

New Primulas from the Himalaya, Tibet, China and Burma

BY

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Primula Barnardoana W. W. Sm. et Ward. Sp. nov.

Species ex affinitate *P. Gambeliana* Watt a qua foliis subtus albo-farinosis, floribus laete flavis, capsulis valde elongatis differt.

Planta quoad habitum cum *P. Gambeliana* arcte congruit. Folia longe petiolata; lamina plerumque 4-5 cm. longa, 2.5-3 cm. lata, ambitu cordata, apice rotundata vel nunc obtusa, basi rotundato-cordata, margine crenato-denticulata, in sicco membranacea, supra atroviridis nervis inconspicuis, infra albo-farinosa, costa prominula, nervis subconspicuis; petiolus 2-7 cm. longus, gracilis, paulo complanatus, glaber. Scapus 15-18 cm. altus, in fructu ad 28 cm., umbellam (et nunc alteram superpositam) 3-7-floram gerens, glaber, efarinosus nisi sub inflorescentia; bracteae lanceolatae, longe acuminatae, circ. 5 mm. longae, farinosae; pedicelli 5-7 mm. longi, in fructu maturo ad 2.5 cm. aucti, farinosi. Calyx tubulosus, circ. 7 mm. longus, dense farinosus, in lobos anguste lanceolatos acutos ad medium fissus. Corollae flavae tubus circ. 1.5 cm. longus, lobi 1 cm. longi, obovati, vulgo integri. Stamina in flore brevistylis ad fauces pertinentia, in flore longistylis ad medium tubum attingentia. Ovarium globosum; capsula matura ad 2 cm. longa, anguste cylindrica, valvis apicalibus vix 2 mm. superantibus; semina delapsa.

"SOUTHERN TIBET.—Luguthang, Mönyul. Alt. 12,000-13,000 ft. Flowers bright yellow, occasionally orange. Leaves mealy beneath. Abundant on exposed side of the valley, amongst, in the midst of, and beneath *Rhododendron* bushes. 5th June 1935." F. Kingdon Ward, No. 11616. Type in Herb. Brit. Mus.

"Also at Chösam, Tsari Valley; 13,000 ft. In flower July, fruit September."

This is an elegant species which in its general habit recalls *P. Gambeliana* Watt, especially the more robust states of that ally. Its farinose leaves, yellow flowers, and remarkably elongate capsules readily distinguish it. The specific name is in honour of Mrs. V. K. A. Barnardo, formerly of Darjeeling and Calcutta.

Primula consocia W. W. Sm. Sp. nov.

Species ex affinitate *P. rotundifoliae* Wall. a qua foliis basi late [Notes, R.B.G., Edin., No. XCIII, July 1936.]

cuneatis vix cordatis, calyce fructuque multo majoribus recedit; affinis etiam est *P. Littledalei* Balf. f. et Watt quae rhizomate crasso, foliis cordatis, floribus gracilioribus differt.

Planta satis robusta, radicibus numerosis carnosiss in detritu scopulorum errantibus, foliorum vestigiis basim bene obtegentibus. Folia ad tempus florendi vix omnino evoluta; lamina circ. 2 cm. longa et lata, suborbicularis, apice ambitu rotundata, basi late cuneata vel subrotundata vel nunc obscure cordatula, margine grosse dentata, in sicco papyracea, primo intuitu efarinosa sed sub lente glandulis farinipotentibus bene munita; petiolus 4-6 cm. longus, discretus, paulo complanatus. Scapi solitarii vel nunc 2-3-nati, 9-11 cm. alti, fructu paulo elongati, vulgo 3-8-flori, robusti, vix vel obscure farinosi; bracteae circ. 1 cm. longae, lineares vel anguste lanceolatae, acutae, pedicellos aequantes vel eis paulo minores, glandulis farinipotentibus praeditae. Calyx tubulosus, 8-9 mm. longus, 3-4 mm. latus, robustus atque vulgo atroviridis in morem *Primularum Nivalium*, in lobos oblongos obtusos ad medium vel ultra fissus, obscure farinosus. Corollae lilacinae tubus in flore brevistylis cylindricus, supra stamina paulo ampliatus, circ. 1.6 cm. longus, annulatus; lobi circ. 1 cm. longi, late obovati, vulgo integri. Antherarum apices ab annulo 2-3 mm. remoti. Stylus in flore brevistylis calyce multo brevior. Capsula crustacea, valida, circ. 1 cm. longa, calycem paulo excedens, circ. 4 mm. lata, seminibus grosse vesiculosiss.

"SOUTHERN TIBET.—Drichung La, above Trön; Valley of the Loro chu. Alt. 15,000-16,000 ft. Flowers nearly pink, very fragrant. Leaves mealy beneath. First seen in crevices of the slate cliffs, just over the pass. Grows larger on the screes, where it is abundant. 26th June 1935." F. Kingdon Ward, No. 11814. Type in Herb. Brit. Mus.

These *Primulas* of the section *Rotundifolia* appear to vary much in character according to the situation in which they grow. This is well exemplified in *P. Gambeliana* Watt, which in rock crevices is very dwarfed, in favourable ground so much larger that it seems at first sight a distinct species. As the legend indicates, the same is true of *P. consocia*. The description is based on the robust specimens from the screes. Those from the rock crevices are much attenuated, with much smaller leaves, often with solitary flowers and with less pronounced Nivalis calyx. Observations on its allies in the field are to be desired before their polymorphism is properly understood.

***Primula dictyophylla* W. W. Sm. Sp. nov.**

Species ex affinitate specierum circa *P. obconicam* Hance circumstantium; foliis ovatis apice acutatis basi rotundatis infra atroviridibus conspicue et pulchre reticulatis, inflorescentiis congestis bene notata.

Rhizoma lignosum crassum. Folia petiolata; lamina 4.5-12 cm. longa, 2-8 cm. lata, ovata, apice cuneato-acutata, basi rotundata, margine irregulariter sinuato-lobulata atque hydathodis crebris denti-

culata, in sicco papyracea, supra viridis pilis furfuraceis albidis conspersa, infra atroviridis pulchre reticulata, costa venisque eminentibus appresso-fulvo-tomentellis, spatiis inter venas crebre punctulatis; petiolus 2-10 cm. longus, pilis articulatis fulvidis tomentosus. Scapus 10-26 cm. altus, fulvo-pubescent, tandem glabrescens, umbellam subcapitatam congestam subsecundam 20-30-floram gerens; bracteae foliaceae 3-6 mm. longae, plerumque lanceolatae, acutae, fulvo-tomentellae; pedicelli 4-8 mm. longi, inaequales, fulvo-tomentelli. Calyx 6-7 mm. longus, poculiformis, fulvo-pubescent, ad tertiam vel quartam partem in lobos late triangulares hydathodo-apiculatos fissus. Corolla 1.6-1.7 cm. longa, alba, oculo aurantiaco; tubus circ. 1.3 cm. longus, cylindricus, superne ampliatus; lobi 5-6 mm. longi, 3-4 mm. lati, ovales, emarginati. Stamina in flore longistylis ad medium tubum inserta, antheris 2 mm. longis; in flore brevistylis ad anulum pertinentia. Stylus floris longistyli vix ad fauces pertinens. Ovarium globosum calyce inclusum. Capsula matura non visa.

"UPPER BURMA.—Lao-kang to Htaw-gaw, mountains east of the 'Nmai-hka. Lat. 25° 30' N. Found on wet mossy shale and schistose rocks in the open, but well shaded by surrounding forest-trees. Alt. 6,000-8,000 ft. Flowers pure white, with light orange eye, non-fragrant. 10th May 1914." F. Kingdon Ward, No. 1533. Type in Herb. Edin.

"UPPER BURMA.—At Pyetpat, district Myitkyina. Alt. 6,400 ft. Flowers white." Coll. Su Koe. No. 9993.

Primula dictyophylla is very distinct in its foliage from *P. obconica* Hance and its allies. The under surface of the leaves is dark green and beautifully reticulate. The congested inflorescence is paralleled by that of *P. ambita* Balf. f.

***Primula flabellifera* W. W. Sm. Sp. nov.**

Species affinis *P. faae* Ward atque *P. sapphirinae* Hook. f. a quibus foliis flabelliformibus parte anteriore grosse dentatis facile distinguitur.

Planta pusilla pulcherrima circ. 4 cm. alta, basi foliis vetustis emarcidis bene cincta. Folia 10-12 mm. longa, circ. 5 mm. lata, flabelliformia vel late cuneata, apice ambitu rotundata ibique et ad medium dentibus conspicuis patentibus triangularibus glanduloso-apiculatis bene munita, a medio deorsum integra atque in petiolum fere nullum cuneatim angustata, in sicco membranacea, utrinque viridia, pilosa, infra sub lente minute farini-maculata, nervis primariis in dentes marginales excurrentibus. Scapus filiformis, 2-4-florus, glaber efarinosus; flores sessiles plus minusve nutantes; bracteae irregulares, 1-2 mm. longae, carnosulae, lineares vel anguste oblongae, minute farinoso-puberulae. Calyx circ. 3 mm. longus, cupularis, viridis vel nigrescens, ad medium vel fere ad imum in lobos lanceolatos vel oblongos integros vel nunc 2-3-dentatos fissus, sub lente minute farinosus. Corolla campanulata, 8-10 mm. longa, violacea, nervulis pulchre pererrata; tubus in limbum gradatim ampliatus; lobi circ. 3 mm. longi, oblongi vel obovati,

plerumque integri. Stamina in flore brevistylis ad fauces pertinentia. Capsula globosa calyce vix exserta. Semina delapsa.

"SOUTH TIBET.—Tsari; Tso Ga, above Migyitun. Alt. 14,000 ft. A minute glabrous species with violet flowers. On rocks, alpine grass slopes. 9th July 1935." F. Kingdon Ward, No. 11949. Type in Herb. Brit. Mus.

The nearest ally of this species appears to be *P. fea* Ward. The leaves of *P. flabellifera* distinguish it readily from the other members of the section *Soldanelloides*.

Primula Huana W. W. Sm. Sp. nov.

Species valde affinis *P. Partschianae* Pax a qua foliis magis ovatis apice plus minusve acuminatis haud rotundatis margine denticulatis, venis aliter dispositis, calyce majore 10-costato inter alia recedit.

Planta perennis rhizomate subrobusto, basi ferrugineo-tomentosa. Folia ut videtur pauca, in specimine nostro duo, petiolata; lamina 16 cm. longa, 9.5 cm. lata, ovata, apice acuminata, basi rotundata atque paulo cordata, margine denticulis munita, haud setaceo-denticulata, in sicco tenuiter papyracea, supra maturitate glabra, infra pallidior, glabra nunc hic illic minute furfuracea, nervis primariis 7-8-paribus infra cum costa eminentibus; petiolus circ. 15 cm. longus, stramineus, glaber nisi ad basim ferrugineo-tomentosus. Scapus circ. 30 cm. longus, petiolo facie persimilis, basi atque sub umbella ferrugineo-tomentosus, ceterum glaber; flores 10-20, erecti, axi brevi subumbellati; bractee plures, 7-10 mm. longae, lineari-lanceolatae, minute puberulae; pedicelli 1.5-2 cm. longi, pilis septatis fulvis bene obsiti. Calyx 6 mm. longus, fructu ad 1 cm. saltem auctus, 3 mm. latus, postea ad 6 mm. auctus, campanulatus, viridis, extra minute puberulus sed vix dense, costis 10 validis pererratus, in lobos 5 ovatos obtusos 2 mm. longos hydathodo-apiculatos divisus. Corolla in sicco circ. 2 cm. longa, ex collectore rosea, e calyce bene exserta, extra pilis sparsissimis praedita; tubus 1.7 cm. longus; lobi obovati, circ. 4 mm. longi, emarginati. Stamina 3 mm. ab ore inserta. Stylus antheras vix superans. Ovarium globosum. Fructus maturus deest.

"WEST CHINA.—Province of Yunnan, at Ma-kwan Hsien. Alt. 1,700 m. On open slopes. Flower pink. 1st March 1933." H. T. Tsai, No. 51854. Type in Herb. Fan Memorial Institute of Biology, Peking.

This new *Primula* is an addition to the peculiar section *Carolinella*, no member of which has been in cultivation. Its nearest ally is *P. Partschiana* Pax, figured in Hooker's *Icones*, tab. 2775 under *Carolinella cordifolia* Hemsl. The specific name is in honour of Professor H. H. Hu, Director of the Fan Memorial Institute.

Primula hyacinthina W. W. Sm. Sp. nov.

Species affinis *P. muscarioides* Hemsl. atque *P. conicae* Balf. f. et

Forrest a quibus foliis subtus dense albo-farinosus inter alia facile distinguitur.

Planta rosulata farinosa pilosa rhizomate brevi. Folia petiolata, 16-18 cm. longa, 2-2.5 cm. lata; lamina papyracea, oblanceolata vel oblonga, apice obtusa vel subrotundata, deorsum in petiolum fere aequilongum alatum vix distinctum sensim attenuata, margine subregulariter denticulata albido-ciliata, supra pilis albidis furfuraceis bene conspersa, infra plus minusve albo-farinosa, ad costam venasque densius pilosa; petiolus complanatus ad margines dense pilosus. Scapus validus 30-38 cm. altus, glaber, efarinosus nisi sub capitulo ipso, spicam conicam circ. 2.5 cm. longam multifloram gerens, floribus deflexis compactis; bractee virides vel nigro-purpureae, intus farina farctae, quoad formam eis *P. muscarioides* similes; pedicelli subnulli. Flores violacei, ex collectore hyacinthodori, quoad formam atque magnitudinem eis *P. muscarioides* persimiles. Corolla circ. 1.5 cm. longa, lobis leviter emarginatis.

"SOUTH TIBET.—Trön, Valley of the Loro chu. Alt. 13,000 ft. Flowers violet, strongly scented with hyacinth. Leaves mealy white beneath. Scattered on alpine slopes, amongst scrub Rhododendron. 26th June 1935." F. Kingdon Ward, No. 11800. Type in Herb. Brit. Mus.

In size and in habit this new species shows a close approximation to *P. muscarioides* Hemsl. and its allies. But although members of the section may have farina on the inflorescence—in some it is absent—none of them so far as is known have a white coating of meal on the under surface of the leaf. In this respect *P. hyacinthina* differs from all the members of the section.

***Primula Jigmediana* W. W. Sm. Sp. nov.**

Species valde affinis *P. feae* Ward a qua floribus longiuscule pedicellatis haud sessilibus, calyce in lobos ovatos obtusos regulares vix ad medium fisso, corollae lobis alte emarginatis recedit; a *P. sapphirina* Hook. f. floribus fere semper solitariis majoribus distincte pedicellatis inter alia differt.

Planta pusilla pulcherrima 3-4 cm. alta. Folia 8-10 mm. longa, spatulata vel oblanceolata, in petiolum alatum laminae subaequalem contracta, pro magnitudine grosse dentata, glabra, efarinosa. Scapus filiformis fere semper uniflorus glaber efarinosus nisi obscure ad apicem; flores nutantes vel nunc suberecti; bractee solitariae lineares circ. 2 mm. longae; pedicelli 3-4 mm. longi. Calyx 3 mm. longus, cupularis, viridis vel atroviridis, vix ad medium in lobos ovatos obtusos integros fissus, sub lente minute farinosus. Corolla anguste campanulata, circ. 8 mm. longa, in sicco complanata 1 cm. vel nunc 1.5 cm. lata, coerulea, oculo atropurpureo; tubus 3-4 mm. longus ore annulatus; lobi circ. 4 mm. longi, anguste obovati, alte emarginati. Stamina in flore longistyle ad medium tubi inserta. Stylus floris longistyli paulo extrusus. Fructus deest.

"EASTERN HIMALAYA.—Bhutan, on the Me La. Alt. 14,000 ft. Rocky hillside. Mauve-blue, eyewine-purple. 5th Aug. 1933." Ludlow and Sherriff, No. 397. Type in Herb. Brit. Mus.

Very similar in habit and in foliage to *P. fea* Ward and *P. sapphirina* Hook. f. Apart from the flower structure it can be readily distinguished from these two allies by the position of the solitary bracts. The specific name is in honour of H.H. the Maharajah of Bhutan, to whom, for his kindness and courtesy during their visit to his country, the collectors are much indebted.

***Primula Ludlowii* W. W. Sm. Sp. nov.**

Species sectionis *Soldanelloides* atque *P. Sherriffae* W. W. Sm. affinis a qua habitu nano, foliis floribusque multo minoribus, corollae efarinosae tubo extra intusque sparsim pilosulo inter alia differt.

Planta rosulata nana, rhizomate parvo, foliis floribusque coetaneis. Folia plerumque 3–5, petiolata; lamina 1.5–2 cm. longa, 1–1.5 cm. lata, plus minusve elliptica, apice rotundata, basi in petiolum 0.5–1 cm. longum paulo alatum pilis septatis longis albidis sparsim praeditum subabrupte attenuata, margine irregulariter denticulata, albido-ciliata, in sicco tenuiter papyracea, efarinosa, eglandulosa, supra pilis septatis bene conspersa, infra nisi ad costam pilosam glabrescens. Scapus vix evolutus; flos solitarius sessilis, pro planta magnus, fere 2.5 cm. altus, pallido-violaceus. Calyx circ. 4 mm. longus, 3 mm. latus, campanulatus, in tertiam partem in lobos ovatos divisus. Corolla longe infundibularis extra intusque tenuiter pilosula, efarinosa; tubus circ. 1.8 cm. longus, gracillime cylindricus, flexuosus; limbus late ampliatus concavus; lobi suborbiculares, circ. 5 mm. diametro, integri. Stamina in flore brevistylis vix ad fauces pertinentia. Fructus deest.

"EASTERN HIMALAYA.—S.E. Bhutan, at Chungkar, Diwangiri-Trashigong Road. Pale lilac-purple. In wet moss on overhanging rock cliff; shady position. Alt. 5,000 ft. 24th June 1934." Ludlow and Sherriff, No. 554. Type in Herb. Brit. Mus.

Like *P. Sherriffae* this species is well distinguished by the very long and slender corolla-tube. It was found in the same locality as its ally and on the same date. It has at first sight the appearance of a very dwarf state of *P. Sherriffae*. However, a living plant brought home by Captain Sherriff flowered in cultivation and was easily contrasted with its relative also in flower. Apart from the marked difference in size of both leaf and flower, there is no farina on the corolla of *P. Ludlowii*, while the corolla-tube is finely pilose on the outside as well as on the inside. The solitary flower with almost obsolete scape is also an easy distinction.

***Primula Moorcroftiana* Wall. var. *flavida* W. W. Sm. Var. nov.**

Floribus flavidis divergit, ceterum congruit.

"N.W. HIMALAYA.—Kashmir, in the Barai Valley and also in

Shonthar Gali, Kishenganga. On rocks amongst melting snow. Flowers lemon-yellow; calyx purplish-black. Alt. 12,000–14,000 ft. July–Aug. 1935." Ludlow and Sherriff, No. 1482. Type of var. in Herb. Edin.

In the N.W. Himalaya, *Primulas* favouring *P. macrophylla* D. Don in habit are usually referable to *P. Stuartii* Wall. if the flowers are yellow. There has been confusion in the past as regards these two species, but they are separable by more than merely difference in flower colour. *P. macrophylla* and its ally *P. Moorcroftiana* show constancy in adherence to a purple colour in the numerous specimens I have seen. But in the present instance the plants have no relation with *P. Stuartii* and represent undoubtedly a colour variation of *P. Moorcroftiana*. The collectors record that this is the first time they have seen anything like this *Primula* in Kashmir and that the plants are growing within 100 yards of typical *P. Moorcroftiana*, as is evidenced by their No. 1506 in Herb. Edin.

***Primula pusilla* Wall. var. *flabellata* W. W. Sm. Var. nov.**

A typo foliis nec spathulatis nec oblanceolatis sed potius flabelliformibus vel nunc suborbicularibus variat; quoad flores et indumentum cum typo quadrat.

"EASTERN HIMALAYA.—At Mago, S.E. Tibet. Alt. 14,500 ft. Flowers mauve. On banks on bare hillsides. 27th July 1934." Ludlow and Sherriff, No. 725. Type of var. in Herb. Brit. Mus.

Specimens of *P. pusilla* Wall. collected in Bhutan usually agree with those obtained from other parts of the Himalaya. In this variety the leaf-shape deviates markedly from the normal form. In other characters—habit, indumentum, and in the size and structure of the flowers there is no difference.

***Primula sikkimensis* Hook. subsp. *subpinnatifida* W. W. Sm. Subsp. nov.**

Subspecies haec ad *P. Hopeanum* Balf. f. et Cooper et *P. pudibundam* W. W. Sm. appropinquat; foliis angustis pro magnitudine alte incisis, floribus albis purpureo-vel violaceo-tinctis bene notatur.

Planta gracilis habitu specierum supra citatarum. Folia 10–12 cm. longa, 1–1.5 cm. lata, anguste oblonga vel anguste oblanceolata, apice subacuta, basi in petiolum fere aequilongum sensim attenuata margine subregulariter denticulato-incisa, utrinque glabra efarinosa. Scapus 20–25 cm. altus, glaber, apice leviter farinosus, flores pendentes 4–6 gerens. Flores albi nunc purpureo-suffusi, quoad formam eis sociorum persimiles.

"SOUTH TIBET.—Tsari; Tso Ga, above Migyitun. Alt. 13,000–14,000 ft. Leaves very narrow, deeply dentate; dwarf plant. Flowers white or sometimes tinged with purple or violet. Very abundant in clumps on an exposed slope in clay soil; with *Rhododendron pumilum*,

Caltha, *Gentian*, etc. 7th July 1935." F. Kingdon Ward, No. 11931. Type in Herb. Brit. Mus.

The polymorphic *P. sikkimensis* Hook. extends throughout the Himalaya from Nepal eastwards, occurring also in Tibet and in the western provinces of China, Szechwan and Yunnan. The plant described above comes well within the circle of *P. sikkimensis sensu lato*.