

ARBORES FRUTICESQUE CHINENSES NOVI. IV

CAMILLO SCHNEIDER

(WITH PLATE XV)

1103 **Salix** (sect. **SCLEROPHYLLAE** Schn.) **tenella**, n. sp. (fig. A, 1-6).—Frutex parvus squarrosus; ramuli hornotini non visi, annotini biennesque floriferi obscure purpurascens, minute puberuli vel fere tomentelli, dein glabrescentes, vetustiores cinerascens vel cinereo-brunnei. Folia nondum satis evoluta anguste elliptico-lanceolata, apice obtusa, basi subrotundata, 1-1.5 cm. longa, 0.2-0.4 cm. lata, superne viridia, initio plus minusve puberula, subtus discoloria, glaucescentia, sparse puberula vel ut videtur cito glabrescentia, nervis valde tenuibus utrinsecus circ. 6 superne incisis, margine integerrima; petioli 1-2 mm. longi, pilis subflavis tomentelli. Amenta tantum juvenilia feminea visa, coetanea, anguste cylindrica, 3-4 mm. crassa, ad 2.5 cm. longa, pedunculis folia 3-6 parva normalia gerentibus puberulis circ. 5 mm. longis exclusis, rhachi tomentella, densiflora; bracteae ovato-rotundae vel ovato-ellipticae, ovariis sublongiores, supra medium fuscae, apice subrotundatae, tantum versus basim laxae pilosae et paullo ciliatae, ceterum glabrae; ovaria sessilia, ovata, glabra vel partim sparse pilosa, stylo brevissimo ad basim bifido coronata; stigmata brevia, biloba; glandulae 2, ventralis late ovata vel ovato-rectangularis, dorsalis paullo minor, similis vel 2-partita.

Szechuan australis: in districtu Yen-yüan Hsien, prope pagum Liu-ku, ad vias, alt. circ. 3600 m., 18 Maji 1914, C. Schneider (no. 1304; typus in Herb. Arb. Arn. et Hb. Schneider; frutex parvus).

This species very much resembles some forms of sect. **LONGIFLORAE** Schn., but, according to the dorsal gland, it seems closely related to *S. atopantha* Schn., which may easily be distinguished by its hairy ovaries and bracts, and by the different shape of its ventral gland. The very young leaves of *S. tenella* show no distinct sign of a dentation.

1241 **Salix** (sect. **ERIOSTACHYAE** Schn.) **Balfouriana**, n. sp. (fig. B, 1-4).—Arbuscula erecta, pulchra, ad 6 m. alta; ramuli annotini

subdense albo-villosuli, deinde fuscescentes vel nigrescentes, glabrescentes vel subglabri; gemmae juveniles dense villosae. Folia satis magna, late elliptica vel elliptico-oblonga, apice subito breviter acuta, basi rotundata, rarius leviter subcordata, minora inferiora 6–8 cm. longa, 2–3 cm. lata, majora superiora 9–12 cm. longa et 3.3–4.8 cm. lata, superne saturate viridia, adulta laxe (in costa densius) sericeo-villosula, subtus valde discoloria, pulcherrime albescentia, pruinosa (non papillosa), plus minusve (initio probabiliter dense) adpresse albo-sericeo-villosula, costa nervisque lateralibus utrinsecus circ. 8–12 angulo 50–80° a costa divergentibus flavescentibus utroque latere prominentibus, reticulo nervillorum gracillimo prominulo, margine integerrima; petioli 6–15 mm. longi, undique dense villosi, superne late sulcati; stipulae ut videtur minimae, indistinctae. Amenta tantum fructifera visa, tardiva, ramulos foliatis 1.5–4 cm. longos terminantia, cylindrica, ad 8 cm. longa et 1 cm. crassa, axi dense villosula. Flores adulti inter fructus remanentes circ. 6 mm. longi; ovaria ovato-oblonga, sessilia, dense albo-villosula; styli distincti circ. $\frac{1}{4}$ ovarii aequantes, ad basim bifidi, stigmatibus satis marcidis angustis oblongis bifidis brachiis styli fere aequilongis; glandula 1, ventralis, sicca ovato-triangularis, brevis; bracteae late ellipticae, apice rotundatae, pallidae vel brunnescentes utrinque villosae, ovario subtriplo breviores. Fructus maturi circ. 7 mm. longi, ovariiis adultis similes, aperti valvis paullo recurvis.

Yunnan boreali-occidentalis: ad latera orientalia montium niveorum prope Lichiang-fu, in dumetis in valle magna infra glaciem magnam, alt. circ. 3400 m., 30 Julii 1914, *C. Schneider* (no. 2059; typus in Herb. Arb. Arn. et Hb. Schneider; arbuscula ad 6-metralis).

Unfortunately I collected only a few remnants of fruiting catkins, and I have seen neither young female flowers nor the male plant, but the leaves are so distinct that there can be no doubt that this willow represents an excellent new species. So far as I can judge by the material before me, it belongs to sect. *ERIOSTACHYAE* Schn., but it may be distinguished at once from all the other species by the beautiful snowy white under surface of its leaves.

To this species may also belong a sterile specimen collected by me in Szechuan australi, inter Hoh-si et Te-li-pu, alt. circ. 2000 m., 7 Maji 1914 (no. 1124; arbor parva ad 5-metralis). It differs from the type in having somewhat narrower ovate-oblong leaves which are much more acute at the apex, the larger ones measuring up to 9 cm. in length and up to 3 cm. in width.

The name is given in honor of Professor BAYLEY BALFOUR, the distinguished Scotch botanist and director of the Royal Botanic Garden at Edinburgh, which contains an extremely rich collection of living woody and herbaceous plants from China, especially from northwestern Yunnan.

1101 **Salix** (sect. **PSILOSTIGMATAE** Schn.) **Guebriantiana**, n. sp. (fig. C, 1-5).—Frutex erectus, satis elongato-ramosus, ad 6 m. altus; ramuli novelli initio parce sericei, annotini biennesque glabri, rubro-fusci vel sordide brunnei; gemmae flavo-rubrae, oblongae, subglabrae. Folia juvenilia ovato-oblonga vel late lanceolata, apice sensim subacuminata, basi cuneata vel rotundata, 3-5 cm. longa et 1-1.5 cm. lata, superne initio sericea vel sericeo-villosa, cito subglabra, intense viridia, subtus plus minusve dense sericeo-villosa, dein glabrescentia, discoloria, pruinosa, nervis lateralibus utrinsecus circ. 12 angulo acuto a costa divergentibus, margine integerrima vel saepissime versus apicem dense minute glanduloso-serrata, matura ignota; petioli vix 5 mm. longi, laxe sericei; stipulae distinctae non visae. Amenta (mascula tantum visa) coetanea, anguste cylindrica, nondum satis evoluta ad 6.5 cm. longa et vix 7 mm. crassa, pedunculo ad 1 cm. longo folia 3-4 normalibus minora sed similia gerente excluso, axi laxe villosa; bracteae concolores pallidae vel apice leviter brunnescentes, obovato-orbiculariae, apice plus minusve truncatae et saepe leviter crenulatae, basi dorso leviter saccatae, glabrae, filamentis subduplo vel fere 3plo breviores, quam glandula dorsalis subduplo longiores; filamenta glabra, juvenilia satis crassa; antherae flavae, ovato-globosae; glandulae 2, separatae, ventralis lata, subquadrato-rotundata vel rectangularis et apice truncata, dorsalis illae vix vel paullo brevior sed angustior, oblonga, apice truncata.

Szechuan australis: inter urbem Yen-yüan Hsien et viculum Hun-ka, in dumetis collinis, 11 Junii 1914, C. Schneider (no. 1488; typus in Herb. Arb. Arn. et Hb. Schneider; frutex erectus vel arbuscula ad 6-metralis).

In its long narrow catkins this species very much resembles *S. phanera* Schn. and its relatives, but it may be distinguished from them at once by its glabrous bracts and filaments, as well as by the different shape of its broad ventral gland. The male flowers are not unlike those of *S. magnifica* Hemsl., which otherwise is extremely different. Unfortunately there are neither mature leaves nor female flowers, and without having seen those the relationship of this well marked species remains doubtful.

I take great pleasure in associating with this interesting willow the name of Mgr. DE GUÉBRIANT, bishop of the famous French Catholic Mission at Ning-yüan-fu, in appreciation of valued service rendered to me while I was staying in that town during the month of April 1914.

1267 **Salix** (sect. **PSILOSTIGMATAE** Schn.) **wolohoensis**, n. sp. (fig. D, 1-5).—Frutex erectus, squarrosus, ad 2 m. altus; ramuli, novelli tomentosuli, dein glabrescentes, olivaceo-brunnescentes, biennes glabri, fuscescentes; gemmae foliiferae ovatae, obtusae, adpressae, breviter pilosae, flavobrunneae, circ. 4 mm. longae. Folia firma, etiam majora vix satis evoluta, late lanceolata vel anguste elliptico-lanceolata, apice sensim acuta vel minora sub-obtusa, basi late cuneata vel rotundata, minimis exceptis inferiora 3-4 cm. longa et 1-1.5 cm. lata, superiora ad 7 cm. longa et 2 cm. lata, superne sordide viridia, initio densius dein laxe adpresse sericeo-villosa, costa flavescens plana, nervis lateralibus subincisis, subtus valde discoloria, initio tomento sericeo subflavescente dense tecta, dein argenteo-cinerea, adpresse sericeo-villosa (pilis costae parallelis), costa nervisque lateralibus circ. 8-10 angulo 45-60° a costa divergentibus flavescentibus prominulis, rete nervillorum haud vel indistincte prominulo, margine integerrima vel obscure minutissime distanter glanduloso-denticulata; petioli 2-4 mm. longi, superne sulcati, tomentosuli; stipulae minimae 2-3.5 mm. longae, semicordatae, glanduloso-denticulatae, ut folia pilosae. Amenta tantum fructifera visa, subsessilia, pleraque delapsa, ad 4 cm. longa et ad 8 mm. crassa, patentia, ad axim villosula, basi foliolis paucis parvis vix ad 1 cm. longis deciduis ceterum normalibus satis similibus instructa; flores inter fructus remanentes circ. 3 mm. longi; ovaria ovata, dense sericeo-villosula, sessilia; styli breves integri, stigmatibus iis aequilongis oblongis bifidis; glandula 1, ventralis, ovario 3-plo brevior, oblongo-rectangularis, apice truncata vel retusa (an juvenilis longior?); bracteae late obovato-orbiculares, apice subretusae, ovario subduplo breviores, distincte brunnescentes, intus subglabrae, extus laxe sericeo-villosae, margine praecipue apice pilis albis sericeis satis brevibus fere comosociliatae. Fructus circ. 5 mm. longi, ovati, satis obtusi, aperti valvis strictis, bracteis quam in flore glabrioribus brevioribus, ceterum ut ovaria superne descripta.

Szechuan australis: inter oppida Yen-yüan Hsien et Yung-ning, in dumentis inter pagos Wo-lo-ho et Hu-ma-ti, alt. circ. 2000–2400 m., 16 Junii, C. Schneider (no. 3490; typus in Herb. Arb. Arn. et Hb. Schneider; frutex squarrosus ad 2-metralis).

This species much resembles *S. psilostigma* And., which I only know from the good specimens collected by A. HENRY and G. FORREST in Yunnan and mentioned by me in the Pl. Wils. 3: 116. From those the new species may be distinguished by its leaves being a little more hairy on the upper surface and not so thickly covered with a silvery silky pubescence on the lower one, by its much more glabrous bracts which are not densely silky outwardly, and by its shorter, entire, not deeply cleft styles. The fruiting catkins seem to be shorter in *S. wolohensis*. Without having seen the male plant, it seems impossible to determine the real relationship of this species, which comes from a region that has never been explored before by botanical collectors.

1591 **Salix** (probabiliter sect. DENTICULATAE Schn.) **caloneura**, n. sp. (fig. G, 1–6).—Frutex elatior, divaricatus; ramuli hornotini annotinique glabri, flavescentes vel olivacei, vetustiores rubro-brunnei, interdum ad gemmas adpressas puberuli. Folia elliptica, obovato-elliptica vel maxima late elliptico-oblonga, apice satis subito breviter acuta, basi obtusa vel subrotundata, interdum subcuneata, superne intense viridia, subtus valde discoloria, albescentia, sub microscopio plus minusve papillosa, costa nervisque flavescentibus utrinque prominulis, nervis lateralibus versus marginem currentibus approximatis circ. 3–4 pro 1 cm. conspicuis, rete nervillorum satis distincto, valde juvenilia subtus distincte sericea, mox glabrescentia, adultiora superne ad costam sparse vel vix puberula, subtus in costa pilis sparsis praedita vel glabra, margine integerrima vel saepissime indistincte crenulata, ima basi interdum glandulis indistinctis 2 instructa, minora inferiora 4–7 cm. longa, 2–3.5 cm. lata, maxima superiora ad 9:3.5 vel 10:3 cm. magna; petioli 0.5–1.5 cm. longi, superne in sulco pubescentes. Amenta tantum fructifera visa, densa, ad 7 cm. longa et 1 cm. crassa, axi glabrescente, pedunculo ad 1.5 cm. longo folia satis parva sed normalia 3–4 gerente suffulta. Flores feminei inter fructus remanentes glaberrimi; ovaria ovato-oblonga, pedicellis glandulam unam ventralem anguste rectangularem apice truncatam fere duplo vel vix superantibus, stylo satis distincto fere ad basim bifido stigmatibus parvis brevibus satis obtusis longiore; bracteae ut videtur ovato-ellipticae, glabrae, fuscescentes, pedicellum ovarii circ. $\frac{1}{3}$

superantes. Fructus maturi circ. 6 mm. longi, ovato-elliptici, glabri, ut ovaria pedicellati, pedicello glandulam siccam fere duplo superante.

Szechuan australis: in districtu Hua-li ad flum. Yalung, in dumetis, alt. circ. 2800 m., 27 Maji 1914, C. Schneider (no. 1425; typus in Herb. Arn. Arb. et Hb. Schneider).

Judging by the fruiting material only, I believe this species is best placed in sect. DENTICULATAE Schn. near *S. denticulata* And., but it can be distinguished at once from this species by its much larger leaves. The yellowish nervation is very conspicuous on both surfaces of the leaves. I am not able to determine the real relationship of the new species, not having seen any male specimen.

1452 **Salix** (probabiliter sect. PHYLICIFOLIAE Dum.) **squarrosa**, n. sp. (fig. E, 1-5).—Frutex erectus, squarrosus, breviter ramosus, ad 4 m. altus; ramuli hornotini non visi, annotini nigro-purpurascens, glabri vel praesertim ad gemmas parce pilosiusculi, biennes sordide brunnescentes vel ut vetustiores nigro-cinerascentes; gemmae foliiferae elliptico-oblongae, acutae, subadpressae, circ. 1 cm. longae, flavo-brunneae, glabrae. Folia nondum evoluta vel minima, vix ad 1 cm. longa et 3 mm. lata, superne glabra, subtus dense longe sericea sed ut videtur cito glabrescentia, integerrima, nervis lateralibus vix visibilibus, matura ignota. Amenta praecocia, sessilia, patentia, ovato-elliptica, vel breviter cylindrica, 1.5-2.8 cm. longa, circ. 1 cm. crassa, dense albo-sericea, tantum feminea visa; bracteae ovatae, subacutae, ovaria florum superantes sed vix apicem styli attingentes, nigro-fuscae, utrinque longe sericeae; ovaria ovata, dense breviter sericea, breviter pedicellata, pedicello glandulam aequante vel sublongiore; styli fere glabri, distincti, elongati, dimidio ovarii aequilongi, stigmatibus oblongis apice haud vel paullo emarginatis stylo brevioribus coronati; glandula una, ventralis, oblongo-rectangularis, apice truncata. Fructus vix satis maturi pedicello stigmatique incluso circ. 6 mm. longi, ovato-elliptici, ut ovaria sericei, bractearum subduplo superantes.

Szechuan australis: in districtu Yen-yüan Hsien, inter viculos Ka-la-pa et Liu-ku, in silvis montanis, alt. circ. 3800 m., 16 Maji 1914, C. Schneider (no. 1246; typus in Herb. Arn. et Hb. Schneider; frutex squarrosus, circ. 4 m. altus).

This is the first willow from central China, I have seen, which apparently represents a species of sect. *PHYLICIFOLIAE* Dum. It is a much branched tall shrub with short spreading branchlets. The short, silky female aments are perfectly sessile. Without having seen mature leaves and male flowers, however, it is impossible to be sure of the real relationship of the species.

1153 *Salix* (sect. *DIPLODICTYAE* Schn.) *Faxoniana*, n. sp. (fig. H, 1-5).—Frutex parvus, ramis prostratis radicanibus, ramulis ascenduntibus, 0.2–0.3 m. altus; ramuli tantum novelli initio sericei, annotini glabri, flavo-brunnei, biennes vetustioresque obscure brunnescentes, deinde nigrescentes; gemmae elliptico-oblongae, subacutae, circ. 5 mm. longae, glabrae. Folia obovato-elliptica, elliptica vel elliptico-oblonga (vel minima ovato-elliptica), apice rotundata, obtusa vel breviter subacuta, basi late cuneata vel rotundata, 1.5:1 cm. ad 3.5:2–2.3 cm. vel angustiora ad 3:1.5 cm. magna, superne intense viridia, subnitidula, glabra, tantum in costa subimpressa vel plana versus basim pilis sparsis praedita, subtus valde discoloria, cinerascens vel albescentia, pruinosa, in costa nervisque lateralibus prominulis utrinsecus 6–10 angulo 70–80° a costa divergentibus pilis sericeis sparsis instructa vel glabra (juvenilia probabiliter dense sericea), reticulo nervillorum satis distincto, margine satis indistincte et distanter glanduloso-crenato-denticulata; petioli satis longi, superne in sulco lato plus minusve puberuli, 8–13 mm. longi. Amenta tantum fructifera visa, ramulos ad 3 cm. longos normaliter foliatis terminantia, cylindrica, densiflora, ad 5 cm. longa et circ. 1 cm. crassa, axi laxe villosula; bracteae florum inter fructus remanentium oblongae, fuscae, obtusiusculae, dimidio ovarii aequantes, versus basim parce villosulae, apicem versus glabrae, plus minusve ciliatae; ovaria elongata, conica, basi in pedicellum brevissimum quam glandula duplo breviora attenuata, glabra vel basi sparse villosula; styli distincti, ovarii junioribus $\frac{1}{3}$ vel subduplo breviores, fere ad medium fissi, brachiis divaricatis stigmatibus parvis brevibus bifidis coronatis; glandula una ventralis, oblonga, obtusa, pedicellum duplo superans. Fructus circ. 8 mm. longi, apice attenuati, aperti valvis recurvatis, glabri vel ima basi puberuli, bracteis et glandulis siccis ut in ovario minoribus.

Yunnan boreali-occidentalis: in rupestribus ad latera orientalia montium niveorum prope Lichiang-fu, alt. circ. 4000 m., mense Augusto 1914, C.

Schneider (no. 2319; typus in Herb. Arb. Arn. et Hb. *Schneider*; frutex 0.2-0.3 m. altus); in declivibus rupestribus montium inter flum. Yang-tze et oppidum Chung-tien, alt. circ. 3400 m., mense Augusto 1914, *C. Schneider* (no. 2375; forma nullo modo ab no. 2319 diversa).

At first sight this species very closely resembles *S. oreinoma* Schn. from the high mountains of western Szechuan, but *S. Faxoniana* differs from it and from the other Asiatic species of sect. DIPLODICTYAE Schn. in its glabrous ovaries, the fruits being sometimes hairy only at the very base. The leaves are similar to those of *S. oreinoma*, but the catkins of this species measure only about 2 cm. in length (without the peduncle), and the bracts are more glabrous, broader, and truncate at the apex. The species is named in compliment to MR. C. E. FAXON, the assistant director of the Arnold Arboretum.

SALIX BRACHISTA Schneider in Sargent, Pl. Wils. 3:145. 1916.— I described only a male specimen, and I add the following description of the female plant: Frutex pygmaeus, trunco subterraneo, ramis procumbentibus radicantibus; ramuli prostrati, initio olivacei vel flavescentes, dein flavo-brunnei vel flavo-rubri, tantum novelli parce pilosuli, cito glabrescentes. Folia parva vel perparva, crasse papyracea, elliptica vel ovato-elliptica, utrinque acuta vel pleraque apice acutiuscula et basi subrotundata, minimis exceptis 6:2 mm. ad 12:6 mm. vel maxima ad 17:9 mm. magna, superne satis viridia, costa incisa, nervis lateralibus planis vel vix levissime prominulis, glabra, subtus pallidiora, non glaucescentia, costa nervisque lateralibus utrinque 5-7 angulo circ. 50-70° à costa divergentibus distincte prominulis, an initio pilosa?, adulta glabra, margine subintegerrima vel plus minusve distanter minute denticulata; petioli glabri, superne sulcati, 2-4 vel foliorum maximorum ad 8 mm. longi, gemmas plus minusve duplo superantes. Amenta fructifera pauca tantum visa, ramulos breves normaliter paucifolios terminantia, 2-4-flora; fructus maturi, obovato-oblongi, apice attenuati, 6-7 mm. longi, glabri, brunnei, aperti valvibus apice recurvatis, subsessiles, pedicello glandula subbreviore; styli sicci breves, stigmatibus ut videtur brevibus coronati; glandula 1, ventralis, satis late rectangularis, pedicello sublongior; bracteae pallidae, glabrae, obovato-oblongae, apice retusae vel rotundatae, capsulis fere duplo breviores.

Yunnan boreali-occidentalis: ad latera orientalia montium niveorum prope Lichiang-fu, in rupestribus calcareis in valle infra glaciem magnam, alt. circ.

3500 m., mense Augusto 1914, *C. Schneider* (no. 3454; ramuli fructiferi in Herb. Schneider).

It is with some hesitation that I refer this female willow to *S. brachista* Schn., which is known only from male specimens collected by E. H. WILSON in western Szechuan. In most of my specimens there are no flowers or fruits, the apex of the branchlets being infected probably by an insect and transformed into hairy galls. The leaves agree well with those of typical *S. brachista* in the nervation and color.

Together with no. 3454, I collected another female willow (no. 2318), the leaves of which are even a little smaller, of a somewhat firmer texture, with veins slightly impressed above and scarcely visible on the rather bluish grey under surface. I am not sure whether or not this form belongs to the Himalayan *S. Lindleyana* Wall. or represents a form of *S. Souliei* Seemen. It is not quite identical with those female plants from Tachien-lu which I described in Pl. Wils. 3:62 as *S. Souliei*. I think it best, therefore, to give the following description of no. 2318 from the snow mountains near Lichiang-fu:

Frutex pygmaeus facie *S. Lindleyanae* Wall. vel *S. serpyllifoliae* Scop. ramis solo vel rupestribus adpressis, ramulis brevibus junioribus olivaceis glabris (an novellis pilosiusculis?). Folia perparva, crassiuscula, elliptica vel ovato-elliptica, utrinque obtusa vel subacuta, rarius basi subrotunda, minimis exceptis 5–7 mm. longa, 2–3 mm. lata, superne satis laete viridia, glabra vel in costa incisa sparse pilosa, nervis lateralibus plus minusve distincte incisis, subtus satis discoloria, glaucescentia (etiam novella?), costa prominula, nervis lateralibus utrinsecus 2–4 angulo 40–45° a costa divergentibus vix vel haud visibilibus, margine integerrima vel saepius plus minusve minute denticulata; petioli distincti, 2–4 mm. longi, superne interdum pilosiusculi, gemmas duplo superantes. Amenta ramulos perbreves normaliter foliatis terminantia, fructifera subcapitata, circ. 5-flora, in axi sparse pilosa; flores adulti glaberrimi, circ. 4–4, 5 mm. longi; ovaria ovato-conica, apice attenuata, basi plus minusve pedicellata, pedicello glandula sublongiore vel subbreviore; styli breves sed distincti, ad medium bifidi, stigmatibus brevibus oblongis emarginatis bifidisve brachiis styli subaequilongis; glandula 1, ventralis, oblongo-rectangularis, apice truncata; bractae flavescentes vel in sicco flavo-brunneae obovato-oblongae vel oblongo-ellipticae, apice rotundatae, retusae vel emarginatae, ovariis circ. $\frac{1}{3}$ breviores. Fructus maturi ovati, aperti valvibus apice paullo recurvis, ceterum ut ovaria (fig. F, 1–4).

1263 **Salix** (? sect. SIEBOLDIANAE Seem.) **dibapha**, n. sp. (fig. I, 1-6).—Frutex erectus, ad 4 m. altus, ramuli hornotini laxae vel densius villosuli (novelli satis dense flavescenti-tomentelli), annotini satis glabrescentes, atro-fusci, vetustiores glabri; gemmae foliiferae ut videtur flavo-purpureae, subglabrae. Folia papyracea, elliptica vel elliptico-oblonga, apice acuta vel longiora sensim breviter acuminata, basi cuneata, superne vivide laete viridia, tantum valde juvenilia plus minusve flavescenti-sericeo-tomentella, costa prominula nervisque partim exceptis cito glabra, subtus valde discoloria, glauca, pruinosa, initio ut supra sericeo-tomentella, sed citissime glabrescentia, tantum in costa elevata parce sericea, nervis lateralibus utrinsecus 10-20 angulo 80-90° a costa divergentibus prominulis, reticulo nervillorum foliorum immaturorum valde tenui vel vix visibili adultorum probabiliter magis conspicuo, margine integerrima, minimis exceptis inferiora elliptica 4-6 cm. longa et 1.4-2 cm. lata, superiora oblongiora ad 8:2.4 cm. magna; petioli 4-7 mm. longi, undique sericeo-villosuli; stipulae minimae, semicordato-lanceolatae, villosulae, margine glanduliferae, vix ad 3 mm. longae. Amenta tantum fructifera visa, praecocia, elongato-cylindracea, pedunculo ad 1 cm. longo foliola pauca parva ad 1.5 cm. longa ab normalibus vix diversa gerente excluso ad 8 cm. longa et 0.9 cm. crassa, axi villosa; flores inter fructus remanentes 2-3.5 mm. longi; ovaria ovata, sessilia, dense villosula; styli breves sed distincti, $\frac{1}{4}$ - $\frac{1}{5}$ ovarii aequantes, apice breviter bifidi, stigmatibus brevibus subbifidis oblongis; glandula 1, ventralis, oblonga, satis brevis, bracteis florum adultiorum subduplo brevior; bractee ovariiis juvenilioribus aequilongae, elliptico-oblongae, obtusae, brunnescentes, intus glabrae, extus infra medium villosulae et ciliatae, apice glabrae, ovariiis adultioribus fere 3-plo breviores. Fructus subsessiles, ovato-oblongi, apice paullo attenuati, basi in pedicellum glandula breviorum contracti, satis dense albido-villosuli, stylis siccis exceptis circ. 3.5-4 mm. longi, aperti valvis apice paullo recurvis.

Yunnan boreali-occidentalis: inter oppida Yung-ning et Yung-peh-ting, in pratis ad ripas prope viculum Pi ji, 24 Junii 1914, C. Schneider (no. 1646; typus in Herb. Arb. Arn. et Herb. Schneider; frutex ad 4-metralis).

Without having seen male flowers, it is difficult to judge the relationship of this species. It mostly resembles *S. hylonoma* Schn., which may be chiefly

distinguished by its more acuminate leaves with a longer silky pubescence on the under surface, by its somewhat thinner fruiting catkins, its longer gland, and by its longer more deeply cleft styles. The specific name is derived from *δίβαφος*, "double colored."

In Pl. Wils. 3:122 I described a *S. isochroma*, referring it to sect. HETEROCHROMAE Schn., but according to further observations I believe that this species represents only a variety of *S. hylonoma*; therefore, I suggest the following combination: *S. HYLONOMA* var. *isochroma* Schn., n. var.

Alnus (subgenus CREMASTOGYNE [Winkl.] Schn.) **Ferdinandii-Coburgii**, n. sp.—Arbor; ramuli novelli ut videtur dense fulvo-villosulo-tomentelli, annotini plus minusve glabrescentes, atrofusci, lenticellis sparsis flavo-brunnescentibus obtecti, vetustiores nigrescentes; gemmae stipitatae, subglobosae, subglabrae, resinosae. Folia matura chartacea, late elliptica vel subobovato-elliptica, apice satis subito in acuminem brevem producta, basi rotundata vel fere semper cordata, minora 5-7.5 cm. longa, 2.5-4 cm. lata, maxima ad 14:8 cm. magna, margine praesertim ad apicem satis distanter aequaliter breviter glanduloso-denticulato-serrata, superne satis obscure viridia, costa incisa breviter glanduloso-pilosa excepta glabra, nervibus planis, subtus discoloria, glaucescentia, pruinosa et sub microscopio subpapillosa, glandulifera, ad costam nervosque laterales valde prominentes flavobrunneos utrinsecus 12-17 plus minusve fulvo- (et glanduloso-) villosula (novella probabiliter satis dense tomentella) vel fere omnino glabrescentia; petioli crassi, superne sulcati, glanduloso-villosuli, 6-12 mm. longi. Amenta tantum feminea fructifera visa, pro subgenere *Cremastogyne* normalia, ovato-elliptica vel ovato-subglobosa, ad 2 cm. longa et 1.5 cm. crassa, plus minusve resinosa; pedunculi 10-15 mm. longi, laxe villosuli; bractae ut in tabula fig. K, 2-4 delineatae, apice breviter obtuse lobatae et incurvatae, fere glabrae sed resinosae, circ. 12 mm. longae et (apice) subaequi latae; semina obovato-rectangularia, circ. 4 mm. longa, alis angustissimis cincta.

Yunnan boreali-occidentalis: in montibus Tsang prope Tali-fu, in vallibus ad latera orientalia, alt. circ. 2800 m., 3 Octobris 1914, C. Schneider (no. 2716; typus in Herb. Arb. Arn. et Hb. Schneider).

This interesting alder certainly belongs to sect. CREMASTOGYNE Winkler, which I raised to the rank of a subgenus in Pl. Wils. 2:492. 1916. In many respects it resembles *A. lanata* Duthie, but it may be distinguished from it, as well as from *A. cremastogyne* Burk., by the much shorter peduncle of its fruits, and especially by the almost wingless seeds which are entirely different from

the broadly winged seeds of the two other known species of this group. The male and female flowers of the new species are yet unknown.

As I pointed out (l. c.), the subgenus *Cremastogyne* is a very distinct one, and differs widely from subg. *Alnus* Endl. and *Alnaster* Endl. in its single male and female aments, which appear in the spring on this year's branchlets in the axils of normal leaves. The male flowers are entirely apetalous (fig. K, 6-9), and the female flowers, so far as I can see, agree well with those of the other subgenera; they are shown in fig. K, 10-12. In fig. K, 12, the small "prophylla" of the female flowers can be seen, which are hairy at the apex. In *A. cremastogyne* the female flowers I have seen had always 3 stigmas. The fruiting bracts and the seeds of *A. lanata* are represented in fig. K, 14-16; those of *A. cremastogyne* are very similar.

I take the liberty of dedicating this excellent species to His Majesty King Ferdinand I of the Bulgarians, an eminent botanist and patron of natural history.

ARNOLD ARBORETUM

EXPLANATION OF PLATE XV

FIG. A.—*Salix tenella*: 1, young female flower with bract; 2, 3, stigmas; 4, ventral gland; 5, dorsal gland; 6, bract with dorsal gland.

FIG. B.—*Salix Balfouriana*: 1, old female flower with bract; 2, ventral gland; 3, bract; 4, mature fruit.

FIG. C.—*Salix Guebriantiana*: 1, young male flower; 2, anthers; 3, ventral gland; 4, both glands with the base of the filaments between them; 5, bract with dorsal gland.

FIG. D.—*Salix wolohoensis*: 1, old female flower with bract; 2, stigmas; 3, ventral gland; 4, bract; 5, ripe fruit.

FIG. E.—*Salix squarrosa*: 1, female flower with bract; 2, stigmas; 3, 4, ventral gland and pedicel of the ovary; 5, bract.

FIG. F.—? *Salix Lindleyana*: 1, female flower with bract; 2, ventral gland and pedicel of the ovary; 3, ventral gland; 4, bract.

FIG. G.—*Salix caloneura*: 1, female flower; 2, stigmas; 3, ventral gland; 4, pedicel of the ovary with bract and gland; 5, bract; 6, fruit.

FIG. H.—*Salix Faxoniana*: 1, female flower; 2, ventral gland; 3, gland and pedicel of the ovary; 4, bract; 5, ripe fruit.

FIG. I.—*Salix dibapha*: 1, young arrested female flower; 2, its ventral gland; 3, older female flower; 4, bract; 5, base of the ovary and gland; 6, ripe fruit.

FIG. K.—1-5, *Alnus Ferdinandi-Coburgii*: 1, ripe strobile; 2, fruiting bract ventral; 3, same dorsal; 4, same lateral; 5, seed: 6-16, *Alnus lanata*: 6, male dichasium with bract (front view); 7, male flower; 8, anther; 9, bract; 10, 11, female dichasium with bract; 12, bract with flowers removed showing their "prophylla"; 13, ripe strobile; 14, fruiting bract ventral; 15, same dorsal; 16, seed.



Schneider, Camillo. 1917. "Arbores Fruticesque Chinenses Novi. IV." *Botanical gazette* 64(2), 137–148. <https://doi.org/10.1086/332099>.

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