Vol. I., No. III., 1917.

# The Rhododendron Society Notes.



THE PACIFIC RHODODENDRON SOCIETY

## Acknowledgements

#### TO THIS ONLINE EDITION

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RHODODENDRON, CAMELLIA & MAGNOLIA GROUP





#### THE PACIFIC RHODODENDRON SOCIETY

"Dedicated to the Hobbiest and Home Gardeners"

#### **Foreword**

The Pacific Rhododendron Society has reprinted the Rhododendron Notes in an effort to further the knowledge of the Genus Rhododendron by those enthusiasts with an avid interest in the history, exploration and biographical sketches contained herein.

The Rhododendron Notes are offered to the end that the reader may more easily understand the progress encouraged by those who contributed the wealth of information contained in these volumes, thereby making clear our understanding of the Genus Rhododendron today.

The Society wishes to gratefully acknowledge the efforts on our behalf by the following persons and organizations: Dr. R. Shaw, Curator and M.V. Mathew, Librarian of the Royal Botanic Garden Edinburgh, Scotland, for providing the missing numbers; Lord Aberconway and John Cowell, Secretary of the Royal Horticultural Society, for certain photocopies and other considerations, Sir Giles Loder and Sir Edmund de Rothchild for their esteemed counsel, and to Thomas V. Donnelly our printer.

Our greatest appreciation to Dan E. Mayers of Lorien, Wadhurst, England for providing the originals and the inspiration. Without his assistance this project would never have become a reality.

## The Pacific Rhododendron Society 1976

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The Pacific Rhododendron Society 9025 Waverly Drive S.W. Tacoma, Washington 98499

Printed in the United States of America.

## **NOTES**

CONTRIBUTED BY

MEMBERS OF THE SOCIETY

FOR THE YEAR

1917

#### MEMBERS' NOTES FOR THE YEAR 1917.

#### INDEX TO VOL. I., PART III.

#### PAGE.

- 119. American Azaleas, A Letter from Professor Charles S. Sargent.
- 122. American Azaleas, Report upon, by Lieut.-Commander J. G. Millais and P. D. Williams.
- 131. CAERHAYS, LIST OF RHODODENDRON SPECIES AT, BY J. C. WILLIAMS.
- 145. Chinese Rhododendrons, Introduction of, by Professor Bayley Balfour, F.R.S.
- 150. Rhododendron Society Notes, A Letter from Professor Bayley Balfour, F.R.S.
- 151. Lapponicum Series of Rhododendrons, An Enquiry from Professor Bayley Balfour, F.R.S.
- 152. DAWYCK, TWEED-DALE, RHODODENDRONS AT, BY F. R. S. BALFOUR.
- 154. Borde Hill, Rhododendrons at, by Lieut.-Colonel Stephenson R. Clarke, C.B.
- 155. Shade Trees for Rhododendrons, by Charles Eley.
- 158. KILMACURRAGH, RHODODENDRONS AT, BY THE RT. HON. THE MARQUESS OF HEADFORT.
- 159. Penllergær, Swansea, Rhododendrons at, by Sir John Llewellyn, Bart.
- 160. LEONARDSLEA, EFFECT OF WINTER, 1916-1917, AT, BY SIR EDMUND LODER, BART.
- 161. SIR JOSEPH HOOKER, LIST OF PUBLISHED PORTRAITS OF, FROM G. W. E. LODER.
- 164. LAMELLEN GARDEN IN 1917, BY E. J. P. MAGOR.

#### PAGE.

- 168. LOGAN, WIGTOWNSHIRE, RHODODENDRONS AT, BY KENNETH McDouall.
- 169. INSECT ENEMIES OF RHODODENDRONS, BY THE RT. HON. SIR HERBERT MAXWELL, BART.
- 170. Monreith, Rhododendrons at, by The Rt. Hon. Sir Herbert Maxwell, Bart.
- 171. POLLOK HOUSE, RENFREWSHIRE, RHODODENDRONS AT, BY SIR JOHN STIRLING-MAXWELL, BART.
- 173. RHODODENDRON DELAVAYI AT KILMACURRAGH, BY SIR FREDERICK W. MOORE, M.R.I.A.
- 174. THE WINTER OF 1916-1917, BY SIR FREDERICK W. MOORE, M.R.I.A.
- 175. Rhododendron arboreum and its Introduction, by Lieut.-Colonel Sir David Prain, C.M.G., and W. J. Bean.
- 180. RIVERHILL, SEVENOAKS, RHODODENDRONS AT, BY LIEUT.-COLONEL J. M. ROGERS.
- 181. GLASNEVIN AND ROSTREVOR, RHODODENDRONS AT, BY LIEUT.-COLONEL SIR JOHN ROSS OF BLADENSBURG, K.C.B.
- 183. RHODODENDRON NOTES FOR 1917, BY J. C. WILLIAMS.

#### AMERICAN AZALEAS AND THEIR HYBRIDS.

#### A LETTER FROM PROFESSOR CHARLES S. SARGENT.

DEAR MR. WILLIAMS,

Your letter of September 18th has remained too long unanswered, but I shall now try to answer some of the questions about the American Azaleas which are embodied in that letter.

- 1. Descriptive characters. The best technical description of the well-known species is found in the new edition of Bailey's Cyclopedia of American Horticulture. This description was prepared here at the Arboretum by Mr. Alfred Rehder from material in this collection.
- 2. Habitat. Rhododendron viscosum, R. canadense and probably R. oblongifolium inhabit swamps. The other species so far as I know grow naturally in upland valleys, on mountain slopes or in open oak woods. None of the species are found growing in soil impregnated with lime.
- 3. Date of introduction and discovery. The old species were no doubt cultivated in Europe long before they were cultivated in the United States, and the dates of their introduction into European gardens and discovery can be found in the records of European horticulture, as for example in Aiton's HORTUS KEWENSIS.

Rhododendron Vaseyi was discovered by George R. Vasey in 1878, near Webster, Jackson County, North Carolina, and was introduced into the Arnold Arboretum in 1880. I have no record that it was cultivated earlier. About that time we sent seeds to Anthony Waterer of the Knaphill Nurseries.

RHODODENDRON OCCIDENTALE. According to the BOTANICAL MAGAZINE (t. 5005), this species was introduced into England before 1857. It was in the Arboretum in 1865, and it was about that time, or a little earlier, that I sent seeds to Anthony Waterer, who raised from these seeds the plants used by him in the production of his race of hybrids of this species.

AZALEA AUSTRINA, Small. This species was first raised in the Arboretum from seeds collected in November, 1913, for the Arboretum by T. G. Harbison. This is undoubtedly the date which must be taken as the introduction of this species into cultivation. Plants were sent to Kew in November, 1916. It may be described as a yellow-flowered Rhododendron NUDIFLORUM. It is common in open oak woods in the vicinity of River Junction, at the head of the Appalachicola River, in Western Florida. It is an extremely beautiful plant. There is little hope that it will be hardy either here or in Great Britain. Plants have been sent to you this autumn.

AZALEA CANDIDA, Small. (Bull. Torrey Bot. Club, XVIII., 361). The type locality for this species is in the neighbourhood of Valdosta, in Laundes County, Georgia, where it was first collected by Small, in June, 1895. Valdosta is in the extreme southern part of Georgia, and this distinct species will probably

not prove hardy in Great Britain or here.\* It was first raised in cultivation here from seed sent in the autumn of 1910 by T. G. Harbison. Plants were sent to Kew in November, 1916 and to you this autumn.

RHODODENDRON CALENDULACEUM. Michaux, in the Flor. Bor. Am. (i. 151), described a variety of his Azalea calendulacea as var. Flammea. This is certainly a distinct species (not yet described) which is common in dry oak woods near Augusta and Milledgeville, Georgia. Michaux no doubt found it near Augusta, as he passed by that place several times on his journeys from Charleston to the high Appalachian Mountains. It is a low-country plant, while R. Calendulaceum is found only on mountain slopes.

It is probable that Michaux sent seeds of R. FLAMMEUM to Europe, and I suspect that the bright red colour found in some of the hybrid Azaleas raised in Belgium was due to the influence of that species. I have no knowledge that flowering plants exist in Europe at this time. It was first raised here from seeds collected by myself near Augusta, in 1914. The flowers of this Azalea are more brilliantly colored than those of any other species, and there is a chance that it may prove hardy in some parts of Great Britain. Plants were sent to Kew, Gomer Waterer, J. C. Williams and F. R. S. Balfour in 1916, and to you this autumn.

AZALEA PRUNIFOLIA, Small, was first collected in flower in July, 1903, by Roland M. Harper, two miles northwest of Cuthbert, Randolph County, Georgia. Cuthbert is in a warm region, but notice how late this plant flowers. Seeds collected at the type station by T. G. Harbison have been sent to you.

AZALEA OBLONGIFOLIA, Small. This is a common plant in southern Arkansas and castern Texas. Small, in his Flora gives Tom Green County, Texas, as the type station. This is evidently a mistake, as Tom Green County is in the semi-desert part of Texas where Azaleas cannot possibly grow. The type station is no doubt in sandy bogs, Grapeland, Houston County, Texas. This plant has usually been referred in herbaria to R. VISCOSUM. It is probably a distinct species. Seeds collected for the Arboretum by A. G. Palmer have been sent to you this autumn.

AZALEA SERRULATA, Small, is based on a specimen (No. 967), collected by George B. Nash, in June, 1894, in the vicinity of Eustis, Lake County, Florida, and distributed by him as AZALEA VISCOSA. I have seen only a photograph of the type specimen, but judging by the locality, it would not be surprising if this turns out to be a good species. I hope to get flowers and fruits next year.

- 4. I have no information of any hybrid American Azaleas having been raised by American nurserymen, but in 1915 seeds were sown here of what is supposed to be a hybrid between R. CALENDULACEUM and R. OCCIDENTALE crossed in the Arberetum. For literature of the hybrids raised in Europe see the BRADLEY BIBLIOGRAPHY, III., 661.
- 5. Cultivation, etc. Judging by our experience here, all the species which we have tried flourish in ordinary soil on well-drained slopes. Swampy
  - It has survived the past winter quite well at Kew, and one of the plants carries flower buds.—W. J. Bean.

conditions are not needed for the successful cultivation of R. CANADENSE and R. VISCOSUM, although they grow naturally only in swamps.

At Marshall, in eastern Texas, there is an Azalea, of which we have seen only a fruiting specimen, which seems distinct. This and SEMIALATA are the only American species of which there is any knowledge which have not yet been introduced.

I hope these notes will be of some service to you, and if I can help you further do not fail to call on me.

Faithfully yours,

ARNOLD ARBORETUM, 21st December, 1917. C. S. SARGENT.

Since this letter was written I have received Mr. W. W. Ashe's description in Vol. XIII., page 26, of the Bulletin of the Charleston Museum (April, 1917) of his

"AZALEA ATLANTICA sp. nov.—A stoloniferous shrub. The fragant flowers, in compact cluster of 4–10, are rose-purple, or reddish, 25–3 cm. long, the lobes short, pointed, and scarcely one-half the length of the slender glandular-pubescent tube; stamens 5, exserted, slightly longer than the lobes, style 4.5–5 cm. long. Twigs when young sparingly pubescent with short spreading hairs, becoming gray and glabrous the second season. Leaves 4–6 cm. long. obovate, mucronate and abruptly acute at the apex, cuneate at the base, pale beneath, pubescent on the midrib and ciliate in the margins. Pine barren swamps, north-eastern South Carolina. Type from near Georgetown, S.C., collected by W. W. A. in May and June, 1916. In many respects this plant suggests A. VISCOSA L., A. ARBORESCENS, Pursh, or A. PRUNIFOLIA, Small. Although it occurs in a region traveled by the elder Michaux, he does not seem to have noticed it, nor does it seem to be any of the forms proposed by Don or Pursh."

We have also received at the Arboretum sterile branches of an Azalea with broadly obovate to elliptic leaves and very slender bright red branchlets which cannot be referred to any of the described species. This Azalea is described as "a straggling shrub in upland woods." It was collected by T. G. Harbison at Biloxi, Mississippi, near the shores of Mississippi Sound, on October 30, 1917.

C. S. S.

19th February, 1918.

It is necessary to state that at present Mr. P. D. Williams is now going through a number of old catalogues and articles on American Azaleas and their hybrids, and hopes to contribute any extracts he may consider of importance to the Rhododendron Society Notes for 1919.

We are indebted to Mr. W. J. Bean for reading through the following article.

J. G. MILLAIS. P. D. WILLIAMS.

#### AMERICAN AZALEAS AND THEIR HYBRIDS.

CONTRIBUTED BY LIEUT.-COMMANDER J. G. MILLAIS AND P. D. WILLIAMS.

In giving this brief history of the American Azaleas and their subsequent introduction into Europe, with the hybrids that have resulted inter se and with the additional hybridisation with Asiatic Rhododendrons (Azaleas), we are confronted with immense difficulties in unravelling the tangled skein of work performed by English, Dutch, French and Belgian nurserymen. If any records were kept by the Belgian nurserymen who were the most active participators in this trade, they have never been published, whilst those who may still survive are probably too old to remember accurately the basis on which the early workers pursued their trade. Moreover, during the turmoil of war it was manifestly impossible for us to proceed to the fountain head of information and pursue our investigations of the subject. It is probable too that the Belgians who followed Mortier worked somewhat blindly, just using any species or hybrid that seemed likely to give good results, and that their example was followed by both the Dutch and the French. Of the English worker we shall speak later.

The following species of Rhododendron (Azalea) were known, described and introduced into Europe in the last century or late in the previous century.

#### 1. R. CALENDULACEUM, Torr., 1803.

[R. LUTEUM, Schneider, 1911; A. CALENDULACEA, Michaux, 1803; A. LUTEA, Linn., 1753].

A shrub of 15 to 18 feet tall with erect and spreading branches and finely loose-pubescent twigs; leaves oval, elliptic or obovate; flower clusters expanding with the leaves; corolla yellow to red.

The distribution of this fine species is Southern New York, Pennsylvania, Carolina to Northern Georgia.

The "Orange" or "Flame-coloured" Azalea was first discovered by William Bartrara, who sent a specimen to Sir Joseph Banks about the year 1774. It was common in English nurseries such as those of Fraser and Loddiges & Sons early in the last century.

#### 2. R. NUDIFLORUM, Torr., 1824.

[A. Periclymoides, Michaux, 1803; A. Bicolor, Pursh, 1814; R. Bicolor, Don, 1834; A. NUDIFLORA, Linn., 1762].

A shrub 9 to 12 feet tall with irregularly branched stems and minutely pubescent and more or less strigose twigs; leaves oblong to obovate or oblong-obovate, short petioled. Flower clusters expanding before or with the leaves. Corolla pink, white, or purplish.

The distribution of this species is wide as it is found from Maine to Texas, west to Illinois and south as far as Florida. Introduced to England in 1734 by Peter Collinson.

#### 3. R. CANESCENS, G. Don, 1834.

[A. CANESCENS, Michaux, 1803].

A shrub from 9 to 12 feet tall or less, with diffuse or spreading branches, minutely soft-pubescent and strigose twigs; leaves elliptic, elliptic-lanceolate, oblanceolate or narrowly obovate; short petioled; flower clusters expanding before or with early leaves; corolla pink, rose and sometimes white. A native of Carolina, Louisiana and Florida.

The "mountain" Azalea as it is called in North America was introduced (according to Loudon), in 1810. It is often confused with R. NUDIFLORUM and R. CALENDULACEUM. The flowers of R. CANESCENS are very fragrant.

#### 4. R. VISCOSUM, Torr., 1824.

[A. VISCOSA, Linn., 1753; A. NITIDA, Pursh, 1814; A. HISPIDA, Pursh.

A deciduous shrub, bushy in habit, 6 to 8 feet tall, with twiggy branches; pubescent when young. Leaves cuneate or obovate; short petioled; flower-clusters expanding after the leaves; corolla white or pink; covered with viscid hairs.

The "SWAMP HONEYSUCKLE" is a fine late blooming species with sweetly fragrant flowers. Introduced to England in 1734. A native of Maine to Ohio, Florida and the Mississippi valley.

R. VISCOSUM var. GLAUCUM (AZALEA GLAUCA), a handsome variety with bluish-white leaves and pure white fragrant flowers.

#### 5. R. ARBORESCENS, Torr., 1824.

[A. ARBORESCENS, Pursh, 1814; A. FRAGRANS, Raf., 1820].

A deciduous shrub up to 20 feet high; young shoots smooth; leaves obovate or oval, pointed at both ends; flowers have a very distinct fragrance; corolla with spreading lobes, white tinged with pink; stamens and filaments very bright red and much protruded. The leaves, when dried, smell like newly-mown hay. A native of Pennsylvania to Georgia, Kentucky and Alabama, discovered by John Bartram, and introduced to England in 1818.

#### 6. R. occidentale, Gray, 1876.

[A. OCCIDENTALIS, Torr., 1857; A. CALIFORNICA].

A deciduous rounded shrub up to 10 feet high; young shoots slightly pubescent; leaves oval or obovate; flowers fragrant, white with yellow blotch on upper side; stamens and style protruded. Distributed throughout the mountains in South Oregon and California, and introduced to England by W. Lobb, for Messrs. Veitch, about the year 1851.

#### 7. R. RHODORA, Gmelin.

[Rhodora congesta, Moench, 1794; R. Pulchellum, Salisb., 1796; Rhodora canadensis, Linn., 1762].

A much branched deciduous twiggy bush, 4 to 5 feet high; leaves oblong, elliptic or oval; flowers about six in a cluster, produced at end of twigs before the leaves, rosy-purple.

This pretty and very hardy species is distributed from Newfoundland through Eastern Canada, south to New Jersey and Pennsylvania. Introduced 1767. In its native home it is found mostly on the edges of swamps, but does not flourish in such a position with us.

#### 8. R. ALBIFLORUM, Hook., 1834.

#### [A. ALBIFLORA, Kuntze, 1891].

This species and the foregoing species may hardly be classed amongst the Azaleas, but present certain external characters similar to them. R. ALBIFLORUM is a native of the high mountains on the edge of timber line in Montana, Oregon and the southern Canadian Rockies. This is a poor species not worth growing as a garden plant, being bad and straggling in habit with loose dull white axillary flowers.

#### 9. R. VASEYI, Gray, 1879.

#### A. VASEYI, Rehder, 1899. [BILTIA VASEYI, Small, 1903]

A deciduous shrub from 12 to 15 feet high, bushy; leaves cuneate-oval tapering at both ends; flowers rich pink, four to eight, appearing before the leaves.

This lovely species was first discovered by G. R. Vasey, in North Carolina, in 1878, and introduced in 1891.\* It likes a damp shaded position and warrants more attention than it has received from gardeners.

Broadly speaking the foregoing species were all the so-called American Azaleas known to gardeners until recent years, whilst the first six were amongst the species generally used for the creation of "Ghent" Azaleas. It is doubtful if R. Arborescens has been used to any extent as a breeder, whilst R. Rhodora, R. Albiflorum and R. Vaseyi so far as we know have not been used at all.

The following species have been recently described as New American Azaleas, and are now included in the genus Rhododendron. For the most part they are only local forms of better known species, and up to the present have not been used for hybridisation.

#### 10. R. Austrinum. A. Austrina, Small, 1913.

A deciduous shrub up to 12 feet high with irregular branches and pubescent and usually glandular twigs; leaves oval, obovate or oblong; short-petioled;

• c.f.p. 119 where Professor Sargent gives this date as about 1880.—C.C.E.

flowers expanding before the leaves; corolla yellow or orange. A native of Central Florida.

#### 11. R. PRINOPHYLLUM. A. PRINOPHYLLA, Small, 1914.

[R. CANESCENS, Porter, 1889 and not R. CANESCENS, G. Don or A. CANESCENS, Michaux].

A deciduous shrub up to 15 feet high with irregularly branched stems and finely pubescent twigs; leaves, oval or elliptic, varying to obovate; flower-clusters expanding before or with the leaves; corolla deep pink to whitish. A native of Massachusetts, Vermont, and New York, and extending south to Virginia and Tennessee.

#### 12. R. CANDIDUM. A. CANDIDA, Small, 1901.

A deciduous shrub up to 6 feet high, with widely branched stems and tormentulose and often glandular twigs; leaves obovate, lanceolate, cuneate or oblong; flower-clusters expanding after the leaves; corolla white or pinkish. A native of Georgia and Florida.

#### 13. R. OBLONGIFOLIUM. A. OBLONGIFOLIA, Small, 1903.

A deciduous shrub 6 feet or less high, with erect or spreading branches and finely pubescent and somewhat hirsute twigs; leaves oblong-oblanceolate or obovate; flower-clusters expanding after the leaves; corolla white or pink. Distributed throughout Arkansas and Texas.

#### 14. R. SERRULATUM. A. SERRULATA, Small, 1903.

A deciduous shrub 12 feet or less high with irregularly spreading branches and sparingly strigose twigs; leaves oblong or oval or elliptic-oblanceolate; flowers expanding after the leaves; corolla white. A native of peninsular Florida.

#### 15. R. PRUNIFOLIUM. A. PRUNIFOLIA, Small 1913.

A deciduous shrub up to 9 feet high, with irregular branches and smooth twigs; leaves obovate, oval or narrow-elliptic; flowers expanding after the leaves; corolla crimson. A native of south-west Georgia and eastern Alabama.

With regard to the botanical position of the foregoing species and so-called species, we have received the following letter from Professor Bayley Balfour:—

"You find here that including what we call AZALEA VASEYI, which they (the American botanists) now make a distinct genus, BILTIA, because the upper lobe of the corolla is external not internal, there are 12 species of Azalea in America.

"A. CALENDULACEA (which they now call A. LUTEA).

"A. NUDIFLORA, A. CANESCENS, A. VISCOSA, A. ARBORESCENS, A. OCCIDENTALIS (they now call A. CALIFORNICA).

"The first five are the names of species which were used in all the old hybridisation experiments. A. OCCIDENTALIS came in later and has also been used, but the first work was undoubtedly with the other five species I have named. How far the plants to which names have now been given, namely: A. AUSTRINA, A. PRINOPHYLLA, A. CANDIDA, A. OBLONGIFOLIA, A. SERRULATA and A. PRUNIFOLIA were used up with these old species and have had therefore a share in some of the hybridisation work will require to be carefully investigated. If you get the book I name (NORTH AMER. FLORA, Part I., Vol. XXIX.), you will have a botanical basis for a start upon the problem you are going to investigate. My own experience with these Azaleas has been far from satisfactory. It is very difficult to get plants that conform with the technical descriptions that are given. I imported a great number from America about 28 years ago, and many of them are not true to the descriptions.

"I am venturing to send you on loan what I think may be of interest to you:

"1. Loddiges' catalogue of plants for 1820 and 1823, in which you will find lists of the Azaleas then in cultivation.

"You will be able to separate the American ones from those that are not American, and the catalogue will serve to show you what a number of varieties there were in cultivation at so early a date. Some of the plants named in the catalogue are figured in Loddiges' Bot. Cabinet, and, as is explained at the beginning of each of the lists, the number after the names refers to figures in the Cabinet.

- "2. I am also sending you by way of illustration of the state of Azalea culture in France early in the last century, a catalogue of Cels nursery for the year 1836-1837. By that time SINENSIS forms were in as you will see. The catalogue will give you a picture of the state of cultivation a little later than that shown by Loddiges'.
- "3. And then I am sending to you a third catalogue, namely of Peter Lawson & Sons, the famous Scottish nurserymen, of date 1858, after the Ghent Azaleas had come in, and you will there read both of the varieties of American species and also of the so-called Ghent varieties.

"These catalogues may, I hope, give you some help in your work.

"I. BAYLEY BALFOUR."

It may be pointed out that R. VASEYI is the first of the American species to flower (early May), and this is followed almost immediately by R. Rhodora\*: next in order come R. CANESCENS and R. NUDIFLORUM (late May and early June), then R. CALENDULACEUM (June), R. ARBORESCENS (June-July), and R. VISCOSUM last of all (mid-July).

<sup>\*</sup> R. Rhodora always flowers before R. Vaseyi at Kew—usually in mid-April.—W.J.B.

It would seem to be the case that Americans paid but little attention to the Fauna and Flora of their own country in the early part of the last century and prior to this date. Nearly all work for the discovery of new species was done by Englishmen, who travelled into the comparatively unknown wilds and gathered new treasures, which they sent for identification to scientists and nursery gardeners in England. Our people, however, seem to have confined their attention at first more to the crossing of the evergreen species of Rhododendrons, using such few species as R. CATAWBIENSE, R. MAXIMUM, and the eastern R. PONTICUM, R. CAUCASICUM and R. ARBOREUM, rather than the American Azaleas.

The first hybrid raised in England (about the year 1810), occurred in Mr. Thompson's nursery in London, through the accidental crossing of R. PONTICUM and R. NUDIFLORUM. It is still well known as R. "ODORATUM" or R. "AZALEOIDES." From this Dr. Masters invented the name "AZALEODENDRON" to distinguish the group of hybrids between evergreen Rhododendrons and deciduous Azaleas, R. "Gowenianum," R. "odoratum," R. "Williamsii," etc., being well-known examples. About the year 1826, the Earl of Liverpool, Mr. Gowen (head gardener to the Earl of Carnarvon) and Dean Herbert worked successfully in obtaining many hybrids, chiefly amongst evergreen species. Mr. Gowen, however, created several hybrids between American Azaleas and eastern species, whilst Dean Herbert mated many evergreen Rhododendrons with Pontic and American Azaleas. What has become of the hybrids raised by the last named we do not know, but many of Mr. Gowen's hybrids are still in existence, such as R. "Cartoni" (R. Nudiflorum  $\times$  R. catawbiense) and R. "Gowenianum" (R. Nudiflorum  $\times$  R. viscosum  $\times$  R. ponticum  $\times$  R. CATAWBIENSE). In 1829, E. Smith, of Surbiton, also made numerous crosses with American and other Azaleas.

The first man in Europe to grasp the commercial possibilities of the American Azaleas was a Belgian baker named Mortier, who lived in the town of Ghent, and as far as we can ascertain he commenced to work about the year 1815, using such species as R. CALENDULACEUM, R. NUDIFLORUM, R. VISCOSUM, R. CANESCENS, and possibly R. ARBORESCENS. There is little doubt that he also used as a parent (to get intense yellow) R. FLAVUM (A. PONTICA). Professor Sargent considers that, as Mortier was the originator of the Ghent Azaleas, they should in future be known as R. "MORTIERI" (A. "MORTIERI"). It appears that by 1829, the Belgian nurserymen had seriously adopted Mortier hybrids and were annually adding large numbers of their own raising. These hybrids were found to be very popular and were exported in large numbers to all parts of Europe and America. About the year 1830 English nurserymen commenced the creation of these hybrids on similar lines, the most active workers being Lee and Kennedy and the Waterers, whilst Osborne, of Fulham, followed a little later.

In 1836 Loudon in his catalogue gives a long list of named varieties, whilst Loddiges at this date enumerated 107 varieties, a smaller number only being given in his catalogues of 1820 and 1823. At the same date (1836), the culture of American Azaleas crossed with R. FLAVUM (A. PONTICA) and R. MOLLE (A. MOLLIS et A. SINENSE?) was extensively undertaken in France, as we see from Cels catalogue of that date.

In all these hybrids the influence of one or more parents is apparent. Yellow were obtained by using R. FLAVUM, intense orange with R. CALENDULACEUM, honeysuckle-like flowers with R. VISCOSUM, full whites with R. ARBORESCENS, pinks with R. NUDIFLORUM and probably R. MOLLE, and size of flowers with R. MOLLE,

When all is said it is a questionable matter if any of these hybrids exceeded in beauty the pure species, such as R. CALENDULACEUM or R. MOLLE. In flaming orange the varieties "WILLIAM III.," "NE PLUS ULTRA," and "GLORIA MUNDI" are perhaps as fine as the first-named, but none of the modern Ghent Azaleas surpass in richness of colour or in size of flowers the varieties of R. MOLLE known as "Alphonse La Vallee (scarlet-orange), J. C. Van Tol "(deep-red) and "Mrs. L. J. Endtz" (deep yellow).

The most industrious of the Belgian firms between the years 1836-1870, were Cassel, Verschaffelt, Van Houtte, and Vuylsteke, and these continued their activity up to the date of the Great War (1914), when most of the original members of those firms had long since passed away.

It is doubtful as to who first used the American R. OCCIDENTALE (A. OCCIDENTALIS), so as to get large white or cream varieties with a yellow blotch. Those of us who are gardeners know well how "kittle" the true species is under cultivation. It grows slowly or only occasionally flowers. Doubtless our predecessors grasped this fact and were as anxious as ourselves to evolve hybrids with the floriferousness of the "Ghent Azaleas" with the pure qualities of the R. OCCIDENTALE flowers. The first worker we can trace with certainty was Isaac Davies, of Ormskirk, who produced the charming sweet-scented hybrid known as A. "Daviesi," a plant that is still popular in our gardens. He raised many such hybrids with R. OCCIDENTALE strain and also others of the R. "Broughtoni aureum" class, most of which are unfortunately now lost to cultivation.

A long pause seemed to have taken place before any other nurseryman attempted to work with R. OCCIDENTALE as a parent. About the year 1880 Mr. Anthony Waterer (of Knap Hill), who has all his life made a speciality of improving the "Ghent" Azaleas on lines of his own, introduced an R. OCCIDENTALE strain. At first his efforts met with little success, but by constantly selecting the best and recrossing back to the pure species he has now evolved a line of white large-flowered hybrids with yellow blotch that are in every way as fine or better than the true species. It only requires a visit to his extensive nurseries in the early part of June to prove the truth of this assertion. Anthony Waterer too has now brought the creation of hybrid Azaleas to such a pitch of perfection, far surpassing all but a few of the very best of the old "Ghents" that it seems as if he had reached a finality in what we can expect in a hardy garden hybrid Azalea. White, red, orange, tinted hose-in-hose of various colours are there in abundance, whilst at present only a few very large pure pinks have been achieved, but of these he will probably have a sufficient stock in a few years. His strain of pure scallets too are not to be seen in any other nursery, and these were achieved by constant crossing and recrossing of R. CALENDULACEUM with R. MOLLE. Mr. Anthony Waterer has never exhibited

his best hybrids so the public are in complete ignorance of the wonderful hybrids. he has produced.

Within the past ten years Messrs. Koster & Sons, of Van Nes Boskoop, Holland, have paid much attention to the use of R. OCCIDENTALE, and Messrs. Cuthbert (the English agent of the first-named firm) have been active in distributing such lovely and hardy hybrids of this species as "EXQUISITE," "MAGNIFICA," "GRACIOSA," and "SUPERBA."

All of these are excellent garden plants and give effective displays annually in the garden if the flower-trusses are picked off as soon as they have faded. In recent years Mr. George Paul has paid some attention to improving Ghent Azaleas, and we would call the attention of members to two varieties of unusual excellence which he has created, namely, "HIGH BEECH SCARLET" (intense scarlet) and "PINK BEAUTY," a fine pink hybrid for planting in groups.

In the cultivation of these plants it is well to remember that if the gardener wishes to have a fine display every year, it is just as essential to pick off the seed-pods as with other Rhododendrons. This is, we know, a trouble, and the faded flowers and seed vessels are not so easy to remove as in the case of the larger blooming Rhododendrons. Nevertheless, a little practice will make it easy and the result fully compensates for the work involved. They should also be well watered at the growing season, and especially when the beds are isolated on the lawn as is often the case. All these Azaleas give fine colours in bronze and red in the autumn before the leaves fall. If we wish to grow them to perfection they do best in the semi-shade of a wood.

Ghent Azaleas are easily forced by taking into a greenhouse in January and subjecting them to ordinary forcing treatment. The market growers gum the flowers when fully expanded by forcing gum between the calyx and corolla of each flower. When thus treated the flowers last for weeks. Before actually taking them into the drawing-room or hall, the plants should be placed in a lower temperature with more light.

The choice of plants is always a matter of individual taste. The following are perhaps the best "Ghent Azaleas" now appearing in British and Continental catalogues:—

- "AURORE DE RHYGHEM," golden-yellow, shaded with orange, upper lobes darker, large trusses of flowers.
- "FAMA," mauve, with yellow spot.
- "GLORIA MUNDI," vermilion, upper lobes entirely spotted with apricot-yellow.
- "UNIQUE," golden-yellow, shaded with orange, fine trusses of big flowers.
- "BEAUTE CELESTE," bright pink, upper lobes spotted with canary-yellow.
- "BRILLIANT," red flowers, orange on the reverse side.
- "JULDA SCHUPP," blood-red, large trusses and flowers.
- "BRONZE UNIQUE," blood-red, spotted with vermilion.
- "WILLIAM II.", orange.
- "PINK BEAUTY," pink.
- "HIGH BEECH SCARLET," scarlet.

The months of May and June may be made glorious by having a good succession of the best Azaleas. From May 5th to 20th, R. Molle is at its best; May 18th to May 30th, R. Flavum, May 20th to June 18th, the Ghents are in full flower, and May 30th to June 20th, the Anthony Waterer hybrids. Especially are they valuable to force contrast by means of yellow masses which cannot be found in the true hardy Rhododendrons (except R. "Broughtoni aureum" and R. "Smithii aureum"). Kew in late May and early June has ever been a Mecca of garden lovers in "Azalea" time, and when we consider that any garden of suitable soil can be made so lovely, these glorious shrubs should be the first consideration for those who only desire plants of exceptional beauty with ease of culture.

J. G. MILLAIS.

P. D. WILLIAMS.

January, 1917.

# LIST OF RHODODENDRON SPECIES GROWING AT CAERHAYS CASTLE, CORNWALL, IN JULY, 1917.

#### CONTRIBUTED BY J. C. WILLIAMS.

The following list of Rhododendron species growing at Caerhays is the outcome of a request conveyed through the Honorary Secretary. As the Notes of the Rhododendron Society is a private publication, and the circulation is confined to contributors, Mr. Williams very kindly consented.

In a letter to Mr. Eley, dated 23rd August, 1917, Mr. Williams writes: "I am sending you a list of plants here and also some outlines of things which have flowered lately (see p. 183). The list of species is very hard to get right, for example, Davidii and oreodoxa of Wilson's collection run into one another, and the numbers are mixed I believe; moreover, Professor Bayley Balfour doubts if R. oreodoxa is in this country at all. Further, I believe that both these species are tangled up with hybrids from and with R. pachytrichum and R. maculiferum, though I have not yet made good the geographical facts for this suspicion."

It will be seen that the total number of Rhododendron species and natural varieties growing at Caerhays, in July, 1917, was 264.

In a subsequent letter to Mr. Eley, dated 17th December, 1917, Mr. Williams writes in reply to enquiries: "As to R. VIRGATUM, Professor Bayley Balfour has now called Nos. 6770 and 9342 SINOVIRGATUM, and they are remarkably near to the picture of what Hooker calls R. VIRGATUM.

Nos. 5880 and 5881 Professor Bayley Balfour now calls EUANTHUM, and I believe doubts if Forrest ever found R. Sheltonæ: moreover, Wilson tells me that he (Wilson) never got seed of it.

I have never had R. Rhodora here or indeed anywhere else.

R. YUNNANENSE is for the present submerged by the Professor under a mass of near relations; and he cannot yet tell me which is the true form; although I have the form sent home by Delavay, and many other forms also, perhaps all that are as yet in cultivation. R. OCCIDENTALE pure has never been on these premises.

As regards the word "Series," used frequently throughout the list, I have copied this off Professor Balfour's lists. I believe that when the Professor has a group of allied plants under consideration he "lumps" the doubtful ones under the word "Series," and postpones sorting them until such time as he is able to undertake the work. There are a great many in this category now, not a few of which are growing here, and some have flowered."

The Society is much indebted to Mr. Williams for the work entailed in the production of this list, and to Mr. W. J. Bean, who has kindly helped by checking the authors' names and has made several valuable suggestions.

C. C. E.

December, 1917.

```
5868-5871 Forrest.
                                                           (China). †
1.
    ADENOGYNUM. Diels
                                       Similar to, but not felted. No.1. Captain
2.
    ADENOGYNUM, not named (?) ...
                                           Bailey. (Upper Brahmaputra). †
3.
    ADENOGYNUM Series
                                       11321 Forrest, un-named. (China). †
4.
    ADENOPHORUM, Balf. et W. W. Sm.
                                      10429 Forrest. (China). †
    ADENOPODUM, Franch.
                                       505 Wilson. (China). *
5.
    AFGHANICUM, Aitch. et Hemsl. ..
6.
                                       (Asia). * 1
7.
    ALBIFLORUM, Hook. f.
                                       (America). *
8.
    AMBIGUUM, Hemsley
                                       4252 etc. Wilson.
                                                           (China). †
                                   . .
    AMESIÆ, Rehder et Wilson
9.
                                       4233 Wilson.
                                                     (China). †
                                   . .
10.
    AMOENUM, Planch.
                                       (Japan). *
                                   . .
11.
    ANTHOPOGON, D. Don
                                       (Asia). *
12.
    APODECTUM, Balf. et W. W. Sm.
                                       8987-9054 Forrest. (China). •
13.
    ARBORESCENS. Torr.
                                   .. (America). •
14.
     ARBOREUM. Smith..
                                       Pink. (India). *
     ARBOREUM, Smith ...
15.
                                       Red.
                                              (India). *
16.
     ARBOREUM, Type of
                                       No. 3.
                                                 Captain Bailey.
                                                                   (Upper
                                   . .
                            . .
                                           Brahmaputra). •
     ARBOREUM, var. SIR CHARLES
17.
                                       (India). *
       LEMON, Hort.
18.
     ARBOREUM, var. ALBUM, Wallich
                                       (India). *
19.
     ARGENTEUM, Hook. 1.
                                       (India). *
20.
     ARGENTEUM
                                       Similar to, from Captain Cuthbert. *
                                       1521, etc., etc., Wilson. (China). †
21.
     ARGYROPHYLLUM, Franch.
22.
     ASSAMICUM, Hort.
                                       (Asia). (See GARDENERS' CHRONICLE,
                                            1881, i. p. 8). *
                                       From Bees, Ltd. *
23.
     ATUNTZI COUNTRY, 1 plant from
24.
                                       (India). *
     AUCKLANDII, Hook. f.
                                       598 etc., Wilson. (China). †
25.
     AUGUSTINII, Hemsley
26.
     AURICULATUM, Hemsley ...
                                       920 Wilson. (China). †
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Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

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27.
     AUSTRINUM, Millais
                                        (America). *
28.
     BALFOURIANUM, Diels
                                        6774 Forrest, (China). *
29.
     BARBATUM, G. Don
                                        (India). *
                                    . .
30.
     BASILICUM, Balf. et W. W. Sm. ..
                                        8990-12078 Forrest. (China). *
31.
     BEESIANUM Diels
                                        10195-10546-11313-13032-13143
                                    . .
                                            Forrest. (China). †
32.
     BEESIANUM FULVUM Series
                                        10477 Forrest, un-named. (China). †
33.
                                       (India). *
     BOOTHII, Nutt.
                      .. ..
34.
     BRACHYCARPUM, G. Don
                                       (Japan). *
     BRACTEATUM, Rehder et Wilson
35.
                                       4253 Wilson, (China). *
                                       1278 etc., Wilson, (China). *
36.
     BRETTII. Hemslev et Wilson
37.
     BULLATUM, Franch.
                                       XXII. of 1910-11 Forrest. (China). *
38.
     CALENDULACEUM, Torr. ..
                                       (America). *
                                   . .
39.
     CALIFORNICUM, Hook.
                                       (America). *
40.
     CALLIMORPHUM, Balf. et W. W. Sm.
                                       9055 Forrest. (China). *
41.
     CALOPHYTUM, Franch. ...
                                       1523, etc., Wilson. (China). †
                                   . .
42.
     CAMPANULATUM, D. Don
                                       (India). *
                                   . .
43.
     CAMPYLOCARPUM, Hook. f.
                                   . .
                                       (India). *
44.
     CAMPYLOGYNUM, Franch. (Aff. to)
                                       13303 Forrest, un-named. (China). †
45.
    CAMPYLOGYNUM. Franch.
                                       13518 Forrest.
                                                       (China). †
46.
    CANDIDUM, Small
                                       (America). *
                            - .
47.
    CANESCENS. G. Don
                                       (America). *
                            . .
                                   . .
    CAROLINIANUM. Rehder
48.
                                       (America). *
                            . -
49.
    CATAWBIENSE, Michx.
                                       (America). *
                            . .
                                   . .
    CAUCASICUM. Pall.
50.
                                       (Asia). *
                            . .
    CEPHALANTHOIDES,
                                       5866 (probably): Forrest. (China), †
51.
                            . .
      Balf. et W. W. Sm.
52
    CEPHALANTHOIDES MICROFORME.
                                       10312 Forrest. (China). †
      Balf. et W. W. Sm.
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<sup>\*</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

53.	CEPTALANTHUM, Franch	6756 Forrest. (China). *
<b>54</b> .	CHAMPIONÆ, Hook	(China). *
55.	CHARTOPHYLLUM, Franch. Series	5874 - 10058 Forrest, un-named. (China). †
56.	CHRYSANTHUM, Pall	Flowers from August to January. (Asia). *
<b>57</b> .	CILIATUM, Hook. f	(India). *
58.	CILIICALYX, Franch	9919 Forrest. (China). Lingers at Caerhays.
<b>59</b> .	CILIICALYX, Franch (Aff. to CILIICALYX 6764).	Forma 9919 Forrest, un-named. (China). Lingers at Caerhays.
<b>6</b> 0.	CINNABARINUM, Hook. f	Flowers from May to July. (India).
61.	CLEMENTINÆ, G. Forrest	10857-11486-12607 Forrest. (China). †
<b>62</b> .	COOPERI, Balf. et W. W. Sm	3507 Cooper, 1914. (Bhotan).
63.	COREANUM, Rehder	(Corea). *
64.	CRASSUM, Franch	9431 Forrest. (China). Flowers from June to September. *
65.	CROCEUM, Balf. et W. W. Sm	10428-10680-11317-12731-12969 Forrest. (China).
66.	CUNEATUM, W. W. Sm	10059-10071-10435 Forrest. (China).
67.	CUNEATUM, Type of	No. V. Captain Bailey. (Upper Brahmaputra).
<b>6</b> 8.	CYANOCARPUM, Franch	6775-6778 Forrest. (China). †
69.	DALHOUSIÆ, Hook. f	(India). *
<b>7</b> 0.	DAURICUM, Linn	(Siberia). Flowers from November to February. *
71.	DAURICUM SEMPERVIRENS, Sims	(Siberia). Flowers from November to February. *
72.	DAVIDII, Franch	1531 Wilson. (China).
73.	DAVIDII	Like 70D. Came about 1912 (from Bees, Ltd.).
74.	DAVIDSONIANUM, Rehder et Wilson	1535 Wilson. (China).

75.	DECORUM, Franch.	• •	• •	1209-4257-1782 Wilson. (China). Flowers from April to November. Flowers only cut at Werrington in part. *
76.	DELAVAYI, Franch.	• •	••	6769-7463-11073-11074 Forrest. (China). Cut at Werrington badly. *
77.	DELAVAYI (Aff. to)	• •		13380 Forrest, un-named. (China).
78.	DICHROANTHUM, Diels	••	••	6761-11597 Forrest. (China). Some flowers in the autumn, about August, a very remarkable colour. †
79.	DILATATUM, Miquel		••	(Japan). Seems in the case of one plant to colour well from August to September. Flowers about April. †
80.	DISCOLOR, Franch.	• •		586 Wilson. (China). †
81.	EDGEWORTHII, Hook. f.		• •	(India). Flowers in late April, the scent has hardly a rival. *
82.	ELEAGNOIDES, Hook. J.			(India). Hardy at Werrington.
83.	EUANTHUM, Balf. et W. W	r, Sm	••	5880-5881 Forrest. (China). Not yet flowered. $\dagger$
84.	EXIMIUM, Nutt		• •	(India). *
85.	FABERI, Hemsley	• •		1538-1547-1867 Wilson. (China). †
86.	FALCONERI, Hook. f.		• •	(India). *
87.	FARGESII, Franch.			1250 Wilson. (China). *
88.	FASTIGIATUM, Franch.	••		5847-10055-11626 Forrest. (China). Flowers in almost any month, but about August and April for the main crops. †
89.	fastigiatum (?)	<i>.</i> .	••	Section 39 of Ward (from Bees, Ltd., 1914) †
90.	FASTIGIATUM Series .			10311-10434 Forrest, un-named.
				(China). †

<sup>\*</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

<b>92</b> .	F :TOLACTEUM Series .			10974-12948 Forrest, un-named.
				(China). †
<b>93</b> .	FITTIANUM, Balf. et W. V.	V. Sm.		Forrest. (China). †
94.	FLAMMEUM, Hort			(America).
95.	FLAVIDUM. Franch.	•	• •	1773-1202 Wilson. (China). Flowers about March and April and again in the autumn. †
96.	FLAVUM, G. Don	•		(Azalea pontica). (Asia Minor). *
97.	FLOCCIGERUM, Franch	•		12893-13299 Forrest. (China). *
98.	FLOCCIGERUM Series	•	••	12889-13387-13438 Forrest, un-named. (China). *
<b>9</b> 9.	FLORIBUNDUM, Franch.			4266 Wilson. (China). †
100.	FORMOSUM, Wallich .	•	• •	(India). *
101.	Forrestii, Balf	•		13259 Forrest. (China). †
102.	FORTUNEI, Lindl	•	••	885, etc., Wilson. (China). Flowers in June and July. †
10 <b>3</b> .	FORTUNEI Series .	•	••	5869-6776 Forrest, un-named. (China). Flowers March and April. *
104.	FULGENS, Hook. j.			(India). *
105.	FULVUM, Balf. et W. W. S	Sm.		8989 Forrest. (China). †
106.	GLAUCUM, Hook. f.			(India). *
107.	GLISCHRUM, Balf. et W. V	V. Sm.		12901 Forrest. (China). †
108.	HABROTRICHUM, Balf. et	W.W.	Sm.	9048-12054 Forrest. (China). Cut at Werrington when very young. *
109.	HÆMATODES, Franch	•	••	6773 Forrest. (China). Flowers in autumn and spring. †
110.	HANCEANUM, Hemsley			882-4255 Wilson. (China). †
111.	HELIOLEPIS, Franch			10438 Forrest. (China).
112.	HIPPOPHÆOIDES,  Balf. et W. W. Sm.	, <b>,</b>	••	10333-12461 Forrest. (China). Flowers in autumn and early spring, and is of a rare beauty in the best forms. †

<sup>\*</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

(Europe). \*

113. HIRSUTUM, Linn.

114. Hodgsonii, Hook. f. .. (India). \*

	_	
115.	Hookeri, Nutt	(India). *
116.	HOULSTONII, Hemsley et Wilson	648 (?) Wilson. (China). Flowers about April. *
117.	Hunnewellianum, Rehder et Wilson	4248-1198 Wilson. (China). †
118.	HYLOTHREPTUM, Balf. et W. W. Sm.	5848 Forrest. (China). *
119.	HYPOGLAUCUM, Hemsley	311 Wilson. (China). †
<b>12</b> 0.	HYPOLEPIDOTUM, Balf. et W.W. Sm.	13302 Forrest. (China). *
121.	IDONEUM, Balf. et W. W. Sm	12623 Forrest. (China). †
122.	IMPEDITUM, Balf. et W. W. Sm.	5863-5876 Forrest (China). Flowers in the early spring. †
<b>123</b> .	INSIGNE, Hemsley et Wilson	1339 Wilson. (China). *
124.	INTRICATUM, Franch	1543 Wilson. (China). Flowers in the spring and autumn. †
<b>125</b> .	IRRORATUM, Franch	5851 Forrest. (China). Flowers early in the spring. ‡
126.	IRRORATUM Series	10651 (purple) Forrest, un-named. (China).
127.	IXEUTICUM. Balf. et W. W. Sm	12944-13244 Forrest. (China).
128.	Kæmpferi, Planch	(Japan). Flowers about April. *
129.	KAMTSCHATICUM, Pall	(Asia). Has never flowered. *
1 <b>3</b> 0.	Keiskii, Miquel	(Japan). Flowers in February to March. *
131.	KEYSII, Nutt	(India). Flowers in the spring and at odd times. *
132.	LACTEUM, Franch	6778-11575 Forrest. (China). Doubtful at Werrington. *
<b>133</b> .	LACTEUM (?)	4254 Wilson. Is far from flowering. †
134.	LANATUM, Hook. f	(India). Flowers about March to April. *

\* Hardy at Caerhays. † Hardy at Caerhays and at Werrington. ‡ Hardy at Caerhays, not hardy at Werrington.

135.	LEDIFOLIUM, G. Don	(Japan). *
136.	LEDOIDES, Balf. et W. W. Sm	11246 Forrest. (China). Flowers about April. Has a flower like a Daphne. †
137.	LEPIDOTUM, Wallich	Near 3497. Cooper, 1914. (India). Flowers in the spring and autumn.*
1 <b>3</b> 8.	LEPIDOTUM, Type of	No. IV. Captain Bailey. (Upper Brahmaputra). Flowers in the spring and autumn.
1 <b>3</b> 9.	LINDLEYI, Moore	(India). Flowers in the spring. *
140.	LINEARIFOLIUM, Sieb. et Zucc	(Japan). *
141.	LONGISTYLUM, Rehder et Wilson	1204 Wilson. (China). Flowers very early. •
142.	LUTESCENS, Franch	1195, etc., Wilson. (China). Flowers in the spring and autumn, but is early, say February. *
143.	MACULIFERUM, Franch	944 Wilson. (China). Flowers about April. *
144.	MADDENII, Hook. f	(India). Flowers from May to September, according to the form of it.
145.	MADDENII, A form of	No. II. Captain Bailey. (Upper Brahmaputra). ‡
146.	Mariesii, Hemsley et Wilson	(China.)
147.	MAXIMUM, Linn	(America). *
148.	MELINANTHUM, Balf. et W. W. Sm.	406 (from Bees, Ltd., 1914). (Upper Burma). †
149.	METTERNICHII, Sieb. et Zucc	(Japan). *
150.	MICRANTHUM, Turca	1218-1200 Wilson. (China). Flowers in spring and autumn, †
151.	MICROPHYTON, Franch	7832-12084-12085 Forrest. (China). Flowers early. Not hardy at Werrington, I think.
152.	MOLLE, G. Don	(Japan). *

<sup>•</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington. ‡ Hardy at Caerhays, not hardy at Werrington.

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153.	MOLLICOMUM, Balf. et W. W. Sm.	13047 Forrest. (China). Flowers about April. ‡
154.	MONOSEMATUM, Hutchinson	1522 Wilson. (China). *
155.	MOUPINENSE, Franch	879-4256 Wilson. (China). Flowers from December to March. ‡
156.	MUCRONULATUM, Turcz	(Corea). Flowers from November to January. The best winter flower of the family. †
157.	NERIIFLORUM, Franch	6780 Forrest. (China). Flowers in spring and autumn. †
158.	NIPHARGUM, Balf. et W. W. Sm.	10292-10639 Forrest. (China). *
159.	NIVALE, Hook. f	3483 Cooper, 1914. (Bhotan). Not sure yet.
160.	NIVEUM, Hook. f	(India). Flowers in April. *
161.	NUDIFLORUM, Torr	(America). *
162.	NUTTALLII, Booth ex Nutt	(India). Flowers rather late in the spring. Hardy at Caerhays on a wall (in most years).
163.	OBTUSUM ALBUM, Planch	(Japan). *
164.	ORBICULARE, Decaisne	1519-1810 Wilson. (China). Flowers in April at Caerhays. †
165.	OREODOXA, Franch	1211-1541 Wilson. (China). Flowers about April. †
166.	OREOTREPHES, W. W. Sm	5873-10210-10297 Forrest. (China). Flowers about April. †
167.	OVATUM, Planch	938-1391 Wilson. (China). Flowers in April. A beautiful shrub, but a difficult subject. *
168.	OVATUM Series	9341-12845. Forrest, un-named. (China). Killed at Werrington.
169.	PACHYPODUM, Balf. et W. W. Sm.	13512 Forrest. (China). Yellow flowers early in March.
170.	PACHYTRICHUM, Franch	1203-1865 Wilson. (China). Flowers in April. †
171.	PARVIFOLIUM, Adams	(Asia). Flowers in July. *

<sup>\*</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington. ‡ Hardy at Caerhays, not hardy at Werrington.

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(India). Not tried it in the open yet.
172.
     PENDULUM, Hook. f. ..
                                  . .
     PENTAPHYLLUM. Maxim.
                                       (Japan). *
173.
     PHÆOCHRYSUM, Balf. et W. W. Sm. 10547 Forrest.
                                                      (China). †
174.
      PHOLIDOTUM, Balf. et W W. Sm.
                                       6762 Forrest.
                                                     (China). *
175.
                                       13526 Forrest. (China). †
176.
      PLATYPHYLLUM.
        Balf. et W. W. Sm.
                                       8938 Forrest. (China). *
      PLEBEIUM, Balf. et W. W. Sm. ..
177.
      POLYLEPIS, Franch.
                                       1221, etc., Wilson. (China). †
178.
179.
      PONTICUM, Linn.
                                       (Europe). Flowers in June. †
      PROSTRATUM, W. W. Sm.
                                       5862-10285 Forrest. (China). Does
180.
                                           best at Werrington. Flowers in
                                           the spring. Much injured by a
                                           caterpillar. †
                                       1863-4243 Wilson. (China). It rarely
181.
      Przewalskii. Maxim.
                                   . .
                                           flowers, †
182.
      PURABLUM, Balf. et W. W. Sm.
                                       10616 Forrest. (China). †
      QUINQUEFOLIUM, Biss. et S. Moore (Japan). *
183.
184.
      RACEMOSUM. Franch. ..
                                       5882 (?) 10086 (?) Forrest. (China). †
                                       10278 (?) Forrest. (China). *
185.
      RADINUM Balf. et W. W. Sm.
                                       10423 Forrest. (China). Flowered in
186.
      RAVUM, Balf. et W. W. Sm.
                                          the autumn of 1917. †
      RHAIBOCARPUM, Balf. et W. W. Sm. 11312-12982 Forrest. (China). †
187.
      RHANTUM, Balf. et W. W. Sm. ..
                                       10075 Forrest. (China). †
188.
189.
      RHOMBICUM, Miquel
                                       (Japan). †
                                   . .
                                       13301-13439 Forrest, un-named.
      RIGIDUM, Franch. Series
190.
      CHARTOPHYLLUM, Franch.
                                            (China).
         (This plant is wrongly named).
                                       1808 Wilson. (China). Starts to grow
      RIRIEI, Hemsl, et Wils.
191.
                                            too early if not in a cold aspect,
                                            and flowers in February. *
      ROXIEANUM, Forrest
                                        10540-12947 Forrest. (China). *
192.
                                   ٠.
                                        13005 Forrest, un-named. (China).
      ROXIEANUM (Aff. to)
193.
194.
      ROYLEI, Hook. f.
                                       (India). *
                             . .
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Hardy at Caerhays.
 † Hardy at Caerhays and at Werrington.

195. RUBIGINOSUM, Franch. .. 5877-10057-10073-10074 Forrest. (China), † No. 99. (Bought of Bees, Ltd.). 196. RUBIGINOSUM Series Flowers in June. \* 197. RUPICOLUM, W. W. Sm. 5865-10314 Forrest. (China). grow in soil with some lime in it. Flowers in the spring. † 198. SALUENENSE, Franch. 12968 Forrest. (China). \* . . 199. 12934 13258 Forrest, un-named. SALUENENSE Series (China). 200. SANGUINEUM, Franch. .. 13304 Forrest. (China). 1208 of 1908, 1288 of 1904, Wilson. 201. SARGENTIANUM, Rehder et Wilson (China). \* 202. SCABRIFOLIUM, Franch... 11031-11072 Forrest. (China), ‡ 203. SCHLIPPENBACHII, Maxim. (Corea). Flowers in April. \* 204. SCINTILLANS, Balf. et W. W. Sm. 10014 Forrest, (China). A beautiful mountain form. † 205. SEARSIÆ, Rehder et Wilson 1343 (?) Wilson. (China). \* . . 206. SEMIBARBATUM. Maxim. (Japan). Hardy at Werrington. . . 207. SERPYLLIFOLIUM, Miquel (Japan), \* ٠. 208. SETOSUM, D. Don (India). (?) only lately planted. . . 209. SINENSE, Sweet ... 800 Wilson, (China), † 210. SINOGRANDE, Balf. et W. W. Sm. 9021-11875 Forrest. (China). A very fine foliage plant, far finer than FALCONERI. † 211. SINOLEPIDOTUM, Balf. et W. W. Sm. 5864 Forrest. (China). † 212. SINOVIRGATUM, Balf. et W. W. Sm. 6770 Fortest. (China). \* 213. SMIRNOWII, Trauty. .. (Caucasus). \* 214. Souliei, Franch. 1222-1540 Wilson. (China). We are . . . . unable to grow it well except by accident. \* SPHÆRANTHUM, Balf. et W. W. Sm. 12505 Forrest. (China). \*

Hardy at Caerhays.
 Hardy at Caerhays and at Werrington.
 Hardy at Caerhays, not hardy at Werrington.

216. Delavay's form. (China). On a wall. \* SPINULIFERUM. Franch. 217. STAMINEUM, Franch. 887 Wilson. (China). Flowers in midspring. Scented strongly. \* 218. STAMINEUM Series 7673 Forrest, un-named. (China). Not really hardy at Caerhays. 5530 Forrest. (China). Not too hardy 219. STENAULUM, Balf. et W. W. Sm. at Caerhays. **22**0. 11299 Forrest. (China). † STEREOPHYLLUM. Balf, et W. W. Sm. 221. STRIGILLOSUM, Franch. .. 1341-1521 Wilson, (China). \* 222. SUBLANCEOLATUM, Miquel (Japan). \* 223. SULFUREUM. Franch. MICROFORME 6777 Forrest. (China). † SUTCHUENENSE. Franch. 224. 517-1232-509 Wilson. (China). Some flowers cut at Werrington. Open in March. \* 225. TALIENSE, Franch. 1539 Wilson. (China). \* TALIENSE. Franch. 226. 6772-11579-11583 Forrest. (China). \* 227. TELMATEIUM, Balf. et W. W. Sm. 10284 (?) Forrest. (China). Flowers in spring and autumn. † **2**28. TEYSMANNII, Miquel (Sumatra). Flowers on a wall at Caerhays in most years. 229. THAYERIANUM, Rehder et Wilson 4273 Wilson. (China). † 230. THEIOCHRUM, Balf, et W. W. Sm. 11910 Forrest. (China). 231. THOMSONII, Hook, f. (India). \* 232. TRAILLIANUM, Smith et Forrest 5870-10156-10204 Forrest. (China). † 233. TRAILLIANUM (Aff. to) ... 10460 Forrest, un-named. 234. 6755-11630 Forrest. (China). Flowers TRICHOCLADUM, Franch. ٠. in spring and in autumn. † (India). \* 235. TRIFLORUM, Hook. f. 236. Ungernii, Traulu. (Caucasus). Flowers in late June. \*

<sup>\*</sup> Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

(America). Professor C. S. Sargent 237. VASEYI. A. Gray says it needs moisture. 1887 Wilson. (China). \* 238. VERRUCULOSUM (?) Rehder et Wilson 239. VILLOSUM, Hemsley et Wilson ... 1862-4242 Wilson. (China). \* 240. WARDII, W. W. Sm. ... 529 (from Bees, Ltd., 1914), (China). \* 241. WASONII, Hemsley et Wilson ... 1876 (?) Wilson. (China). \* 242. WATSONII, Hemsley et Wilson ... 1872-4244-4251-4259 Wilson. (China). Not an easy plant to do and is very slow in growing. † 1328 Wilson. 243. Websterianum. Rehder et Wilson (China). \* WELDIANUM, Rehder et Wilson ... **` 244**. 4235 Wilson. (China). † 245. WIGHTII, Hook. f. (India). \* WILLIAMSIANUM, Rehder et Wilson 1350 Wilson. 246. (China). Flowers in April. † WILSONE, Hemsley et Wilson ... 886 Wilson. (China). \* **247.** WILTONII, Hemsley et Wilson ... 1804 Wilson. (China). We have had it 248. for ten years but it has had no flower so far. \* Wilson. (China). † 249. YANTHINUM, Bureau et Franch. 250. ZALEUCUM, Balf. et W. W. Sm. .. 8923 Forrest. (China). ‡ 251. ZEYLANICUM, Hort. ex Lond. .. (Ceylon). A slow grower. \*

## PURDOM'S RHODODENDRONS. GIVEN BY MESSRS. VEITCH ABOUT 1913.

- 252. 163 253. 247 Are like Forrest's 11313=BEESIANUM.
- 203. 241 /
- 254. 622=3 plants of R. MICRANTHUM.
- 255. 788 is near 828.
- 256. 828 dwarf habit (so far). Light green leaf.
- 257. 829=6 FASTIGIATUM-like plants.
- 258. 868=2 plants.
  - \* Hardy at Caerhays. † Hardy at Caerhays and at Werrington. † Hardy at Caerhays, not hardy at Werrington.

FROM BEES, LTD., 1914.

259. 768 is like Purdom's 828.

#### FARRER'S SEEDS OF 1913.

<b>26</b> 0.	125=79: 3 plants at Caerhays.	GARDENERS' CHRONICLE,
261.	126=119: 2 INTRICATUM-like plants.	11th December, 1915.

262. 339 = 364: 3 cuneatum-like plants.

263. 63 seems to be near Purdom's 828,

264. No VI. (?) Captain Bailey (Upper Brahmaputra).

\*CHINESE RHODODENDRONS INTRODUCED TO CULTIVATION IN EUROPE, WITH NAMES OF RAISER AND INTRODUCER AND DATE OF INTRODUCTION.

CONTRIBUTED BY PROFESSOR BAYLEY BALFOUR, F.R.S.

#### INTRODUCTORY NOTE.

In a letter to Mr. Eley, dated 9th January, 1918, Professor Bayley Balfour writes:—

"In response to your suggestion that I should write something for the forthcoming 'Notes' of the Rhododendron Society, I send herewith a statement which I have prepared to show the Rhododendrons now in cultivation that have come to us from China and the bordering regions of Tibet and Burma, giving also the date of introduction of the species, the name of the raiser and of the introducer of the plant in cultivation. Although the inflow of these new Chinese Rhododendrons dates only from the late years of last century, it is not easy in some cases to obtain precise information about the date of their introduction or as to who really introduced them. But I think it is worth while to try to determine these points and it seems to me there could be no more fitzing place than the 'Notes' of your Society for the publication of a record of the kind, and perhaps if you publish the list it may bring welcome and useful criticism and correction. I have already embodied corrections made by Professor Sargent, Mr. Watson, of Kew, and Mr. J. C. Williams, of Caerhays, to all of whom I am indebted for assistance. To M. Maurice de Vilmorin I have not applied in vain, and still hope to obtain much valuable information from him. early French introductions are the most difficult to determine and to date. the species named in the Fruticetum Vilmorinianum, published in 1904, all may not be in cultivation now, and certainly R. CAMPYLOGYNUM which is in the list has only come into cultivation in Britain through the plants raised by Mr. J. C. Williams, from Forrest's seeds.

The list is tentative and I send it in the hope of getting information."

For the purpose of record, and with the approval of Professor Balfour, the following brief particulars of the raisers and introducers are added:—

Bees. The firm of Bees, Ltd., of Liverpool. Proprietor, Mr. A. K. Bulley, of Ness, Neston, Cheshire.

Brookes, Samuel. A nurseryman, of Northampton Nursery, Ball's Pond, Newington Green.

Browne, Majo C. W., Survey of India.

<sup>\*</sup> Including adjacent Tibet and Bu na.

Champion, Lieut.-Colonel John George (1815?-1854). See Dict. Nat. Biogr.

Delavay, Père Jean Marie. A French missionary, born at Abondance, Haute Savoie in 1838. Joined French Foreign Missions, and in 1867 was sent to China. Died at Yunnansen, on 30th December, 1895.

Farges, Abbé Paul. A French missionary. Still collecting in Szechuan in 1898. See Bull. Mus. D'HIST. NAT. 1896, 279. Stated to be now dead.

Farrer, Captain. H.E.I.C. Brought R. FARRERÆ, named in compliment to Mrs. Farrer, (his wife?), from China in ship "Orwell." Resident in Blackheath in or about 1838. See Sweet's Flower Garden, Series II., t. 95.

Ford, Charles. I.S.O. Formerly Superintendent Botanical and Forestry Department, Hong Kong, for about thirty years. Genus Fordia named after him. Believed to be still living.

Forrest, George. Formerly of the Royal Botanic Garden, Edinburgh. A collector in China since 1904.

Fortune, Robert. (1813-1880). Traveller and botanist. See Dict. Nat. Biogr.

Henry, Augustine. Now Professor of Forestry, Royal College of Science for Ireland, Dublin.

Longe, Lieut.-Colonel F. B., of Holly Lodge, Thorpe, Norwich.

Poole, Joseph. A gardener. Went to China to collect for Samuel Brookes in "Lady Melville," an Indiaman, in 1818.

Tate. A nurseryman, of Sloane Square, London.

Veitch. The firm of James Veitch & Son, Ltd., Nurserymen, of Chelsea. Founded near Exeter in 1808; removed to Chelsea in 1853; ceased business in 1915. Their Rhododendrons were raised in their nursery at Coombe Wood, Kingston-on-Thames, on land the property of the late Duke of Cambridge and his descendants.

Vilmorin, Maurice L. de, of Les Barres, Nogent sur Vernisson, Loiret.

Ward, Frank Kingdon. Son of the late Professor Marshall Ward, of Cambridge. Collected in China for Bees, Ltd. Now serving in Mesopotamian Field Force.

Williams, John Charles, of Caerhays Castle, Cornwall.

Wilson, Ernest Henry. Now of the Arnold Arboretum, Boston, U.S.A. Collected for Messrs. J. Veitch & Sons.

C. C. E.

BEES—FORREST.         ixeuticum         191           adenogynum         1910         ledoides         191           brachyanthum         1906         lepidanthum         191           cephalanthoides         1910         Martinianum         191           chartophyllum         1910         melinanthum         191           crassum         1910         microphytum         191           cuneatum         1910         mollicomum         191           cyanocarpum         1910         niphargum         191           dichroanthum         1910         pachypodum         191           euanthum         1910         phæochrysum         191           hæmatodes         1911         platyphyllum         191	13 13 14 13 12 13 13 14 13 14 12 13
adenogynum       . 1910       ledidds         brachyanthum       . 1906       lepidanthum       . 191         cephalanthoides       . 1910       Martinianum       . 191         chartophyllum       . 1910       melinanthum       . 191         crassum       . 1910       microphytum       . 191         cuneatum       . 1910       mollicomum       . 191         cyanocarpum       . 1910       niphargum       . 191         dichroanthum       . 1910       pachypodum       . 191         euanthum       . 1910       phæochrysum       . 191         platyphyllum       . 191       . 191	13 14 13 12 13 13 14 13 14 12 13
brachyanthum         1906         lepidanthum         191           cephalanthoides         1910         Martinianum         191           chartophyllum         1910         melinanthum         191           crassum         1910         microphytum         191           cuneatum         1910         mollicomum         191           cyanocarpum         1910         niphargum         191           dichroanthum         1910         pachypodum         191           euanthum         1910         phæochrysum         191           branchedes         1911         platyphyllum         191	14 13 12 13 13 14 13 14 12 13
cephalanthoides         . 1910         Martinanum         . 191           chartophyllum         . 1910         melinanthum         . 191           crassum         . 1910         microphytum         . 191           cuneatum         . 1910         mollicomum         . 191           cyanocarpum         . 1910         niphargum         . 191           dichroanthum         . 1910         pachypodum         . 191           euanthum         . 1910         phæochrysum         . 191           platyphyllum         . 191         platyphyllum         . 191	13 12 13 13 14 13 14 12 13
chartophyllum       . 1910       meinantnum       . 1910         crassum       . 1910       microphytum       . 191         cuneatum       . 1910       mollicomum       . 191         cyanocarpum       . 1910       niphargum       . 191         dichroanthum       . 1910       pachypodum       . 191         euanthum       . 1910       phæochrysum       . 191         benefit des       . 1911       platyphyllum       . 191	12 13 13 14 13 14 12 13
crassum       . 1910       microphytum       . 191         cuneatum       . 1910       mollicomum       . 191         cyanocarpum       . 1910       niphargum       . 191         dichroanthum       . 1910       pachypodum       . 191         euanthum       . 1910       phæochrysum       . 191         phæotodes       . 1911       platyphyllum       . 191	13 13 14 13 14 12 13
cuneatum       . 1910       mollicomum       . 191         cyanocarpum       . 1910       niphargum       . 191         dichroanthum       . 1910       pachypodum       . 191         euanthum       . 1910       phæochrysum       . 191         benefit       . 1911       platyphyllum       . 191	13 14 13 14 12 13 13
cyanocarpum       . 1910       niphargum       . 191         dichroanthum       . 1910       pachypodum       . 191         euanthum       . 1910       phæochrysum       . 191         benefit des       . 1911       platyphyllum       . 191	14 13 14 12 13
dichroanthum	13 14 12 13
euanthum	14 12 13 13
tuantum	12 13 13
hæmatodes 1911 Philippingham i	13 13
nichation 191	13
nylothreptum	13
impeditum 1910 publicum	
lacteum 1910 lacteum 191	13
neriiflorum 1910	
oreottennes	
pholidotum	
prostratum 1910 rhantum	
runicolum 1910 saluenense	
in lamidatum 100g sanguineum 191	
stenaulum 1910 SCINTIIIANS	
sycnanthum 1910 sinogrande	
Adliance 1910 sphæranthum	
Traillianum 1910 stereophyllum 191	
theiochroum 191	13
trichociadum 1910 Viali 191	14
WILLIAMS—FORREST. Wardii 191	14
zaleucum 191	12
adenophorum 1913	
apodectum 1912 VEITCH—WILSON	
basilicum 1912	Λ4
Beesianum 1913 ambiguum 190	_
callimorphym 1914 argyrophyllum 190	
Clementing 1913 calophytum 190	-
croceum 1913 concinnum 190	
diaprenes 1914 *Davidii 190	
drumonium 1914 Davidsonianum 190	
1014 discolor 190	00
February 190	04
Tremandii 190	01
noccing craim 11 101	10
Torrestri 190	04
fulvum	
glischrum 1914 Halfovlandin	
habrotrichum	
heliolepis 1913 Houistonii 190	
hippophæoides 1913 insigne 190	
hypolepidotum 1914 intricatum 190	J 2

<sup>\*</sup>As the result of recent seeings of cultivated specimens of so-called Davidii, I doubt it being in cultivation.—I.B.B.

longesquam	atum			1903	KEW—FORD.				
lutescens			• •	1904	Fordii				1004
maculiferun	n	• •	•	1901	roidii	• •	• •	• •	1894
micranthun	ı		• •	1901					
monosemat	um	• •	• •	1903	DE	TEC V	I / A TD	Ъ	
pachytricht	ım	••		1904	DE	EESV	VAR	D.	
polylepis	• •		• •	1904	chryseum		• •	• •	1913
primulinum		• •		1904					
Ririei	• •	••	• •	1904					
Sargentianu				1904	BRO	OKES-	-PO	OLE.	
Souliei		• •	• •	1904	ledifolium				1819
stamineum			• •	1900					
sutchuenen	se			1901					
villosum				1904	PE	PETROGRAD.			
Wasonii				1904	Przewalskii				
Watsonii				1904				• •	
Wilsonæ				1903					
Wiltonii	• •			1904	UNKNOWN.				
					indicum		1	before	1680
ARNO	LD AR	DADE	TIIM		sinense				1828
AIMO			I OM-	·		• •	• •	• •	
	WILS	ON							
Amesiæ	• •	• •	• •	1908	JARDIN	DES	PL/	ANTES	
atroviride	• •	• •	• •	1906	-	DELAY			
bracteatum		• •		1908	_		, , , , , , , , , , , , , , , , , , ,		
charianthur		• •		1908	bullatum	• •	• •	about	
erubescens	• •		• •	1908	cephalanthun	n	••	about	1887
erubescens Hanceanum	· · ·			1908 1908	cephalanthun ciliicalyx				1887 1887
erubescens Hanceanum Hunnewelli	··· i ··· anum		••	1908 1908 1908	cephalanthun ciliicalyx decorum	n	• •	11	1887 1887 1887
erubescens Hanceanum Hunnewelli longistylum	anum		••	1908 1908 1908 1908	cephalanthun ciliicalyx decorum Delavayi	n 	• •	11	1887 1887 1887 1887
erubescens Hanceanum Hunnewelli longistylum moupinense	anum	••	••	1908 1908 1908 1908 1908	cephalanthun ciliicalyx decorum Delavayi fastigiatum	n 	••	2) ))	1887 1887 1887 1887 1887
erubescens Hanceanum Hunnewelli longistylum moupinense Searsiæ	anum	••	••	1908 1908 1908 1908 1908 1908	cephalanthun ciliicalyx decorum Delavayi fastigiatum fictolacteum	n  	• •	21 23 23	1887 1887 1887 1887 1887 1887
erubescens Hanceanum Hunnewelli longistylum moupinense Searsiæ strigillosum	anum	•••	••	1908 1908 1908 1908 1908 1908 1908	cephalanthun ciliicalyx decorum Delavayi fastigiatum fictolacteum irroratum	n  	• •	2) 14 4) 11	1887 1887 1887 1887 1887 1887 1890
erubescens Hanceanum Hunnewelli- longistylum moupinense Searsiæ strigillosum Thayerianu	anum	•••	•••	1908 1908 1908 1908 1908 1908 1908 1908	cephalanthun ciliicalyx decorum Delavayi fastigiatum fictolacteum irroratum oleifolium	n	• • • • • • • • • • • • • • • • • • • •	2) 2) 4) 2) 2)	1887 1887 1887 1887 1887 1887 1890 1887
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VILMORIN. *					The following species are said to				
auriculatum campylogymum					or to have been in nultivation, I are unknown to me, I. B. B.				
		-			- V				
hypoglaucu	m -		-		Annæ 🔐	43.	10.5	1.7	
rigidum	214	9.4	0.0		anthosphierun	n	200	13.50	
rotundifoliu	m	4 -	200		apiculatum		10.44	14.6	
					Balfourianum	de		100	
					brevistylum		4.0		
TATE-CAPT FARRER.					capitatum	de	2.5	450	
					Edgarianum	**	10.0		
Farrers	Cont.	20	3.6	1329	fragrans	000	2.00	27.7	
				4.0	idoneum	70.4	2. 5	140	
					nigropunctatu		346	145	
THE POPPLIE					oreodoxa		4.4	O.c.	
R.H.SFORTUNE.					oxyphyllum	78	111	0.0	
Fortunei	C.v.		940	1859		200	177		
ovatum.		100		1844	virlaceum	0.45	10.0	7.0	
			1 .	10.44					

<sup>\*</sup> Included in Francistum Vilmoninianum.

EXTRACT FROM A LETTER OF PROFESSOR BAYLEY BALFOUR TO MR. C. C. ELEY.

ROYAL BOTANIC GARDEN, EDINBURGH,

5th May, 1917.

"It is most kind of you to send to me Vol. I., No. 1, 1916, of the Rhododendron Society Notes, which I have read through from cover to cover with great interest and instruction.

I congratulate you and your Society upon the beginning of your records. These reports from different growers will be of perennial interest. How one wishes that there were such dicta from the earliest days of Rhododendron cultivation! It is only by knowing what plants are in cultivation in different gardens, the history of them, and the results of the observations of the growers, that Botany and Horticulture will obtain data for really knowing Rhododendrons. The gardener is the great practical occologist from whom scientific botanists in the past have learned far less than they ought and might. That this is so is in a measure the consequence of the want of systematic record by gardeners of their experiences. In the pages of current gardening periodicals a few of these are given to the world but in too many cases the most acute observers are the least disposed to appear before the public through these channels; and then what a labour it is to search through these periodicals for information! I think the method of your 'Notes' is particularly happy in the freedom it offers to your members to write about cultivation and to give their opinions. The formality attaching even to a paragraph in a periodical often negates the expression of a view or the statement of an observation. Your plan removes formality and is more of the nature of a conversation between friends interested in the growing of the same group of plants.

I am sure that you will have the blessings of posterity."

I.B.B.

#### LAPPONICUM SERIES OF RHODODENDRONS.

CONTRIBUTED BY PROFESSOR BAYLEY BALFOUR, F.R.S.

I wonder if I might ask for the hospitality of the Rhododendron Society in the matter of obtaining information about the yellow-flowered forms of the LAPPONICUM Series of Rhododendrons that are in cultivation? I may best make clear what I want by a tabular statement;—

- 1. Veitch raised from Wilson's seed No. 177%, sent home in 1904, the plant 3 named by Hemsley, R. PRIMULINUM (see GARD. CHRON.3, XI.VII. (1910), 4 and 229, fig. 101).
- 2. Before this name had been long in circulation, Hemsley and Wilson, in the Kew Bulletin (1910, p. 117), sank Hemsley's name R. PRIMULINUM in R. FLAVIDUM, Franchet. This original Wilsonian plant is therefore met with in cultivation under both names.
- 3. Wilson, in his first Arnold Arboretum Expedition in 1908, obtained seeds of what he considered the same plant, and it was distributed under No. 1202. Is this plant in general cultivation?
- 4. We have a plant of this No. 1202 raised from Wilson's seed. It has not yet flowered. It is named R. FLAVIDUM on the authority of the PLANTE WILSONIANE but it is a very different plant from Wilson's 177\$. An obvious structural difference is visible on the under side of the leaf. The scales of W. 177\$ are of one colour and all far apart, in W. 1202 the scales are of two colours and are close together.
- 5. What I want to request is that those who grow plants under Wilson's Nos. 1778 and 1202, or under the names R. Flavidum and R. primulinum, would examine them and see whether all the plants they have are the same in character of foliage. If the plant has flower or should flower a difference to be looked for is this:—Wilson's No. 1778 should have a corolla hairy and coated with scales on the outside and it should also have a style more or less hairy. I have ground for thinking that the flowers of No. 1202 will not show any hairs on the outside of the corolla and may have a hairless style.

ISAAC BAYLEY BALFOUR.

ROYAL BOTANIC GARDEN, EDINBURGH, 27th January, 1917.

#### RHODODENDRONS AT DAWYCK, TWEED-DALE.

#### CONTRIBUTED BY F. R. S. BALFOUR.

Dawyck House stands about 750 feet above sea level, in the upper reaches of the Tweed; the whole range of lofty hills where the Clyde and Tweed take their rise is perhaps the coldest region in the island.

The formation is old silurian and the drainage very free, the soil in which the Rhododendrons are planted is a mixture of leaf-mould and black peaty humus found in the park, but which requires a considerable admixture of river sand to make it workable.

The rainfall varies from 35 to 45 inches, and is remarkably evenly distributed over every month of the year.

The experience of the last two years has only confirmed what I have known for long: that it is vain to attempt to grow successfully at Dawyck any but the hardier species. On several occasions in both winters there were 34 degrees of frost, and the temperature fell to zero as late as on 1st April, 1917.

There are large masses of the older Rhododendron hybrids, also R. MAXIMUM, pure or nearly so, planted many years ago. Recent plantings have been made in a sheltered, wooded glen in the form of separate collections of the species of different regions.

European as well as North American (excepting R. CAROLINIANUM) and Caucasian species flower abundantly, none better than R. CALIFORNICUM among the American, and R. SMIRNOWI among the Caucasian species. The rare Western American R. ALBIFLORUM (Hooker) flowered particularly well this year and set seed.

The Chinese species, with the exception of a few good-sized plants from Wilson's earlier expeditions, were all grown from seed collected by him in his last two expeditions undertaken for the Arnold Arboretum. Of these I lost the following during the last two years:—

R. Augustinii, R. Delavayi, R. Floribundum, R. Hunnewellianum, R. hypoglaucum, R. intricatum, R. irroratum, R. lutescens, R. neriiflorum, R. Watsonii.

While the following suffered more or less:-

R. ARGYROPHYLLUM, R. ARGYROPHYLLUM VAI. CUPULARE, R. CHARTOPHYLLUM, R. LACTEUM, R. MICRANTHUM, R. POLYLEPIS, R. TALIENSE, R. VILLOSUM, R. YUNNANENSE.

And those that came through without damage were :-

R. Ambiguum, R. Amesiæ, R. Calophytum, R. Concinnum, R. Davidii, R. Davidsonianum, R. decorum, R. discolor, R. flavidum, R. Hanceanum, R. moupinense, R. oreodoxa, R. rubiginosum, R. Searsiæ, R. sinense, R. Sheltonæ, R. Souliei, R. strigillosum, R. sutchuenense,:R. Weldianum, R. Wiltonii, R. yanthinum.

Of the older Himalayan Rhododendrons:-

R. CINNABARINUM, R. BARBATUM, R. CAMPYLOCARPUM, R. CAMPANULATUM, R. THOMSONII, and a hybrid produced many years ago by Cunningham & Fraser, of which R. Thomsonii is the dominant parent, have proved perfectly hardy, while R. Falconeri, R. Niveum, R. Ciliatum, R. Arboreum var. Campbelliæ, R. Glaucum, all suffered to some extent, but R. Argenteum and R. Keysii were killed outright, as was only to be expected. Contrary to my expectations, however, R. Hodgsonii seems to be as hardy at Dawyck, even in its early stages, as any Rhododendron we have.

The Japanese and Korean species do not find our climate to their liking, and there were more casualties than survivors among the following species from those regions:—

R. Albrechtii, R. dilatatum, R. Kæmpferi, R. ledifolium, R. Metternichii, R. Schlippenbachii.

I have a considerable number of wild lifted American Azaleas which have been established for several years and all flower freely:—

R. ARBORESCENS, R. CALENDULACEUM, R. CANESCENS, R. NUDIFLORUM, R. VASEYI, R. VISCOSUM, but all these are surpassed by R. OCCIDENTALE which never fails to make a fine show of blossom.

It may not be out of place to add in conclusion that no ericaceous plants seem to be better suited to the severities of our climate than the genus Enkianthus, of which I have several species, including large plants of E. campanulatus, which are never injured by early or late frosts and flower abundantly every year.

F. R. S. BALFOUR.

17th December, 1917.

#### RHODODENDRONS AT BORDE HILL.

CONTRIBUTED BY LIEUT.-COLONEL STEPHENSON R. CLARKE, C.B.

If a garden be like a nation, happy when it has no history, my garden has passed a year of good fortune, for I find it very difficult to recollect anything that appears to me to be of especial interest. I had my anxieties during the great frost of the early months, but they proved groundless, at least there are no deaths to record. Rhododendrons oxyphyllum and sublanceolatum were severely cut, as also were to a lesser extent Bullatum and the Chinese form of Maddenii. After the great frost broke I am told that at many places trouble from frost did not again occur, but that was not so here; R. moupinense was the first Rhododendron to open its buds, but it only lasted in bloom for two or three days before a frost destroyed the flowers entirely; its successor R. dauricum met with the same fate, R. lutescens was ready to follow, but most of its buds were destroyed before they opened.

Most Rhododendrons were late in flowering. I was away from home for a few days in the spring, and when I returned on the 7th April, Barbatum, fulgens and strigillosum were the only ones in flower. The only mischievous frosts that I recollect after this were one on the 13th or 14th June, and another early in October, the former disfigured a few leaves on Falconeri, and the latter again cut Chinese Maddenii and Bullatum, the unripened points of the young growths suffering. I was interested to find that Indian forms of Maddenii and Edgeworthii were neither injured by this early frost nor by the great frost of the winter, at the same time I do not feel able to draw any comparison between the respective hardiness of the plants as the Indian Maddenii and Edgeworthii are considerably older plants and had better shelter.

I have often wondered at the remarkable power possessed by R. Hodgsonii of curling round the edges of the leaves towards their midribs during a dry frost, but last year although it certainly did marvels and quite kept up its reputation for looking miserable in cold weather, it was surpassed in its winter sport of curling by both CALOPHYTUM and STRIGILLOSUM. During the frost which now grips us Hodgsonii has been unable to roll up its leaves at all, as the first cold day brought a heavy fall of wet snow which adhering to the leaves and freezing on them formed "splints" which compelled them to preserve their shape.

I find my plants of R. INTRICATUM have improved greatly since I caused the lateral growths to be layered annually, while leaving them after rooting attached to the parent plant.

The season has proved to be an excellent one for the production of flower buds, especially on the large-leaved Himalayan species.

STEPHENSON R. CLARKE.

December, 1917.

#### SHADE TREES FOR RHODODENDRONS.

#### CONTRIBUTED BY CHARLES ELEY.

The question as to what trees are the most desirable neighbours for Rhododendrons is obviously one which is of the first importance to planters.

The writer has during the last two years obtained the opinions of several people whose experience is valued and has tried to express them in the form of a Note, in the hope that, in future numbers, other Members will be tempted to add their experiences and observations. The subject grows in scope the more closely it is examined and opens a far larger field for examination and controversy than it is possible to cover in a Note such as this. It is not intended to discuss the question of sheltering the plants from wind; but only to consider what trees it is best to use to give the plants that protection from the sun which experience has proved to be desirable in this climate.

The subject divides naturally into two main points: firstly, the density of the shade and secondly, the effect of the selected trees upon the surrounding soil.

Upon the second of these points an immense amount might be written, as within it, is wrapped up the perplexing question of the natural regeneration of Rhododendrons and so necessarily involves also methods by which they can best be artificially raised from seed.

And if, as I believe has been asserted on high authority, the seedlings under natural conditions pass the early stages of their career under some form of symbiosis, it is obvious that the trees best suited to shade and assist both the plants and their seedlings are a matter for careful consideration.

But further exploration of this particular thicket of controversy must be left for another occasion.

The replies received show remarkable diversity of opinion, and the writer has confined himself to mentioning only those trees regarding which some unanimity is shown.

All are agreed that the common oak is best, also that the slowness of its growth practically puts it out of court from the planter's point of view.

Several correspondents agree with the writer that the best tree from the planter's point of view is Quercus Cerris, not only on account of the rapidity of its growth and the diffuse quality of its shade but also because it is observed that Rhododendrons thrive in its proximity.

In India it is noted that Quercus incana is the tree which is most requently found growing in company with Rhododendrons, and similarly in A rica the majority of the Azalea species are reported to thrive best in open oak yods.

Is the suitability of the oak due to any possibility that it does not draw its moisture from around its perimeter as in the case of most other trees, or that its

leaf, its acorns or its roots produce soil conditions especially favourable to Rhododendrons?

And it would seem possible that the entire genus Quercus shares in this peculiarity, and probably all the small-leaved varieties particularly so.

Some varieties of Quercus sessiliflora are reported to grow more quickly than Quercus pedunculata, and also to thrive better on poor soil. This, however, is not my experience here. Some hundreds of Q. sessiliflora have been planted in different places, some of which were raised from Norwegian seed, vouched for by the late Mr. W. R. Fisher. The result in all cases is that they have shown a marked inferiority to the common pedunculate oak of this locality as regards the vigour of their growth.

Opinions are equally unanimous in condemning Ash, Elm, Beech, Sycamore, Poplar, and to these the writer would add the Lime. The dense shade produced by the beech cannot be mitigated, but, equally, the enormous value of the beech leaf mould produced cannot be overlooked, and one correspondent states that he has made a practice of curbing its soil-robbing propensities by driving a trench through its roots.

The whole question is extremely far reaching, because there is little doubt that leaf mould as well as soil has much to do with the success of Rhododendrons, and incidentally with the diseases.

The sweet chestnut is almost universally condemned, as being both too greedy and too dense.

Mr. William Watson, on page 56 of his book, "Rhododendrons and Azaleas,"\* says that "soils on which Spanish Chestnut, Birch, Conifers, particularly Pinus Pinaster, thrive, are not unlikely to suit Rhododendrons."

It would seem likely that both the Spanish Chestnut, always difficult to place with any certainty that it will thrive except in actual places which it is known to favour, and Pinus Pinaster demand from the soil just those very qualities which are required by the Rhododendron, and this criticism should possibly be extended to the others.

Opinion regarding the large maples seems curiously uncertain, but one authority writes that acer rubrum is a greedy tree, and that he fears acer dasycarpum is not much better. Generally speaking large-leaved varieties must be bad, since they demand moisture, and conversely the small varieties of the maples would probably be desirable where height is not required.

The question of small leaves suggests the birch, favoured by the writer in spite of its surface-rooting habits; and certainly the prospect of a group of betula ermani arising like fountains of coffee cream from the midst of broadleaved Rhododendrons or a carpet of INTRICATUMS is a vision tempting enough to induce anyone to give it a trial.

The cherries would seem suitable, especially Prunus serrulata, Prunus Avium fl. pl. and Padus Watereri, but this group is very liable to disfigurement from

<sup>\* &</sup>quot;Present-Day Gardening Series," pub. T. C. & E. C. Jack, London.

caterpillars and other pests, which would very possibly attack the young growth of the Rhododendrons beneath.

Several correspondents include the Laburnum, but without giving any special reason for the recommendation. It certainly possesses one disadvantage in that it constitutes a favourite food of the rabbit.

Populus alba var. pyramidalis (P. Bolleana, Carrière.) and Populus nigra, var. italica (Lombardy Poplar) can be in some places used with advantage to shut off the slanting rays of the rising or setting sun. Their close rooting habit make these two the less liable to rob the soil than the other common varieties.

Of conifers, Picea Omorika and Tsuga Albertiana are not easy to beat, the former especially, on account of its fastigiate habit making it economical in the matter of room.

The writer is sadly aware of the negative character of most of the foregoing Note, but trusts that it is at least provocative!

It is hoped that it may lead to an investigation of the whole subject in the near future. It is not too much to predict that the incoming flood of Rhododendrons from China will ultimately cause a revolution in English gardens, fully as great as did the arrival of new conifers in the middle of last century; and the War may hasten rather than retard this change.

In this event, the provision of suitable shade trees will become more and more important as the new species get into cultivation.

CHARLES ELEY.

December, 1917.

#### RHODODENDRONS AT KILMACURRAGH.

CONTRIBUTED BY THE RT. HON. THE MARQUESS OF HEADFORT.

Owing to the War I regret my notes must of necessity be curtailed, but perhaps a short description of my visit last May to Kilmacurragh will be of interest.

There exists at Kilmacurragh, Co. Wicklow, a very fine collection of most of the half-hardy shrubs and trees that were introduced about the middle and towards the end of last century, and I suppose some of the biggest specimens in the United Kingdom of Rhododendrons which were introduced during the time of the late Sir J. Hooker, amongst these the best specimens are:—

R. Falconeri, R. eximeum, R. Shepherdii, R. barbatum, R. lanatum, R. campylocarpum, R. Keysii, R. triflorum, R. Campbellii, R. niveum, R. arboreum (Crimson form), R. argenteum, R. Hodgsonii.

Nearly all these have grown to a great size, for instance :-

R. FALCONERI 25 ft. by 20 ft.; R. EXIMEUM, 15 ft. by 12 ft.; R. BARBATUM, 15 ft. high; R. CAMPBELLII, 20 ft. high; R. ARBOREUM (Crimson form), 25 ft. to 30 ft. high.

Other plants which have thrived in this very favourable climate and soil are:—

Libocedrus tetragona, 15 ft. high; eucalyptus gunnii, 35 ft. high; Tricuspidaria lanceolata, 25 ft. high; Ilex Perado, 25 ft. high; Pieris formosa, 15 ft. high; Podocarpus nubigena, 25 ft. high; Drimys Winteri, 35 ft. high; Magnolia Campbellii, 30 ft. high; Philadelphus mexicanus.

For specimens of Conifers I suppose the Abies grandis was one of, if not the finest in Ireland, and which, alas, was blown down in the northerly gale last December. The height this tree had attained was about 100 feet, the girth at the butt was fully 18 feet.

There is a magnificent specimen of Tsuga Albertiana at least 110 feet, and the three species of Athrotaxis are about the finest specimens, I suppose, in the United Kingdom; Embothrium coccineum, measuring about 60 feet through, is about 30 to 40 feet high.

I hope next year to give a fuller description of this exceedingly interesting collection.

HEADFORT.

March 2nd, 1918.

#### RHODODENDRONS AT PENLLERGAER, SWANSEA.

CONTRIBUTED BY SIR JOHN LLEWELLYN, BART.

From the middle of January to the middle of February, 1917, the weather in South Wales was exceptionally severe, and during most of that time the easterly wind blew a blizzard, with much snow and frost, which attained a maximum of twenty-eight degrees early in February.

Many conifers were scorched quite brown on the eastern side, many semihardy or tender shrubs such as veronicas, myrtles and some bamboos were killed or severely injured, but the Rhododendrons and Azaleas came through the winter far better than I expected.

The foliage of some of the more exposed plants was torn off by the violence of the wind, but the actual injury by frost to the plants was certainly less than was the case in November, 1893, when the sap and young wood was less matured than it was in January, 1917.

My plants of Rhododendron grande have suffered, though I think they will recover, while such species as Barbatum, Thomsonii, ochraceum, campanulatum, Griffithianum, Roylei, campylocarpum, Falconeri, Hodgsonii and cinnabarinum are uninjured and most of them are showing a very fair average of bloom for 1918.

No Azalea seems to be any the worse, still I cannot help hoping we may not be subjected to so sharp a test again in this coming spring.

JOHN D. LLEWELLYN.

14th December, 1917.

# EFFECT OF THE WINTER OF 1916-1917 ON RHODODENDRONS AT LEONARDSLEE.

#### CONTRIBUTED BY SIR EDMUND LODER, Bart.

On the whole it may be said that the bulk of the Rhododendrons came through the trying time very well.

R. BULLATUM was killed; also a plant of R. FORDII; but another plant of the same species was hardly touched.

The largest and oldest plant of blood red Arboreum was quite uninjured, but other varieties, Kermesinum, etc., were badly scorched and cut about, but they have recovered well.

R. LINEARIFOLIUM, R. SUBLANCEOLATUM and R. MUCRONULATUM were cut back but are breaking again.

A hybrid raised here between R. CILIATUM and R. EDGEWORTHII was also injured in some degree.

Several varieties of R. INDICUM (greenhouse Azaleas) came through with very little damage.

R. GRIFFITHIANUM (AUCKLANDII) was uninjured both as to leaf and flowers; but the flower buds of R. CALOPHYLLUM were frozen through and destroyed although the plant itself was unhurt.

The buds of R. CALOPHYLLUM are destroyed by frost nearly every winter; it is very seldom that we get any display of its flowers here.

R. FORMOSUM (R. GIBSONII) is much the same; the flower buds are nearly always killed by frost, but this year the plant itself was also injured.

R. NERIIFOLIUM was not hurt at all, R. DELAVAYI, R. CAMELLIÆFLORUM and R. SPINULIFERUM (under a wall) are scarcely touched.

Some of the leaves of the large foliage species, R. FALCONERI, R. GRANDE, R. HODGSONII, etc., are deformed or curled at the tips. I put this down to their being frozen in the bud.

EDMUND GILES LODER.

November, 1917.

# LIST OF PUBLISHED PORTRAITS OF SIR JOSEPH HOOKER, O.M., G.C.S.I., C.B.

By the kindness of Dr. B. Daydon Jackson, I am able to send the following list of portraits of Sir Joseph Hooker, which he has compiled. It includes busts and medallions, also photographs which have been reproduced. I am sure the Members of the Society will feel much indebted to Dr. Jackson for this interesting list.

GERALD W. E. LODER.

#### 1851.

\*1. T. Q. L., seated, vignette; drawn and lithographed by T. H. Maguire (Ipswich Series).

#### 1852.

\*2. Picture in the Himalaya of Natives bringing in plants, painted by Frank Stone, A.R.A.; in possession of Major Joseph Symonds Hooker. Engraved by William Walker. Reduced woodcut in The Leisure Hour, August 1st, 1868.

#### 1855.

3. Head and shoulders; chalk drawing by George Richmond, in possession of Charles Paget Hooker, Esq. Lithographed by Dennis Moss; reduced photogravure in Proc. Royal Soc. B., LXXXV. (1912), p. 11.

#### 1868.

- 4. Head to right; from photograph by Mrs. Julia Mangouet Cameron, half-tone reproduction in Proc. Linn. Soc., 1911-12, front; reprinted in Oliver's Makers of British Botany, pl. 26, p. 302; photogravure in Proc. ROYAL Soc. B., LXXV. (1912), p. 23.
- 5. Head to left; woodcut from photogravure by H. T. Whitlock, Birmingham, in The Leisure Hour, August 1st, 1868, p. 521.

#### 1870.

6. Head to left; photographed by G. C. Wallich for his Eminent Men of the Day, pl. 6. Woodcut in Harper's Magazine, LXIX., 1884, p. 833, and Harper's Weekly, XXVIII., 1884, p. 555; half-tone block in Darwin and Seward's More Letters of Charles Darwin, l. 316.

#### 1874.

- 7. Head to right; drawn and engrossed by W. G. Smith, published in The Graphic, January 3rd, 1874, p. 8.
  - See also RHOD. Soc. Notes, Vol. I., p. 21.

#### 1877.

\*8. Head to right; from photograph, engraved in stipple by C. H. Jeens, published in NATURE, October 25th, 1877, with notice by Asa Gray, pp. 537-539. (Scientific Worthies, No. XI.)

#### 1881.

9. Head and bust to right; painted by the Hon. John Collier, in possession of the Royal Society.

#### 1886.

\*10. H. L., seated at table, with microscope; drawn for THE GRAPHIC by T. B. Wirgman, in 1886. Original pen-and-ink drawing now at Kew.

#### 1890.

\*11. T. Q. L., seated; painted by Sir H. von Herkomer, R.A., in possession of the Linnean Society. A replica in possession of Lady Hooker. Collotype reproduction by Annan & Swan. 12in. by 10in., half-tone 8in. by 6\frac{2}{3}in., Supplement to The Gardeners' Chronicle, Ser. III., XXXVII. (1905), p. 8, and reprinted in Ser. III., I. (1911), p. 436.

#### 1895

12. T. Q. L., seated; photogravure in More Letters of Charles Darwin, II., p. 242, from a photograph by W. J. Hawker, of Wimbourne. Head enlarged, from original negative lent by Lady Hooker, Darwin-Wallace Celebration Report, 1908, pl. 5.

#### 1897.

- \*13. T. Q. L., seated; photogravure, published by Walker & Cockerell.
- 14. In uniform, in J. Mayall's photograph of the Royal Society's Diamond Jubilee Deputation to Windsor, 15th July, 1897, published by the Royal Society.

#### 1898.

15. Head to left, profile; bronze medallion, original model by Frank Bowcher for obverse of Hooker Medal; in possession of the Linnean Society of London; cf. half-tone in Proc. Linn. Soc., 1897-8, p. 61.

#### 1908.

16. Photograph in The Gardener, 26th September, 1908, republished 23rd September, 1911.

#### 1910.

- 17. T. Q. L., standing; photographed by J. Russell & Son, photogravure in Proc. Foyal Soc., B., LXXXV., p. 1.
- 18. Photogravure of Sir Joseph and Lady Hooker, from photograph by J. Russell & Son, as a New Year Card, 1911; collotype frontispiece in BOWER, "AN ORATION," Glasgow, 1912.
  - See also Rhop. Soc. Notes, Vol. I., p. 21.

#### 1911.

 Marble bust, modefled from life in 1911 by Pennachini, and presented by Lady Hooker in 1913; to the Royal Botame Garriens; placed in No. 1 Museum.

#### 1912.

20. Head and bust; half-tone, in Kew BULLETIN, 1912, as frontispiece, from photograph by Elliott & Fry, Ltd.

#### 1913.

 Medallion in Kew Church, by Frank Bowcher, in West ewood cameoware, the centre of a memorial erected by Lady Hooker; see The Gardeners' Chronicle, 15th March, 1913, p. 171.

#### 1915.

22. Medallion by Frank Bowcher, in Westminster Abbey.

#### LAMELLEN GARDEN, 1917.

CONTRIBUTED BY E. J. P. MAGOR.

The hard winter did a certain amount of damage in this garden, and several plants of the following species were killed: STENAULUM, NEMATOCALYX, EDGEWORTHII, MADDENII, BULLATUM and CRASSUM; whilst among the injured, but surviving, were plants of all the above, and BOOTHII, DALHOUSIE, KINGIANUM, ZEYLANICUM, "LADY ALICE FITZWILLIAM," "COUNTESS OF HADDINGTON," and VIRGATUM.

The OXYPHYLLUM section, represented by STENAULUM and NEMATOCALYX, appears to be almost hopeless here, whilst BULLATUM and CRASSUM do not seem much hardier than their Himalayan representatives, EDGEWORTHII and MADDENII.

Rabbits again have attacked several species in addition to those I mentioned last year; such as Chartophyllum præcox, Cinnabarinum × Maddenii, prostratum, brachyanthum, zalucum, macrocephalum, indicum var. Macrostemon, and Augustinii. Plants of Augustinii with stems as thick as an ordinary pencil being bitten off short, and a batch of seedlings of Chartophyllum præcox over 1½ feet high being in some cases eaten to ground level.

But the three best plants of PROSTRATUM suffered most, although inside wire-netting; for a half-grown rabbit devoted himself to these, and ate almost every leaf on them in two nights, leaving untouched FASTIGIATUM, FLAVIDUM, HIPPOPHÆOIDES, etc., which were all round them; when with the help of my wife's Pekinese-our only surviving dog-I succeeded in shooting him. About this PROSTRATUM there seems to be something particularly tasty, for, besides rabbits, it is eagerly devoured by small green caterpillars, which, by the way, seem fond of many Rhododendron seedlings in their first stages. Whilst on the subject of caterpillars, I have noticed two more enjoying the foliage of Rhododendrons: one a very beautiful creature, green with black between two of the segments and tufts of pale yellow hair on its back. This I believe turns into the pale Tussock Moth (Orgygia pudibunda), and has been very numerous this year. The other is a much worse pest, an ugly olive or yellowish-brown animal, which is perhaps the caterpillar of the large vellow-underwing moth (Tryphoena pronuba). It feeds entirely at night, and will make great havoc in a bed of seedlings. I well remember my first encounter with one of these three or four years ago. I had noticed in one of my frames that a seedling was disappearing every night, and tried to catch the offender at various times as late as midnight and as early as 5 a.m. without success. At last, going up about 2.30 a.m., I found a new plant attacked and a leaf half underground, and digging round with a large pruning knife found my friend on the end of it, and the depredations ceased.

Two supposed varieties of AZALEA INDICA, sent home by Forrest, bloomed for the first time; one a straggling plant with very pale rose flowers, three in a

truss, about an inch and a half across and with very deeply cleft segments; the other much more compact and of a rather fastigiate habit, with flowers in threes in the axils of the leaves all the way up the stem, after the fashion of R. RACEMOSUM. The flowers were pink spotted, and about three-quarters of an inch across. Forrest's note on the seed packet was "Rhododendron RACEMOSUM FORMA? Plant of 5-feet, Chutong Hills;" but it certainly is not RACEMOSUM, and is probably a new species.

Among other Rhododendrons flowering here for the first time were the following:—R. CILIATUM × KEISKEI (one flower before), flower white tinged with pink on the outside, about 2 inches across and something like CILIATUM, but the habit of the plant shows the influence of KEISKEI very plainly, being quite prostrate. A charming plant for the rock garden, but unfortunately I have only raised three plants of it. R. 9048F HABROTRICHUM, had one flower in a cold frame, which opened about April 22nd, 16 to 18 flowers in the truss, blush-white with a blotch of crimson at the base inside the three upper segments. Five lobed, campanulate 13 × 2 inches on hirsute pedicels about 11 inches long.

R. AMBIGUUM × KEYSII. Several plants of this cross flowered all extraordinarily like the pollen parent, but rather wider in the mouth and some weeks earlier. Rather a curiosity than an acquisition.

R. 5530F STENAULUM also flowered from seed sown in 1911. The plant was in a cold frame, those in the open having been killed or cut to the ground by frost. The flower was about 2½ inches across, white with a large blotch of orange-yellow on the upper segment, and from memory I should say that it was very like the flower of R. STAMINEUM. I wish I were sufficiently a botanist to describe the flower buds, which were quite unlike those of an ordinary Rhododendron. They were at the extremity of the branch in the axils of the topmost three or four leaves and were larger and more pointed than the leaf buds. The same phenomenon has appeared on my plant of R. Championæ, and I am curious to see whether flowers will be produced in this case also.

About the next I am a little diffident. It is supposed to be Augustinii × bullatum, but there is very little trace of bullatum except that it is distinctly sweet-scented, and the flowers have rather more substance than in Augustinii. Also the leaves are larger and more hairy, and there is hair on the young stems.

R. 6777F BRACHYANTHUM is a very dainty little plant, with smallish leaves, dark green above and very glaucous beneath, rather reminding one of those of R. GLAUCUM, but the flowers are yellow, unspotted, in a loose truss of five or six, and each flower gives the impression of neatness. Several seedlings of R. 12623F HIPPOPHÆOIDES flowered. This is a small-leaved high Alpine, and has little trusses of six to nine flowers, lavender-blue in colour, but there is considerable difference in their shade and one of them was exceedingly beautiful, more of a clear porcelain-blue and with a longer stalk to the truss, whereby the flowers were better displayed. So far it has more or less the habit of R. FLAVIDUM.

R. 5866F CEPHALANTHOIDES flowered in August; a very dwarf compact plant, but has small mean white flowers on the lines of R. Anthopogon. It is, however, possible that the spring blooms will be better.

R. SALIGNUM (LEPIDOTUM var. CHLORANTHUM, Hook. fil.) had one flower, and is hardly as attractive as Hooker's plate makes it, being a rather dull yellow with brown spots, instead of white with green ones.

R. 885W HOULSTONII (?) or DISCOLOR (?) flowered for the second time—the first being in 1912—opening on July 8th, when almost everything else was over; six to nine flowers on a truss, seven lobed, two by three inches, blush-white with pink buds; pinker on the outside, and with a large blotch of crimson in the interior, shading off all round to yellow and then to blush, and slightly scented. In another plant the flowers were pinker and the crimson blotch less pronounced. On Rhododendron No. 104, CAUCASICUM STRAMINEUM X CAMPYLOCARPUM developed an imperfect flower in August. It is a good yellow with red spots and the plant has an excellent habit. It developed a good pod of seed to R. ADENOGYNUM.

In October, a rogue very near to R. TRICHOCLADUM flowered. It has smaller leaves and small yellow flowers, three or four in a truss, about an inch across. Professor Balfour tells me that it is R. XANTHINUM.

Also in October, R. 6780F NERIIFLORUM produced a beautiful flower. It is a small growing plant with a loose truss of twelve flowers, 2 by  $1\frac{3}{4}$  inch, unspotted, with a rather narrow tube opening out at the mouth, and of the same colour as the lighter varieties of R. Thomsonii. The calyx is the same shade as the corolla and the flower rather waxy. It should be a good plant with which to hybridise, and bring purity of colour into some of the hardy hybrids.

I do not know whether a list of the plants flowering in the later months of the year is of any interest, but such as they are here it is, though it must be understood that they were often isolated flowers and by no means so good as those produced in the Spring.

August. Intricatum; 12623F (HIPPOPHÆOIDES?); ANTHOPOGON; KEYSII; "GOVENIANUM"; RETUSUM (indoors); ADENOGYNUM—some plants pinker than others; CEPHALANTHOIDES; 10035F (SCINTILLANS); and CAUCASICUM STRAMINEUM × CAMPYLOCARPUM.

September. 5865F (RUPICOLUM); FLAVIDUM; and forms of FASTIGIATUM.

\*\*Cctober.\*\* TRICHOCLADUM; OREOTREPHES; NERIIFLORUM; OREODOXA; LEPIDOTUM; XANTHINUM.

November. OREOTREPHES, FASTIGIATUM and PARVIFOLIUM.

December. PARVIFOLIUM, DAURICUM and MUCRONULATUM.

With regard to seedling hybrids:-

In the LEPIDOTUM × BOOTHII lot, from seed sown in 1916, the pollen parent has come through strongly, and the leaf is very distinct, contrasting with a few plants of apparently pure LEPIDOTUM, which are among the seedlings. R. GLAUCUM × BOOTHII, of which there are but two plants, sown in 1915, are also very distinct, and came through last winter's frost in the open undamaged. So also did Aucklandii × bullatum, and here again there are but two plants about one foot high, from seed sown in 1903. R. "Mrs. Butler" × Augustinii

is another cross poorly represented in point of numbers, but in which the influence of the latter is clearly visible; yet this seems to have an indifferent constitution and may prove worthless. The old plant of R. Hookerii, badly broken by the falling elm in 1915, has at last succumbed to its injuries, and I should be grateful if any member of the Society could tell me of a nurseryman who stocks it, for it is a beautiful thing, which I should like to replace.

Commander Millais in his most interesting book mentions a supposed cross between R. TRIFLORUM and AUGUSTINII—unlike either parent—in the garden at Trewithen, I fear on my authority. I saw the two or three plants of it again the other day, and am convinced that there is a mistake in the record of the cross, and that it is really one between MADDENII and CINNABARINUM.

E. J. P. MAGOR.

18th December, 1917.

#### RHODODENDRONS AT LOGAN, WIGTOWNSHIRE.

#### CONTRIBUTED BY KENNETH McDouall.

To go back many years, Rhododendron "ALTACLARENSE" was planted here in considerable quantity about 1860, so the plants are about 60 years old. now form very large specimens and have mostly been planted in groups. Branching from the ground into several trunks, many are now over 25 feet in height, still growing upwards, covered with magnificent foliage, and in April and May they always flower well. At that time of year they make a wonderful show. The flowers on the different plants vary somewhat, the best form having a wellshaped truss and large individual flowers of a good crimson red; others are not so nice in colour having a pink or purple tone which gives a less pleasing effect; others again have a small truss and open later. The measurements of some of these plants may be of interest. One, standing alone, has a single trunk with a girth of four feet measured two feet from the ground, it then branches into three large steins; its height is 18 feet, and it has a circumference of 102 feet round the bush. Another reaches 28 feet in height, and has four trunks, the largest of which has a girth of three feet measured three feet from the ground. The tallest is 30 feet in height, and has five trunks, the largest with a girth of two feet six inches measured six feet from the ground. These Rhododendrons seldom blow down or break with the wind, but when they reach a very large size they sometimes fall, breaking off at the base of the trunk quite suddenly and without any apparent cause, for when this does occur, it takes place in calm weather in the early spring. I lost a fine plant of R. "ALTACLARENSE" some years ago in this way, and the only one of its colour, which was a dark plum-red. Since then, others have fallen in a like manner. Is it that the wood becomes brittle when the sap begins to run, or that a sudden change of temperature brings about this result? I have known yuccas to fall in the same way when they reach a large size. R. "ALTACLARENSE," as it grows here, is of rapid growth and is certainly a splendid Rhododendron for grouping. It should be given plenty of room, for, when mature, it is a huge plant, almost a tree, and then when in flower nothing can exceed its beauty.

The cold of the past winter had no ill effect on my young Indian or Chinese Rhododendrons; its continuance into the spring made the flowering period later than usual; however, the buds opened to perfection, and the flowers appeared to

be more intense in colour than usual.

Among those of special note R. Augustinii held its own. I notice a great variation in this species, "Wilson Seed," those of a pure bright lilac, without any hint of pink, are the best; some flowers have no spots, others are dotted with green or brown inside; one plant produced flowers of a dark lavender, and the foliage of this one is also dark. The flowers were produced in quantity on all these plants.

R. HOOKERII opened its fine blood-red flowers, but has not set seed. R.

EDGEWORTHII and R. "FRAGRANTISSIMUM" also flowered well.

1st January, 1918.

#### INSECT ENEMIES OF RHODODENDRONS.

CONTRIBUTED BY THE RT. HON, SIR HERBERT MAXWELL, BART,

Hitherto one of the cardinal merits of the genus Rhododendron has been reckoned its comparative immunity from insect enemies; but during the summer of 1917 I have noted two or three remarkable exceptions to previous experience.

The classification of some of the Microlepidoptera is still unsettled, owing to the extreme difficulty of dealing with many hundred species of minute moths; but one is painfully familiar with the ravages of the larvæ of a species of the Torticidæ, whereby the oaks in the southern counties of England are so often stripped of their foliage in early summer. Such was the case in 1917, many woodlands in Sussex and Bucks being sadly disfigured by this pest. Nothing new in that; but the serious matter I have to report is that in two places, in Mr. Gerald Loder's beautiful park at Wakehurst Place in Sussex, and in Mr. Yorke's picturesque wild garden near Iver Heath in Bucks, the moths, having polished off the oaks, proceeded to attack the young growths on Indian Rhododendrons. I ought to add that, not having seen the caterpillars at their evil work, only the results of their voracity, I cannot affirm positively that they were the offspring of the oak Tortrix; but the fact that the Rhododendrons which suffered were growing among defoliated oaks suggested that the damage was wrought by a common agency. It will be well if a strict watch be kept in future, so that the actual assailant of these Rhododendrons may be identified. Whatever it is proved to, be the oak Tortrix or some other enemy, it can probably be conquered by spraying, which of course is impracticable upon forest trees.

In the north and west our oaks seldom suffer from the ravages of Tortrix. Only once, about twenty years ago, have I seen the oak woods on Loch Lomond side laid bare in June. The prevailing oak there and in the west generally is the sessile-flowered species or variety (Quercus sessiliflora), whereas in the districts in which Tortrix usually swarms it is the pedunculate oak (Q. pedunculata). The Hon. Gerald Lascelles, late Deputy Surveyor of the New Forest, has borne striking testimony to the immunity of the former species from attack by the moth—the few sessile oaks which had been planted in the Forest standing green and luxuriant after thousands of indigenous pedunculate oaks had been stripped.

Nevertheless, a new enemy made its appearance in 1917, at Castle Kennedy, Wigtownshire. The Hon. Hew Dalrymple, M.P., tells me that bushes of Rhododendron Niveum, 15 to 18 feet high, were infested by numbers of a large caterpillar which had stripped most of the foliage before they were detected. He had them picked off and destroyed, most unfortunately without taking any measures to identify the species. He could only tell me that they were three or four inches long, of a prevailing green colour, with stripes on the sides. He did not notice whether they had the curved horn on the eleventh segment of the body—the invariable badge of the clan Spinx; but I strongly suspect they were larvæ of the convolvulus hawk-moth (Sphinx convolvuli), which appeared in extraordinary numbers in all parts of Great Britain in the summer of 1917. If that be so, Rhododendron lovers need be under no apprehension, for this fine in sect only abounds at rare intervals in these islands.

HERBERT MALWELL.

November, 1917.

#### RHODODENDRONS AT MONREITH.

CONTRIBUTED BY THE RT. HON. SIR HERBERT MAXWELL, BART.

The spring of 1917 was unusually favourable for Rhododendrons, owing to the total absence of late frost. It is true that the weather continued very severe from Christmas until 12th April, except a mild spell for a fortnight at the end of February and beginning of March, and that the bloom of R. BARBATUM, PARVIFOLIUM, "PRÆCOX" and "Nobleanum," brought forward thereby, was destroyed; but the severity prevented the others starting in growth till they were safe. R. Arboreum, for instance, which usually begins to flower early in March, and often suffers disfigurement thereafter, delayed opening its first truss till 21st April, and R. intricatum, which began in 1916 on 28th February, opened its first bloom on 24th April.

The minimum temperature registered during the winter was 15°; but the mercury fell to that point several times and the mean temperature of the first three months and a half was far below normal in this district. No damage was done, except to three plants of R. Grande, eleven and nine years planted, of which the growth buds were nearly all killed. None of Wilson's or Forrest's Rhododendrons were injured, some of the smaller plants receiving protection from fir branches stuck round them. The following species flowered here for the first time, R. Ambiguum, nerhiflorum (flowered again in autumn), aureum (Forrest 6767, a poor yellow), and also one of which I have lost the number. It has pink flowers and leaves resembling R. Decorum, but much smaller. There is a fine promise of blossom for next spring.

HERBERT MAXWELL.

October, 1917.

#### RHODODENDRONS AT POLLOK HOUSE, RENFREWSHIRE.

CONTRIBUTED BY SIR JOHN STIRLING-MAXWELL, BART.

It seems sound that each member should give his experience for what it is worth: otherwise I should not dare to mention this garden. It is in the suburbs of Glasgow, which embrace the place on three sides and render its groves as black as those of Kensington Gardens. Under such conditions the charm of all evergreen plants is impaired, but those of the Rhododendron family thrive better than any others. Their cultivation has been too much neglected in industrial districts. Their leaves have the art of divesting themselves of the inky slime which winter fogs deposit and emerging from a night's rain fresh and lustrous. Even the fine grit brought by easterly breezes in summer—so destructive to most foliage-does not harm them, nor does that invisible scourge the free sulphur in the atmosphere seem to check their development. Mr. Whitton, the Superintendent of the Glasgow Parks, (lucky the city which has such energy and skill at its disposal), cultivates them with success in surroundings which at first sight appear impossible. But he leaves nothing to chance. Knowing how they will need all the vigour he can put into them, he provides them with suitable soil and shelter and thus escapes the failures which have deterred gardeners in other towns from trying any but the commonest kinds.

The soil at Pollok is a good loam over a desperate till: for Rhododencrons it requires the addition of leaf-mould or peat. The climate—apart from the smoke—suits all the hardier kinds, though it cannot compare with that of sheltered spots a few miles farther west and more under the kindly influence of the sea. Up to ten years ago only the commoner hybrids were grown, "Cynthia" and "Lady Eleanor Cathcart" being in this locality about the best. Recently a number of Himalayan and Chinese species have been planted on the lee side of a wooded hill behind the garden, some seventy feet above the river and its frosts. The wood is old and thin, but yews, hollies and tangles of R. ponticum provide the necessary local shelter. R. Grande and R. Falconeri both succumbed to the first winter. The latter we are trying again since under Professor Bayley Balfour's care it lives and flowers in Edinburgh. R. Cinnabarinum for some reason has never done well. Otherwise there have been few failures.

The following species are now in cultivation and have all come through the last two trying winters and cruel springs. Only those starred have yet flowered.

R. Arboreum\* (several varieties), R. Barbatum,\* R. Campanulatum,\* R. Thomsonii,\* R. fulgens,\* R. Hodgsonii, R. campylocarpum, R. niveum, R. lanatum, R. cinnabarinum, R. Roylei, R. glaucum,\* R. lepidotum,\* R. caucasium\* (pink, white and dwarf yellow), R Smirnowii,\* R. Ungernii, R. Metternichii, R. dauricum,\* R. catawbiense,\* R. californicum, R. maximum,\* R. carolinianum,\* R. punctatum,\* R. calophytum, R. lecorum,\*

R. DISCOLOR (three varieties with green, pink and violet leaf stalks), R. SUTCHUENENSE, R. FORTUNEI,\* R. LACTEUM, R. FICTOLACTEUM, R. INSIGNE, R. TALIENSE, R. BRACTEATUM, R. LONGESQUAMATUM, R. ADENOGYNUM, R. BRACHYCARPUM, R. AMBIGUUM,\* R. CONCINNUM,\* R. STRIGILLOSUM,\* R. PACHYTRICHUM, R. HÆMATOCHEILON,\* R. IRRORATUM, R. HÆMATODES, R. HYPOGLAUCUM, R. FLORIBUNDUM, R. BRETTII, R. YANTHINUM LIPIDANTHUM, R. PRZEWALSKII, R. PRATII, R. COOMBENSE, R. DAVIDSONIANUM, R. MICRANTHUM, R. DAVIDII,\* R. ARGYROPHYLLUM, R. SOULIEI,\* R. RIRIEI, R. YUNNANENSE, R. LUTESCENS,\* R. HARROVIANUM,\* R. PARVIFOLIUM,\* R. RACEMOSUM,\* R. MOUPINENSE,\* R. INTRICATUM,\* and a number of unnamed species from Wilson's and Forrest's seed, for which I am indebted to Professor Bayley Balfour.

A number of the choicer hybrids are also doing well. If seems difficult to get the right sort of R. "Nobleanum." All that I have behave like dwarfs, and it is hard to believe they can ever reach the stature of the old plants found in neighbouring gardens, though I can detect no difference in leaf or flower. Those that grow with most vigour at Pollok are of the rose-coloured variety with long twisted leaves, bought under the name of R. "Nobleanum venustum." R. "Kewense" grows well, but has not yet flowered. R. "Luscombianum" flowers freely. We used its pollen to fertilize a plant of R. Edgeworthii in the greenhouse. Most of the seedlings take after the delicate parent, but two have hardier looking leaves. The only other cross I have made is between R. Smienowii and a plant of R. arboreum which happened to flower late after being moved.

The late-flowering Waterer hybrids are grown on each side of a long grass walk in part of the grounds used as a public park. Singly these hybrids are beautiful things, but here too many are in sight at once. The result in June extorts admiration for a few moments till one is overcome by the sense of repletion which seems almost inseparable from these displays—so difficult is it to plant in moderation things so easy and so cheap. The dell at Kew suggests a remedy. Its large group of R. "NOBLEANUM" is one of its happiest features—welcome in mild springs for its solitary splendour, no less welcome in summer as a foil to the later glories. R. "RUSSELLIANUM" may serve the same purpose and that fine old ARBOREUM hybrid which Mr. Millais describes under the same name at Galloway House, though it is certainly not the same thing. Sir Herbert Maxwell calls the latter R. "KNIGHTII." No doubt the time will soon come when hybrids of R. Discolor and R. Auriculatum will supply further foils for such walks and prolong their beauty into August. But it is difficult to reform what has been begun on wrong lines. Near by there is a sheltered valley where I had hoped to gather the choicer hybrids on a northern slope and avoid this vulgar extravagance. The war put a stop to that project. Some day, perhaps.

J. S. M.

January, 1918.

#### RHODODENDRON DELAVAYI AT KILMACURRAGH.

CONTRIBUTED BY SIR FREDERICK W. MOORE.

There is at Kilmacurragh, Rathdrum, Co. Wicklow, a remarkable plant of the rare Rhododendron Delayayi. It is 12 feet high, and 13 feet through, and flowers regularly. In habit it resembles some of the red flowered forms of R. arboreum, upright in growth, but with more slender branches, and branched to the ground. The leaves are smaller than those of R. arboreum, a little more lanceolate in shape, and more acute at the apex. They are silvery-white underneath, and a darker shade of green on the upper surface than those of R. arboreum. The flowers are borne in dense heads, a little smaller than those of R. arboreum, and are dark-red in colour, several shades darker than any flowers of R. arboreum which I have seen. This plant was originally sent to the Jardin des Plantes with R. lacteum, R. yunnanense, R. decorum, and others of that set. It was sent to Ireland as a small seedling very shorely after its introduction.

F. W. MOORE.

January, 1918.

### INJURY BY FROST DURING WINTER 1916-17.

CONTRIBUTED BY SIR FREDERICK W. MOORE.

In most parts of Ireland Rhododendrons came through the trying winter practically uninjured. There are records of a few species such as R. CILIICALYX, R. SUBLANCEOLATUM, R. NUTTALLII, and R. EDGEWORTHII being killed, or badly injured, but in some cases we may infer that the death was due to debility on the part of the plant, rather than to inability to withstand the degree of cold experienced, a degree varying from 15°F to 26°F according to district. In proof of this it may be mentioned that in the same garden one plant of R. EDGEWORTHII was killed, another is practically uninjured. R. NUTTALLII is not hardy in any part of Ireland, R. EDGEWORTHH only in a few favoured localities. In all the collections visited by me in 1917, I found such reputedly tender species and varieties as R. ciliatum, R. Keysii, R. Griffithianum, R. Kingianum, R. Maddenii, R. calophyllum, R. "Dennisonii," R. "Sesterianum," R. "FRAGRANTISSIMUM," R. FORDII, quite safe. Rhododendrons, especially the large broad leaved species, looked very miserable in March, and some were almost defoliated, but they quickly recovered and came away vigorously. The severest cold was early in the winter, but by far the greatest damage to plants was caused by the snow, frost, and icy storms of the last ten days of March, and first fortnight of April. It is remarkable to find in gardens where Veronicas, Hypericum olympicum, H. Hookerianum, Ceanothus thyrsiflorus, Fabiana imbricata, Phlomis fruticosa, Pittosporum mayii, Salvia Grahamii, were killed, Rhododendrons practically escaped injury.

F. W. MOORE.

January, 1918.

#### RHODODENDRON ARBOREUM AND ITS INTRODUCTION.

CONTRIBUTED BY LIEUT.-COLONEL SIR DAVID PRAIN AND MR. W. J. BEAN.

Next to R. Ponticum and R. Catawbiense no Rhododendron ever introduced has had so great an influence on the evergreen garden hybrids of this genus as R. Arboreum, that is, the crimson-flowered type with leaves silvery beneath. Previous to its introduction, the species in cultivation, probably not more than ten in all, had flowers varying only in colour from white to pink and purple. R. Arboreum was the first, and has remained the chief, source of those rich scarlet or blood-red shades which belong to the most brilliantly coloured of the hardier hybrids, such as "Doncaster" or "Michael Waterer." Yet a certain mystery surrounds the introduction of this Rhododendron as a living plant to this country.

Neither of the Aitons in their editions of the Hortus Kewensis, the last of which—the Epitome, by W. T. Aiton—was published in 1814, mentions R. Arboreum, although it is certain that seeds had been sent to England in 1796 or 1797. Mr. J. G. Millais in this Society's Notes (page 31), says that Wallich sent seed to Mr. Shepherd, of Liverpool, in 1814. Is he not here confusing the introduction of R. Arboreum with that of its white variety album, which latter plant Sir William Hooker in the Botanical Magazine, in 1834, under tab. 3290, states "was raised from seeds sent by Dr. Wallich to Mr. Shepherd, of Liverpool, about 20 years ago" (i.e., 1814)?

The information as to the source and agency of this introduction is as precise as could be desired. It is less definite as regards the date. We know, however, from other sources that seeds of the white Arboreum cannot have been collected by Wallich 20 years before the publication of the plate in the Botanical Magazine. The suggestion may have been due to the circumstance that in the year 1814 Wallich actually was under orders to proceed to Nepal for the purpose of joining the Army. But Wallich had not left Calcutta on 23rd December of that year, when it was decided to instruct him to remain at headquarters in order that he might assume temporary charge of the Calcutta Botanic Garden, when Buchanan, the Superintendent, should retire in the following year. Wallich did in fact assume charge on 24th February, 1815, and continued to act as Superintendent until 20th April, 1816, when he reverted to military duty; it was not until 1st August, 1817, that Wallich, who had in the meantime been appointed permanent Superintendent by the Court of Directors in London, once more assumed charge of the Botanic Garden.

It may have been contemporary acquaintance with the fact that, during the earlier portion of that year, Wallich was not at the Botanic Garden, which led Loudon and subsequent writers to give the date of the introduction of the red Arboreum as 1817. But apart from the fact that Wallich did not visit Nepal until some years later, the circumstance that the red Arboreum had

flowered in this country by the spring of 1825, makes the suggestion improbable. We hardly think that plants raised only eight years earlier could have had time to reach the flowering state.

Captain Thomas Hardwicke was probably not the first European to see R. Arboreum in flower, but he was the first to put its existence on record. He made a journey to Srinagur between March and May, 1796, of which journey he published, three years later, an account in the ASIATICK RESEARCHES, Vol. VI. At page 359 occurs the following: "Growing in forests of oak on the high ridge of mountains near Adwaance is a large tree just now conspicuous for its abundant display of large crimson flowers. Leaves without order about the upper part of the branches, petioled, lance-oblong, entire, smooth above, hoarywhite beneath. Flowers produced in terminal racemes. . . Corol one-petaled, tubular, bell-mouthed. . . . Stamens ten, of unequal length. . . . Style longer than the stamens. It approaches nearest to Rhododendron, but will probably not be admitted there; and perhaps will form a new genus. The natives call it Boorans, the wood is used for making the stocks of matchlocks."

The tree here referred to is undoubtedly R. ARBOREUM, and this seems to be the first description of that plant ever printed.

Sir James Smith in his Exotic Botany, published at Norwich in 1804, first applied the name of R. Arboreum to this plant, and gave a coloured plate of it (tab. 6). He says "first noticed by Captain Hardwicke on a tour to Sireenagur in 1796, growing in a mountainous tract called the Sewalic Chain, which separates the plains of Hindostan between 75° and 85° east longitude from the Himmaleh Mountains. Generally found in forests of oak, the soil a rich vegetable black earth. It flowers in March and April, and ripens seed late in May or early in June, a few days before the commencement of the periodical rains. We are obliged to Captain Hardwicke for our description and drawing, both made on the spot. It is hoped that the seeds which that gentleman has liberally distributed in England will enrich our collections with this noble tree."

How the misapprehension entertained by Smith as to the original locality of R. Arboreum may have arisen it is difficult to say. There is no record of the occurrence of R. Arboreum in the Siwaliks in the works of Brandis, Duthie and Kanji Lal, dealing with this range of hills, whose highest peak only reaches a height of 3,500 feet, which barely exceeds the lowest recorded limit of this tree. Mr. J. S. Gamble, whom we have consulted, informs us that although he has crossed the Siwaliks at many points, and actually had to make an inspection path nearly the whole way along the crest of the range, he never saw or heard of R. Arboreum there. He adds that Quercus incana, the almost inseparable companion of R. Arboreum, is equally absent from the Siwaliks, and that although this oak does occur in one swamp locality in the Dehra Dún, which separates the Siwaliks from the Himalaya, it is not in that rather special locality accompanied by the Rhododendron.

We know, however, that on his tour to Srinagar, in Kamaon, in 1796, Hardwicke did not cross the Siwaliks. His route took him from Najibabad, in the Bijnaur district, which place he left on 20th April, 1796, to Kotdwara, at the foot of the Garhwal Himalayas, through the wide gap which separates the

portion of the Siwaliks lying west of the Ganges from that part of the range to the east of the river. From Kotdwara to Srinagar his route, which consisted of nine marches, lay wholly in the Himalayas. His fourth march from Kotdwara, on April 24th, brought him to Belkate, 78°45′ E., 29°58′ N., through forests of oak, fir and "boorans" (R. Arboreum), which tree his journal then mentions for the first time. Next day he reached Nataana, 5,100 feet, 78°45′ E., 30°5′ N., and the close of his march on April 26th, brought him to Adwaanee, a name not to be found on modern maps, along a ridge which reaches the level of 7,000 feet in long. 78°47′ E. and lat. 30°6′ N.

Smith's mistake had already been detected by Don, who in 1825 indicated correctly that Hardwicke's specimens of R. ARBOREUM had come from Kamaon, where at a later date, Kamrup, one of Wallich's native collectors, found the tree again.

Hardwicke, then, has to be credited with the first sending of seeds to this country. He must have collected year-old capsules on the tree at the time it was in blossom. Whether the seeds grew or not we are not told by Smith, although if they had done so they would have been seven years old by then. This, with the absence of any mention by W. T. Aiton, in 1814, seems to indicate that they failed.

The first flowering of R. Arboreum in England is recorded by Lindley in the Botanical Register, under tab. 890, published in London in 1825. Lindley says: "It is now several years since the present plant was raised in this country from seed, but not until the last few weeks had it produced its blossoms in any collection in Europe. In the beginning of April we were kindly supplied with the specimen from which our figure has been taken, by Mrs. Alexander Baring,\* under the judicious management of whose gardener at The Grange, Mr. Peter McArthur, the plant has expanded its flowers in all their beauty." Lindley evidently had no precise information of the raising of Mrs. Baring's plant, and it is extremely unlikely that, if Hardwicke's seeds had grown, the flowering of R. Arboreum would have been delayed as long as 1825—29 years after he had gathered them. On the whole, therefore, we may conclude that they perished, and that the plants which flowered in various places over the country in, and subsequent to, 1825, were raised from a later sending.

Sir William Hooker in his Exotic Flora (Edinburgh, 1827), where R. Arboreum is figured at tab. 168, says: "well known as a native of Nepal, where it was found by Dr. Hamilton and Dr. Wallich about Narainhatty." This locality had already been given by Don in 1825.

Paxton in his MAGAZINE OF BOTANY, Vol. I., page 101 (London, 1841), writes: "The botanical world are indebted to the indefatigable Dr. Wallich for the introduction of this, and, we believe, of three other species of Rhododendron from the lately explored country of Nepal. . . . It was introduced in 1820, the white variety of it, we believe, a year or two before." Paxton is palpably wrong

Presumably the wife of Alexander Baring, of The Grange, Northington, Arlesford, Hants. He was b. 1774 and d. 1848, and raised to the Peerage as Baron Ashburton in 1835. Possibly the Ashburton papers may mention the provenance of this plant.—C.C.E.

in giving the date 1820, if he intended it as that of the original introduction, as no R. Arboreum would reach the blossoming state in five years from seed.

The stwo smoot likely collectors after Hardwicke were Hamilton\* (once Buchanan) and Wallich, successive Superintendents of the Botanic Gardens at Calcutta. It is to the latter of these that Hooker and Paxton give the credit, but he did not visit Nepal until 1819-20. Hamilton resided in that country in 1802 and 1803, and we know from his correspondence that he sent seeds of this tree from Nepal to his friend Dr. Roxburgh, then Superintendent of the Botanic Garden at Calcutta. On April 11th, 1802, writing from Chitlong, he informed Roxburgh of his despatch of seeds of "Rhododendron purpureum, Buch., a most elegant tree. It must be the one described by Captain Hardwicke, whose paper I have not seen." The name "Purpureum" was what he evidently proposed for the tree—a very unsuitable one to our ideas—but possibly he may have seen only faded flowers. He sent Roxburgh two further consignments of seeds from Catmandu, one on January 31st, 1803, the other on March 10th, 1803.

In 1810 Hamilton was stationed on the borders of Nepal, and sent collectors into that country. Writing from Nauthpore, June 30th, 1810, he says: "I send by our friend Mr. Smith, a few seeds and young plants.... I have repeatedly sent into the hills.... As the most unhealthy season is over, I hope to be able to procure a considerable supply [of seeds] for you, which I shall be able to dispatch when the fair weather sets in and before I leave this place."

We can see therefore that Hamilton was anxious to get the Rhododendron and other plants established in cultivation. There is no specimen of his in the Kew Herbarium belonging to the 1802-3 period, but there is one attributed to Hamilton, from Nepal, dated April 10th, 1810. Hamilton, who afterwards settled on the ancestral property in Scotland, we know was an ardent cultivator, and, as his correspondence shows, very keen to introduce plants from North India to his native country. Seeds of the year 1809, would still be on the tree when this specimen was collected, and we think it extremely likely that, with his horticultural tastes, he did obtain seeds at this date. Allowing 15 years for the plant to reach the flowering state, which is probably an average period for R. Arboreum, this would give us 1825, the year when it first flowered in England.

Wallich, who is so often given the credit of introducing this Rhododendron, may have done so, but he was not, we think, the first to do so. There is no record of his having visited any of the natural sites of the typical R. Arboreum until 1819-21, when he visited Nepal, and, as the Kew Herbarium bears witness, collected specimens not only of the red type, but also of several varieties such as Album, Roseum, and one he calls folis undulatis, with leaves silvery beneath and prettily crimped or frilled at the margins. All these were collected between March and June, 1821, many on Sheopore Mountain. One also is given as "Ex Strinagur," Hardwicke's original locality, where it was found, so Don

<sup>•</sup> Francis Hamilton, formerly Buchanan, of Leny, Callander, Perthshire. Leny is now the property of his grandson, John Hamilton Buchanan, chief of the clan Buchanan. See "A SKETCH OF THE LIFE OF FRANCIS HAMILTON" (once Buchanan), by Sir David Prain (Calcutta, Bengal Secretariat Press, 1905). There are at Leny a number of large rhododendrons of early introduction.—C.C.E.

tells us, by Kamrup. But we learn too from Don that Hamilton also knew the white ARBOREUM from Nepal, and had named it R. ALBUM.

On the whole then, whilst credit must be given to Captain Hardwicke for having first brought the tree to the notice of Europeans, and for having first sent home seeds, we shall have to leave it unsettled as to who sent the seeds from which the first living plants were raised. Hardwicke, we believe, was too early, Wallich too late. We incline to the belief that, if the credit must be given to one of these three distinguished collectors, Hamilton was the man. There is, however, another possibility which should not be overlooked. We have seen that Wallich was among the officers under instructions to join the expeditionary force which, towards the end of 1814, was organized by the Government of Bengal to invade Nepal. If Wallich was unable to take part in this campaign himself he may very well have been the recipient of collections of seeds made during its course. It has been rare for a transfrontier campaign to take place in India without some officer generously doing all in his power to help the Calcutta Garden in this way. The treaty which followed the conclusion of this campaign was signed on 2nd September, 1815, and ratified on 4th March, 1816. That treaty assigned to the East India Company a portion of the North-western Himalaya which includes the district through which Hardwicke's route lay. The receipt by Wallich of seeds of the red R. ARBOREUM during 1815, is, therefore, not only possible but probable, and if he despatched these to Mr. Shepherd, of Liverpool, along with seeds of the white, the date suggested by Sir William Hooker is correct almost to a year. But in this case the credit due to Wallich is that of the forwarding agent not that of the collector.

R. ARBOREUM in the Western Himalaya is usually to be found in a forest association which includes QUERCUS INCANA and ANDROMEDA OVALIFOLIA. In the Khasia Hills, where it is also common, it is to be found more especially on the rocky sides of the numerous gorges of that table land. In the Naga Hills, further to the north, it occurs in a forest association similar to that in the Northwest Himalaya though with different companion oaks, and is most abundant near the crests of rocky ridges and on the edges of cliffs where it secures comparative freedom from shade.

December, 1917.

D. PRAIN. W. J. BEAN.

Note.—Sir David Prain, in a letter to Mr. Eley, dated 29th December, 1917, writes:—"Perhaps some Member of the Rhododendron Society whose forebears' have taken care to file their correspondence may be induced to look up letters or bills of the period 1797—1821, and see if there is any mention in these of seeds or plants of this Rhododendron.

Only in some such way as this are we likely now to learn the exact year of successful introduction.

If the exact year were known, I think the facts we have managed to unearth from old books, letters and specimens may enable us to decide who was the successful introducer."

#### RHODODENDRONS AT RIVERHILL, SEVENOAKS.

CONTRIBUTED BY LIEUT.-COLONEL J. M. ROGERS.

I sear I have not much to report, having seen no one else's garden this year and very little of my own.

The long-continued cold spring caused curious effects, which probably everyone experienced in common, but as members live in such various districts it may be worth while to exchange a few notes.

Here winter continued up to 26th April, the lowest temperature in screen being 20° Fahr. on 5th and 7th February. A few days later summer came with a rush, screen maximum on 2nd May being 71° and 14 days in May exceeding 70°. Everything burst out at once. R. DAURICUM had made an attempt earlier and got frozen, but even R. "NOBLEANUM" and R. "PRECOX" had waited till now. My outdoor AUCKLANDII had 30 perfect flowers out on 18th May. Plums, cherries and apples all flowered together, a thing which I never saw before, and the orchards all over Kent were a wonderful sight. There was a plague of caterpillars, due largely to the great mortality among the Tits in the winter, and much damage was done to apples by a gale at end of August, but the cherry crop was good, apples and pears very fair, while plums and damsons beat all records.

None of the Rhododendrons here minded the winter, and but for the simultaneous flowering, it was an uneventful season for them. I had noticed during the last few years that the plants in a particular bed of deep peat had been going back and wondered why, this autumn they were moribund, and when removing them I discovered the cause, which perhaps is worth mentioning. Some years ago a bit of rock work was made near by and in excavating for it a pocket of Atherfield clay of the consistency of cream cheese, was struck. The workmen to save themselves trouble had scattered some of this under the Rhododendrons to the depth of about three inches. It was not discovered at the time, and that it caused the death of the plants I have no doubt, as the only survivor, being at the back, escaped this top dressing.

A feature of this year is that many plants have formed seed which do not usually do so. A large Magnolia which is I think a hybrid conspicua has matured quite a lot, one seed has developed on the side of almost every flower column and being bright-red has a curious grotesque effect.

The experience of last winter makes me think there must be a great difference in hardiness between different individuals of the same species, and probably seedlings from these would reproduce the same character.

J. M. ROGERS.

22nd December, 1917.

#### RHODODENDRONS AT GLASNEVIN AND ROSTREVOR.

CONTRIBUTED BY LIEUT.-COLONEL SIR JOHN ROSS OF BLADENSBURG, K.C.B.

Most of the members of the Rhododendron Society are so well acquainted with the Royal Botanic Gardens at Glasnevin, that it would almost be a work of supererogation to attempt to give notes on the magnificent collection of plants that are to be found there; besides I feel that it would require some one with far more knowledge of the subject than I can pretend to have, to undertake such a task. I could scarcely do justice to these Gardens, nor adequately describe the many plants of interest that are growing there. Glasnevin is rightly celebrated for its numerous treasures, not in one or more departments only, but in all branches of horticultural science. Orchids, tender plants of every sort, alpines, herbaceous and aquatic plants, bulbs, hardy trees and shrubs, ferns, etc., are all well represented in their endless varieties, and being well cared for, luxuriate in plenty; while some of them form unrivalled collections not to be found elsewhere. It is due to the influence of Glasnevin that Irish horticulture has taken its rise; and owing to the example set to us, and to the sympathetic encouragement we invariably receive, as well as to the general mildness of the Irish climate, many have become keenly interested in plants, and have sought to enrich their gardens and grounds by growing such species as are likely to become acclimatized in the island. The soil, however, in the neighbourhood of Dublin is not favourable to the cultivation of Rhododendrons. It is too much saturated with lime, and Glasnevin labours under this disadvantage. Nevertheless by specially prepared beds with peat and loam brought from a distance, a large quantity of Rhododendrons are to be found there, and thanks to the special care taken to satisfy their requirements, they generally do very well,

There is one remarkable species among them to which I should like to draw attention. It was obtained some years ago from the Botanic Gardens in Paris, under the name of R. Yunnanense. It is extraordinarily floriferous, much more so than any other Rhododendron I have seen; the flowers are white with pink spots, so numerous that when in bloom scarcely any leaves are to be seen. It grows slowly, making every year short hard shoots, and now the plant is some 9 feet high and 8 feet through. It is quite distinct from the usual form of R. Yunnanense. At one time it was supposed to be R. Chartophyllum; but it also differs from that species. I do not think its name has yet been properly determined. Unfortunately it has defied all efforts made to propagae it; it seems to be perfectly hardy and healthy; but it produces no ripe seed and layers refuse to root. If only young plants could be obtained from it and grown elsewhere and under different conditions, then we might see whether they would preserve the same characteristics which belong to the Glasnevin plant, and which seem to differentiate it from any other Rhododendron I have seen.

The effects of last winter and spring were not, on the whole, as disastrous as we were led to think would be the case when we were suffering from the long spell of cold weather that marked the season 1916-17. Many plants which I thought were badly injured at Rostrevor revived, and in one instance, I observed that proustia pyrifolia, which was cut down to the ground and which at one time appeared to be killed, made a rapid recovery and grew more luxuriantly in the past summer than it had ever done in previous years. The losses among the Rhododendrons here were confined to R. CILIICALYX (whose hardiness in really severe weather appears doubtful), and R OXYPHYLLUM; but the latter was a small specimen and it ought to have been in a frame until it was larger and better able to resist the cold. All other Rhododendrons were unhurt, including Dalhousiæ, Edgeworthii, eximium, Griffithianum, lanatum, Maddenii (and its varieties calophyllum and Jenkinsii), yunnanense, etc. I had no specimen of R. NUTTALLII outside It would be interesting to know how it, as well as R. BOOTHII and CHAMPION & fared in the open last winter, and whether these three species flourish anywhere in the United Kingdom with or without wall pretection.

There was a good deal of fruit last autumn, more so than in normal years. I was interested in seeing for the first time the small bright berries of the Japanese deciduous Holly, Ilex, Sieboldi and its variety fructu albo. The autumn colouring moreover seemed peculiarly brilliant, finer and better than in former seasons.

Up to the present the winter has also been severe, and we have had much more frost than we usually get. On one occasion this month the thermometer sank to between 16° and 17° F., which is the lowest reading I can remember at Rostrevor for many years. But, except for one day just before Christmas during which we were visited by a blizzard, the cold was dry and windless, and the damage done does not appear to be as great as was the case twelve months ago.

JOHN ROSS OF BLADENSBURG.

24th January, 1918.

#### RHODODENDRON NOTES FOR 1917.

#### CONTRIBUTED BY J. C. WILLIAMS.

The effect of the frost of this last winter on the Rhododendron buds was irregular and unusual. I only give details of those well-known kinds which are uncertain even in a good winter. R. AUCKLANDII lost a great many buds and most of the remaining buds were injured in the terminal pips of the truss; no plant was in any way injured.

R. MADDENII never flowered better and never lost so few buds, no flower

which I noticed had any mark of the frost on it.

The Edgeworthii, Bullatum lot in a big group together, on rather high ground, were never so good, and were free from all injury, some of them had flowers over six inches across in the case of each kind.

Wilson's STAMINEUM, No. 758, of 1900, flowered well and was quite uninjured. Forrest's 5530, (R. STENAULUM of this section), had a very bad time and were nearly wiped out, and his 7673 proved even softer, though some are alive.

R. LINDLEYI and R. DALHOUSIÆ were quite uninjured.

R. NUTTALLII, on a wall and well sheltered, is I think dead.

Of the softer hybrids Aucklandii × blood-red arboreum, now sixteen years old, had almost every flower cut out by the frost or half frozen. Aucklandii X a white ARBOREUM in the same place as the last named plant was much as usual.

Nearly all the flowers open when the frost came were injured excepting R. FARGESII and R. BARBATUM, they held on for a long while. FARGESII is always remarkable in this respect.

The following Rhododendrons, not very well known, have flowered here

recently, some this year and some before.

The term hardy means that they are hardy in the Werrington Garden, near Launceston, which has a very cold winter nearly always, and I should not think of planting the softer Indians there, whilst seedlings of CRASSUM, SINOGRANDE, HABROTRICHUM and OVATUM are all killed off in an average winter.

R. CUNEATUM—10059—10071—10435. This is rather like an evergreen form of R. MUCRONULATUM, though not if you come close to it, it may have nice forms of lavender-lilac flower amongst the seedlings, though the two plants I have seen in flower were not remarkable, but after the mistakes some of us have made about the newer species when first flowering, particularly with Wilson's DAVIDSONIANUM, I should not go very quickly to a decision. It is quite hardy I believe.

Forrest's 6777. SULFUREUM MICROFORME, once called R. BRACHYANTHUM, has a pretty small campanulate yellow flower, it seems to dislike a hot place and

needs a low bank to show it well. It is hardy.

R. DECORUM of Forrest has given us one very beautiful rose-pink form, and this colour seems to be latent in all the FORTUNEI section, ir. Wilson's there are several very good ones of this colour and the hybrids raised by

Mr. Georgy Harrow from W' son's 885—887, e.c., show constant evidence of it, and there re some of them or great beauty with a nice scent, coming into flower

in July.

R.FITTIANUM is one of the smaller species; say 3 to 4 feet high at a guess, which was found as a rogue in 10278. It was a nice lavender flower under glass, but the buds outside just met the worst frost, and it changed their colour, after that they set good seed, and the plant is I believe quite hardy, coming from 12,000 feet.

R. Hæmatodes 6773 is a very beautiful dwarf shrub, with blooms of a vivid ruby crimson, it will flower on plants 3 to 6 inches high, and is spreading rather than upright in its growth. It is hardy, and some plants flower in the autumn.

R. HIPPOPHÆOIDES 10333. This plant when many seedlings are opening together gives a great variety of beautiful lavender-lilac flowers, and they are larger than all others of this section so far. It should not face the full sun I think. It is quite hardy.

R. LEDOIDES 11246. Is a shrub of about 2 feet (Forrest says). Its flowers are white to pink when they first open, and the flower is like that of a small

daphne, with a nice little truss. It seems hardy.

R. MOLLICOMUM 10347. Is a shrub of 4 to 6 feet, those which have flowered have been a pleasant pink colour, and range from light to a darker pink. In some aspects it is rather like one of the small species of fuchsia, not the trade

forms. I doubt its being hardy a cold country.

R. CALLIMORPHUM 9055. It flowered in 1917 at a little over four years old, and on several different plants, it has a very round dark leaf, a truss of pink flowers of a very pleasant colour, and with a dark pink blotch, the flowers are rather like orbiculare in shape, but are a good deal smaller. It has set seed to other pollen but not to its own pollen, and the pods are larger than those of CAMPYLOCARPUM and even more hooked, but the natural size may have been increased by the use of alien pollen.

R. SCINTILLANS 10014. Is of the INTRICATUM section, and is hardly second to 10333 in its beauty of colour, the best forms being of a delightful lavender-blue, but it has not such striking foliage as 10333 to contrast with the

flower.

R. RUPICOLUM 5865 and 10314. This plant has flowered in several gardens since 1914, but is interesting in that it is growing freely here in a border full of lime and in full sun; this was made for Iris Lortetii, it has grown well there,

and perhaps better than in peat.

R. MERIIFLORUM 6780, etc. This has the brilliant blood-red colour of the best Indian ARBOREUM, but is hardy, the Tali form is given by Forrest under 6780 as 2 to 3 feet high, but 8939 from the Shweli Salwin is given as a shrub of 15 to 20 feet, and if as hardy as the Tali plant ought to be of service in producing hardy red Rhododendrons which I have not seen in the trade varieties.

R. IRRORATUM 5851. Is as a rule identical with the picture of it in the Bot. Mag., though it is not quite so plain, but it also produces in a big batch of seedlings, forms of a creamy-yellow without the spots, and these are very nice

and particularly refined flowers.

J. C. WILLIAMS.

November, 1917.

