## THE RHODODENDRON HANDBOOK

1947

CONTAINING THE LIST OF species with descriptions and synonyms, together with list of hybrid Rhododendrons and Azaleas, list of collectors' numbers and the Rhododendron Stud Book formerly published in the Rhododendron Association's Year Book. This book has been completely revised by a sub-committee of the Rhododendron Group and contains their valuation of each species and hybrid.

PRICE 15/–

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*There are a few copies still left of the 1947 Year Books, price 8s. 6d. each. The first impression of the 1946 Year Books is completely sold but there are still a few copies of the second impression, price 7s. 6d., while there are a few copies of pre-war Year Books still available, price 5s. paper covers, 6s. cloth bound, postage and packing 9d.*

# R.H.S. PUBLICATIONS

## YEAR BOOKS

### *FRUIT YEAR BOOK*

THIS IS THE SECOND NUMBER of the Fruit Year Book to appear under the auspices of the Fruit Group of the R.H.S. It contains some very important articles on many aspects of Fruit growing, including a special section on the training of Fruit trees. The selection of Pears is discussed by Mr. Potter of the National Fruit Trials and there is also an important article on Russet Apples by Mr. P. Morton Shand. The control of Apple-blossom Weevil is described by Dr. A. M. Massee, while Dr. Kidd and Dr. West of the Ditton Laboratory at East Malling discuss some of the problems involved in the storage of mixed varieties of Apples. Overseas Fruit growing is described in articles from Switzerland, Canada, New Zealand and Victoria, Australia.

### *DAFFODIL AND TULIP YEAR BOOK*

THIS NUMBER OF THE DAFFODIL AND TULIP YEAR BOOK again contains many important articles on aspects of Daffodil growing and breeding in many countries. It contains a full account of the Daffodil Shows for 1948 together with a list of new Daffodils registered in 1948 as well as those which have received awards. There is a description of a new species of Narcissus recently found in Portugal and named after Professor Fernandes. Mr. Frank Galsworthy the artist, contributes to the book an interesting article on arranging Narcissi for House decoration, together with a series of photographs of his groups. There is an important article on the effect of climate and storage on the time of Daffodil flowering contributed by Mr. H. W. Abbis and Mr. S. P. Craze. Daffodil growing overseas is represented by articles from Victoria, Tasmania, South Africa, California and the United States. In the Daffodil Ballot will be found again recommended selections of most suitable Daffodils for growing both in bowls and in the open for exhibition and for House decoration.

### *LILY YEAR BOOK*

THIS BOOK CONTAINS an interesting article on Lilies at Lypiatt Park by His Honour Judge Drysdale Woodcock, a noted authority on Lily growing and also articles on hybrid Lilies by Colonel F. C. Stern, Chairman of the Lily Group, and Lilies for beginners by Mr. F. J. Rose. An authoritative account of *Lilium ochraceum* by Mr. A. D. Cotton from the Supplement to Elwes Monograph continues our reprints from that work. Recent American work on Lilies is represented by two important articles, namely, Lilies and Fertilizers by Mr. G. L. Slate, and recent American research on Virus diseases of Lilies by Dr. Philip Brierley and Dr. Floyd F. Smith. The systematic aspect is represented by a most important article by Dr. W. B. Turrill, Keeper of the Herbarium at Kew, on the subject of Fritillaries and the generic concept. There are aslo accounts of the Lily Group Meetings and discussions and List of Award to Lilies given during 1948. An index covering the twelve years of the Lily Year Book is also included.

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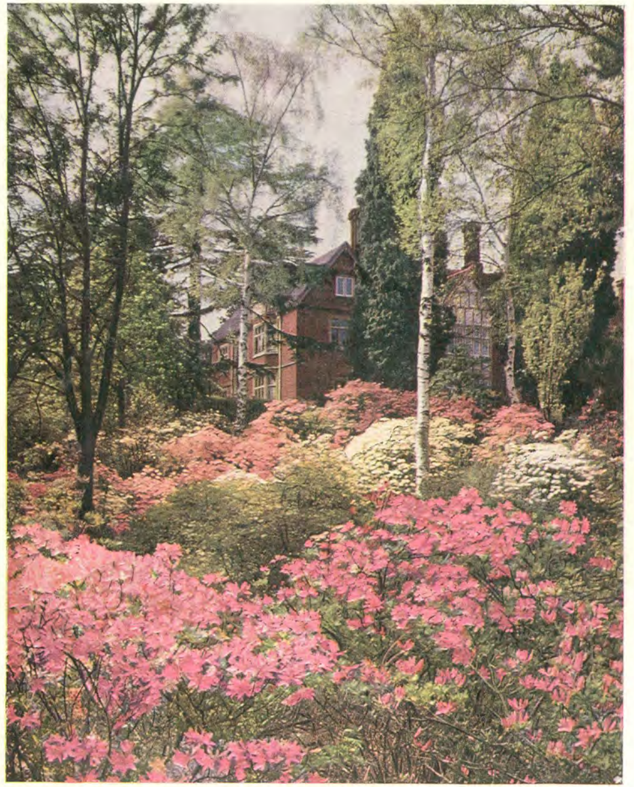
# THE RHODODENDRON YEAR BOOK



1948

THE ROYAL HORTICULTURAL SOCIETY

THIS is the third number of the Rhododendron Year Book to be published under the auspices of the Rhododendron Group of the Royal Horticultural Society. It contains an account of Rhododendrons at Tower Court, the garden of Mr. J. B. Stevenson, the Chairman of the Rhododendron Group where is grown the largest collection of species Rhododendron to be found in England. There are also accounts of Rhododendrons at Rowallane in Ireland by Mr. H. Armytage-Moore and Rhododendrons at Wisley, by Mr. F. Hanger. The breeding of pedigree Rhododendrons is discussed in an important article by Mr. F. C. Puddle, while overseas Rhododendron growing is represented by an article from New Zealand by Mr. Douglas Cook. Dr. J. Macqueen Cowan and Mr. H. Davidian of the Edinburgh Botanic Garden continue their most important revision of the series of Rhododendron by a long discussion of the Boothii, Glaucum and Lepidotum series. This article alone makes the Year Book of permanent importance to all growers as well as systematists dealing with the genus. There are also accounts of the Rhododendron Show as well as awards given to Rhododendrons during 1948.

COVER ILLUSTRATION

Azaleas at
Tower Court
by N. K. Gould

**8s. 6d.**

# Acknowledgements

## to this online edition

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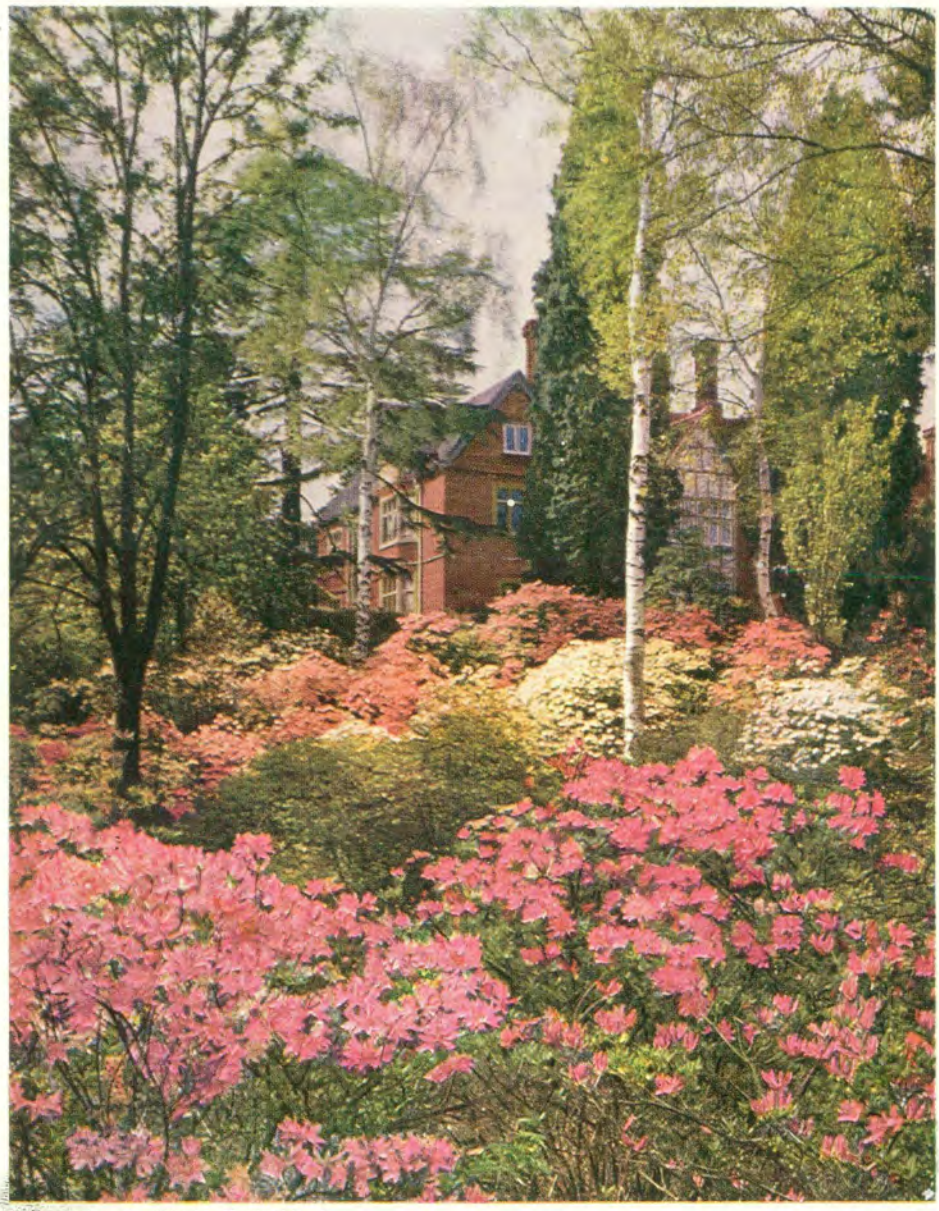

*Colour photograph by N. K. Gould*

AZALEAS AT TOWER COURT

# THE RHODODENDRON YEAR BOOK 1948

*NUMBER THREE*

THE ROYAL HORTICULTURAL SOCIETY
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# LIST OF ILLUSTRATIONS

# FOREWORD

THIS Year Book will perhaps have a special interest in that it will be published in time for the Rhododendron Conference of 1949.

The Conference, which it is hoped may be attended by Rhododendron enthusiasts from many lands, will be held on April 26th–27th and there will not only be a competitive show, but papers will be read as in the list which follows this Foreword.

This particular number of *The Rhododendron Year Book* is also noteworthy for the fact that it contains an account of the Rhododendrons at Tower Court, the garden of MR. AND MRS. J. B. STEVENSON, most excellently written.

While there are fine examples of the leading hybrid Rhodendrons at Tower Court, the garden is especially noteworthy for its unique collection of species. Those introduced in recent years were not only raised at Tower Court in large numbers, but a special and a most successful effort was made by MR. STEVENSON to collect, as far as possible, every form of each species. These plants were arranged in separate groups of each series, so that comparison might be readily made. In no other garden has this lay-out been adopted on anything like the same scale. It is one most helpful to the Botanists, and most interesting even to the lay visitor.

Two other noteworthy collections are the subject of articles in this issue.

Rowallane is a garden in an enviable climate, laid out on a slope studded with outcrops of granite rock, and planted with the greatest possible taste. In this garden there flourish great plants of rare species and varieties, and it gives a good example of what can be done by an owner with knowledge, taste and leisure.

The Rhododendrons at Wisley are the subject of another article, but these are known to many of our Fellows, although those, who have not visited them recently, have not a complete conception of how rapidly their numbers have grown.

Then there is an article by MR. F. C. PUDDLE, V.M.H., on the breeding of Rhododendrons. MR. PUDDLE was a distinguished hybridizer of Orchids before he turned his attention to Rhododenrons. Probably in no family of plants has hybridizing played a larger part than in the case of Orchids, but the hybridizing of Rhododendrons takes a close second place, especially in recent years.

## FOREWORD

The second portion of "A Review of Rhododendrons in their Series" by DR. J. MACQUEEN COWAN and H. H. DAVIDIAN, B.SC., is a most scholarly contribution to the Taxonomy of the family.

Articles on Rhododendrons in New Zealand and Japan help to give the Year Book an international character.

ABERCONWAY

# THE RHODODENDRON CONFERENCE

APRIL 26TH–27TH, 1949

It has been provisionally arranged that six papers should be read to the Conference on Tuesday, 26th April at 2.30 P.M. and 4 P.M., Wednesday, 27th April at 10.30 A.M., 12 noon, 2.30 P.M. and 4 P.M. It is hoped that the following papers may be given:

"Rhododendrons in the Wild" by F. KINGDON WARD, V.M.H.

"Survey of the genus Rhododendron" by DR. J. MACQUEEN COWAN.

"Rhododendrons in the Garden" by LORD ABERCONWAY, C.B.E., V.M.H.

"Propagation of Rhododendrons including the raising of seedlings" by F. HANGER.

"Hardy hybrid Rhododendrons grown commercially" by O. C. A. SLOCOCK.

"Modern hybrid Rhododendrons" by F. J. ROSE, V.M.H.

**Excursions.**—It is hoped to organize tours to see Rhododendrons at Wisley, Tower Court and Exbury.

Plans are also being made to organize more extended trips, but these will depend on the response from the visitors to the conference as it will not be possible to carry them out unless a sufficient number book tickets in advance.

It is planned to visit in one day Sissinghurst Castle, the home of the HON. V. SACKVILLE-WEST (MRS. HAROLD NICOLSON), Wakehurst Place, belonging to SIR HARRY PRICE, a garden well known for its Rhododendrons and flowering shrubs, and Leonardslee, the home of SIR GILES LODER, the garden where the original *R.* 'Loderi' was raised and which has been connected with Rhododendron culture for many years.

A long tour of about 13 or 14 days' duration is also planned to include visits to Cerne Abbey (LORD DIGBY), Caerhays Castle (MR. C. WILLIAMS, M.P.) and other well-known Cornish gardens including a visit to Land's End, Hidcote (MAJOR LAWRENCE JOHNSTON), a famous old English garden, Bodnant (LORD ABERCONWAY), Conway Castle and Muncaster (SIR JOHN RAMSDEN). This latter trip will pass through many of the well-known beauty spots in England and Wales such as Broadway and Llangollen and a night will be spent at Bettys-y-Coed.

Full particulars can be obtained from the Secretary, the Royal Horticultural Society.

# RHODODENDRONS AT TOWER COURT

By N. K. GOULD and PATRICK M. SYNGE

TOWER COURT, the residence of MR. AND MRS. J. B. STEVENSON, stands on a small wooded ridge between Ascot and Bagshot. The highest point of this ridge, a short distance from the house, is 450 feet above sea level and it is the highest point in all the surrounding countryside. From here the ground descends in a series of valleys, several well-protected by spurs, and these have proved a very favourable situation for the cultivation of Rhododendrons. The acid top soil has a *p*H value between 4 and 5 and is made up of sand and peat and heath soil, having been derived from an old Pine Wood, with an intermingling of Birch and Spanish Chestnut. Fortunately the underlying soil is a clay, which retains much water which would otherwise drain away from the surface soil.

MR. AND MRS. STEVENSON began to make a garden here in 1919. Previously there had been nothing but a lawn near the house, and four trees of the flowering Cherries 'Ojochin,' 'Kwanzan,' 'Ukon' and 'Okumiyako.' These have grown very large and are a beautiful sight every spring. Many of the original Pines and other trees were left to form a background and to give shade in the garden and it has been found that Conifers, for the most part, grow to a considerable size here. Seedlings raised in the garden of *Abies grandis*, *A. Pinsapo* and *Tsuga heterophylla* have formed stately, symmetrical trees whose finely-coloured foliage is an indication of their perfect health.

The garden has been laid out in districts or compartments and this is regarded as a special feature in its design. There is a district for the hybrid Rhododendrons, another which contains a remarkably complete collection of Rhododendron species, an area devoted to hybrid Azaleas and another to Kurume Azaleas, while in other parts there are districts for Magnolias, Heathers, Cotoneaster, Gaultheria, Vaccinium, Berberis, Crab-apples and other genera. There is, however, little mingling between these parts, and in each case they have been planted so as to include as complete a collection as possible of the species and best varieties. The garden has been designed so that there is a contrast when going from one part to another and as far as possible each view has been framed with trees on either side. Thus, repetitive planting, which can greatly detract from the interest of a large garden, has been avoided.

From the house it is possible to look down a series of descend-

*Photo, N. K. Gould*

RHODODENDRONS AT TOWER COURT

FIG. 1—*R.* 'Penjerrick' (See p. 9)

*Photo, R. W. End*

RHODODENDRONS AT TOWER COURT

FIG. 2—*R.* 'Penjerrick' (See p. 9)

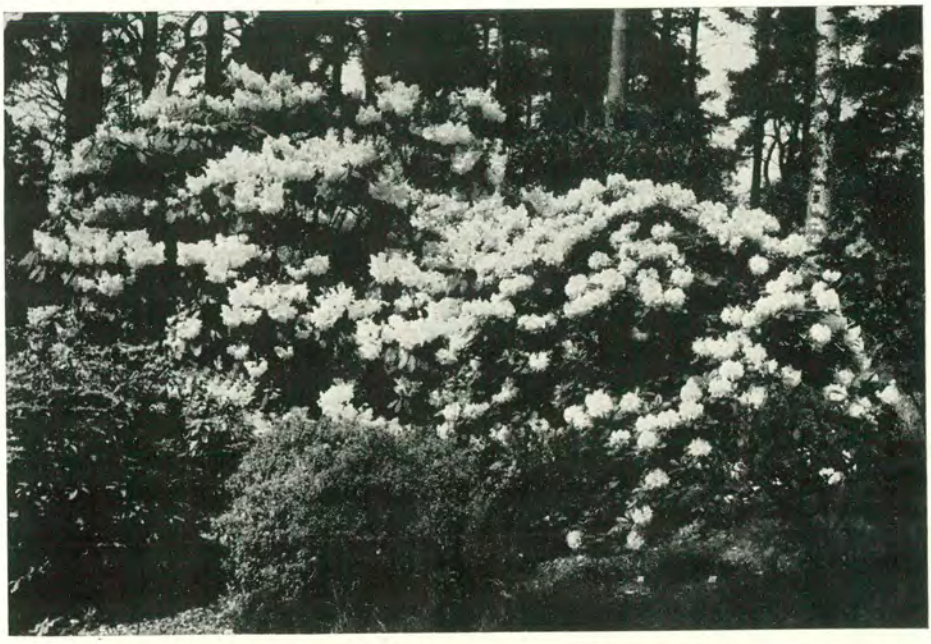


FIG. 3—*R.* 'Loderi' var. 'Stag's Head' (left), *R.* 'Unique' (right) (See p. 9)

*Photos, N. K. Gould*

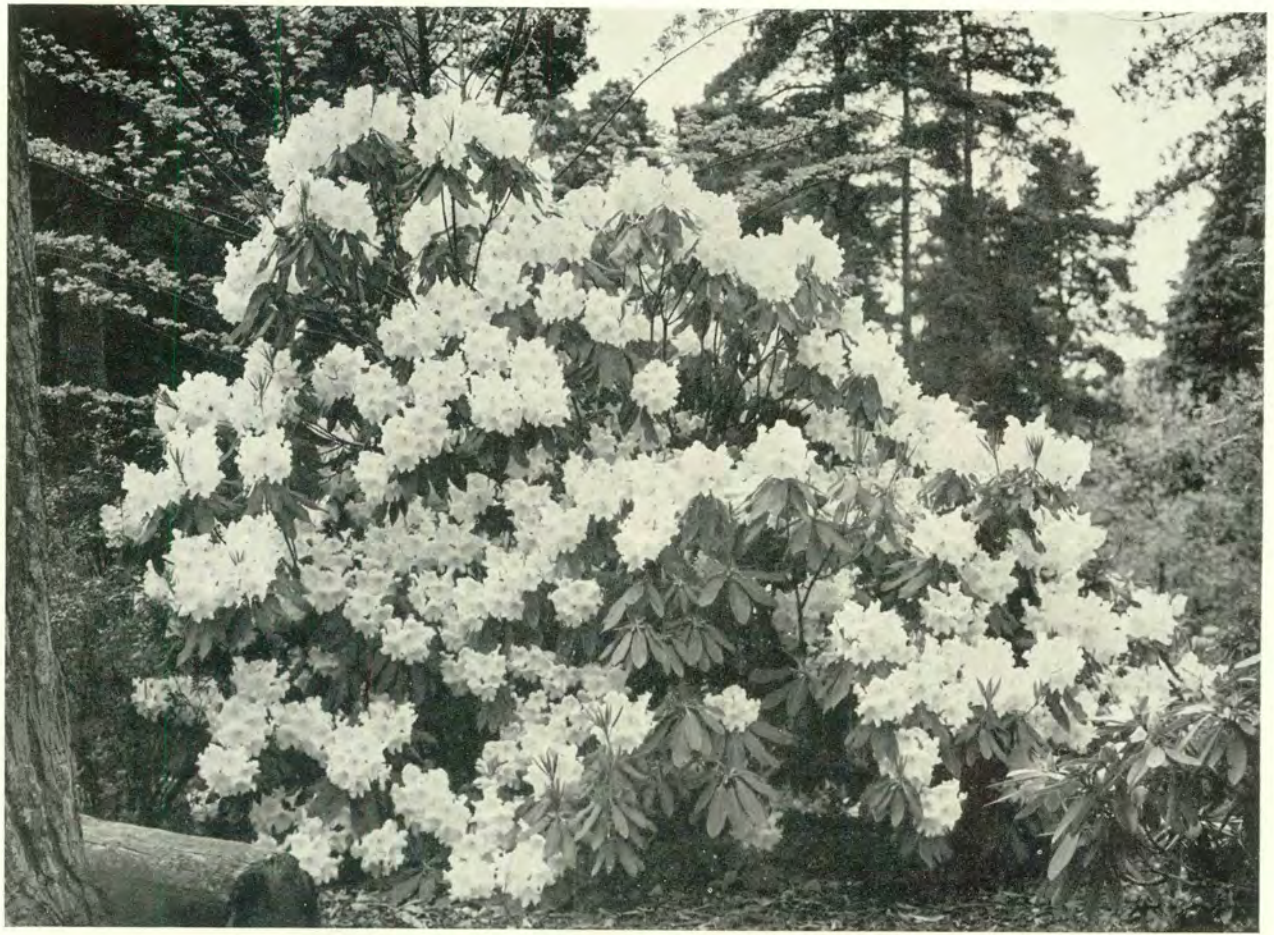
RHODODENDRONS AT TOWER COURT

FIG. 4—*R. hyperythrum* (See p. 11)

RHODODENDRONS AT TOWER COURT

FIG. 5—*R.* 'Loderi' var.' Fairyland' (See p. 9)

*Photo, R. W. End*



ing avenues leading down from the top of the ridge where the house stands and along two of these, viewed respectively from the drawing room and dining room, have been placed avenues of the fastigiate flowering Cherry 'Amanogawa,' one interplanted with Kurume Azaleas and the other with species of the Lapponicum, Cephalanthum and other Series. These spread into the surrounding valleys, presenting in the spring a vista of most varied colouring, lapping in waves up to the terrace on which the house is built, from which one is able to look down on them.

## HYBRID COLLECTION

The hybrid Rhododendrons are planted on some of the highest ground close to the house and in the gulleys descending from Tower Hill. Many of these plants have now reached a very large size and flower very freely. Almost all the varieties of *R.* 'Loderi' are represented. Among the best of them are the pink-tinted 'Stag's Head' and the paler 'Fairyland,' two varieties not often seen. 'Stag's Head' is now 15 feet high and 25 feet across, while 'Fairyland' is 10 feet high and 14 feet across (Figs. 3 & 5). Other varieties of *R.* 'Loderi' in the collection include 'King George,' 'Pink Diamond,' 'Sir Joseph Hooker,' pinker than most varieties in the earlier stages of flowering, and 'Sir Edmund,' the variety named after the raiser. Close to the Loderi varieties is a very large plant of *R. Luscombei* 'Leonardslee' variety and it is a very deep pink form with flowers almost as large as those of *R.* 'Loderi.'

During a visit to Tower Court on a sunny morning in mid-April we had the good fortune to find the largest specimen of 'Penjerrick', an upright-growing plant over 15 feet in height, framed in the shady green setting of a deep gully, with countless rosy buds opening to pale, pink-flushed, cream flowers. The bells are perfectly formed and hang in loose, regular trusses, so that it is possible to appreciate the beauty of each individual flower (Figs. 1 & 2). A fortnight later this remarkable tree still carried most of its flowers, now of translucent ivory-white. 'Penjerrick' was raised in Cornwall by MR. S. SMITH by crossing *R. campylocarpum* var. *elatum* with *R. Griffithianum*. It is also represented in the Tower Court collection by a lovely form of more lasting pink colour which is well grown and always greatly admired in the gardens at Bodnant.

Another notable hybrid flowering at the same time is the Logan variety of 'Damaris' ('Dr. Stocker' × *campylocarpum*), whose slender, upright branches carry full trusses of Dresden-yellow blooms. This attractive variety received the Award of

Merit this year. 'Rima' (*croceum* × *decorum*), 'Dairy Maid,' 'Diane' and 'Unique' are all good plants in the pale yellow class, while among the whites are 'Dr. Stocker,' 'Carex White' and 'Bodartianum' which has grown up so that it almost resembles a white-flowered *R. arboreum*. 'Earl of Athlone' is pre-eminent among the deep crimson-scarlet varieties, and 'Ascot Brilliant,' a very old hybrid with local associations, still makes a fine display. At this season the last flowers were still hanging on 'Choremia,' one of the very finest early-flowering hybrids, which was awarded an F.C.C. this year when shown by LORD ABERCONWAY. An attractive small growing variety with crimson flowers is 'Venapens' raised by SIR JOHN RAMSDEN from *R. venator* × *R. repens*. 'Queen Wilhelmina,' scarlet fading rosy-pink, also flowered well. Among the dwarf blue flowers were 'Blue Tit,' 'Blue Diamond' and 'Bluebird.'

Early in May 'Mrs. W. C. Slocock,' 'Mother of Pearl' and 'Isabella Mangles' made a fine display. 'Isabella Mangles' is now a huge bush with large trusses of pale shell-pink flowers which are quite unspotted, and it presented a very beautiful sight. 'Beauty of Littleworth,' white with a mauve blotch, has made a very tall plant with very full trusses. It has a faint scent. Another notable white-flowered plant is 'Lamellen' (*campanulatum* × *Griffithianum*), whose large, bell-shaped flowers entitle it to a place among the best of MR. MAGOR'S hybrids. This came to Tower Court through the kindness of the late MR. LIONEL DE ROTHSCHILD. The F.C.C. variety of 'Lady Chamberlain,' the original 'Lady Rosebery,' and 'Lady Berry,' that graceful trio of distinguished ancestry, have found here the shade and shelter they so much appreciate, and all grow and flower with freedom.

Special features have been made of the June-flowering 'Amor,' 'Azor' and 'Red Cap' and the July 'Polar Bear,' all raised at Tower Court; the last a cross between *R. diaprepes* and *R. auriculatum*. This received the F.C.C. in 1946. The plants are now nearly twenty feet high and flower very freely. They are used as a boundary and windbreak along the northern marches of the estate. Another Tower Court Rhododendron is 'Tessa,' a very early-flowering variety raised by crossing *R. moupinense* with *R. praecox*, and a large planting has been made of this.

## THE SPECIES COLLECTION

The Rhododendron species have been arranged here in their Series and the collection is an attempt to present in living form the Rhododendron book *The Species of Rhododendron*. It is

probably the most complete collection of species of Rhododendron in the world, larger than that of any other garden in Europe which grows Rhododendrons for research purposes. Many botanic gardens and private gardens have contributed most generously to it, while numbers of plants have been raised from the seed collected by FARRER, FORREST, ROCK, KINGDON-WARD and other collectors. The Species Collection now covers about four acres and occupies several small valleys running down from the south-western side of the house and terrace. It is a particularly sheltered situation.

The Saluenense Series is complete in the inclusion of all the species so far discovered and it is probably the only series that is absolutely complete in the collection, although the Azalea series is very nearly complete. In the section of Fortunei there is one of the original plants grown from the seed collected by ROBERT FORTUNE. One of these was planted at NOBLE'S NURSERIES, Sunningdale (now the Sunningdale Nursery) and the other at Sunningdale School. The former died in 1900; the latter is the plant which is now in the Tower Court collection. Next to this is planted *R. Fortunei* var. 'Mrs. Butler' which has a much finer flower. A very interesting plant in this section is a red-flowered *R. Fortunei* which has only recently flowered for the first time and which is perhaps sufficiently distinct to merit description as a new species. There is also that very interesting plant, possibly of the Irroratum series (McL. T. 41), collected by one of LORD ABERCONWAY'S collectors, which is described elsewhere in this book and named after LORD ABERCONWAY. It has white flowers opening wide into a saucer-shape and there is no tube whatever to the corolla. It is a very beautiful flower. Another white-flowered species of great distinction is *R. hyperythrum*. This species was collected for MR. L. DE ROTHSCHILD in Formosa. It does not grow into a very tall plant but the flowers are beautifully shaped and a very pure white. This, like other white-flowered Rhododendrons, has a special value late in the day, for it remains conspicuous long after the brilliance of the dark-flowered kinds has been dimmed by the fading light (Fig. 4).

Among the dwarf species *R. pemakoense* has proved a very free-flowering and useful plant. There is also a notable group of *R. repens* and a number of different forms have been collected together. The plant to which an F.C.C. was given in 1935 is now 3 feet across. It was collected by KINGDON-WARD under the number 6832, and this particular specimen has proved the most free flowering of all the forms. It is interesting to observe the variation in habit and freedom of flowering among the different forms.

Another notable plant here is *R. pseudo-chrysanthum* (WILSON 10925). It has flowered only once, but proved very beautiful. It was collected by WILSON in Formosa and given to the collection by the late SIR ISAAC BAILEY BALFOUR, and is now a plant 5 feet across. One of the few plants of the true *R. ponticum* is in the species collection here. It is not a very vigorous growing plant and it may be that the majority of the plants, which are grown so widely under the name *ponticum*, are hybrids, inheriting their vigour from *R. arboreum*. Another unusual plant is *R. Keiskei*. It is a very slow-growing species and the Tower Court plant, over six feet across, was said by the late MR. W. J. BEAN to be probably the largest in Europe. The flowers are lemon coloured. MR. BEAN also stated that the plant of *R. neriiflorum* could not be matched for size anywhere in Europe.

When the collection of species was started plants of some of the more tender ones were put out, and made satisfactory progress. *R. bullatum* reached a height of 6 feet, and others which survived for some years were *R. megacalyx*, *R. Kyawi*, *R. protistum* and *R. giganteum*. During the past decade, however, all of these have been lost. Long and severe winters, late spring frosts and summer droughts have all contributed here, as in many other famous gardens, to the destruction of fine plants on the borderline of hardiness.

## MAGNOLIA COLLECTION AND AZALEA SPECIES AND HYBRIDS

From the Rhododendron collection we come round through a magnificent glade of Magnolias where a large tree of *M. Brozzonii* is pre-eminent with its beautiful white flowers standing erect and appearing well before the foliage. This tree is now 15 feet in height and it is, perhaps, the finest of all the *denudata* hybrids. Another very fine plant here is *Magnolia Soulangeana Alexandrina*, the flowers of which are delicately tinged with pink towards the base. Around the Magnolias Azalea species have been planted, among them a very fine form of *R. mucronatum* var. *Noordtianum* with larger white flowers than *R. mucronatum*. *R. Schlippenbachii* is also represented by its finest pink form, which is greatly superior to many seen. It is a most beautiful species. *R. linearifolium*, an Azalea with fine narrow petals and leaves, grows here, also *R. atlanticum*, a fine species of exceptional hardiness, making a very compact round bush, which should be in every garden. The white flowers are flushed with

pale pink outside and are slightly fragrant. Other interesting species here are *R. serpyllifolium*, which has probably the smallest leaf of any Rhododendron, and *R. prunifolium*, bearing orange-scarlet flowers in July.

From there one enters a valley of the *molle-japonicum* hybrid Azaleas, a brilliant mass of colour in May, followed later in the season by the towering stems of *Lilium auratum* var. *platyphyllum*. The success of this planting has been assured by an opening made at the lower end to allow the frost to drain away. One passes now, by way of a dividing screen of tall bushes of *Eucryphia glutinosa* and its hybrid *E. nymansensis*, to a cooler-coloured mass of *Rhododendron luteum*, whose soft yellow is a pleasing change from the more vivid hybrids. In this part of the garden there are several notable shrubs which have formed large specimens, such as *Halesia monticola* var. *vestita*, of which young plants have reached 10 feet and flower very freely, the large white flowers opening from pinkish or brownish tinted buds. This is an outstanding plant of great merit. *Cornus florida* var. *rubra* is also a beautiful sight here each spring, while by the lake there is a very good form with darker flowers than those usually seen. There is also a very fine specimen of *C. florida* with unusually large and well-shaped bracts. Just below the terrace *Sorbus pekinensis* has formed a large tree and is most decorative both in flower and in fruit. The Pinnate Sorbus collection, which includes every species at present obtainable, has been planted in the lower part of the garden and is a striking sight in the autumn. Among the conifers *Tsuga heterophylla* has made a huge tree and there are abundant self-sown seedlings. Trees of *Cupressus Lawsoniana* var. *Fraseri* have grown into fine columnar specimens in the Azalea section. There is also a fine collection of Acer species and specially noteworthy are the snake-barked *Acer Davidii*, *Forrestii* and *A. rufinerve* var. *albo-limbatum* with white-margined leaves; while Japanese Maples have been planted freely in the Kurume collection.

Ascending to the house again one enters a horseshoe walk of *Rhododendron yunnanense*, one of the best of Rhododendron species and this leads to a large planting of *R. lutescens*. Notable in this area are the numerous self-sown seedlings of *Pieris Forrestii*, whose bright red spring foliage is as handsome as its great panicles of white flowers. The indispensable, early-flowering *P. japonica*, *P. taiwanensis* and *P. floribunda* are, of course, all well represented here, and there is in addition a group of the less familiar *P. floribunda* var. *elongata*, a distinct plant with bold, erect inflorescences, also a magnificent tree of *Rhus Potaninii*.

## KURUME COLLECTION

Bordering one of the avenues of fastigiate Cherries leading down from the front of the house, plants of the fifty Kurume Azaleas brought by WILSON from Japan have been established and this is one of the very few complete collections in the country. Recently a similar collection has been planted at Wisley and many of the plants were raised from cuttings supplied from Tower Court. They are all colour forms of *R. obtusum* var. *japonicum* and in most years present a most brilliant spectacle. Unfortunately they suffered severely in the winter of 1946–47 and in the summer drought of 1947. Yet another avenue is bordered by tall and shapely bushes of the varieties of *Enkianthus campanulatus*, which were covered this year with dainty, pale-coloured blossoms, and these are underplanted with *Rhododendron leucaspis*, an under-shrub of great merit in gardens which afford some shelter to its February flowers.

On the highest part of Tower Hill also has been planted a large collection of Kurume Azaleas which in flower mingle together as in the design of a Persian carpet and this part is known as the Kurume carpet. Among the Azaleas have been planted Japanese Maples and other shrubs. The Maples blend most harmoniously with the dwarf Azaleas and many of both the Azaleas and Maples are now very large specimens, especially the finely-coloured variety of *Acer palmatum* called 'Osakazuki.' Here also *Daphne Mezereum* Bowles' variety has made an enormous bushy plant about eight feet high, while other notable plants are *Viburnum cylindricum*, and a very fine form of *Cotinus Coggygria* (*Rhus Cotinus*). Vertical interest is provided here by young specimens of the fastigiate Kilmacurragh Cypress. There are also a number of Euonymus species which are lovely in the autumn.

The Kurumes are followed by large beds of the 'Gumpo' Azaleas—forms of *Rhododendron Simsii* var. *eriocarpum*, a late-flowering race of great garden value. Their habit is compact, and the flowers vary in colour from white to many shades of pink and rose.

## OTHER FEATURES

As we descend from the house in the direction of the lake, again by a different avenue, we pass a planting of *R.* 'Rima', another Tower Court hybrid raised between *R. croceum* and *R. decorum*. The flowers are a lovely deep cream colour. Through wide borders of Enkianthus we come to a large group of *R. oreodoxa* and further on where a wide walk, known as the Broad-

way, crosses the descending path, *R. diaprepes* has been interspersed with *Nyssa sylvatica* (Fig. 7). Unlike *N. aquatica* this last needs staking to secure a shapely specimen. By the lake we come to a group of *R. atlanticum* hybrids made with *R. atlanticum* and a large dark purple unnamed species. These are graceful, small-flowered bushes with no trace of purple in their colour. There is also a planting of the *Kaempferi* hybrids 'John Cairns' and 'Orange Beauty' of dazzling scarlet shades. Unfortunately, their colour is liable to fade rather rapidly with full exposure to bright sunshine. Near here also in a damp position are plantings of Gentians and a Pinguicula brought back by MRS. STEVENSON from the Pyrenees. The latter was originally planted on the mossy bank of a small ditch, and it has spread widely by self-sown seeds, forming drifts of Violet-like flowers in the paths and even between the timbers of a little footbridge.

Around the lake, where some very large bushes of the old hybrid *Rhododendron Broughtonii* are effectively mirrored in the water, there are extensive collections of Berberis, Cistus, Cotoneaster, Gaultheria and Vaccinium, still rich in number of species, but showing the inevitable deterioration due to the enforced neglect of the war years.

In this short article we have drawn attention to a few of the finest specimen plants and collections contained in this extensive and delightful garden; there are very many more about which it would be possible to write at length. At almost every turn there is something of outstanding interest, such as the 16-foot tree of *Ceanothus arboreus* from the islands of Santa Rosa, Santa Cruz and Santa Catalina, flourishing and flowering profusely near the north-west wall of the house; or the colonies of *Shortia uniflora*, seeding themselves about along the ditches in the lower parts of the garden.

Our pleasure in wandering around this lovely place, observing and noting its treasures, has on our many visits, been greatly enhanced by the unfailing kindness of those two accomplished gardeners, MR. AND MRS. STEVENSON, who have ungrudgingly placed their time and knowledge at our disposal.

# RHODODENDRONS AT ROWALLANE

By H. ARMYTAGE-MOORE, V.M.H.

AT the outset the truth must be admitted that the creator and cultivator of a garden is generally not well suited to describe it adequately, and gardeners the world over will appreciate the point—a modicum of modesty may exist even in the make-up of an Ulsterman! Furthermore, the garden as a whole has already been fully described by highly qualified writers and the owner has good reason to be proud of their respective verdicts. Yet while conscious of the garden's good points he tries continually not to lose sight of those that are less good and perseveres from year to year with a view to their improvement. The bane of good gardening centres in the unwarranted self-satisfaction that blinds the eye to stern reality and stifles the prospect of improvement. One must be careful not to commit so fatal a horticultural error.

The lie of the ground here is attractively undulating and adequately wooded, providing a variety of sites, on heights and in hollows, well adapted for horticultural treatment. The soil is light and lime-free; gorse is the local weed and bold masses of whinstone rock abound on all sides. Climatic conditions on the whole are reasonably favourable, more so, perhaps, than those of Surrey or Sussex, for the cultivation of borderline plants. Extremes of heat or cold are rare and there is a comparative humidity of atmosphere typical of the average Irish climate.

Work was begun here 45 years ago at the very outset of the flood of seed which, thanks to valiant collectors in the Chinese field, was about to break upon our shores. An elementary affection for Rhododendrons was not hard to foster under the circumstances attending extensive introductions in the genus and some three hundred distinct species have since been raised here from seed sent home by WILSON, FORREST and WARD. No one who has consistently attempted to deal appropriately with the mass of material thus available can fail to realize what British gardens owe to those who went forth to explore so vast and fertile an area and ended by achieving such outstanding success. Here, as elsewhere, advantage was taken of a golden opportunity, and extensive selections of home-raised seedlings now figure in our gardens as attractive and much valued specimens. No hybrids worth mentioning have been raised here, but as we view the scene we are deeply conscious of what the garden owes to

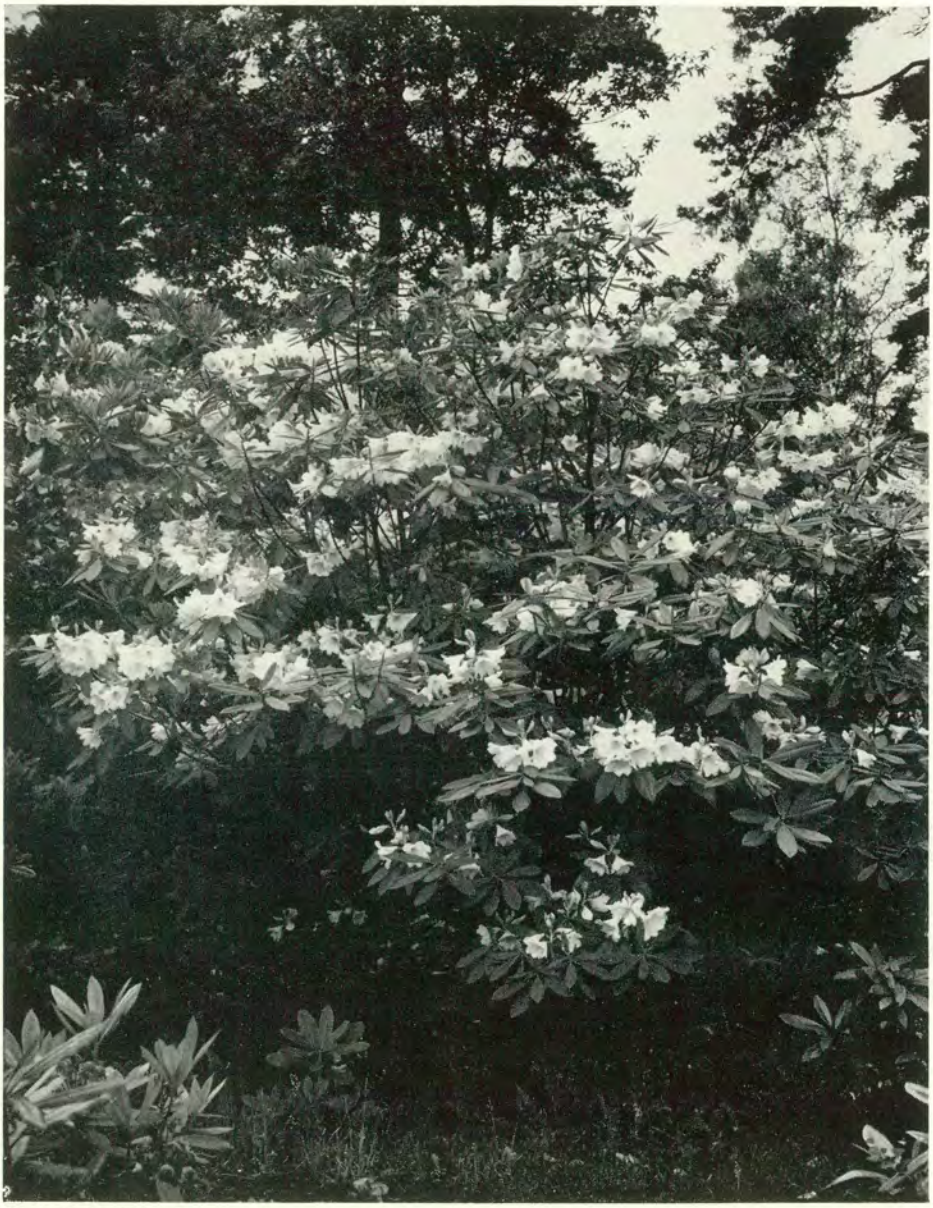
*Photo, N. K. Gould*

FIG. 6—*R.* 'Damaris Logan' var.

*Photo, R. W. End*

RHODODENDRONS AT TOWER COURT

FIG. 7—Avenue of *R. diaprepes* and *Nyssa sylvatica* (See p. 15)



*Photo, R. W. End*

RHODODENDRONS AT TOWER COURT

FIG. 8—*R. discolor*

*Photo, R. W. End*

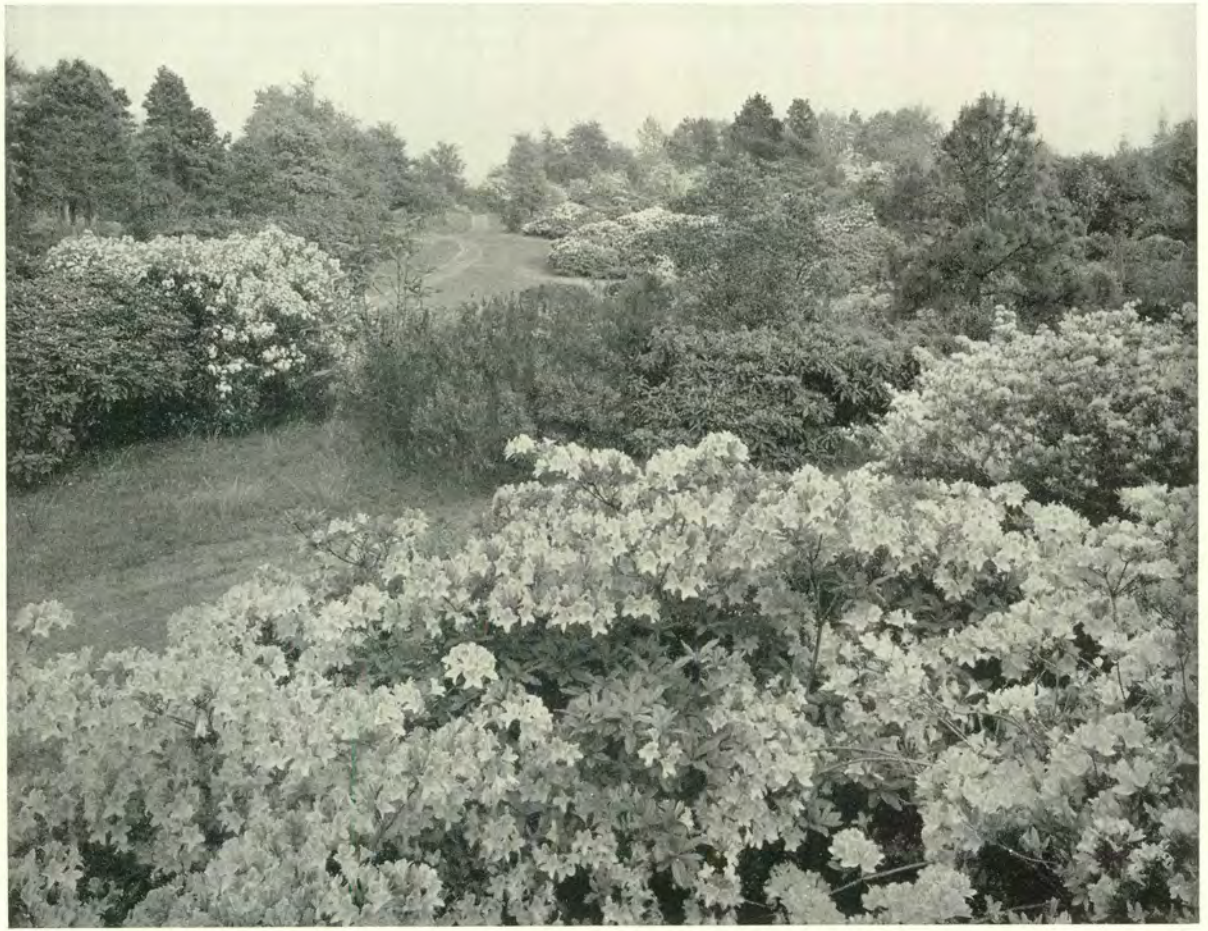
RHODODENDRONS AT TOWER COURT

FIG. 9—*R.* 'Amor'

RHODODENDRONS
AT ROWALLANE

FIG. 10—The Spring Garden
(See p. 18)





those skilful and generous friends who have so memorably enriched it with home-raised hybrids of exceptional beauty and interest which will for all time be happily and gratefully associated with their creators. Where would our gardens be to-day were it not for those who have taken full advantage of such wonderful parents as *R. Griffithianum* and *R. Griersonianum*, not to mention others! The skill and capacity of such propagators leave gardeners deeply in their debt. Here as time and experience have told their natural tale a distinctly extensive collection has by degrees been appropriately reduced to what we would venture to style a critical selection, and every effort has been consistently made to find *the* plant for *the* place, not just a place for a plant. As we all know, appropriate plant associations form the major objective in good gardening and naturally enhance the scene as a whole. For such a wide range of plants, from comparative mats to stately trees, as we find in the genus Rhododendron, there is assuredly ample scope for varied and effective grouping, from the stately isolation of *R. sinogrande* to a family party of Lapponicums. Here on sloping banks in full sun members of such a homogeneous series as Triflorum blend happily together and the massed effect of different species, in form and colour of flower, is both natural and highly effective. The late GEORGE FORREST once referred to such a grouping here as "a bit of Yunnan" and we have good reason to appreciate his complimentary christening.

In adjoining ground, known as the Old Wood, the scene varies considerably, and bold masses of rock, partially shaded by Pines, provide suitable sites for a wide variety of Rhododendrons from the early days of *R. moupinense* and ranging from *R. repens* and *radicans* through *haematodes* and *dichroanthum* to *Thomsonii* and *calophytum*. (Fig. 13.) In association with such groupings knowledgeable visitors are surprised to find *R.* 'Lady Alice Fitzwilliam,' *burmanicum*, *bullatum* and even 'Fragrantissimum' flowering freely against a background of Bailey's Brahmaputra *R. Maddenii* in variety, the latter ranging in colour from pure white to shell-pink and pale primrose, an invaluable species which in association with *R. crassum*, prolongs the flowering season into mid-July. Here *R. Williamsianum*, though more than 6 feet across, is not, alas! a free flowering subject, but its Kew hybrid with *R. orbiculare*, 'Temple Belle,' now 5 feet high and 10 feet in diameter, stands out as a beautiful plant from all points of view. Nearby, *R. schistocalyx* and *R. manipurense* catch the eye with a strong centrepiece of 'Purple Splendour,' and in their respective seasons *R. Hookeri* and 'Glory of Penjerrick' freely display their brilliant colouring. *R. neriiflorum*, flowering

so profusely, is naturally indispensable in these surroundings, and in a humbler sphere, with becoming associates, *R. tephropeplum* can be highly attractive. *R.* 'Britannia' spreads most effectively over a high crown of rock with 'Loderi,' 'King George' and *R. sinogrande* in the background. 'Earl of Athlone' adds depth of colour to the scene, while *R. mallotum* catches the eye at long range. Hereabouts we also find in becoming isolation a 40-year-old specimen of *R. Falconeri* whose trusses can be truly described as pale primrose, a plant that excites appropriate admiration when seen in full bloom with Pine trees overhead. (Fig. 12.) For ground of this character one needs to beware of fussy and fanciful associations, as experience has taught us, but we have at least no reason to regret having provided *R. concatenans* with a foreground of *R. russatum*, a pleasing combination both for flower and foliage, continued by *fastigiatum* in association with *Valentinianum*. The closely related *RR. callimorphum, caloxanthum* and *cyclium* are natural favourites in this area, and the same applies to *Wardii, croceum* and *litiense*. Here also such indispensable representatives of the Azalea series as *Albrechtii, Vaseyi, Schlippenbachii* and *quinquefolium*, not to go further afield, can be shown to advantage.

From this old Wood the path leads to the Spring Garden where long-established beds of old-fashioned hybrids form the centrepiece with gently rising slopes effectively clothed with strong groupings of Azaleas and Triflorums, backed by Magnolias and Olearias, the whole screened by Beech and Pine. This ground presents an attractive colour display from mid-April till early July when Kalmias in association with *R. discolor* close the floral display. (Figs. 10 & 11.) In the neighbouring "New Ground" brief mention may be made of a few attractive hybrids such as 'Beauty of Littleworth,' 'Damask,' 'Erebus,' 'Rosemary Chipp,' 'Jacquetta,' 'G. A. Sims,' 'Dawn's Delight' and a remarkable white flowered seedling from 'Sir Charles Lemon.' Here also stands, in solitary state, our best specimen, now 40 years old, of *R. arizelum*, 16 feet × 17 feet.

From here we retrace our steps to the "Home Wood," a long, narrow strip of woodland with the characteristic outcrop of rock, yet well adapted to the beds and borders where a varied assortment of species and hybrids can be suitably associated ranging from the Arboreums of March to the Auriculatums of July. A restricted selection of such species, includes the following of which promising specimens are to be seen: *RR. Griffithianum, Griersonianum, Elliottii, facetum, mallotum, Meddianum, Thomsonii, lacteum, fictolacteum, sinogrande* and var. *boreale, Macabeanum, fulvum, fulvoides, cerasinum, fulgens, praestans, preptum,*

*sutchuenense*, *neriiflorum*, *coryphaeum* and *xanthocodon*, not forgetting two outstanding Triflorums, *oreotrephes* and *exquisitum*, in suitable association. High-class modern hybrids represent, as is well recognized, a wide and singularly fertile field, and, thanks largely to the generosity of helpful friends, this garden has thereby been memorably enriched, and as a result of personal experience we can record the following selection of really high-class plants well adapted to attractive grouping in beds and borders, nearly all of which have been awarded the F.C.C. or A.M.: 'Lady Bessborough,' 'Lady Chamberlain,' 'Lady Rosebery,' 'Loderi' in several varieties, 'Tally Ho,' 'Touchstone,' 'Firetail,' 'Sunrise,' 'Angelo,' 'Argosy,' 'Azor,' 'Penjerrick,' 'Polar Bear,' 'Matador,' 'Alix,' 'Shilsonii,' 'Loder's White,' 'Albatross,' 'The Don,' 'Fabia,' 'Choremia,' 'Jacquetta,' 'Iphigenia,' 'Elsae,' 'Barclayi,' 'Hiraethlyn,' 'Annabella,' 'Blushing Bride,' 'Helen Schiffner,' and 'Aladdin.'

Experts may, not unnaturally, find scope here for thinning out and filling in, but the writer has merely offered a carefully considered selection of his available material well adapted to the sites and circumstances at disposal. Furthermore, personal comments are not called for in view of adequate descriptions in the Handbook. In garden borders, with Camellias in the background and in association with groups of Primroses and Daffodils, we have endeavoured to find appropriate sites for such low-growing Rhododendrons as 'Little Bert,' 'Little Ben,' 'Blue Diamond,' 'Bluebird,' 'Blue Tit' and our attractive pygmy sport of *Hanceanum*, intermingled with a wide variety of dwarf Azaleas. On north-facing walls where appropriate protection can be given some success has been achieved with *RR. Dalhousiae*, *Nuttallii*, *chrysodoron*, *bullatum* and *Forsterianum*, and well sheltered corners have been found for *RR. leucaspis*, *aureum*, *tephropeplum* and *megeratum*, with such dwarfs as *nitens*, *pemakoense*, 'Prostigiatum' and *imperator* among rock plants.

Experienced gardeners will approve of the abbreviated character of these notes and make allowances for the writer's desire to be concise, yet comprehensive, and to avoid undue encroachment on the pages of the Year Book with unnecessary cultural and descriptive details when dealing with restricted selections from the somewhat representative collection of Rhododendrons in his garden at Rowallane.

# RHODODENDRONS AT WISLEY

By FRANCIS HANGER

FELLOWS and visitors enquiring at the entrance to the Royal Horticultural Society's Gardens for the whereabouts of the Rhododendrons would naturally be directed by the gate-keeper to Battleston Hill. There, much has been accomplished during the past two and a half years. The hardy Rhododendron trials have been greatly enlarged and re-arranged. A collection of Rhododendron species has been planted in their series and sub-series and a beginning has been made with the establishment of a "Kurume Carpet" with variants of *Rhododendron obtusum* var. *japonicum*; over the bridge hundreds of the newer hybrids, mostly given to the Society by the leading amateur gardeners of the present century, are planted and growing well. However, it is the writer's intention to begin with those Rhododendrons which grow in the older part of Wisley known as the "Wild Garden."

On entering Wisley we walk along the front of the laboratory and pass by the greenhouses down the wooden steps into what is now one of the choicest parts of the Garden. This was one solid mass of *R. ponticum* overhung with oaks and birch when the late MR. G. F. WILSON began its development approximately seventy years ago. Clearings were made among the *R. ponticum*, winding paths mapped out and the area replanted with the leading Rhododendron species of that time, together with many hardy hybrid Rhododendrons, Magnolias, Camellias and choice shrubs, mostly belonging to the Ericaceous family. The whole ground was carpeted with such gems of the woodland as *Cornus canadensis*, *Narcissus cyclamineus*, *Shortia galacifolia*, *S. uniflora*, *Schizocodon soldanelloides*, Gaultherias, Trilliums, Erythroniums, Lilies and Primulas, making the garden a real joy to a lover of plants.

In this garden with its moist, acid soil these dwarf "woodlanders" simply ramp away and have established themselves in no uncertain manner, but it is sad to relate that this part of Wisley, lying as it does low down near the River Wey and surrounded by ponds, is a natural frost trap. During cold spells in the winter the heavy cold air drops down into this low part of the garden, settles amongst the high Rhododendrons, and fails to get away. This locality is most susceptible to late spring frosts which do untold damage to the early-flowering plants, making the Wild

Garden most unsuitable for the cultivation of early-flowering and tender Rhododendrons.

Away on Battleston Hill we have a very different climate. From records kept during the past two years there has often been the welcome difference of eight degrees Fahrenheit between the hill and the Wild Garden. On the morning of May 3, 1948, five degrees below freezing point was registered in the Wild Garden spoiling all the Rhododendron blooms including some of the more forward buds, whereas all those growing on Battleston Hill came through the cold spell undamaged.

Some of the precarious and early-flowering Rhododendrons have already been transplanted to Battleston Hill. More will probably be given the same ride and opportunity to grow and bloom with less fear of frost. In their places it is hoped to substitute hardier and later-flowering species and hybrids.

A beginning has already been made in this direction. This is soon evident as we enter the Wild Garden by way of the wooden steps, for where Bamboos grew and prospered, such gems of the newer hybrid Rhododendrons as the stone-cream coloured *R.* 'Lady Bessborough' (F.C.C. var.) (*discolor* × *campylocarpum* var. *elatum*) is romping away and during late May and early June, will be one of the sights of Wisley.

In the same bed *R.* 'Sir Frederick Moore' (F.C.C. var.) (*discolor* × 'St. Keverne') with huge pink trusses, the perfect biscuit-coloured *R.* 'Naomi' (Exbury var. A.M.) ('Aurora' × *Fortunei*) and *R.* 'Redcap' (*didymum* × *eriogynum*), a medium growing Rhododendron with deep crimson-red, bell-shaped flowers during late June, are all established and delight in the moist acid soil.

Passing by the small group of *R. Wardii* and beyond the first bank of high *R. ponticum* hybrids we are met with a huge plant of *R. obtusum* var. *amoenum*, now well over fifty years old. This particular giant, 45 feet in circumference, has the usual bright magenta coloured flowers, but growing further along into the heart of the Wild Garden are several scarlet forms of *R. amoenum*.

We are now amongst the thirty feet high banks of hardy hybrid Rhododendrons. Towards the end of May and during June these huge monsters are covered with masses of pink, white, mauve and red flowers. Viewed from the path high up on the rock garden we get a good view of the whole parade of colour low down beyond the ponds. These huge plants form a beautiful shelter from the rough winds. The whole area of this wild garden lies moist, and in the past attempts have been made to grow the monarchs of the genus Rhododendron, i.e. *R. sinogrande* and *R.*

*Falconeri*. But, alas, we "live to learn." These glorious species can make only a pretence to grow in this part of Wisley and, instead of being the magnificent foliage and flowering plants we know them to be in favoured positions, they are only a shadow of their real selves. *R. sinogrande* I believe will be found to be too tender for Wisley, but in the happier conditions on Battleston Hill *R. Falconeri* should give us ample dividends and in years to come flower and grow to perfection.

*Rhododendron fictolacteum* grows and flowers well in the Wild Garden, but all our plants are raised from early introductions with rather small flowers, and we must journey up to Battleston Hill to see the much better form of KINGDON-WARD'S sending, possessing the much larger and finer flowers.

The new path made during the past winter on the north side of the large planting of *Primula japonica* and *P. pulverulenta* passes under the almost tree-like *R.* × 'Kewense' now 22 feet high and 19 feet wide. Standing clear of all other plants it made a majestic picture during the favourable April of 1948, with its thousands of large, almost *R. Loderi*-like white, scented blossoms. This path skirts a lovely planting of Rhododendron species which have been given room to grow and develop. Here we find *R. praevernum*, *R. sutchuenense* and *R. calophytum*, all with noble foliage, all possessing an irritating precociousness in flowering; yet quite worthy of retaining their positions for foliage alone, and during mild early springs, giving us trusses of flowers as an added interest.

These species of Rhododendrons are duplicated in the Battleston Hill collection where there is little doubt that we shall enjoy their flowers more often than in the colder Wild Garden. "Calophytum" means "beautiful plant," a description justified by the leaves alone, but in addition the writer cannot think of any Rhododendron with a more beautiful truss of flowers than a fine form of *R. calophytum*, *R. lacteum* and *R. Macabeanum* excepted. *R. Wardii*, *R. litiense* and numbers of *R. Thomsonii* all grow well and flower a little later than the other plants previously mentioned along this path, while at the extreme east end is a large plant of *R. Wallichii*, a Rhododendron very similar to *R. campanulatum*; when it was covered with its lilac-spotted-with-rose flowers last spring, I thought it quite good.

We travel towards the west end of the Wild Garden and here much work needs doing before we have this portion worthy of Wisley. Good specimens of *R. auriculatum*, *R. Fargesii*, *R. Thomsonii*, *R. maximum* and *R. auriculatum* hybrids exist and will remain, but it is hoped to replace *R. arboreum* and others of less hardy constitution with hybrids of *R. discolor*, *R. dich-*

*roanthum*, *R. Griersonianum*, etc. These should be hardier and later flowering and will make all the difference, giving us a good show of flower from mid-May until well into early July.

A fine plant of *R.* 'Azor' (*discolor* × *Griersonianum*) with its deep rose coloured flowers in late June and early July always demands admiration. This Rhododendron hybrid originated from Tower Court and its lateness and hardiness make it the perfect plant for this, the colder part of Wisley Gardens.

Strolling along the many narrow paths of the Wild Garden, visitors can discover many of the dwarf-growing Rhododendrons such as *R. repens*, *R. Williamsianum*, a magnificent plant of *R. Keiskei*, that wonderful Bodnant hybrid *R.* 'Cilpinense' (*ciliatum* × *moupinense*) and also drifts of *R. canadense* (syn. *R. Rhodora*) three to four feet high with rose-purple flowers.

Here and there, edging the larger plants and incidentally making a wonderful ground cover for Lilies, are various evergreen "Kurume-type" Azaleas. These forms of *R. obtusum* var. *japonicum* are showy floriferous shrubs, ideal for this purpose and are much hardier than was generally believed. Before we leave this portion of Wisley mention should be made of the popular hardy deciduous Azalea hybrids growing there. These are old varieties and now long surpassed by the newer *molle-japonicum*, Ghent and *calendulaceum* hybrids. Grown amongst the overhanging oak trees they obtain a certain amount of shelter from early spring frosts, but in such shade they are apt to get drawn, becoming unsightly leggy shrubs with just a few flowers on their top branches, which can only be viewed and admired from a distance. Here a thinning of the overhanging tree branches and replanting with good up-to-date varieties might be the answer, but, failing that, a severe pruning-back of the existing old varieties, sacrificing the flowers for a season or two, would result in an improved display.

### AZALEA GARDEN

We now leave the Wild Garden and, passing through the Award of Garden Merit Collection towards the herbaceous borders, we come to a lovely planned formal Azalea garden, with spacious grass paths, no overhanging trees here to spoil the habit of the deciduous Azaleas. In full sun these plants have grown well in a heavier soil than is general at Wisley and great is the pity that this collection is growing in the lower regions of the garden, so subject to late spring frosts. Planted more or less as a general mixture of deciduous Azalea hybrids, with no attempt being made to devise a colour scheme, the effect during a favourable spring is one blaze of riotous colour.

ROCK GARDEN

Before we journey off to Battleston Hill, we must look into the Alpine Meadow and the Rock Garden. Here we shall find most of the dwarf Rhododendron species belonging to the series Cephalanthum, Lapponicum and Campylogynum suitable for the Rock Garden. Some beds in the Alpine Meadow and around outcrops of stone contain *R. impeditum*, *R. imbricatum*, *R. calostrotum*, and *R. flavidum*, while away on the far west side of the Rock Garden *R. radicans*, *R. chryseum*, *R. pemakoense*, *R. nitens*, *R. myrtilloides*, *R. sphaeranthum*, *R. Sargentianum*, *R. radinum*, etc. are massed together on a bank.

The white form of *R. flavidum*, which received an Award of Merit in the spring of 1948, does well in a favoured, especially prepared pocket and for its companions it has *R. imperator*, *R. patulum*, the dwarf form of *R. Hanceanum* and the hybrids *R.* 'Carmen' (*didymum* × *repens*) and *R.* 'Humming-Bird' (*haematodes* × *Williamsianum*); near by the dwarf-growing hybrid *R.* 'Temple Belle' (*orbiculare* × *Williamsianum*), *R.* 'Blue Tit' (*impeditum* × *Augustinii*), *R.* 'Bluebird' (*intricatum* × *Augustinii*) and *R.* 'Blue Diamond' ('Intrifast' × *Augustinii*) can be found.

BATTLESTON HILL

Battleston Hill was acquired by the Council of the Royal Horticultural Society during the year 1938. This portion of land, approximately 26 acres in extent, lies at the south end of Wisley and is the highest point of the gardens. Forming a ridge running more or less from east to west, it has soil most suitable for the culture of Rhododendrons and other acid-loving-plants. On the very summit, mostly in that portion which has been developed into the species garden, the soil was found to be much too sandy for the retention of the necessary moisture, and humus in the form of leaf-mould, peat and bracken has been added; if continued yearly this will counteract the deficiency.

A large grass glade 30 feet wide, running due south and beginning about the middle of the "old rose terrace" passes through the trial grounds with the Dahlia and Delphinium trials on either side. From there it continues on to Battleston Hill, with the hardy Rhododendron trials on the immediate left and the Kurume collection and Daffodil trials on the right; and so to the summit of the hill. During the winter of 1946–47, this grass glade was continued over the brow with a Rhododendron species garden on either side. Later, in the winter of 1947–48, it was extended still further through the flowering Cherry

collection until the glade reached the edge of the gardens at the Portsmouth Road.

### HARDY RHODODENDRON HYBRID TRIALS

As already stated it was as late as 1938 when the Royal Horticultural Society purchased the Battleston Hill property and owing to the commencement of war in 1939, little could be done towards the layout and development until the winter of 1946–47. However, a beginning was made in 1938 and approximately one acre of land on the north side was prepared to receive the hardy Rhododendron hybrid trial plants from the late MR. LIONEL DE ROTHSCHILD'S garden at Exbury. The portion of ground selected had to be cleared of all unwanted trees, undergrowth and brambles and the whole area bastard-trenched before the four hundred plants could be safely transferred. I do not intend to write at length about these trials as I wish to describe more fully the more recent developments on Battleston Hill; further, the trials are fully described and reported in the *Rhododendron Year Book* of 1946. I need only add that these plants grew well during the war years and at the first opportunity in the autumn of 1946 the whole trial of plants had to be thinned out and given a much larger area. This necessitated the removal of the deciduous and evergreen Azaleas to other positions. Almost every other Rhododendron was lifted with an ample ball of soil attached and transplanted to newly prepared positions. The trial plants growing too near the Acers and Sorbus were also moved to give them more light and less competition at the roots. The new arrangement has given the whole collection ample room for development for many years to come. The water supply, a most important item in successful Rhododendron culture, was extended and improved, giving every facility for good cultivation. (Figs. 14 & 15.)

### RHODODENDRON SPECIES COLLECTION

The site selected for the formation of this collection is far from ideal, there being little or no shelter against the prevailing wind (south-west). It lies on the very crest of the hill undulating and sloping away a little to the south towards the new collection of Flowering Cherries. Being thickly planted with trees (mostly Larch, *Larix europaea*) to the west, with a very good assemblage of *Pinus pinaster* to the east with thick undergrowth of Oak scrub beneath, much hard work was required before all was correct and ready for planting. Practically all the Larch were dead or dying, having been attacked severely by the bark

beetle (*Myelophilus piniperda*) which had bored thousands of holes in the timber until some were riddled like honeycombs.

Tractors and bulldozers began work about the middle of September, 1946, and from Battleston Hill as a whole, removed 200 trees and 150 old stumps; 75 of these were uprooted from the acre and a half which comprises the species garden. Quite 60 of these 75 were dead Larch; every possible good tree was left but since 1946 several more Larch have died and will have to be removed. Unfortunately this wholesale destruction made the west portion very open and sunny for Rhododendrons but this difficulty was surmounted by a careful arrangement of the series which will be explained later.

As soon as the trees and stumps were removed the whole area was bastard-trenched, leaving 12 feet from the foot of each large tree untouched. The soil was found to be most disappointing and not nearly as good as on the north and south sides of the ridge, being too sandy and, in places, gravelly. Loads of leaves, peat and spent hops, together with rotten bracken, had to be collected and dug into the surface soil, while large heaps were placed in positions ready to incorporate into the soil around the plants at planting time.

It was now almost December. The target was to have everything planted in the species garden before Christmas to enable the newly planted Rhododendrons to settle into their new homes during the hoped-for winter rains, and before the severe frosty weather began.

With the help of MR. J. B. STEVENSON of Tower Court, a small selection of the better species of each series was chosen. A list of those already growing at Wisley had been drawn up, and MR. STEVENSON volunteered to present to the Society as many of the missing ones as he possibly could, the remainder being given by MR. EDMUND DE ROTHSCHILD and MR. J. P. C. RUSSELL. The Tower Court gift contained over 150 species, and a total of over 300 plants, some of the larger ones being 8 to 10 feet high.

Tower Court is 16 miles from Wisley and on the morning of November 23, 1946, the Curator, with a bus-load of students and trainees, together with two lorries, set off to get the promised plants. The three days we worked lifting the plants were very enjoyable, everyone joining into the spirit of the thing. The continuous fine rain on the last two days could not prevent the echoes of laughter ringing through the Tower Court woods, reminding the owner of the days when more lenient Chancellors of the Exchequer made it possible to employ a reasonable number of gardeners in the larger gardens of England. The plants were transported to Wisley, and on arrival placed in groups in their

series. Informal winding paths had been provisionally marked out on that portion of ground allotted for the species collection.

Although everything was now ready for planting, much thought was necessary before the final placing of the plants could be decided upon. As previously stated, owing to the severe attack of bark beetle, practically all the trees on the western portion of the species garden had been rooted up for timber, leaving little windbreak to the west and one part open to full sun and wind. Conditions improved towards the east. There really fine trees of *Pinus Pinaster* (the Cluster or Maritime Pine) and oaks gave more shelter and shade, while still further east over the public right of way, the dell with its magnificent Scotch Pines (*Pinus sylvestris*) and oaks gave us all that we could wish for in the way of shade and shelter.

We began the layout by allotting to the series Azalea the portion of ground open to the full sun and wind. Here these deciduous plants seem to be quite at home, and although beautifully pruned by rabbits the first winter of planting, they are now growing away in first-rate order. Next the large Triflorum series, containing so many floriferous garden plants, was planted on the west side. Having smaller leaves than many Rhododendrons they, like the Heliolepis series placed near, would weather the prevailing winds better than most.

Each side of the wide grass glade is rather open to the sun and here the series Saluenense, Lapponicum, Cephalanthum, Campylogynum and Lepidotum were accommodated, where they give rich promise of succeeding. The planting of these dwarf Rhododendrons on either side of the main path serves two purposes. It not only provided a site for the successful planting of a difficult bit of woodland, but it also allows visitors to see well into the species garden.

Having planted the worst bit of the species garden it became easier, the more we moved east towards shelter and shade, to find happy homes for other series. Care was taken to provide a place in a prominent and sheltered spot for that most interesting series, Thomsonii, with its sub-series containing so many beautiful and popular plants. Near by, beneath the pines, are the Barbatum and Arboreum series, while the Neriiflorum edge the path and the sub-series Haematodes, its members all possessing that glorious rich brown indumentum, is given a bed of its own near the bridge. Series Neriiflorum sub-series Sanguineum, all dwarf, neat plants, are planted in a valley-like depression which we call the "Sanguineum Gorge." The large plants belonging to the series Fortunei at present seem rather sparse, but these will need room for development to make perfect specimens.

*Rhododendron lacteum* and *R. Wightii* seem happy nestling behind the shelter of large-growing plants and in a less favoured spot a few members of that uninteresting series, Taliense, can be found. In this series *R. Bureavii* gets a place for its marvellous indumentum and *R. Roxieanum*, for its neat dwarfish habit with attractive linear leaves and dainty flowers; and one day *R. gymnocarpum* must be included, as few dark crimson Rhododendrons can rival this plant for beauty when in flower.

On the brow are the Rhododendrons belonging to the Ponticum series; outstanding amongst these are *R. yakusimanum*, the rare *R. californicum*, the true *R. ponticum* (from Asia Minor) and the almost creeping Japanese species *R. aureum* Georgi (*chrysanthum* Pallas).

Trespassing amongst the hybrids over the public right of way, but in the ideal setting and shelter of a deep dell are the large-leaved monarchs of the genus, the Grande and Falconeri series. Two attempts have been made to establish at Wisley that King of Rhododendrons, *R. sinogrande*, with its large, "tropical"-looking foliage, but the writer has found from experience that Wisley cannot be classified as one of the favourably situated gardens of England. If *R. sinogrande* and *R. sidereum* of the Grande series refuse to grow with us, we have our consolations with *R. Macabeanum*, which, given to us by the HON. MRS. SPENDER CLAY, seems to enjoy Wisley and will in further years present us, we hope, with trusses of yellow flowers which cannot be surpassed by even *R. sinogrande*. As it appears that we are to be denied the pleasure of seeing the ashy-grey indumentum on the underside of the leaves of *R. sinogrande* when disturbed by the wind, we hope to glory in the sight of seeing the rusty-red indumentum of *R. Falconeri*. This Rhododendron will, I believe, do quite well on Battleston Hill, and other members of the Falconeri series, i.e. *R. basilicum*, *R. coriaceum*, *R. arizelum*, *R. fictolacteum* (KINGDON-WARD'S form) all seem quite happy and will, as the years roll by, help to give the woodland that exotic appearance which is the joy of all Rhododendron lovers.

### KURUME AZALEA COLLECTION

We must leave the Rhododendron species garden but before we go and view the beginnings which have been made to create on Battleston Hill a general woodland garden with a planting of Rhododendrons, Magnolias, Acers, Sorbus, Eucryphias, Camellias, Hydrangeas, Viburnums, Cotoneasters, Lilies, etc., we should turn back to the wide grass avenue to study the

Kurume collection. These wonderful free-flowering evergreen Azaleas are ideal dwarf plants for the edging of our woodland garden paths, and, with but few exceptions, are much hardier than is generally believed.

Here at Wisley we have two plantings, one large bed which it is hoped will form a "Kurume Carpet" and another, nearby, planted more or less in a formal manner, continuing E. H. WILSON's original 50 selected varieties. Perhaps it would be appreciated by many readers of this *Rhododendron Year Book* if a little time was devoted to explaining how and why this group of Kurumes became known as "WILSON's 50."

During 1914 the late MR. E. H. WILSON was sent by the Authorities of the Arnold Arboretum to the Orient in search of new and rare plants. While in Japan he was taken by the then principal of the Yokohama Nursery Company on a visit to the nurseries and gardens in the district a few miles north of Tokyo. It was here that he first became acquainted with the many variants of Kurume Azaleas. He was so impressed that he obtained specimens, dried them, and sent them to the Herbarium at the Arnold Arboretum, but it was not until 1917 that the first "Kurume Azalea" plants were introduced into America.

These Azaleas did not originate in these gardens and nurseries north of Tokyo, but at Kurume, a town some 800 miles south-west of that city. The original parents of these many hybrids are said to come from Mount Kirishima, the sacred mountain of Japan. WILSON states in his *Monograph of Azaleas* that "Japanese experts recognise by name more than 250 kinds of Kurume Azaleas."

It was neither possible nor wise to introduce to the Occident all these varieties and WILSON selected what he considered to be the best 50, which are now known as "WILSON's 50."

Of this 50, with the help of the Japanese experts, WILSON selected the following six as the very best of them all.

No. 2. 'Kureno Yuki'—flowers white, hose-in-hose.
,, 11. 'Takasago'—flowers pale apple-blossom pink.
,, 16. 'Azuma Kagami'—flowers deep pink, hose-in-hose.
,, 22. 'Kirin'—flowers deep rose, shading to silvery rose.
,, 29. 'Kumo-No-Uye'—flowers pure salmon.
,, 40. 'Kurai-No-Himo'—flowers carmine, hose-in-hose.

This historical and valuable collection of plants was to the writer's knowledge only complete in two private gardens in this country, Tower Court, Ascot, and Caerhays, Cornwall, and the Royal Horticultural Society is indebted to the owners of these two famous gardens, MR. J. B. STEVENSON and MR. C. WILLIAMS,

for providing the cuttings during July 1946 for the attempt to establish at Wisley the "WILSON 50."

These Azaleas root very easily from soft cuttings and a complete set was planted in the October of 1947. Unfortunately the hard weather of February 1948 caused a few to split their barks and these have since died. This set-back does not mean that these plants are not hardy, but rather that we had grown our young plants a little too well and in consequence they were green and not hard as is more advisable before being planted into their permanent positions. It should be recorded that it was only odd plants here and there of a variety that died, and only in one instance did the whole batch of the variety die completely out. This was number 38 'Waka Kayede,' a plant with red flowers.

This collection of WILSON's 50 Azaleas will be allowed to grow naturally, and when they are large enough to flower profusely they should be of good service to growers and buyers alike for identification purposes.

No attempt as yet has been made to arrange the plants intended for the "Kurume Carpet" in their final positions. Rather, they are planted in a large bed to grow on until such time as they flower sufficiently to be able to judge their colours correctly, after which it should be possible to form the "carpet" in an attractive manner.

It was not the intention of the writer to give long lists of plants when asked to write this article, but the short list of the WILSON's 50 will no doubt be appreciated.

| | |
|---|---|
| No. 1. Seikai | No. 18. Otome |
| ,, 2. Kureno Yuki | ,, 19. Aya Kammuri |
| ,, 3. Shin Seikai | ,, 20. Shintoki-No-Hagasane |
| ,, 4. Yorozuyo | ,, 21. Saotome |
| ,, 5. Nani Wagati | ,, 22. Kirin |
| ,, 6. Tancho | ,, 23. Tamafuyo |
| ,, 7. Hachika Tsugi | ,, 24. Kiritsubo |
| ,, 8. Irohayama | ,, 25. Omoine |
| ,, 9. Hoō | ,, 26. Oinō Mezame |
| ,, 10. Suiyōhoi | ,, 27. Katsura No Hana |
| ,, 11. Takasago | ,, 28. Shin Utena |
| ,, 12. Kasumi Gaseki | ,, 29. Kumo-No-Uye |
| ,, 13. Bijinsui | ,, 30. Benifude |
| ,, 14. Asagasumi | ,, 31. Suga No Ito |
| ,, 15. Kimigayo | ,, 32. Kasane Kagaribi |
| ,, 16. Azuma Kagami | ,, 33. Tsuta Momiji |
| ,, 17. Osaraku | ,, 34. Suetsuma |

No. 35. Fudesute Yama
„ 36. Ima Shōjō
„ 37. Rashō Mon
„ 38. Waka Kayede
„ 39. Yayehiryu
„ 40. Kurai-No-Himo
„ 41. Agemaki
„ 42. Hinodegiri
No. 43. Aioi
„ 44. Sakura Tsukasi
„ 45. Tama-No-Utena
„ 46. Gosho Zakura
„ 47. Ukamuse
„ 48. Hinode-No-Taka
„ 49. Osaraku Seedling
„ 50. Hana Asobi

BATTLESTON WOODLAND GARDEN

To complete this account of Wisley Rhododendrons it only remains for me to take you over one of the bridges which span the public right of way. Here we are in a truly magnificent setting with some of the finest Scotch Pines it has been my pleasure to see. Intermixed amongst these Pines are a few Oaks, Silver Birch and Sweet Chestnut trees.

This piece of land of nearly twelve acres holds out great possibilities for the future welfare of Rhododendron culture at Wisley. Nothing is really perfect in the world and if we must find some fault with the contours of our Battleston, it is a little too open to the full blast of cruel east winds. This of course can be rectified as planting continues. The hill rises steeply from the north, east and south to the summit, where there was a large pit on the west end of the ridge, recently developed into a valley gradually ascending from the deepest portion on the west to the apex of the ridge on the extreme east. Local residents claim that this pit, completely covered by trees and situated less than 200 yards from the Portsmouth Road, was made by DICK TURPIN to use as a hide-out while committing his robberies on the adjacent highway. We have no highway robbers dwelling there now, but badgers are very happy scampering about on the steep banks.

But back to Rhododendrons! A beginning had been made before the war with the planting of this dell, and also part of the north side, with Rhododendrons and other trees and shrubs; but as the whole project was only in its infancy, little had been accomplished in the way of a plan of the general lay-out. Nevertheless, the plants then obtained and planted grew well during the war years and at the present time are doing much to form the backbone of our present developments.

Much propagation will be necessary before this wood is filled with the plant treasures we know will grow there and, in future years, give unbounded pleasure to visitors to the garden.

This part of Wisley Garden is unfortunately separated from the remainder by a fenced-off public right of way. There are

two bridges at present over this path, one from the Hardy Hybrid Rhododendron trials to the Camellia Garden, and one at the top near the dell. Later it is hoped to have a third which will lead from the plantings of Rhododendrons on the south-west into the 300-yard avenue of Flowering Cherries.

During the war of 1914 to 1918, hundreds of trees were taken from the wood for timber but unfortunately all the stumps were left in the ground. Some 150 of these were removed by tractors and bulldozers during the autumn of 1946 since when about 100 have been excavated with the help of a tree-puller and the ground cleared for planting.

The pre-war planting in the dell gave a valuable start and the work was taken up again in the winter of 1946–47 but the descent down the steep banks to attend to or view the plants was very awkward. By uprooting about a dozen trees at the east end, and with the help of a bulldozer, a valley was cut into the dell transforming the whole appearance of the landscape.

Just fourteen hours with the bulldozer in the sandy soil pushed hundreds of tons of soil from the valley and piled it against the abrupt ends of the dell creating ideal planting positions. The valley is so cut as to enable one to enter at the far eastern end and gradually drop down into the depths of the dell with plenty of steps to ascend at different points.

The second main feature of this portion of Battleston Hill is a twelve-foot road which will encircle the hill at its lower level, from the bridge on the north-west, eastwards along the south side to the new bridge to be erected on the south-west opposite the cherry collection. The main drive will more or less zig-zag its way around the wood, and from it will spring numerous small paths to give easy access to any particular tree or shrub.

A very creditable collection of the newer and better hybrid Rhododendrons is already planted in this woodland. All are clearly labelled giving the name of the plant, its parentage and the garden of its origin. The following is a selection, arranged under the Gardens in which they originated.

*Bodnant*, N. Wales (LORD ABERCONWAY)

*R.* 'Aspansia' A.M. ('Astarte' × *haematodes*)
*R.* 'Astarte' A.M. (*dichroanthum* × 'Penjerrick')
*R.* 'Bluebird' A.M. (*intricatum* × *Augustinii*)
*R.* 'Cardinal' F.C.C. (*arboreum* × Barclayi)
*R.* 'Charmaine' A.M. ('Charm' × 'May Day')
*R.* 'Choremia' F.C.C. (*haematodes* × *arboreum*)

RHODODENDRONS
AT ROWALLANE

FIG. 11—The Spring Garden
(See p. 18)

FIG. 12—*R. Falconeri* in the Old Wood (See p. 18)

RHODODENDRONS AT ROWALLANE

FIG. 13—The Old Wood (See p. 17)

*Photos, N. K. Gould*

RHODODENDRONS AT WISLEY

FIGS. 14 and 15—The Rhododendron Trials, 1948 (See p. 25)

*Photo, N. K. Gould*

RHODODENDRONS AT WISLEY

FIG. 16—The Dell, Battleston Hill

*R.* 'Cilpinense' A.M. (*ciliatum* × *moupinense*)
*R.* 'Cowslip' A.M. (*Williamsianum* × *Wardii*)
*R.* 'Dainty' F.C.C. ('May Day' × 'Elizabeth')
*R.* 'Ethel' F.C.C. ('F. C. Puddle' × *repens*)
*R.* 'Elizabeth' F.C.C. (*Griersonianum* × *repens*)
*R.* 'Fabia' A.M. (*dichroanthum* × *Griersonianum*)
*R.* 'Laura Aberconway' F.C.C. (*Griersonianum* × 'Barclayi')
*R.* 'Vanessa' F.C.C. ('Soulbut' × *Griersonianum*)

*Exbury*, Southampton (MR. E. DE ROTHSCHILD)

*R.* 'Albatross' A.M. ('Loderi' × *discolor*)
*R.* 'Angelo' F.C.C. (*Griffithianum* × *discolor*)
*R.* 'Avalanche' F.C.C. ('Loderi' × *calophytum*)
*R.* 'Bonito' A.M. (*discolor* × *Luscombei*)
*R.* 'Bow Bells' A.M. ('Corona' × *Williamsianum*)
*R.* 'Fusilier' F.C.C. (*Elliottii* × *Griersonianum*)
*R.* 'Golden Horn' A.M. (*dichroanthum* × *Elliottii*)
*R.* 'Grenadier' F.C.C. ('Moser's Maroon' × *Elliottii*)
*R.* 'Grosclaude' A.M. (*haematodes* × *eriogynum*)
*R.* 'Idealist' A.M. (*Wardii* × 'Naomi')
*R.* 'Lady Chamberlain' F.C.C. (*cinnabarinum* × 'Royal Flush')
*R.* 'Lady Rosebery' F.C.C. (*cinnabarinum* × 'Royal Flush' pink var.)
*R.* 'Naomi' A.M. ('Aurora' × *Fortunei*)
*R.* 'Romany Chal' F.C.C. ('Moser's Maroon' × *Griersonianum*)

*Tower Court*, Ascot (MR. J. B. STEVENSON)

*R.* 'Amor' (*Griersonianum* × *Thayerianum*)
*R.* 'Azor' A.M. (*Griersonianum* × *discolor*)
*R.* 'Polar Bear' F.C.C. (*diaprepes* × *auriculatum*)
*R.* 'Red Cap' (*didymum* × *eriogynum*)
*R.* 'Romarez' (*Kyawi* × *Griersonianum*)
*R.* 'Tessa' A.M. ('Praecox' × *moupinense*)

*Royal Gardens*, Kew

*R.* 'Arthur Osborn' A.M. (*didymum* × *Griersonianum*)
*R.* 'Impeanum' A.M. (*impeditum* × *Hanceanum*)

*Caerhays*, Cornwall (MR. J. C. WILLIAMS)

*R.* 'Blue Tit' (*impeditum* × *Augustinii*)
*R.* 'Moonstone' (*campylocarpum* × *Williamsianum*)

*Muncaster*, Cumberland (SIR JOHN RAMSDEN, BT.)

*R.* 'Huntsman' (*barbatum* × *campylocarpum* var. *elatum*)
*R.* 'Lodauric' × *Griffithianum*
*R.* 'Lodauric' × *auriculatum*

*Leonardslee*, Sussex (SIR GILES LODER, BT.)

Grafts of a representative set of varieties of *R.* 'Loderi'

This is only a selection of the good modern hybrids which are being established at Wisley from these and other notable gardens. Most of these plants have been layered to enable us to extend our planting and together with over one hundred different crosses made at Wisley during the past two seasons Battleston Hill in years to come should be a Rhododendron enthusiast's dream. In this woodland Rhododendrons will not by any means demand the whole area, but as we have very few evergreen shrubs and trees more beautiful than the Rhododendron this, the aristocrat of the evergreen world, must be fully represented.

# THE BREEDING OF PEDIGREE RHODODENDRONS

By F. C. PUDDLE, V.M.H.

PLANT breeding is probably the most fascinating of all horticultural studies, and lovers of Rhododendrons are especially fortunate in the wealth of breeding material which is theirs to command, for the genus Rhododendron is probably the largest in the plant world, ranging as it does from lowly plants of prostrate habit to species of tree-like proportions which, in their native habitats, are said to reach eighty feet in height. In fact, the numerous species vary so much in size, shape and colour that they offer almost unbounded possibilities to the ardent plant breeder.

The earliest hybrids of known pedigree recorded in the *Rhododendron Stud Book* (which is now incorporated in the *Rhododendron Handbook*) were either raised or flowered in 1817, so we may assume that the hybridization of Rhododendrons has been in progress for at least 130 years, but the introduction of many new species during comparatively recent years has provided such a stimulus to an ever-increasing band of enthusiastic hybridists that it can be safely claimed that the hybridization of Rhododendrons has made more progress during the last thirty years than it did in the previous hundred. Although the compilation of the *Stud Book* was only begun in 1935, it contained in 1937 the pedigree of just over four hundred hybrids, but by 1947 this had risen to over eight hundred, so the number had been doubled in the short space of ten years.

When we see these numerous hybrids in cultivation, we might easily form the opinion that the hybridization of Rhododendrons has almost reached its zenith, but on studying the *Rhododendron Handbook* a little further, we find that there are about 780 species described, yet only about 144 species are recorded in the *Stud Book* as having been used by hybridists, so there are still great possibilities open to the breeder, even if he is content to limit his matings to the production of primary hybrids. There are, in fact, whole series which do not appear to have been touched by hybridists, for the species contained in them are not to be found in the *Stud Book*.

Enthusiastic breeders, however, cannot content themselves with the creation of primary hybrids for these merely represent

the borderland of breeding possibilities and they are only a foretaste of what may be achieved in successive generations, and many experienced hybridists have already passed on to the matings of species to hybrids, also hybrid to hybrid with very gratifying results, but as these matings become more complex the value of the *Stud Book* becomes more and more apparent for it is only by knowing the full pedigree of the parents that the breeder can arrange his matings in a scientific manner. The haphazard hybridist may occasionally breed a first-class hybrid, but usually his failures are out of all proportion to his successes.

The skilful breeder never forgets the length of time which is required to prove each experiment, and he takes every precaution to avoid failure. It may be that he desires to improve the colour, or to breed new shades, or to increase the size of the flowers, or to develop a dwarfer, more compact and perhaps hardier race of plants, but whatever his object is, he tries to ensure success by endeavouring constantly to discover Nature's secrets, and from them to form theories for his own guidance.

Many years ago, when studying the problem of colour combination in its relation to plant hybridization, I tabulated the results which had been obtained in those families of plants which had been extensively worked upon by breeders, and I found that there was evidently a very definite sequence in Nature's scheme of floral colour, for they formed three groups, in each of which one of the three primary colours, blue, red or yellow was missing.

No. 1 group in which blue is missing includes Roses, Carnations and Chrysanthemums.

No. 2 group is minus red, and Irises and Violas are good examples.

No. 3 group in which yellow is absent includes Sweet Peas and Penstemons.

Although I made my original list about forty years ago, I have not yet found it necessary to revise it, for in spite of the continuous efforts of plant breeders they have not succeeded in filling in any of these colour blanks. I am, of course, aware that varieties have been bred which have a suspicion of these missing colours, but they are sadly lacking in anything approaching the pure tone. The varieties of Roses and Carnations which have a suspicion of blue are usually produced by first-generation matings between crimson and white, and further progress appears so difficult as to be very improbable. It is also interesting to note that MR. E. R. JANES in an article on the 'Modern Sweet Pea' (*R.H.S. Journal, April*, 1948, page 99) writes that although the best cream Sweet Peas of to-day are incomparably finer, larger and more interesting in form, it cannot be said that they are much

deeper in shade than the original cream variety 'Clara Curtis.' He further remarks that the yellow Sweet Pea seems nearly as far off as ever.

When we come to Rhododendrons it would appear that they provide the exception to the rule, for we already have red, blue and yellow species. When, however, we look more deeply into the matter and consider them from a hybridist's point of view, we find that for breeding purposes they form several distinct groups.

Botanists have divided what I might term the typical Rhododendrons into two sections, which they term the Lepidote and the Elepidote series, the chief botanical difference being the presence or absence of scales on the foliage. I doubt whether the botanists realized when they originated this classification how important and valuable it would prove to the hybridist, for the two sections are very loath to interbreed, and moreover, they have a different sequence of colours.

The Elepidote section which includes the Arboreum, Fortunei, Barbatum, Lacteum, Neriiflorum and Thomsonii series belongs to my No. 1 colour group for although good scarlet and pure yellow species are included in this section, there is not a good blue. *Rhododendron campanulatum* is perhaps the nearest approach but, at its best, it does not get beyond mauve.

The Lepidote section which includes the Triflorum, Maddenii, Lapponicum, Boothii, Saluenense, Campylogynum, Cephalanthum and Cinnabarinum series, belongs to my No. 2 colour group for here we have both good blue and yellow species but there is not a clear red or perhaps the better term would be scarlet.

Many attempts have been made to unite these two sections by hybridization, but the usual result of the matings is that although offspring are produced they favour the seed parent, and the influence of the recorded pollen-parent is undiscernable. When this occurs many breeders may form the opinion that other pollen has found its way to the stigmas, and the flowers were self-fertilized. Personally I doubt whether this is always the correct explanation, and I would suggest that it may be possible for the pollen of the recorded parent to stimulate the ovules sufficiently to produce fertile seeds, although the desired union between the two species is imperfect. This suggestion is not so illogical as it may appear, for such cases have occurred in Orchid hybridization, and those who are familiar with the fertilization of Orchids, will agree that in their case the question of stray pollen upsetting an experiment in hybridization cannot arise.

The Azaleas may also be divided into two main groups, each with its own colour series. The deciduous section, which is chiefly represented by the sub-series Luteum, corresponds to my No. 1 colour group. But the colour range of the evergreen Azaleas contained in the sub-series Obtusum is quite different and they have the colour sequence of No. 3 group.

A particularly interesting point now arises, for we find that the Elepidote series of Rhododendrons and the Luteum series of Azaleas are of the same colour sequence and although of apparently remote relationship, they will interbreed, and a number of hybrids between them have been successfully raised. On the other hand, the apparently more closely related Lepidote and Elepidote groups of Rhododendrons are very reluctant to unite in wedlock, and the Luteum and Obtusum series of Azaleas are just as loath to form a union. This suggests that there is more in Dame Nature's colour groupings than mere coincidence, and they probably have a more important bearing on plant relationships than we have realized.

The prudent hybridist who desires his experiments in plant breeding to show a good margin of success is well advised to base his operations within the limits of these colour groups, but if he is more adventurous and endeavours to combine these distinct groups, he must be prepared to meet failures and disappointments. But after all, why waste time in striving for the abnormal, when there is still such a wide field of normal relationships still open to enterprising hybridists.

When planning our breeding experiments, it is advisable to bear in mind that two distinct factors are responsible for the various colour effects seen in flowers: these are the soluble or sap colours, and the insoluble factors which are known as plastids. The inheritance of the plastids is apparently distinct from that of the sap colours, consequently they play an important part in our breeding results.

These insoluble factors are usually white or yellow and, for hybridization purposes, we may consider them as the colour of the outer or epidermal cells through which the sap colour is seen.

Following this theory we may readily assume that a combination of white plastids and neutral or yellow-green sap would produce white flowers, whilst yellow plastids superimposed on the same coloured sap would result in yellow flowers. The effect of these insoluble factors on the richer sap colours is perhaps more difficult to explain, but it might be likened to those under the yellow glow of lamplight and the white rays of sunlight. We all know that orange and red shades appear richer in colour under artificial light, whilst pink and blue shades are

seen at their best in daylight. It therefore follows that when endeavouring to breed red, orange or yellow hybrids we should arrange our matings to ensure a preponderance of yellow plastids, and when breeding for white, blue or pink we must endeavour to secure a monopoly of white plastids.

These theories may not be strictly scientific and some readers may consider them extremely hypothetical, but after many years' experience of plant breeding, I am convinced that they work out in practice, and it is by working on these lines that I have bred the white hybrid Cypripediums and the brilliantly coloured hybrid Rhododendrons which have originated at Bodnant.

When we consider the modern large flowering Rhododendrons, as represented by the Loderi hybrids, one wonders whether the limit is already reached when size may be considered a virtue. When we also consider the modern trend of civilization, it takes little imagination to form the opinion that the gardens of the future will be of moderate dimensions, consequently the plants should be proportionate in size. I would therefore suggest that the most popular Rhododendrons of the future are likely to be those of moderate stature.

The comparatively dwarf hybrid Rhododendrons already raised from *R. Griersonianum*, *R. repens*, *R. Williamsianum*, *R. haematodes* and species belonging to the Lapponicum series are a good omen of future possibilities. They may not compete with the Loderi hybrids on the show bench, but they are most beautiful garden plants and this is the greater virtue.

The lovely blue hybrids between *R. Augustinii* and species belonging to the Lapponicum series, such as *R.* 'Blue Tit,' *R.* 'Bluebird' and *R.* 'Blue Diamond' are esteemed by all Rhododendron lovers, and yellow hybrids of the same type could no doubt be produced by matings between either *R. lutescens* or *R. Keiskii* and *R. muliense* or *R. chryseum*. If a white hybrid of this type is desired then I would suggest *R. muliense* or *R. chryseum* crossed with *R. caeruleum album*, but it might require a double cross of *R. caeruleum album* to secure a really white result.

The Saluenense series includes species which in form and habits are ideal plants for small gardens and some are specially suitable for rock gardens, but, unfortunately, the flowers of these species are of varying shades of that much despised colour —purple, so there is little hope of any improvement by matings within the series. It has been proved, however, that *R. saluenense* will mate with blue species belonging to the Lapponicum series, but the yellow species offers better chances of breaking up the purple colour and perhaps better still, *R. Keiskii* might be tried

and if a successful union can be accomplished it would link up the Saluenense and Triflorum series.

The primary cross between yellow and purple colours would probably produce a brighter shade of purple or apparently the opposite of what we are working for and here is where the inexperienced breeder is very likely to go astray, for he will probably be tempted to leave it at that or scrap the whole lot of plants and consider the experiment a failure. We must bear in mind, however, that although we have not secured the desired result, we may be one step on the way and these despised plants are really valuable breeding material, for a second mating of the yellow parent to the palest forms of the primary hybrid will probably result in a proportion of yellow or cream offspring. This hypothesis is based on my personal experience of similar combinations.

The charming Cephalanthum series might produce some fine hybrids if a union could be effected between them and the Lapponicum series.

The Glaucum series also contains some species of good breeding possibilities and one wonders what the Campylogynum series might breed under the guidance of a prudent hybridist.

A combination of the three species *R. concatenans*, *R. Keiskii* and *R. cinnabarinum* var. *Roylei* might open another interesting line in hybridization and perhaps produce a dwarfer set of hybrids resembling *R.* 'Lady Chamberlain.'

Turning to the Elepidote section we find that *R. repens*, *R. Williamsianum*, *R. haematodes*, *R. dichroanthum* and other species of the Sanguineum series have already given proof that a charming race of hybrid Rhododendrons of moderate size, excelling both in colour and form, can be bred by mating them to the best of the larger growing species.

*R. aperantum* is considered a difficult species in many gardens, but the hybrids which have been raised from it are more easy to cultivate. They are also very floriferous, in fact, there is a good prospect that it may prove to be the parent of a charming race of hybrid Rhododendrons; moreover, the colour forms of this species are so varied that they offer the enthusiastic breeder plenty of scope for his energies.

Although *R. repens* is a rather shy flowering species, its hybrid offspring are the exact opposite and they rank amongst the most floriferous of garden hybrids. When mated to the larger hybrid Rhododendrons, the majority of the seedlings are charming plants of compact habit, but some will tend to follow the upright growth of the larger parent, but the influence of *R. repens* is revealed in the pendant branches; these abnormal

looking plants are, perhaps, better destroyed, but if our tastes became so depraved that we desired weeping types of Rhododendroms, they could be bred from these.

*R. haematodes* is responsible for a very distinctive trait which is inherited by some of its hybrid progeny; the calyx becomes enlarged and assumes the same colour as the corolla, so that this appears to have become duplicated with, in some cases, a charming hose-in-hose effect.

No other species has such a numerous hybrid progeny as *R. Griersonianum*. No fewer than 106 hybrids are recorded in the *Rhododendron Stud Book* who claim it as their parent and one wonders whether it is advisable to make more primary hybrids with this species, for it is very probable that secondary hybrids will offer the greater possibilities, but as in subsequent generations the parentage becomes more complex it will naturally follow that there will be a still greater need to conduct our breeding operations on systematic lines.

To illustrate this, I will give two examples of my own breeding. Probably the most varied result which I have obtained from any cross was in *R.* 'Wilfred' (*R. Williamsianum* × *R.* 'Phidias'). The colours of the seedlings included cream, yellow, orange, pink and red, in fact, scarcely two plants were alike. If we search for the reason by dissecting the pedigree, we find that it includes the following species, *R. Griffithianum*, *R. campylocarpum*, *R. dichroanthum*, *R. Griersonianum*, *R. neriiflorum* and *R. Williamsianum*: thus practically all the colours in the Elepidote series are combined in the one hybrid. Small wonder that the family is so varied.

My second example is *R.* 'Bartia' (*R.* 'Barclayi' × *R.* 'Portia'). The species combined in this hybrid are *R. Griffithianum*, *R. arboreum*, *R. Thomsonii*, *R. euchaites* and *R. strigillosum*. It will be readily seen that the breeding is concentrated on the gradual increase in the intensity of the red factor, and it has resulted in one of the very best red hybrids which has been raised at Bodnant, and moreover, the whole family are consistently red in colour. This, I suggest, is a good example of line breeding. I would not presume to suggest that the theories which I have attempted to describe are authentic, for although we may try to probe into the mysteries of Nature's rules of inheritance, yet we cannot unravel her secrets sufficiently to reduce anything to a certainty. Plant breeding is an engrossing study, but the span of human life is not long enough to dip very far into its problems, and although it may require patience it is never irksome, and the gradual development of the young seedlings is always full of interest.

# A NEW RHODODENDRON

By Dr. J. MACQUEEN COWAN

THE Rhododendron which is the subject of the accompanying plate—*Rhododendron Aberconwayi* Cowan—is new to science and to cultivation. It is suggested that it may best be placed in the Irroratum Series—it can go into no other—but it falls easily into no constituted series.

Though it has many of the characteristics of *Rh. irroratum* Franch. yet the open, flatly campanulate or almost saucer-shaped corolla marks it as distinct from all other species of the series save *Rh. Hardingii* G. Forrest. Moreover, the inflorescence is very definitely racemose. From *Rh. Hardingii*, and indeed from all other Rhododendrons, *Rh. Aberconwayi* can readily be distinguished by its leaves, which are of an unusually rigid, leathery texture, with the margin markedly recurved; but even more remarkable is the brittle texture of the lamina—when slightly bent it immediately cracks and breaks.

As a species yet without a name, *Rh. Aberconwayi* was awarded first prize in its class when exhibited by MR. J. B. STEVENSON, under No. McL. T.41, at the Royal Horticultural Society's Rhododendron Show in May 1948; and it is fitting that a plant of high distinction should bear the name of the Society's distinguished President.

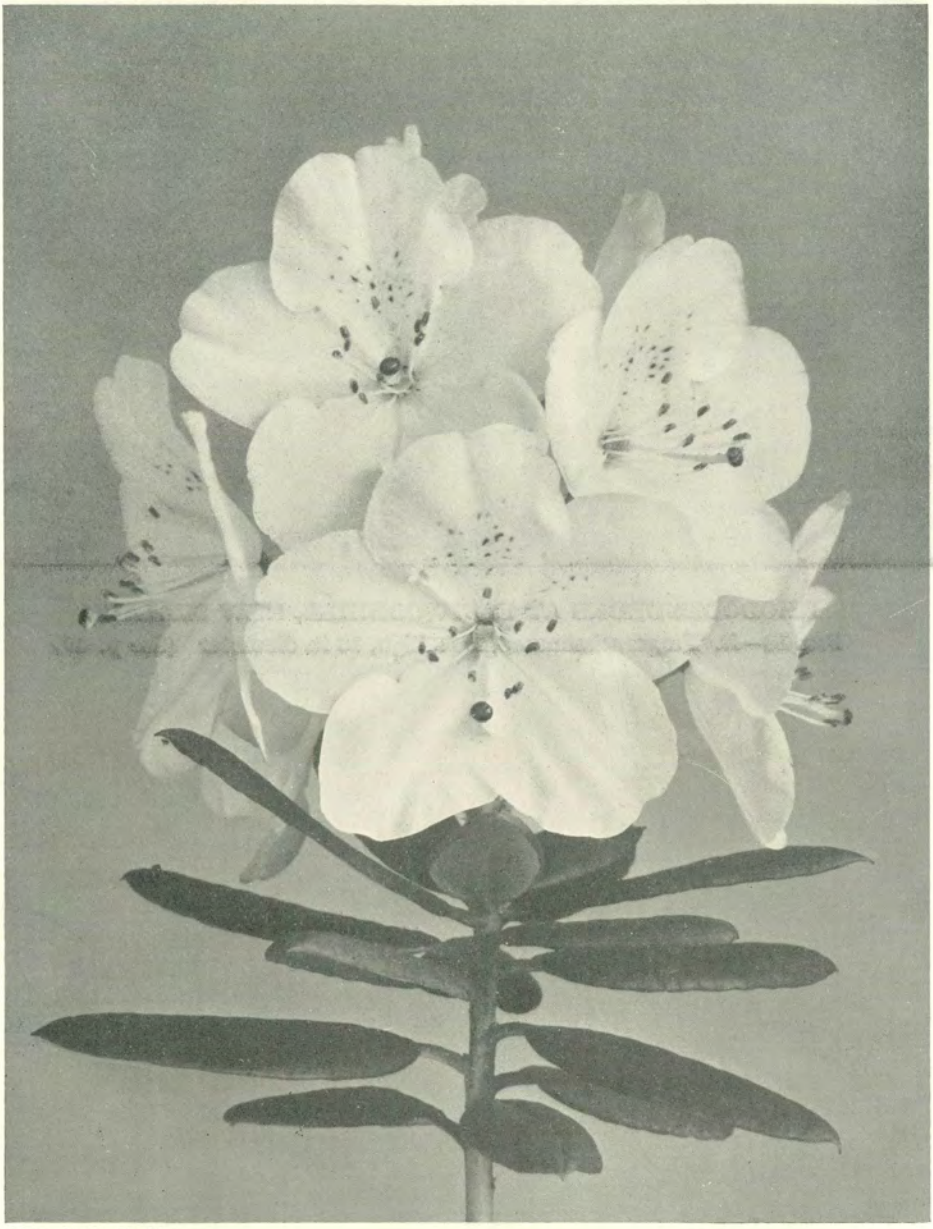
*Rh. Aberconwayi* is a native of Eastern Yunnan—the exact locality we do not know—but judging from the herbarium material it would appear to be not uncommon in the locality or localities where it is found.

After the death of GEORGE FORREST, near Tengyueh in January 1932, a number of the native collectors whom he had trained, were employed by LORD ABERCONWAY to continue the search for new and unknown plants and to gather seed. *Rh. Aberconwayi* is one of the new species which they found. The field notes are inevitably brief and incomplete but seed was sent home in 1937 and numerous seedlings were raised. Plants of flowering size may be seen in various gardens—at Bodnant, at Tower Court, Ascot and at the Royal Botanic Garden, Edinburgh.

**Rhododendron** Aberconwayi Cowan spec. nov.

Species notabilis, valde distincta in gregem Irroratum ponenda; atque proxima *Rh. Hardingii* G. Forrest; ob inflorescentiam valde racemosam, floresque late pateriformes foliaque friabila statim recognoscitur.

Frutex 1·5–2·5 m. altus. Ramuli annui circ. 4 mm. diam. minutissime floccosi, glandulis breve stipitatis sparsim induti; venustiores sordide



*Photo, N. K. Gould*

A NEW RHODODENDRON SPECIES

FIG. 17—*R. Aberconwayi* (See p. 42)

RHODODENDRONS AT EASTWOODHILL, NEW ZEALAND

FIG. 18—*R.* 'Fragrantissimum,' 12 ft. high, 16 ft. diameter (See p. 49)

rubido-grisei leves. Alabastra foliorum circ. 2 cm. longa, fusiformia, perulis glanduliferis viscosa. Folia breve petiolata ad 8 cm. longa; lamina coriacea sed flexura fragilis, 3–7 cm. longa, 1·2–3·3 cm. lata, oblongo-ellipitica vel nunc oblonga vel elliptica, margine valde revoluta, apice acuta vel obtusa mucrone conspicuo corniculata, basi late cuneata vel subrotundata; supra atroviridis glabra rugulosa, vix nitens, costa media sulcata venisque primariis 11–14-paribus impressis; subtus olivacea glauca, papillata, glandularum vestigiis praesertim ad costam mediam elevatam punctata caeteroquin glabra; petiolus 5 mm.–1·3 cm. longus, minute floccosus. Inflorescentia terminalis racemosa 6–12-flore, rachi 8 mm.–5·4 cm. longa, hirsuta glandulosaque, bracteae 1–1·3 cm. longae viscoso-glandulosae; pedicelli 1·5–4·9 cm. longi, brevissime hirsuti, glandulis breve stipitatis obtecti. Calyx parvus circ. 1-2 mm. longus, dorso nunc glandulosus, basi cupuliformis, margine lobulatus, lobulis 5, late triangularibus rubescentibus margine glandulis cinctis. Corolla a basi late pateriformis, 2–3 cm. longa, alba vel pallide rosea, postice maculis parvulis paucis kermesino-maculata, glaberrima, lobis 5, 1·3–2 cm. longis, 1·4–2·4 cm. latis, rotundatis emarginatis. Stamina 10, inaequalia circ. 8 mm.–2 cm. longa, parte integra corollae longiora, filamentis deorsum minutissime puberulis. Gynaeceum 1·5–3 cm. longum; ovarium conoideum circ. 3–5 mm. longum, 5-cellulare, et dense glandulosum et sparse floccosum; stylus exsertus ex toto glandulosus; stigma lobulatum. Capsule late oblonga, 1·4–2·1 cm. longa, 6 mm. lata, nigra, glandulosa.

Western China. Eastern Yunnan, McLaren U 33 (type), summit of a mountain; blossom June. McLaren U 35A, U 38A, U 41A, U 54A, U 66A, and in cultivation McL. T41.

A medium-sized shrub 1·5–2·5 m. high; young shoots sparingly clad with short-stalked glands and minutely hairy, below the inflorescence 4 mm. in diameter; leaf buds about 2 cm. long, pointed, viscid, bud-scales glandular. Leaves: lamina leathery, markedly brittle in texture, sharply recurved towards the margins, oblong-elliptic, oblong, elliptic or broadly lanceolate, 3–7 cm. long, 1·2–3·3 cm. broad; apex acute to obtuse, distinctly mucronate; base obtuse to sub-rounded; upper surface dark green, glabrous at maturity, somewhat rugulose, midrib deeply impressed, primary veins 11–14 on each side, impressed; under surface glaucous, papillate, punctulate with minute vestigial glands especially towards the midrib, midrib prominently raised, sparsely punctulate-glandular, primary veins and reticulations conspicuous; petiole 5 mm.–1·3 cm. long, minutely hairy, grooved above and glandular. Inflorescence a racemose umbel or distinctly racemose, 6–12-flowered; rhachis 8 mm.–5·4 cm. long, minutely hairy and glandular. Pedicels 1·5–4·9 cm. long, very shortly hairy and clad with short stalked glands. Calyx small, about 1–2 mm. long, red-tinged, lobes 5, broadly triangular, pointed or rounded, glandular or eglandular on the outside, margin gland-fringed. Corolla flatly campanulate or saucer-shaped, white or white tinged pink with a few small crimson specks on the posterior petal, 2–3 cm. long, glabrous; lobes 5, 1·3–2 cm. long, 1·4–2·4 cm. broad,

rounded and emarginate. Stamens 10, unequal, 8 mm.–2 cm. long, glabrous. Pistil 1·5–3 cm. long; ovary 5-celled, 3–5 cm. long, densely glandular, sparingly hairy; style glandular to the tip and there expanded into a lobulate stigma. Capsule oblongoid, 1·4–2·1 cm. long, 6 mm. broad, dark brown, somewhat glandular.

# RHODODENDRONS AT "EASTWOODHILL," GISBORNE, NEW ZEALAND

By W. DOUGLAS COOK

IT is more difficult to write on Rhododendrons in the North Island of New Zealand than it would be to write on Rhododendrons in England. In both cases there are extremes of climate to contend with.

In parts of the favoured South-West of England and in parts of Scotland you have almost frost-free winters, while in the North East and Midlands, I understand the winters can be pretty severe.

Here too, in the North Island, we have many coastal areas which are frost-free where Acacias and Jacarandas thrive and even Gardenias grow and bloom freely in the open, while Poinsettias and Strelitzias are quite common. There are, however, many areas where hard frosts forbid our growing such Rhododendrons as 'Countess of Haddington' and even great trees of 'Sir Robert Peel' have their blooms cut at times. Taking the North Island as a whole, I should say there are not many parts where most Rhododendrons could not be grown successfully with a little protection.

There is more to it than just degrees of frost. Here in the North we get very much more sunshine than you do in most of England. Our seasons are perhaps more marked and the growth better ripened than it would be with you. Then again, the North Island is cut in two by a series of high mountain ranges forming an almost continuous chain, snow-clad all winter.

The prevailing north-west wind collects moisture coming across the Tasman Sea and most of this is precipitated on the western side of the ranges leaving little to moisten the lands to the east. The westerly condition prevails over most of the Spring, Summer and Autumn while there is a good deal of southerly and easterly weather in Winter. My average rainfall at "Eastwoodhill" is 40·88 inches, but it can vary a great deal. In 1913 we had only 27·38 inches while in 1938 there was 55·91 inches. One might consider even 27 inches sufficient were it evenly spread and our days dull and cloudy, but in these eastern districts we enjoy an almost perfect climate from the human point of view, which is hardly to the liking of Rhododendrons.

In the East, most of our rain falls in the Winter months.

Spring and Autumn are reasonable, but the three or four Summer months may give us little moisture. This, with our brilliant sunshine, would make the life of a Rhododendron a misery were it not in comparative shade.

The Park at "Eastwoodhill" is all on light volcanic soil, delightful to work in winter but much too dry in Summer. Rhododendrons do not do well, and, were it not for my great love for them, I would have abandoned them long ago. However, in occasional seasons, they reward me and I continue with them and am always increasing my collection in the hope that some of the newer ones may enjoy our sunny climate.

Most trees and shrubs do well here, but there are a few which resent our droughts even more than the Rhododendrons do. I have never succeeded with *Disanthus cercidifolius*, and in the drought two years ago lost my two largest Davidias, several Embothriums and both *Cercidiphyllum sinense* and *C. japonicum* suffered badly. *C. sinense* is the more thirsty of the two, but none of these subjects like to be far from permanent moisture.

One Rhododendron revels in the conditions here and objects neither to our droughts nor to our frosts; this is *R.* 'Fragrantissimum' with its enormous snow-white nutmeg-scented blooms. We have perhaps a dozen or more bushes of it, the largest being 10 feet high, 14 feet through and still making 6-inch growths every year. In bloom, the small leaves are almost hidden by the huge flowers. There has never been any question of losing flowers or buds of this Rhododendron with our average 8–10 degree frosts. I think frosts are over by the time it flowers.

'Countess of Haddington,' on the other hand, I have had to take 200 feet higher up 'the Burma Road' to get her out of the frosts. There she is quite happy fully in the open as our *R.* 'Fragrantissimum' is at the house. *R. Griersonianum* and many of its hybrids we attempt here but it hates our hot sun more than most. 'Tally Ho,' however, seems less resentful.

I believe that in our dry eastern climate we could grow Rhododendrons well in well-cultivated deep heavy land heavily top-dressed with 6–8 inches of sawdust in winter when both soil and sawdust are thoroughly soaked.

We grow about 145 species and 215 hybrids here but our thin soil and dry conditions make it impossible to do them well. The position is pretty hopeless as the soil would not support shade trees *and* Rhododendrons and the streams dry up in a dry summer.

Difficult as things are, I would never abandon Rhododendrons.

Some might remark 'Why doesn't he grow something more

suited to his soil?' The answer to that is—we do. We have over 3,000 species and varieties of trees and shrubs in the park here and if anyone has anything new in that line to send along we would be glad to try it.

I first got everything the New Zealand catalogues had to offer (much was killed by frosts), then searched England for new material. I read Bean's three volumes from cover to cover and noted everything that sounded attractive—and got them. Since then, *New Flora and Silva* and *R.H.S. Journals* have suggested many more and the *Gardeners' Chronicle* a few.

So many things of special interest are still in private gardens in Britain only and are not available to us in New Zealand but I have two things from Kew which I treasure. One is a purple-leafed *Cordyline australis* given me by SIR ARTHUR HILL in 1917 when I was returning from the war permanently unfit for further service, and the other a variegated *C. australis*, also given by SIR ARTHUR.

Serious planting of Rhododendrons did not start at "Eastwoodhill" until 1937.

In 1935 a 20-acre paddock was taken over for ornamental planting as it had proved too poor for farm use. It was full of little hills and shallow gullies with a winter stream running through it. On testing the bottom of this stream when dry in summer, we discovered there was from three to five feet of soil of sorts in the bed, so we dug this out throwing it up on each bank to gain depth of soil, leaving blocks here and there to prevent erosion. A hundred or more species and varieties of Rhododendron were available in New Zealand and we ordered quite a selection to plant up a quarter of a mile of our new beds. Unfortunately we ordered many other things as well and in six years' time Magnolias, Stuartias, Eucryphias, Clematis and dozens of other genera were struggling with the Rhododendrons for a place in the sun.

Many Rhododendrons were moved into a new area of the stream bottom and are beginning to thrive.

The development of 1937 now looks like an old planting and there are some lovely peeps in Spring. One of the most pleasing to me is a group of 'B. de Bruin,' 'Hugh Koster' and 'Dr. W. F. Wery' seen on the far side of the stream through the whitest of Silver Birch trunks. A little lower down the stream but on the more shaded side, *R. Falconeri* struggles heroically to look its beautiful self, and, to me, succeeds. It seems senseless to attempt these large-leafed species here, but we get along better with *R. grande*, *R. sinogrande* and *R. Macabeanum*, all of which are very noble in appearance when really thriving.

Next to *R. Falconeri* is *R. barbatum* and after watching it for seven years it flowered pink. Knowing only the glorious scarlet form I was disgusted. The better form is in New Zealand but evidently the nursery I got mine from has only the pink form. I have now imported the scarlet form from England. If it flowers pink, I'll be over with an atomic bomb!

'Mrs. G. W. Leak' is across the stream from *R. Falconeri* and behind her a large bush of *Cornus florida* var. *rubra.* Seen through the Silver Birch stems, these make a lovely picture. We have several plants of 'Mrs. Leak' in other parts of the grounds.

A bridge crosses the stream here. On the up-stream side is a large bush of a very fine pure white form of *R. Griffithianum* and on the down-stream side an equally large specimen of 'Souvenir of W. C. Slocock,' and beyond, the brilliant 'G. A. Sims,' both in the shade of a weeping golden-barked willow. 'Gill's Crimson' just beyond, was always a glory but was moved because a large *Styrax japonicus* hung too close over it and, after three drought years, has succumbed this summer. A sad loss, for it was our finest bush of this glorious hybrid.

I am always sorry the 'Countess of Athlone' and 'White Pearl' are not starred. With me they are such good garden plants and so very reliable. Both are big bushes here and look well with their Douglas Fir background. 'C. B. Van Nes,' 'Raoul Millais' and 'Lady Primrose' are beyond the first and round a bend in the stream our oldest 'Loderi,' a very fine form, and 'Gill's Gloriosa' thrive. Crossing the 'Magnolia Bridge' we have *R. decorum,* 'Purple Splendour' and 'Mrs. G. Paul.'

At this point we are well down the stream and in rather a frosty area where *R. decorum* is not really happy, but where 'Purple Splendour' certainly enjoys life. I have never cared very much for 'Purple Splendour.' I've tried it with *fastuosum flore pleno,* with orange *Azalea mollis* and with purple-leafed Japanese Maples, but am not satisfied with any combination. It is too intense a colour.

There were about fifty varieties down this stream and all enjoyed the deepish soil and moist atmosphere.

Our 20 acres were developed section by section and each year better varieties became available. When we started up the 'Burma Road' (a zig-zag path with seven zigs and eight zags about a third of a mile to half a mile in length) we got into slips of rather better soil in places, and as we climbed the hill we used more and more tender species and varieties. Here 'Cornubia,' 'Barclayi,' *ciliatum,* 'Fragrantissimum,' 'Shilsoni,' 'Mrs. A. T. de la Mare,' 'Cornish Cross' 'Marquis of Lothian,' 'Edith Mackworth Praed,' 'Mrs. Furnival' various Loderi's, 'Betty Wormald,'

'Unknown Warrior,' 'Glory of Penjerrick' and dozens of others were planted and I believe will thrive when our series of drought summers ends. At the top of the 'Burma Road' even *R. Nuttallii* is growing as there is very little frost.

We have 145 species at "Eastwoodhill." In some cases they are excellent forms, in other cases we should root them out and import the best forms. *R. Schlippenbachii* varies greatly but there are in the country some very good pink forms. *R. arboreum* again varies from white to crimson. Having lots of space I have used this species generously, but it does not like our climate.

Our outstanding success here is *R.* 'Fragrantissimum' (Fig. 18). I have never known its buds frosted in my thirty years' experience with it here and it never fails to smother its leaves with its enormous snow-white fragrant blooms. In the home garden our usual winter frosts are 8–10 degrees, while occasionally we might get 15 degrees. In this old part of the garden were quite a number of 1913 Rhododendrons now marked Y and Z, so when 1945 drought called them I was not sorry. 'Barclayi,' 'Edith Carey,' 'Unique' and a number of good Camellias have taken their place.

Since the formation of the New Zealand Rhododendron Association, some years ago, we have been getting better hybrids and better species into the country and in the near future our really keen members will be showing what can be done with these.

We have for many years had a few outstanding gardens in New Zealand, but the species and varieties grown in these were mostly imported by their owners and were never available on the New Zealand market to the general public. From now on we hope that the class of Rhododendron planted in New Zealand will be many grades ahead of those listed in the 1938 *Year Book*. Looking through that list, I find we had a very large percentage of the high starring hybrids here, but when one looks at a list of up-to-date hybrids grown in England to-day one realises how few are available to us in New Zealand. Some of us are importing what are available in England, but that list is small compared with the large list of names mentioned at Shows. This year we have received here such hybrids as 'Belvedere,' 'Romany Chai,' 'Lady Bessborough' F.C.C. var. and var. 'Roberte,' 'Aladdin,' 'Ibex,' 'Exburiense,' 'Hawk,' 'Lady Chamberlain' Exbury var., 'Nereid,' Lady Rosebery,' 'Blue Tit,' 'Blue Diamond,' 'Racil,' *insigne* and in some cases two forms or more of a hybrid. Of the species we have received about thirty of the high starring strangers to us and among them many of the best for rock gardens.

Whether Rhododendrons will do well with me or not, two things are certain. I will always grow them and I will continue to live here. I would rather live in our excellent climate and grow my favourites poorly than live in a wet one where they grow to perfection.

Thinking that I might be able to create more perfect conditions for a few, I have started collecting the best of the dwarfer species such as *R. anthopogon*, *R. calostrotum*, *R. chasmanthum*, *R. exquisitum*, *R. fastigiatum*, *R. flavidum*, *R. insigne*, *R. hippophaeoides*, *R. leucaspis*, *R. moupinense*, *R. oleifolium*, *R. pentaphyllum*, *R. prostratum*, *R. pruniflorum*, *R. radicans*, *R. russatum*, *R. saluenense*, *R. scintillans*, and a dozen or so more.

I hope that readers of this account of Rhododendrons at "Eastwoodhill" will not imagine that this is typical of Rhododendron conditions in New Zealand. It is not. This is one of the warmest, driest, and sunniest climates in New Zealand. Broadly it extends east of the mountains from Gisborne in the north to the south-east of the North Island with a few pockets of greater moisture. Practically the whole of the west coast of both islands has ample rainfall at all seasons to do Rhododendrons well. The same applies to both North and South ends of the South Island.

It just so happens that I have the sun, and in that sun though Rhododendrons are perhaps not so happy, I grow almost every tree and shrub you grow in the British mainland, and, 20 miles away on the coast, anything that will grow on the Scilly Isles would grow.

There are many parts of New Zealand where Rhododendrons would grow to the same perfection as in the most favoured spots in Britain.

# A REVIEW OF RHODODENDRONS IN THEIR SERIES

## II. *The Boothii, Glaucum, Lepidotum Alliance*

BY DR. J. MACQUEEN COWAN AND H. H. DAVIDIAN, B.Sc.

IT is fitting that the three series Boothii, Glaucum and Lepidotum should be subject to a joint enquiry: first, because the species of these three series have certain characteristics in common, albeit each series has its own distinctive features of inflorescence, flower and leaf; and second, because, within these series, some species, which closely resemble each other, have been placed not together in one series, but in separate series—they are therefore more closely akin to species of another series than they are to the members of the series to which they are said to belong.

Taking at first a general view, we observe that the species of all the three series are dwarf, small or medium-sized shrubs, having evergreen, somewhat thick leaves, which are scaly and glaucous below; the inflorescence is usually 3-8-flowered; the corolla is broadly or shortly campanulate; the style is stout and sharply bent. However, to this general standard a number of species fail to conform and exceptions are evident in each of the series. For example, the corolla of some species is campanulate—by no means shortly campanulate; of some the style is slender and straight—not sharply bent; and while the inflorescence of the majority of species is few-flowered—the rest have, some only 1–3 flowers, one as many as 18 flowers.

Now closely similar species when dispersed in different series, tend by their segregation to nullify the distinctions by which the series can be recognised. Indeed, as concerns the series under review, the species are distributed in such a manner that the criteria laid down for diagnosis of the different series are unreliable and by no means diagnostic. Accordingly, in this instance our initial problem is to find some means of distinguishing between the series, and, whether it will admit of any complete and final solution or not, even so it is worthy of investigation. We decided, therefore, to examine together all the species which constitute the three series—Boothii, Glaucum and Lepidotum—to discover whether some less confusing arrangement can be found.

Our detailed analysis confirms that various modifications can

with advantage be made with regard to the series; further, it reveals, as to the species, a certain redundancy of specific names; nevertheless the series are much less complicated than many other groups of Rhododendrons.

Early in the investigation it became evident that the species, instead of falling into three groups or series, naturally fall into eight distinctive groups round the following species as centres—*R. Boothii*, *R. megeratum*, *R. tephropeplum*, *R. glaucum**, *R. Genestierianum*, *R. lepidotum*, *R. Baileyi* and *R. uniflorum*.

Now all these eight groups are so distinct that each might itself, with full justification, be regarded as a separate series. If, on the contrary, each group be ranked as a subseries, then a strong case can be made for including all eight subseries in a single series.

The arrangement to be preferred, is largely a matter of individual judgment. Arguments may be put forward in favour of several methods of classification equally appropriate and at the same time equally open to criticism. Thus, it seems not altogether advisable to increase the number of series to a maximum of eight, adding thereby to the number of units of series rank; nor is it perhaps any more appropriate to reduce the three existing series to a single one, widening the scope of the series. But it is very evident that to recognise only three series—to telescope eight units into three—is too great a simplification, which accounts very largely for the existing confusion.

After very full consideration, we have come to the conclusion, that the species may be most conveniently and appropriately arranged (and with the least disturbance) in four series. The following arrangement is the one adopted—the Boothii series, with the Boothii, Megeratum and Tephropeplum subseries; the Glaucum series with the Glaucum and Genestierianum subseries; the Lepidotum series with the Lepidotum and Baileyi subseries; and the Uniflorum series.

The first series, the Boothii series, as it is proposed now to amend it, is still not a homogeneous group although it is less of an admixture than hitherto. There is a sharp distinction between the Boothii and Megeratum subseries on the one hand, and the Tephropeplum subseries on the other—the style is short, stout and sharply bent in the one instance, long, slender and straight in the other.

Now the short, stout, sharply bent style is a strong character and one which the species of the Boothii series—except those in the Tephropeplum subseries—share with species in the Glaucum and Lepidotum series (one aberrant species being excluded). The long, straight, slender style is a distinguishing character common

* Now *R. glaucophyllum* Rehder.

to species of the Tephropeplum subseries and to those of the newly constituted Uniflorum series.

Relying upon this character, difference of style, as an outstanding one, a good case can be made for grouping together those species which have a straight style (the proposed Tephropeplum subseries and the Uniflorum series) in a single series—a series with two separate subseries. But this course, although it has much in its favour, was finally abandoned, because the species of the Tephropeplum subseries are so similar to species of the Boothii and Megeratum subseries (differing mainly as to the style), that it seems inadvisable to disturb the present arrangement. We prefer to leave them where they now are, in the Boothii series, rather than transfer them to the Uniflorum series. Furthermore, in other characteristics—habit, size and number of flowers in the truss—species of the Tephropeplum subseries and of the Uniflorum series are markedly different.

The Boothii series has been taken, therefore, to include the two subseries, Boothii and Tephropeplum, together with the species of the Megeratum subseries which are somewhat apart—dwarf shrubs, with only 1–3 flowers in the truss (a feature shared by species in the Uniflorum series) and almost bladder-like scales on the under surface of the leaves. This arrangement, however, we regard as a tentative one, until other lepidote series can be revised. There is a close linkage between species of the Tephropeplum subseries and those of the Cinnabarinum series, and the possible advantage of uniting these together in one group should be borne in mind.

With regard to the Glaucum series, no detailed comment is required. The series is well distinguished because the leaves are markedly glaucous below and the scales are usually of two kinds —smaller scales, pale yellow, and larger, dark brown ones. But, within this group, *R. Genestierianum* stands apart from other species, because of its many-flowered truss, dissimilar habit, and uniform scales on the under surface of the leaves. This species ought, in our opinion, to constitute a separate subseries and along with it we place *R. micromeres*, an aberrant species with no very close associates.

The Lepidotum series, from which we have excluded dwarf species with a campanulate or funnel-shaped corolla and straight slender style, will now include only two species *R. lepidotum* and *R. Baileyi*. These species share common characteristics by which the series may readily be recognised—a small, rotate corolla, relatively long flower stalk and a stout and sharply bent style. And again we consider that this series ought to be divided into two subseries, because the few-flowered truss of *R. lepidotum* is

in contradistinction to the many-flowered truss of *R. Baileyi*, and because the scales on the under sides of the leaves of *R. Baileyi*, instead of being of the usual type with an entire margin, are of the crenulate type in which the margin of the scale is distinctly scalloped. This characteristic is a particularly noteworthy one because crenulate scales, although they occur elsewhere within the genus, are typical of the Saluenense series.

The new Uniflorum series (excepting *R. monanthum*) is a homogeneous, well-defined and easily distinguished group, which consists of species with the following characteristics—dwarf or prostrate shrublets, which have a single terminal flower or at most a three-flowered truss; the corolla is campanulate (sometimes shortly campanulate) or funnel-shaped; the style is slender and straight. The species which comprise this series are markedly different from all others under consideration. Formerly most of them were included in the Lepidotum series, but one has come from the Glaucum series (*R. pemakoense*, very closely related to *R. uniflorum*) and one from the Boothii series (*R. monanthum*, an aberrant species, but better-placed here than in the Boothii group).

It may be added that, not only do these straight-styled species form a homogeneous group, but their removal from the Lepidotum and Glaucum series strengthens those series; and it can now be claimed that all four series may be readily distinguished by reliable diagnostic criteria.

From more general questions relating to the series, we come to a more particular review of the species which comprise the four series under discussion. On the whole, the species are well defined, and there is less overlapping and confusion here than in several other series that have been critically examined. But, as we have seen elsewhere, supplementary material which has become available since many of the species were originally described, affords information which necessitates some modification in nomenclature. The tendency in these series, as in others, has been towards an undue multiplication of specific names.

Some of the problems which the taxonomist encounters may be noted in examining, in a general way, the criteria of diagnostic significance applicable to species of the series in question.

HABIT. It has already been mentioned that the majority of species are small or medium sized shrubs, from 2 to 5 feet high. The main exceptions to be noted are—species of the Uniflorum series (except *R. monanthum*) which are dwarf or prostrate shrubs, up to about 1 foot high; *R. megeratum* and *R. leucaspis* in the Boothii series, usually 1 to 2 feet high; and *R. lepidotum*, a plant occupying a wide range of altitude and very variable. At

the other extreme are *R. xanthostephanum* (commonly known as *R. aureum*) and *R. auritum*, of the Boothii series, which may attain a height of 10 feet; and *R. Genestierianum*, of the Glaucum series, which is said sometimes to reach a height of 15 feet. Species of the Boothii series are frequently epiphytic.

BRANCHLETS. The presence or absence of bristles on the branchlets (usually extending to the petioles and leaf-margins also) is a diagnostic character of some importance. Bristly branchlets are a marked feature of species of the Boothii and Megeratum subseries. But again, *R. chrysodoron* and *R. sulfureum* are species notably variable in this respect. Regarding the latter species, BALFOUR AND SMITH observed (when describing *R. theiochroum*) that, "the setulose character of *R. sulfureum* requires study. There is amongst FORREST's gatherings from the same locality and at the same date, a gradation of forms from the extreme of abundance to the extreme of poverty in the matter of setae and one must look upon the character as a varying one in the species." In the Tephropeplum subseries as in the Glaucum and Lepidotum series, the branchlets are commonly not bristly or only sparsely bristly.

LEAVES. The size and shape of the leaf is often an aid in the determination of species, for example in separating *R. Genestierianum* from other species of the Glaucum series, and *R. monanthum* from its allies in the Uniflorum series. The leaves of *R. sulfureum*, *R. tephropeplum* and *R. lepidotum* are extremely variable in size as well as in shape. For diagnostic purposes the acuminate leaves of *R. Boothii* and *R. mishmiense*, species of the Boothii subseries, may be contrasted with the rounded or obtuse leaves of other species of the series; while the acutely acuminate leaves of *R. Genestierianum* contrast with those of other species in the Glaucum series. Species of the Uniflorum series fall into three groups according to the shape of their leaves, as is indicated in the analytical key. A unique feature may be observed in *R. Ludlowii* where the leaf-margin is minutely crenulate. In the Glaucum series (except *R. micromeres*) the under sides of the leaves are markedly glaucous.

SCALES. The form and distribution of the scales on the under sides of the leaves often afford a valuable clue to identity. The scales of all species are of the general Entire Type where the scale is cup-shaped or funnel-shaped with an entire marginal rim, excepting *R. Baileyi* (including *R. thyodocum*), where the margin of the scale is crenulate, and *R. megeratum* and *R. leucaspis*, where the marginal rim is very narrow, and the scales are almost bladder-like.

Species of the Glaucum subseries may readily be recognised

because the scales (although they do not differ markedly in structure) are of two kinds, larger brown scales widely scattered, with smaller pale yellow scales more closely crowded.

The distribution of the scales on the under sides of the leaves appears to be a constant feature of a particular species or variety. In the majority of species of all four series the scales are contiguous or not more than 1½ times their own diameter apart. There are exceptions however. Thus, in the Boothii series, one species, viz. *R. chrysolepis*, may readily be recognised, because the scales are 3–4 times their own diameter apart. In the Glaucum series the scales of *R. brachyanthum*, *R. tsangpoense* and *R. Genestierianum* are 4–10 times their own diameter apart (in cultivated plants of *R. tsangpoense* sometimes 1–3 times). In *R. shweliense* the scales are ½–2 times their own diameter apart.

In the Lepidotum series the scale distribution follows the general rule.

In the Uniflorum series the scales in *R. uniflorum* and *R. imperator* are 2–6 times their own diameter apart, in the closely allied species, *R. pemakoense* and *R. patulum*, the scales are ½–1½ times their own diameter apart. In *R. Ludlowii* and *R. pumilum* the scales are 2–3 times their own diameter apart, those of the former species are uniform, those of the latter are somewhat uneven in size. The scales of *R. monanthum* are markedly different in size, many are relatively large; they are half their diameter to their own diameter apart.

INFLORESCENCE. The Uniflorum series, as the name suggests, is characterised by a 1–2- or rarely a 3-flowered inflorescence. Species of the Megeratum subseries also have a 1–2- or rarely a 3-flowered truss and thus differ from other members of the Boothii Series. In the Lepidotum series the inflorescence is 1–3- or rarely 4-flowered in *R. lepidotum*, in *R. Baileyi* usually 5–9-flowered, but occasionally there are as many as 18 flowers in a loose truss which may be distinctly racemose. The inflorescence in all other species is normally umbellate, 3–8-flowered.

CALYX. Though the size of the calyx is in most species somewhat variable, the calyx of *R. chrysodoron* and of *R. chrysolepis* is never more than a mere rim whereas the calyx of all other species is distinctly lobed; the lobes are, however, small in *R. Genestierianum* and *R. monanthum*. The size of the calyx serves to distinguish *R. sulfureum* from *R. Dekatanum*; and again *R. Ludlowii*, having a large calyx, differs from other species in the Uniflorum series.

Then, *R. auritum* is easily recognised because the calyx lobes are invariably reflexed. The only other species with this charac-

teristic is *R. micromeres* in which, however, the position of the lobes is very variable.

Little reliance can be placed upon the degree of scaliness of the calyx lobes as a diagnostic feature, because of the great variability, even within the limits of a single species. In two species only, the calyx is usually not scaly—*R. megeratum* and *R. Genestierianum*—but occasionally flowers of both species may be found in which the calyx is sparsely scaly. No more dependable, as a criterion of distinction, is the presence or absence of cilia on the calyx margin. Yet the two nearly related species, *R. megeratum* and *R. leucaspis*, differ in that the calyx of the former is usually eciliate whereas that of the latter is densely ciliate. In other species of the Boothii series, the calyx is more or less densely ciliate, except in *R. xanthostephanum* and *R. auritum* where it is usually without cilia.

In species of the Glaucum series the calyx is sparsely ciliate or eciliate, never densely ciliate.

In the Uniflorum series the calyx of all species, except *R. monanthum*, is more or less ciliate.

COROLLA. The shape of the corolla is usually constant in the species—broadly campanulate in the Boothii (except *R. leucaspis*) and Glaucum series—rotate in the Lepidotum series—campanulate to more or less funnel-shaped in the Uniflorum series. The large corolla of *R. chrysodoron* distinguishes this species from its closest allies—similarly the large corolla of *R. chrysolepis* in the Tephropeplum subseries is noteworthy. Usually the corolla is more or less scaly outside; in most species there is variation from flower to flower in the degree of scaliness. The corolla of species of the Boothii and Megeratum subseries is, however, always scaly, while absence of scales from the corolla is a constant feature of *R. Genestierianum*. Special mention should be made of the regular arrangement of scales on the corolla of *R. chrysolepis*. The scales occur in bands, which extend from towards the base of the corolla to near the apex of the lobes. A similar regular arrangement may occasionally be observed in *R. chrysodoron*, though flowers of this species do not appear to be consistent in this respect. The presence or absence of hairs on the outside of the corolla is another feature of some diagnostic value. In the Boothii series, individual species vary in this respect, but in all species of the Uniflorum series (except *R. monanthum*) the corolla is hairy outside, while in all species of the Glaucum and Lepidotum series (as now rearranged) the corolla is not hairy.

FLOWER STALK. The length of the flower stalk in relation to that of the flower serves to distinguish species of various series.

In the Lepidotum series and Genestierianum subseries, the flower stalk is longer than the corolla—in species of other subseries it is shorter. In the Glaucum subseries species vary in this respect. A dense wool on the flower stalk of *R. mishmiense* distinguishes this species from *R. Boothii*; in the presence of bristles on the flower stalk *R. megeratum* differs from *R. leucaspis*. In all species (except *R. megeratum* and often *R. Genestierianum*) the flower stalk is more or less densely scaly.

STAMENS. The number of stamens is ten in the Boothii, Glaucum (except in *R. Genestierianum*) and Uniflorum series. In the Lepidotum series and in *R. Genestierianum* the number varies from eight to ten. The stamens are usually unequal in length; the filaments are more or less hairy (but varying in degree of hairiness) in all species except *R. Genestierianum*.

OVARY. The ovary is typically 5-celled (in *R. Boothii* 5–6-celled, in *R. chrysodoron* 6-celled); in all species it is densely scaly.

STYLE. Attention has already been directed to the contrast between the typical stout, sharply bent style of the Boothii (except Tephropeplum subseries), Glaucum (variable in *R. glaucophyllum*) and Lepidotum series, and the slender, straight style of the Uniflorum series and of the Tephropeplum subseries in the Boothii series. With regard to the presence or absence of scales on the style, the species vary. The style is not scaly in *R. mishmiense* but is more or less scaly in all other species of the Boothii series. In the Glaucum series the style of *R. shweliense*, of *R. micromeres*, of *R. brachyanthum* and of *R. tsangpoense* is scaly or not scaly, of *R. charitopes* rarely scaly; the style of other species is not scaly. In the Lepidotum series the style is never scaly. In the Uniflorum series the style is usually not scaly, sometimes in *R. pemakoense* and *R. patulum* the style is sparsely scaly towards the base.

Hairs in addition to scales may sometimes be observed on the style of *R. shweliense* (occasionally also in *R. pemakoense*), but in all other species the style is not hairy.

CAPSULE. The capsule is ovoid and scaly; the calyx lobes are persistent.

In concluding these general remarks, it may be mentioned that, since this review is mainly intended as a contribution towards the revision of *The Species of Rhododendron*, the form and sequence of that work is followed in our analysis of the series, subseries and species. The descriptions of species are based upon, and follow closely, those of the standard work, but are amplified and emended—a comparison will show that it has been necessary to make numerous corrections. The reasons for

the rearrangement of the series have already been given. Why various specific names should be regarded as varieties or synonyms is explained in the notes which follow descriptions of the accepted species.

## KEY TO THE SERIES AND SUBSERIES

A. Scales on the under surface of leaves of one kind, brown; under surface of leaves greenish-brown or brown or faintly glaucous (except *R. megeratum* and *R. Genestierianum*).

B. Style short, stout and sharply bent.

C. Flower stalk shorter than corolla.

D. Inflorescence 1–2-(rarely 3-)flowered; scales on the under surface of leaves with very narrow rim, almost bladder-like . . — *Megeratum* subseries (*Boothii* series)

D. Inflorescence 3–10-flowered; scales on the under surface of leaves with broad rim, entire . . . . . — *Boothii* subseries (*Boothii* series)

C. Flower stalk longer than corolla.

D. Inflorescence 1–3-(rarely 4-)flowered, umbellate; leaves small, 0·4–2·6 cm. long, (rarely longer) . . . . . — *Lepidotum* subseries (*Lepidotum* series)

D. Inflorescence 4–18-(rarely 3-) flowered, shortly or distinctly racemose; leaves large, 3–15·3 cm. long (rarely shorter).

E. Scales on the under surface of leaves crenulate, overlapping . . . — *Baileyi* subseries (*Lepidotum* series)

E. Scales on the under surface of leaves entire, ½–10 times their own diameter apart . . . . . — *Genestierianum* subseries (*Glaucum* series)

B. Style long, slender and straight.

C. Inflorescence 3–14-flowered; leaves large, usually 4·4–13 cm. long; corolla not hairy or sometimes sparsely hairy outside; small to tall erect shrubs often epiphytic. . . — *Tephropeplum* subseries (*Boothii* series)

C. Inflorescence 1–2-(rarely 3-)flowered; leaves small, 1·2–3·8 cm. long; corolla densely hairy outside; dwarf or prostrate shrubs often

| | |
|---|---|
| spreading (*R. monanthum:* leaves 2–5 cm. long; corolla not hairy outside; spreading shrub 30 cm.–1·20 m. high) . . . | *Uniflorum* series |
| A. Scales on the under surface of leaves of two kinds, smaller scales pale yellow, larger scales brown widely (or sometimes closely) separated; under surface of leaves usually conspicuously glaucous . | *Glaucum* subseries (*Glaucum* series) |

## BOOTHII SERIES

GENERAL CHARACTERS: Small to tall shrubs, sometimes epiphytic, 30 cm.–3 m. high, rarely shorter; branchlets bristly or not bristly, scaly or not scaly. Leaves evergreen, thick, oblanceolate to ovate or obovate, 1·5–13 cm. long, 1–6·4 cm. broad, bristly or not bristly; glaucous and scaly below, the scales ½–1½ times their own diameter apart (in *R. chrysolepis* 3–4 times); leaf-stalks 0·4–1·5 cm. long, bristly or not bristly, slightly to densely scaly. Inflorescence terminal, umbellate or shortly racemose, 1–10-flowered; flower stalks 0·5–3 cm. long, scaly or not scaly, bristly or not bristly. Calyx 0·3–1·3 cm. long (in *R. chrysolepis* and *R. chrysodoron* a mere undulately lobed rim), scaly or not scaly outside, margin ciliate or eciliate. Corolla usually campanulate, 5-lobed, 1·5–4 cm. long; yellow, white, pink or rose; not scaly to densely scaly and hairy or not hairy outside. Stamens 10, unequal, usually shorter than the corolla, sometimes longer; filaments hairy. Ovary 5-celled (in *R. chrysodoron* and sometimes in *R. Boothii* 6-celled), scaly; style, short, stout and sharply bent (in the Tephropeplum subseries long, slender and straight), usually scaly at base. Capsule 0·6–1·7 cm. long, scaly, calyx lobes persistent.

The Boothii series is most closely akin to the Glaucum series, but shows also some affinity with the Camelliaeflorum series, in which, however, the stamens are 12–16, and the ovary is 10-celled.

The series is divided into three subseries. In both the Boothii and the Megeratum subseries, the style is short, stout and sharply bent, the corolla rotate or campanulate; but the two subseries are distinguished by the number of flowers in the inflorescence and by the nature of the scales on the under surface of the leaf. In the Tephropeplum subseries the style is long, slender and straight, the corolla tubular-campanulate; these and other characteristics suggest the near relationship of species in this subseries with those of the Cinnabarinum series.

## BOOTHII SERIES

### KEY TO THE SPECIES

A. Style short, stout and sharply bent; corolla rotate or campanulate.
  B. Inflorescence 1–2-(rarely 3-)flowered; scales on the under surface of the leaves with very narrow rim, almost bladder-like; dwarf shrubs 30–60 cm. high (rarely shorter or taller).
    C. Flower stalk densely bristly, not scaly or sometimes with one or two scales; under surface of leaves markedly glaucous; flowers yellow; corolla campanulate or rotate-campanulate . *megeratum*
    C. Flower stalk not bristly (sometimes sparsely puberulous), densely scaly; under surface of leaves faintly glaucous; flowers white; corolla rotate . . . . . *leucaspis*

  B. Inflorescence 3–10–flowered; scales on the under surface of leaves with broad rim, entire; shrubs often epiphytic, 30 cm.–3 m. high.
    C. Calyx a mere rim; ovary 6-celled. (Flowers canary yellow, unspotted) . . . *chrysodoron*
    C. Calyx with large leafy lobes, 3–13 mm. long; ovary 5-celled.
      D. Leaves acuminate or acute at the apex; flower stalks usually bristly; leaf surface and/or margin bristly; young branchlets and leaf stalks densely bristly.
        E. Flowers bright lemon-yellow, unspotted; inflorescence 7–10-flowered; flower stalks sparsely to densely bristly . . . . . *Boothii*
        E. Flowers bright lemon-yellow, upper lobe of corolla heavily spotted reddish-brown; inflorescence 3–4-flowered; flower stalks densely woolly . . *mishmiense*

      D. Leaves rounded or obtuse at the apex; flower stalks, leaf surface and margin not bristly; young branchlets and leaf stalks not bristly or more or less bristly.
        E. Calyx 3–6 mm. long; corolla 1·5–1·9 cm. long; scales on the under surface of leaves usually uniform. (Flowers yellow) . . . . . *sulfureum*
        E. Calyx 8 mm. long; corolla 2·5 cm. long; scales on the under surface of leaves markedly different in size. (Flowers yellow) . . . . . *Dekatanum*

A. Style long, slender and straight; corolla tubular-campanulate.
  B. Calyx a mere rim; scales on the under surface of leaves 3–4 times their own diamenter apart; corolla tube and lobes with bands of scales outside. (Flowers bright canary yellow) . . *chrysolepis*
  B. Calyx with large leafy lobes, 3–8 mm. long; scales on the under surface of leaves one-half to their

own diameter apart; scales on corolla tube and lobes scattered or absent.
C. Calyx lobes reflexed. (Flowers creamy-white with a slight tinge of pink on the lobes, or sulphur-yellow) . . . . . *auritum*
C. Calyx lobes erect or spreading.
D. Flowers yellow; corolla rather densely scaly outside; calyx lobes erect or sometimes spreading . . . . . *xantho-stephanum*
D. Flowers pink or rose, rarely white; corolla not scaly outside, rarely scaly; calyx lobes spreading . . . . . *tephropeplum*

### BOOTHII SUBSERIES

GENERAL CHARACTERS: Small to medium shrubs, often epiphytic, 30 cm.–3 m. high; *branchlets often densely bristly*, scaly. Leaves large, oblanceolate, elliptic to ovate, 2·6–12·6 cm. long, 1·3–6·4 cm. broad, *margins and midrib hairy* or not hairy, glaucous and densely scaly below, the scales saucer-shaped, their own diameter apart or less; leaf stalks 0·4–1·5 cm. long, *often bristly*, scaly. Inflorescence terminal, umbellate, *3–10-flowered*; flower stalks 0·6–2·5 cm. long, scaly, not bristly to densely bristly. Calyx 0·3–1·3 cm. long (in *R. chrysodoron* a mere wavy rim), scaly outside, margin ciliate or eciliate. Corolla campanulate, 5-lobed, 1·5–4 cm. long, yellow, scaly and hairy or not hairy outside. Stamens 10, unequal, shorter than the corolla, filaments hairy near the base or to two-thirds of their length. Ovary usually 5-celled (in *R. chrysodoron* and sometimes in *R. Boothii* 6-celled), densely scaly; *style short, stout and sharply bent*, scaly at base or glabrous. Capsule 0·8–1·7 cm. long, scaly, calyx lobes persistent.

#### DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. Boothii** Nutt. in Hook. Kew Journ. Bot., V, 346 (1853); Hort. V, t. 174 (1858); Lem. Illust. Hortic., t. 174 (1858); Rev. Hort. Belge, VII, 169 (1881); C. B. Clarke in Hk. Fl. Br. Ind., III, 470 (1882); Hook f. in Bot. Mag., CXVI, t. 7149 (1890); Raffill in Gard. Chron., XXXV, 340 (1904); Millais, Rhododendrons, 99, 128, fig. p. 24 (1917), and ibid., Ser. 2, 93 (1924); Magor in Journ. Roy. Hort. Soc., L, 195 (1925); Ward, ibid., LXI, 276 (1936); ibid., LXIX, 272 (1944); ibid., LXX, 233 (1945); Hutch. in The Sp. of Rhod., 159 (1930); Bean, Trees & Shrubs, III, 355 (1933).

HABIT: Epiphytic shrub 1·50–2·44 m. or sometimes 3 m. high, *young branchlets yellow-tomentose*, scaly.

LEAVES: lamina ovate or ovate-elliptic, *acutely acuminate* at the apex, rounded or obtuse at the base, 10·2–12·6 cm. long, 3·8–6·4 cm. broad, thick and leathery, *hairy on the margins and on the midrib above*, glaucous and densely scaly

below, the scales varying in size, their own diameter apart; *leaf stalks* 6–10 mm. long, *woolly* and scaly.

INFLORESCENCE: terminal, umbellate, 7–10-flowered; flower stalks 1·3–1·9 cm. long, sparsely to densely bristly, scaly.

CALYX: large, leafy, deeply 5-lobed, 6–10 mm. long, lobes broadly rounded, sparsely scaly outside, margin eciliate or sparsely ciliate.

COROLLA: broadly bell-shaped with 5 spreading rounded lobes, about 3 cm. long, *bright lemon-yellow, not spotted*; densely scaly outside.

STAMENS: 10, unequal, filaments pilose in the lower one-third to one-half of their length; anthers 5–6 mm. long, chocolate-brown.

OVARY: 5–6-celled, densely scaly; style short, stout and sharply bent, scaly towards the base.

CAPSULE: 1·3–1·7 cm. long, scaly, calyx lobes persistent and slightly enlarged.

HABITAT: *Bhutan*: Gescherong Hills. Alt. about 5,000 ft.

This species, of which little is known in its wild state, is one of those which was found in Bhutan by BOOTH in 1852. It comes from the Gescherong Hills, where it was found growing epiphitically on oak trees at elevations of about 5,000 ft. Coming from so low an elevation it requires protection in this country and in cultivation is usually grown in a cool greenhouse, except in the more favoured gardens of Cornwall, Ireland and the West of Scotland (Fig. 19).

**R. chrysodoron** Tagg. MSS., Hutch. in Gard. Chron., Ser. 3, XCV, 276 (1934); Journ. Roy. Hort. Soc., LIX, 357 (1934); ibid., LXI, 363 (1936); Hutch. in Bot. Mag., CLIX, t. 9442 (1936). *R. butyricum* Ward, nomen nudum; Ward MSS. in Rhod. Assoc. Year Book Suppl., 237 (1933); Merrill in Brittonia, IV, 140 (1941).

HABIT: small shrub, 20 cm.–1·60 m. high, *young branchlets* scaly, *often bristly*, bud scales early deciduous.

LEAVES: lamina elliptic or oblong-elliptic, somewhat rounded or obtuse at the apex, conspicuously mucronate, rounded or obtuse at the base, 4·5–8 cm. long, 2–4 cm. broad, margin of young leaves bristly or not bristly; glabrous or slightly scaly above, glaucous and densely scaly below, the scales varying in size, mostly large, pale brown, 1–1½ times their own diameter apart; *leaf stalks* 0·6–1·5 cm. long, *often margined with slender bristles*, scaly.

INFLORESCENCE: terminal, shortly racemose, 3–6-flowered; flower stalks short, stout, 7–10 mm. long, densely scaly, not bristly.

CALYX: *short*, saucer-like, an undulate rim, densely scaly outside, margin fringed with long hairs.

COROLLA: widely campanulate, 5-lobed, tube five-pouched at the base; bright canary yellow, unspotted, 3–4 cm. long, tube and lobes scaly outside, tube hairy or not hairy outside near the base.

STAMENS: 10, unequal, a little shorter than the corolla, filaments hairy in the lower one-third to two-thirds of their length.

OVARY: 6-*celled*, densely scaly; style 2 cm. long, stout, sharply bent, scaly towards the base.

CAPSULE: about 1 cm. long, scaly, calyx persistent.

HABITAT: *Yunnan.* Alt. 6,500–8,500 ft.

This plant was raised as a seedling under FORREST'S number 25446 (= *R. ciliicalyx*) and is therefore presumed to be a native of Western Yunnan. When it flowered in 1931 it was sent to Edinburgh by the EARL OF STAIR and named by TAGG *R. chrysodoron* or "the golden gift." It is still not common in cultivation. When shown by LORD ABERCONWAY at the Royal Horticultural Society's Show in February 1934, it was given an Award of Merit. The figure in the *Botanical Magazine* is from a plant grown at Bodnant. The species flourishes in the Rhododendron House at the Royal Botanic Garden, Edinburgh, but not out of doors.

*R. chrysodoron* is akin to *R. sulfureum*, but the calyx is merely an undulating rim and the ovary is 6-celled; moreover the corolla is large (3–4 cm. long), and the young branchlets, leaf stalks and leaf margins are usually densely bristly.

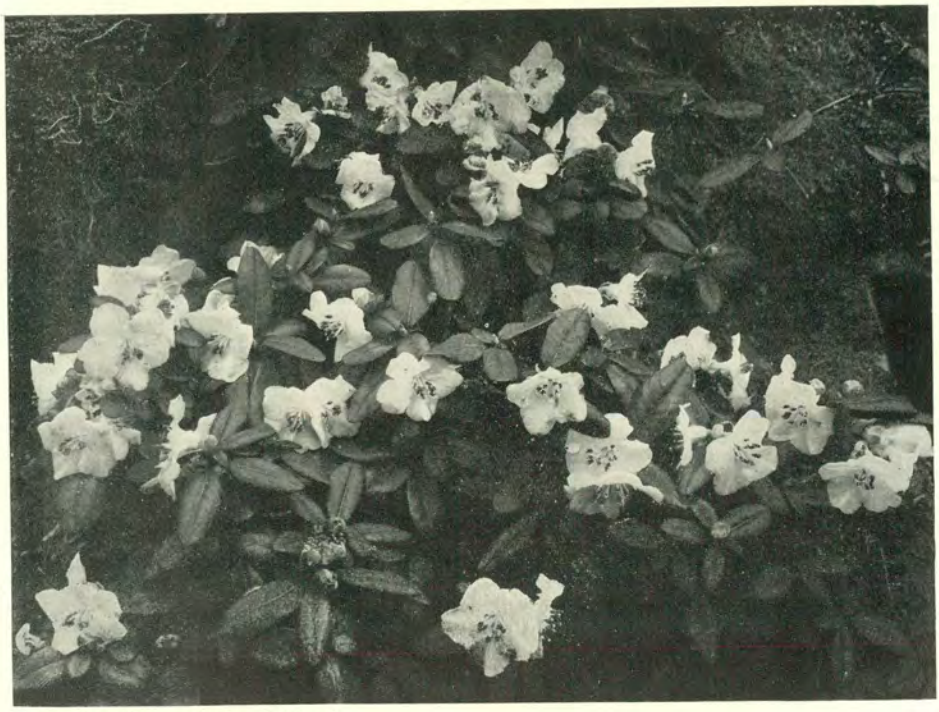
The plant which WARD discovered in the Adung Valley in 1931 at an altitude of 6,500–8,500 ft. (K.W. No. 9221 = 9371) and which he named provisionally *R. butyricum* has now for some years flowered in the Rhododendron House in the Royal Botanic Garden, Edinburgh, and it is identical with *R. chrysodoron*. WARD describes this plant as "a small bushy shrub, epiphytic in the forest, or on rocks in the river bed. Bark red and papery, peeling easily. Leaves large for the section (Boothii). Flowers in a fairly compact truss, of 4 to 6 bright butter yellow, the corolla 1½ ins. long and as much across. In bloom from early February to late May, according to altitude."

**R. Dekatanum** Cowan in Notes R.B.G. Edin., XIX, 226 (1937); Gard. Chron., CIII, 52 (1938); Grove, ibid., CIII, 268 (1938).

HABIT: shrub up to 1·5 m. high, branchlets scaly, not bristly.

LEAVES: lamina broadly oblong, or oblong-ovate, rounded and mucronate at the apex, obtuse at the base, 3–6 cm. long, 2–3·5 cm. broad, glaucous and densely scaly below, the scales almost contiguous, markedly unequal in size; leaf stalks 5–6 mm. long, scaly, not bristly.

FIG. 19—Boothii series Boothii subseries *R. Boothii* (See p. 62)



*Photos, Royal Botanic Garden, Edinburgh*

THE BOOTHII, GLAUCUM AND LEPIDOTUM ALLIANCE

FIG. 20—Boothii series Megeratum subseries *R. leucaspis* (See p. 70)

FIG. 21—Boothii series Tephropeplum subseries *R. tephropeplum* (See p. 77)



FIG. 22—Boothii series Tephropeplum subseries *R. xanthostephanum* (See p. 77)

INFLORESCENCE: terminal, umbellate, 3-flowered; flower stalks short, 6–8 mm. long, densely scaly, not bristly.

CALYX: 8 mm. long, deeply 5-lobed, lobes oblong-rounded, scaly outside, margin not ciliate or slightly ciliate.

COROLLA: broadly campanulate, 5-lobed, bright lemon-yellow, 2·5 cm. long, lobes and tube scaly outside.

STAMENS: 10, unequal, shorter than the corolla, filaments hairy in the lower half to two-thirds of their length.

OVARY: 5-celled, shortly ovoid, densely scaly; style short, stout and sharply bent, scaly towards the base.

CAPSULE: not seen.

HABITAT: *Southern Tibet, Chayul Chu.* LUDLOW AND SHERRIFF 1360 —type. Alt. 11,500 ft.

This plant was found by LUDLOW AND SHERRIFF in the region of Chayul Chu in Southern Tibet in Rhododendron and Bamboo forest, and is known by a single specimen. While *R. Dekatanum* is undoubtedly closely akin to *R. sulfureum*, it was collected well outside the known area of distribution of the former species which is centred in Yunnan. Further collectings may eventually prove that *R. Dekatanum* is merely a variant form of the Yunnan species but the single specimen we have seen suggests a distinct species differing from *R. sulfureum* in having larger leaves, a larger calyx and corolla and particularly in that the scales on the under surface of the leaves are very markedly different in size.

**R. mishmiense** Hutch. & Ward in Notes R.B.G. Edin., XVI, 173 (1931); Hutch. in The Sp. of Rhod., 166 (1930); Ward, Plant Hunting on Edge of World, 91, 99, 200, 201, 277, 323 (1930); Gard. Chron., CVII, 193, fig. 88 (1940); Ward, ibid., CVII, 322 (1940).

HABIT: small shrub, usually epiphytic, about 1·30 m. high; *branchlets densely hirsute*, scaly.

LEAVES: lamina elliptic to oblong-elliptic, *acuminate at the apex*, rounded or obtuse at the base, 9–11 cm. long, 3–4·5 cm. broad, thick and leathery, *hairy on the midrib above and on the margins*, glaucous and densely scaly below, the scales varying in size, their own diameter apart; leaf stalks 6–8 mm. long, densely bristly, scaly.

INFLORESCENCE: terminal, umbellate, 3–4-flowered; *flower stalks* 2–2·5 cm. long, *densely villous*, sparsely scaly.

CALYX: large, leafy, deeply 5-lobed, 1–1·3 cm. long, lobes rounded, scaly outside, margin fringed with long hairs.

COROLLA: broadly bell-shaped, with 5 spreading rounded lobes, about 3·2 cm. long, *bright lemon-yellow, upper lobe of*

*corolla heavily spotted with reddish-brown*, densely scaly and pubescent outside.

STAMENS: 10, unequal, filaments pilose in the lower half to two-thirds of their length; anthers 8 mm. long, reddish-brown.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent, glabrous.

CAPSULE: 1·3 cm. long, scaly, calyx lobes persistent.

HABITAT: *Assam*: WARD 8046—cotype, 8113, 8592. Alt. 7,000–9,000 ft.

As the name suggests, *R. mishmiense* comes from the Mishmi Hills in Assam, where it was discovered by WARD in 1928, later he found it again in the Delei Valley. Like its close ally *R. Boothii*, it is a plant of comparatively low elevations, 7,000–9,000 ft., and in cultivation must usually be grown in a cool greenhouse. It received an Award of Merit when exhibited by MR. L. DE ROTHSCHILD in April 1940. The flowers, like those of *R. Boothii*, are bright lemon-yellow, but the lobes of the corolla are heavily spotted reddish-brown. Besides the spotted corolla the only other distinguishing character is the inflorescence which is said to be 3–4-flowered in *R. mishmiense*, 7–10-flowered in *R. Boothii*. It seems doubtful whether these criteria will prove constant when further material is collected.

**R. sulfureum** Franch. in Bull. Soc. Bot. France, XXXIV, 283 (1887); Forrest in Notes R.B.G. Edin., VII, 210 (1912), and in Journ. Roy. Hort. Soc. XLI, 202, 204 (1915); ibid., L, 165 (1925); Magor, ibid., L, 196 (1925); Hunkin, ibid., LXVIII, 16 (1943); Millais, Rhododendrons, 100, 249 (1917), and ibid., Ser. 2, 244 and fig. (1924); Stapf in Bot. Mag., CXLVIII, t. 8946 (1922); Gard. Chron., LXXIX, 96 (1926); Hutch. in The Sp. of Rhod., 168 (1930); Bean, Trees & Shrubs, III, 422 (1933). *R. theiochroum* Balf. f. & W. W. Sm., in Notes R.B.G. Edin., IX, 282 (1916); Millais, Rhododendrons, 252 (1917), and ibid., Ser. 2, 249 (1924); Hutch. in The Sp. of Rhod., 170 (1930); Grove in Gard. Chron., CIII, 268 (1938). *R. cerinum* Balf. f. & Forrest in Notes R.B.G. Edin., XIII, 240 (1922); Millais, Rhododendrons, Ser. 2, 105 (1924); Cox, Farrer's Last Journey, 221, 232 (1926), and The Plant Introductions of R. Farrer, 78, 84, 95, 97 (1930); Ward, Plant Hunting on Edge of the World, 94, 99 (1930); Hutch. in The Sp. of Rhod., 162 (1930). *R. commodum* Balf. f. & Forrest in Notes, R.B.G. Edin., XIII, 252 (1922); Millais, Rhododendrons, Ser. 2, 116 (1924); Cox, Farrer's Last Journey, 222 (1926); Hutch. in The Sp. of Rhod., 162 (1930); Notes R.B.G. Edin.,

XVIII, 65 (1933); Rothschild in Journ. Roy. Hort. Soc., LIX, 326, fig. 122 (1934), and ibid., LXII, 270 (1937).

HABIT: shrub often epiphytic, 30 cm.–1·50 m. high, young branchlets densely scaly, bristly or not bristly.

LEAVES: lamina oblanceolate to ovate, rounded or obtuse at the apex, mucronate, obtuse or narrowed at the base, 2·6–8·6 cm. long, 1·3–4·2 cm. broad, not scaly or sometimes sparsely scaly above, glaucous and densely scaly below, the scales varying in size, mostly small, brown, one-half to their own diameter apart; leaf stalks 0·4–1·2 cm. long, scaly, not bristly or bristly.

INFLORESCENCE: terminal, umbellate, 4–8-flowered; flower stalks 0·8–2 cm. long, scaly, not bristly.

CALYX: deeply 5-lobed, 3–6 mm. long, scaly outside, margin ciliate or eciliate.

COROLLA: campanulate, 5-lobed, bright or deep sulphur-yellow (rarely greenish-orange), 1·5–2 cm. long, both tube and lobes scaly outside, not hairy or sometimes sparsely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, filaments densely hairy towards the base or in the lower half.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent, scaly at base.

CAPSULE: 8–11 mm. long, scaly, calyx lobes persistent.

HABITAT:

*Yunnan.* DELAVAY 2212—cotype. FORREST 4143A, 4143B, 6777, 11910—type of *R. theiochroum*, 12114, 12434, 15589, 15770, 15782, 16005, 17592—type of *R. cerinum*, 17737, 17866—type of *R. commodum*, 18125, 18152, 18216, 18231, 18787, 19384, 24131, 24229, 24235, 25340, 25631, 25851, 25852, 26113, 26303, 26414, 28252, 28265, 28284. ROCK 3142, 7651, 17080, 18395. MCLAREN C64.

*Burma.* FORREST 25637, 25754, 26422, 26447, 26635, 27458, 27622, 27829. FARRER 813, 861, 1550. Alt. 7,000–13,000 ft.

This species was described by FRANCHET in 1887 from specimens collected by DELAVAY at the foot of Tsang Shan above Tali in Yunnan. It was found by FORREST in almost the same locality in 1905 and later he, ROCK and FARRER frequently found it again in other parts of Yunnan and north-east upper Burma.

FRANCHET points out how this species differs from *R. lepidotum*, and Stapf in the *Botanical Magazine* contrasts it with *R. megeratum*, *R. brachyanthum*, and *R. trichocladum*. With all these species *R. sulfureum* will not readily be confused.

In 1916, one of FORREST'S gatherings—No. 11910 Yunnan, Shweli-Salween Divide, April 1913—was described as a new species, *R. theiochroum*. It is said to be akin to *R. sulfureum* but distinguished by its "much thicker and obovate leaves, its larger flowers, and the want of cilia on the calyx and elsewhere." The note which follows, however, directs attention to the variation noticed in different plants, in the number of bristles or setae on the calyx, petioles and stems—"there is amongst FORREST'S specimens from the same locality and at the same date a gradation of forms from the extreme of abundance to the extreme of poverty in the matter of setae, and one must look upon the character as a varying one in the species." Later in 1922, the name *R. cerinum* was published, the type being FORREST'S No. 17592 from western Yunnan, and the cotype FARRER'S No. 1550 from north-east Upper Burma. Then the name *R. commodum* was given to FORREST'S No. 17866 as type, with FORREST'S No. 18152 and FARRER'S No. 861 as cotypes. These are again from Yunnan and north-east Upper Burma. Both are stated to be akin to *R. sulfureum*, but no detailed diagnosis is given.

*R. sulfureum* is undoubtedly a variable species. Reference has been made to the presence or absence of setae; while the margin of the calyx in *R. theiochroum* is not ciliate, in *R. sulfureum* every gradation from eciliate to ciliate is found; and as to the branchlets, while those of *R. theiochroum* are not bristly or slightly bristly, those of *R. sulfureum* show every gradation from not bristly to rather densely bristly. Obviously it is not possible, on these characters, to separate the two species. When we turn to other distinguishing characters we find they are no more reliable. As to leaf shape, *The Species of Rhododendron* makes a distinction between the broadly obovate leaves of *R. theiochroum* and the broadly elliptic leaves of *R. sulfureum*, but we find in both a gradation from ovate, to broadly elliptic, obovate-elliptic and obovate—in the original description of *R. sulfureum* the leaves are described as ovate. The truth is that the leaves vary in shape, as they do also in thickness. As to size of flower, although a difference is noted in the original description, in *The Species of Rhododendron* the flowers of both species are said to be $\frac{3}{4}$ in. long. In fact the corollas of both species vary from $\frac{3}{5}$ to $\frac{3}{4}$ in. in length. Again the scaliness of the calyx, which is emphasised in *The Species of Rhododendron* as a distinguishing criterion, is a most variable character. As to the scales on the under surface of the leaves in both species, they are identical—their own diameter apart or less, unequal in size, brown in colour, and in *R. sulfureum*, as well as in *R. theiochroum*, often rather sunken.

As to the two species *R. cerinum* and *R. commodum*, these are

identical—they agree not only in major characters but also in every detail. In *The Species of Rhododendron* the distinction is based upon leaf shape, elliptic-oblanceolate in *R. cerinum*, obovate-elliptic in *R. commodum*; but in the original descriptions the leaves of *R. cerinum* are said to be oblong-ovate or obovate and those of *R. commodum* to be oval or oblong-oval. In specimens covering both species we find considerable variation—elliptic-lanceolate, ovate, oblong-ovate or obovate leaves. The two species cannot be distinguished by this character. Again the young branchlets and leaf stalks are bristly, sparsely bristly or not bristly. No difference in the size of the calyx can be observed and in both species the corolla tube and lobes are scaly outside.

On comparing *R. sulfureum* with the above two species we again failed to find any distinguishing characters. We have thus after a very careful analysis come to the conclusion that all these four specific names represent but one species, which is somewhat variable in leaf shape, in the bristly or non-bristly nature of the branchlets and leaf stalks, and in the hairiness of the calyx margin.

## MEGERATUM SUBSERIES

GENERAL CHARACTERS: Dwarf shrubs 30–60 cm. high, rarely shorter or taller; *branchlets densely bristly*, scaly. Leaves elliptic, obovate-elliptic or obovate, rounded to a mucronate apex, 1·5–5 cm. long, 1–3 cm. broad, *upper surface and/or margins hairy*; under surface glaucous and densely scaly, the scales small, *almost bladder-like*, sunk in pits, about their own diameter apart or less; *leaf stalks* 3–6 mm. long, *bristly*, scaly. Inflorescence terminal, *1–2-(rarely 3-) flowered*; flower stalks 6–10 mm. long, scaly or not scaly, bristly or not bristly. Calyx 6–10 mm. long, lobes rounded, scaly or glabrous outside, margin ciliate or eciliate. Corolla campanulate or rotate 2–3·2 cm. long, yellow or white, scaly and rarely hairy outside. Stamens 10, unequal, filaments hairy towards the base or to three-quarters of their length. Ovary 5-celled, scaly; *style short, stout and sharply bent*, scaly at base. Capsule 8–10 mm. long, scaly, enclosed by the persistent calyx-lobes.

## DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. leucaspis** Tagg in Gard. Chron., Ser. 3, LXXXV, 128, 135, 308, fig. 67 (1929); Hutch. in The Sp. of Rhod., 164 (1930); Ward, Plant Hunting, 92, 93 (1930); Rothschild in New Flora & Silva, III, 102 (1931); Stoker, ibid., VII, fig. XXVIII (1935); Thomas, ibid., X, 274 (1938); Bean, Trees & Shrubs, III, 392 (1933); Johnson in Gard. Chron., XCIII, 264 (1933); Ward, ibid., XCIV, 65 (1933) and ibid.,

CXIX, 230 (1946); ibid., Ser. 3, XCIV, Supp. Pl. July 22 (1933); Oldcorn, ibid., CVII, 245 (1940); Ingwersen, ibid., CXIII, 133 (1943); Harris, ibid., CXIX, 75 (1946); ibid., CXX, 40 (1946); Rothschild in Journ. Roy. Hort. Soc., LIX, 326, fig. 123 (1934); ibid., LXIII, 99 (1938); ibid., LXIV, 71, 106 (1939); ibid., LXV, 66 (1940); ibid., LXVIII, 60 (1943); Hanger, ibid., LXIX, 44 (1944), and ibid., LXX, 23 (1945); Russell, ibid., LXX, 233 (1945); Hutch. in Bot. Mag., CLXIV, t. 9665 (1944).

HABIT: bushy undershrub, 30–60 cm. high; *branchlets densely pilose* and scaly.

LEAVES: lamina elliptic to obovate, rounded or obtuse and mucronate at the apex, narrowed or obtuse at the base, 3–6 cm. long, 1·5–3 cm. broad, *pilose on the upper surface and margin*; under surface glaucous and densely scaly, the scales varying in size, mostly small, almost bladder-like, sunk in pits, their own diameter apart or slightly less; *leaf stalks* about 6 mm. long, *bristly* and sparsely scaly.

INFLORESCENCE: 1–2-(rarely 3-)flowered; *flower stalks* 6–10 mm. long, *scaly, not bristly* (or sometimes sparsely puberulous).

CALYX: large, deeply 5-lobed, 6–8 mm. long, lobes rounded, scaly at base and sometimes on the lobes outside, margin densely ciliate.

COROLLA: *rotate*, 2·5–3·2 cm. long, about 5 cm. in diameter, *white*, scaly and not hairy or rarely hairy outside.

STAMENS: 10, unequal, filaments hairy in the lower half or three-quarters of their length.

OVARY: densely scaly; style short, stout and sharply bent, scaly at base.

CAPSULE: short, about 1 cm. long, scaly, calyx lobes persistent.

HABITAT:

*Tibet.* WARD 6273—type, 6250, 6291.
*Tibet-Burma frontier.* WARD 7171. Alt. 8,000–10,000 ft.

This attractive plant was first collected by WARD at Musi La, in the Tsangpo Gorge, Tibet, in 1924, and later in the Di Chu valley on the Tibet Burma frontier. It is a plant which is well established in cultivation and greatly admired; much has been written about it as the references show. It received an Award of Merit in February 1929 and a First Class Certificate in March 1944.

*R. leucaspis* is closely akin to *R. megeratum*, but, as the name suggests, the flowers are white, not yellow, the corolla is distinctly rotate, the flower stalks are densely scaly not bristly, the under surface of the leaf is faintly glaucous (Fig. 20).

R. **megeratum** Balf. f. & Forrest in Notes R.B.G. Edin., XII, 140 (1920); Millais, Rhododendrons, Ser. 2, 186 (1924); Moore in Gard. Chron. LXXVII, 311 (1925); Magor in Journ. Roy. Hort. Soc., L, 196 (1925); ibid., LIV, 457 (1929); Stapf in Bot. Mag., CLII, t. 9120 (1927); Cox in New Flora and Silva, I, 163 (1929); Hutch. in The Sp. of Rhod., 165 (1930); Cox, Plant Introductions of R. Farrer, 82, 95, 97 (1930); Ward, Plant Hunting on Edge of World, 82, 95, 99, 246, 331 (1930); Wilkie in Gard. Chron., LXXXIX, 431, fig. 222 (1931); Rothschild in Journ. Roy. Hort. Soc., LIX, 326 (1934); Ward, ibid., LXI, 274 (1936); Hanger, ibid., LXIX, 44 (1944); Cowan in Notes R.B.G. Edin., XIX, 227 (1937); Merrill in Brittonia IV, 144 (1941). *R. tapeinum* Balf. f. & Farrer in Notes R.B.G. Edin., XII, 164 (1920); Ward in Journ. Roy. Hort. Soc., XLIX, 152 (1924); Millais, Rhododendrons, Ser. 2, 247 (1924); Cox, Farrer's Last Journey, 225, 233 (1926).

HABIT: dwarf shrub, rarely epiphytic, 30–60 cm. high, sometimes a few inches or up to 1·80 m. high, *young branchlets densely covered with bristles.*

LEAVES: lamina elliptic, obovate-elliptic or oval, rounded or obtuse at both ends, mucronate, 1·5–4 cm. long, 1–2 cm. broad, often shining above, *margins bristly, very glaucous* and densely scaly *below*, the scales varying in size, small, almost bladder-like, sunk in pits, 1–1½ times their own diameter apart; *leaf stalks* 3–6 mm. long, *bristly*, scaly.

INFLORESCENCE: terminal, 1–2-(rarely 3-)flowered; *flower stalks* 1 cm. long, *bristly, not scaly* or sometimes slightly scaly.

CALYX: large, almost membranous, 5-lobed as far as the middle or beyond, 6–10 mm. long, lobes rounded, glabrous or rarely with a few scales outside; margin eciliate, sometimes sparsely ciliate.

COROLLA: campanulate or rotate-campanulate, 5-(rarely 4-)lobed, 2–2·5 cm. long, *yellow*, scaly and not hairy or rarely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, filaments hairy towards the base or to two-thirds of their length.

OVARY: 5-celled, scaly; style short, stout and sharply bent, sparsely scaly towards the base.

CAPSULE: short, about 8 mm. long, enclosed by the large persistent calyx-lobes.

HABITAT:

*Yunnan.* FORREST 12942—type, 13574, 14059, 15288, 16558, 17352, 19570. ROCK 8787, 9064, 9116, 11006,

17099, 18341, 23031, 23483. YÜ 20298, 20763, 21071, 22955.

*Tibet.* FORREST 18942, 20332, 20906, 21701, 22834. WARD 6250. LUDLOW & SHERRIFF 1361, 1666. ROCK 22120.

*Assam.* WARD, 8225, 11464.

*Burma.* FARRER 938—type of *R. tapeinum*, 1566. WARD 3095, 3196. Alt. 8,000–13,500 ft.

This plant first collected by FORREST on the Kari Pass, Mekong-Yangtze divide in 1914, was named by SIR ISAAC BAYLEY BALFOUR, *R. megeratum*—"lovely in the highest degree." It was frequently collected by FORREST again and by other collectors, not only in Yunnan, but also in south-east Tibet, and by WARD as far west as the Assam frontier. It grows on the edges of cliffs and on boulders. It is well known in cultivation and was given an Award of Merit in April 1935.

Its affinity is with *R. leucaspis*, from which it is easily distinguished because the under sides of the leaves are markedly glaucous, the flower stalks are densely bristly, not scaly or slightly scaly, and the flowers are yellow. The figure in the *Botanical Magazine* shows a truss of three flowers, but this must be rare, usually there is a solitary flower, sometimes there are two flowers, and we have seldom seen a 3-flowered truss.

## TEPHROPEPLUM SUBSERIES

GENERAL CHARACTERS: Small to tall shrubs 30 cm.–3 m. high (*R. chrysolepis* a small epiphytic shrub); branchlets not scaly to densely scaly, *not bristly*. Leaves lanceolate to oblong-obovate, 2·5–13 cm. long, 1–3·8 cm. broad; glaucous and densely scaly below, the scales one-half to their own diameter apart (in *R. chrysolepis* 3–4 times), usually unequal in size; leaf-stalks 5–13 mm. long, slightly to densely scaly, *not bristly*. Inflorescence terminal, umbellate, 3–9-flowered; flower stalks 0·5–3 cm. long, scaly, not bristly. Calyx 3–8 mm. long (in *R. chrysolepis* merely an undulately lobed rim), lobes rounded, erect or spreading (in *R. auritum* reflexed), slightly or moderately scaly outside, margin eciliate or ciliate. Corolla tubular-campanulate, 5-lobed, 2–3·4 cm. long, bright yellow, pink, rose or creamy-white tinged pink, not scaly to densely scaly and sometimes hairy outside. Stamens 10, unequal, longer or shorter than the corolla, filaments hairy near the base or to two-thirds of their length. Ovary 5-celled, densely scaly; *style long, slender and straight*, longer than the corolla or slightly shorter, scaly towards the base or to two-thirds of its length. Capsule 0·6–1·3 cm. long, densely scaly, calyx lobes persistent.

DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. auritum** Tagg in Notes R.B.G. Edin., XVIII, 218 (1934), and in Rhod. Soc. Notes, III, 278 (1929–31); Rothschild in New Flora & Silva, IV, 7 (1932); Journ. Roy. Hort. Soc., LVII, p. XXXII (1932); Notes R.B.G. Edin., XVIII, 308 (1935); Hunkin in Journ. Roy. Hort. Soc., LXVIII, 302 (1943).

HABIT: shrub up to about 3 m. high; branchlets densely scaly, not bristly.

LEAVES: lamina elliptic, elongate-elliptic or lanceolate, apex obtuse or acute, mucronate, base broadly cuneate 2·5–6·6 cm. long, 1–2·7 cm. broad, upper surface scaly; under surface glaucous and densely scaly, the scales very unequal in size, mostly small, brown, their own diameter apart or less, sometimes touching; leaf stalks 5–8 mm. long, densely scaly, not bristly.

INFLORESCENCE: terminal, umbellate, 4–7-flowered; flower stalks 0·5–1·3 cm. long, densely scaly, not bristly.

CALYX: deeply 5-lobed, *lobes reflexed*, 3–5 mm. long, sparsely or moderately scaly outside, margin eciliate.

COROLLA: tubular-campanulate, 5-lobed, 2–2·5 cm. long, creamy-white with a slight tinge of pink on the lobes or sulphur-yellow, sparsely to densely scaly and not hairy outside.

STAMENS: 10, unequal, slightly shorter or longer than the corolla, filaments hairy at the base.

OVARY: 5-celled, densely scaly; style slender, straight, as long as the corolla or longer, scaly for about one-third to one-half of its length.

CAPSULE: 8–10 mm. long, densely scaly, calyx lobes persistent.

HABITAT: *Tibet.* WARD 6278—cotype. Alt. 8,000 ft.

Numerous specimens of *R. auritum* are in cultivation and it is upon those grown by SIR JOHN RAMSDEN and at the Royal Botanic Garden, Edinburgh that the description of the species was based. WARD'S original specimen from the Tsangpo Gorge at 8,000 ft. is in fruit only. A plant from Exbury received an Award of Merit in April 1931.

*R. auritum* can be distinguished from *R. xanthostephanum* by one main character—the lobes of the calyx are sharply reflexed. There is a difference also in flower colour; in *R. auritum* the corolla is creamy-white with a slight tinge of pink on the lobes, or sulphur-yellow, whereas the corolla of *R. xanthostephanum* is bright yellow. It is suggested, in the original description, that the flowers of *R. auritum* are smaller than those of *R. xanthostephanum*, that the calyx also is smaller and that the style and stamens are shorter.

But we find that in all these characteristics *R. auritum* shows marked variability and often does not differ from *R. xanthostephanum*. In both species the majority of the scales on the under surface of the leaf are half their own diameter apart. The suggestion made by TAGG that the fruit of *R. auritum* is broader for its length than the fruit of *R. xanthostephanum* does not seem to hold. We find that the fruits of ROCK's specimens of *R. xanthostephanum* Nos. 9506, 11308, and 25465 are the same size as the fruits of *R. auritum*. The reflexed calyx of *R. auritum* is, however, a conspicuous character and we consider that the name should be allowed to stand until more is known of this plant.

**R. chrysolepis** Hutch. in The Sp. of Rhod., 161 (1930); Hutch. & Ward in Notes R.B.G. Edin., XVI, 172 (1931).

HABIT: small, epiphytic shrub with long branches; branchlets glabrous or nearly so.

LEAVES: lamina oblong-lanceolate, acute at apex, mucronate, narrowed to the base, 6–12 cm. long, 2–3 cm. broad, glabrous above, glaucous and scaly below, the *scales* large golden-yellow, *three to four times their own diameter apart*; leaf stalks about 1·3 cm. long, sparsely scaly.

INFLORESCENCE: terminal, umbellate, 4–6-flowered; flower stalks about 1·3 cm. long, covered with golden-yellow scales.

CALYX: *short, an undulately lobed rim*, scaly outside, margin eciliate or slightly ciliate.

COROLLA: campanulate, large, 5-lobed, 3–3·4 cm. long, bright canary-yellow, *tube and lobes with bands of scales*, tube pubescent outside towards the base.

STAMENS: 10, very unequal, shorter than the corolla or equalling it, filaments hairy towards the base.

OVARY: 5-celled, very densely covered with golden-yellow scales; style slender, straight, longer than the corolla, scaly in the lower two-thirds of its length; stigma large.

CAPSULE: 1·3 cm. long, densely covered with brown scales, calyx persistent.

HABITAT: *Upper Burma.* WARD 6808—cotype, 7455. Alt. 7,000–8,000 ft.

*R. chrysolepis* is a plant of the Seinghku valley Upper Burma, which was discovered by WARD in 1926 growing at elevations of 7,000–8,000 ft.

Although it has features in common with other species in the subseries, *R. chrysolepis* stands apart from the others, which are all closely related to each other. Its outstanding characters are—calyx a mere undulately lobed rim, a large corolla with bands of scales on the tube and lobes; scales on the under surface of the

leaves 3–4 times their own diameter apart (about twice as widely spaced as in other species).

*R. chrysolepis* also shows some affinity with *R. chrysodoron*, which also has large flowers, the scales are sometimes more or less in bands on the corolla, and the calyx is a mere rim. The two species are, however, easily distinguished because the style, long, slender and straight in *R. chrysolepis*, is stout and sharply bent in *R. chrysodoron*.

**R. tephropeplum** Balf. f. & Farrer in Notes R.B.G. Edin., XIII, 302 (1922); Rhod. Soc. Notes, II, 152, 153 (1923); Tagg, ibid., III, 82 (1926); Forrest in Journ. Roy. Hort. Soc., XLIX, 30 (1924); Millais, Rhododendrons, Ser. 2, 249 (1924); Cox, Farrer's Last Journey, 233 (1926), and in New Flora & Silva, I, 163 (1929), and ibid., III, 188 with Plate (1931); Rothschild, ibid., III, 105 (1931), and ibid., IV, 9 (1932), and ibid., VI, 83 (1934); Hutch. in The Sp. of Rhod., 169 (1930); Cox, Plant Introductions of R. Farrer, 97 (1930); Ward, Plant Hunting on Edge of World, 72, 78 (1930); Gard. Chron., LXXXV, 343, fig. 171 (1929); Ward, ibid., XCII, 465 (1932); Johnson, ibid., XCV, 374 (1934); ibid., XCVI, 69 sup. tab. (1934); Bean, Trees & Shrubs, III, 423 (1933); Journ. Roy. Hort. Soc., LIX, 321 (1934); Rothschild, ibid., LIX, 326 (1934); Hutch. in Bot. Mag. CLVII, t. 9343 (1934); Merrill in Brittonia IV, 147 (1941). *R. spodopeplum* Balf. f. & Farrer in Notes R.B.G. Edin., XIII, 299 (1922); Millais, Rhododendrons, Ser. 2, 242 (1924); Cox, Farrer's Last Journey, 238 (1926); Bean, Trees & Shrubs, III, 423 (1930); Hutch. in The Sp. of Rhod. 169 (1930). *R. deleiense* Hutch. and Ward in Notes R.B.G. Edin., XVI, 172 (1931); Hutch. in The Sp. of Rhod., 163 (1930); Ward, Plant Hunting on Edge of the World, 239, 246, 331, 349 (1930); Johnson in Gard. Chron., XCV, 374 (1934); Comber, ibid., XCIX, 404 (1936); Rothschild in New Flora & Silva, VI, 83 (1934); Wilkie, ibid., IX, 58, fig. XIX (1937); Cowan in Notes R.B.G. Edin., XVIII, 309 (1935).

HABIT: small shrub 60 cm.–1·50 m. high; young branchlets rather densely scaly, not bristly.

LEAVES: lamina lanceolate to oblong-obovate, acute to rounded and mucronate at apex, obtuse or narrowed to the base, 3–13 cm. long, 1–3·8 cm. broad, glaucous and densely scaly below, the scales small, sometimes with scattered larger scales, black or brown, one-half to their own diameter apart; leaf stalks 0·6–1·3 cm. long, scaly, not bristly.

INFLORESCENCE: terminal, umbellate, 3–9-flowered; flower stalks 1–3 cm. long, scaly, not bristly.

CALYX: large, leafy, deeply 5-lobed, 5–8 mm. long, *lobes* rounded, *spreading*, slightly or moderately scaly outside, margin eciliate or ciliate.

COROLLA: tubular-campanulate, 5-lobed, 2·2–3·2 cm. long, *pink or rose*, rarely white, glabrous (or rarely scaly) outside.

STAMENS: 10, unequal, shorter than the corolla, filaments hairy towards the base or to two-thirds of their length.

OVARY: 5-celled, densely scaly; style slender, straight, slightly shorter or longer than the corolla, scaly in the lower half or to two-thirds of its length.

CAPSULE: 6–8 mm. long, densely scaly, enclosed by the large persistent calyx lobes.

HABITAT:

*Burma.* FARRER 1567—type, 1645—type of *R. spodopeplum.* FORREST 26431, 26439, 26457, 27455, 27611, 27670, 29655, 30388. WARD 6834.

*Yunnan.* FORREST 21706, 23111, 25572, 25644, 25714, 25766, 25775, 25820. ROCK 17078, 17079, 17093, 18408, 18412, 18413.

*Tibet.* FORREST 20230, 20884, 21706, 22801. WARD 6303, 6794. ROCK 10213, 11228, 22209.

*Assam.* WARD 8165—cotype of *R. deleiense*, 8202. Alt. 8,000–14,000 ft.

*R. tephropeplum* was first found by FARRER—No. 1567—in north-east Upper Burma in 1920. A month later, in the same region, he discovered a second plant No. 1645 which is very similar, and this too was described as a new species, *R. spodopeplum.* It was, however, suspected at the time that the two might be only one species with minor differences in the width and shape of the leaves and in the size of the flower. Moreover the corolla in the first species is elepidote, but lepidote in the second. Later it was found that none of the distinguishing characters could be relied upon and differences in leaf and flower, even wider than appear in FARRER's two specimens, were observed when further material was collected. Furthermore, there appears to be considerable variation in the number of scales on the corolla and degree of scaliness cannot be correlated with differences in leaf shape.

For these reasons, in *The Species of Rhododendron* the two plants are regarded as one species, under the name *R. tephropeplum.* In subsequent years FORREST collected the same plant in Burma and in Yunnan; WARD also found it in Burma; ROCK found it in Yunnan and both FORREST and ROCK found it in Tibet.

Again, a similar plant was later found by WARD in Assam in the Delei valley and described as a new species under the name *R. deleiense*. It is said to differ from *R. tephropeplum* in its larger flowers, which are 7–8 instead of 3–4 in the truss.

We have already mentioned that as regards size of leaf and flower *R. tephropeplum* is a variable species and this fact is borne out by plants in cultivation. The leaves of *R. tephropeplum* are said in the original description to be up to 6·5 cm. long, while those of *R. deleiense* are said to be 6–13 cm. long. But cultivated specimens of *R. deleiense* have in certain instances leaves which are not more than 4 cm. long, and cultivated plants of *R. tephropeplum* raised from a single sowing of FORREST's seed show a very considerable variation in the size and shape of the leaves. We find, moreover, that, both in cultivated and herbarium specimens, the inflorescence of *R. tephropeplum* is not 'up to 5-flowered' as in the original description or '3–4-flowered' as described in *The Species of Rhododendron*, but 3–9-flowered. The inflorescence of *R. deleiense* is 5–9-flowered, and not 7–8-flowered which is the only character used to separate the two species in the analytical key in *The Species of Rhododendron*. It is apparent that the distinction is one of little significance. Furthermore, we have closely examined a large number of specimens and plants in cultivation, comparing other details such as the shape of the leaves, the calyx lobes, and the length of the flower stalks. There is variation in a single plant and, as we have stated, a wide range of variability when plants raised from the same seed are examined. In our opinion the variant forms all fall within the compass of a single species; they merge into each other and none is distinct enough even to warrant a varietal name.

*R. tephropeplum* was given an Award of Merit when exhibited by LADY ABERCONWAY and H. D. MCLAREN (NOW LORD ABERCONWAY) in April 1929 (Fig. 21).

**R. xanthostephanum*** Merr. in Brittonia IV, 148 (1941). *R. aureum* Franch. in Journ. de Bot., IX, 394 (1895);

* Several changes of name of widely grown species of Rhododendron will be noted in this review, in particular *R. glaucum* Hook. f. becomes *R. glaucophyllum* Rehder, *R. aureum* Franchet becomes *R. xanthostephanum* Merr., while the name *R. aureum* Georgi is adopted in place of *R. chrysanthum* Pallas. These are marked with an asterisk. While these changes have been published in America and are in strict accordance with the present rules of Botanical Nomenclature the Council of the Royal Horticultural Society have published in the *R.H.S. Journal*, 70, 1945, p. 181, a proposal for *Nomina specifica excludenda*, and it is intended that this proposal or some other proposal producing a similar effect shall be placed before the Botanical Congress in Stockholm in 1950. If this proposal should be adopted, it is probable that the Council of the Society would bring forward a proposal to conserve the names *R. glaucum*, *R. aureum* and *R. chrysanthum* as the valid names for the species widely grown under these names.—EDITORS.

non Georgi, Bemerk. Reise Russ. Reiche 1 : 214 (1775) Diels in Notes R.B.G. Edin., VII, 209 (1912); Forrest in Journ. Roy. Hort. Soc., XLI, 204 (1915); Millais, Rhododendrons, 124 (1917), and ibid., Ser. 2, 88 Plate p. 244 (1924); Magor in Journ. Roy. Hort. Soc., L, 195 (1925); Cox, Farrer's Last Journey, 235 (1927), and in New Flora & Silva, I, 164 (1929); Hutch. in The Sp. of Rhod., 157 (1930); Ward in Gard. Chron., XCII, 465 (1932); Bean Trees & Shrubs, III, 351 (1933); Stapf & Ballard in Bot. Mag., CXLVII, t. 8882 (1938). *R. messatum* Balf. f. & Forrest MSS. nomen nudum.

HABIT: shrub 30 cm.–3 m. high; branchlets rather densely scaly, not bristly.

LEAVES: lamina lanceolate or oblong-lanceolate, acute or obtuse at apex, mucronate, obtuse or narrowed to the base, 5–10 cm. long, 1·3–3 cm. broad, scaly above, glaucous and densely scaly below, the scales small, unequal, brown, sunk in pits, one-half to their own diameter apart; leaf stalks 5–10 mm. long, scaly, not bristly.

INFLORESCENCE: terminal, umbellate, 3–5-flowered, rarely more; flower stalks 0·5–1·8 cm. long, scaly, not bristly.

CALYX: deeply 5-lobed, 3–6 mm. long, lobes rounded, erect or sometimes spreading, scaly outside, margin eciliate or rarely ciliate.

COROLLA: tubular-campanulate, 5-lobed, 2–2·5 cm. long, *bright yellow, rather densely scaly* and not hairy or sparsely hairy *outside.*

STAMENS: 10, unequal, longer or shorter than the corolla; filaments hairy towards the base or sometimes up to the middle.

OVARY: 5-celled, densely scaly; style slender, straight, longer than the corolla, scaly towards the base.

CAPSULE: 6–10 mm. long, densely scaly, calyx lobes persistent.

HABITAT:

*Yunnan.* DELAVAY 4728—type. FORREST 4135, 6767, 11727, 12376, 13725, 15583, 21463, 23006, 23291, 29115. ROCK 8474, 9506, 11299, 11308, 17060, 18409, 25154, 25465. MCLAREN C77. YÜ 19919.

*Tibet.* FORREST 20021, 20880, 21707, 21778, 22652, 22653. WARD 5446, 6751, 8101, 8150. ROCK 22014.

*Burma.* FARRER 1596. Alt. 7,000–13,500 ft.

*R. xanthostephanum* first found by DELAVAY at Tali, was later frequently found by FORREST, ROCK, WARD and FARRER, and was described by FRANCHET under the name of *R. aureum.* It is a

small or medium sized shrub with yellow flowers, occurring at elevations between 7,000 and 13,500 ft. In cultivation it is somewhat tender requiring shelter even in the milder parts of England. It was given an Award of Merit in May 1905. (Fig. 22.)

*R. xanthostephanum* is readily distinguished from *R. sulfureum* because the style is long, slender and straight. It is closely akin to both *R. auritum* and *R. tephropeplum*, but differs from the former by its usually erect calyx, and from the latter by the colour of its flowers which are densely scaly.

MERRILL, writing in *Brittonia*, Vol. 4, No. 1, Dec. 1941, p. 148, showed that FRANCHET'S species *R. aureum* must have a new name, and he called it *R. xanthostephanum*. He pointed out that the name *R. aureum* Georgi is the valid name for the Siberian species commonly known as *R. chrysanthum* Pallas.* The change in nomenclature may be regretted, but is strictly in accordance with the International Rules of Nomenclature.

The name *R. messatum* was given provisionally to FORREST'S Nos. 20021 and 20880.

## GLAUCUM SERIES

GENERAL CHARACTERS: Shrubs, sometimes epiphytic, 25 cm.–4·60 m. high; branchlets scaly. Leaves evergreen, thick, lanceolate to obovate, 2–15·3 cm. long, 1–4·5 cm. broad; *often very glaucous below, scaly, scales of two kinds, smaller pale yellow scales overlapping to about* 10 *times their own diameter apart, larger dark brown scales usually widely separated.* (Genestierianum subseries scales of one kind, 1–10 times their own diameter apart.) Leaf-stalks 0·2–2 cm. long, scaly. Inflorescence terminal, umbellate or racemose, 3–15-flowered; flower stalks 1–4 cm. long, scaly or sometimes not scaly. Calyx 1–10 mm. long, scaly or glabrous outside; margin eciliate, sometimes slightly ciliate. Corolla campanulate, 5-lobed, 1–2·6 cm. long, pink, rose, violet, yellow or purple; scaly or glabrous outside. Stamens 10, (in *R. Genestierianum* sometimes 8), unequal, filaments hairy (glabrous in *R. Genestierianum*). Ovary 5-celled, densely scaly; *style short, stout and sharply bent,* occasionally deflexed (in *R. glaucophyllum* sometimes straight), glabrous or scaly at base, not hairy (except sometimes in *R. shweliense*). Capsule 0·5–1·6 cm. long, scaly, calyx lobes persistent.

The Glaucum series is divided into two subseries. Species of the Glaucum subseries are easily distinguished because the scales

* See footnote on nomenclature, p. 77.

on the under sides of the leaves (though similar in structure) are of two kinds. The Genestierianum subseries contains two aberrant species, more appropriately placed in this than in any other group. The affinity of the series is with the Boothii and less closely with the Lepidotum and Campylogynum series.

## GLAUCUM SERIES

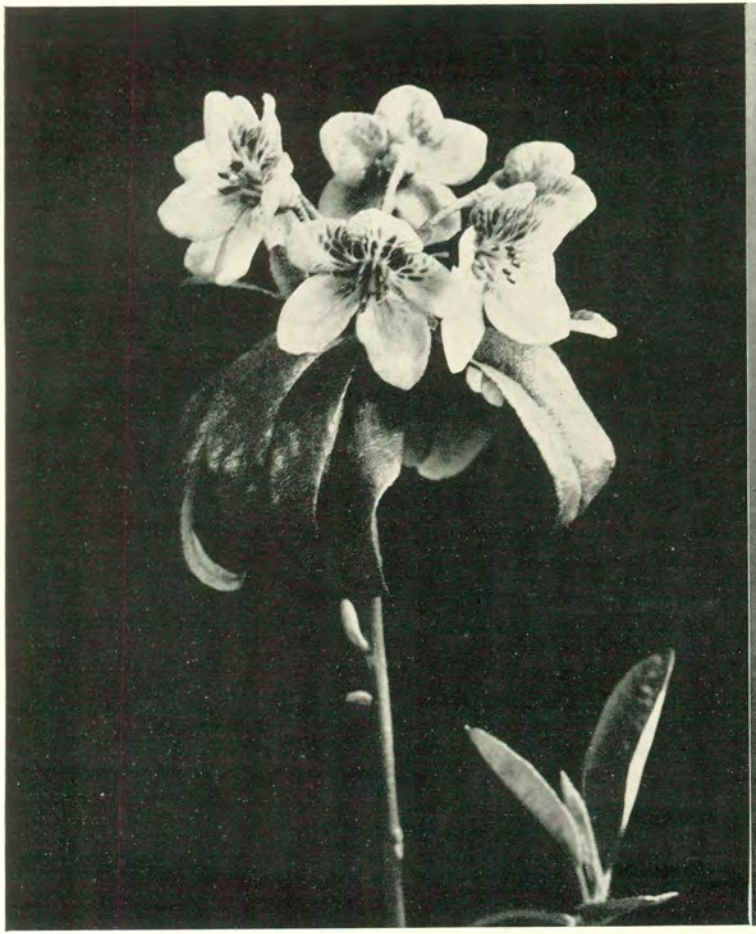
### KEY TO THE SPECIES

A. Scales on the under surface of leaves of two kinds, smaller pale yellow, and larger brown.
  B. Flowers yellow . . . . . *brachyanthum*
  B. Flowers pink or purple.
    C. Leaves lanceolate to oblanceolate, often pointed at the apex; calyx markedly pointed; style short, stout and sharply bent or deflexed, or long, slender and straight. (Flowers pink or pinkish-purple) . . . . *glaucophyllum*
    C. Leaves obovate, obovate-elliptic or oblong-elliptic, rounded at the apex or sometimes obtuse; calyx rounded (in *R. charitopes* sometimes pointed); style short, stout and sharply bent or deflexed.
      D. Corolla densely scaly outside; style hairy or not hairy. (Flowers pale pink, tinged yellow, upper three lobes spotted pink) . *shweliense*
      D. Corolla not scaly or sometimes sparsely scaly outside; style not hairy.
        E. Calyx 6–10 mm. long; leaves broadly obovate. (Flowers apple-blossom pink speckled with crimson, or rose-crimson not spotted) . . . . . *charitopes*
        E. Calyx 4–6 mm. long; leaves narrowly obovate, obovate-elliptic or oblong-elliptic. (Flowers pink, deep cerise or violet) . . . . . *tsangpoense*

A. Scales on the under surface of leaves of one kind, brown or pale brown.
  B. Scales on the under surface of leaves minute, widely separated, 4–10 times their own diameter apart; leaves acutely acuminate at the apex; corolla not scaly but glaucous outside, plum-purple . . . . . *Genestierianum*
  B. Scales on the under surface of leaves varying much in size, dense, $\frac{1}{2}$–$1\frac{1}{2}$ times their own diameter apart; leaves obtuse at the apex; corolla tube and lobes densely scaly but not glaucous outside, creamy-yellow, rarely white . . *micromeres*

## GLAUCUM SUBSERIES

GENERAL CHARACTERS: Small shrubs 25 cm.–1·50 m. high; branchlets scaly, sparsely bristly or not bristly. Leaves lanceolate to obovate, 2–9 cm. long, 1–2·6 cm. broad, usually very glaucous below; *scales on the under surface of leaves of 2 kinds,*



THE BOOTHII, GLAUCUM AND LEPIDOTUM ALLIANCE

FIG. 23—Lepidotum series Baileyi subseries *R. Baileyi*
(See p. 95)

FIG. 24—Glaucum series Genestierianum subseries *R. Genestierianum* (See p. 91)

FIG. 25—Glaucum series Glaucum subseries *R. brachyanthum* (See p. 81)



FIG. 26—Glaucum series Glaucum subseries *R. tsangpoense* (See p. 88)

*smaller pale yellow scales overlapping to about 10 times their own diameter apart, larger dark brown scales usually widely separated*; leaf-stalks 2–13 mm. long, scaly, not bristly. Inflorescence terminal, umbellate or racemose, 3–10-flowered; flower stalks 1–4 cm. long, scaly. Calyx 4–10 mm. long, scaly outside, margin eciliate or sometimes slightly ciliate. Corolla campanulate, 5-lobed, 1·2–2·6 cm. long, pink, rose, violet or yellow; glabrous to densely scaly and rarely hairy outside. Stamens 10, unequal, as long as the corolla or shorter, filaments hairy in the lower one-third of their length or nearly to the apex. Ovary 5-celled, densely scaly; *style short, stout and sharply bent* or sometimes deflexed (in *R. glaucophyllum*, shorter or longer than the corolla, sharply bent, deflexed or straight), scaly or not scaly at the base, not hairy (except sometimes in *R. shweliense*). Capsule 5–10 mm. long, scaly, often enclosed by the persistent calyx lobes.

DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. brachyanthum** Franch. in Bull. Soc. Bot. France, XXXIII, 234 (1886); Hemsley in Journ. Linn. Soc. Bot., XXVI, 20 (1889); Diels in Notes R.B.G. Edin., VII, 211 (1912); Forrest in Journ. Roy. Hort. Soc., XLI, 204 (1914); Millais, Rhododendrons, 96, 99, 128 (1917), and ibid., Ser. 2, 168 and fig. (1924); Hutch. in Bot. Mag., CXLIV, t. 8750 (1918); Journ. Roy. Hort. Soc., XLV, 151 (1919); Magor, ibid., L, 196 (1925); Hunkin ibid., LXVIII, 15 (1943); Gard. Chron., LXX, 7 and fig. (1921); A.O. ibid., LXXV, 377 (1924); Hutch. in The Sp. of Rhod., 295 (1930); Bean, Trees and Shrubs, III, 355 (1933).

HABIT: small shrub 30 cm.–1·50 m. high; branchlets scaly.

LEAVES: lamina oblong-lanceolate or oblong-elliptic to obovate; obtuse, rounded, or sometimes acute at apex, mucronate, obtuse or narrowed to the base, 2–6·5 cm. long, 1–2·6 cm. broad, scaly above; usually very glaucous below, *scaly, pale yellow scales* 4–10 *times their own diameter apart or sometimes more*, with widely separated brown scales; leaf stalks 4–6 mm. long, scaly.

INFLORESCENCE: terminal, umbellate or very shortly racemose, 3–10-flowered; flower stalks slender, 2·6–4 cm. long, longer than the corolla, scaly.

CALYX: leafy, deeply 5-lobed, 4–8 mm. long, lobes rounded or broadly elliptic, scaly outside, margin eciliate or slightly ciliate.

COROLLA: campanulate, 5-lobed, 1·2–1·9 cm. long, *pale yellow or greenish-yellow*, glabrous or sparsely scaly outside.

STAMENS: 10, unequal, as long as the corolla or shorter, filaments hairy in the lower half or nearly to the apex.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent or sometimes deflexed, glabrous or sometimes scaly at the base.

CAPSULE: 6 mm. long, scaly, enclosed by the persistent calyx lobes.

HABITAT: *Yunnan.* DELAVAY 159—cotype. FORREST 4153, 6763, 11580, 15487, 28266, 29119, 30999. MCLAREN C208. Alt. 9,000–11,000 ft.

*R. brachyanthum* was first found by ABBÉ DELAVAY on the mountain Tsang-chan near Tali in Yunnan. FORREST later found it near the same locality, at elevations of 10,000–11,000 ft.

It has been suggested that *R. sulfureum* Franch is merely a form of *R. brachyanthum.* But we find that the two species are separable by the nature of the scales on the under surface of the leaves (in *R. sulfureum* of one kind only), and by the length of the flower stalks.

Along with *R. brachyanthum* we must consider also *R. hypolepidotum.* FRANCHET first described *R. hypolepidotum* as a variety of *R. brachyanthum*—DELAVAY's plant of the mountains above Tali. It was collected by Soulié on the Mekong-Salween Divide. Writing in the *Botanical Magazine* STAPF pointed out that BALFOUR and FORREST, who had ample material, relying on FORREST's full knowledge of those plants, came to the conclusion that the plant of the Mekong-Salween Divide was distinct enough to rank as a species. STAPF acquiesces with this point of view but observes that the differences are slight. "It is obvious that the two plants ought to have distinct names but whether these should be binomials or trinomials is a matter of outlook and taste. It seems rather that the two types correspond to the widely accepted concept of geographical races of a pleiomorphic species for which trinomials are more applicable." We agree with STAPF, that a varietal name is perhaps more applicable, especially because with more material we find that, with one exception, the minor differences which he mentions do not hold good. The exception lies in the distribution of the scales, "Few scales on the backs of the leaves which are uniformly whitish in *R. brachyanthum*, against a conspicuous array of scales on a more greenish-glaucous and, in dried specimens, more or less brownish background in *R. hypolepidotum.*"

Recorded differences in leaf shape and in the stamens do not hold. The only distinction which does is that the scales are 4–10 times their own diameter apart in the typical plant, contiguous

to 1½ times their own diameter apart in the variety. Material collected by FORREST, ROCK, FARRER, WARD and YÜ since the variety was originally discovered, shows that it has a wider distribution than was at first supposed—it extends to Burma, and Tibet as well as to other parts of Yunnan (Fig. 25).

**R. brachyanthum** Franch. var. **hypolepidotum** Franch. in Journ. de Bot., XII, 262 (1898); Diels in Notes R.B.G. Edin., VII, 51 (1912), and ibid., XIII, 266 (1922); Millais, Rhododendrons, 129 (1917). *R. hypolepidotum* Balf. f. & Forrest in Notes R.B.G. Edin., XIII, 266 (1922); Millais, Rhododendrons, Ser. 2, 158 fig. p. 168 (1924); Magor in Journ. Roy. Hort. Soc., L, 196 (1925); Cox, Farrer's Last Journey, 238 (1926), and Plant Introductions of R. Farrer, 97 (1930); Coates in Gard. Chron., Ser. 3, LXXXVI, 9 (1929); Hutch. in The Sp. of Rhod., 301 (1930); Ward, Plant Hunting, 126 (1930); Stapf in Bot. Mag., CLV, t. 9259 (1931–32); Bean, Trees & Shrubs, III, 386 (1933); Kew Bull., No. 2, 96 (1939); Merrill in Brittonia, IV, 143 (1941). *R. charitostreptum* Balf. f. & Ward in Notes R.B.G. Edin., XIII, 244 (1922); Ward in Journ. Roy. Hort. Soc., XLIX, 155 (1924); Magor, ibid., L, 195 (1925); Millais, Rhododendrons, Ser. 2, 108 (1924).

HABITAT:

*Tibet.* SOULIÉ 1027—cotype. FORREST 692, 19190, 19198, 19207, 19216, 22723. ROCK 10194, 11172, 22184.

*Yunnan.* FORREST 13302, 13550, 14052, 19541, 25575, 25843. ROCK 8831, 9083, 10068, 10917, 10919, 10991, 22947, 23553. YÜ 19315, 19744, 20052.

*Burma.* WARD 3302—type of *R. charitostreptum.* FARRER 1668. Alt. 10,000–14,000 ft.

The variety differs from the type in having the under surface of the leaves densely scaly—pale yellow scales contiguous to 1½ times their own diameter apart and brown scales widely or closely separated.

Our reasons for following FRANCHET in regarding *R. hypolepidotum* as a variety rather than a species have already been given.

As to *R. charitostreptum*, this is a plant which was found by WARD at Imaw Bum, N.E. Upper Burma, no great distance from Chaw Chi Pass where FARRER had earlier collected *R. brachyanthum* var. *hypolepidotum*. In the original description it is compared with *R. charitopes*, but its even closer similarity to *R. brachyanthum* var. *hypolepidotum* was apparently overlooked. The distinction given in the Key in *The Species of Rhododendron*—the

scaliness of the calyx lobes—is sound when the type and cotype are the only specimens examined, but further material shows that the character is a very variable one. The gradation in scaliness—from calyx lobes without scales to lobes densely scaly over the whole surface—is complete. Other characters which have been mentioned as minor criteria have been carefully tested. For example, the calyx is said to be 6 mm. long in *R. hypolepidotum*, 4 mm. long in *R. charitostreptum*—we find variation from 4–7 mm. In size and shape and scaliness of corolla there is no marked difference. In the shape and size of the leaves which are somewhat variable, *R. charitostreptum* is identical with *R. brachyanthum* var. *hypolepidotum*.

**R. charitopes** Balf. f. & Farrer in Notes R.B.G. Edin., XIII, 243 (1922); Millais, Rhododendrons, Ser. 2, 107 (1924); Ward in Journ. Roy. Hort. Soc., L, 195 (1925); Hutch. ibid., LIX, 320; Rothschild, ibid., 326 (1934); Cox, ibid., LXVII, 289 (1942), and Farrer's Last Journey, 190, 236 (1926), and The Plant Introductions of R. Farrer, 84, 97 (1930); Hutch. in The Sp. of Rhod., 296 (1930); Rothschild in New Fl. & Sil., III, 104 (1931), and ibid., V, 9 (1933); Cox, ibid., VII, 166 (1935), and ibid., X, 134 (1938); Bean, Trees & Shrubs, III, 362 (1933); Johnson in Gard. Chron., XCV, 374 (1934); Hutch. in Bot. Mag., CLVII, t. 9358 (1934).

Habit: small shrub 25–90 cm. high, branchlets scaly.

Leaves: lamina obovate, broadly rounded and mucronate at apex, narrowed at the base, 2·6–7 cm. long, 1·3–2·6 cm. broad, scaly or glabrous above, usually very glaucous below, densely scaly, pale yellow scales ½–1½ times their own diameter apart, larger brown scales widely separated; leaf stalks 4–6 mm. long, scaly.

Inflorescence: terminal, umbellate, usually 3–4-(sometimes 2- or 6-)flowered; flower stalks slender, 2–3 cm. long, shorter or longer than the corolla, scaly.

Calyx: large, leafy, 5-lobed to base, *6–10 mm. long*, lobes rounded or sometimes acute, scaly outside, margin eciliate or ciliate.

Corolla: campanulate, 5-lobed, 2–2·6 cm. long, apple-blossom pink speckled with crimson, or rose-crimson not spotted, sparsely scaly or not scaly and sometimes sparsely hairy outside.

Stamens: 10, unequal, shorter than the corolla, filaments hairy in the lower two-thirds or nearly to the apex.

Ovary: 5-celled, densely scaly; style short, stout and sharply bent or deflexed, glabrous, rarely scaly at base.

CAPSULE: 8–10 mm. long, scaly, surrounded by the persistent calyx lobes.

HABITAT:

*Burma.* FARRER 1627—type. FORREST 25613, 25847.

*Yunnan.* FORREST 25570, 25581, 25789, 25808. Alt. 10,500–14,000 ft.

*R. charitopes* was discovered by FARRER in June 1920 in the Shing Hong Pass in N.E. Upper Burma, and introduced to cultivation by FORREST in June 1924 from the Salwin-Kiu Chiang Divide.

It is closely allied to *R. tsangpoense*, but distinguished by its somewhat larger flowers; rounded, broadly obovate leaves, and larger calyx. *R. brachyanthum* which is also allied has yellow flowers.

**R. glaucophyllum*** Rehder in Journ. Arn., Arb., XXVI, No. 1, 23 (1945); non Balf. f. pro synon. in The Sp. of Rhod., 804 (1930) nomen nudum; *R. glaucum* Hook. f. Rhod. Sikkim. Himal., t. 17 (1849); non Sweet in Hort. Brit. ed., 2, 344 (1830); J. D. Hooker in Journ. Hort. Soc. Lond., VII, 78, 102 (1852); Fl. des Serres, VII, t. 672 (1851–52); Bot. Mag., t. 4721 (1853); Decaisne in Rev. Hort., IV, 201, t. 11 (1855); Rhododendron Sp., Griff. Itin. Notes, 144, n. 691; C. B. Clarke in Hk. Fl. Br. Ind., III, 471 (1882); Schneider Ill. Handb. Laubh., II, 475 (1912); Bean, Trees & Shrubs, II, 358 (1914); Gard. Chron., LXVII, 275, fig. 126 (1920); ibid., LXXVI, 370 (1924); ibid., XCV, 374 (1934); ibid., CI, 215 & plate (1937); Magor in Journ. Roy. Hort. Soc., L, 198 (1925); Millais, Rhododendrons, 173 (1917), and ibid., Ser. 2, 148 (1924); Hutch. in The Sp. of Rhod., 300 (1930); Cox in New Fl. & Sil., X, 133 (1938).

HABIT: small shrub 30 cm.–1·20 m. high or sometimes more; branchlets scaly.

LEAVES: lamina *lanceolate to oblanceolate* or elliptic-lanceolate, acute or sometimes obtuse at apex, obtuse or narrowed to the base, 3·8–9 cm. long, 1–2·6 cm. broad, scaly above, very glaucous below and densely scaly, the smaller pale yellow scales ½–1½ times their own diameter apart, larger brown scales widely separated; leaf stalks 0·4–1·3 cm. long, scaly.

INFLORESCENCE: terminal, umbellate, 4–10-flowered; flower stalks rather slender, 1–2·7 cm. long, about as long as the corolla or shorter, scaly.

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* See footnote on nomenclature, p. 77.

CALYX: large and leafy, 5-lobed, 6–8 mm. long, ovate-lanceolate or lanceolate, *markedly pointed*, densely scaly outside, margin not ciliate.

COROLLA: campanulate, 5-lobed, 1·4–2·6 cm. long, pink, rose or pinkish-purple, glabrous to densely scaly outside.

STAMENS: 10, unequal, as long as the corolla or shorter, filaments hairy in the lower one-third to two-thirds of their length.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent or almost straight, shorter or longer than the corolla, glabrous.

CAPSULE: short, about 8 mm. long, scaly, enclosed by the persistent calyx lobes.

HABITAT:

*Sikkim.* CAVE 15/5/15, 2358, 2360, 6720, 6932. J. D. H. HOOK. & THOMSON no number.

*Bhutan.* LUDLOW & SHERRIFF 3095, 3184. Alt. 9,000–12,000 ft.

*R. glaucophyllum* Rehder is the common plant of the Eastern Himalayas with which we are familiar under the name *R. glaucum* Hook. f. In the Journal of the Arnold Arboretum XXVI, No. 1, 1945, REHDER points out that *R. glaucum* Hook. f. must receive a new name, because at an earlier date (1830) SWEET had applied this name to the American Azalea *R. viscosum*. Thus in accordance with the International Rules the name *R. glaucum* Hook. f. for the Himalayan plant is invalidated and REHDER gives it the new name *R. glaucophyllum*. *R. glaucophyllum* Rehder differs from all other species in the subseries in its lanceolate to oblanceolate leaves, acute (sometimes obtuse) at the apex; the calyx lobes are large and pointed.

The species shows a wide variation in the shape and size of the corolla and in the style. In extreme forms the corolla is relatively small (1·4 cm. long), campanulate-rotate and the style is stout and sharply bent—or large (2·6 cm. long), tubular-campanulate with the style almost straight. Between these extremes, forms are found with the corolla of intermediate shape and size, and with the style more or less bent.

**R. glaucophyllum** Rehder var. **tubiforme** Cowan & Davidian var. nov. A typo corolla longiore tubiforme, stylo recto corollae aequante vel longiore haud curvato recedit.

HABITAT:

*Assam.* WARD 11463—type.

*Bhutan.* LUDLOW & SHERRIFF 2856. Alt. 10,000–11,000 ft.

WARD'S No. 11463 from the Assam frontier, and LUDLOW & SHERRIFF'S No. 2856 from eastern Bhutan (which is in cultivation

at the Royal Botanic Garden, Edinburgh), in habit and leaf are typical examples of *R. glaucophyllum* except that the flowers have a tubular corolla and a long straight style equal to or longer than the corolla. In these plants the corolla varies from 2·3–3·2 cm. in length. They represent extreme forms of *R. glaucophyllum* linked to more typical forms (with a campanulate-rotate corolla and bent style) by intermediate forms, and yet are so distinct that they merit a varietal name.

**R. shweliense** Balf. f. & Forrest in Notes R.B.G. Edin., XIII, 293 (1922); Millais, Rhododendrons, Ser. 2, 236 (1924); Hutch. in The Sp. of Rhod., 303 (1930).

HABIT: small shrub 30–75 cm. high, branchlets densely covered with scales.

LEAVES: lamina oblong-obovate or obovate, mucronate, rounded or obtuse and mucronate at apex, narrowed at the base, 1·3–4·7 cm. long, 6 mm.–1·8 cm. broad, scaly above; usually very glaucous below, densely scaly, pale yellow scales $\frac{1}{2}$–*2 times their own diameter apart*, larger brown scales widely separated; leaf stalks 3–10 mm. long, scaly.

INFLORESCENCE: terminal, umbellate, 2–4-flowered; flower stalks slender, 1·5–2·3 cm. long, longer than the corolla, scaly.

CALYX: 5-lobed to base, 4–7 mm. long, lobes rounded or elliptic, scaly and glaucous or not glaucous outside, margin eciliate or sparsely ciliate.

COROLLA: campanulate, 5-lobed, 1·3–1·5 cm. long, pale pink tinged yellow, upper three lobes spotted pink, densely or moderately scaly outside.

STAMENS: 10, unequal, exserted from the tube, as long as the corolla or shorter; filaments hairy in the lower half or throughout their whole length.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent or deflexed, scaly or not scaly at base, hairy or not hairy.

CAPSULE: 5 mm. long, scaly, calyx lobes persistent.

HABITAT: *Yunnan.* FORREST 18151—type, 24154. Alt. 10,000–11,000 ft.

The name *R. shweliense* was given to a low aromatic shrub which was collected by FORREST on the ledges of cliffs and in rocky ravines in the Shweli-Salween Divide. FORREST found this plant first in June 1919 and again in May 1924. It was said to differ from *R. brachyanthum* in that the leaves are densely lepidote above and discontinuously black-punctulate on the under side. The blackish nature of the scales on the type appears to be merely fortuitous. In cultivated specimens the scales are both pale yellow and brown as in *R. brachyanthum.* The style is varyingly

pubescent in herbarium specimens and glabrous in the cultivated plants which we have seen. This is not a reliable distinguishing criterion. In the original description and in the type and cotype the colour of the corolla has been questioned; it is suggested that the flowers are greenish-yellow. In cultivated plants the flowers are pale pink tinged yellow, spotted pink on the three upper lobes.

The affinity of *R. shweliense* is with *R. brachyanthum* and more closely with the variety *hypolepidotum*, because the scales on the under surface of the leaves are $\frac{1}{2}$–2 times their own diameter apart. It differs in the colour of its flowers and in having the corolla densely scaly outside. In other characters the two species are similar.

**R. tsangpoense** Ward in Gard. Chron., LXXXVI, 504 (1929); Hutch. & Ward in Notes R.B.G. Edin., XVI, 175 (1931); Hutch. in The Sp. of Rhod., 304 (1930); Bean, Trees & Shrubs, III, 363 (1933); Rothschild in Journ. Roy. Hort. Soc., LIX, 326 (1934); Cox in New Fl. & Sil., X, 134 (1938).

HABIT: small shrub 30–90 cm. high, forming dense tangled scrub; branchlets scaly.

LEAVES: lamina obovate, obovate-elliptic or oblong-elliptic, rounded or obtuse at the apex, mucronate, obtuse or narrowed at the base, 1·4–5·2 cm. long, 0·8–2·6 cm. broad, scaly or glabrous above, very glaucous and scaly below, smaller pale yellow scales *1–6* (*mostly 3–6*) *times their own diameter apart*, larger brown scales widely or closely separated; leaf stalks 2–6 mm. long, scaly.

INFLORESCENCE: terminal, umbellate or shortly racemose, 2–6-flowered; flower stalks slender, 1·3–3 cm. long, as long as the corolla or longer, scaly.

CALYX: deeply 5-lobed, 2–6 mm. long, lobes rounded or elliptic, slightly or moderately scaly outside, margin eciliate or ciliate.

COROLLA: campanulate, 5-lobed, 1·3–2·6 cm. long, pink, pinkish-purple, deep cerise or violet, glabrous or slightly scaly outside.

STAMENS: 10, unequal, shorter than the corolla, filaments hairy in the lower half or nearly throughout their length.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent, or sometimes deflexed, glabrous or scaly towards the base.

CAPSULE: about 6 mm. long, surrounded by the persistent calyx lobes.

HABITAT: *Tibet.* WARD 5844—cotype. LUDLOW & SHERRIFF 1881. Alt. 12,000–13,500 ft.

The name *R. tsangpoense* was given to a plant first collected by WARD on the Doshong La in Tibet in 1924 (No. 5844). Similar plants from other localities were later given other specific names—*R. pruniflorum* to a plant collected by WARD in 1926 in Upper Burma at Seingku Wang (WARD No. 7045 type), in the valley of the Dhi Chu and later in the Delei Valley in Assam, *R. curvistylum* a manuscript name applied by WARD to another plant from the Doshong La (WARD No. 5843), and *R. sordidum* to a plant from Kaso Peak, Delei Valley, Assam, collected in 1928 (WARD No. 8415).

The herbarium material in some instances is scanty but we have seen all these plants in cultivation and our observations lead to the following conclusions.

*R. tsangpoense* and *R. pruniflorum* are so closely similar that we find only one criterion by which they can be separated—the scales on the under side of the leaf in *R. tsangpoense* are usually 3–6 (but occasionally 1–3) times their own diameter apart while they are slightly overlapping to their own diameter apart in *R. pruniflorum*. In leaf shape, flower colour, size of corolla, size and scaliness of calyx, hairiness of the stamens, different plants show slight variation but there is no distinction between the species.

Plants raised from WARD's seed bear out his field observation that the plant to which he gave the tentative name *R. curvistylum* is somewhat different. The leaves of plants in cultivation (though not of the type) are smaller than those of *R. tsangpoense*, 1·4–2·8 cm. long, 8 mm.–1·8 cm. broad; the scales are 1–6 (usually 3–6) times their own diameter apart as in *R. tsangpoense*, the small flowers are tubular-campanulate.

As to *R. sordidum*, this species is compared with *R. pruniflorum* from which it is said to differ "especially in the scattered scales on the lower surface of the leaves which are of an unequally sordid green on both surfaces. In *R. pruniflorum* the scales are very dense, and there are scattered larger brown scales over the green under-layer." The scales of *R. pruniflorum* are usually contiguous, sometimes overlapping or as much as their own diameter apart. We find that sordid green scales are present not only in specimens named *R. sordidum*, but also in *R. pruniflorum* and in *R. charitopes* (F. 25570); moreover scattered brown scales are present in *R. sordidum* (WARD 8415 cotype) as well as in *R. pruniflorum*. As to the calyx, in *R. pruniflorum* this is very variable, the lobes may be rounded, broadly elliptic or elliptic (varying even in the same flower), and as to scaliness there is divergence from densely to sparsely scaly at the base and to sparsely scaly at the margin. In characters not specially mentioned, all the above plants are typically *R. tsangpoense*.

All these plants are so closely related that in our opinion they

represent but a single species. Nevertheless we regard the two more distinctive forms as definite varieties.

*R. tsangpoense* is also very closely allied to *R. charitopes* which however may be recognised by its broadly rounded, obovate leaves and somewhat larger calyx and corolla (Fig. 26).

**R. tsangpoense** Ward var. **curvistylum** (Ward MSS.). *R. curvistylum* Ward MSS. nomen nudum; Ward, Plant Hunting on Edge of the World, 375.

R. tsangpoensi Ward valde affinis sed floribus minoribus angustioribus tubuloso-campanulatis differt.

HABITAT: *Tibet.* WARD 5843—type. Alt. 12,000–13,000 ft.

As explained above, WARD gave the tentative name *R. curvistylum* to a plant which he collected on the Doshong La at an altitude of 12,000–13,000 ft. in June 1924. The herbarium specimen of his number 5843 is a plant with somewhat large leaves closely resembling *R. tsangpoense*. Plants raised from WARD's seed under this name, though similar to *R. tsangpoense*, can, however, readily be recognised. The cultivated plant has leaves which are smaller than those of *R. tsangpoense*, 1·4–2·8 cm. long, 8 mm.–1·8 cm. broad, the scales on the under surface of the leaves are 1–6 (usually 3–6) times their own diameter apart, the flowers are small tubular-campanulate, cerise coloured. Except as recorded in the diagnosis, the variety is identical with the species.

**R. tsangpoense** Ward var. **pruniflorum** comb. nov. *R. pruniflorum* Hutch. in The Sp. of Rhod., 302 (1930); Hutch. & Ward in Notes R.B.G. Edin., XVI, 174 (1931); Ward, Plant Hunting on Edge of the World, 126, 132, 140, 244 (1930); Bean, Trees & Shrubs, III, 379 (1933); Rothschild in New Flora & Silva, V, 9 (1933); Cox, ibid., X, 134 (1938); Cowan in Notes R.B.G. Edin., XIX, 238 (1937); Merrill in Brittonia, IV, 145 (1941). *R. sordidum* Hutch. in Rhod. Soc. Notes, III, No. 5, 286 (1929–31).

HABITAT:

*Burma.* WARD 6924, 7045—cotype, 7550.

*Tibet.* LUDLOW & SHERRIFF 1647. WARD 8257.

*Assam.* WARD 8415—cotype of *R. sordidum.* Alt. 10,000–13,000 ft.

The variety differs from the species in that the scales on the under surface of the leaves are slightly overlapping to their own diameter apart.

## GENESTIERIANUM SUBSERIES

GENERAL CHARACTERS: Shrubs sometimes epiphytic, 90 cm.–4·60 m. high; branchlets scaly, not bristly or sometimes slightly bristly. Leaves lanceolate, oblanceolate or oblong-elliptic, *acutely acuminate* or obtuse at the apex, 3–15·3 cm. long, 1·4–4·5 cm. broad, glaucous and scaly below, *the scales of one kind ½–10 times their own diameter apart, rarely more.* Leaf-stalks 0·5–2 cm. long, scaly, not bristly. Inflorescence terminal, racemose, 3–15-flowered; rachis 0·2–7 cm. long; flower stalks slender, 1·6–4 cm. long, *longer than the corolla,* scaly or not scaly. Calyx small, 1–4 mm. long, glabrous or scaly outside, margin not ciliate. Corolla campanulate or rotately campanulate, 5-lobed, 1–1·8 cm. long, plum-purple or creamy-yellow, rarely white, densely scaly or glabrous outside. Stamens *8–10,* unequal, shorter or slightly longer than the corolla, filaments glabrous or hairy in the lower one-third or nearly to the apex. Ovary 5-celled, densely scaly; *style short, stout and sharply bent,* glabrous or scaly at base. Capsule 0·6–1·6 cm. long, scaly; calyx persistent.

### DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. Genestierianum** Forrest in Notes R.B.G. Edin., XII, 122 (1920), and in Journ. Roy. Hort. Soc., XLIX, 29 (1924); Millais, Rhododendrons, Ser. 2, 166 (1924); Cox, Farrer's Last Journey, 230 (1926), and in New Fl. & Sil., III, 214 (1931), and ibid., X, 134 (1938); Cox, The Plant Introductions of R. Farrer, 97 (1930); Hutch. in The Sp. of Rhod., 298 (1930); Stapf in Bot. Mag., CLVI, t. 9310 (1933); Journ. Roy. Hort. Soc., LVIII, 442 (1933); Bean, Trees & Shrubs, III, 379 (1933); Kew Bull., No. 2, 96 (1939); Merrill in Brittonia, IV, 142 (1941). *R. mirabile* Ward, nomen nudum, in Gard. Chron., Ser. 3, XCII, 465 (1932); Merr. l.c.p. 142 in obs.

HABIT: shrub 1·20–4·60 m. high; branchlets with scattered scales.

LEAVES: lamina lanceolate or oblanceolate, *acutely acuminate* at apex, obtuse or narrowed to the base, 5–15·3 cm. long, 1·4–4·5 cm. broad, glabrous or sparsely scaly above; very glaucous and scaly below, the *scales minute,* brown or pale brown, *4–10 times their own diameter apart, rarely more;* leaf stalks 0·5–2 cm. long, sparsely scaly.

INFLORESCENCE: terminal, racemose, 4–15-flowered; rachis 0·3–5 cm. long; flower stalks slender, 1·6–3 cm. long, longer than the corolla, glaucous, glabrous or sparsely scaly.

CALYX: a shallow fleshy cup, shortly lobed, 1–2 mm. long, covered with a *glaucous bloom,* glabrous or sparsely scaly outside, margin not ciliate.

COROLLA: campanulate, 5-lobed, fleshy, 1·3–1·8 cm. long, *plum-purple*, covered with a *glaucous bloom*, glabrous outside.

STAMENS: 8–10, unequal, slightly longer or shorter than the corolla; filaments glabrous.

OVARY: 5-celled, densely scaly; style short, stout and sharply bent or deflexed, glabrous.

CAPSULE: 6–8 mm. long, scaly, calyx persistent.

HABITAT:

*Burma.* FORREST 17824—type, 24831, 25422, 26005, 26419, 27378, FARRER 1531.

*Yunnan.* FORREST 18329, 18746, 24097, 24285, 26014, 26808, 27758. YÜ 19583.

*Tibet.* FORREST 19917, 20845, 21692, 22655. ROCK 10149, 11202, 22013, 22497. Alt. 8,000–14,500 ft.

*R. Genestierianum*, which was found by FORREST in N.E. Upper Burma and named by him after PÈRE GENESTIER, is a very distinct species, its nearest ally being *R. micromeres* from which it is easily distinguished by the characters already given in the Key.

From the typical members of the Glaucum series *R. Genestierianum* differs in its acutely acuminate, lanceolate or oblanceolate leaves. All other species of the Series (except *R. glaucophyllum*) have obovate leaves. Again the scales on the under surface of the leaves are minute, uniform and widely spaced; another noteworthy feature is the glaucous bloom on the corolla, calyx and flower stalks (Fig. 24).

**R. micromeres** Tagg in Notes R.B.G. Edin., XVI, 211 (1931); Rhod. Soc., Notes, III, No. 5, 281 (1929–31).

HABIT: shrub, usually epiphytic, 90 cm.–1·80 m. high; branchlets scaly.

LEAVES: lamina oblong-elliptic, apex obtuse, mucronate, base obtuse to cuneate, 3–8 cm. long, 1·5–3·6 cm. broad, upper surface scaly; under surface glaucous, grey or brown, densely scaly, the *scales* brown, *varying much in size* and sunk in pits, *½–1½ times their own diameter apart*; leaf stalks 5–10 mm. long, densely scaly.

INFLORESCENCE: terminal, racemose, 3–8-flowered, rachis 2–7 mm. long; flower stalks slender, 2–4 cm. long, longer than the corolla, lengthening considerably in fruit, scaly, sparsely hairy or not hairy.

CALYX: 5-lobed, 2–4 mm. long, often reflexed, scaly outside, margin eciliate.

COROLLA: rotately campanulate, 5-lobed, small, 1–1·4 cm. long, *creamy-yellow* (rarely white), *densely scaly outside on the tube and lobes.*

STAMENS: 10, unequal, equalling the corolla in length or shorter; filaments hairy in the lower one-third or nearly to the apex.

OVARY: 5-celled, densely scaly; style very short, stout and sharply bent, scaly at the base or glabrous.

CAPSULE: 1·2–1·6 cm. long, scaly, calyx lobes persistent.

HABITAT:

*Tibet.* FORREST 21811—type, 22856. ROCK 10223, 11167, 22214, 22586. WARD 6251, 11909. LUDLOW & SHERRIFF 1751, 2108, 2857.

*Yunnan.* FORREST 25588, 25612, 25779. ROCK 17054, 18475. YÜ 22101.

*Burma.* FORREST 26636, 27686. WARD 6848.

*Assam.* WARD 8169, 8326.

*Bhutan.* LUDLOW & SHERRIFF 590. Alt. 8,000–14,000 ft.

*R. micromeres* was first found by FORREST in June 1922 in south-east Tibet on the Salween Kiu-chiang Divide. He found the plant growing as an epiphyte on trees, in valleys west of Si-K'ai. Afterwards it was frequently collected and, as may be seen from the collectors' numbers cited above that it has a comparatively wide distribution. This is an aberrant species difficult to place in any series. Its nearest ally appears to be *R. Genestierianum.*

The leaves are not markedly glaucous below and the scales are of one colour but vary very much in size.

*R. micromeres* agrees with *R. Genestierianum* in that the inflorescence is 3–8-flowered, somewhat racemose, the flower stalks are much longer than the corolla and the flowers, of equal size, are campanulate. The two species are easily distinguished by their leaves which in *R. micromeres* are obtuse at the apex, and by the scales on the under surface of the leaves which in *R. micromeres* are ½–1½, not 4–10 times their own diameter apart.

## LEPIDOTUM SERIES

GENERAL CHARACTERS: Small shrubs 5 cm.–1·80 m. high; branchlets short or long, scaly. Leaves evergreen, thick, obovate to lanceolate, 0·4–7 cm. long, 0·2–3·3 cm. broad; glaucous and densely scaly below, the scales entire or crenulate, overlapping to one-half their own diameter apart; leaf stalks 0·1–1·5 cm. long, scaly. Inflorescence terminal, umbellate or racemose, 1–9-flowered, rarely up to 18-flowered; *flower stalks slender,* 1·2–3·8 cm. long, *longer than the corolla,* scaly. Calyx 5-lobed, 2–4 mm. long, scaly outside, margin ciliate or eciliate. *Corolla rotate,* 5-lobed, 0·8–1·6 cm. long, pink, purple, rose, yellow or white, scaly and not hairy outside. Stamens 8–10, unequal, filaments hairy towards

the base or to two-thirds of their length. Ovary 5-celled, densely scaly; *style short, stout and sharply bent*, glabrous. Capsule 4–8 mm. long, densely scaly, calyx lobes persistent.

A small but distinctive series with two subseries, each having a single species. The nearest affinity is with the Glaucum series, but the crenulate type of scale which occurs in the Baileyi subseries and is characteristic of the Saluenense series suggests a definite relationship between the latter and the Lepidotum series.

## LEPIDOTUM SERIES

### KEY TO THE SPECIES

A. Inflorescence 1–3-(rarely 4-)flowered, umbellate; under surface of leaves greenish, scales entire; leaves small 0·4–2·6 cm. long, rarely more. (Flowers pink, purple, rose, yellow or white) . . . *lepidotum*

A. Inflorescence 5–18-flowered, often distinctly racemose; under surface of leaves cinnamon or rust coloured, rarely greenish-brown, scales crenulate; leaves large, usually 3–7 cm. long. (Flowers reddish-purple or deep purple, with or without darker spots) . . *Baileyi*

### DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. Baileyi** Balf. f. in Notes R.B.G. Edin., XI, 23 (1919); Stapf in Bot. Mag., CXLVIII, t. 8942 (1922); Millais, Rhododendrons, Ser. 2, 90 (1924); Magor in Journ. Roy. Hort. Soc., L, 164, 197 (1925); Hutch. in The Sp. of Rhod., 438 (1930); Gard. Chron., LXXXIX, 390, fig. 385 (1931); ibid., CXIII, 133 (1943); Rothschild in New Fl. & Sil., V, 9 (1933); Bean, Trees & Shrubs, III, 352 and fig. (1933); Rothschild in Journ. Roy. Hort. Soc., LIX, 328 (1934); Cowan in Notes R.B.G. Edin., XIX, 320 (1938). *R. thyodocum* Balf. f. & Cooper in Notes R.B.G. Edin., XI, 26, 148 (1919); Millais, Rhododendrons, Ser. 2, 250 (1924); Magor in Journ. Roy. Hort. Soc., L, 197 (1925); Hutch. in The Sp. of Rhod., 445 (1930); Cowan in Notes R.B.G. Edin., XIX, 244 (1937).

HABIT: shrub up to 1·80 m. high; young branchlets densely scaly, not bristly or sparsely bristly.

LEAVES: lamina oblong-oval, elliptic to obovate; rounded, obtuse or sub-emarginate at apex; obtuse or narrowed at the base, 2·2–7 cm. long, 0·8–3·3 cm. broad; usually densely scaly above; *cinnamon or rustcoloured below* (rarely greenish-brown) and *very densely scaly*, the scales large, *overlapping*, *crenulate*; leaf stalks 0·3–1·5 cm. long, densely scaly, not bristly or slightly bristly.

INFLORESCENCE: terminal, *racemose, 5–9-(sometimes up to 18-) flowered*; rachis 0·3–2·5 cm. long; flower stalks slender, 1·2–3·5 cm. long, *longer than the corolla*, densely or moderately scaly, not bristly.

CALYX: deeply 5-lobed, lobes often unequal, 2–4 mm. long, usually reddish, densely scaly outside, margin ciliate or eciliate.

COROLLA: *rotate or sub-rotate*, 5-lobed, 0·8–1·6 cm. long, reddish-purple or deep purple, with or without darker spots on the lobes, densely or moderately scaly and not hairy outside.

STAMENS: 10, unequal, exserted from the tube, hairy towards the base or to two-thirds of their length.

OVARY: 5-celled, denselys caly; *style short, stout and sharply* bent, glabrous.

CAPSULE: 6–8 mm. long, scaly, calyx lobes persistent.

HABITAT:

*Tibet.* F. M. BAILEY Nov. 1913, in cult. LUDLOW & SHERRIFF 1285, 2896. WARD 11641.

*Bhutan.* LUDLOW & SHERRIFF 3202. COOPER 2224—type of *R. thyodocum*, 4009, 4285.

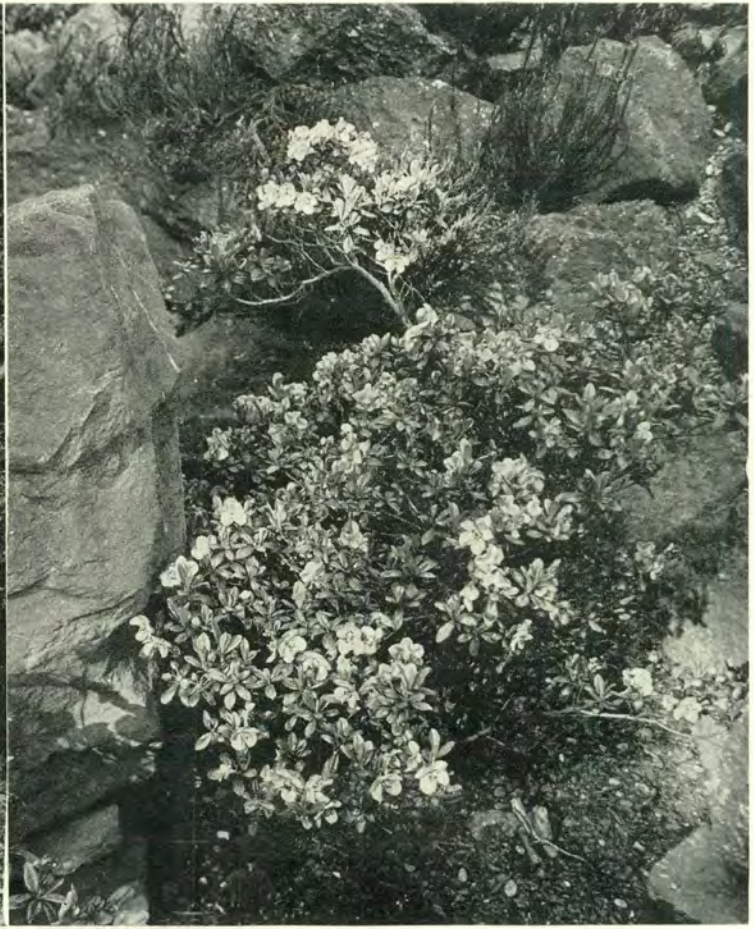
*Sikkim.* CAVE 189. Alt. 10,000–14,000 ft.

*R. Baileyi* was discovered by LIEUT.-COL. F. M. BAILEY during his survey of the Tsangpo river in S. Tibet in 1913. He preserved no specimen, but plants raised from his seeds by the late MR. J. C. WILLIAMS of Caerhays Castle at Werrington Park and at the Royal Botanic Garden, Edinburgh, which flowered in the spring of 1918, were taken as the type of the species. SIR ISAAC BAILEY BALFOUR in commenting upon this plant remarked, "It belongs to the Lepidotum series but introduces us to a divergence from a well-recognised type of this series both in its foliage and inflorescence. The foliage one would not at sight suppose to belong to an ally of *R. lepidotum*—the blades of the leaves are so much larger; and then the inflorescence is a many-flowered raceme—its axis is as much as 2·5 cm. long." Another character in which this species differs markedly from *R. lepidotum* is the structure of the scales. The scales of *R. Baileyi* have a distinctly crenulate margin, a feature noted elsewhere in species of the Saluenense series. It is thus possible at once to identify *R. Baileyi* on seeing its general habit and the structure of the scales, since in most Rhododendrons the margin of the scales is entire (Fig. 23).

*R. thyodocum* was found by COOPER in Bhutan in 1914. It is compared with *R. obovatum* which is said to be its nearest ally, but there is no doubt that *R. Baileyi* and *R. thyodocum* are in no wise different. In the analytical key in *The Species of Rhododendron*

they are distinguished as follows: Some stamens pubescent nearly to the top, *R. Baileyi*—none of the stamens not pubescent beyond the middle, *R. thyodocum*. There is wide variation in this character. The degree of hairiness of the filaments is never constant, and as a diagnostic feature this is of negligible value. Again the descriptions give the length of the corolla to be $\frac{1}{2}$ in. in *R. Baileyi*, $\frac{2}{3}$ in. in *R. thyodocum*, but this is incorrect. The original descriptions give the lengths as 1·6 cm. and 1·4 cm. respectively, and an examination of the fuller herbarium material now available reveals a variation in both species. Furthermore, the scales in *R. thyodocum* as in *R. Baileyi* are of the crenulate type. An interesting record of the occurrence of *R. Baileyi* in the headwaters of the Tista valley in Sikkim—several hundred miles from the locality in which it was previously recorded—we owe to MR. CAVE who has recently revisited Sikkim and has sent *R. Baileyi* as the only Rhododendron in his collection.

**R. lepidotum** Wall, in Wall. Cat. 758; Royle Ill. Bot. Himal., 260, t. 64, fig. 1 (1835); D.C. Prod., VII, 724 (1839); Hooker in Journ. Roy. Hort. Soc., VII, 71, 80 (1852); Hook. fil. in Bot. Mag., LXXVIII, t. 4657 (1852); ibid., LXXX, t. 4802 (1854); J. D. Hooker, ibid., CV, t. 6450 (1897); Hemsley in The Garden, XV, 36 and Plate CLIX (1879); C. B. Clarke in Hook. f. Fl. Brit. Ind., iii, 471 (1882); Gard. Chron., XXII, 296 and fig. 55 (1884); Collett, Flora Simlensis, 294 (1902); W. W. Smith and G. H. Cave in Rec. Bot. Surv. Ind., IV, 216 (1911); Diels in Notes R.B.G. Edin., VII, 137, 162 (1912); Schneider Ill. Handb. Laubh., II, 479 (1912); Bean, Trees & Shrubs, II, 366 (1914); Millais, Rhododendrons, 146, 202 (1917); Magor in Journ. Roy. Hort. Soc., L, 197 (1925); Hutch. in The Sp. of Rhod., 442 (1930); Gard. Chron., XCVII, 395 (1935). *R. obovatum* Hook. f. Rhod. Sikk. Himal., 6, t. 23 (1849); Hooker in Journ. Roy. Hort. Soc., VII, 71, 80 (1852); Millais, Rhododendrons, 219 (1917), and ibid., Ser. 2, 197 (1924); Hutch. in The Sp. of Rhod., 443 (1930). *R. lepidotum* var. *obovatum* J. D. Hooker in Bot. Mag., CV, t. 6450 (1879). *R. salignum*, Hook. f. Rhod. Sikk. Himal., t. 23A (1851); Hooker in Journ. Roy. Hort. Soc., VII, 71, 81 (1852); Magor, ibid., L, 197 (1925); Millais, Rhododendrons, 237 (1917), and ibid., Ser. 2, 22 (1924). *R. lepidotum* var. *chloranthum* Bot. Mag., LXXX, 4802 (1854). *R. sinolepidotum* Balf. f. in Notes R.B.G. Edin., X, 155 (1917); Millais, Rhododendrons, 244 (1917), and ibid., Ser. 2, 238 (1924); Magor in Journ. Roy. Hort. Soc., L, 197 (1925). *R. cremnastes* Balf. f. &



THE BOOTHII, GLAUCUM AND LEPIDOTUM ALLIANCE

FIG. 27—Uniflorum series *R. imperator* (See p. 102)

FIG. 28—Lepidotum series Lepidotum subseries *R. lepidotum* (See p. 96)

FIG. 29—Uniflorum series *R. pemakoense* (See p. 106)



FIG. 30—Uniflorum series *R. uniflorum* (See p. 108)

Farrer in Notes R.B.G. Edin., XIII, 253 (1922); Millais, Rhododendrons, Ser. 2, 118 (1924); Magor in Journ. Roy. Hort. Soc., L, 194 (1925); Cox, Farrer's Last Journey, 228 (1926). *R. elaeagnoides* Hook. f. Rhod. Sikk. Himal., t. 23B (1851); Hooker in Journ. Roy. Hort. Soc., VII, 71, 81 (1852); Magor, ibid., L, 197 (1925); Millais, Rhododendrons, 158 (1917), and ibid., Ser. 2, 133 (1924); Balf. f. in Notes R.B.G. Edin., XI, 26 (1919); Cowan, ibid., XIX, 243, 320 (1938). Cox, Plant Introductions of R. Farrer, 79, 96 (1930); Hutch. in The Sp. of Rhod., 439 (1930); Bean, Trees & Shrubs, III, 373 (1933). *R. lepidotum Wall.* var. *elaeagnoides* (Hook. f.), Franchet in Bull. Bot. Soc. France, XXXIII, 234, (1886); Balf. f. in Notes R.B.G. Edin., X, 155 (1917–1919).

HABIT: small shrub 5 cm.–1·50 m. high, branchlets often twiggy, warty, scaly, not bristly or sometimes bristly.

LEAVES: lamina obovate to lanceolate 0·4–2·6 cm. long (rarely up to 3·8 cm.), 0·2–1·3 cm. broad, (rarely up to 1·8 cm.), densely scaly above, glaucous and densely scaly below, the scales large, entire, green to brown, overlapping to one-half their own diameter apart; leaf stalks 1–4 mm. long, scaly, not bristly.

INFLORESCENCE: terminal, *1–3-*(rarely 4-)*flowered; flower stalks slender*, 1·3–3·8 cm. long, *longer than the corolla*, densely or moderately scaly.

CALYX: deeply 5-lobed, lobes 2–4 mm. long, scaly outside, margin eciliate or ciliate.

COROLLA: *rotate*, 5-lobed, 0·9–1·6 cm. long, pink, purple, crimson, rose, yellow or white, densely scaly and not hairy outside.

STAMENS: 8–10, unequal, exserted from the tube; filaments hairy towards the base or to two-thirds of their length.

OVARY: 5-celled, densely scaly; *style short, stout and sharply bent*, glabrous.

CAPSULE: 4–8 mm. long, densely scaly, calyx lobes persistent.

HABITAT:

*India. Nepal.* WALL. 758—cotype. F. B. HAMILTON 1034. LALL DHWOJ 46, 94, 501, 510. COL. BAILEY 73. LAKSHMAN 14.

*N.W. Himalayas.* DR. FLEMING in 1849. JAMIESON in 1850. DR. J. L. STEWART no number, no date. LACE 319, 1933. WATT 2464, 8642, 13624. J. R. DRUMMOND 20869, 22275, 22276. COOPER 5740, 5767, 5928. PARKINSON 7464.

*N.E. Himalayas.* T. THOMSON in 1857. KING 4219. G. WATT 5218, 5769. SMITH & CAVE 1059. CAVE

6725, 29/7/14, 24/7/16, 6/11/17, 1/9/19, 7044. J. D. HOOKER no number, no date, several specimens. COOPER 47, 91, 295, 743, 2223, 2523, 2552, 3236, 3479, 3569, 4128. RIBU & RHOMOO 776, 994, 6483. COWAN 8/6/16. LUDLOW & SHERRIFF 123, 175, 176, 634, 3111, 3254, 3289.

*Tibet.* LUDLOW & SHERRIFF 716, 2225. WARD 5694, 5994, 11591.

*Burma.* FARRER 1196—type of *R. cremnastes.*

*China. Yunnan.* DELAVAY 18—type of *R. sinolepidotum.* FORREST 2505, 2770, 5839, 5864, 10238, 15074, 16134, 20689, 20693, 21512, 21516, 21931, 22421, 22440, 28342. ROCK 4255, 4459, 4512, 10544, 11362, 24686, 24899, 25278, 25334. WARD 905, 4583. MCLAREN P 99. YÜ 15362.

*Szechuan.* ROCK 5508. Alt. 8,000–16,000 ft.

*R. lepidotum* was first known as a native of the high mountain ranges of Sikkim, where it grows abundantly at elevations between 14,000 and 16,000 ft., although occurring over a much wider range of elevation. The name appears in WALLICH'S catalogue and the plant was figured in ROYLE'S *Illustrations of Himalayan Plants* in 1835. This plant was of course well known to SIR JOSEPH HOOKER. He collected it in Sikkim, and described it in his account of *The Rhododendrons of Sikkim-Himalaya.* In this work, which was published in 1849, he also described *R. obovatum,* with a footnote—"The form and size of the foliage and its glabrous upper surface, distinguish this well from *R. lepidotum.*" Regarding *R. salignum* he remarks, "as a species it is very closely allied to *R. lepidotum* but the leaves are much longer and the pedicels always elongated, characters by no means satisfactory." As to *R. elaeagnoides* he observes—"this may prove another state of the same species"; and after describing *R. elaeagnoides* he notes "this and *R. lepidotum* and *R. salignum* may prove extreme varieties of one species."

Three years later, when he discussed, in the *Journal of the Horticultural Society,* "The Climate and Vegetation of Eastern Nepal and the Sikkim Mountains," HOOKER had come to the conclusion that the new species which he had described, were not in fact distinct, but were all forms of *R. lepidotum,* and all the other names appear as synonyms under *R. lepidotum.* He sums up by saying, "I cannot but conclude that, varieties, perhaps, permanent ones, may have been induced, which are not regarded as species and this has prompted me to unite some plants from very different elevations which, though varying much, present no well marked

specific characters. Such are *R. elaeagnoides*, *R. salignum* and *R. obovatum*. All these are included under WALLICH's *R. lepidotum*, to which a range in elevation of upwards 7,000 ft., is consequently given." He continues, "except that the flowers vary from yellow to dirty purple at various heights, this species represents no character that can be attributed to hybridization," and concludes, "*R. lepidotum* is a curious and very variable species which abounds at 14,000–15,000 ft., but also extends to as low as 8,000 ft. in moist valleys."

After examining a mass of material including *R. sinolepidotum* from Yunnan we have come to the conclusion that HOOKER's later view is more correct. No constant characters can be found by which the species can be separated.

Let us consider first *R. lepidotum* and *R. obovatum*. In *The Species of Rhododendron* it is emphasised that the leaves of *R. lepidotum* are "narrowly oblanceolate," whilst those of *R. obovatum* are "obovate." But in the original description the leaves of *R. lepidotum* are stated to be "obovate and obtuse or lanceolate and subacute." Specimens of *R. lepidotum* agree with the original description and show wide variation with a complete gradation of intermediate forms. Moreover specimens of *R. lepidotum* with obovate leaves are frequent, and furthermore, in certain specimens of *R. lepidotum* (e.g. LUDLOW AND SHERRIFF 176) both obovate and lanceolate leaves occur together. By this character alone it is impossible to distinguish between them. Again, the inflorescence of *R. obovatum* is 1–4-flowered. In *The Species of Rhododendron* it is said that the inflorescence of *R. lepidotum* is usually 3–4-flowered. This is incorrect, *R. lepidotum* is usually 1–3-flowered, as is stated in the original description. Then the differences in flower stalk, mentioned in *The Species of Rhododendron* agree neither with the original descriptions nor with the specimens. The flower stalks vary in both species from 1·3–3·8 cm. in length. Again, the colour of the flowers varies—pale yellow, greenish-yellow, pink or purple, sometimes with crimson markings, dark red, or deep wine red, but differences in flower colour cannot be correlated with other characters. In typical *R. obovatum* the calyx is densely scaly outside as it is in *R. lepidotum*; the original description of *R. lepidotum* and the specimens agree. As to the number of stamens, these are given in the original descriptions as 8, very rarely 10 in *R. lepidotum*, and as 8 in *R. obovatum*. In every specimen of both species examined by us the number is 10; the distinction noted in *The Species of Rhododendron* does not hold.

In *The Species of Rhododendron*, *R. salignum* is shown as a synonym of *R. lepidotum* and is quite typical, merely a form with yellow flowers.

As to *R. sinolepidotum* and *R. cremnastes* these names appear in *The Species of Rhododendron* as synonyms under *R. elaeagnoides*. The former, a dwarf shrub usually less than a foot high, has bright rose or rose-crimson flowers with or without crimson markings. It is no doubt on account of its dwarf habit that it has been connected with *R. elaeagnoides*. But this Yunnan plant is so closely similar to Sikkim plants, especially to forms from higher elevations, that it has no claim to rank as a separate species. We cannot regard it as other than a dwarf form of *R. lepidotum* and it is not particularly closely connected with *R. elaeagnoides*. Moreover it is not always dwarf "up to 9 in."—the main criterion of *R. elaeagnoides* in *The Species of Rhododendron*—for amongst collectors' specimens we find plants from 3–6 in. to 1–1½ ft., and even as much as 2 ft., in height.

The name *R. cremnastes* was given to a plant from an intervening region, namely Chimile, north-east Upper Burma, and it exactly matches the dwarfer forms of *R. sinolepidotum*.

Once more careful comparison of specimens of *R. lepidotum* and of *R. elaeagnoides* and examination of a large number of plants in cultivation brings us to the conclusion that there are no constant characteristics by which these two species can be separated. In both there is wide variation in habit, in size and shape of leaf and in other characters. In *The Species of Rhododendron*, certain distinguishing criteria have been emphasised, but none of the stated distinctions holds. For example, *R. lepidotum* is distinguished as "a small shrub up to 3–4 ft. high" while *R. elaeagnoides* is a "dwarf shrublet up to 9 in. high." But information in collectors' field notes, which can largely be substantiated by observation on plants in cultivation, shows that *R. lepidotum* is a shrub of anything from 2 in. to 5 ft. in height, and that *R. elaeagnoides* may range from 2 in. to 3 ft. in height. Moreover, there is wide variation in leaf shape from obovate to lanceolate, they vary also in size and the colour and size of the scales on the under sides of leaves are not constant. Furthermore, in both species the inflorescence is 1–3-flowered, the flowers are either yellow or purple, the stamens are normally 10, and the filaments are pubescent either at the base only or in the lower half. It follows that by none of these characters, which are most variable, is it possible to separate these two species, and in all other respects they agree.

However, various forms of *R. lepidotum* occur in cultivation as they do under natural conditions at different elevations and in different localities. A species covering a great range of altitude and having a wide geographical distribution may be expected to vary considerably and in this instance extreme forms are so dissimilar that there was justification, when less information was

available, for regarding them as distinct species. Now we have material which shows conclusively that all of these forms are linked by intermediates, with so many intergradations that it becomes impractical to draw dividing lines between them. Moreover it is found that when seed of any one type is sown and germinates a range of diverse types appears—plants of various habit, with leaves varying in size and shape, and some with yellow, some with purple flowers. Not all the intermediate forms are in cultivation. Perhaps the more distinctive types occurring in gardens are (*a*) a small shrub 1–2 ft. high with purple flowers (usually grown under the name *R. lepidotum*); (*b*) a dwarf form up to a foot high with purple flowers (also grown under the name *R. lepidotum*); (*c*) a form similar to (*a*) but with yellow flowers (grown under the name *R. salignum* or under the name *R. elaeagnoides*); (*d*) a dwarf compact form similar to (*b*) but with yellow flowers (grown under the name of *R. elaeagnoides*); and (*e*) a taller bush about 3 ft. high with yellow flowers (grown under the name *R. lepidotum*) (Fig. 28).

## UNIFLORUM SERIES

GENERAL CHARACTERS: Dwarf shrubs often spreading 15–60 cm high (*R. monanthum* up to 1·20 m.); branchlets scaly. Leaves evergreen, thick, oblanceolate to obovate, 0·8–5 cm. long, 0·4–2·5 cm. broad, glaucous and scaly below, scales ½–6 times their own diameter apart; leaf-stalks 1–8 mm. long, scaly. Inflorescence terminal, *1–2-flowered, rarely 3*; flower stalks 0·4–2·6 cm. long, scaly. Calyx *usually 1–3 mm. long* (in *R. Ludlowii* 5–7 mm.) 5-lobed, scaly outside; margin ciliate or eciliate. Corolla campanulate or funnel-shaped, 5-lobed, 1–3·5 cm. long, purple, pink, rose or yellow, *densely hairy* (in *R. monanthum* not hairy) and usually scaly *outside*. Stamens 10, unequal, usually shorter than the corolla, hairy towards the base. Ovary 5-celled, densely scaly; *style long, slender and straight*, rarely scaly at base. Capsule 0·6–1·6 cm. long, scaly, calyx lobes persistent.

The Uniflorum series represents a homogeneous group of closely allied species with one aberrant species, *R. monanthum*. The group is a distinctive one, but shows affinity with the Lepidotum and the Tephropeplum subseries and less closely with the Saluenense series, deviating however in flower structure and in habit and, in the last instance, with regard to scales.

### UNIFLORUM SERIES

#### KEY TO THE SPECIES

A. Leaf margin undulate, faintly but distinctly notched; calyx large, 5–7 mm. long. (Flowers yellow, spotted reddish-brown inside tube) . . . . . *Ludlowii*

A. Leaf margin entire; calyx minute, 1–2 mm. long, rarely 3–4 mm.
  B. Flowers bright yellow; corolla not hairy outside; scales on the under surface of leaves markedly different in size, mostly large; small to medium sized shrub, up to 1·20 m. high; leaves large, usually 2·6–5 cm. long and 1·3–2·5 cm. broad . *monanthum*
  B. Flowers pink, rose or purple; corolla densely hairy outside; scales on the under surface of leaves small, uniform (in *R. pemakoense* varying); dwarf, erect or prostrate shrubs, 15–60 cm. high; leaves small, less than 2·6 cm. long, rarely longer, less than 1·3 cm. broad (*R. pemakoense* rarely broader).
    C. Leaves elliptic or obovate-elliptic; corolla campanulate, 1·3–1·9 cm. long, rarely longer; style usually about half as long as corolla. (Flowers pink or rose) . . . . *pumilum*
    C. Leaves lanceolate, oblanceolate, oblong-obovate or obovate; corolla funnel-shaped, 2·2–3·5 cm. long; style equal to or longer than corolla (except in *R. uniflorum*).
      D. Leaves obovate or oblong-obovate, apex rounded or obtuse; erect or semi-erect shrubs.
        E. Scales on the under surface of leaves 3–6 times their own diameter apart; style not hairy. (Flowers purple) . *uniflorum*
        E. Scales on the under surface or leaves ½–1½ times their own diameter apart; style hairy or not hairy. (Flowers purple or pinkish-purple). . . *pemakoense*
      D. Leaves lanceolate or oblanceolate, apex usually acute; prostrate shrubs with spreading branches.
        E. Scales on the under surface of leaves 2–6 times their own diameter apart. (Flowers bright purple or pinkish-purple, not marked) . . . *imperator*
        E. Scales on the under surface of leaves 1–1½ times their own diameter apart. (Flowers purple, the upper lobe spotted crimson-purple; or pinkish-purple) . . . . . *patulum*

## DESCRIPTION OF SPECIES (AMP. ET EM.)

**R. imperator** Hutch. in The Sp. of Rhod., 440 (1930); Hutch. & Ward in Notes R.B.G. Edin., XVI, 176 (1931); Comber in Gard. Chron., XCI, 440 (1932); Ward, ibid., XCI, 460 (1932), and ibid., CXIX, 230 (1946); Harris ibid., CXIX, 75, (1946); Rothschild in New Fl. & Sil., IV, 10 (1932), and ibid., V, 9 (1933); Wilkie, ibid., XI, 299 fig. CIV (1939); Bean, Trees & Shrubs, III, 386 (1933); Rothschild in Journ. Roy. Hort. Soc., LIX, 328 (1934); Stoker, ibid., LX, 477

(1935); Hanger, ibid., LXIX, 41, 42 (1944); Ward, ibid., LXXI, 319 (1946), and Romance of Gardening, 244 (1935).

HABIT: dwarf or prostrate shrub up to 30 cm. high, with spreading branches, branchlets scaly, minutely hairy or not hairy.

LEAVES: lamina *lanceolate or oblanceolate*, acute or rounded at apex, mucronate, narrowed to the base, 1·3–3·8 cm. long, 4–10 mm. broad, scaly or glabrous above; glaucous green and scaly below, the *scales* small, brown, *2–6 times their own diameter apart*; leaf stalks 2–5 mm. long, scaly.

INFLORESCENCE: terminal, 1–2-flowered; flower stalks 1–2·5 cm. long, scaly.

CALYX: 5-lobed, 1–2 mm. long, scaly outside, margin sparsely ciliate or eciliate.

COROLLA: narrowly funnel-shaped, 5-lobed, 2·3–3 cm. long, bright purple, not marked, or pinkish-purple, densely hairy and sparsely scaly or not scaly outside.

STAMENS: 10, unequal, shorter than the corolla, hairy towards the base.

OVARY: 5-celled, densely scaly; style slender, straight, slightly longer than the corolla, glabrous.

CAPSULE: 1·3 cm. long, covered with very small scales.

HABITAT: *Burma.* WARD 6884—cotype. Alt. 10,000–11,000 ft.

*R. imperator* which was discovered by WARD in Upper Burma is very closely allied to *R. patulum*, the only significant difference lying in the distribution of the scales, 1–1½ times their own diameter apart in the former, 2–6 times in the latter.

It has been stated that the species differ also in the colour of the flowers, the pubescence on the corolla, size of calyx and number of flowers in the inflorescence. While some of these characters seemed reliable when only a single type specimen was available for examination, plants in cultivation show that the supposed distinguishing features are common to both species. This is clearly indicated in the amended descriptions which are based upon cultivated as well as herbarium material.

From *R. pumilum* and *R. uniflorum* the most reliable distinguishing character is to be found in the shape of the leaves which are lanceolate or oblanceolate; from the former *R. imperator* is further distinguished by its funnel-shaped, somewhat larger corolla and style equal to or longer than the corolla.

*R. imperator* received an Award of Merit in May 1934 (Fig. 27).

**R. Ludlowii** Cowan in Notes R.B.G. Edin., XIX, 243 (1937); Gard. Chron., CIII, 52, 268 (1938).

HABIT: small shrub about 30 cm. high; branchlets scaly, not bristly.

LEAVES: lamina obovate, rounded and mucronate at apex, obtuse at the base, coriaceous, 1·2–1·4 cm. long, 8–10 mm. broad, *margin crenulate-undulate*, upper surface scaly; under surface glaucous and scaly, the scales large, brown, 2–3 times their own diameter apart; leaf stalks 1–2 mm. long, scaly.

INFLORESCENCE: terminal, 1–2-flowered; flower stalks 1·5–1·9 cm. long, scaly.

CALYX: deeply 5-lobed, large, leafy, *5–7 mm. long*, lobes rounded, densely scaly outside, margin ciliate.

COROLLA: *campanulate*, 5-lobed, 1·5–2·5 cm. long; yellow, spotted reddish-brown inside the tube, scaly and densely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, filaments hairy towards the base.

OVARY: about 3 mm. long, densely scaly; style slender, straight, longer than the stamens, shorter than the corolla, glabrous.

CAPSULE: Not seen.

HABITAT: *S.E. Tibet.* LUDLOW AND SHERRIFF 1895—cotype, 6,600 in cult. Alt. 13,500 ft.

This species which was found by LUDLOW AND SHERRIFF at Lo La Pachakshiri at an altitude of 13,500 ft. is easily distinguished from all others in the Series by the undulate or crenulate margin of the leaf and by the exceptionally large calyx and yellow corolla, which is spotted reddish-brown inside the tube.

**R. monanthum** Balf. f. & W. W. Sm. in Notes R.B.G. Edin., IX, 250 (1916); Millais, Rhododendrons, 214 (1917), and ibid., Ser. 2, 189 (1924); Magor in Journ. Roy. Hort. Soc., L, 196 (1925); Cox, Farrer's Last Journey, 228, 237 (1926), and Plant Introductions of R. Farrer, 96, 97 (1930); Ward, Plant Hunting on Edge of World, 91 (1930); Hutch. in The Sp. of Rhod., 167 (1930).

HABIT: a small spreading shrub sometimes epiphytic, 30 cm.–1·20 m. high; branchlets scaly, slightly bristly or not bristly.

LEAVES: lamina elliptic, oblong-elliptic or oblong, 2–5 cm. long, 1–2·5 cm. broad, apex obtuse or sometimes acute, base obtuse or narrowed, upper surface scaly; under surface glaucous and densely scaly, *the scales varying much in size, mostly large*, brown, *one-half their own diameter apart*; leaf stalks 4–8 mm. long, scaly.

INFLORESCENCE: terminal, solitary; flower stalks curved or straight, 4–6 mm. long, densely scaly.

CALYX: very small, undulate-lobulate, 1–2 mm. long, densely scaly outside, margin not ciliate.

COROLLA: *campanulate*, 5-lobed, 1·6–2·3 cm. long, *bright yellow*, scaly and *not hairy outside*.

STAMENS: 10, unequal, longer or slightly shorter than the corolla; filaments densely hairy towards the base.

OVARY: 5-celled, densely scaly; style slender, straight, longer than the corolla, glabrous.

CAPSULE: 0·8–1·6 cm. long, densely scaly, calyx persistent.

HABITAT:

*Yunnan.* FORREST 951—type, 19844, 25617, 25858. WARD 3722, 5442, 5478. YÜ 20293.

*Tibet.* FORREST 19956, 20356, 20879, 21825, 22654. ROCK 22056, 22499.

*Burma.* FARRER 1343, 1630. Alt. 9,000–14,500 ft.

*R. monanthum* was found by FORREST in 1905 in the Lupo Pass on the Mekong-Salween Divide, and the original gathering was put under the name *R. sulfureum* by Diels but this same plant was afterwards described as a new species *R. monanthum*. Later it was collected again by FORREST and also by WARD and ROCK.

In *The Species of Rhododendron*, *R. monanthum* was included in the Boothii series, but it differs markedly from typical members of that series by its solitary flower and long, slender, straight style. It is an aberrant species and does not conform to the members of any group. There is, undoubtedly, affinity with the Tephropeplum subseries, but its closest relationship would appear to be with the species now included in the Uniflorum series. It differs from other species in the Series in its larger leaves and somewhat taller habit of growth. The scales on the under side of the leaves are markedly different in size. The corolla is not hairy outside, the flower stalk is thick and short.

**R. patulum** Ward in Gard. Chron., LXXXVIII, 298 (1930), and ibid., LXXXVI, fig. 35 p. 71, fig. 92 p. 187 (1929), and ibid., XCI, 460 (1932), and in Journ. Roy. Hort. Soc., LVIII, 111 (1933); Hanger, ibid., LXIX, 41, 42 (1944), and ibid., LXX, 355 (1945); Ward, Plant Hunting on Edge of the World, 242 (1930), and Romance of Gardening, 246 with fig. (1935).

HABIT: dwarf or prostrate shrub up to 60 cm. high or more, with spreading branches, branchlets scaly, minutely hairy.

LEAVES: lamina *lanceolate or oblanceolate* (sometimes narrowly oblong-oval), apex acute or sometimes rounded, mucronate, narrowed to the base, 1·5–2 cm. long, 5–8 mm. broad, scaly above; glaucous and scaly below, the *scales* varying in size, mostly small, brown, *1–1½ times their own diameter apart*; leaf stalks 1–2 mm. long, scaly.

INFLORESCENCE: terminal, 1–2-flowered; flower stalks slender, 1·2–2 cm. long, scaly.

CALYX: 5-lobed, small, 1–2 mm. long, scaly outside, margin ciliate.

COROLLA: narrowly or broadly funnel-shaped, 5-lobed; 2·6–3·2 cm. long, purple, the upper lobe spotted crimson-purple, or pinkish-purple not spotted, scaly and densely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, hairy towards the base.

OVARY: 5-celled, densely scaly; style slender, straight, equalling the corolla or longer, glabrous or scaly at base.

CAPSULE: 1 cm. long, scaly, calyx lobes persistent.

HABITAT: *Assam Frontier.* WARD 8260—cotype. Alt. 11,000–12,000 ft.

This plant from the Mishmi Hills is so near *R. imperator* that it probably should not be regarded as a distinct species. The only significant difference is in the distribution of the scales on the under sides of the leaves.

**R. pemakoense** Ward in Gard. Chron., LXXXVIII, 298 (1930); Comber, ibid., LXXXIX, 375 (1931), and ibid., XCII, 480 (1932); Wilkie in New Fl. & Sil., XI, 299, fig. CIII (1939); Hanger in Journ. Roy. Hort. Soc., LXIX, 44 (1944), and ibid., LXX, 23 (1945).

HABIT: dwarf erect or semi-erect shrub up to 30 cm. high; branchlets scaly, minutely hairy or not hairy.

LEAVES: lamina *obovate or oblong-obovate, apex rounded* or sometimes obtuse, mucronate, obtuse or narrowed at the base, 1·3–3 cm. long, 0·6–1·5 cm. broad, scaly above; glaucous and scaly below, the *scales* unequal in size, brown, *½–1½ times their own diameter apart*; leaf stalks 1–4 mm. long, scaly.

INFLORESCENCE: terminal, 1–2-flowered; flower stalks 1·3–2·5 cm. long, lengthening in fruit up to 3·8 cm. or more, scaly.

CALYX: small, 5-lobed, 1–3 mm. (rarely 4 mm.) long, scaly outside, margin ciliate or eciliate.

COROLLA: broadly funnel-shaped, 5-lobed, 2·5–3·5 cm. long, purple or pinkish-purple, scaly and densely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, hairy towards the base.

OVARY: 5-celled, densely scaly; style slender, straight, about as long as the corolla or longer, base rarely scaly and hairy or not hairy.

CAPSULE: 6–10 mm. long, scaly, calyx lobes persistent.

HABITAT: *Tibet.* WARD 6301—cotype. Alt. 10,000 ft.

*R. pemakoense* from the Tsangpo Gorge is very closely allied and probably not specifically distinct from *R. uniflorum*. The position is fully discussed in a note under the latter species. The soboliferous character of *R. pemakoense* in cultivation has been emphasised, but this does not appear to be constant. Plants in the Royal Botanic Garden, Edinburgh, appear to flower somewhat earlier than *R. uniflorum*.

*R. pemakoense* received an Award of Merit when shown by SIR JOHN RAMSDEN in January 1933 (Fig. 29).

**R. pumilum** Hook. f. in Rhod. Sikk. Himal., t. 14 (1849); Fl. des Serres, VII, t. 667 (1851–2); Hooker in Journ. Roy. Hort. Soc., VII, 78, 102 (1852); Rothschild, ibid., LIX, 328 (1934); non Nutt. in Hook. Kew Journ., V, 354 (1853); C. B. Clarke in Hk. Fl. Br. Ind., III, 471 (1882); W. W. Smith & G. H. Cave in Rec. Bot. Soc. Ind., IV, 216 (1911); Schneider Ill. Handb. Laubh., II, 479 (1912); Millais, Rhododendrons, 231 (1917), and ibid., Ser. 2, 217 (1924); Ward, Plant Hunting on Edge of World, 119, 125 (1930); Hutch. in The Sp. of Rhod., 444 (1930); Cowan in Notes R.B.G. Edin., XIX, 244 (1937); Grove in Gard. Chron., CIII, 268 (1938).

HABIT: dwarf prostrate shrub up to 15 cm. high, branchlets scaly, minutely hairy.

LEAVES: lamina *elliptic* or *obovate-elliptic*, obtuse or rounded at the apex, mucronate, obtuse at the base, 0·8–1·9 cm. long, 4–11 mm. broad, scaly or glabrous above; glaucous and scaly below, the scales small, dark brown or brown, 2–3 times or sometimes their own diameter apart; leaf stalks 1–2 mm. long, scaly.

INFLORESCENCE: terminal, 1–3-flowered; flower stalks 1–2·6 cm. long, densely scaly, elongating in fruit up to 5·8 cm.

CALYX: deeply 5-lobed, 1–3 mm. long, purplish-red, scaly outside, margin ciliate or eciliate.

COROLLA: *campanulate*, 5-lobed, 1–1·9 cm. long, pink or rose, densely hairy and slightly or moderately scaly outside.

STAMENS: 10, unequal, usually about half as long as the corolla, hairy towards the base.

OVARY: 5-celled, densely scaly; style straight, about half as long as the corolla, rarely longer, glabrous.

CAPSULE: 8–10 mm. long, scaly, calyx lobes persistent.

HABITAT:

*Sikkim.* J. D. H. HOOK. & THOMSON no number, no date.

*Tibet.* WARD 5856, 6961, 8342, 11925. LUDLOW & SHERRIFF 1624, 1634, 1741, 1773. Alt. 11,500–14,000 ft.

*R. pumilum* has been known since 1849 when it was discovered by HOOKER in the Sikkim Himalaya. A number of very closely allied species, covering a wide range of distribution, have been found in recent years namely, *R. uniflorum* from Doshong La in Southern Tibet, *R. pemakoense* from the Tsangpo Gorge, *R. imperator* from Seinghku Wang, Burma, and *R. patulum* from the Mishmi Hills. There is one reliable character whereby *R. pumilum* may be distinguished from these other species, namely, the shape of its leaves, which are elliptic. But a further point of distinction which usually holds, is the shape of the corolla, in *R. pumilum* campanulate, in the other four species more or less funnel-shaped. The length of the style in *R. pumilum* is variable although usually half as long as the corolla. The flowers are pink or rose.

*R. pumilum* received an Award of Merit when exhibited by LORD SWAYTHLING in April 1935.

**R. uniflorum** Hutch. in The Sp. of Rhod., 446 (1930); Hutch. & Ward in Notes R.B.G. Edin., XVI, 176 (1931); Gard. Chron., XCI, 460 (1932).

HABIT: dwarf shrub with subprocumbent branches, up to 30 cm. high, branchlets scaly, minutely hairy or not hairy.

LEAVES: lamina *obovate or oblong-obovate, apex rounded* or sometimes obtuse, mucronate, obtuse or narrowed at the base, 1·3–2·4 cm. long, 0·6–1·2 cm. broad, scaly or glabrous above; glaucous and scaly below, the *scales* small, brown, *3–6 times their own diameter apart* (rarely less); leaf stalks 1–4 mm. long, scaly.

INFLORESCENCE: terminal, 1–2-flowered; flower stalks 1·3–2·2 cm. long, lengthening in the fruit up to 3·5 cm., scaly.

CALYX: small, 5-lobed, 1–2 mm. long, scaly outside, margin ciliate or eciliate.

COROLLA: broadly funnel-shaped, 5-lobed, 2·2–2·8 cm. long, purple, scaly and densely hairy outside.

STAMENS: 10, unequal, shorter than the corolla, hairy towards the base.

OVARY: 5-celled, densely scaly; style slender, straight, shorter than the corolla, glabrous.

CAPSULE: 6–9 mm. long, scaly, calyx lobes persistent.

HABITAT: *Tibet.* WARD 5876—cotype. Alt. 11,000–12,000 ft.

The four species *R. uniflorum* Hutch. (WARD No. 5876 from Doshong La), *R. pemakoense* Ward (WARD No. 6301 from Tsangpo Gorge), *R. imperator* Hutch. (WARD No. 6884 from the Seinghku valley on the Burma-Tibet frontier), and *R. patulum* Ward (WARD No. 8260 from the Mishmi Hills) are all, as WARD has stated, very

closely related. The first two species are erect dwarf shrublets, with obovate or oblong-obovate leaves, rounded or obtuse at the apex, while the other two are prostrate, with lanceolate or oblanceolate leaves, usually acute at the apex. Taking these criteria there will probably be general agreement in recognising two distinct species. Whether *R. uniflorum* and *R. pemakoense* are rightly recognised as distinct from each other is open to doubt. We can find only one reasonably constant criterion to separate them, namely, the fact that the scales on the under surface of the leaves in *R. uniflorum* are 3–6 times their own diameter apart while in *R. pemakoense* they are ½–1½ times their own diameter apart. Whether this one distinction justifies separate specific rank is a matter of opinion; we incline strongly to the view that *R. pemakoense* would be more correctly regarded as a form or variety of *R. uniflorum*, especially since we have seen one cultivated specimen of *R. uniflorum* in which the scales are their own diameter apart. The same argument applies to *R. imperator* and *R. patulum* where again the only distinguishing character, on which any reliance can be placed, is the distribution of the scales. In this instance the distinction is less marked, since the scales in *R. imperator* are 2–6 times their own diameter apart, and in *R. patulum* 1–1½ times (in the original description 1–3 times) their own diameter apart.

It has been said that *R. pemakoense* may be recognised by its bristly style and distinguished from *R. uniflorum* "by its leafy spreading calyx, closely lepidote ovary, the golden gleaming scales about their own diameter apart, and the rather closely lepidote under leaf surface, the scales scarcely their own diameter apart—in *R. uniflorum* they are more than 4 times their own diameter apart and black," but the original descriptions are based on single type specimens.

Cultivated material shows that the plants are more variable than was supposed, and a comparison of our amended descriptions which are based upon cultivated as well as herbarium specimens will show that none of the above distinctions holds, nor do others mentioned elsewhere. In most cultivated plants of *R. pemakoense* the style is not hairy. *R. uniflorum* has usually a single flower but plants in cultivation have occasionally a 2-flowered inflorescence (Fig. 30).

While strongly holding the opinion stated above we, none the less, have for the time being retained the four species, since it is advisable to have further material before deciding whether in each case the second name should have varietal status or be regarded as a synonym.

LIST OF SPECIES AND SYNONYMS

*aureum* Franch. = XANTHOSTEPHANUM
AURITUM Tagg
BAILEYI Balf. f.
BOOTHII Nutt.
BRACHYANTHUM Franch.
BRACHYANTHUM Franch. var. HYPOLEPIDOTUM Franch.
*butyricum* Ward nomen nudum = CHRYSODORON
*cerinum* Balf. f. & Forrest = SULFUREUM Franch.
CHARITOPES Balf. f. & Farrer
*charitostreptum* Balf. f. & Ward = BRACHYANTHUM var. HYPOLEPIDOTUM
CHRYSODORON Tagg MSS. Hutch.
CHRYSOLEPIS Hutch.
*commodum* Balf. f. & Forrest = SULFUREUM Franch.
*cremnastes* Balf. f. & Farrer = LEPIDOTUM Wall.
*curvistylum* Ward MSS. nomen nudum = TSANGPOENSE var. CURVISTYLUM
DEKATANUM Cowan
*deleiense* Hutch. & Ward = TEPHROPEPLUM
*elaeagnoides* Hook. f. = LEPIDOTUM
GENESTIERIANUM Forrest
GLAUCOPHYLLUM Rehder
GLAUCOPHYLLUM Rehder var. TUBIFORME Cowan & Davidian
*glaucum* Hook. f. = GLAUCOPHYLLUM
*hypolepidotum* (Franch.) Balf. f. & Forrest = BRACHYANTHUM var. HYPOLEPIDOTUM
IMPERATOR Hutch.
LEPIDOTUM Wall.
LEPIDOTUM Wall. var. *chloranthum* Hook. f. = LEPIDOTUM
LEPIDOTUM Wall. var. *elaeagnoides* (Hook. f.) Franch. = LEPIDOTUM
LEPIDOTUM Wall. var. *obovatum* Hook. f. = LEPIDOTUM
LEUCASPIS Tagg
LUDLOWII Cowan
MEGERATUM Balf. f. & Forrest
*messatum* Balf. f. & Forrest MSS. nomen nudum = XANTHOSTEPHANUM
MICROMERES Tagg
*mirabile* Ward nomen nudum = GENESTIERIANUM
MISHMIENSE Hutch. & Ward
MONANTHUM Balf. f. & W. W. Sm.
*obovatum* Hook. f. = LEPIDOTUM
PATULUM Ward
PEMAKOENSE Ward

*pruniflorum* Hutch. = TSANGPOENSE var. PRUNIFLORUM
PUMILUM Hook. f.
*salignum* Hook. f. = LEPIDOTUM
*sinolepidotum* Balf. f. = LEPIDOTUM
*sordidum* Hutch. = TSANGPOENSE var. PRUNIFLORUM
*spodopeplum* Balf. f. & Farrer = TEPHROPEPLUM
SULFUREUM Franch.
*tapeinum* Balf. f. & Farrer = MEGERATUM
TEPHROPEPLUM Balf. f. & Farrer
*theiochroum* Balf. f. & W. W. Sm. = SULFUREUM Franch.
*thyodocum* Balf. f. & Cooper = BAILEYI
TSANGPOENSE Ward
TSANGPOENSE Ward var. CURVISTYLUM (Ward MSS.) Cowan & Davidian
TSANGPOENSE Ward var. PRUNIFLORUM (Hutch.) Cowan & Davidian
UNIFLORUM Hutch.
XANTHOSTEPHANUM Merr.

# OCCURRENCE AND DISTRIBUTION OF RHODODENDRONS IN JAPAN

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RHODODENDRONS, especially Azaleas, are one of the favourite flowering shrubs in Japan, and decorate Japanese gardens from April to July with their flowers of various colours. In 1921 and 1923 DR. WILSON recorded from Japan in his valuable papers on this genus a total of 25 species with many varieties and forms, and DR. NAKAI in 1927 enumerated 48 species with numerous varieties and garden forms in the revised edition of his authentic work, *Trees and Shrubs Indigenous in Japan Proper*, Vol. 1.

The history of the cultivation of Azaleas in Japan is very old, and it is said that the cultivation of *Rhododendron obtusum* goes back to about the year 1645. From about 1660, Yedo (an old name of Tokyo) became a centre of its cultivation, and different kinds were collected mostly from south-western Japan and some imported also from Riukiu and Korea. In an old work on the horticulture of Japan called *Kwadan-kômoku*, Vol. 3, which manuscript was completed in 1664 and published in 1681, 147 names of garden forms of Azaleas were listed. A first illustrated book on Japanese Azaleas, *Kinshû-chin* published in 1692 by IHEI ITÔ, a famous gardener in Yedo, and republished in 1733 under the title of *Chôseikwarinshô*, included 425 forms. From that time onwards for about fifty years the cultivation of Azaleas in Yedo was very common, and many garden forms, which are still in cultivation, originated by hybridization and selection in those days. In vol. 3 of *Zôho-chikinshô* published in 1710 by I. ITÔ, 332 forms were recorded with short diagnoses.

Now under the heading of 6 subgenera and 4 sections, I shall briefly explain the important characters and distribution of 43 wild Rhododendrons as well as popular garden Azaleas in Japan.*

Subgen. 1. ANTHODENDRON Endlicher (1839), emend. Rehder.

Sect. 1. VISCIDULA Matsumura et Nakai (1916). This is a monotypic section represented by a peculiar species, **Rhododen-**

* DR. HARA'S subdivisions of the Genus will be more familiar to readers of *The Year Book* as: 1 Azalea series, 2 Ponticum series, 3 includes species of the Triflorum and Lapponicum series, 4 Dauricum series, 5 Semi-barbatum series, and 6 Camtschaticum series.—EDITORS.

**dron nipponicum** Matsumura. In many respects it suggests the resemblance to the genus *Menziesia*. The flowers are pendent, umbellate from a terminal bud and open in July when or after the leaves unfold. The corollas are tubular-campanulate, 1·5–2 cm. long, about 1 cm. in diameter, yellowish white with greenish spots on dorsal side within, with 5 short lobes. The pedicels, calyces and ovaries are glandular-hairy. The stamens are 10, and included. The leaves are large, obovate and densely ciliate at the margin. It grows on mountains from Tôhoku district in north Honshu south-west to Hokuroku district.

Sect. 2. SINENSES Nakai (1922). Here belong three distinct species. **R. Albrechtii** Maximowicz (*Bot. Mag.* t. 9207) is distributed from the higher mountains of middle Honshu north to central Hokkaido. The flowers are red-purple and very attractive in bushes of the subalpine region in early summer. **R. pentaphyllum** Maxim. occurs here and there on mountains from middle Honshu south-west through Kinki district and Shikoku to Mt. Takakuma of south Kyushu. The corollas are rose-pink, rotate funnel-shaped, 4–6 cm. in diameter, the leaves 5 in a whorl at the end of branchlets and ciliate at the margin, and the pedicels glabrous or glandular-hairy (var. *nikoense* Komatsu). It becomes a small tree and is very lovely in woodlands with its pink flowers before the leaves in middle April to May. This species closely resembles *R. quinquefolium* of Sect. Sciadorhodion, but differs from it by having petioles long-bearded at least on the ventral side, outer bud-scales without the subulate appendage, pink corollas open before the leaves, and larger (1·5–2 cm. long) spindle-shaped capsules.

**R. japonicum** Suringar (*Bot. Mag.* t. 5905) is found widely in Japan from Oshima province of Hokkaido south through Honshu to the mountains of Shikoku and middle Kyushu. It grows most abundantly in open places at about 1,000 m. above sea level on Mt. Fuji, Mt. Asama, Nikko, etc., and those places are famous for this Azalea when blooming in June. The flowers appear 5–12 in a cluster at the ends of the branches, and the corollas are funnel-shaped, 5–6 cm. in diameter, generally from orange-red to red in colour, soft-pubescent outside in bud and have 5 stamens. A form with deep yellow flowers (f. *flavum* Nakai) is often cultivated and rarely grows wild. The leaves are mostly oblanceolate and light green on the lower surface, but sometimes they are waxy-glaucous beneath (f. *glaucophyllum* (Nakai) Hara). The leaves and flowers of this species are poisonous to men and animals.

Sect. 3. SCIADORHODION Rehder et Wilson (1921). *R. Schlippenbachii* Maxim. which is common in Korea has often been said to occur in Tsushima Island since the time of MAXIMOWICZ

(1870). Recent investigation of the island, however, has revealed that the species is not growing wild there. As DR. WILSON'S report from north Honshu is also apparently a mistake, it should be excluded from the flora of Japan, although it has been occasionally cultivated in Japanese gardens since about 1660.

**R. quinquefolium** Bisset et Moore is distinct in this section in having five verticillate leaves which are densely ciliate at the margin, outer bud-scales with the long appendage at the top, snowy white flowers open with leaves, petioles glabrous except the ventral side or minutely white-hairy, and pedicels glabrous or glandular-hairy. It grows from the mountains of north Honshu south through middle Honshu and Kinki district to the higher mountains of Shikoku.

The other Japanese species with three broad rhombic leaves at the end of branchlets are often treated by botanists who are not familiar with them in the field as only two species. Although this group which is highly developed in Japan is very polymorphous, we can separate it into the following 12 species which are distinguished from each other by constant morphological characters and which also occupy different geographical distributions. Some species with rose-purple flowers are hardy and bloom early in spring, and will have a more important place in gardens.

| | | |
|---|---|---|
| 1 | Ovary densely covered with short glands, sometimes hairy at the top. Stamens 5 or 10 | 2 |
| | Ovary densely covered with white straight hairs. Stamens 10 | 4 |
| 2 | Stamens 5. Leaves glandular-punctate, glabrous or sometimes hairy above in the upper part | *dilatatum* |
| | Stamens 10. Leaves when young sparsely hirsute above with soft deciduous long hairs | 3 |
| 3 | Leaves broad rhombic, petioles glandular. Branches glabrous from the first | *decandrum* |
| | Leaves ovate acute, petioles covered with long soft hairs. Branches at first hirsute | *viscistylum* |
| 4 | Flowers red or deep rose, often after the leaves. Stamens subequal. Style hairy in the lower part or glabrous | 5 |
| | Flowers rose-purple, generally before the leaves. Stamens markedly unequal | 7 |
| 5 | Flowers red, before or with leaves in April or May. Leaves not lustrous, petioles sparsely hirsute. Pedicels hirsute only in the lower part | *Weyrichii* |
| | Flowers open after the leaves unfold from May to July. Leaves lustrous. Petioles, pedicels and capsules densely appressed lanate | 6 |
| 6 | Flowers deep rose in May or June. Pedicels short 5–8 mm. long | *sanctum* |
| | Flowers red in July. Pedicels longer | *amagianum* |

| | | |
|---|---|---|
| 7 | Petioles glabrous at least in the lower part. Branches glabrous from the first. Style glabrous . . . . . | 8 |
| | Petioles hairy throughout . . . . . | 10 |
| 8 | Pedicels and calyces densely pilose. Leaves glabrous on the lower surface from the first . | *Mayebarae* |
| | Pedicels glabrous in the upper part or sparsely pilose. Leaves at first appressed white-hairy on the lower surface . . . . . | 9 |
| 9 | Midrib of leaves glabrescent or short-pilose beneath. Capsules broad cylindric, 4–5 mm. across . . . . . | *kiyosumense* |
| | Midrib of leaves villose near the base beneath. Capsules narrow cylindric 2–3 mm. across . | *nudipes* |
| 10 | Petioles, pedicels and young branches appressed hairy. Capsules oblong-ovate 6–10 mm. long. Style glabrous . . . . . | *reticulatum* |
| | Petioles and the base of midrib beneath densely villose with soft hairs. Capsules ovate-oblong . . . . . | 11 |
| 11 | Style covered with short glands below the middle . | *Wadanum* |
| | Style glabrous . . . . . | *lagopus* |

**R. dilatatum** Miquel (*Bot. Mag.* t. 7681) grows on the low mountains of Kwantô and Chûbu districts of middle Honshu. In this group it is the only species with 5 stamens, and is very characteristic in having glandular leaves, petioles, pedicels and ovaries. But one should be careful when examining herbarium specimens, as stamens of the other species will partly drop off quite easily. **R. decandrum** Makino is another species with glands but with 10 stamens, and is distributed in Ise and Kii provinces and west to Shikoku and Kyushu. **R. viscistylum** Nakai is only known from Mt. Takakuma in south Kyushu.

**R. Weyrichii** Maxim. (*Bot. Mag.* t. 9475) is common on hills in Kyushu and Shikoku and also in Kii and Ise provinces and Quelpaert. **R. sanctum** Nakai with deep rose flowers and lustrous leaves is found in Tôkai district and in Ise province. **R. amagianum** Makino, which grows very locally on Mt. Amagi and Mt. Higane in Idzu province, is very attractive in middle and late July with its red flowers and its large lustrous leaves. The above three species form a natural group, and they are growing in the warmer part of Japan, and become trees attaining 5 m. high. Their style and filaments are often minutely pilose in the lower part, but sometimes quite glabrous.

**R. nudipes** Nakai is recorded from western Honshu and Kyushu. In Kyushu it is distinguished from *R. reticulatum*, which is very common there, not only by hairiness but also by its narrow cylindric capsules 10–18 mm. long and 2–3 mm. across. **R. Mayebarae** Nakai et Hara has been reported from the mountains

of middle Kyushu and may better be treated as a variety of *R. nudipes*. **R. kiyosumense** Makino is known from the mountains of Bôshû and Idzu provinces and Tôkai district of middle Honshu.

**R. reticulatum** D. Don is common on hills from Tôtômi province in Tôkai district west through Chûgoku district, Tsushima Island and Shikoku to Kyushu. Specimens collected by MAXIMOWICZ at Nagasaki and distributed as *R. dilatatum* to European and American herbaria are, in my opinion, a mixture of fruiting branches of *R. reticulatum* and flowering branches of *R. nudipes*.

**R. Wadanum** Makino grows at higher levels, and in more northern regions than the allied species, on the mountains of middle and north Honshu. It is easily recognized by its style glandular below the middle, and by its petioles and the base of midrib beneath densely villose with whitish soft hairs. Where it grows side by side with *R. dilatatum*, a natural hybrid between the two is sometimes found. **R. lagopus** Nakai which is very near to *R. Wadanum* but has glabrous styles is growing on the mountains of middle and western Honshu.

Sect. 4. TSUTSUSI Sweet (1832). In Japan this section, which contains the greater part of the Azaleas in Japanese gardens, includes 14 species growing wild, and many Azaleas of garden origin which have been cultivated for a long time. The wild species are distinguished as in the following key, and garden forms are explained under each wild plant to which they are most closely related. It is worthy of remark that the species of this section cross with each other even in the natural habitat more easily than they were generally supposed to do.

| | | |
|---|---|---|
| 1 | Corolla with cylindric tube and spreading lobes, pubescent within the tube, very small, less than 8 mm. long, white, pentamerous or tetramerous. Leaves deciduous small acute. Flowers middle July–early August . . | 2 |
| | Corolla funnel-shaped glabrous inside, larger, pentamerous . . . . . | 3 |
| 2 | Leaves with one prominent nerve. Flowers 1–3 from a bud. Pedicels short, 2–4(–7) mm. long . . . . . | *Tschonoskii* |
| | Leaves with three prominent nerves. Flowers 3–5 from a bud. Pedicels 4–15 mm. long . . | *trinerve* |
| 3 | Bud-scales not viscid. Shoots densely covered with flattened appressed hairs. Pedicels and calyces without glandular hairs. Flowers not fragrant. Calyx-lobes small . . | 4 |
| | Bud-scales viscid at least inside . . . | 11 |
| 4 | Leaves coriaceous, evergreen. Flowers pink. . | *Tashiroi* |
| | Leaves all deciduous or dimorphic and only summer leaves persistent . . . . | 5 |

| | | |
|---|---|---|
| 5 | Flowers about 1·5 cm. across, white or pink, solitary from a terminal bud. Leaves small, glabrous beneath except the midrib . . | *serpyllifolium* |
| | Flowers larger 2–6 cm. across. Leaves hairy beneath . . . . . | 6 |
| 6 | Flowers open after the leafy shoots have developed, generally in June–July. Leaves more or less lustrous. . . . . | 7 |
| | Flowers open with or before the leaves, generally in April–May, 1–6 in a bud. . . . | 8 |
| 7 | Leaves more or less lanceolate acute. Stamens 5, with dark purple anthers. Flowers solitary (rarely 2) from a bud . . . . | *indicum* |
| | Leaves much broader, summer ones obovate and rounded at the top. Stamens 10 or fewer. Flowers often paler in colour, 1–3 from a bud | *eriocarpum* |
| 8 | Stamens 10. Flowers purple. Leaves deciduous, smaller . . . . . | *Komiyamae* |
| | Stamens 5 (rarely to 8) . . . . . | 9 |
| 9 | Leaves small generally lanceolate acute, summer ones persistent. Flowers 2–3 cm. across, purple . . . . . | *tosaense* |
| | Leaves ovate to elliptic or obovate. Stamens 5 . | 10 |
| 10 | Corolla 4–5 cm. across, red. Spring leaves much larger. Branches ascending . . . | *Kaempferi* |
| | Corolla smaller 2–3 cm. across, rose or purple-red, widely open with short tube. Leaves small. Branches spreading . . . . | *kiusianum* |
| 11 | Shoots and leaves densely covered with flattened appressed hairs. Stamens 10. Calyx-lobes smaller . . . . . | 12 |
| | Shoots with appressed hairs and many spreading hairs often partly glandular. Flowers fragrant, purple or light purple. Calyx-lobes longer . . . . . | 13 |
| 12 | Leaves almost deciduous, thin. Corolla rosy-purple, fragrant. Calyx-lobes acutish, appressed hairy . . . . . | *yedoense* var. *poukhanense* |
| | Leaves persistent, lustrous, thick. Corolla scarlet-rose-red, not fragrant. Calyx-lobes obtuse glandular-ciliate. Stamens shorter than the corolla . . . . . | *scabrum* |
| 13 | Stamens 10. Ovary strigose-hairy. Leaves narrower, subappressed hairy. Calyx-lobes lanceolate . . . . . | *ripense* |
| | Stamens 5. Ovary glandular-hairy. Leaves broader with soft spreading hairs. Calyx-lobes linear-lanceolate glandular . . . | *macrosepalum* |

**R. Tschonoskii** Maximowicz is widely distributed from the mountains of middle Hokkaido south through the higher mountains of Honshu and Shikoku to central Kyushu, and also in south Korea.

It flowers from middle July to early August, and is very distinct in having very small (6–8 mm. long) white flowers, small acute leaves, short (2–7 mm. long) pedicels and twiggy habit. The flowers show a great range of variation by individuals and localities; for example flowers are pentamerous or tetramerous, corolla broad, campanulate up to 12 mm. in diameter or 6 mm. in diameter and with long cylindric tube; stamens and style long exserted or included. A form (var. *tetramerum* Komatsu) which occurs in the subalpine region of middle Honshu with long corolla-tube, very short corolla-lobes and included stamens and style very much resembles *Tsusiophyllum Tanakae* Maximowicz in general appearance.

**R. trinerve** Franchet which is closely allied to the former species grows in the limited subalpine region of Hokuroku and Tôhoku districts. It is separated from *R. Tschonoskii* by having leaves with three prominent nerves, 3–5 flowers from a bud, and longer (4–15 mm. long) pedicels.

**R. Tashiroi** Maximowicz occurs in the southern part of the mainland of Kyushu south to Riukiu islands and has recently been found in Formosa. It is conspicuous in having coriaceous persistent leaves, and on that account is often placed in Section Leiorhodium. But it has bristle-like hairs on shoots, pedicels, calyces and ovaries, and there is no fundamental difference from Section Tsutsusi, so I think, it should be retained in the latter section. The flowers are pink, 2·5–3·5 cm. in diameter; the stamens 10; the calyx-lobes inconspicuous.

**R. serpyllifolium** Miquel (*Bot. Mag.* t. 7503) has the smallest leaves among Japanese Azaleas. The branches are slender; the leaves obovate or oblong-obovate generally 3–12 mm. long, sparsely hairy above and on the margin, and strigose-hairy only along the midrib beneath; the flowers light pink or white, 12–16 mm. in diameter; the pedicels short and surrounded by bud-scales during the anthesis; the stamens 5 and exserted. It grows wild here and there from Idzu province in middle Honshu west to Chûgoku district and south to Mt. Takakuma in south Kyushu. Sterile specimens closely allied to this plant were collected in Riukiu islands. The Japanese name, 'Unzen-tsutsuji' suggests that it grows on Mt. Unzen of north Kyushu, but has never been found there. This species is lovely for a pot-plant or in a rockery.

**R. indicum** Sweet (*R. lateritium* Planchon) is a native of Japan and grows wild on the rocky bank of rivers from the south-western part of Kwantô district west through Chûgoku district and Shikoku south to Yakushima Island. The branches are dense and slender; the leaves lanceolate to oblong-lanceolate, summer ones oblanceolate acutish, all more or less shining; the flowers solitary

(rarely 2) from a terminal bud, generally deep rose or red, 5–6 cm. in diameter; the stamens 5 with black-purple anthers. This species is very commonly planted in the Japanese gardens, and is easily recognized by its late-flowering habit, as it begins to bloom from late May in Tokyo when such other common Azaleas as *R. obtusum*, *R. Kaempferi*, *R. mucronatum*, *R. Oomurasaki*, etc., have finished flowering. It has been cultivated for 300 years in Japan, and 168 garden forms were recorded in 1692, some of which are considered as derived from the next species. A peculiar one among them has five lanceolate petals (f. *laciniatum* Makino), and f. *polypetalum* Maximowicz has more than 10 lanceolate petals. *R. hannoense* Nakai may be a hybrid between *R. indicum* and *R. Kaempferi*.

**R. eriocarpum** Nakai, which flowers at the same time as *R. indicum*, has much broader leaves, especially summer ones obovate rounded or subtruncate at the top and minutely mucronate, often 2 or 3 flowers from a bud, pink or light purple, and generally 10 stamens with pale anthers. It grows spontaneously on islands west and south of Kyushu, i.e. Gotô islands, Koshiki-jima, Yakushima island south to Riukiu islands, and is recorded also from Formosa.

**R. Komiyamae** Makino is very local and is known only from the upper part (1,000 m. and above) of Mt. Ashitaka and Mt. Tenshi-dake near Mt. Fuji in middle Honshu. It becomes a small tree, very rarely up to 10 m. high, and flowers from late May to early June. The characters of its leaves and flowers closely resemble the next species, but its stamens are 10.

**R. tosaense** Makino is not uncommon on hills in Tosa and Iyo provinces in Shikoku, and is also found in Kii province, Chûgoku district, and the eastern part of Kyushu. This species is a low shrub and flowers in April. The leaves are sometimes as small as those of *R. serpyllifolium*, but narrower, more-pointed and hairy also on the under surface. The flowers are 1–3 from a terminal bud, 2–3 cm. in diameter and purple in colour. The stamens are generally 5.

**R. Kaempferi** Planchon is the commonest and most widely distributed Azalea on the hills and mountains of Japan from central Hokkaido in the north to Kyushu in the south. In the northern half of Japan where no other allied species is growing, this has constant characters with bright red flowers, 5 stamens, yellowish anthers and almost deciduous leaves. It is a upright shrub and flowers in May or June according to the locality. In Tôkai district in middle Honshu and to its westward, it is much liable to variation. At the warm places near the sea, a form with darker green and lustrous leaves occurs. From the mountain of

Yakushima island, *R. yakuinsulare* Masamune with 10 stamens was described.

In Tôkai and Kinki districts, a purple-flowered form of *R. Kaempferi* is often met with in the field. Around the city of Nagoya, I have carefully observed that this species easily hybridizes with *R. macrosepalum* which is also abundantly growing wild there and flowers a little later than *R. Kaempferi*, and that various intermediate forms between the parents, one of which is named as *R. tectum* Koidzumi, are found. So, in my opinion, at least a part of *R. obtusum* var. *Kaempferi* f. *multicolor* Wilson (1921) and f. *mikawanum* Wilson is a form influenced by *R. macrosepalum*, and is not a mere colour-variant of *R. Kaempferi*. Other forms rarely cultivated are a white-flowered one (f. *album* Nakai), a double-flowered one (f. *Tachisen-e* Komatsu), a hose-in-hose flowered one (f. *Komatsui* (Nakai) Hara), a form with abortive corolla (f. *Kinshibe* Komatsu), etc. As this species is hardy and floriferous, it is recommended for the garden in the colder regions. On the mountains of Kyushu where this plant grows in the lower part and *R. kiusianum* in the upper part, the relation between the two is complicated and will be discussed later.

**R. transiens** Nakai, which is often seen in the Japanese gardens, is also of hybrid origin, and one of its parents is *R. Kaempferi* from which it differs by having persistent larger summer leaves, longer calyx-lobes and generally purple flowers with 6–10 stamens. The other of its parents is probably one of the 'Riukiu Azaleas' which are explained under *R. ripense*. In my garden, a seedling of the hybrid between *R. Kaempferi* and *R. Oomurasaki* has yielded a form which is hardly distinguishable from a garden form of *R. transiens* called 'Mikawa-murasaki.' A double-flowered garden form, *R. Tebotan* Komatsu, has intermediate characters between *R. Kaempferi* and *R. macrosepalum*.

**R. obtusum** Planchon, one of the most popular Azaleas in the garden, has been cultivated in Japan for about 300 years, but its origin is not quite certain. The Japanese name, 'Kirishima,' suggests that it comes from Mt. Kirishima of south Kyushu, and according to an old record the original stock of this Azalea is said to have been brought from Mt. Kirishima to Osaka about 1645 and then transmitted to Kyoto and to Tokyo about ten years later, where many garden forms were bred. On Mt. Kirishima, however, the wild form which is exactly the same as *R. obtusum* has not definitely been observed, but it is likely that this Azalea has originated from south Kyushu and has been derived from *R. Kaempferi* influenced by *R. kiusianum*. It has dense and flexible branches, small obovate-elliptic lustrous persistent summer leaves which are nearly the same as spring leaves in shape and size, generally

bright rose-red flowers 3–4 cm. in diameter and often dark purple anthers. It is very floriferous and flowers earliest among the allied Azaleas, and in full bloom the whole plant looks like one red mass. Numerous forms are known in the garden; for example, a hose-in-hose one (f. *calyciflorum* Schneider), a rose hose-in-hose one (f. *amoenum* Komatsu, *Bot. Mag.* t. 4728), a white one (f. *album* Schneider), a small-flowered one with long exserted stamens (f. *macrostemon* Wilson), and so on.

Another famous Azalea in horticulture is the 'Kurume Azalea' with more than two hundred garden forms. They are said to have originated from a seedling found in a garden at Kurume in north Kyushu between 1830 and 1843. But the so-called 'Kurume Azalea' is heterogeneous, and some forms are derived from *R. Kaempferi*, some from *R. kiusianum*, a few from *R. obtusum*, and others from complicated hybrids between those plants.

**R. kiusianum** Makino grows wild only in the higher levels (700–1,000 m. and above) of the mountains in Kyushu. It flowers in late May and June, and the flowers vary in colour from purple to deep rose and rarely white or scarlet. In full bloom it is really a spectacular sight; and Mt. Unzen and Mt. Kirishima, where it grows abundantly on sunny slopes forming pure colonies, are especially famous for this Azalea. In the typical form, *R. kiusianum* differs widely from *R. Kaempferi* by having spreading branches, small (5–20 mm. long) elliptic leaves revolute at the margin, small (1·5–3 cm. across) flowers varying in colour, and very widely opened corolla with short tube. In the middle part of the mountains where two plants meet, intermediate forms are sometimes observed, as DR. WILSON has stated. It is certain that *R. Kaempferi*, *R. kiusianum* and *R. obtusum* originated from one common ancestor, and they easily hybridize with each other, leaving fertile descendants. However, in such a group as Azaleas, which have differentiated into many closely allied forms in a rather recent age, I think we may treat as separate species the wild plants which are distinguished by easily recognized morphological characters and which occupy separate geographical areas.

**R. yedoense** Maxim. var. **poukhanense** Nakai is the common Azalea in middle and south Korea, and is also found on the mountain of Tsushima island. It differs clearly from *R. Kaempferi* by having very viscid inner bud-scales, elongate acute leaves, larger acutish calyx-lobes, fragrant rosy-purple flowers, and 10 stamens with purple anthers. The nomenclatorial type, *R. yedoense* Maxim. is a double-flowered form, and is sometimes cultivated in the mountain district of middle Honshu, as it is quite hardy. This species has been recorded from Japan here and there in Chûgoku district and north Kyushu, but as far as herbarium

specimens at my disposal are concerned, they are very similar to the species but do not agree exactly with it, having somewhat glandular-hairy calyx-lobes and less viscid bud-scales. Specimens from Onaga in Bitchu province of Chûgoku district collected by YOSHINO with 5–8 stamens and rose-purple corollas are, according to the collector's note, growing mixed with *R. ripense* and they may be considered as a hybrid between *R. Kaempferi* and *R. ripense*.

**R. scabrum** G. Don occurs in the Riukiu islands, and has long been cultivated in the warmer part of Japan especially in Kyushu for more than 250 years. It is a very showy robust plant with large scarlet flowers and lustrous persistent leaves. A common form, f. *coccineum* Wilson (*Bot. Mag.* t. 8478) has bright red flowers.

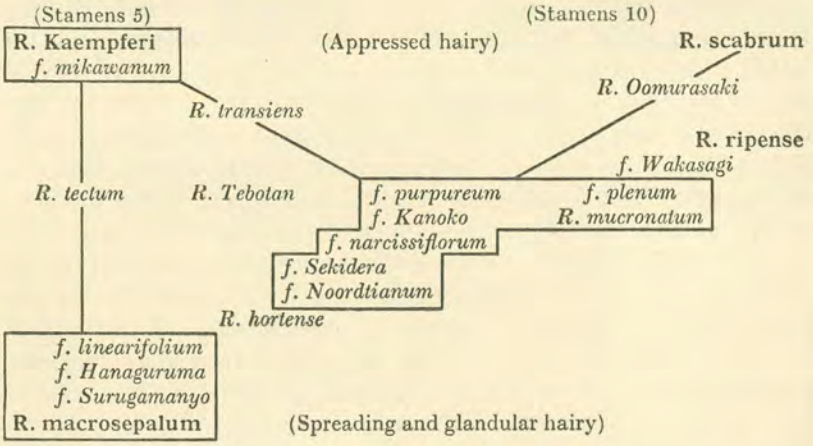
A form growing wild in Amami-ôshima Island, a northern limit of this species, has narrower leaves and smaller flowers, and it may be the one described as *R. sublanceolatum* Miquel. A magnificent garden form called 'Kwazan-jima' has very large (8–10 cm. in diameter) rosy-red corollas with broad lobes undulate at the margin. Very rarely a form with purple flowers, pointed calyx-lobes and non-lustrous leaves is seen in a garden, and it shows intermediate characters between *R. scabrum* and *R. Oomurasaki*.

**R. Oomurasaki** Makino is commonly planted in the Japanese gardens and is very attractive in May, but has not been illustrated in European publications and does not exactly match with *R. pulchrum* Sweet, *R. indicum* var. *Smithii* Sweet, *R. phoeniceum* G. Don, or *Azalea indica calycina* Lindley. It is very distinct in having robust branches, large elliptic-lanceolate spring leaves with appressed hairs, persistent large summer leaves, large (6–7 cm. in diameter) rose-purple flowers, broad lanceolate calyx-lobes and 10 stamens shorter than the corolla. It is generally uniform in gardens around Tokyo, but somewhat variable in west Honshu and Kyushu. The origin of this plant is obscure, but it is possibly a hybrid between *R. scabrum* and 'Riukiu Azaleas' made about 250 years ago.

**R. ripense** Makino grows spontaneously along rivers from western Kinki district west through Chûgoku district and Shikoku to north Kyushu. It differs from a cultivated *R. mucronatum* by its narrower leaves, its strigose (not gland-tipped)-hairy ovaries and its light purple flowers. Very rarely a white-flowered form of *R. ripense* is found wild.

The so-called 'Riukiu Azaleas' with glandular pedicels and calyces and 10 stamens which include *R. mucronatum*, *R. hortense*, *R. Oomurasaki* and many other handsome forms have been very

common in Japanese gardens since the beginning of the eighteenth century. Their origin, however, is uncertain and DR. WILSON in 1921 concluded that the wild phylogenetic type of *R. mucronatum* is *R. ripense*. I think that those garden forms have not been derived mostly from a single wild species, but that they have probably originated in western Japan from the hybrids between *R. ripense* and *R. macrosepalum*, and we can find among garden forms practically all connecting forms between the parents. And some forms are also influenced by *R. scabrum* and *R. Kaempferi*. The probable relationships between the wild species and garden forms of this group are here tabulated. A garden form, 'Wakasagi,'




is nearest to *R. ripense*, only differing from a wild form by its ovaries with gland-tipped hairs in the upper part and its corolla-lobes which are more slender.

**R. mucronatum** G. Don (*Bot. Mag.* t. 2901), which is conspicuous for its large pure white flowers, has been cultivated in Japan for about 300 years. It is not a white-flowered form of *R. ripense* above-mentioned. It is still thought by some to be a native of middle China and to have been imported to Japan by priests with many other cultivated plants. Forma *Riukiushibori* (Komatsu) Hara has white corollas irregularly striped with purple; f. *Kanoko* (Komatsu) Hara corollas variegated with white and purple, and deep-rose spotted on the upper side; and f. *purpureum* Nakai light purple flowers. *R. mucronatum* f. *plenum* Wilson with rose-purple double flowers and small narrow leaves comes near to *R. ripense*, but f. *narcissiflorum* Wilson, on the contrary, has white double flowers and broad leaves.

An excellent form, f. *Sekidera* Wilson, is often planted in Japan. The corolla is large, white or slashed with rose and densely spotted

with deep rose on the upper side and its corolla-lobes broad and wavy on the margin. F. *Noordtianum* Wilson is also very beautiful and its flowers are large and vary in colour even on the same branch, white or white striped with rose or wholly purplish-rose. These two forms have more glandular hairs than *R. mucronatum* and the leaves are broader, impressed veined and covered with soft spreading hairs, and thus approach *R. macrosepalum*. Then *R. hortense* Nakai, which is also common in the garden, agrees with a wild form of the next species except in having 8–10 stamens.

**R. macrosepalum** Maxim. is very characteristic in having dense soft spreading hairs on young branches and leaves, glandular hairs especially on pedicels and calyces, long narrow calyx-lobes, fragrant pale purple flowers, 5 stamens and glandular-hairy ovaries. It is common on hills especially in thin pine-woods from the Tôkai district west to the eastern part of Chûgoku district and also in east Shikoku as mapped on page 125. It is interesting that the eastern limit of the distribution is almost coincident with the 'Fossa Magna,' a geologically important line in middle Honshu. A white-flowered form rarely occurs in the field. Several monstrous garden forms have been known, and f. *linearifolium* Komatsu (*Bot. Mag.* t. 5769) is a rare and curious one with linear-lanceolate leaves and 5-divided corolla with narrow lanceolate lobes. Other anomalous forms, f. *rhodoroides* Komatsu, f. *Hanaguruma* Makino and f. *Amagashita* Komatsu are sometimes cultivated, and f. *Surugamanyo* Komatsu with double rosy-purple flowers blooms later than allied Azaleas.

Subgen. 2. HYMENANTHES Endlicher (1839), emend.
(Section Leiorhodium Rehder 1916).

In Japan 7 species and a few hybrids are known as wild.

**R. Metternichii** Sieb. et Zucc. is the finest species among evergreen Rhododendrons in Japan. It is easily distinguishable from allied plants by having normally 7-lobed large corollas and 14 stamens. The flowers are rose to pale pink in colour, rarely white, and 4–6 cm. in diameter. The leaves are on the under side densely covered with brownish felt-like tomentum, but in the plants in Honshu the indumentum is often thinner. This species grows on the mountains from the middle part of Chûbu district west to Shikoku and south to middle Kyushu.

**R. Degronianum** Carrière (*Bot. Mag.* t. 8403) with 5-lobed corollas and 10 stamens is distributed in Honshu on the mountains of the north-eastern side of the former species, north to Mt. Funagata-yama in the southern part of Tôhoku district. A form which is very closely related to this species but is geographically

isolated from it is **R. yakusimanum** Nakai only known in the upper part of Yakushima island. This plant differs from *R. Degronianum* by more densely floccose-tomentose pedicels, ovaries,


Distribution of *Rhododendron macrosepalum* and *Rhododendron ripense*

and the lower surface of leaves. Another species, **R. Makinoi** Tagg, is also very local and is confined to the mountains of northern Mikawa and Tôtomi provinces in Tôkai district where it grows abundantly. It has long and narrow (5–20 mm. wide) leaves, covered with dense and thick tomentum beneath.

**R. Fauriei** Franchet (*Bot. Mag.* t. 7881)* grows at higher levels than the species above mentioned, and is common in the subalpine region of middle Honshu and north to Hokkaido, south Kuriles, and also in middle and south Korea. This species is distinctly separated from the above species by having the base of leaves rounded or subauricled. The leaves are thinner and the styles shorter than stamens. The flowers are 3–4 cm. across and vary in colour by individuals from pink to white, sometimes deep-rose or yellowish. The leaves of the typical *R. Fauriei* are glabrous on both sides, but there is a form with leaves tomentose beneath (var. *roseum* Nakai). These two forms grow mixed in some localities, but on some mountains only one of the two is found. It is interesting to note that in young plants the leaves of var. *roseum* are glabrous too. The double-flowered form (f. *Nemotoanum* Hara) of the typical *R. Fauriei* and of var. *roseum* (f. *duplex* Hara) are rarely grown. The name *R. brachycarpum* D. Don was rejected to avoid a confusion, because it can be interpreted either as *R. Degronianum* or as *R. Fauriei* var. *roseum*, and the type specimen is not extant. *R. hidaense* Makino is considered a hybrid between *R. Fauriei* and *R. Degronianum*.

**R. aureum** Georgi (*R. chrysanthum* Pallas) is distributed in the northern part of East Asia west to Altai and grows in the alpine region of middle Honshu and to the north. It is a dwarf prostrate shrub with pale yellow flowers, persistent bud-scales, small glabrous leaves with minutely impressed veins above and styles longer than stamens. A form (f. *senanense* Hara) with petaloid stamens rarely occurs on the high mountains of middle Honshu.

A hybrid between *R. Fauriei* and *R. aureum*, rarely found on the high mountains of Nikko and the southern part of Shinano province, is called *R. niko-montanum* Nakai.

Subgen. 3. EURHODODENDRON Endlicher (1839), emend.
(Subgen. Lepidorrhodium Koehne 1893).

**R. Keiskei** Miquel (*Bot. Mag.* t. 8300) is endemic to Japan, and grows on the hills, on the rocks in the valley or rarely on the trees from Kwantô district south-west through Shikoku to Kyushu. The leaves are persistent, lanceolate to oblong and 3–8 cm. long. The flowers are 2–6 from a terminal bud, pale yellow, 3–4 cm. in diameter and sparsely glandular-lepidote outside. A form (f. *hypoglaucum* (Sutô et Suzuki) Hara) with leaves waxy-glaucous beneath rarely occurs in middle Honshu.

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* This plate appears under the name *R. brachycarpum* and is reproduced in part in *The Species of Rhododendron*, p. 570.

**R. parvifolium** Adams (*Bot. Mag.* t. 9229) is distributed in north-eastern Asia, from Jenisei to Saghalin and north Korea and also in north Alaska. It was recently found isolated in the marshy place at Ochiishi near the eastern end of Hokkaido.

Subgen. 4. RHODORASTRUM Drude (1889).

**R. dauricum** L. (*Bot. Mag.* t. 636) which is distributed from Altai east to Korea, and is long known in European gardens, occurs in Japan only on some mountains of Hokkaido. The leaves are partly persistent and more or less obtuse at the apex. **R. mucronulatum** Turczaninow (*Bot. Mag.* t. 8304) grows from north China to Korea, and in Tsushima island, the Chûgoku district of western Honshu and north Kyushu. The leaves are deciduous, larger, and acute at both ends. The plants in Japan mostly belong to var. *ciliatum* Nakai which has appressed hairy leaves and petioles.

Subgen. 5. AZALEASTRUM Planchon (1854), ex K. Koch (1872).

This subgenus is represented in Japan by a singular deciduous species, **R. semibarbatum** Maxim. (*Bot. Mag.* t. 9147). It grows on the mountains from the southernmost part of Hokkaido south through Honshu, Shikoku to Mt. Kirishima in Kyushu. This is a very glandular plant covered with stipitate glands; the terminal bud develops into a leafy shoot; the flowers are solitary from lateral buds and open after the leaves unfold; the corollas are subrotate, 1·5–2 cm. across, white and red-spotted on the dorsal side, with 5 exserted stamens.

Subgen. 6. THERORHODION Drude (1889).

**R. camtschaticum** Pallas (*Bot. Mag.* t. 8210) is fairly common in the northern Pacific region, and is found in Japan in the alpine district of northern Honshu (south to Mt. Komagatake) and Hokkaido. A white-flowered form (f. *albiflorum* Tatewaki) rarely occurs on the high mountains of Hokkaido and Kuriles. A variety, var. *barbatum* Tatewaki (subsp. *intercedens* Hultén), with leaves glandular-ciliate on the margin is distributed on the mountains of Hokkaido, Saghalin and Ochotsk.

# THE RHODODENDRON SHOW

*May 4th and 5th*, 1948

By N. K. GOULD

THE competitive classes for Rhododendrons, held at Westminster on May 4 and 5, 1948, attracted an even greater number of entries than in the previous year. The quality of the exhibits was very high, and on both days they attracted a very large number of visitors whose enquiries and comments indicate an increasing interest in Rhododendrons as shrubs for the small or medium-sized garden.

The first six classes were open only to amateurs, for flowers grown in the open garden. The remaining thirty-five were open to all, exhibits grown under glass being acceptable in classes 10, 31 and 39.

In Class 1, for one truss of each of eight species, the first place was taken by MAJOR E. DE ROTHSCHILD, who used some fine trusses of the white, dark-blotched *arizelum* and *coryphaeum*, *Wightii* and *haematodes*, including also *concatenans*, *gymnocarpum*, *habrotrichum* and *chaetomallum*. SIR HENRY PRICE'S second prize entry contained a fine deep rose *glischrum*, a clear white *fictolacteum*, *basilicum*, *Falconeri*, *orbiculare*, *neriiflorum*, *haematodes* and *campylocarpum*. The third was won by ADMIRAL WALKER-HENEAGE-VIVIAN with an interesting set which included a well-formed truss of *Lindleyi*, *venator*, *euchaites*, *Fortunei* and *Griffithianum*, *Falconeri*, *fictolacteum* and *eximium*. Some other exhibits came from LORD ABERCONWAY, who had a good *Griffithianum* and a nice blue *campanulatum*, LORD DIGBY, and THE COMMISSIONERS OF CROWN LANDS.

Class 2, for single trusses of eight hybrids, was, as usual, keenly contested, and must have set a difficult problem for the judges, who selected for the first prize ADMIRAL WALKER-HENEAGE-VIVIAN'S entry, in which 'Beauty of Littleworth,' 'Luscombei,' 'King George' and the cerise 'Bulstrode Park' were prominent. MAJOR DE ROTHSCHILD was second, and showed the pale lemon-yellow 'Idealist,' 'Fortune' of similar colouring, rose-flushed 'Yvonne' and 'Naomi,' as well as other lovely Exbury plants. The third place was taken by LORD SWAYTHLING, with 'Earl of Athlone,' 'King George,' 'David,' an intense blood-red flower, and some unnamed hybrids. There were six other entries, one from Bodnant including the waxen, ivory-coloured 'Elsie Phipps' and 'Penjerrick.'

*Photo, R. A. Malby*

FIG. 31—*R.* 'Loderi Princess Marina'
Loder Challenge Cup, 1948, and Award of Merit, May 4, 1948 (See p. 129)

*Photo, W. F. Sedgwick, Ltd.*

FIG. 32—*R.* 'Jalisco' var. 'Elect'

Award of Merit, Chelsea Show, 1948. Exhibited by the Commissioners of Crown Lands (See p. 140)

In Class 3, which required one truss of one species, the McLaren Challenge Cup went to ADMIRAL WALKER-HENEAGE-VIVIAN for a six-flowered truss of *Lindleyi* in perfect condition. MAJOR A. E. HARDY'S second prize exhibit of a good pale cream *Falconeri* afforded admirable contrast of form, as did also MR. J. B. STEVENSON'S richly-coloured *orbiculare*, which was third. Other exhibits included *fictolacteum, Wightii* and *Griffithianum.*

The Loder Challenge Cup, offered in Class 4 for a truss of one hybrid, was won by SIR GILES LODER, BT., with an immense truss of the blush-pink 'Loderi' var. 'Princess Marina,' which won the Award of Merit on the same day (Fig. 31). The lovely pale yellow *Falconeri* hybrid 'Fortune' shown by MAJOR DE ROTHSCHILD, was given second place, followed by LORD SWAYTHLING'S 'David.' There were a dozen entries in this class, varieties of 'Loderi' being especially prominent.

In Class 5 for six hybrids raised by, or in the garden of, the exhibitor, MAJOR DE ROTHSCHILD won the Crosfield Challenge Cup with 'Day Dream,' 'Fortune,' 'Naomi,' 'Golden Horn,' 'Idealist' and 'Gipsy King.' SIR GILES LODER'S second prize entry included the translucent pink 'Sir Edmund,' 'Pink Bride,' with a very tall truss of unspotted, pale mauve-pink flowers, and 'Princess Marina.' For the third place, ADMIRAL-WALKER-HENEAGE-VIVIAN showed some interesting unnamed hybrids, including *Griersonianum* × *Kingianum, Thomsoni* × *Fortunei,* and *Griffithianum* × *arboreum.*

Class 6 called for a single spray or branch of any species or hybrid, the height not to exceed thirty inches above the top of the vase. For the first prize SIR GILES LODER put up a shapely branch of 'Loderi' var. 'Sir Edmund,' carrying eight immense trusses. LORD ABERCONWAY'S two entries, of the vivid, blood-red 'Aspansia' and a superb blue *Augustinii,* were given second and fourth places respectively; while the third place was taken by MAJOR DE ROTHSCHILD'S 'Idealist,' with clean, neat foliage and soft yellow bells on plum-purple pedicels. There were many other entries of high quality.

Class 7 admitted a single truss of any Rhododendron of the Series Arboreum, Barbatum, Campanulatum, Fortunei, Fulvum, Irroratum or Lacteum. This class was strongly supported, *Fortunei* and *Wightii* being especially well represented. The first prize was won, however, by MR. J. B. STEVENSON with an exquisite truss of the species McL. T. 41 bearing ten white, slightly spotted, saucer-shaped flowers.* This most interesting plant is described fully and illustrated elsewhere in this book. From the

* Subsequently named *R. Aberconwayi* (Fig. 17).

same exhibitor came a neat truss of a pure white *decorum* for second place. The blue-lilac *Wallichii* from MESSRS. W. C. SLOCOCK, LTD., and a rather small, pale yellow *Wightii* from LORD SWAYTHLING, were placed third and fourth.

In Class 8, for a truss of any Rhododendron of the Series Falconeri or Grande, ADMIRAL WALKER-HENEAGE-VIVIAN won the first prize with a well-shaped specimen of *grande* with purple-blotched, waxy white flowers, and LORD DIGBY was second with a large and full truss of *Falconeri*, noteworthy for the faultless condition of its foliage. MAJOR DE ROTHSCHILD showed *arizelum* for the third place. *Falconeri* was also shown by MAJOR HARDY, COLONEL STEPHENSON CLARKE and SIR HENRY PRICE; *basilicum* by LORD ABERCONWAY and LORD DIGBY; *fictolacteum* by LORD DIGBY and MR. ARMYTAGE MOORE.

One truss of any Rhododendron of the Series Neriiflorum was required in Class 9, and here LORD ABERCONWAY'S exhibits of a beautiful clear scarlet *haematodes* and a shapely truss of *euchaites* were placed first and third, the second place being secured by ADMIRAL WALKER-HENEAGE-VIVIAN with *euchaites*. Some other interesting entries were *Beanianum* and *didymum* from LORD DIGBY, and *catacosmum* in a very rich and dark colouring from LORD ABERCONWAY.

A superb, eight-flowered truss of *Nuttallii* won for MR. ARMYTAGE MOORE the first place in Class 10, for any Rhododendron of the Series Maddenii or Edgeworthii. The second place was filled by LORD ABERCONWAY'S pale yellow *burmanicum*, and ADMIRAL WALKER-HEANEAGE-VIVIAN showed *seinghkuense* (K.W. 6793), a three-flowered truss of waxy, funnel-shaped blush flowers striped with crimson and supported by cup-shaped brown calyces and bullate, tomentose leaves, for the third place.

Class 11, for one truss of the Subseries Thomsonii, was poorly supported. The three prize-winning entries, all of the species *Thomsonii*, were shown by LORD DIGBY, ADMIRAL WALKER-HENEAGE-VIVIAN, and LORD ABERCONWAY respectively.

In Class 12, for one truss or spray of the Series Campylocarpum or Souliei, the three prize-winning entries, from MAJOR HARDY, ADMIRAL WALKER-HENEAGE-VIVIAN and LORD DIGBY, were all of the species *campylocarpum*. *Wardii* and *caloxanthum* were also well shown here.

Class 13, for a spray of any deciduous Rhododendron of the Series Azalea, comprised a most interesting and varied collection. MAJOR DE ROTHSCHILD won the first prize with a nice spray of *quinquefolium*, its white flowers each set in a whorl of five small leaves. A most attractive, dark form of *Albrechtii*, showing young bronze foliage, was shown by LORD ABERCONWAY for the

second, followed by the dainty *roseum* from MR. STEVENSON. *Vaseyi* was nicely staged by several exhibitors, and the true orange-red *japonicum* by MR. STEVENSON.

Class 14, for evergreen Azaleas, was won by LORD ABERCONWAY with a large branch of an unnamed brick-red hybrid. LORD DIGBY'S *Kaempferi* was given second place, and MAJOR DE ROTHSCHILD'S 'Seikai,' a white Wilson Kurume, third. LORD DIGBY showed the uncommon, small-leaved *serpyllifolium*, MR. STEVENSON contributed *mucronatum* var. *Noordtianum*, and there were also several named and unnamed varieties of the *obtusum* type.

Class 15 called for any Rhododendron of the Series Anthopogon, Campylogynum, Lepidotum or Saluenense. MR. STEVENSON was placed first with a spray of *trichostomum* var. *radinum*, with aromatic foliage and blush, Daphne-like flowers. The second place was taken by LORD ABERCONWAY'S neat spray of a clear purple *saluenense*, and MAJOR DE ROTHSCHILD'S bright pink *trichostomum* was third. LORD ABERCONWAY and COLONEL STEPHENSON CLARKE also showed *campylogynum*, and *calostrotum* was entered by the last-named exhibitor.

In Class 16, for one spray of any Rhododendron of the Series Lapponicum, MAJOR DE ROTHSCHILD'S *russatum* was given first place, followed by a pretty blue-purple *telmateium* from LORD ABERCONWAY and *scintillans* from ADMIRAL WALKER-HENEAGE-VIVIAN.

LORD SWAYTHLING, LORD DIGBY and LORD ABERCONWAY showed the three best of fifteen entries in Class 17, which was limited to single sprays of *Augustinii*.

In Class 18, for any Rhododendron of the Series Cinnabarinum, MAJOR DE ROTHSCHILD won the first prize for a large and well-flowered branch of *cinnabarinum*, LORD DIGBY was second with a single, shapely truss of *concatenans*, and SIR GILES LODER third with a good specimen of a dark form of *cinnabarinum*.

Class 19, for any Rhododendron of the Series Heliolepis or Triflorum (other than *Augustinii*), attracted a varied and colourful range of entries. A large branch of *xanthocodon*, bearing many deep yellow bells, won the first prize for LORD ABERCONWAY. MESSRS. SLOCOCK staged an exceptionally well-coloured *oreotrephes* for the second place, and COLONEL STEPHENSON CLARKE'S *chasmanthum* was placed third. Among twenty other entries some of the more conspicuous were *caeruleum album* from LORD ABERCONWAY, the intense red-violet *pseudoyanthinum* from MR. STEVENSON, a dark *chasmanthum* from Exbury, and LORD DIGBY'S *ambiguum*.

The entries in Class 20, for one spray of any Rhododendron of the Series Glaucum, Scabrifolium or Virgatum, were not very varied. A very attractive, shrimp-pink form of *glaucum* won the first prize for LORD ABERCONWAY, and darker forms of the same species from SIR HENRY PRICE and LORD DIGBY were placed second and third.

In class 21, for any Rhododendron of the Series Boothii, the species *tephropeplum* secured the three prizes for ADMIRAL WALKER-HENEAGE-VIVIAN, LORD ABERCONWAY and LORD DIGBY.

Class 22 allowed for any species of any series not provided for in the earlier classes. A vase of *gymnocarpum*, with deep blood-red glossy bells, won the first prize for MAJOR DE ROTHSCHILD. COLONEL STEPHENSON CLARKE'S *xenosporum* (a form of *detonsum*) was second, and the delicate yellow *melinanthum*, from LORD DIGBY, third. LORD ABERCONWAY exhibited *curvistylum* with pale, rosy-mauve, flattish flowers showing thick red, decurved styles, and rather recalling *glaucum*, and also *trichocladum*. LORD DIGBY showed the form of *Wasonii* known as *rhododactylum*.

Class 23 required one truss of any variety of Rhododendron 'Loderi.' There were fourteen entries, and the three prize-winners, LORD DIGBY, ADMIRAL WALKER-HENEAGE-VIVIAN and SIR GILES LODER, all exhibited the variety 'King George' in first-class condition.

One truss of any hybrid produced by crossing *Griffithianum* with any hybrid was specified in Class 24. LORD DIGBY'S entry of a fifteen-flowered truss of shapely creamy-white flowers from *Griffithianum* × (*campylocarpum* × *decorum*) was placed first. Two of SIR GILES LODER'S entries, namely 'White Beauty' and 'Leonardslee Giles' ('Standishii' × *Griffithianum*) were placed second and third. SIR GILES LODER also showed a magnificent tall truss of 'Pink Bride,' the HON. JOHN MCLAREN entered 'Norman Gill,' and MAJOR DE ROTHSCHILD 'Yvonne.'

In Class 25, for a truss of 'Penjerrick' or 'Mrs. Randall Davidson,' LORD DIGBY took the first prize for an unusually tall, ten-flowered truss of 'Penjerrick.' LORD ABERCONWAY showed his good pink-flushed variety of the same hybrid for the second place, and LORD DIGBY'S entry, also in lovely condition, was third.

Class 26, for a truss of any other hybrid obtained by crossing *Griffithianum* with any other Rhododendron, was keenly contested. The first prize was awarded to ADMIRAL WALKER-HENEAGE-VIVIAN for 'Coombe Royal' × *Griffithianum*, a high, compact truss of well-spaced blush-white flowers with deep red pedicels and calyces. SIR GILES LODER entered a most handsome

specimen of 'King George' which obtained the second prize, and MAJOR DE ROTHSCHILD'S 'Cornish Cross,' Exbury variety, was third. Exhibits of 'Cornish Cross' also came from LORD DIGBY, MAJOR HARDY, and LORD ABERCONWAY, who also showed 'Sunrise' and 'Hiraethlyn.'

In Class 27, for any other hybrid of the Campylocarpum or Souliei Sub-series, MAJOR DE ROTHSCHILD showed a particularly lovely example of 'Idealist' with pale yellow blooms supported on long purple pedicels. Of similar colouring were MR. J. HOWLETT'S second place entry of 'Gladys' var. 'Letty Edwards' and LORD DIGBY'S form of the same hybrid. The other exhibits included 'Elsie Phipps' from Bodnant, SIR HENRY PRICE'S 'Lady Bessborough' and LORD DIGBY'S 'Moonstone.'

Rich colouring was to be expected in Class 28, for any hybrid of the Series Neriiflorum, and a high standard was set by MAJOR DE ROTHSCHILD'S 'Gipsy King' of lustrous, dark blood-red which won the first place. The scarlet 'Phoebus' from LORD ABERCONWAY, and 'Toreador' from LORD DIGBY, were equally striking.

One truss of any *Thomsonii* hybrid was required in Class 29. The prizes were awarded to LORD ABERCONWAY for the glowing red 'Hecla,' and SIR GILES LODER for 'Pride of Leonardslee' and a pretty cherry-red hybrid 'Halopeanum' × *Thomsonii*.

Class 30, for one truss of any *Griersonianum* hybrid, produced some most interesting flowers, all of rich colouring. THE HON. JOHN MCLAREN headed the prize list with the intense red 'Laura Aberconway,' one of the most outstanding Bodnant hybrids. MR. J. HOWLETT was next with a high truss of salmon-pink flowers from *Griersonianum* × 'King George,' followed by COLONEL STEPHENSON CLARKE, who showed *nepalense* × *Griersonianum*, a good truss of very rich blood-red blooms. Among the other entries were some well-known plants, including 'Toreador,' 'F. C. Puddle,' 'Tally Ho' and 'Matador.'

In Class 31, for any hybrid of which one of the parents is a species of the Series Maddenii or Edgeworthii, two exhibits from LORD ABERCONWAY were given first and second places. One was a four-flowered truss of 'Tyermanii' (*Nuttallii* × *formosum*) with huge, pale, Lily-like flowers with frilled lobes. The other was 'Royal Flush' with shapely buff-yellow, rose-flushed bells. ADMIRAL WALKER-HENEAGE-VIVIAN showed a large spray of 'Fragrantissimum' for the third place. In the same class MAJOR DE ROTHSCHILD entered 'Parisienne' (*burmanicum* × *Johnstoneanum*) and another entry from Bodnant was 'Suave,' an *Edgeworthii* hybrid.

Only hybrids of the Series Cinnabarinum were admissible in Class 32, and here LORD DIGBY won the first prize for a superb

branch of a deep orange form of 'Lady Chamberlain.' 'Lady Rosebery' was well shown by SIR HENRY PRICE and LORD SWAYTHLING for the second and third places. Various forms of 'Lady Chamberlain' were entered by MAJOR DE ROTHSCHILD, LORD ABERCONWAY, MR. J. B. STEVENSON and MAJOR HARDY; 'Lady Rosebery' was shown by LORD DIGBY, SIR GILES LODER and THE COMMISSIONERS OF CROWN LANDS.

In Class 33, for any hybrid between the Series Triflorum and the Series Lapponicum, the prizes were awarded to MAJOR DE ROTHSCHILD for 'Blue Tit,' LORD ABERCONWAY for 'Bluebird,' and LORD DIGBY for 'Blue Tit.' The next class, for hybrids of the Series Triflorum with other than the Series Lapponicum, was also won by MAJOR DE ROTHSCHILD with a beautiful branch of 'Electra.' LORD ABERCONWAY took second place with a blue hybrid from *Augustinii* × *Benthamianum*, and LORD DIGBY'S 'Oreocinn' was third.

Of the three entries in Class 35, for any hybrid of *repens* or *aperantum*, two came from LORD ABERCONWAY; the lovely rich red 'Elizabeth' for the first place, the equally brilliant *repens* × 'Neriihaem' for the second. MAJOR DE ROTHSCHILD'S deep maroon-crimson 'Carmen' was third.

Class 36, for a lepidote hybrid of which one parent belongs to Series Anthopogon, Cephalanthum, Campylogynum, Lepidotum or Saluenense, produced only one entry: 'Prostigiatum' from LORD DIGBY.

In Class 37, for any hybrid between two species other than those provided for in the foregoing classes, MESSRS. SLOCOCK showed a huge truss of the creamy-yellow 'China' which was given first place; ADMIRAL WALKER-HENEAGE-VIVIAN'S 'Grand Prix' in soft magenta-purple, with a *Falconeri* type of truss, was second, followed by MAJOR DE ROTHSCHILD'S 'Fortune.'

Class 38, for a truss or spray of any hybrid between two hybrids, attracted a dozen varied entries. SIR GILES LODER succeeded in filling the two first places with 'Princess Marina' and 'White Lady,' notable for their size and quality. A bright cherry-pink hybrid from 'Penjerrick' × 'Loderi,' from THE HON. JOHN MCLAREN, took third place; LORD SWAYTHLING'S 'Corona' × 'Loderi,' with rather small, bright pink flowers in a tall, shapely truss, was fourth.

Class 39 asked for a set of six hybrids raised by nurserymen and classified as A, B or C in the Rhododendron Association's *Year Book* for 1939. Several entries were disqualified, chiefly because some of the plants exhibited were not, in fact, raised by nurserymen. The prizes in this class went to MESSRS. SLOCOCK, MAJOR HARDY and LORD DIGBY.

Two entries only were received in Class 40, for two leaves of each of six Rhododendrons, one showing the upper surface and one the lower, in each case. LORD DIGBY brought leaves of *arizelum*, *exasperatum*, *Macabeanum*, *mallotum*, *sinogrande* and *sinogrande* × *eximium*. ADMIRAL WALKER-HENEAGE-VIVIAN showed an equally interesting set comprising *eximium*, *fictolacteum*, *praevernum*, *sinogrande*, *sinonuttallii* and *vesiculiferum*.

Class 41, for one plant of any dwarf species suitable for the rock garden, produced three neat and floriferous bushes: *Sargentianum* from MAJOR DE ROTHSCHILD, *calostrotum* (FARRER 1045) from MR. STEVENSON, and *sphaeranthum* from THE COMMISSIONERS OF CROWN LANDS.

# RHODODENDRON GROUP EXCURSIONS, 1948

THE first two excursions of the Rhododendron Group took place during May, and we feel sure that all who attended will agree that they were most successful.

On May 8th, at the kind invitation of MR. AND MRS. J. B. STEVENSON, over sixty members and their friends visited Tower Court. About half of that number travelled by private coach from London, and lunch was taken at the Wheatsheaf Hotel at Virginia Water on the way to Ascot. The weather was perfect, with bright sunshine and light breezes, and a most enjoyable afternoon passed all too quickly as the party strolled through the pleasant glades of the Tower Court garden, admiring its varied treasures. The presence of MR. AND MRS. STEVENSON, who personally conducted their visitors, added greatly to the pleasure and interest of the tour, as with their intimate knowledge of every plant and its history they were able to answer innumerable questions, and did so with untiring kindness. In the account of the Tower Court garden in this volume are mentioned many of the special features at the time of the excursion.

A week later, on May 15th, a party of similar size journeyed to Exbury to see the famous garden made by the late MR. LIONEL DE ROTHSCHILD. A coach party from London and others who travelled by car met at the Montagu Arms Hotel at Beaulieu for lunch and arrived at Exbury soon after two o'clock. There we were received by MRS. DE ROTHSCHILD, who, with the assistance of MR. HANGER and MR. BARBER, introduced us to the delights of the Home Wood and Witchers Wood. We had the pleasure of seeing many of the wonderful hybrid Rhododendrons raised in this garden and described by MR. HANGER in the 1946 *Year Book*. A few which seemed specially attractive were the varieties of 'Halcyone,' 'Hawk,' 'Idealist' and 'Yvonne,' all of pale yellow or creamy shades, often pink-flushed; 'Lady Chamberlain' and 'Lady Berry' wreathed with dainty pendulous flowers; and the vivid Exbury Azaleas in a seemingly endless range of colours. We saw much of interest in addition to Rhododendrons—towering trees of *Abies grandis*; *Picea Breweriana* and *Juniperus Coxii* in lovely condition; *Tsuga canadensis* forty feet high fourteen years after planting; *Cercis racemosa* like a pink cloud against a vivid blue sky; great Magnolias, Davidias, Maples and a host of other good plants.

The members of the Group and their friends are most grateful to MR. AND MRS. STEVENSON and to MRS. DE ROTHSCHILD for the opportunity to visit these wonderful gardens.

# RHODODENDRON AWARDS IN 1948

***Rhododendron** (Azalea) **'Akebonar Ruykin'** (*malvatica* × *Kaempferi*). **A.M.** May 5, 1948. This dwarf evergreen Azalea reaches a height of 15 inches and is studded with clusters of mauve (H.C.C. 633/2) flowers blotched with deep rosy purple. Sent by the Knap Hill Nursery Ltd., Woking.

**Rhododendron amagianum.** **A.M.** July 6, 1948. A deciduous shrub or small tree of the Series Azalea, Subseries Schlippenbachii, from Mt. Amagi, Japan. Leaves rhomboid, acute, almost entire, 3 inches long, 2 inches wide; upper surface rugose, softly villous, lower surface pale, glaucescent, whorled at the ends of the branchlets. Flowers in threes, on short silky-tomentose pedicels. Corolla broad-funnel-shaped, 1½ inches long, tube short, lobes oblong, obtuse, in colour near French Rose (H.C.C. 520), upper lobe suffused Neyron Rose (623), spotted. Stamens 10, glabrous, unequal; style glabrous, longer than stamens; ovary densely silky-tomentose. Exhibited by Lord Aberconway, C.B.E., V.M.H., Bodnant.

**Rhododendron 'Androcles'** (*calophytum* × *arboreum*). **A.M.** February 17, 1948. An early-flowering hybrid with a large globular truss of 20 to 30 bell-shaped flowers 1½ inch wide, Rhodamine Pink (H.C.C. 52/73) with deep pink markings running the full length of the corolla. The leaves are narrow-elliptic, 6–8 inches long, dull dark green above and slightly glaucous beneath. Exhibited by E. de Rothschild, Esq., Exbury.

***Rhododendron** (Azalea) **'Anny'** (*malvatica* × *Kaempferi*). **A.M.** May 5, 1948. An attractive Azalea with bright Delft Rose (H.C.C. 020/1–020/2) flowers with orange shading and a carmine blotch. Its habit is compact and extremely dwarf. Raised and sent by the Knap Hill Nursery, Ltd., Woking.

**Rhododendron 'Bartia'** (*Barclayi* × 'Portia'). **A.M.** April 6, 1948. A vividly coloured hybrid with funnel-shaped waxy flowers of Turkey Red (H.C.C. 721/1) 3 inches across and 3 inches long. The dome-shaped truss consists of 12 flowers on dark crimson pedicels covered with silvery hairs. The leaves are 5½ inches long, elliptic, acute and completely glabrous. Exhibited by Lord Aberconway, C.B.E., V.M.H., Bodnant.

***Rhododendron 'Borde Hill.'** **A.M.** May 20, 1948. An attractive plant with dark dull-green elliptic-oblong foliage. The funnel-shaped corolla is made up of five stiff waxy lobes and is

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* After trial at Wisley.

3–3½ inches across. The colour of the flowers is Rose Red (H.C.C. 724/2) heavily overlaid with Cardinal Red (H.C.C. 822/2). Sent by Messrs. Van Nes.

*Rhododendron 'Britannia.' A.M. May 20, 1948. One of the many red-flowered hybrids, it is distinguished by its vigorous flowering habit. The bell-shaped flowers form a dome-shaped truss 6 inches across with 12–14 flowers of Cherry (H.C.C. 722/2) suffused with a slightly darker shade. The blotch is dark red and inconspicuous. The mid-green leaves are large and obovate in shape. Sent by Messrs. Van Nes.

**Rhododendron 'Calstocker'** var. **'Exbury'** (*calophytum* × 'Dr. Stocker'). **A.M.** April 20, 1948. An attractive white variety with a maroon blotch on the upper petals. The pink buds open into bell-shaped flowers 3¾ inches across and 3 inches long, forming a large dome-shaped truss with up to 23 flowers. The leaves are elliptical, about 9 inches long with impressed veins. Exhibited by E. de Rothschild, Esq., Exbury.

***Rhododendron 'China'** (*Wightii* × *Fortunei*). **A.M.** May 5, 1948. This plant received the **A.M.** in 1940 and is described in *Rhododendron Year Book for* 1946. Raised and sent by Messrs. W. C. Slocock Ltd., Goldsworth Nurseries, Woking.

**Rhododendron 'Choremia'** (*haematodes* × *arboreum*). **F.C.C.** February 17, 1948. This outstanding crimson-scarlet hybrid received the **A.M.** on February 21, 1933, and is described in the *R.H.S. Journal*, Vol. 59, page xxxv. Exhibited by Lord Aberconway, C.B.E., V.M.H., Bodnant.

**Rhododendron 'Damaris'** var. **'Logan'** ('Dr. Stocker' × *campylocarpum*). **A.M.** April 20, 1948. A charming variety with dark pink style and white filaments contrasting with the funnel-shaped corolla 3 inches wide and 1¾ inch long of Dresden Yellow (H.C.C. 64/3). The truss is dome-shaped, composed of about twelve flowers. The leaves are elliptic, paler beneath, 5 inches long and 2 inches wide. Shown by J. B. Stevenson, Esq., V.M.H., Tower Court, Ascot.

**Rhododendron 'Damozel'** (A. W. bright rose × *Griersonianum*). **A.M.** May 25, 1948. Raised by the late Mr. L. de Rothschild, of rather obscure parentage, it has a funnel-shaped corolla of deep rose-pink with darker spotting, scattered externally with white glandular hairs. The individual flowers are 2 inches long and 3 inches broad, making up a dome-shaped truss of seventeen flowers. Leaves very narrowly elliptic, 5 inches long, 1¼ inches wide, covered beneath with a thin brown indumentum. Exhibited by E. de Rothschild, Esq., Exbury.

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* After trial at Wisley.

***Rhododendron 'Diane.'** A.M. April 6, 1948. Flowers broad-campanulate, 3 inches across, 2 inches long, 5-lobed with waved edges; colour creamy-white deepening in the centre to primrose yellow, flecked with brown on the upper petals. Truss compact generally 9 or 10 flowered. Leaves 3½ to 4 inches long, 2 inches wide, ovate-lanceolate, lustrous above, pale green below. Sent by Messrs. M. Koster & Sons, Ltd., Boskoop.

**Rhododendron 'Elros'** (*Elliottii* × 'Eros'). A.M. May 25, 1948. A delightful hybrid with spreading funnel-shaped flowers of rosy salmon-pink with scattered darker spotting towards the base of the petals. The truss is dome-shaped with about fifteen flowers on green pedicels shaded with dark pink and covered with scattered, small, glandular hairs. Leaves narrowly elliptic, dark mat-green above, 10½ inches long, 3 inches wide, pale green and glabrous beneath. Raised and exhibited by Lord Aberconway, C.B.E., V.M.H., Bodnant.

***Rhododendron 'Gladys'** var. **'Letty Edwards.'** F.C.C. April 20, 1948. As a hardy flowering shrub after trial at Wisley. A compact, free-flowering bush carrying many rather lax nine- to twelve-flowered trusses. The funnel-shaped corolla, pale Sulphur Yellow (H.C.C. 1/3) is 2½ inches long and 2¾ inches wide. Sent by Messrs. W. C. Slocock, Ltd.

**Rhododendron 'Halcyone'** var. **'Perdita'** (*Souliei* × 'Lady Bessborough'). A.M. May 25, 1948. A pretty variety making a graceful bush with a lax flat-topped truss with eight saucer-shaped pink flowers, the colour fading away towards the edges of the lobes. The corolla is 2½ inches long and 3 inches across. The filaments are white, about half the length of the style, which is covered with glandular hairs. The light green leaves are ovate, cordate at the base, 5 inches long and 2½ inches wide. Raised by the late Mr. L. de Rothschild, and shown by E. de Rothschild, Esq., Exbury.

***Rhododendron 'Harvest Moon'** ('Mrs. Lindsay Smith' × *campylocarpum*). A.M. May 5, 1948. An attractive hybrid with a dome-shaped truss of 10–13 flowers. The five-lobed corolla is funnel-shaped, 3½ inches across, of a soft creamy white with a brownish-red blotch. The light green leaves are elliptic with recurved margins. Raised and sent by Messrs. M. Koster & Sons, Ltd., Boskoop.

**Rhododendron 'Ibex'** (*Griersonianum* × *pocophorum*). A.M. April 20, 1948. An attractive plant with dome-shaped trusses of about ten funnel-shaped flowers of Delft Rose (H.C.C. 020). The corolla is 2 inches long and 3 inches broad with dark spotting on

* After trial at Wisley.

the upper petals. The elliptic leaves are 6 inches long and 1¾ inches wide, the undersides densely covered with brown tomentum. Exhibited by E. de Rothschild, Esq., Exbury.

**Rhododendron 'Jalisco' var. 'Eclipse'** ('Lady Bessborough' × 'Dido'). **A.M.** May 25, 1948. A seedling from the same cross as the following, differing only in its narrow-elliptic leaf, externally crimson-streaked flowers and style covered with scattered red glandular hairs. Raised by the late Mr. L. de Rothschild, and exhibited by the Commissioners of Crown Lands, Windsor Great Park.

**Rhododendron 'Jalisco' var. 'Elect'** ('Lady Bessborough' × 'Dido'). **A.M.** May 25, 1948. An attractive plant with a slightly lax truss of seven to ten primrose-yellow flowers with seven recurved spreading lobes of a slightly paler shade. The corolla is 2½ inches long and 3½ inches wide, marked with brownish-red spots on the base of the upper petals. The calyx is petaloid, the irregular upper lobes about ½ inch long. Leaves obovate, 6 inches long, 2 inches wide. Raised by the late Mr. L. de Rothschild, and exhibited by the Commissioners of Crown Lands, Windsor Great Park (Fig. 32).

***Rhododendron (Azalea) 'Jeannette'** (*malvatica* × *Kaempferi*). **A.M.** May 5, 1948. A free-flowering dwarf evergreen Azalea with 2–3 widely funnel-shaped flowers in a truss. The corolla is 2½ inches across, the five petals of bright Phlox Pink (H.C.C. 625/2) with a deep rose blotch. Raised and sent by the Knap Hill Nursery Ltd., Woking.

**Rhododendron 'Kenlis'** (*Meddianum* × *orbiculare*). **A.M.** May 4, 1948. This plant has broad bell-shaped flowers uniformly coloured Neyron Rose (H.C.C. 623/3), 2 inches long and 3 inches across. The leaves are broad-oval, 6 inches long and 5 inches wide. Exhibited by the Marquis of Headfort, Headfort, Kells, Meath.

**Rhododendron 'Leo'** ('Britannia' × *Elliottii*). **A.M.** May 25, 1948. A brightly coloured, showy hybrid with large trusses of twenty to twenty-five crimson-scarlet campanulate flowers, each 2¼ inches long and 3½ inches across. The elliptic leaves are 7 inches long and 3½ inches wide. Raised by the late Mr. L. de Rothschild, and exhibited by E. de Rothschild, Esq., Exbury.

**Rhododendron 'Leonardslee Giles'** (*Standishii* × *Griffithianum*). **A.M.** May 4, 1948. A hybrid of delicate appearance with a tall dome-shaped truss containing up to twelve well spaced blossoms. The pink buds open into pale pink, slightly brown-spotted flowers, which fade to white marked with darker blotches externally. The corolla is 4¾ inches across and 3 inches long. The

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* After trial at Wisley.

leaves are elliptic, dark green above, paler beneath, 9 inches long and 3½ inches wide. Exhibited by the Misses Godman, South Lodge, Horsham.

**Rhododendron 'Leonora.'** A.M. July 20, 1948. A beautiful hybrid from *auriculatum* × *Kyawi*, raised by the late Mr. L. de Rothschild. It has elliptic, subcordate leaves 6 to 8 inches long, of bright green colour, covered beneath with brownish down. The tall truss is composed of about a dozen flowers on red, glandular pedicels 1½ inch long. The corolla is narrow funnel-shaped, 3½ inches long, with orbicular, spreading lobes, Crimson (H.C.C. 22/2) shaded with Carmine (21/1) on the outside. Exhibited by E. de Rothschild, Esq., Exbury.

**Rhododendron 'Limerick'** var. **'Margela'** ('Britannia' × *dichroanthum*). A.M. May 4, 1948. A variety of unusual colouring, the bell-shaped flowers being orange-brown, shading to a broad band of Geranium Lake (H.C.C. 20/1) round the edge of each of the spreading lobes. There are seven flowers in a truss, each 3½ inches in diameter and 2½ inches long, with petaloid calyx, the upper segments of which are 2 inches long. Leaves elliptic, about 5 inches long and 2 inches wide. Raised and exhibited by the Earl of Limerick, Chiddingly, West Hoathly, Sussex.

**Rhododendron 'Loderi'** var. **'Princess Marina'** ('Loderi' var. 'King George' × 'Loderi' var. 'Sir Edmund'). A.M. May 4, 1948. An attractive variety with narrow-elliptic leaves 8½ inches long and a large truss of twelve large, palest pink flowers which fade to white. They are funnel-shaped, of good texture, 6 inches across and 3½ inches long. The stamens are noticeably small in comparison with the 2¼ inch long style. Exhibited by Sir Giles Loder, Bt., Leonardslee, Horsham.

***Rhododendron 'Marinus Koster.'** F.C.C. May 20, 1948. A handsome plant with large very dark green elliptic to obovate leaves. The dome-shaped trusses are 10 inches across with 13–14 funnel-shaped flowers. The five-lobed corolla is of firm texture, Rhodamine Pink (H.C.C. 527/1) with deeper shading and a small maroon blotch at the base. The exterior is a shade of Bengal Rose (between H.C.C. 25/1 and 25/2). Sent by Messrs. M. Koster & Sons Ltd., Boskoop.

***Rhododendron 'Marion Koster'** ('Mrs. L. A. Dunnett' × *Griersonianum*). A.M. May 20, 1948. An early-flowering hybrid making a shapely bush, the leaves being medium-sized, obovate to elliptic. The truss is firm, dome-shaped, 8 inches across and made up of fourteen flowers. The funnel-shaped corolla is up to 4 inches in diameter with five slightly reflexed lobes, of a clear ivory white,

* After trial at Wisley.

while the buds are flushed with pale pink. Raised and sent by Messrs. M. Koster & Sons, Boskoop.

*Rhododendron 'Mrs. Furnival.' F.C.C. May 20, 1948. This delightful plant received the A.M. on June 7, 1933. The truss is made up of 10–13 funnel-shaped flowers. They are Rhodamine Pink (H.C.C. 527/2) softening towards the centre of the flower, with a large crimson blotch. Raised and sent by the Knap Hill Nursery Ltd., Woking.

*Rhododendron 'Mrs. H. Stocker.' A.M. May 5, 1948. A large-flowered hybrid with dome-shaped trusses 8 inches across made up of sixteen funnel-shaped five lobed flowers. They are 4 inches in diameter and of a rich rosy crimson with a dark maroon blotch. The dark green leaves are broad elliptic and of a medium size. Sent by Messrs. M. Koster & Sons, Ltd., Boskoop.

*Rhododendron 'Mrs. Harold Terry.' A.M. May 20, 1948. A shapely plant with attractively frilled, broadly funnel-shaped flowers 3½ inches across and 2½ inches in depth. The colour is Bengal Rose (H.C.C. 25/2) veined with a slightly deeper shade. The round trusses are 6 inches in diameter, containing 11–15 flowers held well amongst the neat, rather small, elliptic foliage. Sent by Messrs. Van Nes.

**Rhododendron 'Saffron Queen'** (*aureum* × *burmanicum*) **A.M.** May 4, 1948. A small tubular-flowered hybrid, with eight or nine flowers in a flat-topped truss, sulphur yellow with darker markings on the upper petals. Leaves narrow-elliptic, up to 3½ inches long, 1¼ inch wide, glossy green above, grey-green beneath with scattered brown scales, particularly near the midrib. Raised by the late Mr. J. C. Williams, and exhibited by C. Williams, Esq., M.P., Caerhays Castle, Cornwall.

**Rhododendron 'Sheila Moore'** (*decorum* × *Elliottii*). **A.M.** May 25, 1948. The flowers of this pretty variety are in a dome-shaped truss of twelve broad-campanulate, 7-lobed flowers. The corolla is rose-pink, 3 inches long and 5 inches across, marked with darker spots on the upper lobes. The leaves are elliptic, 8 inches long, 3 inches wide, mat green above, paler and glabrous beneath. Raised and exhibited by Lord Digby, D.S.O., M.C., Cerne Abbey, Dorchester.

*Rhododendron 'Sir John Ramsden' ('Corona' × *Thomsonii*). A.M. May 5, 1948. This plant received the A.M. in 1926. It has trusses of 10 bell-shaped flowers, 2½ inches across and 2½ inches long, with wavy margins. The leaves are dark green, elliptic, and very small. Raised and sent by Messrs. Waterer Sons & Crisp Ltd., Twyford.

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* After trial at Wisley.

***Rhododendron** (Azalea) **'Spek's Orange.'** **A.M.** May 5, 1948. A free-flowering deciduous Azalea having globular trusses of 8–12 sweetly scented flowers which open a shade of Poppy Red (H.C.C. 16/1) from deep orange buds. The upper petals are of a slightly deeper colour than the lower ones and have a greenish blotch. Raised and sent by Messrs. Jan Spek, Boskoop.

**Rhododendron 'Spinulosum'** var. **'Exbury'** (*spinuliferum* × *racemosum*). **A.M.** April 6, 1948. A plant of unusual appearance with small, tubular-campanulate flowers 1 inch long and ½ inch wide, in threes in the axils of the upper leaves, forming a compound truss of up to 30 flowers. They are scarlet (H.C.C. 19/1) passing to crimson with age, the stamens and style much exserted. The leaves are oblanceolate, 3 inches long, ¾ inch wide, glossy, dark green above, overlaid with bronze in the centre. The tips and margins of the leaves are recurved, the midrib being brown and scaly beneath. Exhibited by E. de Rothschild, Esq., Exbury.

***Rhododendron 'Susan.'** **A.M.** May 5, 1948. A free-flowering *campanulatum* hybrid of compact habit with broad-elliptic leaves. The flowers are in a dome-shaped truss 6 inches across made up of 12–16 funnel-shaped flowers, 3–3½ inches across. The colour of the corolla is Amethyst Violet (H.C.C. 35/3 inside and near 35/1 outside) with a deep violet blotch. Raised by the late Mr. J. C. Williams, and sent by Messrs. W. C. Slocock Ltd., Goldsworth Nurseries, Woking.

**Rhododendron Yu 13894.** **A.M.** May 4, 1948. There is still considerable doubt as to the correct name of this puzzling plant. It resembles *R. decorum* closely but for the long rachis. Herbarium sheets of the plant collected at Chungtien under the above number are different from the plant exhibited. The dome-shaped truss contains about 18 funnel-shaped flowers, 4 inches across and 2¼ inches long. The pink buds open into pale mauve flowers marked with green at the base of the tube. The stamens are ½-inch long and the style 1¾ inch. The narrow-elliptic leaves reach a length of 8 inches, and are 2 inches wide, dull dark green above, grey or greyish-green beneath. Exhibited by the Misses Godman, South Lodge, Horsham.

**Rhododendron 'Yvonne'** var. **'Pride'** ('Aurora' × *Griffithianum*). **A.M.** April 20, 1948. This plant has a bright appearance, with its dome-shaped truss of six pale pink flowers fading practically white with age. The individual funnel-shaped flower is 5 inches across and 3¼ inches long, the leaves being elliptic and 7 inches long. Exhibited by E. de Rothschild, Esq., Exbury.

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* After trial at Wisley.

# RHODODENDRON COMMITTEE MEETINGS
# 1948

FEBRUARY 17, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and eight other members present.

### Awards Recommended

*First Class Certificate*

To *Rhododendron* 'Choremia' (*R. haematodes* ♀ × *R. arboreum* ♂) (votes unanimous), as a hardy, early-flowering hybrid, from LORD ABERCONWAY, C.B.E., V.M.H., Bodnant, N. Wales. This outstanding crimson-scarlet hybrid received the A.M. on February 21, 1933, and is described in the *R.H.S. Journal*, Vol. 59, page xxxv.

*Award of Merit*

To *Rhododendron* 'Androcles' (*R. calophytum* ♀ × *R. arboreum* ♂) as a hardy flowering shrub (votes unanimous), from E. DE ROTHSCHILD, ESQ., Exbury House, Southampton.

### Other Exhibits

*Rhododendron Kaempferi* var. *sempervirens*, which the Committee desired to see again, and *R.* 'Ramillies' (*R.* 'Ethel' × *R.* 'Redwing'), from LORD ABERCONWAY.
*Rhododendron* 'Cornubia' (*R. Shilsonii* × *R. arboreum*) A.M. 1912, from M. HAWORTH-BOOTH, ESQ., Farall, Haslemere.

APRIL 6, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and eighteen other members present.

### Awards Recommended

*Award of Merit*

To *Rhododendron* 'Spinulosum' var. 'Exbury' (*R. spinuliferum* × *R. racemosum*) (votes 11 for, 0 against), as a hardy flowering shrub from E. DE ROTHSCHILD, ESQ.
To *Rhododendron* 'Bartia' (*R. Barclayi* × *R.* 'Portia,' F.C.C.) (votes 9 for, 0 against), as a hardy flowering shrub, from LORD ABERCONWAY, Bodnant, North Wales.
To *Rhododendron* 'Diane' (parentage unknown) (votes 9 for, 0 against), as a hardy flowering shrub, after trial at Wisley, from MESSRS. M. KOSTER AND SONS, LTD., Boskoop, Holland.

### Other Exhibits

*Rhododendron flavidum* var. *album*, *R.* 'Mariloo' var. 'Eugenie' (*R.* 'Dr. Stocker' × *R. lacteum*), *R.* 'Avalanche' var. 'Alpine Glow' (A.M. 1938) (*R.* 'Loderi' × *R. calophytum*), *R. Smithii* and *R. spiciferum* from E. DE ROTHSCHILD, ESQ.
*Rhododendron* 'Apis' (*R. bullatum* × *R. Nuttallii*) and *Rhododendron* 'Dr J. Hutchinson' (*R. Taggianum* × *R. Nuttallii*), from COL. S. R. CLARKE, C.B., Borde Hill, Haywards Heath, Sussex.
*Rhododendron Albrechtii*, *R.* 'Beauty of Tremough' var. 'Bodnant' (*R. arboreum* × *R. Griffithianum*) and *R. calophytum*, pink form, from LORD ABERCONWAY.
*Rhododendron* 'Diane' (parentage unknown), *R. Luscombei* (*R. Fortunei* × *R. Thomsonii*), *R. pubescens*, and *R. canadense*, from the Knaphill Nursery Ltd., Woking, Surrey.
*Rhododendron* 'Red Crown' (*R. Thomsonii* × *R.* 'Loderi'), from M. HAWORTH-BOOTH, ESQ., Farall, Haslemere.

APRIL 20, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and fourteen other members present.

### Awards Recommended

*First Class Certificate*

To *Rhododendron* 'Gladys' var. 'Letty Edwards' (*R. campylocarpum* × *R. Fortunei*) (votes unanimous), as a hardy flowering shrub, after trial at Wisley, sent by MESSRS. W. C. SLOCOCK, LTD., Goldsworth Nurseries, Woking.

*Award of Merit*

To *Rhododendron* 'Calstocker' var. 'Exbury' (*R. calophytum* × *R.* 'Dr. Stocker'), (votes 12 for, 1 against), as a hardy flowering shrub, from E. DE ROTHSCHILD, ESQ,. Exbury, nr. Southampton.

To *Rhododendron* 'Yvonne' var. 'Pride' (*R.* 'Aurora' × *R. Griffithianum*) (votes 8 for, 4 against), as a hardy flowering shrub, from E. DE ROTHSCHILD, ESQ.

To *Rhododendron* 'Ibex' (*R. Griersonianum* × *R. pocophorum*) (votes unanimous), as a hardy flowering shrub, from E. DE ROTHSCHILD, ESQ.

To *Rhododendron* 'Damaris' var. 'Logan' (*R.* 'Dr. Stocker' × *R. campylocarpum*) (votes unanimous), as a hardy flowering shrub, from J. B. STEVENSON, ESQ., Tower Court, Ascot, Berks.

### Other Exhibits

*Rhododendron* 'Varna' (*R.* 'Caman' × *R. Williamsianum*), *R.* 'Radiant Morn' (*R.* 'Fabia' × *R.* 'Sunrise'), *R.* 'Ramilles' (*R.* 'Ethel' × *R.* 'Redwing') and *R.* 'Gretia' A.M. 1946 (*R.* 'Portia' × *R. Griersonianum*) from LORD ABERCONWAY, Bodnant, N. Wales.

*Rhododendron* 'Janet' (*R.* 'Avalanche' × *R.* 'Dr. Stocker'), *R.* 'Nehru' (*R. Griersonianum* × *R.* 'Huntsman'), *R.* 'Pirate' (a dark red seedling × *R. Thomsonii grandiflorum*), *R.* 'Barbara' (*R. campylocarpum elatum* × *R.* 'Loderi') and *R.* 'Barbara' var. 'Pinafore' (*R. campylocarpum elatum* × *R.* 'Loderi') from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.

*Rhododendron* 'Merops' (*R.* 'Cunningham's Sulphur' × *R. lacteum*) *from* CAPTAIN C. INGRAM, BENENDEN, Kent.

*Rhododendron obtusum* var. *Hinodegiri* from the DIRECTOR, R.H.S. Gardens, Wisley.

*Rhododendron obtusum amoenum* 'Tyrian Rose' from M. HAWORTH BOOTH, ESQ., Farall Farm, nr. Haslemere, and *R. Thomsonii* hybrid (parentage unknown) from the COMMISSIONERS OF CROWN LANDS, Windsor Great Park, Berks.

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MAY 4, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and eighteen other members present.

### Awards Recommended

*Award of Merit*

To *Rhododendron* 'Limerick' var. 'Margela' (*R.* 'Britannia' × *R. dichroanthum*) (votes unanimous), as a hardy flowering shrub, from the EARL OF LIMERICK, Chiddingly, West Hoathley, Sussex.

To *Rhododendron* 'Saffron Queen' (*R. aureum* × *R. burmanicum*) (votes unanimous), as a hardy flowering shrub, from C. WILLIAMS, ESQ., M.P., Caerhays Castle, Cornwall.

To *Rhododendron* Yu 13894 (*R. Fortunei*) (votes 10 for, 1 against), as a hardy flowering shrub, from the MISSES GODMAN, South Lodge, Horsham.

To *Rhododendron* 'Leonardslee Giles' (*R. Standishii* and *R. Griffithianum*) (votes unanimous), as a hardy flowering shrub, from the MISSES GODMAN.

To *Rhododendron* 'Loderi' var. 'Princess Marina' (*R.* 'King George' × *R.* 'Sir Edmund' (votes 7 for, 2 against), as a hardy flowering shrub, from SIR GILES LODER, BT., Leonardslee, Horsham, Sussex.

To *Rhododendron* 'Kenlis' (*R. Meddianum* × *R. orbiculare*) (votes 7 for, 3 against), as a hardy flowering shrub from the MARQUIS OF HEADFORT, Headfort, Kells, Meath.

### Other Exhibits

*Rhododendron* 'May Day' A.M. 1932 (*R. haematodes* × *R. Griersonianum*), from COM. A. M. WILLIAMS, D.S.C., R.N., RETD., Werrington Park, Launceston, Cornwall.
*Rhododendron* 'Charles Michael' (*R. haematodes* × *R. Thomsonii*), from CHARLES WILLIAMS, ESQ., M.P.
*Rhododendron* 'Goldsworth Orange' (R. *dichroanthum* × *R. discolor*), from MESSRS. W. C. SLOCOCK, Goldsworth Nurseries, Woking.
*Rhododendron* 'Damaris' var. 'Townhill' (*R.* 'Dr. Stocker' × *R. campylocarpum*), from the RT. HON. LORD SWAYTHLING, Townhill Park, Southampton.
*Rhododendron* 'Mrs. Arthur Fawcus' (*R. caucasicum* × *R.* 'Kewense'), from the Knaphill Nursery, Ltd., Woking.
*Rhododendron sphaeranthum*, *R. herpesticum* and *R.* (*Azalea*) *kiusianum alpinum*, from MRS. A. N. GRIFFITH, Paradise House, Newnham, Cambridge.
*Rhododendron* hybrid (*R.* 'Britannia' × *R. dichroanthum*), from the EARL OF LIMERICK.

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MAY 25, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and fifteen other members present.

### Awards Recommended

*Award of Merit*

To *Rhododendron* 'Elros' (*R. Elliottii* × *R.* 'Eros') (votes unanimous), as a hardy flowering shrub raised and exhibited by LORD ABERCONWAY, Bodnant, N. Wales.
To *Rhododendron* 'Jalisco' var. 'Eclipse' (*R.* 'Lady Bessborough' × *R.* 'Dido') (votes 12 for, 2 against), as a hardy flowering shrub, raised by the late L. DE ROTHSCHILD, ESQ., and shown by the COMMISSIONERS OF CROWN LANDS, Windsor Great Park.
To *Rhododendron* 'Jalisco' var. 'Elect' (*R.* 'Lady Bessborough' × *R.* 'Dido') (votes unanimous), as a hardy flowering shrub, raised by the late L. DE ROTHSCHILD, ESQ., and shown by the COMMISSIONERS OF CROWN LANDS, Windsor Great Park.
To *Rhododendron* 'Damozel' (*R.* 'A. W. bright rose' × *R. Griersonianum*) (votes 13 for, 0 against), as a hardy flowering shrub, raised by the late L. DE ROTHSCHILD, ESQ., and shown by E. DE ROTHSCHILD, ESQ., Exbury, Southampton.
To *Rhododendron* 'Halcyone' var. 'Perdita' (*R. Souliei* × *R.* 'Lady Bessborough') (votes 9 for, 3 against), as a hardy flowering shrub, raised by the late L. DE ROTHSCHILD, ESQ., and shown by E. DE ROTHSCHILD, ESQ.
To *Rhododendron* 'Leo' (*R.* 'Britannia' × × *R. Elliottii*) (votes unanimous), as a hardy flowering shrub, raised by the late L. DE ROTHSCHILD, ESQ., and shown by E. DE ROTHSCHILD, ESQ.
To *Rhododendron* 'Sheila Moore' (*R. decorum* × *R. Elliottii*) (votes unanimous), as a hardy flowering shrub, raised and shown by LORD DIGBY, D.S.O., M.C., Cerne Abbey, Dorchester.

### Selected for trial at Wisley

*Rhododendron* 'Kluis Sensation' (*R.* 'Britannia' × an unnamed seedling), raised by MESSRS. A. KLUIS, Holland. Exhibited by MR. F. STREET, Heathermead Nursery, West End, Woking.
*Rhododendron* (*Azalea*) No. 188 and *R.* (*Azalea*) No. 214 (parentage not given). Exhibited by MESSRS. D. STEWART AND SON, Ferndown Nurseries, Dorset.

### Other Exhibits

*Rhododendron* 'Vanessa' var. 'Pastel' A.M. 1946 (*R.* 'Soulbut' × *R. Griersonianum*) and *R.* 'Ruddigore' (*R. Griersonianum* × *R. Delavayi*) from LORD ABERCONWAY.
*Rhododendron* 'Panoply' var. 'Red Chief' (*R.* 'G. A. Sims' × *R. eriogynum*), from SIR GILES LODER, BT., Leonardslee, Horsham, Sussex.
*Rhododendron* No. 415 (*R.* 'Fireglow' × *R. Elliottii*), *R.* No. 428 (*R.* 'Fabia' × *R. Elliottii*) and *R.* No. 507 (*R.* 'Master Dick' × *R. Griersonianum*) which the Committee desired to see as a single truss, from C. E. COLBOURN, ESQ., Romsey Cottage, Embley Park, Romsey, Hants.

*Rhododendron* 'Jalisco' var. 'Janet' (*R.* 'Lady Bessborough' × *R.* 'Dido') and *R.* 'Jalisco' var. 'Emblem' from the COMMISSIONERS OF CROWN LANDS, Windsor Great Park.
*Rhododendron Souliei*, from MAJOR A. E. HARDY, Sandling Park, Hythe, Kent.
*Rhododendron* 'Istanbul' (*R.* 'Mrs. H. Stocker' × *R. Elliottii*), *R.* 'Phoenix' (*R.* 'Dawn's Delight' × *R.* 'Tally-Ho') and *R.* 'Iviza' (*R.* 'Fabia' × *R.* 'Bustard') from E. DE ROTHSCHILD, ESQ., Exbury.
*Rhododendron* 'Gwillt King' (*R. zeylanicum* × *R. Griersonianum*), *R.* 'Jacquetta' (*R. facetum* × *R. Griersonianum*) and an unnamed hybrid (*R. Wardii* × *R. crassum*), from LORD DIGBY, Cerne Abbey, Dorchester.

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JUNE 8, 1948—MR. J. B. STEVENSON, V.M.H., in the Chair, and nine other members present.

**Award Recommended**

*Cultural Commendation*

To MR. R. J. WALLIS, head gardener to SIR HENRY PRICE, Wakehurst Place, Ardingly, Sussex, for *Rhododendron stamineum*.

**Other Exhibits**

*Rhododendron facetum* (A.M. 1938) and *R. diaprepes* (A.M. 1926) from C. ARMYTAGE MOORE, ESQ., Winterfold House, Cranleigh, Surrey.
*Rhododendron* 'Fairy Light' (*R.* 'Lady Mar' × *R. Griersonianum*), *R.* 'Indiana' (*R. scyphocalyx* × *R. Kyawi*), *R.* 'Iliad' (*R.* 'Nereid' × *R. Kyawi*), *R.* 'Inamorata' (*R. Wardii* × *R. discolor*), *R.* 'Isabella' var. 'Exbury' (*R. Griffithianum* × *R. auriculatum*), *R.* 'Souldis' var. 'Exbury' (*R. Souliei* × *R. discolor*). *R.* 'Felis', (*R. dichroanthum* × *R. facetum*) and *R. Keysii*, from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.
*Rhododendron* 'Firetail' var. 'Trident' (*R.* 'Britannia' × *R. eriogynum*), from SIR GILES LODER, BT., Leonardslee, Horsham, Sussex, and *R.* 'Perseverance' (*R.* 'Lady Chamberlain' × *R. cinnabarium* var. *Roylei*), from M. ADAMS-ACTON, ESQ., 37 Palace Gate, W.8.

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The Rhododendron Committee held no meeting after June 22. Rhododendrons exhibited at Shows after that date were submitted to Floral Committee B. The proceedings relating to Rhododendrons are recorded below.

JULY 6, 1948—LORD ABERCONWAY, C.B.E., V.M.H., in the Chair, and twenty other members present.

**Award Recommended**

*Award of Merit*

To *Rhododendron amagianum* as a hardy flowering shrub (votes 14 for, 0 against), from LORD ABERCONWAY, C.B.E., V.M.H., Bodnant.

**Other Exhibits**

*Rhododendron* 'Azor' var. 'A. W. Coates,' *R. didymum*, exhibited by Sir Henry Price, Ardingly.
*Rhododendron crassum*, exhibited by LORD ABERCONWAY.
*Rhododendron Griersonianum* × 'Tally Ho,' *R. Kyawi* × *diaprepes*, *R. Kyawi* × *discolor*, *R.* 'Red Cap,' exhibited by the EARL OF LEITRIM, Mulroy, Co. Donegal.

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JULY 20, 1948—LORD ABERCONWAY, C.B.E., V.M.H., in the Chair, and eighteen other members present.

**Award Recommended**

*Award of Merit*

To *Rhododendron* 'Leonora' (*auriculatum* × *Kyawi*), as a hardy flowering shrub (votes 9 for, 0 against), from E. DE ROTHSCHILD, ESQ., Exbury, Southampton.

**Other Exhibit**

*Rhododendron* 'Exburiense,' exhibited by E. DE ROTHSCHILD, ESQ., Exbury.

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(*a*) = *Azalea*

**Award after Trial at Wisley*