Observations on the Flora of Japan.

(Continued from Vol. XVII. p. 214.)

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Natsiatum sinense Oliv. in Hook. Ic. Pl. XIX. (1889), tab. 1900 ; Diels Fl. Centr.-Chin. in Engler's Bot. Jahrb. XXIX. (1901), p. 447 ; Bretschn. Hist. Eur. Bot. Disc. Chin. p. 780.

Natsiatum japonicum Makino in Bot. Mag., Tokyo, VII. (1893) p 119.

Deciduous scandent shrub. Branches slender, dextorse, laxly ramulose, avellaneous-griseous, glabrate, but disparsedly adpressed-hirsute or densely tomentoso-hirsute in young shoot, distributed with small lenticels ; scars of leaves slightly prominent and orbicular, with a flat face ; leaf-bud naked (without bud-scales), tomentose with isabel-coloured hairs. Leaves alternate, long-petiolate, exstipulate, ovate or elliptical-ovate, cordate at base, acuminate, coarsely repand-dentate with apiculate tip, disparsedly piloso-hirsute on both surfaces (hairs denser beneath), 5-12 cm. long, 3-9 cm. broad, membranaceous, green above, paler beneath ; midrib prominent beneath ; lateral veins 5-6 on each side ; erect-patent, hardly arcuate, reaching the tip of teeth of the margin ; main veinlets transverse between lateral veins, the small veinlets delicate and numerous anastomosing ; petiole slender, attaining about 8 cm. long, disparsedly adpressed-hirsute. Panicle in the axil of leaves and fallen leaves, laxly ramose into slender filiform pedicels which are much longer than flowers, cernuo-pendulous, 2-6-flowered, attaining about 8 cm. in length, disparsedly adpressed-pilose. Flower (staminate) regular, 9-12 mm. across. Calyx much smaller than corolla, deeply 5-parted, 3 mm. or little more across, patent, carnosulate, green, densely covered with antrorsely adpressed fulvous hirsute hairs externally, glabrous internally ; lobes deltoid-ovate, obtuse. Corolla carnosulate, viridescent, 5-petaled, valvate in bud, coherent into a broad campanulate glabrous tube at the base ; lobes patent, oblong-lanceolate, attenuatedly acuminate and uncinulato-reflexed at the apex, $6\frac{1}{2}$ -7 mm. long, $2\frac{2}{3}$ -3 mm. wide, entire, 1-nerved, lateral veins loose delicate and obscure, disparsedly strigillose with fulvous hairs externally, reticulately deep-green-nerved and minutely papil-

lose internally. Stamens 5, alternate to petals, free, erect, longer than the corolla-tube, equal, 3 mm. long; filament straight, stout, thick, slightly narrowed towards both ends, green; anther short, elliptical, introrse but then reflexed turning outwards, 2-celled, dorsifixed, golden-yellow. Scales 5, alternate to stamens and closely placed at the base of them, minute, carnosulate, deltoid, obtuse-angled, truncate at the top, yellowish-viridescent. Pistil 1, shorter than stamens, erect; ovary ellipsoid-ovoid, viridescent, very thinly dispersed with antrorsely adpressed setulose colourless hairs, 1-celled, with 2 pendulous ovules; style terminal, stout, erect, straight, a little longer than ovary; stigma funnel-shaped and 4-lobed. Fruiting panicle attaining about 4 cm. in length, laxly with fruits; pedicel shorter than the fruit. Fruit oblong-elliptical, compressed, with persistent calyx, scarlet when mature, reticulated-veined when dried, 12–17 mm. long, crustaceous, 1-seeded. Seed oblong-elliptical, compressed, with thin coat, albuminous; cotyledons large, foliaceous; caulicle small.

Hab. Prov. Tosa: Mt. Kurotaki (*T. Makino*! Nov. 1892); Prov. Iyo: Mt. Ishidzuchi (*K. Okudaira*! Aug. 1893; *S. Yamaguchi*! June 25, 1896; *M. Shirai*! August 1896), North-eastern foot of Mt. Ishidzuchi (*K. Okudaira*! June 25, 1897), Near Shirai-Fall in Kawanouchi, Miuchi-mura (*K. Okudaira*! May 7, 1899).

This is found in mountain woods of south-western Japan. The genus is new to Japan and a representative of *Icacinaeae* in this country.

FAURIA Franch. (1886).—*Nephrophyllidium* Gilg (1895).—*Villarsia* sp. Griseb.—*Menyanthes* sp. Menz. (GENTIANACEÆ)

Fauria Crista galli (Menz.) Makino.

Fauria japonica Franch. in Bull. Soc. Philomath. Paris (8 mai 1886) p. 3; Engler in Engler et Prantl Nat. Pfl.-Fam. III. 2 (1891) p. 62.

Menyanthes Crista galli Menzies in Hook. Bot. Miscel. I. (1830) p. 45, tab. 24; A. Gray Syn. Fl. N. Am. II. 1, p. 128.

Villarsia Crista galli Griseb. Gen. et Sp. Gent. (1839) p. 338, et in DC. Prodr. IX. (1845) p. 136; Hook. Fl. Bor. Am. II. p. 70; Ledeb. Fl. Ross. III. p. 76; Miq. Prol. Fl. Jap. p. 289; Herd. Pl. Radd. IV. 1, p. 193; Franch. et Sav. Enum. Pl. Jap. I. p. 325.

Nephrophyllidium Crista galli Gilg in Engler et Prantl Nat. Pfl.-Fam. IV. 2 (1895) p. 105, fig. 47; Yabe in Bot. Mag., Tokyo, XVII. p. 25.

Nom. Jap. *Iwa-ichō* (Rock Ginkgo).

Hab. Middle and Northern Japan, alpine mountains.

***Gentiana* (Chondrophylla) *pseudo-humilis* Makino, sp. nov.**

Biennial, attaining about 5 cm. in height in flower, quite glabrous. Roots slender, narrow, filiform, ramose. Stem erect, pauci- to subnumerous-ramose, fleshy, nearly immersed among leaves, with short nodes; branches uniflorous. Leaves closely placed, carnosulate, green, narrowly pellucid-membranaceous on the margin, which is scabrous in lower leaves, sharply carinate dorsally often with scabrous edge, connato-vaginate at the base, trinerved, with loosely anastomosing veinlets above; lower leaves orbiculate or subspathulato-orbiculate or elliptical and patulose but obovato-spathulate or oblong in ascendant ones, cuspidate, 6–13 mm. long, 2–7 mm. wide, basal ones rosulate; superior leaves adpressed, 5–9 mm. long, subulato-lanceolate, or subulato-linear, cuspidato-acute, conduplicate. Flower sessile or shortly pedicellate, 13–14 mm. long. Calyx tubuloso campanulate, viridescent, 5-carinato-angular, narrowed below, about 8 mm. long, 15-nerved below and loosely anastomosing veined above, narrowly pellucid-membranaceous in valleys; teeth erect, adpressed, slightly shorter than one-half as long as the tube, deltoid-subulate, acuminato-acute, carinate on the back, pellucid-margined, short and truncate in the edge between teeth. Corolla $1\frac{1}{2}$ as long as calyx, tubuloso-infundibuliform, narrowed below, virido-cærulescent above; limb much shorter than the tube, broadly deltoide-ovate or ovato-orbiculate, cuspidato-acute, entire; plaits thinly membranaceous, about $\frac{1}{2}$ as long as the limb, lato-deltoid, 2-fid, irregularly pauci- or pluri-denticulate above. Stamens included; filament subulato-filiform; anther elliptical or elliptical-oblong. Ovary shortly and broadly stipitate, narrowly oblong; style deeply 2-fid, the main portion very short, arms revolute and papilloso-pubescent.

Nom. Jap. *Hina-rindō* (nov.)

Hab. Prov. SHINANO: Mt. Yatsugadake (*H. Takeda* and *S. Kawada*! July 27, 1903).

Rare. Very closely allied to *Gentiana humilis* Stev., which have oblong-lanceolate and subconnato-vaginate cauline leaves, ovato-lanceolate calyx-teeth, ovate corolla-lobes, and lato-rounded and subentire or dentate plaits; possibly a variety of the latter species.

***Aspidium* (Polystichum) *lachenense* Hook. Sp. Fil. IV. p. 8, tab.**

212; Hook. et Baker Syn. Fil. p. 250; Clarke Rev. Fern. N. Ind. in Trans. Linn. Soc. 2nd. Ser. I. p. 506; Bar. et Christ in Nuov. Giorn. Bot. Ital. N. Ser. IV. (1897) p. 10.

Polystichum lachenense Bedd. Ferns Brit. Ind. tab. 32, et Handb. Ferns Brit. Ind. p. 203; Diels in Engl. et Prantl. Nat. Pfl.-Eam. 1. 4, p. 191, et Fl. Centr.-Chin. in Engler's Bot. Jahrb. XXIX. p. 192.

A small fern, attaining 18 cm. in height. Rhizome short, oblique, densely covered with castaneous ovate acuminate sub-dentate scales. Stipe erect, very densely tufted forming a compact mass with numerous old ones which are accompanied by a few or several marcescent rachises free from fallen pinnae, $2\frac{1}{2}$ –5 cm. long, castaneous below, scaly. Frond longer than the stipe, linear-lanceolate, simply pinnate, sub-coriaceous, 6–11 cm. long, $1\frac{1}{3}$ –2 cm. wide; rachis slender, viridescent, apterous, disparsed with subulato-linear pale-fulvous spinuloso-denticulate thin scales; pinnae numerous, patent, rather distant, sessile, green, disparsedly scaly beneath, more or less reduced in size in lower ones, deltoid-ovate, rather obtuse with a subspinulose point, slightly oblique and rounded-subtruncate at the base, attaining 10 mm. long, 7 mm. broad, crenato-serrate with sub-spinulose point but sub-pinnatifid below, the lowest lobe pauci-serrulate with sub-spinulose points; midrib subflexuous; veins erect-patent, furcate, lower ones pinnate with simple venules. Sori dorsal, 2-serial, 1–12 to a pinna, situated in the midway between the midrib and margin but slightly nearer the midrib; indusium thinly membranaceous, pale, peltate, irregularly crenulato-subdentate.

Nom. Jap. *Takane-shida* (Nov.)

Hab. Prov. SHINANO: Mt. Yatsugatake (*H. Takeda*! July 27, 1903).

Rare. New to the Flora of Japan.

Distrib. Eastern Himalaya, and Central China.

***Cacalia palmata* (Thunb.) Makino.**

Arnica palmata Thunb. Fl. Jap. (1784) p. 319; Willd. Sp. Pl. III. (1800) p. 2112; Pers. Syn. Pl. II. (1807) p. 454; Spreng. Syst. Veg. III. (1826) p. 567.

Senecio palmatus Less. Syn. Gen. Comp. (1832) p. 392; DC. Prodr. VI. p. 733; Palib. Consp. Fl. Kor. I. p. 118, non Pall. nec Lapeyr.

Syneilesis palmata Maxim. in Mém. Biol. IX. p. 300 (1874).

Senecio Syneilesis Franch. et Sav. Enum. Pl. Jap. I. (1875) p. 249; Forbes et Hemsl. in Journ. Linn. Soc. XXIII. p. 449; Yatabe in Bot. Mag., Tokyo, VII. p. 245, tab. 9

Cacalia Syneilesis Matsum. Shokubutsu-Mei-I (1895) p. 57.

Cacalia aconitifolia Miq. Prol. Fl. Jap. pp. 113, 361, 366, non Bunge.

Nom. Jap. *Taimin-gasa*.

Hab. Mountain woods in Middle and Southern Japan.

Erigeron dubius (Thunb.) Makino, non Spreng.

Inula dubia Thunb. Fl. Jap. (1784) p. 318; Willd. Sp. Pl. III. (1800) p. 2100; Pers. Syn. Pl. II. (1807) p. 451; Spreng. Syst. Veg. III. (1826) p. 521.

Aster japonicus Less. Syn. Gen. Comp. (1832) p. 182, et in DC. Prodr. V. p. 228; Nees Gen. et Sp. Aster. (1833) p. 34; A. Gray in Perry's Exped. Jap. II. p. 314; Sieb. et Zucc. in Abhandl. Akad. Muench. IV. 3, p. 181.

Erigeron Thunbergii A. Gray Bot. Jap. (1859) p. 395, cum *var. ? glabratum*; Miq. Prol. Fl. Jap. pp. 102, 362; Franch. et Sav. Enum. Pl. Jap. I. p. 227.

Erigeron pulchellus ? A. Gray in Perry's Exped. Jap. II. p. 314, ex Miq. l. c. p. 102, non DC.

Nom. Jap. *Adzuma-giku*.

Hab. Middle Japan.

Pieris* (Portuna) *nana (Maxim.) Makino in Bot. Mag., Tokyo, VIII. (1894) p. 213.

Andromeda nana Maxim. in Mém. Biol. VIII. p. 615 (1872); Franch. et Sav. Enum. Pl. Jap. I. p. 284; et II. p. 526; H. de Boiss. in Bull. Herb. Boiss. V. (1897) p. 912.

Nom. Jap. *Hama-zakura*, *Komeba-tsugazakura*.

Hab. Middle and Northern Japan, alpine summit of mountains.

Oxycoccus japonicus (Miq.) Makino.

Vaccinium japonicum Miq. in Ann. Mus. Bot. Lugd.-Bat. I. (1863-64) p. 28, II. p. 160, et Prol. Fl. Jap. p. 92; Maxim. in Mém. Biol. VIII. p. 604; Franch. et Sav. Enum. Pl. Jap. I. p. 280; Forbes et Hemsl. in Journ. Linn. Soc. XXVI. p. 16; Diels in Engler's Bot. Jahrb. XXIX. p. 516; H. de Boiss. Bull. Herb. Boiss. V. (1897) p. 905.

Nom. Jap. *Aku-shiba*.

Hab. Japan, widely distributed.

Chiogenes hispidula Torr. et Gray **var. japonica** (A. Gray) Makino.

Chiogenes japonica A. Gray Syn. Fl. N. Am. II. 1. p. 26, in nota.

Chiogenes hispidula Miq. Prol. Fl. Jap. p. 94; Maxim. in Mém. Biol. VIII. p. 609; Franch. et Sav. Enum. Pl. Jap. I. p. 282, non Torr. et Gray.

Nom. Jap. *Harigane-kadzura*.

Hab. Mountain woods in Middle Japan.

Eurya emarginata (Thunb.) Makino.

Ilex emarginata Thunb. Fl. Jap. (1784) p. 78; Willd. Sp. Pl. I. (1797) p. 710; Pers. Syn. Pl. I. (1805) p. 151; Roem. et Schult. Syst. Veg. III. (1818) p. 491; Spreng. Syst. Veg. I. (1825) p. 495; DC. Prodr. II. (1825) p. 16; Miq. Catal. Mus. Bot. Lugd.-Bat., Fl. Jap. p. 19; Maxim. Cor. II. et Monochasm. p. 53.

Eurya chinensis R. Br. in 'Abel's Voy. Append. (1818) p. 379, cum ic.'; DC. Prodr. I. p. 525; Blume Mus. Bot. Lugd.-Bat. II. p. 108; Seem. Bot. Voy. 'Herald,' p. 366; Miq. Prol. Fl. Jap. p. 203; Dyer in Hook. fil. Fl. Brit. Ind. I. p. 285; Kanitz Anthoph. Jap. p. 25; Franch. et Sav. Enum. Pl. Jap. I. p. 58; Maxim. in Engler's Bot. Jahrb. VI. p. 60; Forbes et Hemsl. in Journ. Linn. Soc. XXIII. p. 76; Ito et Matsum. Tent. Fl. Lutch. I. p. 59; Diels in Engler's Bot. Jahrb. XXIX. p. 474.

Eurya littoralis Sieb. et Zucc. in Abhandl. Akad. Muench. IV. 2, p. 163, n. 199; Hoffm. et Schult. Noms Indig. Pl. Jap. in Journ. Asiat. (1852) p. 293, n. 231.

Eurya parvifolia Gardn. (1847).

Eurya japonica δ . *parvifolia* Thw.

Nom. Jap. *Hama-hisakaki*.

Hab. Southern Japan, near sea.

Ribes (Ribesia, Rubra) **laxiflorum** Pursh Fl. Am. Sept. II. p. 731; Schult. Syst. Veg. V. p. 499; Spreng. Syst. Veg. I. p. 810; Torr. et Gray Fl. N. Am. I. p. 550; A. Gray Bot. Jap. p. 388; Maxim. in Mém. Biol. IX. p. 227; H. de Boiss. in Bull. Herb. Boiss. V. (1897) p. 693.

Ribes affine Dougl. ex 'Bong. Veg. Sitcha in Mém. Acad. Pétersb. II. (1833) p. 138'; Fr. Schmidt Reis. in Amur. u. Ins. Sachal. p. 132 (*var. sachalinensis*).

Ribes prostratum β . Hook. Fl. Bor. Amer. I. p. 232.

Nom. Jap. *Toga-suguri* (K. Miyabe).

Hab. Prov. KUSHIRO in Hokkaido: Senpōji. (*K. Miyabe*! July 2, 1884); Prov. SHINANO: Mt. Tateshina (*T. Furukawa*! Aug. 19, 1898), Mt. Yatsugatake (*K. Tanaka*! August 1902).

New to Honsiu.

Trachycarpus excelsus (Thunb.) Wendl.

a. typicus.

Trachycarpus excelsus Wendl. ex C. Gay in Bull. Soc. Bot. France VIII. (1861) p. 429; Henry in Trans. Asiat. Soc. Jap. XXIV. Suppl. p. 99; Diels in Engler's Bot. Jahrb. XXIX. p. 233.

Trachycarpus excelsus Beccari et Hook. fil. in Hook. fil. Fl. Brit. Ind. VI. p. 436; C. H. Wright in Journ. Linn. Soc. XXXVI. p. 168, ex parte.

Chamærops excelsa Thunb. Fl. Jap. (1784) p. 130. excl. *var. β* ; Pers. Syn. Pl. I. p. 400. excl. syn.; Mart. 'Nat. Hist. Palm. III. p. 251, tab. 125'; Kunth Enum. Pl. III. p. 250; Walp. Ann. V. p. 818; Miq. Prol. Fl. Jap. p. 329; Franch. et Sav. Enum. Pl. Jap. II. p. 1; Kanitz Anthoph. Jap. p. 10.

Rhapis flabelliformis Willd. Sp. Pl. IV. p. 1093; Spreng. Syst. Veg. II. p. 137; Schult. Syst. Veg. VII. p. 1490, ex parte, non Ait.

Sjuro et *Sodio* Kæmpf. Amœn. Exot. p. 898.

Nom. Jap. *Shuro*.

Hab. Middle and Southern Japan, planted.

β . Fortunei (Hook.) Makino.

Chamærops Fortunei Hook. in Bot. Mag. tab. 5221; Debeaux Fl. Shangh. n. 119. excl. syn.; Bretschn. Hist. Eur. Bot. Disc. Chin. pp. 511, 843.

Trachycarpus Fortunei Wendl. ex C. Gay in Bull. Soc. Bot. France VIII. p. 429; Diels in Engler's Bot. Jahrb. XXIX. p. 233.

Trachycarpus excelsus Beccari et Hook. fil. in Hook. fil. Fl. Brit. Ind. VI. p. 436; C. H. Wright in Journ. Linn. Soc. XXXVI. p. 168, ex parte.

Nom. Jap. *Tō-shuro* (Chinese *Trachycarpus*).

Hab. Middle and Southern Japan, cultivated from China.

Philydrum lanuginosum Banks in Gærtn. *Fruct. et Semin. Pl. I.* (1788) p. 62, tab. 16, fig. 10; *Lam. Ill. Gen. I.* (1791) tab. 4; *Poir. Enc. Méth. Bot. V.* (1804) p. 254; *Willd. Sp. Pl. I.* (1797) p. 17, et *Enum. Pl. Hort. Bot. Berol.* (1809) p. 6; *Bot. Mag.* (1804) tab. 783; *Pers. Syn. Pl. I.* (1805) p. 4; *R. Br. Prodr. Fl. Nov. Holl. I.* p. 256; *Ait. Hort. Kew. ed. 2, I.* p. 9; *Rœm. et Schult. Syst. Veg. I.* (1817) p. 38; *Schult. Mant. Syst. Veg. I.* (1822) p. 54; *Spreng. Syst. Veg. I.* (1825) p. 18; *Rosc. in Trans. Linn. Soc. VIII.* p. 342, tab. 20, fig. 5; *Kunth Enum. Pl. III.* p. 380; *Schnizl. Ic. Fam. Nat. tab. 52*; *Griff. Notul. Pl. Asiat. III.* p. 231, et *Icon. Pl. Asiat. tab. 269-70*; *Steud. Syn. Glum. II.* p. 314; *Miq. Fl. Ind. Bat. III.* p. 250; *Benth. Fl. Hongk. p. 380*, et *Fl. Austral. VII.* p. 74; *Hassk. in Bull. Bot. Soc. France XVI.* (1869) p. XXIV; *Hance in Journ. Bot. IX.* (1871) p. 202; *Caruel in A. DC. Monogr. Phan. III.* p. 3; *Hook. fil. Fl. Brit. Ind. VI.* p. 363; *Bretschn. Hist. Eur. Bot. Disc. Chin. pp. 200, 204*; *N. E. Brown in Journ. Linn. Soc. XXXVI.* p. 150.

Garciana cochinchinensis Lour. *Fl. Cochinch. p. 15*, ed. Willd. p. 20.

Nom. Jap. *Tanuki-ayame* (Y. Tashiro).

Hab. Prov. SATSUMA in Kiusiu: Agune (*S. Ikeno!* Aug. 15, 1897; *T. Kawakami!* Oct. 1901); LOOCHOO: Isl. Okinawa (*Y. Tashiro!* herb. Soc. Coll. Imp. Univ. Tokyo, Aug. 1887; *H. Kuroiwa!*); Yaeyama (*Y. Tashiro!* herb. *ibid.* Aug. 1887).

In the southern part of Kiusiu, it is rarely found, at first collected by Professor S. Ikeno. In 1882, Mr. Y. Tashiro collected it in Tanega-shima, an island placed near the southern extremity of Kiusiu.

Campanumœa (*Cyclocodon*) **truncata** (Wall.) Diels *Fl. Centr.-Chin.* in *Engler's Bot. Jahrb. XXIX.* (1901) p. 606.

Codonopsis truncata Wall. 'Cat. n. 1301'; A. DC. 'Monogr. Camp. p. 122,' et *Prodr. VII.* p. 423.

Cyclocodon truncatus Hook. fil. et Thoms. in *Journ. Linn. Soc. II.* p. 18.

Campanumœa celebica Clarke in Hook. fil. *Fl. Brit. Ind. III.* p. 436, pro parte, non Blume, excl. syn. nonnul.

Campanumcea axillaris Oliv. in Hook. Ic. Pl. XVIII. tab. 1775, (1888); Forbes et Hemsl. in Journ. Linn. Soc. XXVI. p. 7; Henry in Trans. Asiat. Soc. Jap. XXVI. Suppl. p. 570.

? *Cyclocodon adnatus* Griff. Notul. Pl. Asiat. IV. p. 278.

Stem and branches subquadrangular. Leaves lato-lanceolate, attaining 12 cm. long, 5 cm. or more broad. Bracteoles sometimes leafy, rarely adnate to the base of the fruit. Fruit subdepressed-globose, about $1\frac{1}{2}$ cm. across. Seed minute, numerous, oval, compressed, smooth, unuber-coloured.

Nom. Jap. *Tangebu* (in Amami Ōshima).

Hab. FORMOSA: Tamsui (*Morse*); LOOCHOO: Amami Ōshima (*Y. Tashiro*! herb. Sc. Coll. Imp. Univ. Tokyo, Sept. 1887), Naze in Amami Ōshima (*T. Uchiyama*! herb. ibid. Dec. 4. 1900), Yaeyama Archip. (*Y. Tashiro*! herb. ibid. Aug. 1887).

New to the Loochoo Flora.

Cremastra unguiculata Finet in Bull. Soc. Bot. France XLVII. (1900) p. 269.

Oreorchis unguiculata Finet l. c. XLIII. (1896) p. 698, tab. 14, et XLIV. (1897) p. 70.

A terrestrial Orchid. Roots fibrous, slender, filiform, whitish, densely hairy, issuing and spreading from the base of the pseudbulb in the verticillate manner. Rhizome short, wiry, glabrous, ascending, with a pseudbulb at the top. Pseudbulb erect, tuberous, ovoid or globoso-ovoid, about 12–15 mm. long, 7–15 mm. across, smooth, with 2 nodes, loosely covered with marcescent fibres of old vaginæ. Leaves 2, situated at the apical end of the pseudbulb, broadly lanceolate or oblong-lanceolate, 11–17 cm. long including the petiole, 2– $3\frac{1}{3}$ cm. broad, entire, sharply acute at the apex, gradually attenuated below into a narrow petiole, subplicate, glabrous, thinly chartaceous, maculate with purple spots beneath; triplinerved, with numerous and close small veinlets between main nerves; transverse venules delicate and loose; petiole slender, 3–5 cm. long, canaliculate in front, the outer one forming a tubular sheath below and enclosing that of the inner leaf. Scape erect from the superior part under the apical end of the pseudbulb, much longer than leaves, slender, terete, smooth, $3\frac{1}{2}$ – $4\frac{1}{2}$ decim. high including the raceme, $2\frac{1}{2}$ –3 mm. in diameter in the lower portion, a basal sheath with marcescent fibres in flowering time, furnished with distantly placed 2 sheaths in the lower portion; sheath long, tubular, $3\frac{1}{2}$ –5 cm. long, close to the scape, glabrous, scarioso-mem-

branceous, longitudinally and loosely nerved, mouth oblique, acutish-obtuse at the apex. Raceme erect, about 10–15 cm. long, shorter than scape, loosely about 7–10-flowered; rachis slender, straight, glabrous, angular; bracts small, much shorter than ovary, one for each flower, erect-patent, lanceolate, attenuated above and obtuse at apex, entire, scariouso-membranaceous, trinerved, 4–8 mm. long, $2\frac{1}{3}$ – $2\frac{2}{3}$ mm. broad. Flowers middle-sized, ascending. Perianth half-patent, brownish-yellow. Sepals linear-spathulate, long and narrowly attenuated below, shortly tapering towards the apex with an obtuse tip, entire, 3–5-nerved, moderately thin, glabrous; dorsal one 2– $2\frac{1}{3}$ cm. long, $2\frac{1}{5}$ – $3\frac{1}{3}$ mm. wide; lateral ones scarcely shorter and scarcely narrower than the dorsal one, hardly falcate. Petals shorter and narrower than the sepals, 18–20 mm. long, 2– $2\frac{1}{2}$ mm. wide, linear-spathulate, very slightly curved, narrowly and gradually attenuated below, subacute, entire, thin on margin, blotched with purple spots, 3-nerved, the outer nerves often furcate above. Labellum white, long-unguiculate, ecalcarate; lamina dilated, subpendulous, thin, glabrous, about $6\frac{1}{2}$ –8 mm. long, $5\frac{1}{2}$ –7 mm. broad, contracted and geniculate with the unguis at the base, tripartite, furnished with a tubercle at the base; tubercle minute, about $1\frac{1}{3}$ mm. long, vertically oblong, rugose, rounded-obtuse at the posterior end and subacute and gradually elevated towards the anterior end; mid-lobe largest, rhombo-panduliform, the lower half broadly cuneate with nearly entire margins, the upper half semi-orbicular or broadly ovate, minutely crisped and erose on the margin, hardly emarginate with a mucronate tip in centre; nerves 5, lateral ones branching above and disappearing before reaching the margin; lateral lobes much smaller, erect-patent, linear-ligulate, $2\frac{1}{2}$ –4 mm. long, $\frac{1}{2}$ – $\frac{2}{3}$ mm. broad, straight or scarcely curved inwards, often somewhat dilated at the base, obtuse, entire, 1-nerved; unguis straight, longer than the lamina, slightly shorter than the gynostemium and nearly parallel to it, 9–10 mm. long, very shortly adherent to both lateral edges of the base of the gynostemium with the basal both margins, slender, lato-linear, entire-margined, involute, with a longitudinal ridge internally and a longitudinal groove externally; nerves parallel, 5 in the middle portion, the outer one furcate above and the outer branch running to the lateral lobes of the lamina. Gynostemium slightly coherent to the base of petals at the base, 11–14 mm. long, slightly arcuate, nearly erect, subterete, narrowly elongate, apterous, somewhat clavate above, smooth, shallowly canaliculate in front; clinandrium flat, scarcely triangular-subsemiorbicular, bordered with elevated and slightly crisped margin except in front, with a longitudinal prominent ridge in centre;

anther terminal, operculate, semi-orbicular, compressed, membranaceous, unilocular with 2 small laminae within; pollinia 4 in 2 pairs, sessile, waxy, yellow, each mass compressed, obovate, plano-convex, gland submembranaceous, lunato-hippocrepiform; stigma situated immediately under the clinandrium, nearly rounded-obovate, concave, bordered, covering the upper side by the lower oblique margins of the clinandrium, the lower lateral borders open and nearly winged. Ovary filiform, shorter than the perianth, longitudinally ribbed, very slightly enlarged above, glabrous, 10-15 mm. long including the short twisted pedicel. Capsule (immature) cylindrical, enlarged above, shortly pedicellate.

Hab. Prov. ISHIKARI in Hokkaidō (Ezo): Tsukisappu (*T. Kawakami*! June 22, 1894, June 1897); Prov. IWASHIRO: Miharu (*K. Nemoto*! June 1903); Prov. MINO (after *Yokusai Iinuma* and *Keisuke Itō*); Prov. ŌMI: Mt. Ibuki *forma immaculata* after *K. Itō*.

The above description is based on Ezo specimens kindly sent me by Mr. Takiya Kawakami, and specimens from prov. Iwashiro, which are due to the kindness of Mr. Kwanzi Nemoto. This species is not common in Japan; besides Ezo it grows in mountains of the middle part of this country. It has the general appearance of *Oreorchis*, but pollinia are quite different.

***Cremastra appendiculata* (D. Don) Makino.**

Cymbidium appendiculata D. Don Prodr. Fl. Nepal. (1826) p. 36; Spreng. Syst. Veg. III. (1826) p. 725.

Cremastra Wallichiana Lindl. in 'Wall. Cat. no. 7349,' Gen. et Sp. Orchid. Pl. p. 173 (1833), et in Journ. Linn. Soc. III. (1859) p. 30; Miq. Prol. Fl. Jap. p. 136; Franch. et Sav. Enum. Pl. Jap. II. p. 24; Finet in Bull. Soc. Bot. France XLVII. (1900) p. 269.

Hyacinthorchis variabilis Blume 'Cent. Plant. Nov. (1829) 4,' et Mus. Bot. Lugd.-Bat. I. p. 48, fig. 16 (1849); Walp. Ann. III. p. 548.

Cremastra mitrata A. Gray Bot. Jap. in Mem. Amer. Acad. N. Ser. VI. (1858-59) p. 411.

Nom. Jap. *Saihai-ran*.

Hab. Japan, widely distributed.

(To be continued.)