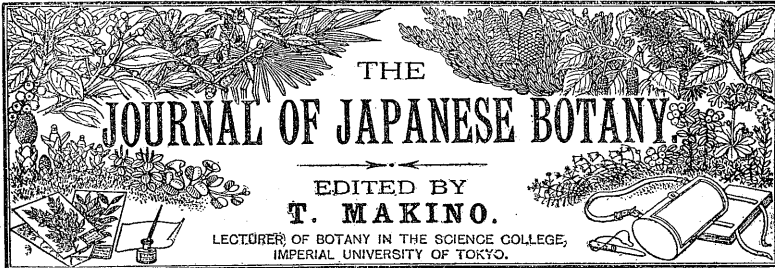


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A Contribution to the Knowledge of the Flora of Japan.

(Continued from p. 4.)

By

Tomitarô Makino.

Botrychium nipponicum MAKINO, nov. sp.

Sect. *Phyllotrichium*.

Rhizome short or very so; roots fibrous, fasciculate, elongate, thickish, terete, simple or very loosely ramose. Frond glabrous. Sterile frond 1, with a long stout thick erect stipe 6-16½ cm. long, 5-15 cm. long, 7-20 cm. broad, thickish, latericious, ternate; segments long-petiolate, broad, bipinnatifid; middle one larger; pinnae few, erect-patent, petiolulate, opposite or nearly so or alternate; pinnules often again short-petiolulate or sessile, decurrent in the superior

ones, cordate or cuneate at the base, ovate to ovato-lanceolate or lanceolate; extreme segments ovate, obtuse or acute at the apex, irregularly inciso-serrulate or denticulate, flabellate-veined; veins slightly visible. Fertile frond long-stiped, much exserted, attaining about 35 cm. long; stipe terete, erect from the lower portion of the stipe of the sterile frond.

Nom. Jap. *Aka-hinawarabi* (nov.).

Hab. Prov. MUSASHI: Negishi in Hizaori-mura (T. MAKINO! Jan. 12, 1915).

This species is very closely allied to *Botrychium japonicum* UNDERW. (= *B. daucifolium* β . *japonicum* PRANTL, Beitr. z. Syst. der Ophioglos. p. 340), differing from the latter, however, by having the wholly lateritious-coloured frond, more conspicuous and closer veins, narrower and more tapering extreme segments, longer-petiolate and broader lower pinnules, and shorter and closer serration; both species grow in the same place.

Athyrium niponicum (METT.) HANCE in Journ. Linn. Soc. XIII. p. 92 (1873).

var. *cristato-flabellatum* MAKINO, nov. var.

Apex of pinnæ and of the frond flabellately divided into a few to several narrow serrated lobes; lobes usually again flabellato-cristate at the apex.

Nom. Jap. *Kingyo-inuwarabi* (nov.).

Hab. Prov. MUSASHI: Komaba, cultivated (T. MAKINO! June 5, 1899).

Vittaria sessilis (EATON) MAKINO, nov. comb.

Vittaria japonica var. *sessilis* EATON ex YOSHINAGA in Bot. Mag., Tokyo, IV. (1890), p. 94.

Vittaria Fudinoi MAKINO in Bot. Mag., Tokyo, VI. (1892), p. 47, XII. (1898), p. 28, et Phanerog. et Pterid. Jap. Ic. III. I. (1901), tab. 59-60.

Nom. Jap. *Nakami-shishiran* (meaning a middle-soriferous *Vittaria*).

Hab. JAPAN, southern.

Sasa Tokugawana MAKINO, nov. sp.

About 1½ m. high. Culm erect, slender, loosely ramose towards the top, terete, smooth, often purpurascens, fistulose; nodes somewhat turged. Leaves 4-5 to a branch and palmately arranged towards the end, oblong-lanceolate, acuminate at the apex, rounded subtruncato-rounded or subcordate and shortly petiolate at the base,

scabro-ciliated on margin, glabrous and green above, thinly pubescent and paler beneath, coriaceous-chartaceous, narrowly pale-decayed in winter on margin, about 11–21 cm. long, 3–4½ cm. wide; midrib slender, pale, prominent beneath; veins 7–10 on each side; veinlets minutely tessellate beneath, very finely striate above; petiole flat, puberulent at the base in front, often purpurascens, 3–9 mm. long; ligule short, truncate, densely puberulent dorsally, about 1½ mm. long; sheath chartaceous-coriaceous, very thinly pubescent (hairs finally fallen off), striate, often purplish, fimbriate at the mouth at first.

Nom. Jap. *Tokugawa-zasa* (nov.).

Hab. Prov. SAGAMI: Hakone (K. HISAUCHI! Jan. 15, 1913; T. MAKINO! July 1915).

A bamboo resembling *Sasa Tsuboiana* MAKINO and *S. nipponica* MAKINO ET SHIBATA. I have dedicated this new bamboo to Marquis YORIMICHI TOKUGAWA, who has the particular interest on bamboos.

Brassica japonica (THUNB.) MAKINO in Bot. Mag., Tokyo, XXII. (1908), p. 161.

Sinapis japonica THUNB. Fl. Jap. (1784), p. 262.

var. *indivisa* MAKINO, nov. var.

Leaves densely caespitose, long-petiolate, undivided, spatulato-oblong, obtuse with a mucronate or mucronato-acute tip at the apex, narrowly and gradually attenuated and decurrent at the base, remotely sublobate, very depressedly mucronato-subdentate.

Nom. Jap. *Mibu-na*.

Hab. Prov. SAGAMI: Yamakita, cultivated (K. HISAUCHI! Feb. 15, 1915).

Hamamelis bitchuensis MAKINO, nov. sp.

A small deciduous tree; branches glabrous; branchlets often slightly flexuous, erect-patent, terete, thinly dispersed with punctate slightly elevated lenticels, glabrous, but new one densely covered with pale-fulvous stellate hairs; bud very densely covered with fulvous stellate hairs. Leaves alternate, petiolate, rhombo-orbicular rhombo-oval or rhombo-elliptical, somewhat oblique in form, suddenly short-acuminate with an obtuse tip at the apex, unequally auriculato-cordate at the base, depressedly repand-crenate, chartaceous-coriaceous, green above, glaucous or nearly so beneath, covered with stellate pale soft hairs (those of the under surface longer) on both surfaces (hairs fulvous and dense on the midrib and veins on both surfaces). 3–11 cm. long, 2–8½ cm. wide; midrib prominent beneath, shallowly impressed above, subflexuous; veins loose, alternate, erect-patent, slender, prominent beneath, shallowly impressed above, scarcely

arcuate above, reaching to the apex of teeth, about 6-8 on each side, the lower ones (except the lowest one) with a few second veins on the under side above; main veinlets transverse between the veins, delicate, prominent beneath, with reticulated small not conspicuous veinlets between them; petiole densely covered with stellate pale-fulvous hairs, 5-15 mm. long. Alabastra 3 on the top of the axillary short common peduncle, very densely covered with fulvous stellate hairs as well as the peduncle, which has caducous small bracts; bracteoles under the alabastra rotund and concave.

Nom. Jap. *Atetsu-mansaku* (nov.).

Hab. Prov. BITCHŪ: Mt. Kurokami near Niimi in Atetsu-gōri (T. MAKINO! Aug. 5, 1914).

This species differs from *Hamamelis japonica* SIEB. ET ZUCC. by having the glaucous leaves, which are wholly covered with hairs.

Hamamelis obtusata (MATSUM.) MAKINO in Bot. Mag., Tokyo, XXVII. (1913), p. 150.

forma flavo-purpurascens MAKINO, nov.

Branches terete, griseo-avellaneous, dispersed with punctate lenticels. Leaves rhombic-obovate-orbicular or rhombic-oval, broadly cuneate below. Petals narrower, $1\frac{2}{3}$ mm. wide in the middle portion, slightly broader in the lower, yellow but purpurascens and deeper-coloured veined towards the lower portion gradually.

Nom. Jap. *Nishiki-mansaku* (nov.).

Hab. JAPAN, central? (T. MAKINO! March 1916).

Shortia soldanelloides (SIEB. ET ZUCC.) MAKINO in Bot. Mag., Tokyo, XXI. (1907), p. 31.

Schizocodon soldanelloides SIEB. ET ZUCC. in Abh. Akad. Muench. III. p. 725, tab. 2, fig. 1.

var. magna MAKINO, nov. var.

Rhizome stout, long-creeping, ramose, rooting. Leaves long-petiolate, orbiculate, cordate at the base, subtruncato-retuse with an acute depressed-deltoid tooth at the apex, numerous dentate on margins with mucronate depressed-deltoid teeth, coriaceous, attaining about 11 cm. long, $11\frac{1}{2}$ cm. broad. Flowers often sub-paniculated, long-scapose, about 17-18 mm. long, lilac or rarely pale-lilac.

Nom. Jap. *Ô-ivakagami*.

Hab. Prov. ÔMI (T. MAKINO!).

This is not uncommon on hills of the the central Japan.

(To be continued.)