

more pubescent leaves, and the corolla apparently lacks the crimson markings.

The variety looks in flower and leaf somewhat intermediate between *Rh. Simsii* and *Rh. microphyton* Franch. which was collected by Forrest at the same locality (no. 17918), but the latter species is easily distinguished by its much smaller corolla, with cylindric tube and 5 stamens exceeding the corolla-lobes, and by its smaller leaves.

NOTES ON THE LIGNEOUS PLANTS DESCRIBED BY H. LÉVEILLÉ FROM EASTERN ASIA¹

ALFRED REHDER

ARISTOLOCHIACEAE

Aristolochia moupinensis Franchet in Nouv. Arch. Mus. Paris, sér. 2, x. 79 (Pl. David. II. 117) (1887).

Aristolochia Bonatii Léveillé in Bull. Soc. Bot. France, LVI. 608 (1909); Cat. Pl. Yun-Nan, 11 (1915).

CHINA. Yunnan: taillis des montagnes, E. E. Maire, Herb. Bonati, no. 446, July, 1906 (type of *A. Bonatii*).

The leaves are less pubescent than usually in *A. moupinensis*, but otherwise the specimen agrees with that species.

Aristolochia Feddei Léveillé in Fedde, Rep. Spec. Nov. XII. 287 (1913); Cat. Pl. Yun-Nan. 13 (1915).

CHINA. Yunnan: rochers de Ti-li, alt. 2800 m., E. E. Maire, June [1910-14] (type).

POLYGONACEAE

Polygonum emodi Meisn. var. *dependens* Diels in Notes Bot. Gard. Edinb. v. 256 (1912).

Polygonum zigzag Léveillé & Vaniot in Fedde Rep. Spec. Nov. VI. 112 (1908)—Léveillé, Cat. Pl. Yun-Nan, 208 (1916).

CHINA. Yunnan: Lou-pou, près Tong-chouan, J. Tchang, no. 541, Sept. 1906 (type; ex Léveillé).

Polygonum zigzag Lévl. & Van. of which I have seen no specimen is according to Dr. G. Samuelsson (in litt.) identical with *P. emodi* var. *dependens* Diels. The variety *dependens* Diels known only from Yunnan seems to differ very little from the Himalayan type except in its more vigorous habit and larger leaves, but Schneider's no. 3675 from Chung-tien, Yunnan, is scarcely different from the type.

Polygonum urophyllum Franchet & Bureau in Jour. de Bot. v. 150 (1891).

Polygonum Mairei Léveillé in Fedde Rep. Spec. Nov. VII. 338 (1909); Cat. Pl. Yun-Nan, 208 (1916).

CHINA. Yunnan: Yun-nan-sen, haies, montagnes arides, E. E.

¹ Continued from p. 132.

Maire, nos. 348, 366, May, June, 1904–1905 (type; ex Léveillé); rocailles à mi-mont de Kiang-ti, alt. 2000 m., *E. E. Maire*, [1911–14].

Léveillé's species has been identified by Dr. G. Samuelsson (in litt.) with *P. urophyllum* Franch. & Bur. Of this species I have seen only the specimen from Kiang-ti which is not cited by Léveillé and bears the name "*Polygonum Statice* Levl." in Léveillé's handwriting on the label, but in Léveillé's herbarium it was correctly placed in the folder of *P. Mairei*. There is also a specimen in the Bonati Herb. under no. 7482 Ser. B. labeled "*P. Mairei* Lévl.?" and collected by E. E. Maire at Kintchong-tschau, alt. 2800 m., Juin 1910. The species is known only from Yunnan.

Polygonum multiflorum Thunberg, Fl. Jap. 169 (1784);—Meisner, Monog. Gen. Polygon. 64, t. 4, fig. Q (1826); in De Candolle, Prodr. xiv. 136 (1856).

Polygonum Statice Léveillé in Fedde, Rep. Spec. Nov. vii. 338 (1909); Fl. Kouy-Tchéou, 321 (1915).

CHINA. Kweichou: without locality, *J. Esquirol*, no. 164 (type of *P. Statice*; ex Léveillé).

Léveillé's species of which I have seen no specimen is according to Dr. Samuelsson *P. multiflorum* Thbg. The species is widely distributed throughout China and extends to Manchuria, Japan and Formosa.

AMARANTHACEAE

Deeringia amaranthoides (Lam.) Merrill, Interpret. Herb. Amb. 211 (1917).

Deeringia baccata (Retz.) Moquis-Tandon in De Candolle, Prodr. xiii. pt. ii. 236 (1849).

Mallotus neo-Cavaleriei Léveillé, Fl. Kouy-Tchéou, 165 (1914).

CHINA. Kweichou: Lo-fou, *J. Cavalerie*, no. 3516, March, 1909 (type of *Mallotus neo-Cavaleriei*).

RANUNCULACEAE

Clematis fusca Turczaninow in Bull. Soc. Nat. Moscou, xiii. 60 (1840).—Finet & Gagnepain in Bull. Soc. Bot. France, i. 516 (1903); Contrib. Fl. As. Or. i. 31, 40 (1905).

Clematis Coreana Léveillé in Bull. Acad. Intern. Geog. Bot. xi. 298 (1902).—Nakai in Jour. Coll. Sci. Tokyo, xxvi. art. 1, p. 11 (Fl. Kor. i) (1909).—Non *C. koreana* Komar.

KOREA. Monts Nai-piang, 1208 m., *U. Faurie*, no. 8, July, 1901 (type of *C. Coreana*; ex Léveillé).

Finet & Gagnepain have referred *C. Coreana* which I have not seen to *C. fusca*.

Clematis Clarkeana Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. xi. 170 (1902).—Léveillé, Fl. Kouy-Tchéou, 332 (1915); Cat. Pl. Yun-Nan, fig. 56 (1917).—Finet & Gagnepain in Bull. Soc. Bot. France, l. 545 (1903); Contrib. Fl. As. Or. i. 30 (1905).

CHINA. Kweichou: environs de Gan-pin, dans la depression, grotte, *L. Martin & E. Bodinier*, no. 1990, Oct. 24, 1897 (type).

Clematis pterantha Dunn in Hooker's Icon. Pl. xxviii. t. 2713 (1913).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 544 (1903); Contrib. Fl. As. Or. I. 29 (1905).—Léveillé, Fl. Kouy-Tchéou, 333 (1915).

Clematis Philippiana Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 169 (1902).

CHINA. Kweichou: environs de Lo-pie, Tchen-li-tchéou, borde de la route, haies, *L. Martin & E. Bodinier*, no. 1992, Oct. 6, 1897 (type of *C. Philippiana*).

Clematis Leschenaultiana De Candolle, Syst. I. 151 (1818).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 542 (1903); Contrib. Fl. As. Or. I. 27 (1905).—Léveillé, Fl. Kouy-Tchéou, 333 (1915).

Clematis splendens Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 171 (1902), quoad specim. nos. 2248 et 2248 bis.

CHINA. Kweichou: environs de Hoang-ko-chou dans les rocailles, *L. Martin* in herb. Bodinier, no. 2248^{bis}, Feb. 10, 1899 (syn-type of *C. splendens*); district de Tchen-lin, environs de Lo-pie, *J. Seguin* in herb. Bodinier, no. 2248, March, 1898 (syn-type of *C. splendens*).

The identification by Finet & Gagnepain of *C. splendens* with this and the following species was accepted by Léveillé in his Flore de Kouy-Tchéou.

Clematis rubifolia Wright in Kew Bull. Misc. Inform. 1896, p. 21.—Finet & Gagnepain in Bull. Soc. Bot. France, L. 543 (1903); Contrib. Fl. As. Or. I. 28 (1905).—Léveillé, Fl. Kouy-Tchéou, 333 (1915).

Clematis splendens Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 171 (1902), exclud. specim. nos. 2248 et 2248 bis.

CHINA. Kweichou: environs de Tsin-gay, vallée de Kia-la tchong, *J. Laborde* in herb. Bodinier, no. 2024, Dec. 1897, 1898 (syn-type of *C. splendens*).

Clematis montana Buchanan-Hamilton apud De Candolle, Syst. I. 164 (1818).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 524 (1903). Contrib. Fl. As. Or. I. 9 (1905).—Léveillé, Fl. Kouy-Tchéou, 333 (1915).

Clematis Kuntziana Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 171 (1902).

CHINA. Kweichou: borde de la route entre Hin-y-fou et le fleuve Hoa-kiang, *E. Bodinier*, no. 1576, April 20, 1897 (type of *C. Kuntziana*; ex Léveillé).

Finet & Gagnepain have referred *C. Kuntziana* which I have not seen to *C. montana*.

Clematis Vanioti Léveillé & Porter in Fedde, Rep. Spec. Nov. VII. 20 (1910).—Léveillé, Fl. Kouy-Tchéou, 334 (1915).

CHINA. Kweichou: Lo-fou, *J. Cavalerie*, no. 3581, March, 1909 (type).

This species seems related to *C. Armandi* Franch., but differs considerably in its 5-foliolate leaves and in the 3-flowered long-peduncled inflorescence with the pedicels about as long as the peduncle and the lateral ones with small broad basal bractlets; sometimes the peduncle is 1-flowered.

Clematis smilacifolia Wallich in As. Research. XIII. 402 (1820).—Hooker in Bot. Mag. LXXII. t. 4259 (1846).

Clematis Esquirolii Léveillé & Vaniot in Bull. Herb. Boissier, sér. 2, vi. 504 (1906).—Léveillé, Fl. Kouy-Tchéou, 332 (1915).

CHINA. Kweichou: Pin-tong, *J. Esquirol*, no. 264, Dec. 25, 1904 (type of *C. Esquirolii*); Lo-fou, Pin-yang, *J. Cavalerie*, nos. 2663 and 3578, Dec. 1905 and March, 1909 (sub *C. Esquirolii* in Léveillé, Fl. Kouy-Tchéou, l. c.).

Clematis Duclouxii Léveillé in Fedde, Rep. Spec. Nov. VII. 97 (1909); Cat. Pl. Yun-Nan, 220 (1917).

CHINA. YUNNAN: Tso-kio, sur la route de Yun-nan-sen à Houy-ly-tcheou, *Martin, Ma.*, no. 575, March, 1907 (type).

This species seems nearest to *C. Pavoliniana* Pamp. from which it differs in the simple leaves and in the obtuse anthers with a minute obtuse mucro and in the white hairs of the carpels; the two pairs of simple leaves present in the type specimen may be reduced from normally 3-foliolate or pinnate leaves, as it sometimes happens in the leaves of lateral branchlets.

Clematis Pavoliniana Pampanini in Nuov. Giorn. Bot. Ital. n. ser. XVII. 270 (1910).

Clematis Finetiana Léveillé & Vaniot in Bull. Soc. Bot. France, LI. 219 (1904).—Léveillé, Fl. Kouy-Tchéou, 332 (1915).

CHINA. Kweichou: Pin-fa, *J. Cavalerie*, no. 1347, May 5, 1902 (syn-type of *C. Finetiana*); Pin-fa, borde des ruisseaux, *J. Cavalerie*, no. 605, Oct. 5, 1902 (syn-type of *C. Finetiana*).

Clematis chinensis Retzius, Observ. II. 18 no. 53, t. 2 (1781).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 535 (1903); Contrib. Fl. As. Or. I. 20 (1905).—Rehder & Wilson in Sargent, Pl. Wilson. I. 329 (1913).—Léveillé, Fl. Kouy-Tchéou, 332 (1915).

Clematis funebris Léveillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 168 (1902).

Clematis oligocarpa Léveillé & Vaniot, op. cit. XVII. no. 210–11, p. II (1907).—Léveillé, Fl. Kouy-Tchéou, 333 (1915).

Clematis Cavaleriei Léveillé & Porter in Fedde, Rep. Spec. Nov. IX. 20 (1910).—Léveillé, Fl. Kouy-Tchéou, 332 (1915).

CHINA. Kweichou: environs de Gan-pin, *L. Martin & E. Bodinier*, no. 1787, Aug. 9, 1897 (type of *C. funebris*; ex Léveillé & Vaniot and Finet & Gagnepain); route de Pin-fa, Sang-li, *J. Cavalerie* no. 2490, Aug. 19–20, 1911 (type of *C. oligocarpa*); Gan chouen, *J. Cavalerie*, no. 2490 [bis] Nov. 1909 (under *C. oligocarpa* in Fl. Kouy-Tchéou); Lo-fou, *J. Cavalerie*, no. 3582, March, 1909 (type of *C. Cavaleriei*).

Finet & Gagnepain have already identified *C. funebris* with *C. chinensis*, and this determination has been accepted by Lévillé in his *Flore de Kouy-Tchéou*. *Clematis Cavaleriei* differs somewhat from typical *C. chinensis* in the narrower leaflets cuneate at base and slightly pubescent on the veins, and in the sepals being rather densely pubescent outside.

Clematis uncinata Champion in Hooker's Jour. Bot. & Kew Gard. Misc. III. 255 (1851).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 523 (1903); Contrib. Fl. As. Or. I. 8 (1905).—Rehder & Wilson in Sargent, Pl. Wilson, I. 327 (1913).—Lévillé, Fl. Kouy-Tchéou, 334 (1915).

Clematis Drakeana Lévillé & Vaniot in Bull. Acad. Intern. Geog. Bot. XI. 168 (1902).

Clematis Gagnepainiana Lévillé & Vaniot in Bull. Soc. Bot. France, L. 219 (1904).—Lévillé, Fl. Kouy-Tchéou, 332 (1915).

CHINA. K w e i c h o u : environs de Kouy-yang, mont du Collège, gorges de Yang-pa, E. Bodinier, no. 1680, June 20, 1898 (syn-type of *C. Drakeana*; ex Lévillé & Vaniot); environs de Gan-pin, L. Martin & L. Bodinier, no. 1680 [bis], July 3, 1897 (syn-type of *C. Drakeana*; ex Lévillé & Vaniot and Finet & Gagnepain); Pin-fa, montagnes boisées, J. Cavalerie, no. 664, Oct. 30, 1902 (type of *C. Gagnepainiana*).

Clematis Drakeana had already been identified with *C. uncinata* by Finet & Gagnepain and enumerated under the latter name by Lévillé in his *Flore de Kouy-Tchéou*.

Clematis paniculata Thbg. var. *dioscoreifolia* Rehder in Jour. Arnold Arb. I. 195 (1920).

Clematis dioscoreifolia Lévillé & Vaniot in Fedde, Rep. Spec. Nov. VII. 339 (1909).

KOREA. Q u e l p a e r t : in sepibus Hogno, E. Taquet, no. 502, Sept. 2, 1908 (type).

Clematis Chanetii Lévillé in Fedde, Rep. Spec. Nov. XI. 495 (1913).

CHINA. C h i l i : Kia-chan, L. Chanet, no. 560, Aug. 1910 (type); montagnes de Ping-chan, L. Chanet, no. 229, June 15, 1908 (sub *C. Chanetii* in Herb. Lévillé).

As stated by Lévillé in his description the species is related to *C. Flammula* L., which has not yet been recorded from northern China, and until I have seen more complete material, I hesitate to identify it with that species. From other related species as *C. paniculata* Thbg., and *C. chinensis* Retz. it differs in its bipinnate leaves and from *C. angustifolia* Jacq. in its climbing habit, axillary inflorescences and different venation of the leaflets. The plant seems to blacken in drying like *C. chinensis*.

Clematis Gouriana Roxburgh apud De Candolle, Syst. I. 138 (1818).

Clematis Martini Lévillé in Bull. Acad. Intern. Geog. Bot. XVII. no. 210-11, p. II (1907); Fl. Kouy-Tchéou, 333 (1915).

CHINA. K w e i c h o u : route de Pien-yang à Lo-fou, J. Cavalerie, no. 2662, Nov. 1905 (type of *C. Martini*; ex Lévillé); bords du fleuve

Hoa-kiang, *J. Esquirol*, no. 576, Aug. 5, 1905 (syn-type of *C. Martini*);
Lo-fou, *J. Cavalerie*, no. 3583, March, 1909 (sub *C. Martini* in Lévillé,
Fl. Kouy-Tchéou).

LARDIZABALACEAE

Akebia trifoliata Koidz. var. *australis*, comb. nov.

Akebia lobata Dene. var. *australis* Diels in Bot. Jahrb. xxix. 344 (1900).

Akebia Chaffanjonii Lévillé in Bull. Soc. Agr. Sci. Sarthe, xxxix. 316 (Bouquet Fl. Chine 1) (1904); in Fedde, Rep. Spec. Nov. vi. 372 (1909).

Akebia lobata var. *Chaffanjonii* Lévillé, Fl. Kouy-Tchéou, 47 (1914).

CHINA. Kweichou: environs de Kouy-yang, Gan-pin, mont du Collège, *J. Chaffanjon* in herb. Bodinier, no. 2159, April 3, 1898 (fruit comestible; type of *A. Chaffanjonii*).

Holboellia coriacea Diels in Bot. Jahrb. xxix. 342 (1900).

Artabotrys Esquirolii Lévillé, Fl. Kouy-Tchéou, 29 (1914).

CHINA. Kweichou: Gny-hien, bords du ruisseau, 700 m., *J. Esquirol*, no. 2184, June, 1910 (syn-type of *Artabotrys Esquirolii*).

The description by Lévillé does not seem to fit Esquirol's no. 2184; the other syn-type, Esquirol's no. 2033, I have not seen.

Holboellia spec.

Akebia Cavaleriei Lévillé, Fl. Kouy-Tchéou, 47 (1914).

CHINA. Kweichou: Pin-fa, contreforts de Yuin-ou-chan; *J. Cavalerie*, no. 955, May 28, 1903 (type of *Akebia Cavaleriei*).

This species seems nearest to *H. coriacea* Diels, but the leaves are mostly 4-foliolate and the leaflets rather small and usually obtuse.

BERBERIDACEAE

Berberis Griffithiana Schneider in Bull. Herb. Bossier ser. 2, v. 403 (1905); VIII. 198 (1908).—Lévillé, Fl. Kouy-Tchéou, 48 (1914).

Berberis Cavaleriei Lévillé in Fedde Rep. Spec. Nov. ix. 454 (1911).

CHINA. Kweichou: entre Kouen-chan et Kouy-yang, *J. Cavalerie*, no. 3209, April, 1907 (type of *B. Cavaleriei*; ex Lévillé).

I have not seen Cavalerie's no. 3209 and follow Lévillé who in his Flore de Kouy-Tchéou refers it to *B. Griffithiana*.

Berberis bicolor Lévillé in Fedde, Rep. Spec. Nov. ix. 454 (1911).

CHINA. Kweichou: Ma-jo, *J. Cavalerie*, no. 3043, May, 1908 (hauteur 1.50 m.; fleurs extérieurement rouges, intérieurement blanches; type).

This species seems very near *B. Gagnepainii* Schneid., but the leaves are broader with the margin scarcely undulate and with rather fine appressed-setose serration.

Berberis Wilsonae Hemsley in Kew Bull. Misc. Inform. 1906, p. 151; in Bot. Mag. cxxxviii. t. 8414 (1912).—Lévillé, Fl. Kouy-Tchéou, 48 (1914), as *B. Wilsoni*.

Berberis Bodinieri Lévillé in Fedde, Rep. Spec. Nov. ix. 454 (1911); Cat. Pl. Yun-Nan, 17 (1915).

CHINA. Kweichou: Long-li, Ma-jo, *J. Cavalerie*, no. 3042, Nov. 1908. Yunnan: environs de Yun-nan-sen, *E. Bodinier*, Nov. 17, 1896 (type of *B. Bodinieri*).

I have seen neither of the specimens enumerated above. In his *Flore de Kouy-Tchéou* Lévillé refers his *B. Bodinieri* to *B. Wilsonae*, but cites *Cavalerie's* no. 3042 from Kwei-chou which he did not mention with his original description.

Mahonia ganpinensis Fedde, *Rep. Spec. Nov.* vi. 372, nota (1909).—Lévillé, *Fl. Kouy-Tchéou*, 49 (1914).—Takeda in *Notes Bot. Gard. Edinb.* vi. 238 (1917).

Berberis (Mahonia) Ganpinensis Lévillé in *Bull. Soc. Agr. Sci. Arts Sarthe*, xxxix. 317 (*Bouquet Fl. Chin.* 2) (1904); in Fedde, *Rep. Spec. Nov.* vi. 372 (1909).

Mahonia confusa Sprague in *Kew Bull. Misc. Inform.* 1912, p. 339.—Takeda in *Notes Bot. Gard. Edinb.* vi. 234 pl. 25, 26, fig. 168-172 (1917).

Mahonia Zemanii Schneider in *Sargent, Pl. Wilson.* i. 378 (1913).

CHINA. Kweichou: environs de Gan-pin dans la grande depression-caverne, *L. Martin* in herb. *Bodinier*, no. 1929, Oct. 24, 1897 (type of *B. ganpinensis*); Ma-jo, *J. Cavalerie*, no. 3054, Sept. 5, 1907 (under *M. ganpinensis* in *Fl. Kouy-Tchéou*).

The type specimens of *M. confusa* Sprague and *M. Zemanii* Schneid. are almost identical but differ from typical *M. ganpinensis* in the more numerous and broader leaflets, about 7 pairs, while typical *M. ganpinensis* has 4 to 5 pairs not counting the small basal pair; the leaflets are up to 12 mm. and in *Cavalerie's* no. 3054 not more than 8 mm. wide. The difference in the width of the leaflets between the Kweichou and the Hupeh specimens is more pronounced than that between Henry's nos. 3117 and 3351, syn-types of *M. confusa*, while Wilson's no. 2883, the type of *M. Zemanii*, agrees well with Henry's no. 3117. *Mahonia confusa* had been already referred to *M. ganpinensis* by C. Schneider in the herbarium of the Arnold Arboretum.

MAGNOLIACEAE

Michelia Martini Finet & Gagnepain apud Lévillé, *Fl. Kouy-Tchéou*, 270 (1914).—Dandy in *Kew Bull. Misc. Inform.* 1927, p. 263.

Magnolia Martini Lévillé in *Bull. Soc. Agr. Sci. Art. Sarthe*, xxxix. 321 (*Bouquet Fl. Chin.* 6) (1904); in Fedde, *Rep. Spec. Nov.* vi. 374 (1909).

CHINA. Kweichou: environs de Gan-pin, a Leang-chouy-tsin, *L. Martin* in herb. *Bodinier*, no. 2066, 9-20 Febr. 1898 (fleurs blanc-crème; type of *Magnolia Martini*).

Michelia Leveilleana Dandy in *Kew Bull. Misc. Inform.* 1927, p. 263.

Michelia Cavaleriei Lévillé in Fedde, *Rep. Spec. Nov.* ix. 459 (1911); *Fl. Kouy-Tchéou*, 270 (1914).—Non Finet & Gagnepain.

CHINA. Kweichou: Ma-jo and Lon-mong-touan, *J. Cavalerie*, no. 3045, Apr. and May, 1908 (type of *M. Cavaleriei*).

Kadsura chinensis Hance in *Bentham, Fl. Hongkong.* 8 (1861).—Lévillé, *Fl. Kouy-Tchéou*, 269 (1914).

Kadsura (Schizandra) Cavaleriei Léveillé in Fedde, Rep. Spec. Nov. ix. 459 (1911).

CHINA. K w e i c h o u : Pin-fa, près de cascades, *J. Cavalerie*, no. 3046, Mai (type of *K. Cavaleriei*), no. 1023, May 28, 1903.

Schizandra Henryi Clarke in Gard. Chron. ser. 3, xxxviii. 162, fig. 55 (1905).

Schizandra hypoglauca Léveillé in Fedde, Rep. Spec. Nov. ix. 459 (1911); Fl. Kouy-Tchéou, 270 (1914); Cat. Pl. Yun-Nan, 175 (1916).

CHINA. K w e i c h o u : without precise locality, *J. Esquirol*, no. 58, May 7, 1904 (liane; fleurs jaunes; type of *S. hypoglauca*).

Schizandra propinqua Hook. f. & Thoms. var. *sinensis* Oliver in Hooker's Icon. xviii. t. 1715 (1887).

Embelia Valbrayi Léveillé, Cat. Pl. Yun-Nan, 177 (1916).

CHINA. Y u n n a n : rochers derrière La-kou, alt. 2400-2500 m., *E. E. Maire*, July, Sept., 1912 (type of *Embelia Valbreyni*).

The type consists of two different specimens almost alike and collected at the same locality on different dates. In the same cover resembling these specimens in the shape of the leaves there was another specimen without label which proved to be *Stachyurus salicifolius* Franch.

ANNONACEAE

Miliusa sinensis Finet & Gagnepain in Mém. Soc. Bot. France, LIII. 151 (1906); Contrib. Fl. As. Or. ii. 151, t. 18 (1907).—Léveillé, Fl. Kouy-Tchéou, 29 (1914).

Evodia Lyi Léveillé in Bull. Geog. Bot. xxiv. 142 (1914); Fl. Kouy-Tchéou, 376 (1915).

CHINA. K w e i c h o u : Yuin-lin, *J. Cavalerie*, no. 3971, in 1912. (type of *Evodia Lyi*).

Cavalerie's specimen is in fruit, and though I have not seen the type of *Miliusa sinensis* and its description is based only on a flowering specimen, I have little doubt that *Evodia Lyi* belongs here, since the specimens before me agrees well in all its vegetative characters with Finet & Gagnepain's description and plant figured, and the fruiting carpels are borne on a peduncle as long and slender as that of the flowers figured. The nearly mature carpels, however, are glabrous, while the young carpels are described as "omnino villosa."

✓ *Fissistigma retusum*, comb. nov.

Melodorum retusum Léveillé in Fedde, Rep. Spec. Nov. ix. 458 (1911); Fl. Kouy-Tchéou, 29 (1914).

CHINA. K w e i c h o u : Lo-fou, *J. Cavalerie*, no. 2994, April, 1908 (type).

This species in the shape, venation and pubescence of the leaves and also in the character of its inflorescence is very similar to *F. polyanthoides* (A. DC.) Merr., but the calyx-lobes are about 5 mm. long and taper from a triangular-ovate base into a slender linear-lanceolate point.

As Merrill (in Philip. Jour. Sci. xv. 125 [1919]) has pointed out,

the genus *Melodorum* of Hooker f. & Thomson and later authors is not congeneric with *Melodorum* Loureiro whose type species is *M. fruticosum* Lour., and he adopts *Fissistigma* Griff. as the next oldest name for *Melodorum* in the sense of Hook. f. & Thoms.

✓ *Fissistigma Cavaleriei*, comb. nov.

Uvaria Cavaleriei Léveillé, Fl. Kouy-Tchéou, 29 (1914).

CHINA. Kweichou: Tou-chan, *J. Cavalerie*, Oct. 1899 (fl. blanc-jaune).

This is another species of *Fissistigma* and not an *Uvaria*; it resembles somewhat *F. Oldhamii* (Hemsl.) Merr., but differs in its denser, fulvous and more villous tomentum, acute or acuminate leaves, in its much smaller sepals, only 1–2 mm. long and glabrous inside, and narrower petals. The flowers seem to be always solitary.

LAURACEAE

Cinnamomum Mairei Léveillé in Fedde, Rep. Spec. Nov. XIII. 174 (Feb., 1914); Cat. Pl. Yun-Nan, 150 (1916).

Cinnamomum argenteum Gamble in Sargent, Pl. Wilson. II. 67 (March, 1914).

CHINA. Yunnan: forêts de Long-ky, 700 m., *E. E. Maire*, June 1912 (arbre moyen; fleurs grises; type).

Cinnamomum argenteum has been already enumerated by Léveillé (Cat. Pl. Yun-Nan, 150) as a synonym of his *C. Mairei*.

Cinnamomum glanduliferum Meisner in De Candolle, Prodr. xv. pt. I. 25 (1864).

Machilus Dominii Léveillé in Fedde Rep. Spec. Nov. XIII. 174 (1914); Cat. Pl. Yun-Nan, 151 (1916).

CHINA. Yunnan: forêts de Ku-long-tchang, 800 m., *E. E. Maire*, July, 1912 (petit arbre; fleurs blanches; type of *Machilus Dominii*).

Machilus Cavaleriei Léveillé in Bull. Geog. Bot. XXIV. 142 (1914); Fl. Kouy-Tchéou, 221 (1914).

CHINA. Kweichou: Gan-chouen, *J. Cavalerie*, no. 2131, May 1912.

This differs from all other Chinese species of *Machilus* known to me in its obtuse prominently reticulate leaves.

Notaphoebe omeiensis (Gamble) Chun in Jour. Arnold Arb. VIII. 21 (1927).

Lindera Cavaleriei Léveillé in Fedde, Rep. Spec. Nov. x. 371 (1912); Fl. Kouy-Tchéou, 219 (1914).

Machilus Mairei Léveillé in Fedde, Rep. Spec. Nov. XIII. 174 (1914); Cat. Pl. Yun-Nan, 151 (1916).

Machilus Dunnianus Léveillé in Fedde, Rep. Spec. Nov. XIII. 174 (1914); Cat. Pl. Yun-Nan, 151 (1916).

Alseodaphne omeiensis Gamble in Sargent, Pl. Wilson. II. 70 (1914).

CHINA. Kweichou: Tsin-gai, Kao-po, bord des ruisseaux, *J. Cavalerie*, no. 1222, Aug. 5, 1903 (petit arbre; type of *Lindera Cavaleriei*).
Yunnan: forêts de Long-ky, 700 m., *E. E. Maire*, May, 1912 (arbre;

fl. blanc-jaunâtre; type of *Machilus Mairei*); collines boisées à Long-ky, 700 m., E. E. Maire, June, 1912 (petit arbre, fl. blanches; type of *Machilus Dunniana*).

I can see no specific difference between *Machilus Mairei* and *Machilus Dunniana*. Léveillé gives as chief difference the lateral not axillary panicles of *M. Mairei* and the axillary many-flowered panicles longer than the leaves of *M. Dunniana*, but in the type specimen of *A. omeiensis* the panicles are borne partly in the axils of the leaves and partly lateral on the basal leafless portion of the branches exactly as in the type of *M. Mairei* in which they also are partly lateral and partly axillary. In *M. Dunniana* the panicles happen to be all axillary and they are somewhat larger than in the types of *A. omeiensis* and *M. Mairei* which agree perfectly with each other, but they are still shorter than the leaves and not longer as described by Léveillé.

This species was originally described by Gamble under *Alseodaphne*, but as Hu points out the unequal and persistent perianth removes it from that genus and points to *Notaphoebe*.

Neolitsea spec.

Litsaea Dunniana Léveillé in Fedde, Rep. Spec. Nov. ix. 460 (1911); Fl. Kouy-Tchéou, 220 (1914).

CHINA. K w e i c h o u : forêts de Gam-go, *J. Esquirol*, no. 565, Dec. 15, 1905 (arbre; type of *L. Dunniana*).

This is remarkable for its large leaves densely villous-pubescent beneath.

Neolitsea spec.

Litsea undulatifolia Léveillé, Fl. Kouy-Tchéou, 220 (1914).

CHINA. K w e i c h o u : Pin-fa, Tou-chan, *J. Cavalerie*, no. 1954, March 14, 1900 (arbuste; fl. blanches, odoriferantes; type of *L. undulatifolia*).

This species in general appearance closely resembles *Actinodaphne confertifolia* (Hemsl.) Gamble, but is readily distinguished by the narrower leaves not glaucescent beneath and undulate at the margin, by the glabrous branchlets and the flowers with only 7-8 stamens.

Neolitsea spec.

Eurya Esquirolii Léveillé, Fl. Kouy-Tchéou, 415 (1915), nomen nud.

CHINA. K w e i c h o u : Gan-chouen, *J. Esquirol*, no. 3893, March, 1912 (type of *E. Esquirolii*).

I have not seen the original publication if there is one of this species; it is not cited in Index Kewensis. I have referred the three preceding species to *Neolitsea* on account of their flowers having 6-8 stamens, but I have not been able to identify them with any of the species described under this or an allied genus. As one or the other may possibly belong to a species described under another genus or to a species unknown to me, I prefer for the present at least, not to propose new combinations for these species.

Litsea cubeba Persoon, Syn. II. 4 (1807).

Litsea citrata Blume, Bijdr., 565 (1825).

Lindera Dielsii Léveillé in Fedde, Rep. Spec. Nov. x. 370 (1912).

Litsaea Dielsii Léveillé, Fl. Kouy-Tchéou, 220 (1914), nomen.

CHINA. K w e i c h o u : Pin-fa, montagnes, *J. Cavalerie*, nos. 932, March 22, 1903, and no. 1299, Febr. 27, 1902 (syn-types of *Lindera Dielsii*).

In 1914 Léveillé enumerates Cavalerie's two numbers as "*Litsaea Dielsii*" without citing *Lindera Dielsii* as a synonym. Cavalerie's no. 932 is labeled in Léveillé's handwriting "*Litsea Cavaleriei* Levl.," but the species described under this name is Cavalerie's no. 65, referred by him later as a synonym to his *L. Esquirolii* which is identical with *Benzoin commune* (Hemsl.) Rehd.

Benzoin commune (Hemsl.) Rehder, Jour. Arnold Arb. I. 144 (1919).

Litsaea Esquirolii Léveillé in Fedde, Rep. Spec. Nov. IX. 459 (1911); Fl. Kouy-Tchéou, 220 (1914).

Litsea Cavaleriei Léveillé, l. c. x. 371 (1912).

Lindera Bodinieri Léveillé, l. c. (1912); Fl. Kouy-Tchéou, 219 (1914).

Lindera yunnanensis Léveillé, l. c. (1912); Cat. Pl. Yun-Nan, 150 (1916).

CHINA. K w e i c h o u : bois de Tsai-men-tse, *J. Esquirol*, no. 372 July 2, 1905 (sous-arbre; type of *Litsaea Esquirolii*); Pin-fa, hautes montagnes, *J. Cavalerie*, no. 65, July 15, 1902 (arbrisseau 1-2 m.; type of *Litsea Cavaleriei*); environs de Kouy-yang; mont du College, bois de Kien-lin-chan, *E. Bodinier*, no. 2179, April 12-14, 1898 (syn-type of *Lindera Bodinieri*). Y u n n a n : environs de Yun-nan-sen, dans la grande ravine boisée, *E. Bodinier*, no. 105, March 21, 1897 (grand arbuste ou petit arbre, dioïque, plante mâle; syn-type of *Lindera yunnanensis*.)

Litsea Cavaleriei was referred by Léveillé himself as a synonym to *L. Esquirolii*. Bodinier's no. 105 (*Lindera yunnanensis*) differs from the typical form in the glabrescent branchlets and the smaller less pubescent leaves.

Benzoin glaucum Siebold & Zuccarini in Abhandl. Akad. Münch. IV. pt. III. 205 (Fl. Jap. Fam. Nat. II. 81) (1846).

Pirus brunnea Léveillé in Mem. Acad. Sci. Art. Barcelona, ser. 3, XII. no. 22, p. 19 (Cat. Pl. Kiang-Sou) (1916), nomen; non Léveillé, 1912.

CHINA. K i a n g s u , d'Argy, no. 105 [1846-66].

Léveillé's enumeration of *Pirus brunnea* in his Catalogue of the plants of Kiangsu is apparently based on d'Argy's no. 105 which in Léveillé's herbarium is placed in the folder of *P. brunnea*. The type of his *Pirus brunnea* comes from Quelpaert, Korea, and is identical with *Photinia villosa* var. *laevis* (DC.) Dipp.

✓ **Benzoin touyunense**, comb. nov.

Lindera megaphylla Hemsley in Jour. Linn. Soc. XXVI. 389 (1891).

Litsea touyunensis Léveillé in Fedde, Rep. Spec. Nov. XI. 63 (1912); Fl. Kouy-Tchéou, 220 (1914), as "*Litsaea touyunensis*."

Benzoin grandifolium Rehder in Jour. Arnold Arb. I. 145 (1919).

CHINA. K w e i c h o u : Tou-yun, *J. Cavalerie*, no. 1, Nov. 10, 1902.

Cavalerie's specimen differs from typical *B. grandifolium* Rehd. (*Lindera megaphylla* Hemsl.) in the leaves being villous-pubescent beneath, while Hemsley describes the leaves as "glaberrima." Of the 23 specimens of this species before me all but two are quite glabrous and in the two pubescent ones the pubescence is not quite as conspicuous as in Cavalerie's specimen, the hairs being slightly shorter and sparser. The pubescent specimens are both from Hupeh, one from Ichang (E. H. Wilson, no. 302 in part, March 20, 1909) and one from Changyang Hsien (E. H. Wilson, no. 302 in part, Nov., 1907). As Wilson collected at the same localities also specimens with quite glabrous leaves, the pubescence apparently does not indicate a geographical variety, but only a form of slight value. Cavalerie's specimen differs from the other specimens besides in the pubescence also in the somewhat shorter and broader leaves, which do not exceed 14 cm. in length and are up to 4.5 cm. wide.

Unfortunately the identity of Léveillé's species was not known when I transferred Hemsley's *Lindera megaphylla* to *Benzoin* and changed the specific name to *B. grandifolium* on account of the older *B. megaphyllum* Kuntze. This adds another synonym to this species and at the same time makes the rare pubescent form the nomenclatorial type of the species, while the widely distributed glabrous form would have to be considered a variety or form, if it should appear desirable to distinguish the two forms.

CAPPARIDACEAE

Capparis Bodinieri Léveillé in Fedde, Rep. Spec. Nov. ix. 450 (1911); Cat. Pl. Yun-Nan 26 (1915).

Capparis tenera Diels in Not. Bot. Gard. Edinb. v. 90 (1912).—Non Dalziell.

Capparis subtenera Craib & W. W. Smith in Not. Bot. Gard. Edinb. ix. 90 (1916).

CHINA. Y u n n a n : Yun-nan-sen; ça et là dans l'intérieur de la ville; endroits inhabités, *E. Bodinier*, May 24, 1877 (petit arbre à branches épineuses; fl. blanches; type of *C. Bodinieri*); autour de Motsou, alt. 800 m., *E. E. Maire*, May [1912-13] (grand arbre épineux, toujours vert, luisant; fl. blanches; in herb. Léveillé); among scrubs on lava-bed to west of Teng yueh, lat. 25° N., alt. 1500 m., *G. Forrest*, no. 7589, May, 1912 (syn-type of *C. subtenera*); open pasture and in thickets on the hills west of Teng yueh, alt. 1500-1800 m., *G. Forrest*, no. 9721, March, 1913 (syn-type of *C. subtenera*).

BURMA. Open situations in the Taping valley, lat. 24° 20' N., alt. 600 m., *G. Forrest*, no. 9654, Feb. 1913 (syn-type of *C. subtenera*).

Capparis masaikai Léveillé, Fl. Kouy-Tchéou, 59 (1914).

CHINA. K w e i c h o u : Lo-kouen, chemin de Pin-fa, *J. Esquirol*, no. 3230, May 15, 1912 (frutex scandens; fl. blanches; syn-type of *C. masaikai*).

Reevesia Cavaleriei Lév. & Van. has been referred to *C. masaikai* by Lévillé in his Flore de Kouy-Tchéou, but this must be a mistake, since Cavalerie's no. 2347 (not 3347, as cited) is *Reevesia pubescens* Mast.

I have not been able to identify this species with any previously described *Capparis*.

(To be continued)

NOTES

A key to the Conifers based on leaf characters.—Under the title "Coniferae: keys to the genera and species, with economic notes"¹ H. M. Fitzpatrick has published a paper which aims to facilitate the determination of Conifers by the morphology of their foliage. Including the Taxaceae 47 genera are recognized. There is a key to the genera based on vegetative characters. The brief generic descriptions include also cones and seeds and are followed by remarks on the economic importance of the principal species and their cultivation. A key to the species of each genus is given with short description of each species. In most genera all or nearly all species are enumerated, but in genera like *Callitris*, *Dacrydium*, *Podocarpus* and *Juniperus* only the more important species are mentioned. The keys are not carried down to the individual species, but lead only to groups of species and it is left to the reader to find in the brief descriptions the differentiating characters. There is a special key (pp. 236–241) for the species of *Cupressus*, *Thuja*, *Biota*, *Microbiota*, *Thujopsis*, *Libocedrus* and *Fokienia*, which cannot be separated generically by vegetative characters; juvenile forms of these genera are not included in this key nor are they mentioned in the descriptions. A drawback of the paper is the lack of synonymy. There are e. g. no synonyms given of *Picea alba*, *P. nigra*, *Tsuga Pattoniana*, *Pseudotsuga Douglasii*, *Larix leptolepis*, *L. americana*, *Pseudolarix amabilis*, *Pinus austriaca* and others which in many recent publications bear other names; under *Abies brachyphylla* the author cites only *A. umbellata* Wilson [sic!], but not *A. homolepis*. In the bibliography at the end of the paper one misses such important works as Shaw's "Genus *Pinus*" and "Pines of Mexico," Bailey's "Cultivated Evergreens" and Silva Tarouca & Schneider's "Unsere Nadelhölzer." The seven plates contain 76 drawings chiefly of branches and they will facilitate the determination of specimens particularly in the Cupressineae which are especially well illustrated. The paper will certainly be very helpful in the identification of coniferous specimens without cones and may be considered a valuable supplement to other larger works on Conifers in which no special attention is paid to vegetative characters.—A. R.

¹ In Scient. Proc. R. Dublin Soc. XIX. n. ser., no. 19, pp. 189–260, pls. 9–15 (1929).



Rehder, Alfred. 1929. "Notes on the Ligneous Plants Described by Leveille from Eastern Asia." *Journal of the Arnold Arboretum* 10(3), 184–196.

<https://doi.org/10.5962/p.333874>.

View This Item Online: <https://www.biodiversitylibrary.org/item/33587>

DOI: <https://doi.org/10.5962/p.333874>

Permalink: <https://www.biodiversitylibrary.org/partpdf/333874>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.