

Notes on Chinese Rhododendrons with Descriptions of New Species

BY

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The species described here are:—

- Rhododendron Coryanum*, Tagg et Forrest, p. 99.
 „ *galactinum*, Balf. f., p. 103.
 „ *giganteum*, G. Forrest, p. 106.
 „ *giganteum*, G. Forrest, var. *seminudum*, Tagg et
 Forrest, p. 108.
 „ *inopinum*, Balf. f., p. 109.
 „ *Magorianum*, Balf. f., p. 111.
 „ *mollicomum*, Balf. f. et W. W. Sm., var. *Rockii*,
 Tagg, p. 114.
 „ *paradoxum*, Balf. f., p. 114.
 „ *semnoides*, Tagg et Forrest, p. 116.
 „ *sinogrande*, Balf. f. et W. W. Sm., var. *boreale*, Tagg
 et Forrest, p. 119.

Two of the foregoing names, *Rh. Coryanum* and *Rh. semnoides*, are new. They are species collected by Forrest in 1921 and 1922. The names of others such as *Rh. galactinum* and *Rh. giganteum* have been in use for some time but latin descriptions have not been hitherto published.

The English descriptions of *Rh. inopinum*, *Rh. paradoxum* and *Rh. Magorianum* were written by the late Sir Isaac Bayley Balfour in 1922. His illness shortly afterwards made publication at the time impossible but the names are in use for plants in cultivation and it seems desirable that Sir Isaac's descriptions should be made public.

Rhododendron Coryanum, Tagg et Forrest. Spec. nov.

Species *Rh. longipedi*, Rehd. et Wils. affinis, sed habitu altiore, foliis oblongo-oblanco-latis, floribus minoribus, corolla lactea, staminibus pubescentibus, ovario glabro vel sparsim pilosulo distinguenda.

Frutex ad 7 m. altus, ramis juvenilibus incrustatim floccosis et glandulosis, senioribus glabrescentibus. Folia petiolata, ad 19 cm. longa; lamina 12 cm. longa, 3 cm. lata, rigide coriacea oblongo-oblanco-lata, breviter acuminata, basi cuneata vel rotundata, margine leviter recurvata, supra initio olivacea, glandulis et pilis ramosis caducis conspersa, demum glabrescens glandularum pilorumque vestigiis notata, laete viridis haud nitens, subtus indumento bistrato
[Notes, R.B.G. Edin., No. LXXII, Feb. 1926.]

piloso et glanduloso, initio cinereo-albido mox pallide brunneo vestita, strati superi pilis ramosis inferi rosulatis implexis, glandulis ovoideis inter pilos conspersis; costa media supra impressa, subtus elevata fere glabra, nervis primariis utrinsecus 18-23, supra impressis, subtus leviter elevatis vel fere obsoletis. Inflorescentia 20-30-flora umbellato-racemosa; rhachis 2-3 cm. longa pubescens et pilis ramosis perpaucis munita. Pedicelli graciles circ. 3.5 cm. longi 1 mm. lati sparse glandulosi atque floccosi.

Calyx parvus cupularis, lobis 5 inaequalibus .5-1.3 mm. longis acutis vel ovato-rotundatis glandulosis et floccosis. Corolla 5-loba infundibulari-campanulata circ. 2.6 cm. longa, lactea maculis kermesino-brunneis conspersa, intus in parte inferiore puberula, extra glabra, lobis inaequalibus rotundato-ovatis submarginatis undulatis, circ. 1.4 cm. longis 1.5 cm. latis. Stamina 10-12 inaequalia 1.5-2.2 cm. longa, filamentis infra dilatatis et dense pubescentibus, antheris 3 mm. longis ochraceis-brunneis. Gynaeceum 2.5-3.3 cm. longum, staminibus longius; ovarium conoideum sulcatum atro-olivaceum circ. 5 mm. longum 2 mm. latum 5-7-loculare glabrum vel pilis carnosius conspersum; stylus tenuis glaber. Capsula cylindrica sulcata glabra brunneo-purpurea curvata 1.5-2.3 cm. longa, 5 mm. lata; semina circ. 2 mm. longa vix 1 mm. lata pallide brunnea oblonga complanata anguste alata.

A freely branched shrub 3 to 7 m. high, free flowering and with copious pale green glaucous foliage. Young vegetative shoots of the current year about 4 mm. in diameter clothed with a thin grey tomentum of rosulate floccose hairs and numerous small subsessile orange-coloured glands. Twigs one and two years old somewhat thicker, incrustated with tomentum vestiges and darkened by the shrivelled and blackish glands; hairs and glands ultimately deterrent and absent from old wood. Leaves petiolate, as much as 19 cm. long, petiole up to 2.3 cm. long, that of an average leaf a little less, rounded below, convex above with a narrow median groove, grey or greenish above, below a discoloured fawn or buff with vestiges of a juvenile tomentum of floccose hairs and with shrivelled and blackened glands; lamina leathery, from 7 cm. long and 1.8 cm. broad to as much as 17 cm. long and 4 cm. broad, average ratio of length to breadth 12.5 to 3.3, broadest on an average leaf at about 7.5 cm. from the base of the lamina, narrowly elliptic to oblong-oblancheolate; apex shortly acuminate; base tapering, cuneate or slightly rounded; margin entire, recurved, a narrow glabrous cartilaginous line; midrib prominently raised below, in mature and dry leaves uniform in colour with the rest of the leaf under-surface, almost bare but with vestiges of juvenile hair-flecks and sessile glands, above impressed and forming a narrow groove and at the apex thickened to a blunt hydathodal tip not prolonged beyond the lamina; lateral veins 18 to 23 on each side of midrib diverging from the latter at an upper inner angle of

55 to 65 degrees, below slightly raised and clothed with indumentum similar to that of the rest of the leaf under-surface, above slightly impressed: upper surface of young leaves olive green or purplish dotted with small sessile rosulate vesicular hairs and with small sessile ovoid orange or reddish glands: upper surface of mature leaves light green with a thin glaucous coating of wax: under surface of young foliage clothed (except for the midrib which is almost bare) with a thin soft indumentum, suede-like to the touch, pale olive to ash-grey or white, consisting of:—*a.*, an under stratum of small almost sessile rosulate hairs with coiled and twisted branches, interlocked to form a thin continuous covering in close contact with the epidermis, *b.*, an upper stratum of hairs of similar structure but with longer rosette fringes forming a somewhat loose tangle of interlocked hair-branches over the more compact under stratum, *c.*, small ovoid orange-coloured glands, scattered sparingly over the lamina under surface, more numerous near the midrib, for the most part hidden by the fringes of the rosulate hairs; under surface of older leaves buff or light brown, the branches of the indumentum hairs flattened and agglutinate. Old leaves show a varying amount of depilation and the under surfaces become mottled with greenish or greenish-grey areas where the surface indumentum is worn away. Inflorescence bud ovoid almost spherical, 1.5 to 1.8 cm. long as much as 1.7 cm. broad; the outer scales broad at base ovate-triangular with acuminate apices sometimes prolonged to a recurved tip; succeeding scales from 1 to 1.5 cm. broad 1 to 1.5 cm. long, ovate, orbicular or obovate with apices rounded and prolonged to a short acuminate mucro, the outer convex side clothed with a grey silky tomentum composed of long simple unbranched hairs mixed with rust-coloured branched pluricellular hairs, the latter more freely developed towards the margin and there giving a brown tint, inner concave surface towards the apex clothed with a dense tuft of simple grey adpressed hairs and fewer branched pluricellular hairs; bracts in the bud oblong obovate 1.6 cm. long .5 cm. broad the lower part lengthening at time of flowering and giving an oblanceolate bract as much as 2.4 cm. long and 1 cm. broad with shortly acuminate apex and base tapering to 4 mm. wide at the point of attachment, clothed on the back with long whitish silky hairs mixed at the apex and at the upper part of the margin with branched twisted hairs and short ovoid glands; bracteoles linear spatulate, about 1 cm. long, .5 mm. broad, clothed on the back with silky white hairs. Inflorescence a lax racemose umbel of from 20 to 30 flowers; rhachis 2 to 3 cm. long, 3 to 4 mm. in diameter at base, sparsely puberulous and in varying degree clothed with short branched hairs. Pedicels about 3.5 cm. long, 1 mm. in diameter, clothed sparsely with fleck hairs and small ovoid glands. Calyx short, cupular, fleshy with 5 unequal broadly ovate or triangular lobes, the latter rounded or pointed as much as 2 mm. broad at the base, .5 to 1.3 mm.

long, sparsely clothed with floccose rosulate hairs similar to those on the pedicel and with small ovoid glands, the lobe margins fringed with a few similar glands and with simple short cilia. Corolla infundibular-campanulate 2.5 to 2.8 cm. long, 2.5 to 3.5 cm. across, creamy-white marked on the inner posterior and postero-lateral petals with scattered brownish-crimson spots which extend on the posterior petal from the base of the tube to the centre of the petal-lobe; tube 1.4 to 1.8 cm. long 4 mm. wide at the base expanding to about 2 cm. wide at the commencement of the lobes, within puberulous over the lower part of the posterior side of the tube, outside glabrous; lobes 5, orbicular or broadly ovate, 1.4 cm. long 1.5 cm. broad, margin undulate, apex more or less emarginate and reflexed. Stamens 10 to 12 unequal, shortest 1.4 cm. long longest 2.4 cm., the longest shorter than corolla; filaments towards the base dilated and flattened 1 mm. broad densely pubescent over the basal 5 mm. of their length, terete and glabrous above; anthers a pale brown 3 mm. long, 1.5 mm. broad. Gynaeceum variable in length, 2.5 to 3.3 cm. long, exceeding the corolla tube and at times the corolla also; ovary conoid, ridged, 5 to 7 locular, dark olive-green, tinged purple, 5 to 6 mm. long, 2 mm. broad, glabrous or with a few scattered hairs confined to the lower part. Disk short, glabrous. Style slender, about 2.5 cm. long, straight or slightly curved upwards, glabrous throughout, gradually thickened towards the truncate discoid minutely lobulate stigma. Fruit oblong more or less curved, 4 to 6 mm. in diameter, 1.5 to 2.3 cm. long, purplish or ruddy brown, glabrous, ribbed.

S.E. Tibet. Tsarong. Salween-Kiu-Chiang divide, N.W. of Si-chi-to. Lat. 28° 35' N. Long. 98° 18' E. Alt. 12-14,000 ft. In rhododendron thickets and mixed forests. Shrub of 9-18 ft. Flowers creamy-white with brownish-crimson markings. June 1922. G. Forrest. No. 21693. ("Forrest No. 20322 in fruit of 1921." G.F.)

S.E. Tibet. Tsarong. Salween-Kiu-Chiang divide, N.W. of Si-chi-to. October 1922. G. Forrest. No. 22889. ("Duplicate in fruit of G. Forrest, No. 21693," G.F.)

S.E. Tibet. Tsarong. Salween-Kiu-Chiang divide. Lat. 28° 24' N. Long. 98° 24' E. Alt. 12-14,000 ft. In rhododendron thickets and mixed forests. Shrub of 9-20 ft. October 1921. G. Forrest. No. 20832. Foliage and fruit only.

S.E. Tibet. Tsarong. Salween-Kiu-Chiang divide. Lat. 28° 24' N. Long. 98° 24' E. Alt. 12-14,000 ft. Shrub of 9-18 ft. In fruit. In rhododendron thickets and mixed forests. September 1921. G. Forrest. No. 20322.

Rh. Coryanum finds its nearest allies in a small sub-series of the genus which includes *Rh. adenopodum*, *Rh. hypoglaucum* and *Rh. argyrophyllum*. The nearest relative appears to be *Rh. longipes*, Rehder et Wilson, a Western Szechuan plant collected by Wilson in

1907 but *Rh. Coryanum* is a larger plant assuming at times the dimensions of a small tree with thicker flowering shoots and larger flower trusses although the individual flowers are somewhat smaller. The leaves are less elliptic than those of *Rh. longipes* with the broadest part nearer the lamina apex, rarely oblong-lanceolate which the leaves of *Rh. longipes* generally are. *Rh. Coryanum* differs also in the creamy-white flowers, pale rose in *Rh. longipes*; in the densely pubescent stamens, glabrous in *Rh. longipes*; and in the glabrous or almost glabrous ovary, in *Rh. longipes* rufous villous.

Seeds of Forrest Nos. 20322 and 20832 have germinated and young plants are now in cultivation.

This Rhododendron is named in compliment to Mr. Reginald R. Cory of Duffryn, Cardiff.

Rhododendron galactinum, Balf. f. MS. descript. H. F. Tagg.

Rh. lacteum, Rehder et Wilson in Pl. Wilsonianae i. (1913), p. 545, pro parte, nec Franch.

Species e serie Falconeri atque *Rh. prepto*, Balf. f. et Forrest affinis; a sociis ovario glabro facile distinguitur; foliorum alabastris ovoideis atque indumento etiam divergit.

Frutex robustus ad 8 m. altus. Rami crassi annotini ad 1.4 cm. diam. primo cinereo-tomentosi deinde laete virides glabrescentes; rami seniores brunnei. Alabastra foliorum ovoidea; perulae extimae acuminatae tomentosae, intimae ovatae vel obovatae vel oblongo-spathulatae. Folia petiolata ad 24 cm. longa; lamina crasse coriacea oblongo-ovata vel lanceolata ad 21 cm. longa 7 cm. lata, acuminata vel nunc obtusa mucronulata, margine paullo recurvata, basi late cuneata vel rotundata saepe asymmetrica, supra opaca atroviridis, initio pilis stellatis cinereis conspersa demum glabrescens, costa media sulcata, venis primariis utrinsecus circ. 15-20 paullo sulcatis, subtus primo cinerea deinde pallide fulva vel sub-cinnamomea tomentosa indumento bistrato vestita, strati superi pilis infundibuliformibus longe stipitatis e labio poculi ramulosis, strati inferi pilis rosulatis vesiculosor-ramulosis squamis late cupularibus intermixtis. Petiolus ad 3.5 cm. longus cylindricus 4 mm. dia. supra leviter sulcatus. Inflorescentia racemoso-umbellata, circ. 15-flora; rhachis tomentosa; bracteae spathulatae valde involutae cucullatae, extus intusque sericeae; bracteolae lineares circ. 5 mm. longae sericeae. Pedicelli 2-2.5 cm. longi tomentosi. Calyx parvus cupularis floccoso-tomentosus 7-dentatus, dentibus deltoideis, circ. 1 mm. longis. Corolla oblique campanulata, circ. 3 cm. longa, roseo-tincta basi maculis crebris atrococcineis notata, glabra, 7-loba; lobi rotundati plerumque emarginati circ. 1 cm. longi, 1.2 cm. lati. Stamina 14, inaequalia, corolla gynaeceoque breviora; filamenta deorsum paullo puberula, supra glabra. Gynaeceum corollam subaequans, staminibus longius; ovarium

conoidium atro-olivaceum glabrum, circ. 8 mm. longum, 3 mm. latum, 10-loculare; stylus albus glaber sub stigmatibus paullo expansus.

A tree or shrub of considerable size (Wilson says of No. 4254 "tree 5-8 metres tall, rare"); plants in cultivation in the Royal Botanic Garden, Edinburgh, about 8 years old are 4 ft. high. The long straight shoots of the current year as much as 1.4 cm. in diameter and 25 cm. long, clothed at first with a grey detersile tomentum. As depilation proceeds the shoots assume a bright green colour, the older wood becoming bright brown; bark of old wood longitudinally fissured. Terminal foliage buds ovoid, densely tomentose, the bud scales where exposed outwardly covered with much branched hairs and fringed at the margin and apex. Passing from the outer scales to the inner, the scale form varies from triangular acuminate to oval, obovate and oblong-spathulate.

Leaves petiolate, on eight year old plants up to 24 cm. long: petiole 3.5 cm. long, 4 mm. in diameter terete, with a slight groove above near the lamina base, at first covered throughout with a whitish indumentum which later becomes buff or brown and ultimately detersile: lamina oblong-ovate, elliptic-lanceolate or lanceolate, up to 21 cm. long, 7 cm. broad: apex acuminate or obtuse the margins of the tip recurved over the midrib to form a mucro; base broadly cuneate or rounded, often asymmetrical; margin entire, narrowly recurved: upper surface a dark mat green, at first covered with a grey detersile indumentum of scattered stellate hairs, later glabrous and minutely rugulose: under surface densely clothed with a soft velvety bistrate indumentum white on the young leaves becoming later buff or buff-grey or pale cinnamon, the dominant hairs of the upper stratum cup or funnel-shaped on thin flexuous stalks, below the upper stratum an under stratum of shortly stalked stellate rosette hairs and small fringed saucer-like scales, forming a continuous thin whitish covering to the epidermis: midrib prominently raised below greenish with scattered and detersile indumentum, above impressed and forming a conspicuous yellow-green line; primary lateral veins, raised below, impressed above, 15 to 20 unequally and asymmetrically spaced on each side of midrib, inner angle of divergence wide, 65° to 80° . Inflorescence a racemose umbel of about 15 flowers with very short rhachis about 1 cm. long, the flowers forming a verticillate truss with stout straight pedicels. Outer flower-bud scales cucullate obovate 1.5 cm. long, 1 to 1.3 cm. broad covered externally with a brown tomentum greyish on the upper part and fringed on the margin with longer brown floccose hairs, internally smooth and glabrous at the base, on the upper part pilose with adpressed hairs: inner bud-scales and bracts 2 cm. long, spathulate, cucullate-tubular, externally pilose, within silky pilose with long adpressed hairs: bracteoles linear 5 mm. long .5 mm. broad somewhat broader and spathulate above, margin and apex fringed with long silky hairs. Pedicels 2 to 2.5 cm. long,

2 to 2.5 mm. in diameter, pale green, paler or yellowish in the upper part and faintly tinged pink, covered throughout with a thin whitish tomentum of stellately branched floccose cup-hairs. Calyx greenish tinged pink, clothed with floccose cup-hairs, cupular with 7 short triangular lobes about 1 mm. long closely applied to the furrows of the corolla base. Corolla bell-shaped, glabrous inside and out, tinged throughout a pale rose and marked within at the base by irregular deep crimson blotches which laterally and apically break into lines and spots; corolla tube 2 to 2.3 cm. long, lobes 7, rounded .8 to 1 cm. long, 1.2 cm. broad apices recurved and at times emarginate. Stamens 14 varying in length, the upper posterior ones for the most part shorter than the lower anterior, the shorter 1.2 cm. long, the longer 2 cm. long, all included in the corolla; filaments white, pubescent over the lower 5 mm. of length, above glabrous: anthers a chocolate-brown 2.5 to 3.1 mm. long. Gynaecium longer than stamens, equalling corolla: ovary, 10 chambered, conoid, green, glabrous, punctulate with minute lighter coloured spots, 7.5 mm. long, 3.5 mm. diameter at base; style 2.2 cm. long, white, glabrous, slightly dilated at the small greenish discoid stigma.

Rh. galactinum is a distinctive member of the large leaved series of Rhododendrons grouped by Sir Isaac Bayley Balfour around *Rh. Falconeri*. A characteristic feature of the series is a bistrate under-leaf indumentum with the dominant form of hair of the upper stratum cup-like or funnel-shaped. The cup hairs of *Rh. galactinum* are typically those of the series but are not quite like those of other species. From other members of the series it is distinguished also by the characteristic terminal foliage buds. Typically in the series these are conical, with the outer bud-scales long and pointed as in *Rh. Falconeri*. In *Rh. galactinum* the equivalent buds are ovoid, and the scales shorter and more rounded. A further distinguishing mark is the glabrous ovary. In the other members of the series, the ovary has a glandular covering or is tomentose or has glands and tomentum mixed. From *Rh. preptum*, Balf. f. et Forrest, which it resembles in the leaf indumentum it is distinguished by the leaf shape and venation. In *Rh. preptum* the broadest part of the lamina is nearer the leaf apex than in *Rh. galactinum* and the primary lateral veins pass out from the midrib at a less wide angle. Apart from *Rh. fictolactum*, Balf. f. which as far as our knowledge goes has the most extended distribution of all the Chinese members of the series and was gathered by Forrest in 1918 on the Mu-li mountains in S.W. Szechuan, near the border of the N.W. Yunnan, *Rh. galactinum* is the only member of the series recorded from the Szechuan province. It was raised from seed gathered by Wilson under No. 4254, at an elevation of 3,000–3,300 m. in woods of Pan-lan-shan, West of Kuan Hsien, in Western Szechuan. When writing about *Rh. lacteum*, Franch. in the Transactions of the Botanical Society of Edinburgh, Sir Isaac Bayley Balfour* pointed out that Wilson's No.

*Trans. Bot. Soc. Edin. xxvii (1916), p. 103.

4254, placed—with a suggestion of doubt by Rehder and Wilson—under *Rh. lacteum*, Franch. in *Plantae Wilsonianae* could not be that species. Later in his correspondence and in a paper given to the Rhododendron Society he christened the seedling plants *Rh. galactinum*, stating that although doing so "was a transgression of a canon which discourages the naming of a plant known in foliage only," it afforded "the simplest method of replying to enquiries as to the identity of Wilson No. 4254 and also of stifling at the outset the naming of it as *Rh. lacteum* ? and *Rh. fictolacteum* ?"

Wilson obtained his plant in fruit only, but from seed collected by him many plants have been raised, and I am indebted to Mr. J. C. Williams of Caerhays Castle for the truss of flowers used in drawing up the description given above of the flower and inflorescence.

Rh. giganteum, G. Forrest MS. descript. H. F. Tagg.

Species seriei Grandis, *Rh. protisto*, Balf. f. et W. W. Sm. affinis a quo habitu altiore, indumento subfoliari ubique dense tomentoso arachnoideo, floribus majoribus distinguitur.

Arbor grandis ad 24 m. alta. Rami annotini cinereo-arachnoideo-tomentosi ad 1.4 cm. diametro. Folia magna petiolata ad 40 cm. longa; lamina crassa coriacea elliptico-oblongata ad 37 cm. longa, 12 cm. lata, apice obtusa vel acuta, basi late cuneata, margine cartilaginea, supra laete viridis haud nitens glabra vel pilorum vestigiis notata, costa media sulcata venis primariis impressis utrinque circ. 24, a costa media angulo 50°-60° divergentibus, subtus pallide fulva vel cinnamomea, ubique indumento tomentoso bistrato vestita, strati superi pilis multo ramosis, strati inferi rosulatis agglutinatis, costa media venisque primariis elevatis leviter tomentosis; petiolus 3-4 cm. longus. Inflorescentia racemo-corymbosa 20-25-flora; rhachis 4-5 cm. longa tomentosa. Pedicelli 1-2 cm. longi 3 mm. lati tomentosi. Calyx 2-3 mm. longus tomentosus dentibus 8 deltoideis. Corolla carnosula roseo-kermesino-tincta basi varo parvo atro-kermesino notata ceterum emaculata, infundibuliformi-campanulata ad 6.5 cm. longa, 8-lobata; lobi rotundati emarginati circ. 1.5 cm. longi 2-2.5 cm. lati. Stamina 16 inaequalia 2.7-4 cm. longa corolla gynaeceoque breviora; filamenta glabra. Gynaeceum corolla brevius; ovarium oblongum circ. 1 cm. longum 5 mm. latum 16-loculare pilis fasciatis dense lanato-tomentosum; stylus crassus validus glaber sub stigmate expansus; capsula circ. 4 cm. longa 1.5 cm. lata, rufo-tomentosa.

A large tree 80 ft. high with straight bole unbranched to a height of 15 to 20 ft., at 5 ft. from the ground 7 ft. 9 in. in girth, bark at this height from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch thick, a buff or light brown colour with polygonal or somewhat rounded bark scales which falling give at first concave patches, sometimes greyish white, at others a light cinnamon among the fissured deeper coloured bark of weathered areas:

ultimate branches straight and thick, those one year old as much as 1.4 cm. in diameter, clothed with a thin compact greyish felt-like deterrent indumentum.

Terminal foliage buds 2.5 to 3 cm. long, 1.5 to 1.8 cm. broad, ovate-rounded; outer bud scales oblong-oval with apex at first obtusely rounded then abruptly acuminate to a mucronate tip, 1.3 cm. long, 8 mm. broad, succeeding scales broadly orbicular the inner scales oblong or ovate with hooded apices, all the inner scales sticky and glutinous, covered on the convex surface where overlapped by outer imbricating scales, with numerous shortly-stalked ovoid adpressed glands, on the concave side in the upper part clothed with long silky hairs, and fringed at the apex with floccose hairs.

Leaves large from 12 to as much as 40 cm. long (mostly about 33 cm. long); petiole stout 2.5 to 4 cm. long, flattish or convex above 6 mm. across with shallow median groove deepening to lamina base, the latter prolonged as very narrow decurrent ridges on each side, below rounded and sparingly clothed with deterrent cobweb tomentum; lamina thick leathery, elliptic, narrowly elliptic or oblanceolate, as much as 37 cm. long and 12 cm. broad (the lamina of the smallest leaves on a fruiting specimen 12 cm. long by 4 cm. broad), broadest at about three-fifths of lamina length from the base, average ratio of length to breadth 30 cm. to 11 cm.; lamina tapering from the broadest part and curved cuneately to the narrow rounded slightly auricled inaequilateral base and prolonged beyond the basal auricles as narrow decurrent ridges on petiole; apex broadly acute to obtuse, rarely obtuse-rounded, with short mucro slightly emarginate and with lamina tip wrinkled or folded; margin entire, a narrow pale-coloured cartilaginous glabrous line shallowly undulate; upper surface bright mat green appearing glabrous but with vestiges of a juvenile indumentum hardly rugulose but with midrib and primary lateral veins deeply grooved giving convexity to the intervening areas; under surface clothed with a dense bistrate indumentum, buff or light cinnamon, the upper stratum consisting of stalked much-branched pluricellular hairs, the fringed stalks sinuous and often prostrate, dividing commonly into two primary branches which are split into subsidiary straggling fringes interlaced and semi-agglutinate; under stratum a thin pellicle of closely packed short-stalked rosette hairs with vesicular unicellular branches; midrib below prominently raised buff or brownish, primary lateral veins also raised, 21 to 24 on each side of the midrib with inner angle of divergence from midrib about 50°, more or less clothed with cobweb-like tomentum which wears off with age.

Inflorescence a corymbose raceme giving a large rounded truss of many flowers (about 20 to 25); rhachis 4 to 5 cm. long, 1 cm. in diameter at the base where it is conspicuously zoned for 5 to 8 mm. of its length by narrow scars of fallen bud scales. Pedicels 2 to 3 cm.

long, 3 mm. in diameter expanding below the calyx to as much as 4 or 5 mm. in diameter clothed with a continuous buff or pinkish cobweb tomentum which forms a compact but not thick coat in contact with the epidermis. Calyx short about 2 to 3 mm. long, a cupular expansion of the pedicel with 8 small broadly triangular teeth, the whole with a tomentose covering similar to that of the pedicel. Corolla fleshy deep rose crimson without spots but with a slight blotch of deep crimson at the base, glabrous outside and inside, infundibular-campanulate, 6 to 6.5 cm. long; tube about 5.0 cm. long, 4 to 6 cm. broad at the mouth of the tube, the latter ridged at the base, the ridges fleshy and pouched; lobes 8, 1.5 cm. long 2 to 2.4 cm. broad, rounded emarginate, imbricate. Stamens 16 unequal, the longer (about 9 in number) 4 to 4.2 cm. long, the shorter (about 3) 2.6 to 2.8 cm. long with 3 or 4 of intermediate length, all shorter than the style and corolla; filaments fleshy dilated at base tapering upward, glabrous; anthers black-purple 4 mm. long, 1.5 to 2 mm. broad. Gynaecium shorter than the corolla, about the length of the corolla-tube; ovary oblong with rounded apex, 9 to 12 mm. long, 5 mm. in diameter, 16-chambered, faintly ridged, clothed with a dense fawn-pink tomentum of branched fasciate brush-like hairs: style stout 4.3 cm. long about 2 mm. thick, glabrous throughout, expanded below the broad discoid stigma which is about 3 mm. across. Fruit a thick woody capsule, oblong slightly curved and ridged about 4 cm. long, 1.5 cm. broad with a deep rust-brown tomentum which wears off along the ridges but persists longer in the grooves, the hairs retaining the brush-like structure of those of the ovary but becoming stouter and darker in colour.

S.W. Yunnan. Eastern flank of the N'Maikha-Salween divide. Lat. 25° 45' N. Long. 98° 25' E. Alt. 9-10,000 ft. In open forest. Tree of 80 ft. Flowers deep rose-crimson without markings but a slight blotch of deep crimson at base. March 1921. G. Forrest. No. 19335.

Yunnan. Eastern flank of the N'Maikha-Salween divide. Lat. 25° 45' N. Alt. 9,000 ft. In open forest. Tree of 80 ft. Girth of bole at 5 ft. from ground 7 ft. 9 inches. In foliage only. Sept. 1919. G. Forrest. No. 18458.

Yunnan. Lat. 25° 45' N. Alt. 9,000 ft. Duplicate in fruit of No. 18458. Nov. 1919. G. Forrest. No. 18811.

Rhododendron giganteum, G. Forrest, var. **seminudum**, Tagg et Forrest. Var. nov.

Foliis tantum subtus ad margines indumento denso obsitis ceterum glabris vel subglabris, floribus majoribus colore pallidioribus a typo divergit.

From the area yielding *Rh. giganteum*, Mr. Forrest has collected specimens of a plant, undoubtedly very closely allied to *Rh. giganteum*

but having larger flowers lighter in colour. Mr. Forrest's description of the flower runs, "deep rose-crimson at the margin shaded to almost white at the base, lined on exterior a lighter shade of rose, the only markings a small deep crimson blotch at base." The flower differs structurally from the type *Rh. giganteum* in that it has longer stamens and a style that equals or at times exceeds the length of the corolla. The ovary, moreover, is distinctly conoid, very broad at the base and tapering to the apex, not as in the type oblong with a rounded apex. The foliage with minor differences is that of the type in shape and texture but in this variety a bistrate indumentum resembling in appearance the indumentum of *Rh. giganteum* is present only on the leaf margin, forming a marginal buff-coloured band from a quarter to an inch wide. Within this border is an area, to the eye apparently bare but magnification shows that it is clothed with a soft scattered cobweb-like tomentum which is open and does not conceal the epidermis.

S.W. Yunnan. Eastern flank of the N'Maikha-Salween divide. Lat. 25° 50' N. Long. 95° 25' E. Alt. 9,000 ft. In open forest. A tree, height? Flowers deep rose-crimson at margin shaded to almost white at base, lined on exterior a lighter shade of rose, the only marking a small deep crimson blotch at base. March 1921. G. Forrest. No. 19338.

***Rhododendron inopinum*, Balf. f.**

Species affinis *Rh. Wiltonii* foliis haud bullatis subtus indumenti floccis pallide brunneis inter se distantibus conspersis, floribus lacteo-albis distinguenda.

Frutex parvus ramis strictis. Ramuli hornotini rubidi, indumento albido induti. Folia petiolo circ. 1.5 cm. longo praedita: lamina ovali-oblonga, 10 cm. longa, 3.5 cm. lata, apice acuta, basi rotundata vel obtusa, supra atroviridis, nitens, glabra vel pilorum juvenilium vestigiis conspersa, costa leviter sulcata, nervis primariis impressis utrinsecus circ. 15, infra pallido-viridis, tomento brunneo hic illic areolata. Inflorescentia breviter racemoso-umbellata; rhachis viridis puberula circ. 7 mm. longa. Pedicelli 1.5 cm. longi, tomentosi. Calyx brevis lobis 5 rotundatis. Corolla infundibuliformis lacteo-alba, basi varo atro-kermesino notata, circ. 2.5 cm. longa, lobis 5 rotundatis circ. 8 mm. longis, 1.5 cm. latis. Stamina 10, inaequalia, longiora circ. 2 cm. longa, breviora 1 cm. longa, filamentis basi latiusculis ibique puberulis, antheris atro-purpureis. Ovarium conoideum circ. 5 mm. longum, dense tomentosum, stylo viridi glabro, corollam aequante vel paulo excedente.

"A low bush in cultivation with elongated straight branches. Branches of the year about 3.5 mm. in diameter red completely enveloped in a white indumentum composed of hairs each with a

long pluricellular axis bearing pointed vesicular branches throughout its length and ending in a besom-tuft of similar branches intricately interwoven and often adpressed, indumentum detersile after a year but shreds of hairs occur on older parts of twigs. Foliage-buds elongated pointed; outer perulae brown crustaceous ovate or oval acute, outside puberulous with adpressed hairs, margin glandular ciliate, inner perulae carried up on elongating axis membranous pink or yellowish ligulate or narrowly spatulate acuminate ending in almost a hair point towards top, often somewhat broader, about 3 mm. broad, throughout more or less pubescent. Young leaves revolute in bud and densely tomentose on both surfaces and over petiole, the tomentum white or slightly brown-tinted. Leaves petiolate as much as 10 cm. long, upper surface eventually convex; lamina coriaceous oval-oblong 12.5 cm. long, 3 to 4 cm. broad, acute ending in a yellow tuberculate hydathodal mucro, margin cartilaginous recurved, base rounded or broadly obtuse; upper surface dark green slightly glossy shagreened glabrous but sometimes with vestiges of juvenile hairs, midrib sunk shallowly grooved, primary veins as many as 15 impressed; under surface pale green with prominent midrib and conspicuous primary veins regularly spreading fish-bone type, covered all over (midrib included) with patches of drab-coloured indumentum composed of hairs like those on young stems evidently separated through interstitial surface growth of the leaf, distance between the patches wider than the patches themselves and patches more or less detersile; petiole about 1.5 cm. long green or red, grooved above and showing vestiges of juvenile indumentum. Flower truss terminal shortly racemose about 10-flowered, rhachis green more or less puberulous about 7 mm. long; inner bracts soft somewhat membranous 2 cm. long obovate oblong apiculate densely silky with long simple wavy tendril-like hairs; bracteoles linear hairy throughout hair-crested about 5 mm. long; pedicels about 1.5 cm. long sharply bent at top, densely clad with indumentum of hairs like those of stem. Calyx small, about 1.5 mm. long fleshy, its margin undulated into 5 rounded lobes the whole pubescent outside. Corolla cream coloured with deep crimson posterior basal blotch and above it some crimson spots, slightly zygomorphous and funnel-shaped markedly convex posteriorly, about 2.5 cm. long; tube deeply grooved posteriorly markedly gibbous at the base; lobes rounded entire or slightly crenulate about 8 mm. long 1.5 cm. broad. Stamens 10 unequal, longer nearly equal to corolla about 2.3 cm. long with anther 2.5 mm. long, shorter 1.2 cm. long with anther 2 mm. long; filaments yellowish-white broadened downwards puberulous over the lower 5 mm. of length; anther black-purple. Disk blue-green large slightly puberulous on ridges. Gynaecium equalling or slightly longer than corolla and stamens about 3.3 cm. long; ovary conoid about 6 mm. long green grooved truncate densely tomentose with white adpressed ascending

fasciate hairs; style green glabrous, at top widening into the discoid deep purple lobulate stigma.

Western China. Wilson 1866 in part.

Amongst the seeds collected by Wilson and presented to the Royal Botanic Garden, Edinburgh, by Sir John Stirling Maxwell, Bart., was a packet under the number 1866. This Wilsonian number is assigned in Pl. Wilsonianae to *Lonicera trichogynum*. Plants were raised from the seeds at Edinburgh. Plants sent out from Coombe Wood under the number have flowered at Caerhays and at Bodnant—all of these *Rhododendron* and of more than one species. *Rh. Wasonii*, Hemsley & Wilson is one of them. Of the others one is a plant which, belonging to the phylum of *Rh. Wiltonii*, is certainly not that species but distinguished from it by very precise characters, and of it we give above a description under the name *Rh. inopinum*. The plant flowered poorly at Edinburgh in 1916. From Sir John Stirling Maxwell comes now (1922) fine trusses of the species which is evidently now established in cultivation. The smaller narrower leaves not bullate without a continuous dark cinnamon-coloured indumentum separate it readily from *Rh. Wiltonii* and then it has cream-coloured flowers with crimson spots and basal blotch. The underleaf indumentum is an easily recognised character consisting of tufts of hairs dotted over the surface and the hairs have long many-celled axes carrying short branches along their whole length and ending in a besom-like tuft. A nearer ally than *Rh. Wiltonii* is *Rh. paradoxum*, Balf. f., q.v." I. B. B.

***Rh. Magorianum*, Balf. f.**

Species seriei *Irrorati* atque *Rh. agasto*, Balf. f. et W. W. Sm. affinis sed foliorum forma et indumento differt; in *Rh. agasto* stylus ad apicem atque ovarium sunt glandulosa, in *Rh. Magoriano* stylus ad medium atque ovarium totum et tomentosa et glandulosa sunt.

Ramuli hornotini indumenti vestigiis induti. Folia petiolo circ. 2.5 cm. longo tereti haud sulcato suffulta; lamina crasse coriacea, obovata, plerumque circ. 10.5 cm. longa, 4.5 cm. lata, apice rotundata vel late obtusa, basi obtusa vel cuneata, supra laete viridis, costa pallide flavida vix sulcata, venis primariis utrinsecus 12 paulo impressis, infra griseo-fulvida, indumento tenui e pilis ramosis glandulisque fere sessilibus composito undique induta, costa nervisque prominentibus. Inflorescentia umbellata circ. 10-flora, rhachi vix 1 cm. attingente viridi paulo floccosa; pedicelli 2-2.5 cm. longi, glandulis brevistipitatis pilisque floccosis induti. Calyx cupularis carnosulus lobis 6 rotundatis vel semilunatis margine glandulosus et floccoso-ciliatis. Corolla infundibuliformis, 3-4 cm. longa, rosea basi intus varo saturate roseo notata, in medio posteriore bene maculata, lobis 6 circ. 1.5 cm. longis, 2.5 cm. latis emarginatis. Stamina 12-14, inaequalia, corolla gynaeceoque breviora, filamentis basi ad trientem puberulis, antheris atropurpureis. Gynaeceum circ. 3.7 cm. longum corolla paulo brevius:

ovarium conoideum, pilis ramosis congestis glandulisque brevistipitatis dense indutum; stylus viridi-flavidus, apice paulo incurvus, infra ad medium ut ovarium tectus.

"Shrub. Branches a year old bright green stout 6 to 9 mm. in diameter, thinly coated with a vestige of a greenish tomentum composed of stout stalked glands and floccose intricate hairs, which sometimes become brownish; on older branches the indumentum disappears leaving a slightly roughened surface.

Leaves petiolate as much as 13 cm. long; lamina thick coriaceous narrow-obovate as much as 10.5 cm. long, 4.5 cm. broad, apex rounded or very broadly obtuse mid-way crowned at tip with a short yellow tuberculate hydathode, margin thick cartilaginous recurved, base obtuse to cuneate often inaequilateral, upper surface bright glossy green with yellowish mottling traversed by a pale yellow, hardly grooved midrib, smooth with shrivelled blackened glands and vestigial flecks of a juvenile tomentum, primary veins about 12 on each side slightly impressed; under surface paler slightly tawny grey with prominent midrib paler, and the primary veins also paler prominent and pinnately spreading, the whole covered with a thin biform indumentum of dendriform pale brown hairs at intervals, scattered or in patches and more numerous on the primary veins, their branches interlocking leaving the pale green epidermis visible between, and of short-stalked red ovoid glands spread sparsely over the surface and giving to a minute examination a finely punctulate aspect to the surface; petiole stout 2.5 cm. long 3 mm. in diameter (red with some transverse constrictions), terete not grooved above.

Flower trusses as many as 11-flowered, very shortly racemose, umbellate, the rachis under 1 cm. long pale green slightly floccose, outer bracts brown crustaceous rotundate or orbiculate cucullate glandular on back, very sticky ciliate on margin, inner fertile bracts, membranous, whitish to buff obovate-oblong obtuse or rounded at apex, silky outside with long soft adpressed hairs and more or less glandular; bracteole white subulate 1 cm. long silkily puberulous, hair-crested at tip; pedicels stout 2-2.3 cm. long, more or less erect green or tinted red on adaxial surface slightly curved at apex, glandular with short-stalked white glands and also floccose.

Calyx about 2.5 mm. long composed of a fleshy green cup 1.5 mm. long, almost glabrescent outside, and 6 lobes, the latter rounded or semi-lunate little more than undulations of cup; margins, red-tinted glandular and floccosely ciliate.

Corolla funnel-shaped 4 cm. long, deep pink along the ridges of the lobes, flushed pink or whitish over tube and lobe margins posteriorly within at base of three posterior petals a deeper tinted blotch spreading upwards and deliquescing into spots, glabrous outside and within; tube slightly compressed, not deeply grooved outside but more or less grooved between the lobes from about the

middle of the tube upwards; lobes 6 about 1.5 cm. long, 2-5 cm. broad imbricate emarginate.

Stamens 12-14 unequal shorter than corolla and gynaecium; longest about 3.2 cm. long with anthers about 2.5 mm. long, shortest 1.7 cm. long with anthers 2 mm. long; filaments white, from base to well above ovary finely puberulous; anthers black-purple. Disk green glabrous.

Gynaecium about 3.7 cm. long, slightly shorter than corolla; ovary about 7 mm. long, conoid green beneath, densely clad with an indumentum of fasciately branched hairs beneath which are white shortly-stalked glands; style greenish-yellow slightly curved at top, clad with hairs and glands like those of ovary through more than one half its length, swollen at the apex below the broader discoid lobulate greenish-yellow stigma.

W. China. Wilson No. 1539.

This plant first came to me in 1919 from Lamellen where it had flowered with Mr. Magor. Friends had suggested to Mr. Magor that it was *Rh. taliense*, Fr., an identification which Mr. Magor refused to accept. I could not match it with any Wilsonian plant described or undescribed, and the number 1539 belongs to Wilson's collection of *Cocculus trilobus*. I have always felt timid about christening as novelties sporadic plants of *Rhododendron* in cultivation under Wilsonian numbers not attached by Wilson to species of *Rhododendron* unless their position is in a series well studied and in which their relationship could be clearly established. In this case I have kept the specimen among puzzles in the hope of some further information obtaining a clue towards identification.

The coming from Mr. Magor of a fine truss of the plant in June of this year (1922) directed my special attention again to the plant and with fuller knowledge than I possessed in 1919 I write out a description of the plant as a new species. A fortunate visit from Mr. Wilson has given opportunity to show him the specimen, and he tells me that it is not one of the described species of his collecting. The plant has been raised probably from seed gathered from a plant in fruit and not seen in flower. *Rh. Magorianum* is one of the Irroratum Series coming into the phylum of it in which the flower symmetry is above pentamery. Its underleaf tomentum is most characteristic showing detersile hair-tufts associated with persistent glands. The flowers mark it as one of the smaller number of the species in the series where the corolla is white suffused rose with crimson blotch and spots.

If hardy, it should be a useful addition to our garden species. I say if hardy, because the major number of species in the Irroratum group cannot be classed as hardy plants." I. B. B.

Mr. Magor's comment (May 1925) on the last paragraph of Sir Isaac's MS. is:—

"It has been in the open here for years and has never had a leaf injured, tho' in 1916-17 we had skating on the ponds for ten days."

Rhododendron mollicomum, Balf. f. et W. W. Sm., var. **Rockii**, Tagg.
Var. nov.

Habitu laxiore, corolla majore saturatius colorata, stylo multo longiore inter alia a typo distinguitur.

The two gatherings by Rock quoted below are closely related to *Rh. mollicomum*, although the large flowers, and the few lateral umbels give an appearance distinct from the typical form of the species. The variety differs from the type also in its loose habit, longer pedicels, narrower and longer corolla-tube very sparsely lepidote, longer stamens (up to 3.5 cm. in the variety, about 2 cm. in the type) and much longer gynaeceum (up to 5 cm. in the variety, barely 3 cm. in the type). Moreover, pedicel, calyx and ovary are more pilose and less lepidote than in typical *Rh. mollicomum*.

Forrest says of the type, "Flowers crimson?" Forrest's 12402 is described as having rose-coloured flowers. In cultivation plants under the type number vary in colour from pink to a rose colour. From Rock's description of his 8551 it would appear that this is a deeper coloured form with a touch of purple in it.

Yunnan. Western slope of Lichiang Snow Range. Shrub 4-6 ft. Flowers reddish-purple. In forest on steep slopes in Yangtze Gorge. April 1923. J. F. Rock No. 8551.

Yunnan. Same locality as the preceding. "Similar if not identical with No. 8551, flowers reddish." April 1923. J. F. Rock No. 8554.

Rhododendron paradoxum, Balf. f.

Species affinis *Rh. Wiltonii* inflorescentiae rhachi coccinea floribusque albidis rubro-maculatis et variculatis recognoscenda.

Frutex parvus circ. 2 m. altus. Ramuli hornotini indumento albidio induti, postea glabrescentes. Folia petiolo circ. 2 cm. longo munita: lamina coriacea oblongo-elliptica, circ. 11.5 cm. longa, circ. 5 cm. lata, apice obtusa, margine cartilaginea paulo asperulata, basi obtusa vel rotundata, supra atroviridis rugulosa glabra vel pilorum juvenilium vestigiis conspersa venis utrinsecus 12 multo impressis, infra indumento laxo interrupto pilis brunneis ramosis composito undique induta, costa nervisque haud exceptis. Inflorescentia breviter racemoso-umbellata, 8-10-flora: rhachis circ. 1 cm. longa rubida floccosa glabrescens; pedicelli rubidi circ. 3 cm. longi indumento tenui primo albidio deinde fulvido praediti. Calyx parvus carnosulus tomentosus 5-lobus. Corolla, 4 cm. longa, oblique campanulata, carnosula, alba, basi varo kermesino notata; lobi 5 rotundati, 1.5 cm. longi, 2 cm. lati. Stamina 10, inaequalia, 1.8-3.2 cm. longa, filamentis basi puberulis, antheris atro-purpureis. Ovarium circ. 5 mm. longum, sulcatum, truncatum, dense tomentosum, stylo flavido circ. 3 cm. longo.

"A small shrub some 1.5 m. high, compactly branched. Twigs of the year about 5 mm. in diameter, enveloped in a dense snow-white

indumentum of intricately interwoven much-branched wide-celled glutinous hairs, the surface of twig bright red, twigs a year old opaque with green elongated warts and vestiges of the early indumentum. Foliage-buds elongated; outer half-dozen or so perulae somewhat acicular tapering into long incurved point as much as 3 cm. long 3 mm. broad like the stem more or less tomentose, followed by short broad ovate keeled apiculate ones 8 mm. long 7 mm. broad also tomentose on back, innermost perulae green membranous linear spatulate pointed not acuminate or tapered to a hair point, as much as 4 cm. long 5 mm. broad carried up on elongating shoot glabrous inside outside more or less puberulo-tomentose at the margin ciliate and at apex enveloped in a rich brown tomentum; young leaves revolute with bright green lamina, above loosely tomentose with pale brownish tomentum, beneath densely tomentose of same colour, the broad petiole snowy white with dense tomentum like the stem. Leaves petiolate as much as 14 cm. long; lamina thickly coriaceous oblong as much as 11.5 cm. long 5 cm. broad apex obtuse or somewhat rounded more or less beaked and ending in a reddish hydathodal short mucro, margin cartilaginous and slightly asperous with bases of fallen hairs; base broadly obtuse or somewhat rounded; upper surface dark green opaque rugulose surface shagreened glabrous but with vestiges of juvenile hairs in the channel of the grooved midrib, primary veins some 12 on each side conspicuously grooved; under surface pale green with prominent midrib and primary veins paler in colour, surface including midrib and veins clad with a loose patchy indumentum of shrivelled dirty grey or brownish hairs easily detachable perhaps not freely detersile in nature; petiole as much as 2.5 cm. long stout grooved above and there often red, below usually with cross constrictions, clad with withered tomentum like older twigs especially above. Truss a shortly racemose umbel about 8-flowered with rhachis some 1.2 cm. long bright red slightly floccose glabrescent; inner bracts membranous greenish obovate cucullate densely silky about 2.5 cm. long; bracteoles a little over 1 cm. long thread-like with adpressed hairs and a small hair-crest; pedicels bright red as much as 3.5 cm. long clad fairly densely with a tomentum of white hairs like those of the young stem, swollen and slightly bent at top. Calyx zygomorphous small forming a red fleshy cup about 1.5 mm. long tomentose like the pedicel and bearing 5 lobes; lobes thin membranous pink-tinted glabrous but for some apical cilia posterior larger oblong 3 mm. long anterior shorter rounded or deltoid. Corolla fleshy white with dark posterior crimson basal blotch showing upward streamers obliquely campanulate 4 cm. long glabrous in and out; tube prominently gibbous at base deeply grooved outside the posterior ones on each side of posterior petal forming prominent internal imperfect white septa through the crimson blotch, 5-lobed; lobes broad somewhat unequal and spreading rounded emarginate 1.5 cm. long 2 cm. broad. Stamens

10 unequal, longer 3.2 cm. long with anther 2 mm. long, shorter 1.8 cm. long with anther 1.5 mm. long; filaments puberulous towards base; anthers blackish-purple. Disk green glabrous. Gynaeceum a little shorter than corolla about 3.7 cm. long; ovary about 5 mm. long cylindric grooved truncate densely clad with adpressed fasciate-haired tomentum under which is bright green ovary surface; style glabrous yellowish-white expanded at top and forming a yellow-green ring under the broad recurved discoid lobulate stigma.

West China. Wilson 1353 in part.

This plant grown at Edinburgh from Wilson's seeds presented by Sir John Stirling Maxwell, Bart., though different in appearance from *Rh. Wiltonii*, has been grown under the name because of its number 1353 being that assigned in Pl. Wilsonianae to *Rh. Wiltonii*. The plant—only one—is now a bush some meter and a half high and has not flowered until this year (1922) and this event leads to its identification as a new species of the phylum of *Rh. Wiltonii* out of doubt but more nearly allied in that phylum to *Rh. inopinum* than to *Rh. Wiltonii* itself. In the want of the bullate leaf and in the character of indumentum alike in disposition and in construction of hairs *Rh. paradoxum* resembles *Rh. inopinum* and differs from *Rh. Wiltonii*. But it has large white flowers with basal blotch and spots and the inflorescence axis is bright red—a conspicuous feature." I. B. B.

The plant described above in English by Sir Isaac Bayley Balfour is a fine symmetrical bush, but it shares with *Rh. inopinum* the detracting feature of hiding its flower trusses below the foliage. In both species this may be merely a juvenile characteristic. To Sir Isaac's description I add the following:—Fruits narrow cylindric, 2 to 2.5 cm. long, about 4 mm. in diameter, green beneath a fairly dense and more or less persistent brown tomentum of fasciate hairs: dehiscing by 4-6 valves recurved from the apex. Calyx persisting below fruit as a brown-green tomentose 5-lobed cup about 3 mm. long. Fruit stalk about 3.5 cm. long purplish-brown, clothed with a dense brownish tomentum of soft interwoven hairs. Seeds brown, flat, oblong to spindle-shaped with small apical and basal caruncles and with very narrow marginal wings.

Rhododendron semnoides, Tagg et Forrest. Spec. nov.

Species seriei Grandis, *Rh. semno*, Balf. f. et Forrest affinis; a quo foliis basi subrotundatis vel subauriculatis et indumento subfoliari arachnoideo (haud compacto nec nitente) distinguitur.

Frutex robustus ad 6 m. altus. Rami crassi annotini ad 1 cm. diametro, floccoso-tomentosi. Alabastra foliorum ovoidea conica; perulae extimae latae acuminatae cinereo-rufo-tomentosae, intimae plus minusve ovatae convolutae viscidae. Folia sub-petiolata ad 27 cm. longa; lamina crasse coriacea late oblanceolata ad 25 cm. longa 11 cm.

lata apice obtusa vel nunc bene rotundata breviter mucronulata deorsum gradatim attenuata, basi cuneata vel subrotundata nunc paullo auriculata in petiolum plus minusve decurrens, margine cartilaginea, supra opaca olivacea subrugulosa indumenti juvenilis vestigiis conspersa, costa media nisi ad basim sulcata venis primariis impressis utrinque 13-16 a costa media angulo 45-50° divergentibus, subtus pallide fulva ubique indumento tomentoso bistrato vestita, strati superi pilis multo ramosis arachnoideis, strati inferi pilis rosulatis agglutinis, costa media venisque primariis elevatis leviter tomentosis. Petiolus circ. 1.5-2 cm. longus supra convexus indumenti vestigiis subtus sparsim tomentosus. Inflorescentia racemoso-umbellata 15-20-flora; rhachis circ. 3 cm. longa rufo-brunneo-tomentosa. Pedicelli 3-4 cm. longi indumento tenui arachnoideo induti sub flore oblique expansi. Calyx parvus 8-dentatus, dentibus deltoideis, arachnoideo-tomentosus 2 mm. longus. Corolla oblique campanulata alba roseo-tincta basi varo atro-coccineo notata circ. 4.5 cm. longa glabra 8-lobata, lobi rotundati vel ovati emarginati circ. 1 cm. longi 1.3 cm. lati. Stamina 16 inaequalia corolla gynaeceoque breviora; filamenta deorsum paulo dilatata puberula Discus glaber. Gynaeceum corolla paulo brevius staminibus longius; ovarium oblongo-conoideum circ. 1.4 cm. longum, 9-11-loculare, pilis fasciatis dense tomentosum eglandulosum; stylus crassus glaber sub stigmate discoideo lobulato expansus. Capsula vix matura leviter curvata, leviter sulcata, oblonga circ. 3.5 cm. longa plus minusve rubiginoso-tomentosa.

A small tree or shrub 15 to 20 ft. high with large leaves and big trusses of flowers. Flowering shoots of the current year .7 to 1.0 cm. in diameter, clothed with a buff or greyish floccose arachnoid tomentum. Leaves subsessile, up to 27 cm. long; petiole short 1.5 to 2.3 cm. from the laminal auricles to the point of attachment .8 to 1.5 cm. broad, convex or rounded above with vestigial flocks of a grey indumentum, below a prominent rounded ridge flanked on each side with thickish narrow wings of the semi-decurrent lamina, more or less covered with indumentum similar to that on the midrib: lamina from 10 to 25 cm. long, 4 to 11.5 cm. broad, average ratio of length to breadth 17:7 to 7:3 broadest at about two-thirds of lamina length from lamina base or a little nearer the apex, thick, leathery, oblanceolate; apex broadly rounded-obtuse with short blunt mucro the lamina tapered cuneately from the broadest part to the narrow rounded auricled inaequilateral base and prolonged beyond this as a narrow decurrent wing along the upper part of the petiole; margin undulate entire, consisting of a thin yellowish recurved glabrous cartilaginous line; upper surface smooth to semi-rugulose with impressed reticulations, a bright mat green sometimes almost glabrous at others bearing many scattered flecks of white floccose hairs, the vestiges of a juvenile tomentum; under surface clothed with a continuous uniform straw

or buff-coloured bistrate indumentum, floccose and semi-woolly, felty to the touch, the upper stratum appearing under magnification as a coarsely arachnoid covering beneath which is visible an under stratum of stellate hairs; midrib above a shallow groove widening towards the petiole and becoming convexly raised, below prominently raised, rounded, thickened towards the lamina base buff or greyish and like the lateral veins clothed with a floccose cobweb indumentum, similar to that of the lamina surface but less dense; primary lateral veins 13 to 16 on each side of the midrib, inner angle of divergence from the midrib 45° to 52° , slightly grooved above raised below, forking and looping up with adjacent veins well within the lamina margin. Foliage buds ovoid conical, 2 cm. long 1.5 cm. broad; the outer scales triangular to ovate, keeled on the back, acuminate with prolonged awn-like tips, clothed externally with grey or rufous tomentum; inner scales ovate, convolute, outwardly on the upper part and along the back clothed with adpressed branched hairs, on basal and marginal areas densely studded with button-shaped sessile glands, the secretion from which is viscid and cements together the closely imbricated inner scales; the outer scales deciduous at opening of the bud; the inner scales lengthening with the opening of the bud and more or less persistent, those of foliage buds preceding inflorescences often persisting in the second year and forming a ragged whorl of drooping brown scales beneath the rosette of foliage leaves surrounding the flower truss, the smaller of such persisting scales obovate or oval, thickened centrally, thinner at margins and at the broad membranous base, 2.5 cm. long, 1.5 cm. broad, clothed externally with a brownish tomentum of branched twisted adpressed hairs; the inner persisting scales progressively longer up to as much as 8 cm. long, consisting of a terminal part oblong or oval in outline, 2.5 to 3 cm. long, 1.3 to 1.5 cm. broad with rounded shortly mucronate apex, clothed externally with a dense rust-brown or greyish tomentum, the basal part a tapering linear somewhat membranous stalk as much as 5 cm. long. Inflorescence a racemose umbel of 15 to 20 flowers. Rhachis stout 2.5 to 3 cm. long 1.3 cm. broad at the base, clothed with a rusty-brown floccose tomentum; bracts deciduous, unknown; prophylls less deciduous, linear spatulate, about 1 cm. long, .5 to 1 mm. broad, with long silky hairs on the back and at the apex. Pedicels 3 to 4 cm. long as much as 2 mm. broad, expanding abruptly into the oblique calyx, clothed with a continuous thin greyish or buff arachnoid indumentum. Calyx short, an oblique cupular expansion of the pedicel with 8 short triangular teeth clothed with indumentum similar to that of the pedicel. Corolla oblique campanulate, white flushed rose with a crimson blotch at the base, 4 to 5 cm. long, about 4 cm. across; tube 3 to 3.5 cm. long; lobes 8, 2 cm. broad, 1 cm. to 1.5 cm. long, orbicular oval auricled emarginate. Stamens 16 of unequal length, the shortest 2 cm. long, the longest 3.5 cm. long, shorter than the

gynaeceum about equalling the corolla tube; filaments slender, dilated at the base, sparsely pubescent over the lower 6 mm. of their length; anthers brown about 3 mm. long, 2 mm. broad. Gynaeceum about 4.5 cm. long, as long or slightly less than the corolla; disk glabrous; ovary oblong-conoid, slightly curved, 1.2 to 1.5 cm. long, 4 to 6 mm. broad, 9-11 locular, clothed with a dense buff-pink tomentum of shortly-stalked fasciate brush-like hairs; style stout, commonly curved from the base, 2.5 to 3.5 cm. long, 1 mm. thick expanded below the broad lobulate discoid stigma, glabrous throughout. Capsules (immature? G. Forrest No. 22738) 3.3 cm. long, 8 mm. dia., clothed with a more or less dense buff or rust-brown tomentum.

S.E. Tibet. Tsarong, Salween-Kiu Chiang divide, west of Chamatong. Lat. 28° 18' N. Long. 98° 27' E. Alt. 12-13,000 ft. Shrub of 15 to 20 ft. Flowers white flushed rose, with a crimson blotch. In *Rhododendron* forest. June 1922. G. Forrest. No. 21870.

S.E. Tibet. Tsarong. Duplicate in fruit of No. 21870. Same locality and situation. Oct. 1922. G. Forrest. No. 22738.

This member of the *Grande* series should prove in cultivation an attractive medium-sized plant. Mr. Forrest speaks highly of it. The most conspicuous difference between this and *Rh. semnum*, its nearest relative, is in the indumentum of the leaf under-surface. In *Rh. semnum* the hair branches of the upper stratum of indumentum become agglutinate and more or less plastered together with the result that the indumentum forms a smooth skin-like covering commonly somewhat shiny with at times small reddish resinous patches of scurf-like agglutinations of the larger hairs. In *Rh. semnoides* the hair branches of the upper stratum remain felt-like and the longer branches give an open cobweb-like (although to some extent agglutinate) indumentum surface. Moreover, in *Rh. semnum* the laminae of the leaves are for the most part narrowly cuneate and the lamina base runs uninterruptedly or with slight undulations, into the broad decurrent wing of the almost obsolete petiole. In *Rh. semnoides* the lamina base, less acutely tapered than in *Rh. semnum*, is distinctly auricled or rounded and the decurrent petiolar wing less pronounced. The apex of the leaf of *Rh. semnum* is broadly rounded and often emarginate and the broadest part of the lamina is nearer the leaf apex than in *Rh. semnoides*.

***Rhododendron sinogrande*, Balf. f. et W. W. Sm., var. *boreale*, Tagg et Forrest. Var. nov.**

Varietas haec septentrionalis foliis minoribus magis coriaceis, floribus pallido-luteis inter signa alia minora a typo recedit.

Among Mr. Forrest's 1922 collection from Tsarong are forms of *Rh. sinogrande* which represent a northern extension of the southern Salween Valley type. There is no doubt about their affinity. They

are very near to *Rh. sinogrande* but are not the typical southern form. Apart from foliage differences—the leaves of the northern forms are somewhat more leathery, have a slightly denser under-leaf indumentum commonly olive-grey, not grey-white, and the broadest part of the lamina is generally nearer the leaf apex—the chief characteristics of the northern forms are larger flowers of better colour. Mr. Forrest's comment on his 21705 is, "a grand species but leaning towards coarseness. Flowers a shade lighter than the best forms of *Rh. lacteum*." Of 21705A he says, "Flowers clear pale-yellow with a crimson blotch at base" and "A fine species with flowers of a clearer yellow than 21705." The flowers of the southern type are described as "dull white." Mr. Forrest when he collected 21705 and 21705A suggested that they were distinct species not previously gathered by him, but until more is known of them in cultivation I think they should be regarded as geographical varieties of *Rh. sinogrande*.

S.E. Tibet. Tsarong, West of Chamatong, Salween-Kiu Chiang divide. Lat. $28^{\circ} 18' N$. Long. $98^{\circ} 27' E$. Alt. 13–14,000 ft. Shrub of 20–25 ft. Flowers fleshy soft yellow throughout without markings. In Rhododendron forest. June 1922. G. Forrest. No. 21705.

S.E. Tibet. Tsarong, Londre-la, Salween-Mekong divide. Lat. $28^{\circ} 14' N$. Long. $98^{\circ} 40' E$. Alt. 12–13,000 ft. Shrub of 20 ft. Flowers fleshy clear pale yellow with a crimson blotch at base. In Rhododendron thickets and forests. May 1922. G. Forrest. No. 21705A.

S.E. Tibet. Tsarong. Duplicate in fruit of No. 21705. Same locality and situation. October 1922. G. Forrest. No. 22761.