Observations on the Flora of Japan.

(Continued from p. 22.)

By

T. Makino.

Drosera indica Linn. Sp. Pl. p. 282; Richt. Cod. n. 2232; Houtt. Nat. Hist. XXVI. (1777) p. 294, et Linn. Pfl.-Syst. VI. p. 271; Willd. Sp. Pl. I. p. 1546; Pers. Syn. Pl. I. p. 337; Spreng. Syst. Veg. I. p. 955; Schult. Syst. Veg. VI. p. 767; DC. Prodr. I. p. 319; Roxb. Fl. Ind. II. p. 113; Wight et Arn. Prodr. Fl. Pen. Ind. Or. I. p. 34; Miq. Fl. Ind. Bot. I. 2, p. 120; Wight, Ill. tab. 20, f. C; Hook. fil. et Thoms. in Journ. Linn. Soc. II. p. 82; Planch. in Ann. Sc. Nat. Sér. 3, IX. (1849) p. 204; Hance in Journ. Bot. (1880) p. 261; Oliv. Fl. Trop. Afr. II. p. 402; Benth. Fl. Austral. II. p. 456; Clarke in Hook. fil. Brit. Ind. II. p. 424; Maxim. in Mém. Biol. XII. p. 459; Forbes et Hemsl. in Journ. Linn. Soc. XXIII. p. 289.

Drosera serpens Planch. l. c.

Annual, with short fibrous roots. Stem simple, usually erect, or decumbent, narrow, minutely pubescent, attaining 24 cm. in length. Leaves sparse, often spreading, or sometimes reflexed, angustato-linear, acuminate, attaining about 9 cm. long including the petiole, very piloso-pubescent with long delicate glandular hairs on the upper surface, pale green; petiole not long, glabrous, indistinct from the blade. Raceme leaf-opposite or produced between leaves on the opposite side of them, often longer than the leaves, spreading, laxly 2-9-flowered, rachis slender, minutely pubescent; bracts minute, filiform. Flowers pedicellate, about 9 mm. across, rosy (*f. rosea*) or white (*f. albiflora*); pedicels spreading, minutely pubescent, 4-13 mm. long. Calyx 5-parted; segments subulato-lanceolate, tapering, minutely pubescent. Petals 5, patent, longer than the calyx, spathulato-oblong. Stamens 5, about as long as the calyx. Ovary obovoid-oval; styles 3, parted into 2 long filiform branches, long-stigmatiferous above. Capsule oval-ellipsoid, hardly shorter than or equal to the persistent calyx, 1-celled, dehiscent into 3 1-placentiferous valves. Seeds black, obovoid; testa prominently scalariform-reticulated. Flowers July-October.

Nom. Jap. *Nagaba-ishimochisō*.

Hab. Prov. MIKAWA: Takashi-mura (*T. Makino*! Oct. 25, 1893, Aug. 1899, *f. rosea*), Takatori-mura in Aomi-gōri (*G. Nagura*! Oct. 12, 1899, *f. rosea*), Horikiri in Atsumi-gōri (*G. Nagura*! Aug. 2, 1901, *f. albiflora*); Prov. KADZUSA: Ichinomiya (Herb.! Sc. Coll. Imp. Univ. Tokyo, Aug. 1880; *T. Makino*! Aug. 11, 1897, Aug. 10, 1901, July 5, 1902, *f. albiflora*); ISE: Yasudzuka-shinden in Kawage-gōri (*M. Kawasaki*! Sept. 14, 1903).

This is sparingly found in the provinces of Owari, Ise, Mikawa, Kadzusa, Hitachi, etc., in Middle Japan. There are two forms, one with white flower (*f. albiflora*), the other rosy flower (*f. rosea*); the latter form is slightly more robust.

Aldrovanda vesiculosa Linn. Sp. Pl. p. 281; Richt. Cod. n. 2226; Lam. Ill. tab. 220; Willd. Sp. Pl. I. p. 1543; Pers. Syn. Pl. I. p. 336; Spreng. Syst. Veg. I. p. 956; DC. Prodr. I. p. 319; Reichb. Fl. Germ. Excurs. p. 711; Roem. et Schult. Syst. Veg. VI. p. 759; Ledeb. Fl. Ross. I. p. 262; Nyman, Syl. Fl. Eur. p. 229; Casp. in Bot. Zeit. (1859) p. 117-123, 126-132, 133-139, 141-150, tab. 4-5, et (1862) p. 185-188, 201-206, tab. 7; Hook. fil. et Thoms. in Journ. Linn. Soc. II. p. 83; Wight et Arn. Prodr. Fl. Pen. Ind. Or. I. p. 34; Planch. in Ann. Sc. Nat. Sér. 3, IX. p. 304; Clarke in Hook. fil. Brit. Fl. Ind. II. p. 425; Korsh. in Act. Hort. Petrop. XII. p. 311; Makino, Phanerog. et Pterid. Jap. Ic. Ill. tab. 38.

Aldrovanda verticillata Roxb. Fl. Ind. II. p. 112.

Aldrovanda vesiculosa var. *verticillata* Darwin, Insect. Pl. p. 329; Makino, Notes on Jap. Pl. XIX. in Bot. Mag., Tokyo, VII. (1893) p. 285, tab. 11.

Aquatic perennial, floating, rootless, weak, diaphanous, green. Stem terete, with many nodes, simple or loosely few- (1-4) branched, foliate throughout, 6-26 cm. long. Leaves numerous, situated on nodes, patent, 6-8-verticillate; whorls approximate, $1\frac{1}{2}$ -2 cm. in diameter; the blade small, cochlear, conduplicate and vesiculose, semiorbicular, with a very minute spinose point (which is the projecting tip of the midrib) at the top, very shortly stipitate or sessile, minutely hairy towards the centre internally, narrowly folded and loosely ciliated on margin, $2\frac{1}{2}$ -4 $\frac{1}{2}$ mm. long; petiole oblong-cuneate or linear-cuneate, longer than the blade, cellular, 1-nerved, 3-7 mm. long, 5-6-long-fimbriate (the hairs nearly as long as the petiole and minutely spinulose except the base) at the top, in those under the pedicel des-

titute of the blade but 6–8-fimbriate (the middle hair very short but others long) at the top. Flower normally expanded (for a few hours in day) in air, small, axillary, solitary, pedicellate, ebracteate, a few to a plant, 6 mm. across, greenish; pedicel erect when flowering and then soon curved downwards, longer than the flower and leaves, 6–18 mm. long. Calyx deeply 5-parted, green; segments patulous, ovato-oblong or oblong-lanceolate, obtuse, minutely subdenticulate, vein inconspicuous. Petals 5, erect-patent, longer than the calyx, obovato-oblong, rounded-obtuse, membranaceous, with a few delicate veins, marcescent, $3\frac{1}{2}$ –4 mm. long. Stamens 5, included; filaments linear-subulate, erect; anther broad, didymous, introrse, subconnivent. Ovary ovoid, shorter than the calyx, 1-locular, 5-placentiferous, thin-walled; styles 5, filiform, shorter than the ovary, patent, then soon strongly curved upwards and its irregularly many-parted terminal stigmas connivent together with anthers; ovules 10, 2 to a placenta and situated in its middle, obovato-oblong, more or less contracted below, with a very short funicle. Capsule globoso-ovoid, longer than the persistent calyx, with styles at the top, 1-locular, 5-thin-valved, 10-seeded; 4–5 mm. long. Seeds ellipsoid, with a process at the base, 1 mm. across; testa black, crustaceous, shining; embryo very minute and short; albumen copious. Flowers July–August.

Nom. Jap. *Muzina-mo* (T. Makino).

Hab. Prov. MUSASHI: Yōda in Koiwa-mura (T. Makino! May 11, 1890, Aug. 1893, Aug. 7, 1894, Aug. 1902; S. Ikeno! herb. Sc. Coll. Imp. Univ. Tokyo, Sept. 1890); Prov. HITACHI: Nasaka-ura in Namekata-gōri (Y. Suzuki! July 15, 1902).

Rare. In ours, the flower is normally expanded and the petals are not calyptrately connivent. It was discovered by me in May 11, 1890, and July, 1891, in flower, in stagnant water of a small pond about rice-field in Yōda at Koiwa-mura on the river side of Yedo (a main division of R. Tone), about 7 miles east of Tokyo. Its occurrence in this country is very interesting for the investigation of Japanese Flora.

Platanthera (Bifoliæ) **Okuboi** Makino sp. nov.

A terrestrial orchid, 20–45 cm. high, glabrous. Tuber elongately angustato-fusiform, perpendicular; roots few, simple. Stem erect, stout, straight, sheathing with 2–3 vaginate cataphylls at the base. Leaves 5–8; the lower 2 larger and normal, equal or nearly so in size and in form,

10-20 cm. long, 3-5 cm. broad, approximate, erect-patent, elliptical to narrowly oblong, obtuse at the base, obtusely to narrowly attenuated and amplexicaul at the base, evaginate, membranaceous, 7-8-nerved on each side; transverse veinlets oblique and loose, with a few simple or 2-3-forked erect branches on the upper side; upper leaves laxly disposed, adpressed or erect-patent, lanceolate, attenuated above with an obtuse point; semiamplexicaul, evaginate, 2-6 cm. long, the lowest one sometimes attaining about 12 cm. long. Raceme erect, densely or rather densely many-flowered, 5-10 cm. long, 3-4 cm. wide; rachis straight; bracts erect-patent, foliaceous, lanceolate to ovato-lanceolate, acuminate with an obtuse point, equal to or slightly longer than ovaries, membranaceous, 3-several-nerved, with loosely anastomosing veinlets, attaining about $2\frac{1}{4}$ cm. long. Flower viridescent white? Sepals membranaceous; the upper one erect, ovate or subdeltoid-ovate, obtuse, sub-5-nerved, 6-8 mm. long, 4-6 mm. wide; lateral ones patent-reflexed, slightly oblique in shape, ovato-lanceolate or oblong-lanceolate, obtuse, longer than the upper one, 3-5-nerved, 8-10 $\frac{1}{2}$ mm. long. Petals erect, slightly lower than the upper sepal, thickish, subfalcately ovato-linear or oblong-linear, obtuse, 3-nerved, about 6-6 $\frac{1}{2}$ mm. long. Labellum lanceolato-ligulate, obtuse, entire, carnosulate, sub-5-nerved, about 10 mm. long, 3-3 $\frac{1}{3}$ mm. wide at the base; spur longer than the ovary, elongate, narrow, falcate towards the apex, about 2 $\frac{1}{2}$ -3 cm. long. Column short, broad, emarginato-bifid at the top; anther-cells remote, obovoid-oblong; rostellum broadly obtuse; column-auricles ellipsoid. Ovary angustate, arcuate, gradually attenuated above, about 1 $\frac{1}{2}$ cm. long.

Nom. Jap. *Hachijō-tsuresagi* (nov.).

Hab. ISL. HACHIJŌ: Nishiyama (*Saburō Ōkubo!* herb. Sc. Coll. Imp. Univ. Tokyo, May 13, 1887).

This species is known only from Isl. Hachijō. It is allied to *Platanthera japonica* (Thunb.) Lindley, of which the tuber is horizontal, the lower larger leaves more than two, the upper sepal subovato-elliptical and much concave, the lateral sepals shorter and broader, and the base of the anther-cells more produced; the veinlets of leaves are also different. It differs also from *Platanthera chlorantha* Cust. in all the respects except the bifolious habit. The nearest allied species seems to me to be *Platanthera orbiculata* (Pursh) Lindl. of North America.

***Platanthera* (Bifoliæ) *ussuriensis* (Regel et Maack) Maxim. in**

Mél. Biol. XII. p. 551 (1886); Kränzl. Orchid. Gen. et Sp. I. p. 629; Rolfe in Journ. Linn. Soc. XXXVI. p. 57.

Habenaria ussuriensis Miyabe Fl. Kuril. Isl. n. 251.

Platanthera tipuloides var. γ . *ussuriensis* Regel et Maack, Tent. Fl. Ussur. n. 477, tab. 10, fig. 7-9 (pess.); Franch. et Sav. Enum. Pl. Jap. II. p. 32.

Platanthera herbiola var. *japonica* A. Finet. in Bull. Soc. Bot. France, XLVII. (1900) p. 281.

A terrestrial orchid, 20-52 cm. in height, glabrous. Tuber slender, root-like, horizontal or obliquely so; roots few, simple. Stem erect, slender, sheathing at the base. Leaves several, membranaceous; lower 2 larger, erect-patent, vaginate, remote or approximate one another, the lowest one largest, oblanceolate to obovato-oblong, gradually cuneato-attenuated below, obtuse at the apex, delicately several-nerved on each side, with oblique transverse veinlets, 8-15 cm. long except the vagina, 18-43 mm. broad, the next one smaller, oblong-lanceolate to linear-lanceolate, gradually cuneato-attenuated below, attenuated above and with an obtuse or acute point, few-several-nerved on each side, 4-15 cm. long, 4-33 mm. broad; the rest ones bract-like, adpressed, evaginate, amplexicaul, angustato-subulato-lanceolate or subulato-linear, acuminate, the lower one attaining about $3\frac{1}{2}$ cm. or rarely more long. Raceme erect, rather loosely many-flowered, about 6-21 cm. long; rachis slender, glabrous; bracts erect-patent, exceeding the flowers or equal to ovaries in length, angustately subulato-lanceolate or subulato-linear or subulate, acuminate, embracing the ovary by its base, membranaceous, 3-sub-5-nerved, attaining about 2 cm. long. Flowers small, flavo-viridescent. Sepals thin, 3-nerved; the upper one erect, ovato-orbiculate to elliptical-oval, rounded at the apex, concave, $2-2\frac{1}{2}$ mm. long; lateral ones reflexed, oblong, somewhat oblique in form, slightly longer than the upper one, $2\frac{1}{2}-3\frac{1}{2}$ mm. long. Petals erect, connivent with the upper sepal, carnosulate, equal to or slightly shorter than the upper sepal, lato-linear sometimes spathulate and arcuate, rounded-obtuse, 2-nerved. Labellum carnosulate, $2\frac{1}{2}-4\frac{1}{2}$ mm. long, rounded-obtuse or truncate sometimes subcordato-truncate at the base, trifid below, the midlobe larger, ovato-oblong to narrowly oblong, or subtriangular-oblong, rounded-obtuse at the apex, entire; the basal lobes patent, shortly obliquely subtriangular-ovate, obtuse or acutish, much shorter than the midlobe; spur pendulous, filiform, shortly attenuated with an obtuse point at the apex, often hardly enlarged towards the apex, equal to or slightly shorter than the ovary in length, slightly arcuate, about 6-7 mm. long. Column short and broad, truncate or emarginato-truncate at the

top; anther-cells not long, distant; rostellum semiorbiculato-deltoid. Ovary angustate, gradually attenuated towards the top, about 6–8 mm. long.

Nom. Jap. *Ko-tombosō* (T. Makino).

Hab. Prov. SHIMOTSUKE: Nikkō (*J. Matsumura*! herb. Sc. Coll. Imp. Univ. Tokyo, Aug. 13, 19, 1885; *T. Makino*! Aug. 1884); Prov. KŌDZUKE: Mt. Haruna (*R. Yatabe* and *S. Ōkubo*! herb. ibid. July 17, 1886); Prov. ECHIGO: Mt. Shimidzu-tōge (*R. Yatabe* and *S. Ōkubo*! herb. ibid. July 19, 1886), Mt. Myōkō (*S. Matsuda*! herb. ibid. July 26, 1894); Prov. SAGAMI: Hakone (Herb.! ibid. Aug. 26, 1880, Sept. 2, 1883; *T. Makino*! Sept. 25, 1886); Prov. ISE: Mt. Asama (Herb.! ibid. Aug. 4, 1883), Watarayegōri (*Y. Uyematsu* and *K. Teraoka*! 1903); Prov. HITACHI: Mt. Tsukuba (*G. Owatari*! herb. ibid. Aug. 27, 1895); Prov. SHINANO: Mt. Yatsugatake (*Y. Yabe*! herb. ibid. Aug. 19, 1902); Prov. TOSA: Mt. Kurotaki (*T. Yoshinaga*! Sept. 1890).

***Scirpus* (Monostachyi) *pseudo-fluitans* Makino sp. nov.**

Quite pale green. Roots caespitose, fibrous. Stems caespitose, simple, or loosely short-ramose above, decumbent, radicant, multinodulose, partly enclosing with sheaths of leaves, foliate throughout, slender, terete, smooth, attaining about 32 cm. in length, the internodes much shorter than leaves. Leaves alternate, but subfasciculate at the top of stems, sheathing at the base, angustato-linear, entire with smooth edges, but hardly scabrous towards the apex, acute or subobtuse, flat but often shallowly subcanaliculate below in front, flatly rounded dorsally, rather thickish, rather strongly 3–4-nerved, with very loose transverse distinct veinlets between nerves, attaining 16 cm. long including the sheathing portion, $\frac{3}{8}$ –2 mm. wide; sheath tubular and often at length breaking, with a subtruncate mouth, pale-membranaceous, attaining 2½ cm. in length. Peduncles 1 or 2 (approximately placed) at the top of stems, slender, rather stout, compressed (oblong in section), with smooth edges, slightly contracted at the top, monostachyus, shorter or longer than leaf-like bracts, but, when there 2 present, its superior one enclosed by sheaths with a much reduced lamina, 5–14 cm. long, enclosed with the sheath of bracts at the base. Spickelet solitary, terminal, elliptical to oblong, obtuse or acutish-obtuse, 5–7 mm. long in flower, many-flowered (about 17–30 in number), glumes all fertile, without inferior empty glume. Glumes densely imbricated, ovate to oblong-ovate, obtuse, hyalino-membranaceous towards the quite entire margin, green towards the midrib,

concave, subcarinate with a smooth edge, delicately and indistinctly 6-9-striate on each side of the midrib, 4-4½ mm. long, 2-3 mm. broad, the outermost one erect, shorter or sometimes somewhat longer than spikelet, with a flower in its axil, subulato-oblong to oblong-linear, or linear, acute or subobtusely, entire, often leaf-like and thickish above, 3-4-nerved, with transverse veinlets between nerves, delicate and embracing the base of spikelet at the base, 4-7 mm. long. Rachilla notched, glabrous. Stamens 3; filaments filiform; anther linear, yellow, subbifid-truncate at the base, acute with a connective-tip at the apex, about 1½ mm. long. Ovary sessile, oblong-elliptical, compressed, smooth, pale, about 1 mm. long; style much longer than the ovary, about 5½ mm. long, rather stout, very deeply bifid, arms filiform, minutely puberulent, much longer than the smooth connate portion.

Nom. Jap. *Byakko-i*, *Uki-i* (nov.).

Hab. Prov. IWASHIRO: Tonokuchi-hara (*G. Nakahara*! Aug. 1904); Prov. SHIMOTSUKE: Ōtahara (*T. Watanabe*! Jan. 3, 1905).

Rare. This species is very closely allied to *Scirpus fluitans* Linn., from which it differs by its robustness and stiffness in every respect, quite viridescent habit, broader and longer leaves, larger and numerous-flowered spikelets, and the more or less distinctly leaf-like lowest glume. Possibly a remarkable variety of *S. fluitans* Linn.

***Taraxacum officinale* Weber. var. ε. *lividum* Koch, Syn. Fl. Germ. et Helv. ed. 3, p. 367; Herd. Pl. Radd. III. 4, pp. 39, 43; A. Gray. Syn. Fl. N. Amer. I. 2, p. 440.**

Leontodon lividus Waldst. et Kitaib. 'Pl. Rar. Hung. II. p. 120, tab. 115'; Willd. Sp. Pl. III. p. 1545.

Taraxacum palustre DC. Fl. Fr. IV. p. 45, et Prodr. VII. p. 148.

Leontodon palustre Smith 'Fl. Brit. II. p. 823.'

Leontodon Taraxacum β. *palustre* Wimm. et Grab. 'Fl. Sil. II. p. 225.'

Taraxacum officinale var. *palustre* Syme Engl. Bot. ed. 3, V. p. 143, tab. 804.

Leaves glabrous or subglabrous, obovato-oblong, gradually long-attenuated below, rounded-obtusely with a sharp tip at the apex, sharply and irregularly subbruncinato-dentate or repand-subdentate. Flower yellow. Scape thinly tomentose under the head, exceeding the leaves, in fruit attaining about 5 decim. in height and glabrate. Involucre glabrous, nigrescent when

dried; the external scales adpressed, ovate to ovato-lanceolate, acuminate with an obtuse point; interior scales angustate, ecorniculate below the apex. Achene obovato-linear, 5 mm. long, umber-isabel-coloured, squamoso-muricate towards the apex.

Nom. Jap. *Miyama-tampopo* (nov.).

Hab. Prov. SHINANO: Shirouma *M. Orii*! Aug. 1902; *Y. Yabe*! herb. Sc. Coll. Imp. Univ. Tokyo, Aug. 26, 1902; *A. Yasuda*! Aug. 1904).

This variety is new to the Flora of Japan.

(*To be continued.*)