

Potentillae et Sibbaldiae Forrestianae et Rockianae in Herbario Horti Regii Botanici Edinburgensis

BY

H. R. FLETCHER

Potentilla ambigua Camb. in Jacq. Voy. Bot., IV, 51, t. 62 (1844).
P. cuneata Wall. Cat. 1015—*pro parte* ex Lehm. Pugill., III, 34 (1831). *P. dolichopogon* Lévl. in Bull. Ac. Geog. Bot., XXV., 44 (1915) and in Pl. Yunnan., 232 (1917).

YUNNAN: Bei-ma Shan, Mekong-Yangtze divide (Forrest 13219, Rock 10002); Mekong-Salwin divide (Forrest 13247); mountains west of Hsiao Chungtien (Rock 24661); mountains of Nakela, Mekong-Salwin divide (Rock 23111, 23429).

SIKANG: Minya Konka Snow Range, east of Yulong Hsi (Rock 17612, 17649); Kaushu Shan on trail to Leirong, south-west of Muli (Rock 24120).

S.E. TIBET: Tsarong, forest and alpine regions of the Solo-la (Rock 22274, 22672).

Potentilla anserina Linn. Sp. Pl. 495 (1753).

YUNNAN: Lichiang Valley (Forrest 2092); sine loc. (Forrest 2272).

P. arbuscula D. Don Fl. Nepal, 256 (1825); Hand.-Mzt. in Symb. Sin., VII, 508 (1933) and in Acta Hort. gothoburg., XIII, 289 (1939)—*pro parte*. *P. nepalensis* D. Don, loc. cit., 229, non Hook. *P. rigida* Wall. in Lehm. Rev. Pot., 19, t. 1 (1856)—*pro parte*. *P. fruticosa* var. *arbuscula* Maxim. in Mém. Biol., IX, 158 (1873). *P. fruticosa* var. *rigida* Maxim. loc. cit. *P. fruticosa* Franch. et auctt. sin. *P. fruticosa* Wolf in Bibl. Bot., XVI, 56 (1908)—*pro parte*. *P. Ribui* Gandgr. in Bull. Soc. Bot. Fr., LXVI, 306 (1919).

YUNNAN: Lichiang Range (Forrest 2437, 5766, 6046, 15068); Tali Range (Forrest 4412); mountains north-east of Chungtien (Forrest 16783); sine loc. (Forrest 28139, 30978); slopes of Mt. Gyi-na-lo-ko, the second peak of the Yu-lung Shan (Rock 24989).

SIKANG: Mountains south-east of Muli (Forrest 22171).

This Himalayan and Chinese plant is of course usually known as *P. fruticosa* Linn. North America is apparently the headquarters of the Linnean plant for it is common in Canada and the United States, extending as far west as the Rocky Mountains. Elsewhere it is confined to a few detached localities in England, Ireland, Europe and the Altai. It is not to be found in the Himalaya nor in China. Here its place is taken by *P. arbuscula* Don, a very plastic species with a distributional range extending from Kashmir throughout the Himalaya to Yunnan, Sikang and Kansu and eastwards to Shansi and Hopei (Chili). The two plants can readily be separated by the reticulation of the leaves; this in *P. arbuscula* is extremely close whereas in *P. fruticosa* it is much laxer; moreover, the leaves of the former are far thicker and firmer in texture than those of the latter.

The typical plant is glabrous on the lower leaf-surface, whereas the upper surface is covered with long white silky hairs.

P. arbuscula var. *albicans* (Rehd. et Wilson) Hand.-Mzt. in Symb. Sin., VII, 508 (1933)—excl. specim. 3930 and in Acta Hort. gothoburg., XIII, 292, (1939). *P. fruticosa* var. *albicans* Rehd. et Wilson in Pl. Wil., II, 302 (1916).

YUNNAN : sine loc. (Forrest 29183).

SIKANG : Mount Mitzuga, west of Muli Gomba (Rock 16525, 24026).

A prostrate or semi-prostrate plant with leaves a little smaller than those of the type and with both surfaces densely covered with a white shining silky indumentum.

P. arbuscula var. **Bulleyana** Balf. f. MSS. var. nov.

Foliola subtus albo-tomentosa praeterea saepe sericea, supra glabra.

YUNNAN : Dry rocky situations on the Chungtien plateau, near Hsia Chungtien, also on the summit of the Kari Pass (Forrest 119—type of var.).

Apparently known only in the wild from the above collection. It is separated very readily from the type by the glabrous or almost glabrous upper leaf-surface, and by the dense white silky tomentum of the lower. These characters are maintained in cultivated plants raised from seeds of Forrest 119.

P. arbuscula var. **pumila** (Hook. f.) Hand.-Mzt. in Symb. Sin., VII, 508 (1933) and in Acta Hort. gothoburg., XIII, 291 (1939). *P. fruticosa* var. *pumila* Hook. f. in Fl. Brit. Ind., II, 348 (1878); Wolf in Bibl. Bot., XVI, 59 (1908)—*pro parte*. *P. reticulata* Bert. in Mem. Ac. Sc. Bologna, ser. 2, III, 420, t. 11 (1863).

YUNNAN : Lichiang Range (Forrest 2334); mountains in the north-east of the Yangtze bend (Forrest 10577); sine loc. (Forrest 28634, 30649); Haba Shan, third peak of the Lichiang Snow Range (Rock 24803).

SIKANG : Between Baurong and Kulu, west of the Yalung River (Rock 17839).

A small shrub, often forming matted cushions, and characterised by the small leaves, at most 5 mm. long, glabrous below and white silky hairy above.

P. articulata Franch. Pl. Delav., III, 210 (1890); Melch. and Stroh in Not. Bot. Gart. Berlin, XI, 791 (1933)—*pro parte*. *P. fruticosa* var. *armerioides* Hook. f. Fl. Brit. Ind., II, 348 (1878). *P. biflora* var. *armerioides* (Hook. f.) Hand.-Mzt. in Acta Hort. gothoburg., XIII, 302 (1939).

YUNNAN : Lichiang Range (Forrest 2950, 5827, 27852); mountains north-east of the Yangtze bend (Forrest 10374, 11063); Mekong-Yangtze divide (Forrest 20622); Bei-ma Shan (Forrest 14311); Goo-du Shan (Forrest 20547); sine loc. (Forrest 28624, 28865, 30755); Lichiang Snow Range (Rock 9425, 24825); Mt. Wuaha, Yungning Territory (Rock 24199); mountains of Hung-po west of Tung-chu-ling, overlooking Mekong and west of Bei-ma Shan (Rock 22899).

SIKANG : Mountains of Kulu, east of Muli Gomba (Rock 16423).

S.E. TIBET : Tsarong, Ka-gwr-pu, Mekong-Salwin divide (Forrest 14388).

P. articulata Franch. and *P. biflora* Willd. are both cushion plants, superficially closely resembling one another yet readily separable by foliage characters. Whereas the leaves of *P. biflora* are digitately 5-pinnate, those of *P. articulata* are trifoliate, the narrowly lanceolate or lanceolate-ovate leaflets being joined to the petiole by a definite articulus. Thus they are in the Sikkim plant which Hooker named *P. fruticosa* var. *armerioides*; this is nothing more than a densely dumose form of *P. articulata* which forms hard

cushions of densely-crowded leaves with exceedingly short petioles. It is not confined to Sikkim but extends also to S.E. Tibet and to Yunnan (Forrest 14388, 14311, 20622; Rock 22899).

P. chinensis Ser. subsp. *trigonodonta* Hand.-Mzt. in Symb. Sin., VII, 512 (1933).

YUNNAN: Lichiang plain (Forrest 2525); Yangtze watershed, eastern slopes of Lichiang Snow Range (Rock 4899).

P. Delavayi Franch. Pl. Delav., III, 215 (1890).

YUNNAN: Lichiang Range (Forrest 2671, 6176); sine loc. (Forrest 30945).

P. dumosa (Franch.) Hand.-Mzt. in Symb. Sin., VII, 515 (1933). *P. coriandrifolia* var. *dumosa* Franch. Pl. Delav., III, 214 (1890).

N.W. YUNNAN: Tali Range (Forrest 4409, 6880); Lichiang Range (Forrest 6611, 27845); Kari Pass, Mekong-Yangtze divide (Forrest 12918); Lukong Shan, Mekong-Yangtze divide (Forrest 14841); sine loc. (Forrest 28088, 30520, 30782); Yangtze watershed, Lichiang Snow Range (Rock 5012, 5727, 9895); Fuchuan Range, west of Mekong-Salwin divide (Rock 22739, 23266); Lao-chun Shan, south-west of Shi-ku and the Yangtze (Rock 25080).

P. dumosa var. *stromatodes* (Melch.) H. R. Fletcher, comb. nov. *P. stromatodes* Melch. in Not. Bot. Gart. Berlin, XI, 797 (1933).

YUNNAN: Eastern flank of the Chimi-li, N'Maikha-Salwin divide (Forrest 25031); Tsangshan Range, west of Talifu (Rock 6355); Mt. Fuchuan, Mekong-Salwin divide (Rock 17034).

E. TIBET: Tsarong, Salwin Kui-Chiang divide (Forrest 20249).

N.E. UPPER BURMA: Western flank of the Chimili, N'Maikha-Salwin divide (Forrest 24966); western flank of the N'Maikha-Salwin divide (Forrest 27107); sine loc. (Forrest 27322).

A very dwarf plant which extends from Yunnan into E. Tibet and Upper Burma. Certainly not deserving of specific rank, it may be nothing more than an extreme stunted and caespitose form of *P. dumosa*.

P. eriocarpa Wall. Cat. No. 1012 ex Lehm. Pugill., III, 35 (1831). *P. Davidii* Franch. in Nouv. Arch. Mus. Paris, Ser., II, VIII, 222 (1885); Pl. David. 40 (1888). *P. eriocarpa* var. *cathayana* C. Schn. in Bot. Gaz., LXIV, 73 (1917). *P. eriocarpoides* var. *glabrescens* J. Krause in Fedde Rep. Sp. Nov., Beih., XII, 408 (1922).

YUNNAN: Lichiang Range (Forrest 2727, 6045; Rock 5924—*pro parte*, 9909); Chienchuan-Mekong divide (Forrest 23231); sine loc. (Forrest 28625, 29185); Sung-kwe Pass between Lichiang and Hoking (Rock 25183—*pro parte*).

Throughout its wide distribution from Kunawar, through Kumaon, Kashmir, Nepal, Sikkim, Bhutan to S.E. Tibet, Yunnan and Sikang, *P. eriocarpa* exhibits a good deal of plasticity. There is great variation in habit, in size of flower, in size and degree of cutting of the foliage, and in indumentum. The typical plant, which is common to both Yunnan and Kunawar is almost glabrous and has a long rhizome and large leaves with obovate strongly-toothed leaflets up to 4 cm. long. But forms of this almost glabrous plant with excessively slender rhizome and the very narrow leaflets reduced to

1 cm. in length occur in Sikkim, Bhutan and Nepal. All transitions connect this apparently starved form with the norm. However, in S.E. Tibet, Yunnan and Sikang there is one variation well deserving of varietal rank, a plant covered with long white silky hairs and with apically swollen rhizomes. This is the *P. eriocarpoides* of J. Krause and the var. *tsarongensis* of W. E. Evans. Forms of this with rather more deeply-cut leaflets are the var. *dissecta* of Marquand and Shaw.

P. eriocarpa var. *tsarongensis* W. E. Evans in Notes Roy. Bot. Gard. Edin., XIII, 178 (1921). *P. eriocarpa* var. *dissecta* Marquand and Shaw in Journ. Linn. Soc., XLVIII, 174 (1929). *P. eriocarpoides* J. Krause in Fedde Rep. Sp. Nov., Beih., XII, 407 (1922)—excl. var.

S.E. TIBET : Tsarong, Salwin—Kui-chiang divide (Forrest 19272—type of var.) ; Mt. Wuli-la, east of the Salwin River and north of Alulaka (Rock 22358, 22417).

YUNNAN : On the Bei-ma Shan (Forrest 14469 ; Rock 9980) ; Mekong-Salwin divide (Forrest 14440, Rock 23104) ; Moting Shan (Rock 23354) ; Sung-kwe Pass between Lichiang and Ho-king (Rock 25183—*pro parte*) ; sine loc. (Forrest 28875, 30821) ; Lichiang Range (Rock 5924—*pro parte*).

SIKANG : South-east of Muli (Forrest 22101) ; Mount Siga, north-east of Kulu (Rock 17859) ; Dzampe sheren, west of Wuato Gomba, eastern Muli (Rock 23773) ; Mt. Konka, Risonquemba, Konkaling (Rock 16422).

P. fallens Card. in Not. Syst. Herb. Mus. Paris, III, 232 (1916). *P. peduncularis* var. *obscura* Notes Roy. Bot. Gard. Edin., VII, 131 (1912)—non Hook. f. *P. Rockiana* Melch. in Not. Bot. Gart. Berlin, XI, 795 (1933).

YUNNAN : Lichiang Range (Forrest 2445, 5687, 6035 ; Rock 4350).

A comparison of the type of *P. fallens* in the Paris Herbarium (Delavay in 1885, from Hokin) with Rock 4350 the isotype of *P. Rockiana*, shows them to be absolutely identical. *P. fallens* greatly resembles and has been confused with *Coluria longifolia* Max.

P. Forrestii W. W. Sm. in Notes Roy. Bot. Gard. Edin., VIII, 198 (1914). *P. Saundersiana* var. *Jacquemontii* Franch. Pl. Delav., III, 215 (1890). *P. Saundersiana* var. *subpinnata* Hand.-Mzt. in Symb. Sin., VII, 513 (1933). *P. Forrestii* var. *subpinnata* Hand.-Mzt. in Acta Hort. gothoburg., XIII, 312 (1939).

YUNNAN : Lichiang Range (Forrest 2211, 5907 ; Rock 4201, 4982, 9439, 24773) ; Sung-Kwe Pass, south of Lichiang (Rock 25187) ; Mekong-Salwin divide (Forrest 14277) ; sine loc. (Forrest 30607, 30773).

SIKANG : Muli (Rock 6456) ; Mount Siga, north-east of Kulu (Rock 17871).

S.E. TIBET : Salwin—Kui-chiang divide (Forrest 19318).

P. Forrestii varies considerably in size, habit and indumentum and only rarely does the wild plant attain the stature of the cultivated type.

P. fragarioides Linn. Sp. Pl. 496 (1753). *P. Leschenaultiana* var. *concolor* Diels in Notes Roy. Bot. Gard. Edin., VII, 235 (1912)—non Franch.

YUNNAN : Tali Range (Forrest 4420).

P. fulgens Wall. ex Hook. in Bot. Mag. t. 2700 (1826) and in Fl. Brit. Ind., II, 349 (1879). *P. splendens* Wall. ex D. Don Prodr. Fl. Nepal., 230

(1825); DC. Prodr., II, 582 (1825)—non Ram. *P. Siemersiana* Lehm. Pugill., I, 31, t. 3 (1828). *P. Martinii* Lévl. in Bull. Soc. Bot. Fr., LV, 57 (1908). *P. lineata* Trev. ex Reich. Icon. Exot., I, t. 8 (1824). *P. peduncularis* Notes Roy. Bot. Gard. Edin., VII, 234 (1912)—non Don.

YUNNAN: Tali Range (Forrest 4411); Lichiang Snow Range (Rock 4774, 4876, 11464).

P. glabra Lodd. Bot. Cab., X, t. 914 (1824). *P. davurica* Auctt.—non Nestl. *P. fruticosa* var. *mongolica* Maxim. in Mém. Biol., IX, 158 (1873). *P. fruticosa* var. *glabrata* (Willd.) Mak. in Bot. Mag. Tokyo, XV, 98 (1901)—*saltem quoad syn. plur.* *P. fruticosa* β *davurica* Ser. in DC. Prodr., II, 579 (1825). *P. Veitchii* Hand.-Mzt. in Symb. Sin., VII, 509 (1933)—non Wils.

S.W. KANSU: T'ao River Basin, on rocks and cliffs near Adjuan (Rock 12641); Maerhku, northern Minshan (Rock 13673).

This is the correct name for the white-flowered plant which since the time of Lehmann's "Revisio Potentillarum" (1856) has been known as *P. davurica* Nestl. Nestler originally described *P. davurica* (Monographia de Potentilla, 1816) as having yellow flowers and Lehmann did likewise when he regarded Nestler's plant as a form of *P. fruticosa*, in his "Monographia" of 1820. A most polymorphic plant, *P. glabra* is found in various forms throughout its wide distribution from Eastern Tibet, Yunnan, Sikang, Kansu, Hupeh, Shansi to Korea.

P. glabra var. *rhodocalyx* H. R. Fletcher, var. nov. *P. fruticosa* var. *Veitchii* Rehd. et Wilson in Pl. Wil., II, 303 (1916)—*pro parte*.

A typo sepalis interioribus exterioribusque purpureo-suffusis recedit.

YUNNAN: Mountains of the Chungtien, south-east of Chungtien (Forrest 10517—*type of var.*); Chienchuan-Mekong divide (Forrest 23117); Lichiang Range (Forrest 2723); sine loc. (Forrest 22259, 28576, 29205, 29207, 30623).

A plant usually with more congested growth than *P. glabra*. Whereas the calyx of the species is green, that of the variety is brilliantly suffused with crimson.

P. glabra var. *rhodocalyx* f. *ternata* (Card.) H. R. Fletcher, comb. nov. *P. glabra* f. *ternata* (Card.) Hand.-Mzt. in Acta Hort. gothoburg., XIII, 296 (1939). *P. fruticosa* var. *tangutica* Wolf in Bibl. Bot., XVI, 57 (1908) e typo. *P. fruticosa* var. *davurica* f. *ternata* Card. in Bull. Mus. Par., XXII, 398 (1916).

YUNNAN: Mekong-Salwin divide (Forrest 14989); sine loc. (Forrest 28574, 28576, 28714, 30621, 30767); Lao-chun Shan, south-west of Shi-ku and the Yangtze (Rock 25098); Fuchuan Range, west of the Mekong-Salwin divide and west of Wei-hsi (Rock 22734).

SIKANG: Mountains between the Litang and Yalung Rivers, between Muli Gomba and Baurong and Wa-Erk-Dje (Rock 16628); Muti Konka Snow Range, Muli territory (Rock 23678).

S.E. TIBET: Tsarong, mountains of Tjonatong, Upper Salwin River (Rock 22337); mountains west of the Kaakerpo, Dokerla and Yundshi (Rock 23190).

A form with the leaflets consistently tri-foliate.

P. glabra var. *subalbicans* Hand.-Mzt. in Acta Hort. gothoburg., XIII, 297 (1939). *P. fruticosa* var. *subalbicans* Hand.-Mzt. in Symb. Sin., VII, 508 (1933). *P. fruticosa* var. *Veitchii* Rehd. et Wils., Pl. Wils., II, 303 (1916)—*pro parte*; Rehd. in Journ. Arn. Arb., IX, 73 (1928)—non (Wils.) Bean.

E. TIBET : Radja and Yellow River Gorges ; mountains opposite Radja (*Rock* 14164) ; Kokonor region : valley of Chun-ku ho (*Rock* 13369) ; Tsarong, mountains of Tjonatong, Upper Salwin River (*Rock* 22341).

Readily separated from the type by the thin coating of white hairs on the upper surface of the leaflets and the thick white silky felting on the lower.

P. Griffithii Hook. f. in Fl. Brit. Ind., II, 350 (1879)—non Th. Wolf ; Hand.-Mzt. in Acta Hort. gothoburg., XIII, 315 (1939)—*pro parte*. *P. Leschenaultiana* Notes Roy. Bot. Gard. Edin., VII, 15, 290 (1912). *P. Leschenaultiana* var. *reticulata* Franch. Pl. Delav., III, 212 (1890) et var. *pumila* Franch. loc. cit., 212 (1890). *P. sikkimensis* Th. Wolf in Bibl. Bot., XVI, 169 (1908). *P. Potaninii* Th. Wolf, loc. cit., 166 (1908)—*pro min. parte*, quoad pl. *Henry* 9663.

YUNNAN : Tali Range (*Forrest* 148A, 4415, 4416) ; Mekong Valley (*Forrest* 5022) ; east of Tengyueh (*Forrest* 7606).

P. Griffithii var. *velutina* Card. in Not. Syst. Herb. Mus. Paris, III, 235 (1916). *P. Beauvaisii* Card., ibid., III, 234 (1916). *P. hololeuca* Franch. Pl. Delav., III, 214 (1890)—non Boiss. *P. Leschenaultiana* var. *concolor* Franch. ibid., III, 213 (1890).

YUNNAN : Ranges south of the Yungchang-fu Valley (*Forrest* 24344).

Both the species and the variety vary tremendously in size, showing every transition from dwarf plants with leaflets no more than 1 cm. long to tall robust plants with leaflets up to 4.5 cm. long. The latter are Wolf's *P. Potaninii* and Cardot's *P. Beauvaisii*. The variety *velutina* consistently has the upper surface of the leaflets covered with a thick velvet of short silky hairs.

P. Hemsleyana Th. Wolf in Bibl. Bot., XVI, 667 (1908). *Fragaria* (§ *Duchesnea*) *filipendula* Hemsley in Journ. Linn. Soc., XXIII, 239 (1887). *P. reptans* var. ? *trifoliolata* Hook. f. Fl. Brit. Ind., II, 356 (1878)—non Franch. et Sav. *P. reptans* var. *sericophylla* Franch. ; Cardot in Bull. Mus. Hist. Nat. Paris, XXII, 407 (1916). *Fragaria indica* Notes Roy. Bot. Gard. Edin., VII 235, 289 (1912)—non Anders.

YUNNAN : Tali Range (*Forrest* 4419) ; Shweli-Salwin divide (*Forrest* 5007).

P. hypargyrea Hand.-Mzt. in Symb. Sin., VII, 514 (1933). *P. euxantha* W. E. Evans MSS. ex Marquand in Journ. Linn. Soc., XLVIII, 174 (1929).

S.E. TIBET : Tsarong, on the Doker-la, Mekong-Salwin divide (*Forrest* 14737) ; mountains of Tjonatong, Upper Salwin River (*Rock* 22320) ; Mt. Wuli-la, east of the Salwin River and north of Alulaka (*Rock* 22422).

P. Kleiniana Wight Ill. Ind. Bot. t. 85 (1831). *P. Wallichiana* Delile in Wall. Cat. 28 (1829)—nom. nud. non Seringe ; Wolf in Bibl. Bot., XVI, 411 (1908)—*pro parte* excl. *P. anemonifolia* Lehm. *P. Bodinieri* Lévl. in Bull. Soc. Bot. Fr., LV, 56 (1908).

YUNNAN : Tali Range (*Forrest* 4408).

P. lancinata Card. in Not. Syst. Herb. Mus. Paris, III, 236 (1916).

YUNNAN : Lichiang Range (*Forrest* 2326 ; *Rock* 3830, 4914).

P. lancinata var. **minor** H. R. Fletcher, var. nov. *P. rhytidocarpa* Hand.-Mzt. in Symb. Sin., VII, 514 (1933)—*pro parte*.

Foliis floribusque minoribus a typo divergit.

YUNNAN: Lichiang Range (Forrest 6053—*type of var.*; Rock 4776).

P. leuconota D. Don, Prodr. Fl. Nepal., 230 (1825); Wall. Cat. no. 1021 (1829)—*pro parte*.

N.W. YUNNAN: Lichiang Range (Forrest 2462, 5759); Tali Range (Forrest 4414, 7093); Shweli-Salwin divide (Forrest 9023); Yangtze watershed, slopes of Lichiang Snow Range (Rock 4205, 4921, 8675).

P. macrosepala Card. in Not. Syst. Herb. Mus. Paris, III, 239 (1916); *P. concolor* Notes Roy. Bot. Gard. Edin., VII, 9 (1912)—non Rolfe.

YUNNAN: Between Chu-pa valley and the valley of the Mekong (Forrest 56); Mekong-Salwin divide (Forrest 14904; Rock 23123, 23428).

S.E. TIBET: Tsaorong, on Ka-gwr-pu, Mekong-Salwin divide (Forrest 17189); Salwin—Kui-chiang divide (Forrest 19255).

P. parvifolia Fisch. ap. Lehm., Pugill., III, 6 (1831). *P. fruticosa* var. *parvifolia* Wolf in Bibl. Bot., XVI, 58 (1908)—excl. syn. var. *ochreata* Hook. f. *P. fruticosa* γ *tenuifolia* (Schldl) Lehm. in Nov. Act. Leop. Carol., XXIII, Suppl. 17 (1856)—*pro parte*; Regel in Gartenfl., IX, t. 278—non *P. tenuifolia* Schldl. *P. fruticosa* var. *grandiflora* Marquand in Journ. Linn. Soc., XLVIII, 175 (1929). *P. arbuscula* Hand.-Mzt. in Acta Hort. gothoburg., XIII, 289 (1939)—*pro parte*. *P. arbuscula* D. Don var. *rigida* Hand.-Mzt. in Symb. Sin., VII, 508 (1933)—*pro parte* quoad specim., non *P. rigida* Wall.

N.E. UPPER BURMA: Western flank of the Chimi-li, N'Maikha-Salwin divide (Forrest 25010, 26944, 27274).

YUNNAN: Chungtien plateau (Forrest 10518); Fengkou Valley (Forrest 12808); Lu-lung Shan (Forrest 15205); Goo-du Shan (Forrest 20515); Chienchuan-Mekong divide (Forrest 23029); sine loc. (Forrest 15380, 16998, 28575, 28627, 28713, 29206, 29884, 30624, 30788).

SIKANG: Muli Mountains (Forrest 16781); mountains east of Yungning (Forrest 20459); grasslands of Yulong-Hsi, Minya country, south of Tatsienlu (Rock 15707); mountains of Kulu (Rock 18106, 23941); Muti Konka Snow Range east of Yalung (Rock 23677).

E. TIBET: Jupar Range (Rock 14346).

KANSU: Maerhku, northern Minshan (Rock 13672); Lien hoa shan (Rock 12746).

A compact, sometimes semi-prostrate shrub, distinguished by the small narrowly ovate-oblong leaves, usually less than 1 cm. long and 5 mm. broad and more or less pubescent but never with a silvery indumentum, and by the large deep orange-coloured flowers.

P. parvifolia var. **hypoleuca** Hand.-Mzt. in Acta Hort. gothoburg., XIII, 293 (1939).

E. TIBET: Sand dunes north-east of Kokonor shores (Rock 13391).

P. peduncularis D. Don, Prodr. Fl. Nepal., 230 (1825); Hand.-Mzt. in Acta Hort. gothoburg., XIII, 322 (1939)—*pro parte*. *P. leuconota* Wall. Cat. 1021 (1829)—*pro parte*, non Don. *P. velutina* Wall. Cat. 1016 (1829) non Lehm. *P. peduncularis* var. *obscura* Hook. f. in Fl. Brit. Ind., II, 352 (1878); var. *Clarkei* Hook. f. ibid., II, 352 (1878). *P. taliensis* W. W. Sm. in Notes

Roy. Bot. Gard. Edin., VIII, 199 (1914). *P. leuconota* var. *corymbosa* Card. Not. Syst., III, 241 (1916). *P. fulgens* Notes Roy. Bot. Gard. Edin., VII, 18, 234 (1912)—non Wall. *P. Cardotiana* Hand.-Mzt. in Acta Hort. gothoburg., XIII, 322 (1939).

YUNNAN: Mekong-Salwin divide, behind Tzekou Mission (Forrest 181); Mekong-Salwin divide (Forrest 13251); on the Lukong Shan, Mekong-Yangtze divide (Forrest 14828); eastern flank of Tali Range (Forrest 4413, 7017—type of *P. taliensis*); sine loc. (Forrest 30356, 30875).

UPPER BURMA: Western flank of the Chimili, N'Maikha-Salwin divide (Forrest 25013).

S.E. TIBET: Yundshi Mountains (Rock 23656); mountains west of the Kaakerpo, Dokerla and Yundshi (Rock 23226).

P. peduncularis is widespread from Nepal through Sikkim, Bhutan, S.E. Tibet, N.E. Upper Burma to Yunnan. With so wide a geographical range it naturally shows considerable variation. The Nepal plant usually has fewer but much larger flowers and frequently much less hairy leaves, the hairs being confined to the main veins on the lower surface of the leaflets. But forms indistinguishable from the typical Sikkim and Bhutan plant where the lower surface of the leaflets is thickly plastered with long silvery silky hairs are by no means uncommon in Nepal. In N.E. Upper Burma and N.W. Yunnan, the silvery indumentum is replaced by a golden one, whilst the flowers though smaller are more numerous. This is Cardot's *P. leuconota* var. *corymbosa* and Handel-Mazzetti's *P. Cardotiana* which, however, is not confined to Yunnan and Upper Burma for it has been found also in Nepal (Lall Dhwoj 632) whilst forms closely approaching it have been recorded from Sikkim. And on the Tali Range in Yunnan where the plant with the golden indumentum has several times been recorded, there grows a form (*P. taliensis* W. W. Sm.) with a silvery indument, sometimes strongly resembling the slightly hairy plant of Nepal, at other times the thick silvery tomentose plant of Sikkim and Bhutan. No useful purpose is served by describing all the many variants from the type as seem morphologically distinct as varieties, and *P. peduncularis* is best regarded as an exceptionally polymorphic species. But not so polymorphic as to allow us to include within its orbit Forrest 17513 from the Shweli-Salwin divide, as does Handel-Mazzetti in Acta Hort. gothoburg., XIII, 322 (1939). This gathering can be distinguished immediately from any form of Don's plant that I have seen by the thick silvery felting of hairs which covers *both* surfaces of the leaves, the inflorescence axis, pedicels and calyx. Agreeing in every way with Forrest 17513, is Forrest 15929 from the same locality. Therefore I propose to describe these two gatherings as a new species under the name *Potentilla shweliensis*.

P. plurijuga Hand.-Mzt. in Acta Hort. gothoburg., XIII, 308 (1939). *P. multifida* var. *ornithopoda* Hand.-Mzt. in Symb. Sin., VII, 511 (1933)—non (Tausch) Th. Wolf.

YUNNAN: Bei-ma Shan (Forrest 14321).

× *P. Rehderiana* Hand.-Mzt. in Acta Hort. gothoburg., XIII, 301 (1939). *P. fruticosa* var. *Purdonii* Rehd. in Journ. Arn. Arb., III, 209 (1922)—non *P. Purdonii* Bean.

Handel-Mazzetti gives *P. parvifolia* × *P. glabra* var. *mandshurica* as the parentage. But because of the lack of a white indumentum on the lower

surface of the leaflets and because of the presence of the red calyx segments *P. parvifolia* $\times$ *P. glabra* var. *rhodocalyx* would seem to be the more likely parentage.

YUNNAN : Lichiang Range (Forrest 5750, 10223) ; Chungtien plateau (Forrest 10519) ; sine loc. (Forrest 30449, 30622).

SIKANG : Mountains of Kulu, east of Muli Gomba (Rock 16497) ; Mount Siga, north of Karadi (Rock 23845, 23847).

KANSU : T'ao River Basin, summit of Mt. Lissedzadza (Rock 12599).

P. Salesoviana Steph. in Mem. Soc. Nat. Mosc., II, 6, t. 3 (1809). *P. discolor* Camb. in Jacq. Voy. Bot., 53 (1844). *Comarum Salesovii* Bunge Delect. Sem. Hort. Dorp. (1839). *Comarum Salesowianum* Asch. and Gr. Syn., VI, 863 (1904).

N.W. KANSU : Pientuku Gorge, eastern end of the Kanchow Nanshan. (Rock 13321).

E. TIBET : Jupar Range (Rock 14280).

P. shweliensis H. R. Fletcher, sp. nov.

Species affinis *Potentillae pedunculari* Don, sed foliolis utrinque dense argenteo-villosis differt.

Planta 20-25 cm. alta. Caudex crassus fusiformis pauciceps erectus residuis fuscis stipularum dense vestitus. Folia radicalia magna breviter petiolata, haud interrupte pinnata, 7-8-juga, petiolo incluso 10-15 cm. longa ; folia caulina in triente caulis superiore, multo minora, 3-juga, petiolo 1.5 cm. longo praedita ; floralia multo reducta simplicia ; stipulae foliorum radicalium scariosae ferrugineae petiolo longe adnatae ovato-acuminatae, illae folii caulini magnae herbaceae late ovatae argenteo-pilosae ; foliola foliorum radicalium non contigua, oblongo-ovata, basi late sessilia, 2-4 cm. longa, 1-1.5 cm. lata, circumcirca inciso-serrata utrinque dense adpresseque argenteo-villosa. Caules floriferi 3-5 erecti, apice floribus 12-20 sublaque corymbosi sicut pedunculi villosi. Flores conspicui circ. 2.5 cm. lati, aureo-flavi. Sepala externa ovata integra vel bilobata, interna vix longiora triangulata, omnia dense adpresseque sericeo-villosa. Petala suborbicularia integerrima. Stamina 20. Receptaculum albo-pilosum ; carpella ovata inferne pilosa, stylo subterminali praedita.

YUNNAN : "Plant of 6-8 inches. Open stony slopes. Shweli-Salwin divide. Lat. 25° 30' N. Alt. 11,000 ft. July, 1917." G. Forrest, no. 15929—type. "Plant of 6-12 inches. On open stony meadows. Shweli-Salwin divide. Lat. 25° 25' N. Alt. 11,000 ft. July 1918." G. Forrest, no. 17513.

P. stenophylla (Franch.) Diels in Notes Roy. Bot. Gard. Edin., V, 271 (1912). *P. peduncularis* Don var. *stenophylla* Franch. Pl. Delavay., III, 214 (1890) ; *A. millefolium* Lévl. in Bull. Ac. Géog. Bot., XXIV, 281 (1914).

YUNNAN : Lichiang Range (Forrest 2924, 5806, 5884) ; Lichiang Snow Range (Rock 4202, 4984, 5000, 9431) ; Bei-ma Shan (Forrest 14679) ; sine loc. (Forrest 28559, 30836) ; mountains of Hung-po, west of Bei-ma Shan (Rock 22905) ; Fuchuan Range, west of the Mekong-Salwin divide and west of Wei-hsi (Rock 22724, 23281).

SIKANG : Mount Konka, Risonquemba, Konkaling (Rock 16410) ; Kaushu Shan on trail to Leirong, south-west of Muli (Rock 24084).

S.E. TIBET : Tsarong, Salwin—Kiu-chiang divide (Forrest 19301); Upper Salwin River (Rock 22321); Mt. Wuli-la, east of the Salwin River and north of Alulaka (Rock 22420); Mt. Kenichunpo (Rock 21971, 22523).

This plant shows tremendous variability in pilosity from the form represented by Léveillé's *P. millefolium* with dense long silky hairs covering the leaflets which are crowded on the rachis, to such a form as Forrest 19301, which is almost glabrescent except for the veins on the lower leaf-surface. There is also much variation in size, Rock 21971 and 22523 being very dwarf and superficially resembling some states of *P. microphylla* D. Don.

× *P. sulphurascens* Hand.-Mzt. in Symb. Sin., VII, 509 (1933) and in Acta Hort. gothoburg., XIII, 301 (1939).

In his first publication Handel-Mazzetti gave *P. arbuscula* Don × *P. Veitchii* Wils. as the parentage of this plant, but in 1939 stated that *P. glabra* Lodd. was the 2nd parent. The more likely parentage would seem to be *P. arbuscula* × *P. glabra* var. *rhodocalyx*. × *P. sulphurascens* has much the habit of *P. arbuscula*, with pale sulphur-yellow or canary-yellow flowers, and red calyx segments.

YUNNAN : Chungtien plateau (Forrest 10596); sine loc. (Forrest 28573, 30442); Fuchuan Range, west of the Mekong-Salwin divide (Rock 22733, 23271, 23272).

S.E. TIBET : Yundshi Mountains (Rock 23665).

P. supina Linn. var. *egibbosa* Th. Wolf in Bibl. Bot., XVI, 392 (1908).

YUNNAN : Tali Range (Forrest 4410, 5010); around Tengyueh (Forrest 18117).

P. tatsienluensis Th. Wolf in Bibl. Bot., XVI, 680 (1908). *P. stenophylla* (Franch.) Diels var. *emergens* Card. in Not. Syst., III, 241 (1916). *P. stenophylla* var. *compacta* J. Krause in Fedde Rep. Sp. Nov., Beih., XII, 410 (1922) e typo. *P. fulgens* in Notes Roy. Bot. Gard. Edin., VII, 16 (1912)—non Wall.

YUNNAN : Mekong-Salwin divide, behind Tzoku Mission (Forrest 158).

It should be noted that Handel-Mazzetti regards both *P. stenophylla* (Franch.) Diels var. *emergens* Card. and var. *exaltata* Card. (Card. l.c.) as synonymous with *P. tatsienluensis* Wolf. The type of Wolf's species, a gathering of Potanin's from Szechwan, now in the St. Petersburg Herbarium, I have not seen, but I have examined all the collections quoted by Cardot under his two varieties (Not. Syst., III, 241). Comparing Wolf's description of *P. tatsienluensis* with Mussot 110, Soulié 91, 893 and 2548, and Wilson 3461—all named var. *emergens* by Cardot—there can be no doubt that this variety must be regarded as synonymous with *P. tatsienluensis*. But after comparing the above collections with Soulié 88, 539, 659, all named var. *exaltata* by Cardot, I am by no means convinced that Cardot's two varieties are referable to the same species. Not only are the scapes of var. *exaltata* much longer than those of var. *emergens*, but so are the leaves, the leaflets of which are widely separated, broader in proportion to their length and more deeply-toothed, the teeth moreover not being confined to the tip of the leaflets as they are in *P. stenophylla*, *P. tatsienluensis* and *P. tatsienluensis* var. *emergens*, but extending almost to the base. There are no significant differences in the structure of the flowers, but the general facies of the plants regarded by Cardot as var. *exaltata* is so strikingly different from the rest, that it seems to me that they are not only not to be regarded as the same as var. *emergens*

and thus identical with *P. tatsienluensis*, but that they might well constitute a new species. A thorough examination of the St. Petersburg type of *P. tatsienluensis* is of course necessary.

Sibbaldia macropetala Murawj. in Acta Inst. Bot. Ac. Sc. U.R.S.S., ser. 1, II, 217 (1936). *Potentilla purpurea* Franch. in Pl. Delav., III, 209 (1890); Hand.-Mzt. in Symb. Sin., VII, 521 (1933)—non Royle.

YUNNAN: Lichiang Range (Forrest 6011, Rock 4538, 4950, 9030); north-east of the Yangtze bend (Forrest 10773); on the Bei-ma Shan (Forrest 14387, Rock 9984); Chienchuan-Mekong divide (Forrest 23086); sine loc. (Forrest 15420, 28492, 28977, 30768).

SIKANG: Mountains around Muli (Forrest 20436); Mt. Mitzuga (Rock 24038, 24533); Mount Siga (Rock 17860); Minya Konka Snow Range (Rock 17674).

S.E. TIBET: Tsarong, Salwin—Kui-chiang divide (Forrest 19310); mountains west of the Kaakerpo, Dokerla and Yundshi (Rock 23157); Yundshi Mountains (Rock 23603); forest and alpine regions of the Solo-La (Rock 22273, 22674).

Sibbaldia melinotricha Hand.-Mzt. in Symb. Sin., VII, 521 (1933). *S. sikkimensis* (Prain) Chatterjee in Notes Roy. Bot. Gard. Edin., XIX, 327 (1938). *Potentilla sikkimensis* Prain in Journ. As. Soc. Beng., LXXIII, 201 (1904) and in Rec. Bot. Surv. Ind., IV, 365 (1913).

UPPER BURMA: Western flank of the Chimi-li, N'Maikha-Salwin divide (Forrest 24557, 26874).

YUNNAN: Mekong-Salwin divide (Forrest 14223).

Sibbaldia micropetala (D. Don) Hand.-Mzt. in Karst. et Schenck, Vegbild. 22, R., H. VIII, 6 (1932). *Sibbaldia potentilloides* Camb. in Jacq. Voy., IV, 54 (1844?). *Potentilla micropetala* D. Don, Prodr. Fl. Nepal., 231 (1825). *P. albifolia* Wall. in Hook. f. Fl. Brit. Ind., II, 347 (1878).

YUNNAN: Lichiang Range (Forrest 2579); Chienchuan-Mekong divide (Forrest 23045); Yangtze watershed, eastern slopes of Lichiang Snow Range (Rock 4670, 4777).

Sibbaldia parviflora Willd. in Ges. Naturf. Fr. Neue Schr., II, 125, t. 5, f. 2 (1799). *S. cuneata* Hornem. Ind. Sem. Hort. Hafn. (1842). *P. Sibbaldi* Franch. in Pl. Delav., III, 210 (1890); Hook. f. Fl. Brit. Ind., II, 345 (1878)—non Hall. f.

SIKANG: Kaushu Shan, Leirong (Rock 24500).

YUNNAN: Lichiang Range (Forrest 5813); Bei-ma Shan, Mekong-Yangtze divide (Forrest 13226); Mekong-Salwin divide (Forrest 14280); mountains north-east of Atuntze (Forrest 20163); sine loc. (Forrest 28614; Bei-ma Shan (Rock 22797, 23393).

S.E. TIBET: Tsarong, on the Doker-la, Mekong-Salwin divide (Forrest 14672, 16703).

Sibbaldia pentaphylla J. Krause, in Fedde Rep. Sp. Nov., Beih., XII, 410 (1922).

SIKANG: Mountains north of Baurong and east of the Yalung River (Rock 17783).

Sibbaldia perpusilloides (W. W. Sm.) Hand.-Mzt. in Symb. Sin., VII, 520 (1933). *Potentilla perpusilloides* W. W. Sm. in Rec. Bot. Surv. Ind., IV,

188 (1911). *P. brachystemon* Hand.-Mzt. in Anz. Ak. Wiss. Wien., LX, 184 (1923).

YUNNAN : Mountains above Tseku and Tschchung, Mekong-Salwin watershed (*Rock* 10087) ; Mt. Fu-Chuan, south-west of Wei-Hsi, Mekong-Salwin divide (*Rock* 16958).

S.E. TIBET : Tsarong, on Ka-gwr-pu, Mekong-Salwin divide (*Forrest* 16756) ; mountains of Tjonatong, Upper Salwin River (*Rock* 23317).

U. BURMA : Western flank of N'Maikha-Salwin divide (*Forrest* 26836).

A New *Potentilla* from Upper Burma

Potentilla cristata H. R. Fletcher, sp. nov.

Sect. *Gymnocarpae* Th. Wolf. Subsect. *Leptostylae*, Grex *Anserinae*.

Species affinis *Potentillae microphyllae* D. Don sed foliis subtus glanduloso-punctatis, segmentis calycis interioribus exterioribusque una cum dentibus foliorum villosa-cristatis inter alia differt.

Caudex crassus multiceps caudiculis caespitosis residuis fuscis stipularum indutis. Folia radicalia breviter petiolata, haud interrupte pinnata, 6-7-juga, petiolo incluso 4-6 cm. longa ; foliola sessilia late elliptica vel oblonga, ad 10 mm. longa, 8 mm. lata, utrinque glabriuscula subtus glanduloso-punctata, grosse acuteque dentata, dentibus aureo-villosa-cristatis ; stipulae scariosae ferrugineae, integrae vel nunc incisae. Caules floriferi numerosi, erecti vel ascendentes graciles 4-7 cm. longi, uniflori. Flores mediocres usque ad 15 mm. lati. Sepala exteriora 3 mm. longa, 1 mm. lata, elliptica, interiora ovata vix longiora, omnia cristata. Petala lutea, circ. 5 mm. longa et lata, obovata vix emarginata. Stamina 20. Receptaculum pilosum. Carpella glabra, stylo subterminali praedita.

"Forming carpets of golden gaiety over the fine turfy lawns of the highest crests, Moku-ji Pass. Alt. 12,200 ft. Aug. 4, 1920." R. Farrer, no. 1803—*type*.

This very distinct new species must be placed in Dr. Th. Wolf's Section *Gymnocarpae*, Subsection *Leptostylae*, Grex *Anserinae* (Monographie der Gattung *Potentilla* in Bibliotheca Botanica LXXI, 1908) and therein finds its nearest ally in *P. microphylla* D. Don. From this species, as well as from every other species in the genus, *P. cristata* can be separated easily by the tufts of silky hairs on the tips of the teeth of the leaflets and on the calyx segments. This is the second species of *Potentilla* to be collected by Farrer on the Moku-ji Pass, for on the same day and at the same altitude he gathered *P. peduncularis* Don.