has the subsessile ovoid heads, very slender spreading stem, and 1–2-pinnatifid leaves (silky when young).

Rosa Onoei Makino in sched. herb. 1907.

Shrubby; branches spreading or declined; branchlets slender, flexuous, sparsely armed with subuncinate patent aculei as are the branches, terete; flowering branchlets gracile, flexuous, thinly aculeate. Leaves chartaceous, shortly petiolate, not shining; leaflets 5 or 7, glabrous and very finely reticulated above, paler

and adpressed-pubescent on the midrib beneath, ovate oblong-ovate or ovate-lanceolate acute or shortly acuminate in the lateral ones, but the terminal one larger prolonged-acuminate and attaining nearly 4 cm. long, acute or obtuse at the base, simply sharp-serrate; rachis pubescent, loosely aculeate; stipules very narrow, adnate, loosely glanduloso-ciliated, the free portion setaceous to subulato-linear. Flowers corymbose with 2 to 5, small, about $1\frac{1}{2}$ cm. across, odoriferous, white; pediceles thinly subadpressed-pubescent and thinly glandular, strict, 5–9 mm. long; bracts caducous, lanceolate, setaceo-acuminate, glanduloso-setaceo-ciliated and pubescent-ciliolated, 4–6 mm. long; bracteoles minute, opposite at the base of pedicels, subulate, acuminate, caducous. Calyx-tube small, ovoid-ellipsoid, $2-2\frac{1}{2}$ mm. long, thinly adpressed-pubescent and often springly glandular; sepals reflexed, elliptical-ovate or oblong-ovate, cuspidately or caudately acuminate, entire, but subpinnatifid with one or a few lacinæ in the outer ones, lanate but thinly pubescent and often glandular in the back, deciduous. Petals patent, cuneato-obovate or obovate-elliptical, retuse. Stamens numerous, the outer longer ones as long as the sepals; anther rounded. Disk slightly prominent. Styles 5, exserted, fasciculate, closed below, filiform, somewhat enlarged above, spreadingly piloso-pubescent, flexuous; stigma dilatato-capitate; ovaries oblong, densely hirsute. Fruits (really Calyx-tube) small, globose, smooth, red.

Nom. Jap. *Nioi-bara* (Motoyoshi Ono), *Yabu-ibara* (T. Makino).

Hab. Japan (*M. Ono* ! June 1877; *T. Makino* !).

I have named this species in memory of Motoyoshi Ono, grandson of well-known Ranzan Ono.

Rosa Luciae Franch. et Rochebr. in Bull. Soc. Bot. Belg. X. (1871) p. 324, et XV. (1876) p. 204; Bot. Mag. tab. 7421.

Rosa Wichuraiana Crepin et Desegl. in Bull. Soc. Bot. Belg. XV. (1876) p. 204, et XXVII. (1888) p. 189.

var. Fujisanensis Makino, var. nov.

Stems erect, robust; branches erect or spreading, stout, flexuous, sparingly aculeate with straight long prickles. Leaves

dense, not shining, glabrous but very slightly pubescent on the midrib beneath, chartaceo-coriaceous; leaflets 5, 7 or 9, oval broadly ovate or elliptical, obtuse or acute at the apex, usually obtuse at the base, very sharply subincumbent-serrate, $\frac{3}{4}$ –2 cm. long, $\frac{1}{2}$ –1 $\frac{1}{8}$ cm. broad; rachis loosely aculeate; stipules adnate, subentire. Flowers corymbose or shortly subpaniculato-corymbose, about 2 $\frac{1}{2}$ cm. across, white; pedicels strict and stout, glabrous. Calyx-tube ellipsoid, glabrous, 4–5 mm. long; sepals reflexed, elliptical or ovate, caudato-acuminate, entire or subpinnatifid with a few lacinæ, glabrous in the back. Petals broadly cuneato-obovate, emarginate. Stamens numerous. Disk flat, not prominent. Styles connate into one, pubescent.

Nom. Jap. *Fuji-ibara* (nov.).

Hab. Prov. SURUGA: Mt. Fiji (*T. Makino*!).

var. parvifolia Makino, var. nov.

Branches slender, spreading or declinate, glabrous, sparingly aculeate. Leaves thinly coriaceous, glabrous; leaflets 5 or 7, orbiculate or broadly ovate, obtuse or acute at the apex, rounded at the base, simply serrate, $\frac{1}{2}$ –2 $\frac{1}{2}$ cm. long, $\frac{1}{4}$ –1 $\frac{1}{2}$ cm. broad. Flowers corymbos, white, 2–2 $\frac{1}{3}$ cm. in diameter; pedicel glabrous or thinly glandular; bracts lanceolate, caudato-acuminate. Calyx-tube glabrous, or very sparingly pubescent, ellipsoid, 2 $\frac{1}{2}$ –3 mm. long; sepals ovate elliptical or oblong, caudato-acuminate, the outer ones subpinnatifid with a few lacinæ. Petals broadly obovate, retuse. Stamens numerous. Disk slightly prominent. Styles connate into one throughout, velutinous.

Nom. Jap. *Hime-terihanoibara* (nov.).

Hab. Prov. TOSA: Ikku (*T. Makino*! May 1893), Karatani (*T. Makino*! June 1893).

var. paniculata Makino, var. nov.

Flowers paniculate; pedicels glabrous. Disk much prominent. Styles fasciculate and not connate into one, velutino-pubescent. Others as in *var. parvifolia* Makino, but the leaves more or less larger.

Nom. Jap. *Koba-no-terihanoibara* (nov.).

Hab. Prov. TOSA: Ikku (*T. Makino*! May 1893).

Rubus Commersonii Poir. Encycl. VI. (1804) p. 240 ;
Pers. Syn. Pl. II. p. 51 ; Spreng. Syst. Veg. II. p. 527.

Rubus sinensis Hortul. ex Sims.

Rubus rosæfolius β . *coronarius* Sims, Bot. Mag., tab. 1783
(1815) ; Ser. in DC. Prodr. II. p. 556 ; Hook. Ic. Pl. sub tab.
349 ; Franch. et Sav. Enum. Pl. Jap. I. p. 126 ; Maxim. in Mél.
Biol. VIII. p. 388.

Rubus rosæfolius β . *coronarius* 2. *flore pleno* Maxim. l. c.

Rubus rosæfolius γ . *coronarius* b. *pleniflorus* Makino in Bot.
Mag. XV. (1901) p. 52.

Rubus rosæfolius Miq. Prol. Fl. Jap. p. 222.

Nom. Jap. *Tokin-ibara*.

Hab. Japan, cultivated.

Introduced formerly from China.

var. simpliciflorus Makino.

Rubus rosæfolius γ . *coronarius* a. *simpliciflorus* Makino, l. c.

Rubus rosæfolius β . *coronarius* 1. *flore simplici* Maxim. l. c.,
Ito et Matsum. Tent. Fl. Lutch. I. p. 183.

? *Rubus chinensis* Ser. in DC. Prodr. II. p. 557.

Nom. Jap. *Bara-ichigo*.

Hab. Japan, mountain region.

Rubus occidentalis Linn. Sp. Pl. p. 493, **var. exsuccus**
(Franch. et Sav.) Makino, ined.

Rubus Idæus β . *exsucca* Franch. et Sav. Enum. Pl. Jap. II.
(1879) p. 334.

Rubus occidentalis var. *japonicus* Miyabe, Fl. Kur. Isl. in
Mem. Bost. Soc. Nat. Hist. IV. p. 229.

Nom. Jap. *Kuro-ichigo*.

Hab. Japan, mountains.

Drupe small, black when matured, exsuccate when young
and dry.

(To be continued.)