THE
RHODODENDRONS
OF
SIKKIM - HIMALAYA

HOOKER, J.D.
THE RHODODENDRONS OF SIKKIM-HIMALAYA;

AN ACCOUNT, BOTANICAL AND GEOGRAPHICAL, OF THE RHODODENDRONS RECENTLY DISCOVERED IN THE MOUNTAINS OF EASTERN HIMALAYA, FROM DRAWINGS AND DESCRIPTIONS MADE ON THE SPOT, DURING A GOVERNMENT BOTANICAL MISSION TO THAT COUNTRY;

BY JOSEPH DALTON HOOKER, R.N., M.D., F.R.S., F.L.S., &c., &c., &c.,

EDITED BY SIR W. J. HOOKER, K.H., D.C.L., F.R.S., F.L.S., &c., &c.,

Vice-President of the Linnean Society, and Director of the Royal Gardens of Kew.

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1979
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LONDON:

REEVE AND CO., HENRIETTA STREET, COVENT GARDEN.

1849.
TO

HER ROYAL HIGHNESS

THE PRINCESS MARY OF CAMBRIDGE,

WHOSE TASTE FOR THE PLEASURES OF A GARDEN,

THE FIRST AND FUREST PLEASURES OF OUR RACE, HAS MADE HER FEEL PECULIAR INTEREST IN

The Great National Establishment at Kew,

AND WHO,

CONJOINTLY WITH HER ROYAL PARENTS,

HAS EVER BEEN FORWARD IN PROMOTING WHATEVER MIGHT TEND TO ITS USEFULNESS AND EMBELLISHMENT

THE FOLLOWING FIGURES AND DESCRIPTIONS

OF A SERIES OF EMINENTLY BEAUTIFUL PLANTS, DESTINED SHORTLY TO ADD NEW LUSTRE TO ITS TREASURES,

ARE MOST HUMBLY DEDICATED,

BY HER ROYAL HIGHNESS' DUTIFUL AND OBEIDENT SERVANT,

THE EDITOR.

Royal Gardens, Kew,
March 16th, 1842.
PREFACE.

DARJEELING, in the Sikkim portion of the Himalayas, the native country of the plants figured and described in the following pages, is situated in lat. 27° N., and long. the same as Calcutta, from which it is distant about 350 miles. Its elevation above the sea is 7,200 feet. The mean temperature of the year is about 55° of Fahrenheit, and that of each month, as detailed in a Calendar communicated by Dr. Campbell, the Hon. the E. I. C. Resident at Darjeeling, to the late Lord Auckland, and now lying before me, is as follows:—

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<tr>
<th>Month</th>
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<tr>
<td>January</td>
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<td>November</td>
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<td>December</td>
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"In five years," further observes Dr. Campbell, "there have been three heavy falls of snow: one in December, 1842; one in January, 1839; and one in February, 1841."

The mountain Sinchul, upon a spur of which, looking north, Darjeeling stands, attains an elevation of 9,000 feet, and to the west of it, next Nepal, rises another conspicuous mountain, Tonglo, reaching a height of 10,000 feet. Due north of Darjeeling, at a distance of only sixty miles, the horizon is bounded by the great snowy range (as seen, or rather attempted to be shown, in the vignette of the title-page), having for its principal feature the peak of Kinchin-junga, which has lately been ascertained to be 28,172 feet in elevation, the loftiest mountain yet known in the world. Dr. Hooker thus describes his first impressions of this scene:—"Much as I had heard and read of the magnificence and beauty of Himalayan scenery, my highest expectations have been surpassed. I arrived at Darjeeling on a rainy misty day, which did not allow me to see ten yards in any direction, much less to discern the Snowy Range, distant sixty miles in a straight line. Early next morning I caught my first view, and I literally held my breath in awe and admiration. Six or seven successive ranges of forest-clad mountains, as high as that whereon I stood (8,000 feet), intervened between me and a dazzling white pile of snow-clad mountains, among which the giant peak of Kinchin-junga rose 20,000 feet above the lofty point from which I gazed! Owing to the clearness of the atmosphere, the snow appeared, to my fancy, but a few miles off, and the loftiest mountain at only a day's journey. The heavenward outline was projected against a pale blue sky; while little detached patches of mist clung here and there to the highest peaks, and were tinged golden yellow, or rosy red, by the rising sun, which touched these elevated points long ere it reached the lower position which I occupied."
Such is the aspect of the Himalaya range at early morning. As the sun's rays dart into the many valleys which lie between the snowy mountains and Darjeeling, the stagnant air contained in the low recesses becomes quickly heated; heavy masses of vapour, dense, white, and keenly defined, arise from the hollows, meet over the crests of the hills, cling to the forests on their summits, enlarge, unite, and ascend rapidly to the rarefied regions above, —a phenomenon so suddenly developed, that the consequent withdrawal from the spectator's gaze of the stupendous scenery beyond, looks like the work of magic." Such is the region of the Indian Rhododendrons.

Perhaps, with the exception of the Rose, the Queen of Flowers, no plants have excited a more lively interest throughout Europe than the several species of the genus *Rhododendron*, whether the fine evergreen foliage be considered, or the beauty and profusion of the blossoms; and it may probably be said with truth, that no kind of flowering shrub is so easily, and has been so extensively, cultivated, or has formed so vast an article of traffic, as that one oriental species to which the name seems more immediately to have been given, the *Rhododendron Ponticum*. Its poisonous qualities, too, have tended to bring it the more into notice; for, to eating the honey collected by the bees from that plant (as well as from the *Azalea Pontica*), in the neighbourhood of Trebizond, during the celebrated retreat of the Ten Thousand, were attributed the dreadful sufferings of the Greeks; so severe that their actions were said to resemble those of drunken persons or madmen. Major Madden has stated that cattle sometimes perish by feeding upon the foliage and flowers of *Rhododendron arboreum* in the mountains of Kamaoon. Dr. Hooker remarks, on a recent tour while exploring the mountain-passes leading into Thibet:—"Here are three Rhododendrons, two of them resinous and strongly odoriferous; and it is to the presence of these plants that the natives attribute the painful sensations experienced at great elevations."

The *R. Ponticum*, which inhabits the mountains of Asia Minor and extends as far west as Spain and Portugal, together with *R. ferrugineum* and *hirsutum* of the European Alps, *R. Dahuricum* of Siberia, *R. Camaceiatus* of the Austrian and Piedmontese mountains, *R. maximum* of the United States of America, and the arctic *R. Laponicum*, were all the kinds known to Linnaeus and to the botanical world so recently as 1764. The beautiful *R. chrysanthum* of Northern Siberia appeared in Linnaeus's 'Supplement.' Gmelin added the *R. Kamtschaticum* from Okotsk and Behring's Straits, and Pallas the charming *R. Caucasiceum* from the Caucasian Alps.

Towards the very close of the eighteenth century, namely, in 1796, *R. arboreum*, the first of a new form and aspect of the genus, and peculiar to the lofty mountains of India Proper, was discovered by Captain Hardwicke, in the Sewalic chain of the Himalaya, while he was on a tour to Sirenagur. The species has since been found to have a very extended range. It was published in 1805 by Sir James E. Smith, in the 'Exotic Botany' of that author, and is characterized by its arborescent stem, very rich scarlet flowers, and leaves that are silvery on the underside. Sir James, on the authority no doubt of Captain Hardwicke, gives the height of the tree at twenty feet; but Major Madden, who found it on the mountains of Kamaoon, at elevations of from 3,500 to 10,000 feet, says he might safely have doubled that measurement. On Binaur, a trunk was found to be thirteen feet in girth, and another at Nynce Tal, sixteen feet; while a third, at Singabee Devee, was fourteen feet and a half in the circumference of the stem at five feet from the ground.

1 So called, as is well known, from πολός, a rose, and κέδρος, a tree; a name, however, which was given with equal justice to the Rose-tree, *Nerium Oleander*, the *φυλόδοξιον* of the modern Greeks.
It does not appear on record by whom the Tree Rhododendron was first introduced into Europe; probably by
Dr. Wallich, about the year 1827. We know that to that distinguished botanist we owe the discovery, and the possession
of most of them in our gardens, of other noble Indian species, such as R. formosum, R. barbatum, R. nobilis, R. cam-
panulatum, R. emamomeim, with their many varieties, the limits of which are not clearly defined; and the facility these
kinds afford for hybridizing with R. arboreum, thereby rendering the produce more hardy, has occasioned the original
type of this latter species to be almost lost to our gardens.

R. nitigricum (Bot. Mag. t. 4381) was introduced to our gardens by Messrs. Lucombe, Pince, and Co., of the
Exeter Nursery, a species assuredly quite, and permanently, distinct from R. arboreum, though published and figured
under that name in Dr. Wight’s ‘Icones.’ Dr. Wallich, about the same period, detected another distinct, but not less
interesting, group of species, in Northern India, more allied to R. ferrugineum and R. kiusuans, namely, R. retusum,
R. lepidotum, and R. Anthopogon.

Drs. Horsfield, Blume, and Jack made known some species from the mountains of Java: they were B. Javanicum
(a most lovely shrub, introduced to our gardens by Messrs. Veitch and Sons, of Exeter, through their collector, Mr.
W. Lobb, see Bot. Mag. t. 4336), B. album, R. retusum, R. tubiflorum, R. Malagameum, and R. Celebicum. Blume, we
believe, first noticed a species as being epiphytal, in Java (“supra arbores”), his R. Cieveya album. Mr. William Lobb
informs me that several kinds are there epiphytal; and Mr. Low, who speaks of the fine Rhododendrons existing in
Borneo, particularizes one which inhabits invariably the trunks of trees, and which he had the good fortune to send
to England alive, though we fear it has not been preserved in our collections.

What may be the number of species, or what the kinds, detected by Mr. Griffith during his travels in Bootan, we
do not learn from the volume of his Posthumous Papers recently published at Calcutta by Mr. M’Cllelland; nor am I aware
whether Dr. Wight has published the whole of them in the paper of that gentleman, in the ‘Calcutta Journal of Natural
History,’ vol. viii., on certain Rhododendrons of Mr. Griffith. In Dr. Wight’s ‘Icones’ he figures and describes only two,
R. grande and R. Griffithianum; both very distinct from any found by Dr. Hooker in the adjacent territory of Sikkim.
And in proof of the prevalence of the genus in Bootan, it may be observed that Mr. Griffith, in his Journal, when speaking
of one single excursion (to Doongla Peak, 12,478 feet of elevation), enumerates no less than eight distinct species, viz.:

1. R. arboreum; arboreum, foliis oblongo-obovatis subtus argenteis.
2. R. ferrugineum; arboreum, foliis obovatis supra rugosis subtus ferrugineis.
3. R. fruticosum; arboreum, foliis obovatis subtus ferrugineis-lepidotis.
4. R. fruticosum; arboreum, foliis ellipticis.
5. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
6. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
7. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
8. R. nitigricum; fruticosum, foliis ferrugineis-lepidotis, subtus ferrugineis-lepidotis.

** Pluribus unius.”

* Floribus in racemis umbelliformibus.

1. R. arboreum; arboreum, foliis oblongo-obovatis subtus argentatis.
2. R. ferrugineum; arboreum, foliis obovatis supra rugosis subtus ferrugineis.
3. R. fruticosum; foliis oblongis subtus ferrugineis-lepidotis.
4. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
5. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
6. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
7. R. fruticosum; foliis ellipticis, subtus ferrugineis-lepidotis.
8. R. nitigricum; fruticosum, foliis ferrugineis-lepidotis, subtus ferrugineis-lepidotis.

** Flora Bootana.”
In another place in Bootan (Pass of Rodools, 12,000 feet), Mr. Griffith speaks of Rhododendrons as the only vegetation at the summit, and in the descent he traversed a "region of Rhododendrons."

It is not our intention, nor is it required by the nature of this little treatise, to enumerate all the Rhododendrons that are known in books: suffice it to say, that (exclusive of some Azaleas of Linneus) thirty-two are distinguished by De Candolle in the seventh volume of his 'Prodromus,' published in 1839; and enough has been here stated to show that the maximum of the species exists in Asia; for, commencing with Borneo and other Malayan islands in the tropics of the southern hemisphere, and proceeding north, we find them recorded in the mountain regions of all the intervening countries that have been botanically investigated, even to the northern and extreme arctic Siberia. As we proceed westward into Europe, they gradually disappear, one only inhabiting Sweden and Norway (R. Lapponicum), and that seems not to extend to the western coast.

In the vast continent of North America, the cool hilly grounds, with moisture, of the middle and southern states, yield only R. maximum (which, however, is found also in Canada), R. macrophyllum, Don, confined to the west side of the Rocky Mountains, R. Catawbiense and R. punctatum, which two have a very limited range. The anomalous R. albiflorum, with white flowers and deciduous leaves, is only seen in the Rocky Mountains, about lat. 52° As might be expected, in the alpine and arctic regions the northern European kinds appear; for example, R. Lapponicum has been detected on the White Mountains, Massachusetts, on the summit of Mount Mary, Essex County, New York, at an elevation of 5,400 feet on the Rocky Mountains, in Labrador, and along the coasts of the Polar Sea; while in Behring's Straits, the R. Kuntuachicen again appears. No species grows in Mexico or near the coasts of Oregon or California, and none in the Isthmus of Panama. Throughout the whole of Africa and Australia the genus is unknown; and it will be observed that it only enters the southern hemisphere through the medium of the Indian Archipelago.

When it is borne in mind that, as above stated, Mr. Griffith, in an excursion to one mountain in Bootan, detected eight species, and that the author of the present work, during a very limited sojourn in Sikkim, and with little means of prosecuting extensive researches, owing to the nature of the country and the hostile feeling entertained towards the English by the Rajah, yet collected and described eleven species, of which nine were new, it may, I think, be fairly conceded that if the maximum of Rhododendrons be in Asia, their head-quarters are on the lofty ranges of the Eastern Himalaya, where the mild and moist atmosphere is eminently suited to their habit.—Ed.

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1 Boisier, indeed, in his 'Voyage Botanique en Espagne,' says of the R. Ponticum: "Hab. verosimiliter in Atlante," but I know not upon what authority.

2 How far these species may accord with those of Sikkim, or whether any will do so, cannot be determined, until the Hon. the E. I. C. shall be pleased to unlock the treasures contributed by Mr. Griffith to the Herbarium stores in the possession of the Company; and there know to be very different and of peculiar interest.
THE RHODODENDRONS OF SIKKIM-HIMALAYA.

It has been well remarked by the illustrious Wallich (the Father of Nepalese Botany), that in Nepal the genus Rhododendron claims the highest rank amongst the plants of that rich kingdom. From the proximity of Sikkim to Nepal, a similarity in the botanical features of these countries might be expected; and also that the difference should rather exist in individual species than in the genera or higher groups. The outline of the two countries is very similar, their latitude the same; so is their geology; and the difference in climate is slight, and only evident in the increased humidity of the eastern region.

Rhododendrons are distributed in Sikkim as they are in Nepal, crowning those sub-Himalayan hills which attain 7,000 feet of elevation, and at a still greater altitude increasing in number of species and individuals: some species being replaced by others which have no greater, perhaps less, apparent adaptation for resisting vicissitudes of climate, and yet accompanying several of the more local kinds throughout the elevations they severally attain.

I. As is frequently the case with large genera, one or more species, distinguished by peculiarity of distribution, often present some anomalies in botanical or other characters, whether in the unusual habit, mode of growth, or singular outline, colour, or more important feature. So it is with the Sikkim Rhododendrons. *R. Dulkosia*, the only one found so low as 7,000 feet, and thence upwards for 3,000 feet more, differs from all its congeners of Northern India in its epiphytal mode of growth, its sweet-scented flowers, slender habit, whorled branches, and in the length of time during which it continues in bloom. It is much the largest-flowered species with which I am acquainted, and has more membranous leaves than any of the others. With all these striking anomalies, it does not, however, present one character of calyx, corolla, stamens, or pistil, entitling it to separation from the genus. In possessing a large foliaceous

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1 In Sikkim, *Vaccinium* offers a parallel case. The *V. serpens* (?), an epiphyte on very large trees, inhabits a much lower level and ranges through many more feet in elevation than any of its congeners. [In Borneo it will be remembered that Mr. Low discovered epiphytal Rhododendrons; and Mr. William Lobb, several in Java.—Ed.]
calyx, it is one of the most perfect plants of the whole, and in its characters of flower and fruit is far more closely allied to the typical or scarlet-flowered group, than is the section to which the following belongs.

II. *Rhododendron Fulcaneri*, a white-flowered species, is eminently characteristic of the genus in habit, place of growth, and beauty, never occurring below 10,000 feet. On the other hand, it is peculiar in its ten-lobed corolla, numerous stamens, and many-celled ovary, superior foliage and many-flowered capitula. This multiplication of parts and development of foliage and trunk give it an interesting appearance; but there is an almost total absence of calyx, an organ sufficiently evident in other species. It is allied to a species discovered by the lamented Griffith in Boyant, the *R. grande*, Wight, published in the Calcutta Journ. Nat. Hist. vol. viii. p. 176 [and since in Dr. Wight’s “Tecoma,” vol. iv. pp. 6. t. 1208].

III. A third white-flowered group contains but one Sikhim species, the *R. argenteum*, a very conspicuous tree at an elevation of between 8,000 and 9,000 feet. In beauty of foliage it nearly equals the last-mentioned (*R. Fulcaneri*), and the flowers are larger than in any but *R. Dalhousie*, and of the same form as those of the scarlet group; the stamens are of the normal number, but the ovary is many-celled. Though evidently distinct, this species combines the characters of most of the other groups. In size of flower and colour, as already observed, it resembles *R. Dalhousie*, as it does in its unusually membranous leaves; in the colour of the flower, size of foliage, small calyx, and many-celled ovary, *R. Fulcaneri*, while the number of stamens, general habit, silvery under-surface of leaf, etc., connect it with *R. argenteum*.

IV. A singular set includes the dwarf sorts to which *R. cinereum* and *R. Bogali* belong. The flowers are small, the corolla is subcoriaceous, narrowed at the base of the tube, and its colour is a peculiarly dirty brick-red, somewhat iridescent with blue in bud, and its lobes are rounded, subacute, not notched or wrinkled. The calyx is small, coriaceous, and squamous in both; in one the lobes are remarkably unequal. In the number of stamens, cells of the ovary, etc., they agree with the usual characters of the genus.

V. Of the normal or typical group, indicated to be such by the number of species it contains, by the prevalence of scarlet flowers, uniformity of corolla and number of parts, there are two subdivisions: one has a fully developed calyx, in the other the calyx is very small and coriaceous. *R. leucostigma* and *R. barbatum* represent the former section, in both of which the organ is as conspicuous as in *R. Dalhousie*. *R. argenteum*, *R. Wallisii*, and *R. Campbellianum* belong to the latter section. The species of this group known to us are all trees, of contracted range and gay flowers.

VI. The little *R. elongated* may be classed in another group: it is a very alpine plant, of which I possess only the foliage and fruit. Its smallness (a character which seems most conspicuous in the smaller and more alpine species) allies it to *R. cinereum*, but it is apparently single-flowered and calcareous.

The sub-Himalayan mountains are surely the centre of this truly fine genus, distinguished by the number and variety of its species and groups, by the great size and eminent beauty of several, which form conspicuous features in the landscape over many degrees of latitude, through a great variety of elevations, and clothe a vast amount of surface.

For this figure and description it will be seen, that although in many aspects near *R. Fulcaneri*, especially in the dense many-flowered capitula, minute many-lobed ovary, numerous stamens and cells of the ovary, yet that it is quite distinct in the smaller capitula leaves, white and zelkova leaves, and in the deeply ten-lobed calyx.—Eno.

The term *cinereum* is of course used comparatively here; in no species is the foliage truly so.—less coriaceus were the better, though more common, term.

Dr. Hooker has here stated of *R. argenteum*, that *R. Grifithianum*, Wight, in Calcutta Journal of Natural History, vol. viii. p. 176, is probably a close ally of this; but that has since been published in Dr. Wight’s Journal Plant. India Oriental, vol. iv. p. 6. t. 1204, and proves to belong to, or rather to constitute, a very distinct section, having very lax scarlet flowers, a slender stem, spreading, matutinum calyx (quite unlike that of any other species), many (17?) stamens, and ten cells to the ovary. It is a native of Buctan.—Eno.

The Negeberric Ceylon, and the Malay Flora to that of the Himalaya. The same formation, and, especially, Eastern Europe, the Ural, and the size of the species and number as well as the very different aspect from that they have through this distinction, it is in the sub-Himalyan range for its whole lot the genus *Rhododendron*.

In North-West India, the genus *Rhododendron* in Kaimoon, where, of course, the genus is the genus *Rhododendron* more abundant than Griffith obtained in Boyant, and that chain from the upper to the lower limits of the genus in that country as it is the case with the *Cinnamomum* species found in Zimmer's.
The Neelgherries, Ceylon, and the Malay Archipelago contain, each, some species which prove the affinity of their Floras to that of the Himalaya. The same is the case with the great mountains of Northern Asia, Central, Southern, and, especially, Eastern Europe, the Ural, and Pontus. The genus extends even to the Polar regions, diminishing in the size of the species and number as we recede from the Himalaya: in North America they appear again, though under a very different aspect from that they present on the subtropical mountains of Asia.

Wide though this distinction is, it is far from uniform, the Himalaya itself offering most remarkable anomalies. My friend Dr. Thomson (now engaged in a botanical mission to Thibet) informs me that the genus is not found in Cashmere; nor, during all the wanderings of that intrepid and indefatigable naturalist in the Trans-Sutledge Himalaya and Thibet, has he met with one representative of it. He detected, indeed, in the country south of the Chenab, both the *R. arboreum* and *R. campanulatum*, and which is probably their western limit.

In North-west India, the genus *Rhododendron* is first seen on the Kunawur hills, and, advancing east, follows the sub-Himalayan range for its whole length, the species increasing in number as far as Sikkim and Bootan; thence the genus is continued to the Mishmee hills, the eastern extremity of the range, crossing the Brahmaputra to that lofty range which divides the water-shed of the Irawaddi from that of the Brahmaputra.

Though scarcely found, throughout this long line of upwards of 1,200 miles, below 4,000 feet, the Rhododendrons still affect a warm and damp climate, where the winters are mild. The English naturalist, who is only familiar with the comparatively small hardy American and European species, would scarcely expect this. A certain degree of winter-cold and perpetual humidity is necessary; but the summer-heat is quite tropical where some of the genus prevail, and snow rarely falls and never rests on several of those peculiar to Sikkim.

*R. arboreum*, according to Captain Madden, inhabits various localities between 3,000 and 10,000 feet: this is in Kamacoon, where, of course, the genus would descend lowest; and the range is incomparably greater than that of any other species, at least of those found in Sikkim. Dr. Griffith, after extended wanderings in Bootan, gives the limits of the genus in that country as between 4,292 and 12,478 feet, which is a lower level by 3,000 feet than they are known to descend to in Sikkim. In the extreme east of Assam, where the Himalaya itself diverges or sends lofty spurs to stem the Brahmaputra, on the Phien Pass to Ava, Rhododendrons ascend from 5,400 to 12,000 feet, to the upper limit of arboreous vegetation, and perhaps still higher.

During my limited excursions in Sikkim, I gathered eleven species (and I believe that more exist), a greater number than Griffith obtained in Bootan; so that I cannot but regard this longitude as the head-quarters of the genus in the Himalaya, and that chain as the especial region of the genus in the Old World. Here, too, I may remark (as is the case with the Conifers of Tasmania and Cactee of Mexico), the species are most limited in habitat, where, numerically, the genus is the largest, the *R. arboreum*, however, having a much wider range than any other species found in Sikkim.

1 Dr. Hooker had here inserted "where *R. arboreum* is unknown," that is, in Sikkim. But one of his own excellent figures, sent home as representing a new species, is, I have no hesitation in saying, the true *R. arboreum*, coinciding entirely with the original figure of Sir James E. Smith (Exotic Botany, t. 6), and with original specimens given me by the same distinguished botanist and existing in my own Herbarium. Nor need we be surprised that Dr. Hooker should have fallen into this error, with few books and no authentic specimen to consult; especially when it is borne in mind that his eye had been accustomed to the plants that pass under that name in our gardens, but which have been so hybridised by cultivators, either to increase their beauty or with the intention of rendering the offspring more hardy, that an original plant or tree of *Rhododendron arboreum* is almost as rare in England as is the normal single-flowered state of the *Cedrus* (Kerria) *Jayacens*. Let it be further observed that other distinguished Botanists have confounded distinct species with the *R. arboreum*: I allude especially to the plant, so called by Dr. Wight, of the Neelgherries (Icocos Plant. Ind. Orient. f. 1801), which is the *R. Nilghiricum* of Zonker (Plant. Nilg. cam Io, and of Bot. Mag. t. 6381). No one who compares native specimens of those two plants can have any hesitation in pronouncing them distinct.—En.
THE RHODODENDRONS.

Westward again, as far, indeed, as the western termination of the Himalaya, the species descend lower than in Botta,—an anomalous fact, for which, in our ignorance of the contrasting features which may distinguish the Eastern from the Central Himalaya, I can only assign conjectural causes. Among these there may be the proximity of the ocean to the Sikkim portion of the range, and the presence of heavy mountain-masses covered with winter, and even perpetual, snow, to the south and east of the upper extremity of the Brahmaputra, whereas the genus is found nearly 3,000 feet lower than in Sikkim. The descent of the snow-line in Upper Assam to 14,000 or 15,000 feet, is no doubt due to the same causes, and this is a most remarkable fact. Uniformity of temperature, excessive humidity, and a broken surface, produce the same effect here as in the high southern and eastern latitudes,—favouring the formation of snow and its permanence, and also extending the range of tropical forms upwards to a greater elevation, and the descent of temperate or arctic forms to a lower one; of which no stronger proof can be required than the descent of Roseane and Elwesi, and the great elevation which Buxania, Delavayana, and other eminently tropical genera, attain on the Himalaya.

Too much stress cannot be laid upon this fact, that the snow-line ascends with the latitude on the Himalaya, from 14,000 feet at its south-east extreme in Upper Assam, south of the Brahmaputra, lat. 24° N., to 20,000 feet at its north-west extreme in the regions near and beyond the Sutlej, lat. 36° and 37° N. Had the level of perpetual snow remained uniform throughout these 600 miles of nothing, then climate would have only annihilated the effect of distance from the equator. But if we allow that, in Asia, a degree of latitude is the index of a change of 300 feet in the snow-line, we must also allow that the limit of perpetual snow is 9,000 feet lower in Upper Assam than its height on the Sutlej Himalaya would indicate, being 15,000 instead of 28,000 feet; and, vice versa, that if 14,000 is that limit at Assam, as determined by latitude alone, in Kumaon we should have it at 11,000 instead of 20,000.

Only four species, R. Delavayana, R. Campbellii, R. argenteum, and R. arboreum, grow near Darjeeling. The second and fourth form scattered bushes at 7,500 and 9,000 feet; the R. argenteum is a small tree, at 8,000 and 9,000 feet, strongly associated with Delavayana, Consolida, Paris, Spathrissera, Laurus, and Magnolia.

It was on the ascent of Tungb, a mountain on the Nepalese frontier, that I beheld the Rhododendrons in all their magnificence and luxuriance. At 7,000 feet, where the woods were still dense and subtropical, mingling with Firs, Patches, Peppers, and Figs, the ground was strewed with the large bell-like flowers of R. Delavayana, dropping from the epiphytal plants on the enormous Okas overhead, and mixed with the egg-like flowers of a new Magnoliaceous tree, which fall before expanding and diffuse a powerful aromatic odour, more strong, but far less sweet, than that of the Rhododendrons. So conspicuous were these two blossoms, that my rude guides called out, "Here are lilies and eggs, sir, growing out of the ground!"—No bad comparison. Passing the region of Tree-Ferns, Walnut, and Chestnut, yet still in that of the Alder, Birch, large-leaved Oak (whose leaves are often eighteen inches long), we enter that of the broad-lobed Acan (which raises a crested head like that of the Cuna de capel), the Kuruma, Stenoceras, Consolida, and many Lonicera.

The paths here are much steeper, carried along narrow ridges or over broken masses of rock, which are scaled by the aid of intertwined roots of trees. On these rocks grow Euphorbia, a few Orchids, Bceon, Cyrtandra, Arioidea of curious forms, the anomalous genus Streptophris of Edgeworth, and various Cypripediums, and the Rhododendron arboreum is first met with, its branches often laden with pendulous mosses and lichens, especially Usnea and Borerio. Along the flat ridges, towards the top, the Yew appears with scattered trees of Rhododendron argenteum, succeeded by R. Campbellii. At the very summit, the majority of the wood consists of this last species, amongst which and next in abundance comes the R. bokhatan, with here and there, especially on the eastern slopes, R. Palmsi.
Mingled with these are Pyri, Pruni, Maples, Barberries, and Azaleas, Olea, Ilex, Limumia, Hydrangea, several Caprifoliaceae, Gaultheria, and Astrantia; the Apple and the Rose are most abundant. Stenotonias, with its glorious racemes of purple flowers, creeps over all; so do Kadsura and Ochna; whilst a Currant, with erect racemes, grows epiphytally on Rhododendron and on Pyrus.

The habits of the species of Rhododendron differ considerably, and, confined as I was to one favourable spot by a deluge of rain, I had ample time to observe four of them. _R. Camphillius_, the only one in full flower early in May, is the most prevalent, the ropes of my tent spanning an area between three of them. Some were a mass of scarlet blossom, displaying a sylvan scene of the most gorgeous description. Mr. Nightingale’s! Rhododendron groves, I thought, may surpass these in form and luxuriance of foliage, or in outline of individual specimens; but for splendour of colour those of the Himalaya can only be compared with the *Butea frondosa* of the plains. Many of their trunks spread from the centre thirty or forty feet in every way, and together form a hemispherical mass, often forty yards across and from twenty to fifty feet in height! The stems and branches of these aged trees, gnarled and rugged, the bark dark-coloured and clothed with

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1 At Embley near Roussey, Hunts, the seat of William Edward Nightingale, Esq., whose beautiful grounds boast of drives through what may really be called woods or groves of Rhododendrons, many of them self-sown.—The mention of these grounds (adorned with exotic Rhododendrons) by a naturalist luxuriating amidst the aboriginal species of the lofty mountains of Sikkim-Himalaya, makes me desirous to introduce here a brief notice of the plants in question. I could not trust my own memory for a correct statement of what it has been my privilege to see, but Miss Nightingale has obligingly communicated to me the following particulars:

“Our Rhododendrons were chiefly planted about thirty years ago: the largest number are in an exceedingly wet ‘bottom’ of deep black peat full of drains, sheltered with sloping banks of Birch and Fir, with a good deal of Laurel, large Kalmias and Azaleas near the road. This part was originally a nursery-garden of about four acres: the shrubs have been cut continually to keep the road clear, and now make a bank seventy or eighteen feet high. They are scattered over the high ground (a dry black sand) for about two miles, where they cover another bank of heathery soil and another bottom of the deep peat. There are not above a dozen of the _R. maximus_ amongst them, and about three times as many of the _arboreum_ and hybrid Scarlets, which we find quite hardy, but which seem to flower best in the high and dry situations. The _Ponilicum_ and var. roseum send themselves to a great extent, and the consequence is an immense variety in the shape, size, and colour of the flowers, hardly any two plants being quite alike.

“The largest single Rhododendron is one hundred and fifty feet round and twenty feet high: there are several of ninety-seven and ninety-eight feet round, but these have been cramped for room by their neighbours. The tallest I can find grows between a Birch and a Portuguese Laurel, and is twenty-five feet high, its single upright stem measuring nineteen inches in circumference. It is quite an exception, for they fork generally immediately on emerging from the ground; and though there is one which measures five feet ten inches in the girth of its trunk at the ground, yet as he leaves his good ways and divides immediately after, I am not sure you will grant him his diploma as a tree. The forks are from fourteen inches to two feet in circumference. The variegated kind, with long footstalks to the flowers, has perhaps the thickest stem with us. The outside branches of the large individuals root themselves all round, and make impenetrable thickets. We plant out the seedlings, which come up very thickly wherever an open space gives them room, and they are now scattered over most of the wild ground about.

“I think this is pretty nearly all we have to tell, but we may add that the Kalmias and Yellow Azaleas are some of them ten feet high and wide in proportion.”

It may be interesting to record some particulars of another favoured spot for Rhododendrons, namely, Penllergrow, Glamorgan, the seat of Dillwyn Llewellyn, Esq., who writes in reply to my queries:

“The soil and climate of this district suit that class of plants well, as is attested by the seedlings of the common Rhododendron _Ponilicum_, which appear in thousands throughout our woods. The rough sketch I enclose is of this species: it measures in height fifteen feet ten inches, and completely covers a circumference of one hundred and ten feet. The plant grows by itself upon a lawn, without any trees to overshadow or interfere with it, and it forms a perfectly symmetrical and compact shrub, with dense foliage and short-jointed wood.

“We have also a specimen of _R. arboreum_, var. roseum, nine feet four inches in height, and in circumference forty-eight feet: it was planted fifteen years ago and has never received the slightest protection. Like the last, it stands alone upon a lawn, and is of a beautifully compact form. It has 3,200 flower-buds now upon it. The single stem from which it rises measures one foot nine inches in girth.

“The American species also flourish here with great vigour. A specimen of _R. Catawbense_ measures nine feet six inches in height, and covers forty-one feet six inches of circumference; this, however, is much younger than either of the preceding. It is also growing under the shade of large oak-trees, for which reason it is somewhat drawn and not so fine and thick in its growth as it might otherwise have been.”

It may be observed that Mr. Loudon, in his ‘Arboretum Britannicum,’ has not described any specimens of _Rhododendron arboreum_ of the size above given. The largest he has noticed are at Winchester House, thirty-three feet in the spread of its branches; at Caffells in Hampshire, thirty-nine feet ditto; Woburn Abbey, twenty-eight feet ditto; Shipley Hall, Derbyshire, fifty-six feet ditto, and sixteen feet the greatest height.—Ed.
spongy moss, often bend down and touch the ground; the foliage, moreover, is scanty, dark green, and far from graceful; so that notwithstanding the gorgeous colouring of the blossoms, the trees when out of flower, like the Fuchsias of Cape Horn, are the gloomy denizens of a most gloomy region. *R. Campbellii* and *R. barbatum* I observed to fringe a little swampy tarn on the summit of the mountain,—a peculiarly chilly-looking, small lake, bordered with Sphagnum, and half-choked with Curios and other sedges: the atmosphere was loaded with mist, and the place seems as if it would be anguish if it could, but was checked by the cold climate. *R. barbatum* had almost passed its flowering season: it is a less abundant and smaller tree than the last mentioned, but more beautiful in the brighter green and denser foliage, clean, papery, light-coloured bark, the whole forming a more picturesque mass.

Along the north-east and exposed ridges only, grew the *R. Falconeri*, in foliage incomparably the finest. It throws out one or two trunks, clean and smooth, thirty feet or so high, sparingly branched: the branches terminated by the immense leaves, deep green above, edged with yellow, and rusty red-brown below. The flowers are smaller, but more numerous in each head than in the two last mentioned (*R. Campbellii* and *R. barbatum*).

The temperature of the earth in which the above species grew, was, in the middle of May, at twenty-seven inches below the surface, where the roots are chiefly developed. 49° 5 at all hours of the day: that of the air varied from 50° to 60°.

In naming the new species before me of this eminently Himalayan genus, I have wished to record the services of some of those gentlemen who, besides Mr. Griffith (to whom a species had been already dedicated by Dr. Wight), have most deeply studied the vegetable productions of the country: they are Drs. Wallich, Royle, and Falconer. With their names that of Dr. Campbell, the Political Resident at Darjeeling, author of various excellent Essays on the Agriculture, Arts, Products, and People, &c., of Nepal and Sikkim, is no less appropriately associated; and in compliment to his amiable Lady I designate that Rhododendron which is most characteristic of Darjeeling vegetation; while to the Lady of the present Governor-General of India, I have, as a mark of grateful esteem and respect, dedicated the noblest species of the whole race. *J. D. H.*
THE RHODODENDRONS OF SIKKIM-HIMALAYA.

CONSPECTUS SPECIERUM INDÆ ORIENTALIS.


1. *R. Falconeri*, Hook. fil. Tab. X.

Hab. Sikkim-Himalaya; outer and inner ranges. Mountain-tops and valleys. Elev. 10–12,000 feet.

Note. The natural size of the flowers of this species is often as great as that given for the magnified figure (fig. 2) in the plate quoted, in which case the capitula are fewer-flowered. Leaves often fifteen inches long and eight broad. Capsule densely villoso-tomentose, oblong-cylindrical, obtuse, slightly curved, an inch and a half long, half an inch wide. Seeds pale-brown.

2. *R. argenteum*, Hook. fil. Tab. IX.

Hab. Sikkim-Himalaya; inner and outer ranges. Elev. 8,000–10,000 feet. It flowered very abundantly in April of 1849.

Note. Stamens generally eighteen in number. Capsules puberulous, oblong-cylindrical, obtuse at both ends, one and a half to two inches long. Seeds pale.


Hab. Sikkim-Himalaya. Elev. 10–12,000 feet.


Hab. Bhootan, Griffith.
II. Calyx cupular, hemispherical or ovoidelliform, obsolete lobed. Corolla campanulate, 5-lobed. Stamens 10-16.

5. R. Auchlandii, Hook. fl. Tab. XI.

Hab. Sikkim-Himalaya. Elev. 7-9,000 feet, rare.


Hab. Bhutan, Griffith.

7. R. Thomsoni, Hook. fl. Tab. XII.

Hab. Sikkim-Himalaya. Elev. 11-13,000 feet, abundant.

8. R. Candelabrum, Hook. fl. Tab. XXIX.

Hab. Sikkim-Himalaya. Elev. 11-13,000 feet.


9. R. Edgeworthii, Hook. fl. Tab. I. II.

Hab. Sikkim-Himalaya; outer and inner ranges. Elev. 6,000-9,000 feet. Fr. May, June; fr. October.

Note. Gemma terminal, strobiliform, one and a half to two inches long; scales broad-orbicular, concave, very coriaceous, almost woody, pale-tawny, glabrous, ciliated to the apex. Leaves glanduloso-punctate and rough with squamules. Petioles sometimes setose. Capsules large, woody, linear-oblanceolate, slightly curved, matutious, 5-angled, punctato-glandulose, the valves linear, recurved at the apex, obscurely keeled at the back, the axis terminated by the persistent style. Seeds pale yellow.

10. R. Edgeworthii, Hook. fl. Tab. XXI.

Hab. Sikkim-Himalaya. Elev. 7-9,000 feet.

11. R. barbatum, Wall., Hook. fl. Tab. III.


Note. Branches, peduncles, and calyx glabrous or setose. Leaves beneath quite glabrous or sub-villous. Capsules generally glabrous, rarely quite glabrous, glumes stipitate. Very variable in the degree of hairsness, but otherwise a well-marked species.

12. R. lanceolatum, Hook. fl. Tab. IV.

Hab. Sikkim-Himalaya. Elev. 8-10,000 feet.

Note. Probably only a glabrous small-flowered and small-leaved variety of R. barbatum.

13. R. ciliatum, Hook. fl. (n. sp.) Tab. XXIV.

Hab. Sikkim-Himalaya. Lachen and Lachoong valleys. Elev. 9-10,000 feet.

14. R. glaucum, Hook. fl. Tab. XVII.


Hab. Sikkim-Himalaya; epiphytal, or growing on moist rocks, in very damp places, on the inner and outer ranges. Alt. 6-8,000 feet. Fl.?

A small, very slender, straggling species, sometimes pendulous from trunks of trees, and then two feet long, of a bright green colour, and so like a common Sikkim species of *Vaccinium* (*V. obovatum*, Wight, Icon. t. 1193) as not to be distinguishable at first sight.

Stems no thicker than a dove's quill, scabrid with tubercles, indicating the former position of scales, which still clothe the ramuli, petioles, and, more sparingly, the under surface of the foliage. Leaves coriaceous, three-fourths to one inch long, obovate or even spatulate, the lamina produced downwards to the very base of the petiole; upper surface a bright green, lower paler. Peduncles of the fruit as long as the leaves, slender. Calyx small, but manifestly foliaceous. Capsules curving, narrow, pale-coloured, and membranous, an inch long, scarce one-eighth of an inch in diameter, valvate linear, torulose, a little sealy on the back. Seeds pale-coloured.

I have never found the flowers of this singular and very distinct little species.


Hab. Sikkim-Himalaya. Zemu and T'hlonok rivers, rare. Eler. 12-14,000 feet.

IV. Calyx small or obsolete, rarely 5-toothed, lobes equal. Corolla campanulate, or with the limb contracted below its base, and subinfundibuliform. Stamens 10. Ovary 5-10-celled.—Shrubs, generally glabrous or clothed beneath, sometimes lepidote.


Hab. Himalaya Mountains: from Bhootan to the western extremity. Elev. 5-8,000 feet.


R. arboreum, album, Wight, Ic. 1.1201 (not Sm).

Hab. Himalaya Mountains: on both the outer and inner ranges, at elevations of from 7-10,—and even 11,000 feet.—Mountain of Sheopore in Nepal. Dr. Wallich.

Note. It has been already stated that the chief difference between this and *R. arboreum* consisted in the rusty dull (unpolished) tomentum of the underside of the leaf of *R. Campbellia*, as compared with the silvery compact filmy clothing of the latter. Dr. T. Thomson assures me that in Western Himalaya, where *R. arboreum* is so common, it is never otherwise than silvery and white beneath. Since I have seen the figure of *R. Nilagiricum* in the Botanical Magazine, Tab. 4381, I am quite disposed to consider the present species identical with that, exactly agreeing with that in the shape of the leaves, as well as in other characters, and since that is acknowledged to have differently-formed leaves from the true *R. Nilagireicum* of Zemker, and also said to be from Nepal, not from the Neelgherries, we can hardly doubt that it may safely be brought as a synonym to our *R. Campbellia*: perhaps, also, Dr. Wallich's *R. noble* (Wall. Cat. n. 1521, excluding 2) is not different, but this is nowhere accurately described, and possibly *R. cinnamomeus* (which by many is considered a variety of *R. arboreum*) of the same author, from Nepal. I have not seen *R. Campbellia* below 7,000 feet, whereas *R. arboreum, verum*, ranges from 5,000 to 8,000 feet.


*R. noble*, Wall. Cat. n. 1521. 2 (not 1).

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Note. Difficult as it may be to define the characters of this species in words, yet we believe that no one can see our native specimens in the herbarium without feeling assured that it is a distinct species, and truly different from any found in the north of India. There is a peculiarity in the firm and hard texture of the broad foliage, with its strongly recurved margins, and the deeply impressed venation and opaque green colour; and a still stronger distinguishing mark is in the almost globose strobilus, formed by the scales of the united flowers while in young bud, and which is admirably represented in Dr. Wight's plate above quoted. The nearest approach to this is in the Rhododendron from Adam's Peak and other mountains of Ceylon, which, I believe, has never been described, though it has been considered, while there was believed to be only one tree Rhododendron in India, as R. arboreum, and it is cultivated in nurseries under the name of R. Botanicum. This has darker foliage than R. Nilagiricum, and is much larger in all its parts.

20. R. nobile, Wall. Cat. n. 1291 (not 2, which is R. Nilagiricum).

Hab. Kamoon. Dr. Wallich.


Hab. Sikkim-Himalaya; rocky valleys and ridges, Lachen, Laachoong, and Chola; elev. 10-12,000 feet, not unfrequent. M. 2. Fr. November.

A small rugged-barked tree, having the habit and general appearance of R. arboreum, with which and R. Campbellii it grows frequently intermixed, but may be distinguished, even at a distance, by the snow-white under-surface of the leaf. On a closer inspection this is seen to be caused by an appressed pubescent tomentum occupying both surfaces of the very young leaf, and sometimes of a rusty-red hue. In the two quoted allies the the leaf is narrower and the whitish hue or silvery lustre of the under-surface of the leaf is not removable, and is generally shining. The upper surface of the leaf of this is opaque, but in R. Campbellii, polished. Capsules of this shorter, more cylindrical, blunt, and straight. I have never known these species to pass into one another. The plant inhabits a much higher elevation than that usually occupied by R. arboreum. The flowers I have never seen.


Hab. Mountains bordering on Silhet. Dr. Wallich, Mr. Gregorick, and Mr. Gibson.


Hab. Guassaing-Tam in Nepal; and Kamoon. Wallich, Hamilton.

24. R. Wallachii, Hook. fil. Tab. V.

Hab. Sikkim-Himalaya; on spurs and in valleys of the inner and outer ranges; elev. 11-13,000 feet. Fl. June; fr. October.

Note. Distinguished from R. campbellii by the conspicuous calyx. Leaves ferruginous or olivaceous beneath, pubescent or villose. Capsules linear, slightly curved, nearly erect, woody, glabrous, an inch to an inch and a half long. Seeds pale.

25. R. Wightii, Hook. fil. Tab. XCVII.

Hab. Sikkim-Himalaya. Elev. 12-14,000 feet.

**Hab.** Sikkim-Himalaya, at Jongri and Chola. Elev. 10–12,000 feet.

27. *R. fulgens*, Hook. fil. Tab. XXV.

**Hab.** Sikkim-Himalaya. Elev. 12–14,000 feet.


**Hab.** Sikkim-Himalaya. Elev. 12–14,000 feet.

29. *R. campylocarpum*, Hook. fil. Tab. XXX.

**Hab.** Sikkim-Himalaya. Elev. 11–14,000 feet.

30. *R. Madderi*, Hook. fil. Tab. XVIII.

**Hab.** Sikkim-Himalaya. Lachen and Lachoong valleys, very rare. Elev. 6,000 feet.


**Hab.** Sikkim-Himalaya; chiefly in valleys and on the skirts of woods, elev. 10–12,000 feet, abundant. Fl. June; fr. November.

**Note.** Shrub six feet high, very elegant; branches and branchlets virgate. Corymb spreading. Peduncles half an inch long. Flowers pendent. Capsules small, half an inch long, ovate, obtuse.—One of the most elegant species of the genus, but very inefficiently represented at our Tab. VIII. Its pendulous or drooping flowers, when in perfection, are peculiarly graceful. It is universally considered poisonous to cattle and goats: of the latter I have seen many die, from eating either of this or of a species of *Andromeda*—which latter is notorious for this property throughout Sikkim, Nepal, and N. W. Himalaya. If employed for fuel, the smoke of *R. cinnabarinum* causes the eyes to inflame and the cheeks to swell.

32. *R. Roylei*, Hook. fil. Tab. VII.

**Hab.** Sikkim-Himalaya. Elev. 10–11,000 feet.

**Note.** Very near, it must be confessed, to *R. cinnabarinum*.

33. *R. conduplicatum*, Hook. fil. Tab. XXVIII.

**Hab.** Sikkim-Himalaya; generally pendent from the trunks of trees, sometimes rocks. Elev. 9–11,000 feet.
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34. R. pendulum, Hook. fl. Tab. XIII.

HAB. Sikkim-Himalaya; pendulous from trees, generally, rarely from rocks. Elev. 9-11,000 feet.

35. R. obovatum, Hook. fl.; frutex ramosus, rami ramulisque gracilibus, ramulus pedunculis calyce corolla extus petiolis foliisque subitus (junioribus utrinque) sparse aquamuloso-ferrugineis, foliis petiolaris obovatis basi in petiolum angustatis apice rotundatis apiculatis vix coriaceis marginibus planis superne opacis subitus pallide ochraceo-brunneis, pedunculis brevibus (fructiferis elongatis) terminalibus solitariis, calycis lobis foliaceis obtusis, corolla rubro-purpurea (ut in R. lepidoto), staminibus 8, filamentis basi serico-villosis, ovario cereberrine lepidoto, stylo brevi crasso, capsula conico-ovatis abrupte truncatis 5-sulcatis 5-locularibus, valvis lignosis lepidotis.

HAB. Sikkim-Himalaya; rocky places. Lachoung valley, 12,000 feet. Fl. June, and again partially in September; fr. November.

A small shrub, 3-4 feet high, much branched, and very resinous in odour. Branches as stout as a duck's quill, not tortuous, but much divided, the upper scabrid where once lepidote. Leaves plane, membranous for the genus, of an opake green above and pale yellow-brown below, the costa slender, percurrent; lamina an inch and a half long, half to three-quarters of an inch broad. Buds nearly globular; scales orbicular, coriaceous, brown, downy on the outer surface, ciliated, the outer ones lepidote. Pedicels half to three-quarters of an inch long, one to one and a half inch when in fruit, very lepidote, as is the calyx, base of the corolla, and ovariun, and fruit. Corolla altogether like that of R. lepidotum. Capsule one-fourth to one-third of an inch long, about twice the length of the persistent calyx-lobes.

The form and size of the foliage, and its glabrous upper surface, distinguish this well from R. lepidotum.

[There is no original drawing of this species.—Ed.]

36. R. salignum, Hook. fl. Tab. XXIII. A.

HAB. Sikkim-Himalaya; above Choongtam. Elev. 7,000 feet.

37. R. elangooides, Hook. fl. (supra Fasc. I. p. 8. n. 9). Tab. XXIII. B.

HAB. Sikkim-Himalaya; open rocky places. Elev. 12-16,000 feet.

38. R. lepidotum, Wall., Cat. n. 738. Royle, Ill. p. 260. t. 64. f. 1

HAB. High mountains, Nepal, Dr. Wallich, Dr. Royle. Sikkim-Himalaya, elev. 12-15,000 feet, J. D. H.

Note. A small densely-tufted shrub, a foot or so high, allied to R. elangooides and R. obovatum, with the flowers always on very short pedicels. Its common name is "Thulamee," or "Tsume," amongst the Bhotias, and its resinous odour is very strong, not unpleasant. The description in De Candolle (Prodr. v. 7. p. 724), if, as I do not doubt, it refers to this plant, is very erroneous. The leaves cannot be called "ferruginous below," in the same sense as applied to R. anthopogon, &c.; nor are there any setox or cilia at the bases of the leaves; nor have I observed more than eight stamens, the typical number in this very distinct group, which includes R. salignum, R. obovatum, and R. elangooides. The flowers vary from very fine red to a dingy yellow.

VII. Calyx subglobose, 5-partite or 5-lobed, lobes short, rounded. Tube of the corolla short, funnel-shaped, lobes of the limb elongated, narrow, spreading, entire. Stamens 8, exerted: filaments elongated, slender. Style slender, much exerted. Ovary 5-celled.—Lepidote shrubs.

39. R. triformum, Hook. fl. Tab. XIX.

HAB. Sikkim-Himalaya. Elev. 7-9,000 feet; scarce.
40. *R. virgatum*, Hook. fil. **Tab. XXVI. A.**

_Hab._ Sikkim-Himalaya; skirts of Pine-forests. _Elev._ 8—9,000 feet.

41. *R. nivale*, Hook. fil. **Tab. XXVI. B.**

_Hab._ Sikkim-Himalaya; on the loftiest bare slopes on the Thibetan frontier. _Elev._ 16—18,000 feet.

42. *R. setosum*, Hook. fil. **Tab. XX.**

_Hab._ Sikkim-Himalaya; open stony and rocky places. _Elev._ 13—16,000 feet.


_Hab._ Gossaing-Than, Nepal, and Kamaon, Wallich, Hamilton; Sikkim-Himalaya: rocky, open, especially gravelly places, abundant. _Elev._ 12—16,000 feet.

_Note._ A strongly and far more disagreeably and heavily odorous plant than *R. setosum*. This, the _Palm_ of the Bhoteens, shares with the _Tsallu_ (*R. setosum*) the blame of exciting the headache and nausea attending ascents to the dreaded elevations of the Eastern Himalaya. In the Herbarium its permanent odour is more disagreeable than that of any of the genus. Nothing, however, can exceed the beauty of its flowers, whether we consider the exquisitely tender, membranaceous, translucent texture of the corolla, with its delicate nervation, or the rich blush of the first opening blossoms, which insensibly passes into snowy white, then faintly tinged with sulphur—all colours seen on one and the same plant.
RHODODENDRON DALHOUSSIAE, Hook. fil.

(in its native locality)
RHODODENDRON DALHOUSSIEI, Hook. fil.

Tab. II

Fedts. grossle, ramis remotis verticillatis vigt parte ad plano-pancatis, basi in petalum attenuatis; corolla campanulata basi profunde 5-foveolata.

Han. Perennial on the trunks of large trees, especially in July.

A straggling shrub, six to eight feet high, and shrub-like, upon the trunks of large trees, sparsely branched, the branches distant, each bearing a few or one flower, petiolate, about four inches across, tomentose, obtuse at the base, attenuate, plane (not revolute), the upper surface dark green with very minute, scattered, rusty-coloured hairs prominent, the lower surface less so, of which is greater than that of the leaves. Stipules membranaceous. Calyx large, deeply divided into five lobes. Corolla very large, three inches and a half white, with an occasional tinge of rose, in some forms, Lilium candidum, very fragrant. At the base, equal, very broad, rounded, waved, spreading. Anther oblong-ovate, dark purple-brown, longer than the stamens. Stigma an oblong, pointy, dark brown.

Certainly, whether we regard the size, or the name, of the genus Rhododendron. The colouring is a shade of purple, and sometimes becomes spotted with orange.

Tab. I. Represents a plant of R. Dalhousii, Tab. II. Flowering branch.
RHODODENDRON DALHOUSIE, Hook. fL.

Lady Dalhousie’s Rhododendron.

TAB. I., II.

Frutex grceilis, ramis remotis verticillatis vago patentibus, foliis obovato-ellipticis obtusis coriaceo-membranaceis subter pallidioribus sparse rafa-punctatis, basi in petiolum attenuatis, floribus (amplis albis) 3-7 capitato-umbellatis, lobis calycinis foliaceis oblongis obtusis, corolla campanulata basi profunde 5-fovulata, staminibus 10 filamentis inferne pilosis, ovario 5-loculari.

Hab. Parasitical on the trunks of large trees, especially Oaks and Magnolias. Sikkim-Himalaya: elevation 7,000–9,500 feet. Fl. April to July.

A straggling shrub, six to eight feet high, always seen growing, like the tropical Orchideae, among moss and Ferns and Aroidae, upon the trunks of large trees: the stems clothed with a reddish papery bark, the branches straggling, patent, whorled, the whors distant; each branch bearing its leaves and flowers only at the extremity. Leaves few, patent or reflexed, petiolate, about four inches and a half to five in length, elliptical-obovate, between coriaceous and membranaceous, obtuse at the base, attenuated below into a more or less downy footstalk, about half an inch long, the margin plane (not revolute), the upper surface darkish-green, inclining to a yellow hue, even on the surface, beneath paler, dotted with very minute, scattered, rusty-coloured scales or points (scarcely sufficient to change the general tint), the mid-rib prominent, the rather close parallel nerves scarcely so. Flowers three to seven in a terminal, umbellate head, the spread of which is greater than that of the leaves. Pedicelis nearly an inch long, stout, cylindrical, downy. Bracteis ligulato-membranaceus. Calyx large, deeply divided almost to the base into five ovato-elliptical, very obtuse, spreading, foliaceous lobes. Corolla very large, three inches and a half to four inches and a half long, and as broad at the mouth, campanulate, white, with an occasional tinge of rose, in size and colour and general shape almost resembling that of the white Bourbon Lily, Lilium candidum, very fragrant. At the contracted base of the tube are five deep foveolate. Lobes of the limb nearly equal, very broad, rounded, waved, spreading. Stamina ten: filaments longer than the tube, curved upwards, downy below. Anther oblong-ovate, dark purple-brown. Ovary ovate,发掘aneous, five-celled, tapering into the thickened style, which is longer than the stamens. Stigma an orbicular, convex disk.

Certainly, whether we regard the size, the colour, or the fragrance of the blossoms of this plant, they are the noblest of the genus Rhododendron. The colour partakes of that of the Lemon. In age the flowers assume a delicate roseate tinge, and sometimes become spotted with orange, which rather adds to than detracts from, their beauty.

Tab. I. Represents a plant of R. Dalhousie, on a very reduced scale, in its native locality.

Tab. II. Flowering branches. 1. Stamina. 2. Anther. 3. Pistil—natural size. 4. Section of ovary. 5. Pollen with boyan.—magnified.