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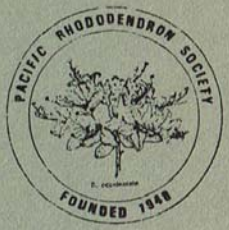
The Rhododendron Society Notes.



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RHODODENDRON, CAMELLIA
& MAGNOLIA GROUP

A ROYAL HORTICULTURAL SOCIETY GROUP

2017

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.

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1976

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The Rhododendron Society Notes.

NOTES

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MEMBERS OF THE SOCIETY

FOR THE YEAR

1923

All communications regarding the publications of the Rhododendron Society should be made to Charles Eley, East Bergholt, Suffolk.

Vol. II., No. IV., 1923.

MEMBERS' NOTES FOR THE YEAR 1923.

INDEX TO VOL. II., PART IV.

PAGE.

RHODODENDRONS OF 1921 AND 1922 AND SOME TREES AND SHRUBS OF YUNNAN.

Following the trend of the country covered during 1917-20—an outline of which I gave in November, 1920—exploration was continued farther north and west, westwards to and beyond the summit of the Salwin-Kiu Chiang divide, as well as northwards on that range and much farther north on the Mekong-Salwin watershed, especially the western slopes thereof in the Salwin Valley.

The Salwin-Kiu Chiang divide is the watershed of the Salwin and the Taron, the latter river being the most north-eastern affluent of the Irrawaddy, and I use its Chinese name—Kiu Chiang—as the greater part of the region explored is, nominally, under Chinese jurisdiction.

Collecting was also carried on in other areas, some of which had been partially explored in previous years, as the mountains east and north of Atuntze ; the ridgeseast of the Bei-ma Shan ; as well as the Hom-po Shan, which is a large buttress extending west from the Bei-ma Shan to the Mekong Valley. Also the highlands east of the Chungtien plateau in an attempt to link up with the Mu-li district, an object frustrated by trouble arising amongst the tribespeople towards the end of 1921.

No further work was done around Tali or Tengyueh, though there is still much virgin country in both districts, for instance, the Ghi Shan east of the Tali Lake, the heavily timbered western flank of the Tali Range itself, as well as the mountainous country east and north-west of Tengyueh.

Whilst passing through the latter district on my way east in March, 1921, a short journey was made to the frontier hills to get good flower specimens of R. GIGANTEUM, which had not been collected in 1919. We were fortunate in finding the plants in full bloom. In keeping with the prodigious growth of the species the inflorescence is of great size, individual trusses having as many as 15—20 large fleshy blooms, each 2½—3 inches in length by 1½—2 inches across, in colour deep crimson throughout, or deep rose-crimson shaded to almost white at base, with a deep crimson blotch. It is, assuredly, a magnificent species, apparently very rare for, though further search was made, only the three specimens found in 1919 were seen.

New country was also entered, roughly in a wide circle west, north and east of Mu-li, but, though collecting was successfully carried on during 1921, early in the summer of the following year it had to be abandoned owing to trouble with the lamas of Mu-li arising, not from any fault in my men—for we had been on particularly friendly terms with the head lama and his adherents since 1913—but from other causes.

However, though rather a set-back to us as, following successful spring and early summer work, we had been looking ahead to a bountiful harvest of seed of good things, occurrences such as these may always be expected in Yunnan, and we were therefore prepared to strike out elsewhere.

Parties of men fell back on the ranges enclosing the Litang River to the south, which form the watershed between it and the Yung-ning plain or valley, whilst others pushed farther east than we had ever before penetrated, into the riot of subsidiary ranges there, all of which drain into the Litang northwards or south to the Yangtze.

At the same time in a further attempt to compensate for our losses in the north a party of collectors was sent to a portion of the eastern watershed of the Mekong, hitherto unexplored, lying west of Chienchaun, in Lat. 26° 20′ to 27° 10′ N. and Long. 99° 18′ to 100° E.

It proved exceptionally rich, quite a number of rhododendrons new to us being found, as well as many other alpine shrubs and herbs.

Particularly interesting was the discovery of types of rhododendrons which hitherto we have only known from the higher mountains of the north-west, on the Mekong-Salwin divide in Lat. 28° N. and beyond that, such as R. PROTEOIDES, R. REPENS, R. CERACEUM and others of the Irroratum group; a form of R. FORRESTII or that species itself; R. SALUENENSE, R. CHRYSEUM and R. CORIACEUM; several known species of the Selense group and the same of the Lapponicum. All of which points to the fact that many species have a much wider distribution than we have ever thought and that more thorough exploration will be necessary before we reach definite conclusions regarding them in that respect.

Unfortunately our search in that district was begun so late in the season that the great majority of species were past flowering and so only fruiting material was secured. However, a number of my men have continued the work there this year and I have recently heard of their success and that a large collection of herbaria is on its way to us. So we hope very soon now to get on with the determination and naming of the species.

It is interesting to note that in that area, though adjacent to the Lichiang-Range—distant only a matter of 50 miles in an air line—and of similar limestone formation, and though no natural barrier intervenes, yet only three species common to both were found: R. TALIENSE, R. PLEBEIUM and R. OREOTREPHES. One species found in late flower is of the Maddenii group.

Work was also continued further afield east and north of Yung-peh, that country being thoroughly ransacked during the two seasons, but the region is particularly arid during most of the year and, though xerophytic forms abound of shrubs and herbs typical in more favoured parts of Yunnan, it is not prolific in Rhododendron. The formation is mostly pure grey limestone and such, given a steady moderate rainfall, will give a richer flora than any other, but, inversely, there is none more niggardly in yield.

One fine species was secured there early in the spring of 1922—R. CATAPASTUM of the Heliolepis series—which though for many years collected in fruit had never been seen by us in flower. It is in full bloom as early as February, a shrub of 6—12 feet, with the short very open purplish-rose or rose-pink flowers and russet-brown foliage of all of the group. However, the leaves are markedly divergent from the type, broadly ovate, even elliptic, and with such handsome foliage and its free-flowering habit I should place it as a garden plant next in value to R. PHOLIDOTUM, the most floriferous of the group!

The mountains tailing south from the Lichiang Range were also explored for the first time. Those form the highlands between the Hoching and Chien-chuan Valleys. Towards their southern extremity is the " Koua-la-po," a pass collected on by Père Delavay or his men, and also the Sung-kwei Pass.

Quite a few new forms were found, most having affinity with species of the Racemosum and Scabrifolium groups. One unexpected.

The best of them, the finest and dwarfest form of R. RACEMOSUM I know, was discovered by us on the high ridges enclosing the Sung-kwei Pass and is present in the collection under No. 19404.

At 12,000 ft. altitude whole hillsides were clothed with it, bunchy little shrubs of 6—14 inches literally smothered in blooms of the purest cerise-pink. The formation on which it flourishes is a loose rubbly limestone sparingly covered with alpine grasses and herbs. It is a form far removed from any other of the species met with in the province, and the striking uniformity of the plants leads me to believe it may retain its dwarf floriferous habit under cultivation. A plentiful supply of seed was collected.

On the way north to the Mekong Valley we crossed from that of the Yangtze by way of the Li-ti-ping Pass, about 12,000 ft. altitude, the home of many fine species already known to us as R. CHAMEUNUM, R. CHLORANTHUM, R. GLISCHRUM, R. LITIENSE, etc., and although apparently a poor flowering year for the last named, photographs were secured of it. It is a very beautiful species with open bell-like blooms, of the Souliei series, allied to R. WARDII, R. CROCEUM, and R. ASTROCALYX, and, as with these species, the flower colour is yellow with the exception of R. ASTROCALYX, the best yellow of the group.

The habitat, as may be seen, is generally on the margins of conifer forests, and most often, a northern exposure.

R. CHLORANTHUM, a deciduous species 2—3 feet in height of the Trichocladum series, was seen at its best then, early June, the flanks of some of the corries running down to the pass being masked with masses of its tender green newly opened foliage, a beautiful contrast to the clusters of semi-pendent greenish-yellow blooms. A form with very deep-coloured flowers running almost to orange was marked down, but unfortunately we failed to get seed of it.

R. GLISCHRUM was seen in quantity in dense lichen-clad conifer forests on the higher ridges enclosing the pass at about 13,000 ft., but a rather poor form of it, spreading, straggly, loosely-branched plants with flowers a washy purple-rose, not the fine form originally discovered on the Kari Pass which has a compact habit and well-formed trusses of deep plum-crimson blooms. A few specimens were noted which had pure white flowers with rich rose-crimson calyces, a striking contrast, but being of the same poor habit were not collected.

However, I merely mention those lesser fields to draw attention to the fact, that, though collecting has been prosecuted off and on for fully 30 years, the South-west, Central-west, and East of the Province have yet much to yield us.

Our real work lay in the far north-west and our finds on the great ranges of the Tibetan marches during 1917-20, astonishing as they undoubtedly proved, were totally eclipsed by the multitude of beautiful species and forms discovered by us during 1921 and 1922 on the Salwin-Kiu Chiang divide—a wealth of

rhododendron beyond our wildest expectation. Plants new to us were seen and collected every other day, even to the last day of our search, giving promise of even greater riches farther north-west.

In the two years' collections some 1,300 numbers denote species of rhododendron, inclusive of course of a goodly number of duplicates in fruit. Roughly, specimens of about 5—600 species were collected, of that number 100—150 being new to previous gatherings.

The work of determining these is now being carried on steadily at Edinburgh by Professor Smith and members of his staff, but as yet I can give no names for the species though very soon descriptions of a number will be published in the " Notes " of the Botanic Garden. Thus I can only describe to you, as best I can under number, a few of the most outstanding and beautiful groups and species.

As we now find many of the recently defined groups linking up with one another the work of final determination is going to prove most difficult. This is a natural and inevitable result which for long I have expected we should have to face, as for several years now we have been gradually working north-westwards towards what appears to be the focal centre of distribution of the genus, which I now believe will finally prove to be somewhere in the Zayal, probably on the S.E. or E. flanks of the Riraphazi and Meching Gangra Ranges in approximately Lat. 29° N., Long. 97° 20′ E., or on the huge mountain system running north of that which encloses a portion of the head-waters of the Salwin and forms the watershed between that river and Assam.

As happened in regard to the Sanguineum series in 1917-18, we discovered during the past two years numerous species and varieties which appear to form groups around hitherto isolated types.

For instance, R. FLOCCIGERUM, *Franch.* The type is a shrub of 3—4 ft. having pale green lanceolate foliage coated on the under surface with a loose light cinnamon-coloured indumentum and bearing lax umbels of 5—7 light cherry-crimson flowers. In this recent collection are several species akin to it in foliage, indumentum and habit, but differing from it in many minor details and most distinct in flower colour, two having clear yellow flowers margined and lined pale rose, one rose-red, and another in which the blooms are black-crimson, the same shade as seen in those of R. HAEMALEUM.

And so also with the Haematodes group. A dozen or more species were collected agreeing with the type in having the characteristic heavy brown indumentum, but differing in stature, size and shape of foliage, as well as size and colour of blooms, all shades being represented from light rose through cherry-reds to crimson and the deep blood-crimson of the type, whilst one species has creamy white and another clear yellow flowers margined rose.

We also collected several forms of that group with flowers having abnormally developed calyces of the same fleshiness and colouring as the corollas, in some, enlarged to two-thirds the size of those, giving a very bunchy and charming effect to the inflorescences.

The same wide range of form was seen in a number of plants of the Eclecteum series which were collected.

With the Thomsonii form of foliage, the type species, a shrub of 4—6 ft. has beautiful rose-crimson flowers.

But, under sixteen numbers of the collection we have a series of shrubs, ranging from 3 to 7 feet in height, with flowers rose-crimson, rose-magenta, deep magenta-crimson, deep self-rose, pure self-white without markings, white spotted crimson, white margined rose, pure yellow, and yellow lined and margined rose, the last almost a picotee form !

Of many new plants of the Fulvoides series collected, the colour range is even more wonderful, from pure white through shades of pink and rose to the deepest crimson, either self shades or spotted and blotched crimson, whilst quite a few of the species have pure soft yellow blooms, or yellow faintly washed rose on the exterior.

Put to the acid test by botanists it may be concluded, and in a sense perhaps justly, that all or most of those plants are merely colour forms of a few species. Yet they differ one from the other and from the type in many small ways, and in the determination of them it will have to be borne in mind that they have been collected at many widely separated points—and altitudes—over a stretch of country of fully 100 miles latitude and, assuming they are only colour forms, it is just such plants which may become the very cream of our gardens in the future.

I consider the finest of the Fulvoides group collected to be that under No. 21869. A shrub of 25 feet, it has fine large foliage with a heavy pale cocoa-coloured indumentum, and flowers a most beautiful shade of pale, yet pure, rose-pink, almost an aniline shade.

R. SINONUTTALLII and R. MEGACALYX were seen in plenty, handsome shrubs of 6—18 feet in height, both with large trumpet-shaped almost pure-white blooms, more like shrubs garlanded with lilies than aught else.

The foliage of the former species is specially pleasing—large, with a puckered dark green glistening upper surface, the under surface shining golden brown with a multitude of glands and hairs. Both are shrubs of the open conifer forests on the slopes of warm sheltered side valleys at 8—10,000 ft. or even higher.

At a slightly higher altitude another species fairly abundant is R. GENESTIERIANUM, much more robust and free-flowering than it shows on the hills north of Teng-yueh where first discovered. With its willow-like foliage and habit, and stiff tier-like open trusses of numerous small nodding plum-coloured blooms it is quite effective.

Quite a number of new forms of the Sanguineum series were secured, and it is curious to note one feature in which many of them differ from their congenors of the Mekong-Salwin divide, in that, instead of having the ovary heavily tomentose, it is densely glandular with not the slightest vestige of tomentum.

One or two species of the Martinianum phylum were found, all very beautiful shrubs with rounded coriaceous leaves and clear-tinted bell-like flowers; and some 6—8 distinctly new species were added to the Selense series, several of them with lovely clear yellow blooms, one of which is the beautiful R. PANTEUMORPHUM, first discovered in 1905 and since lost sight of.

Though of all rhododendrons none excel those of the Selense group in the graceful beauty of their flowers, most of the species have unfortunately a most

wretched habit of growth, straggly, and branched from the base with, in many, a very scanty show of foliage. It is to be hoped that they lose that under cultivation.

Two species were added to the Forrestii group, both larger-leaved shrubs than the type, one having the ruddy-purple under surface to the foliage as in R. FORRESTII whilst the other has bright green leaves, rugose above and coated beneath with a loose glandular biscuit-coloured indumentum.

One specially fine species is that under Nos. 21693 and 20322. It is of the same section as R. ADENOPODUM, and is a shapely shrub of 9—18 feet with handsome tapered leaves broadest just below the apex, dark green above, glaucous-grey beneath, somewhat like those of R. HYPOGLAUCUM. The flowers are numerous, in rounded though not crowded trusses, borne on long pedicels, are of medium size and openly bell-shaped, creamy white in colour with brown-crimson markings.

Another remarkable species, under Nos. 21811 and 22856, is epiphytic on the tallest trees in dense forest, its leaves and pendulous grey branches tough and leathery. The flowers are axillary, 3—5 on long pedicels, colour unknown as it was collected in fruit only. It somewhat resembles R. CAMELLIÆFLORUM.

A very beautiful and graceful shrub was collected under Nos. 21707 and 21778. Branched from base or almost so, it attains a height of 6—10 ft., the bark on the older stems a rich ruddy-brown similar to that seen in R. ROYLEI and peeling off in thin strips in like manner, the young wood a dull grey. Foliage rather stiff and narrowly lanceolate, light green above, entirely grey beneath with glands and papillæ. The flowers, usually in terminal compact trusses of 5—8, are long tubular or narrowly funnel-shaped and bright yellow, in colour almost an orange tinged green with the calyx coloured slightly lighter.

It is of the Aureum group, in fact so nearly resembles the type R. AUREUM, *Franch.* that I doubt if we can separate them. This is a very great disappointment to me for I had thought No. 21707 something distinctly new and I feel sure that anyone having seen the type as it grows on the Tali Range—a scraggy dwarf, sparingly foliaged and with very few and comparatively small flowers—would never associate the two plants. The type and its most divergent form are samples of what wonders favourable or unfavourable climatic conditions and environment can produce in a species, and the same applies to R. CRASSUM of Tali Range.

In almost the same locality was found and collected both in flower and fruit R. TEPHROPEPLUM, a very beautiful dwarf species of the same section as the preceding, first discovered by Mr. Reginald Farrer in 1920 shortly before his death. It is a shrub of 2—3 ft. with stiff narrowly lanceolate leaves bright green above and dark ash-grey beneath, the blooms sometimes solitary, occasionally in pairs or even threes, fleshy, semi-pendulous, openly funnel-shaped, varying in shade from dark to light rose, with large fleshy coloured calyces. A charming species and a decided acquisition should it prove hardy in our climate.

Whilst one party of men struck as far north as possible on the Salwin-Kiu Chiang divide another worked southwards on it in an attempt to link up with

the ground explored by Mr. Farrer during August, 1920. His farthest north was just beyond the Chaw-chi Pass in Lat. 27° 25′ N. My men got as far south as Lat. 27° 40′ N. and as a result, quite a few of the good things present in Mr. Farrer's collection were secured by them, such as R. TEPHROPEPLUM, *Primula Agleniana*, *Primula Valentiniana*, but, curiously enough, so far as I know, only *that one* of his rhododendrons though it is on record he discovered quite a few fine species in the vicinity of the Chaw-chi Pass. There is ample evidence that in the late summer of 1920 he had reached a comparatively rich area but, most unfortunately, he did not survive to reap the harvest promised.

On the Salwin-Kiu Chiang divide during those two years, besides the wonderful collection of rhododendrons, specimens of a great number of most interesting new trees and shrubs belonging to many other genera were collected for the lower altitudes are as rich in other ligneous growth as the alps are in Rhododendron.

As on most of the mountains of the region there is a distinct conifer belt commencing roughly at 7,000—8,000 ft. with open scattered forests of true pines —which in most areas is a dry and most unprolific zone—to 12—14,000 ft. where are seen dense and extensive forests of *Abies*, *Picea*, *Tsuga*, *Larix*, etc. Quite a few new species were collected and it may be of interest to some that during the autumn of 1922 a large quantity of seed of the true *Abies Delavayi* was gathered in the forests on the Tali Range, the locality where the species was first collected by Père Delavay. From that seed there is now a good stock of young plants at the Edinburgh Garden.

It is needless to mention the wealth of the alpine herbaceous flora—so much is now in cultivation from the region that this is understood. Every meadow above 10,000 ft. is a veritable flower garden, a riot of colour, the scheme of which changes from month to month.

It is impossible with the time at my command to mention more than just a few of the trees and shrubs which have the mountains of Yunnan as their home and the pictures may convey more even than I could tell you.

One of the finest groups for horticultural purposes is *Magnolia* and quite a few are indigenous to those mountains, whilst one or two, such as *M. conspicua* and *M. Delavayi*, are cultivated by the Chinese.

Magnolia taliensis is of the Tali Range as the name denotes, and is a shrub of 8—20 feet with handsome foliage and fragrant cream-coloured flowers.

Magnolia rostrata—first collected in 1904 on the Mekong-Salwin divide in Lat. 28° N. It is a deciduous tree of 30—80 feet with immense obovate or obcordate leaves, 18 by 20 inches or even more with prominent veining on the under surface, and fragrant flowers 5—7 inches in diameter ranging in shade from a creamy white to a pure self pink. The blooms are precocious, and I shall ever remember my first sight of a small grove of the species in flower in May, 1904, a haze of pink nearly a mile distant and quite unapproachable on account of the heavy rotting snow-fields by which it was surrounded.

The species was found again in 1919 by Mr. Farrer and myself as far south as Lat. 26° N. on the N'Maikha-Salwin divide. There the flower shade varies more, in some specimens being pure white, seldom the pure pink seen in the northern habitat.

Magnolia nitida is an evergreen free-flowering shrub of 25—40 feet generally branched from base, with leathery glossy dark green foliage, at a short distance giving the impression of a gigantic laurel. The flowers are white, occasionally flushed purplish on the exterior, 3—4 inches or even more in diameter and sweetly fragrant. Considered from every point a most attractive species.

Magnolia mollicomata, like *M. rostrata*, is deciduous, a tree of 20—60 or even 80 feet in height with large rose-pink flowers and much smaller leaves densely tomentose especially in the young state.

Magnolia tsarongensis is less in stature than any of the preceding, a shrub of only 18—20 feet, the leaves densely coated with brown glistening tomentum. The flowers are comparatively small only some 2½ inches in diameter, sweetly fragrant, pendent and coloured soft creamy white.

Three of these are now in cultivation—*M. rostrata*, *M. nitida*, and *M. mollicomata*—though not in any quantity, in fact of *M. rostrata* only some half-dozen plants are known.

Of *Enkianthus*, a charming family of shrubs, there are quite a few species in N.W. Yunnan. During 1922 four new species were discovered and seed of all of them secured. The finest is a shrub of 6—9 feet with unusually large leaves of a light green veined and marbled deep creamy yellow, whilst the pendulous flowers an inch or more in diameter, twice the size of any other species I know, are a dull yellow shade lined soft rose. Another species, a shrub of 20 feet, very free-flowering and with small deep green leaves, has blooms a deep shade of rose lined bright soft green.

Of *Styrax* I have collected some six or eight species in various parts of the province, all of them most beautiful free-flowering shrubs, but, like *Magnolia*, it is difficult to get seed of them home in good condition. Where all members of a genus are so attractive it is difficult to pick and choose, but I should give the palm to two—*Styrax shweliensis* and *S. langkongensis*. The first attains a height of 20 feet or even more and in the best situations becomes a most symmetrical shrub, in season simply a shower of pendulous fuchsia-like creamy white fragrant blooms. It seems to thrive best in sheltered sunny situations on the margins of forests, whereas *S. langkongensis* is most at home in arid clay soils on dry hillsides amongst dwarf scrub on the margins of scattered pine forests, flowering in the late spring when there is little or no rain. It is a dwarf of 2—4 feet, the flowers pendent, large, fragrant, almost pure white, the calyces, foliage and young wood densely coated with a shining golden-brown tomentum.

The genus *Pyrus* is well represented in all woodlands from 8—12,000 ft., *Pyrus yunnanensis* one of the finest, a shapely shrub or tree from 20—40 feet with light green foliage tomentose beneath—flowering and fruiting freely and admirable for its splendid autumn colouring. The fruits, almost as large as our crabs, are then softly brilliant shaded from golden-yellow to flame-scarlet.

The genus is carried to the higher alps by members of the *Sorbus* family, many of them beautiful in foliage and fruit, such as *Sorbus Wilsoniana*, the pale green foliage of which colours so richly in autumn that each individual stands out, a torch of intense orange-scarlet.

Many of the species have deep crimson flowers, in fact most of those collected in the far north-west are of that class. *Sorbus Harroviana* is one exception to that and is also distinguished by having the largest foliage of all species. The flowers are creamy yellow, the fruits abnormally small, less than half the size of any other, being a pure dead white.

Euonymus is an important genus and many new species have been discovered in recent years, ranging from shrubs of 5—6 feet to trees of 30—40 feet, most of graceful habit and with delicate foliage. Two of the most interesting are *Euonymus ilicifolia* and *E. porphyrea*, the first a compact shrub of 6—10 feet with glossy light green ovate spinous leaves and small green flowers. It is especially attractive in open fruit, the capsules of a grey-white suede shade contrasting wonderfully with the brilliant scarlet of the seeds. *Euonymus porphyrea* is an erect delicately branched shrub of 20—25 feet with a grey-lined light green bark, reminding one of some of the Acers, narrow willow-like foliage and deep ruddy-purple pendulous flowers borne on long delicate pedicels, the capsules also deep purple, the seeds scarlet.

Cornus is represented by quite a few species all good foliaged free-flowering shrubs or trees, the well-known *C. capitata*, however, the finest of them all. In some situations this species flowers so freely that scarce a leaf shows, the masses of creamy white bracts showing up at great distances. The fruits, about the size of a small walnut, are soft strawberry-red when ripe and are edible, being for sale on most Chinese markets in the early winter.

Of *Lonicera* there are also very many species, the majority erect, not scandent, shrubs. Of those which are climbers the largest flowered is *L. Braceiana*, an evergreen species with large leathery bright green leaves and immense blooms 5—7 inches in length, fragrant and of a deep golden colour. It flowers freely and is found in only one locality, on a large lava-bed west of Tengyueh where it forms huge tangled masses. It is closely akin to *L. tragophylla*.

Lonicera Henryi is also another evergreen climber with much smaller dark green netted leaves and flowers much resembling those of our home honeysuckle but without fragrance.

One of the most charming of the non-scandent species is *Lonicera ligustrina* var. *yunnanensis* which grows by most streams on the Lichiang Range. It closely resembles *L. nitida* in its charming evergreen buxus-like glossy foliage and small green flowers, and is finest of all in fruit when the deep blue-purple berries show in striking contrast to the dark leaves.

Other erect species are *Lonicera Koehneana*, 10—18 feet, with fragrant pale yellow blooms and dull scarlet fruits; *L. Maackii* var. *podocarpa*, somewhat similar with pale yellow fruits; *L. xerocalyx*, 6—10 feet, with dull green roughly netted lanceolate leaves, orange flowers and fruits—all deciduous—and *L. adenophora*, with foliage more or less persistent and short-tubed open deep crimson flowers and large crimson fruits, of 6—15 feet.

Of *Viburnum* there are at least 20—30 species, a goodly number of them being Himalayan forms. *V. erosum* is abundant on the Lichiang Range forming thickets at 10—11,000 ft. The fruits are edible, in flavour resembling our red currant

but more acid. It is quite a handsome shrub with creamy yellow flowers and large scarlet-crimson berries.

Dipelta yunnanensis is also a fine shrub, of 4—8 feet and flowers profusely. The blooms are yellowish veined purple with a blotch of orange at the base.

Another shrub seen commonly in thickets by streams is *Meliosma cuneifolia*. The flowers are creamy yellow and have a fragrance similar to that of our hawthorn.

Of *Pieris* there are many species some of which have very pleasing foliage, as *P. ovalifolia*, a shrub of 10—25 feet with fragrant waxy white flowers. *P. Forrestii*, an ally of *P. formosa*, is the most floriferous of any; an evergreen, it tints well in autumn and the young shoots are also most delicately coloured. It forms dense clumps 4—7 feet in height and often twice as much through. I give a picture of another species not yet named, a shrub of 8—10 feet with bronzy-green foliage and sweet-scented white flowers.

Ligustrum lucidum is common by streams in most of the valleys in the north centre of the Province, especially those of Hoching and Lichiang, at an altitude of from 7—10,000 ft. It is quite an effective shrub of 15—30 feet with large light green shiny leaves and creamy white flowers. Flowers and fruits most freely, the berries deep plum-purple. Deciduous.

Another ornamental species from the Lichiang Range and now in cultivation is *Ligustrum ionandrum*. It is an evergreen small compact small-leaved shrub 3—6 feet in height and as many through. It flowers and fruits as freely as any of the genus, the blooms white, fragrant, the fruits large deep plum-purple.

Ligustrum Delavayi is also a native of the same area, though not so abundant. A shrub of 8—12 feet, it has rather a straggly habit, but is rather fine in fruit which it produces in great quantity.

Ligustrum Coryanum is a peculiar species discovered in 1921 on the mountains west of the Tali Range. The foliage, as well as all parts of the plant, are greyish with a close short down. It is a shrub of 6 feet with white flowers.

Buddleia Forrestii is already well-known to cultivators. It is a compact shrub of 4—10 feet, greyly tomentose on all its parts, with large erect spikes of soft grey-lavender blooms which are deliciously fragrant. It is a species delighting in a limestone formation.

One of the finest dwarf shrubs of the Lichiang Range and the limestone mountains of the Chungtien plateau is *Daphne aurantiaca*, Diels. It is most often a scree or cliff plant forming cushions 18 inches in height and about 3 feet in diameter, when in flower a glowing mass of orange backed by grey limestone.

Luculia gratissima is common in the lower valleys of the west and south-west from 3,500—6,000 ft., a most charming shrub of 4—25 feet, its beauty enhanced by it flowering in winter. The blooms are pure carnation-pink and very fragrant. It is grown as an ornamental plant by the Chinese.

Species of *Prunus* are plentiful in the mixed timber-belt on all ranges, and many of them have been introduced. One of the best is confined to the Tali Valley at 6,500 ft. altitude and has been, I believe, determined as *P. serrula*

forma *magnifica*. It is a shapely shrub of 20—40 feet with a ruddy birch-like bark, flowering profusely in December. The flowers are precocious, deep rose-pink.

The one I show is a form, yet undetermined, of *Prunus Puddum*. It is a native of the hills around Tengyueh, attains a height of 40 feet, flowering precociously in March. The blooms are large, clear rose-pink and fragrant. A most beautiful form, but unfortunately not perfectly hardy even in Cornwall.

Another fine shrub of the Tengyueh hills is *Thea Forrestii*. It is an evergreen shrub of 20—25 feet with pink blooms 2½—3 inches in diameter.

Of Jasmines there are quite a number on the lower-level ranges of the frontier, some of them very beautiful though few, if any of them, would prove as hardy as *Jasminum polyanthum*, Franch., nor has any other species I know so wide a range for it is seen from the frontier to as far north-east and as high an altitude as Lichiang. It is a very free-flowering shrub of 10—30 feet, the blooms deliciously fragrant, waxy white within flushed purplish on the outside. It is grown by the Chinese in many districts. At the Botanic Garden, Edinburgh, it flowers in the open, though not so freely as seen in the picture.

Another species native to the Lichiang Valley and Range is *Jasminum Beesianum*. A scandent shrub of 6—10 feet or more, it has light green foliage and strongly fragrant light crimson flowers with deep crimson tubes.

In some of the more dry valleys one of the finest shrubs is *Pyracantha crenulata*. It is 5—10 feet in height and forms thickets of great extent in some of the opener areas, flowering and fruiting prodigiously and strikingly beautiful in both conditions. There are two forms, indistinguishable in leaf or flower, but one has brilliant scarlet, the other deep orange fruits, and yet though growing in company always I have never so far found an intermediate form.

There are several species of *Deutzia* on those mountains but only one really worthy of mention—*Deutzia discolor*. It is a shrub of 5—7 feet with white flowers There is a dwarf alpine form of it on the Mekong-Salwin divide which has purplish-pink flowers.

There are 6—10 species of *Leptodermis*, all of them rather pretty shrubs with flowers white flushed rose on the exterior, or pure lavender, some of them very evil-smelling. They are usually in thickets by streams in more or less shady situations.

Leptodermis Forrestii, a shrub of 2—4 feet found on cliffs in ravines, has the largest flowers of any I know, about ¾ inch diameter, deep lavender.

The figure shows a plant of *Leptodermis glauca*, of 3—4 feet, flowers white flushed purplish-rose on the outside.

Potentilla fruticosa is a common shrub on almost every range, from 10,000 ft. to 14—15,000 ft., varying widely in colour of flower from the deepest orange-yellow at the lowest altitudes, through light orange to shades of palest yellow. The most alpine form of all which I show you having pure white blooms and ruddy calyces. This white form is in cultivation under the name *Potentilla Veitchii*.

All forms flower freely and, in height, range from such cushion plants as this in the picture to shrubs of 4—5 feet.

Of *Photinia* there are great numbers, shrubs and trees, mostly with handsome evergreen foliage, creamy white flowers and orange or red fruits. They are found in many situations, though most often in thickets or mixed forests by streams, but seldom above 10—10,500 ft. The most interesting I have seen, though perhaps the least hardy of all, is *Photinia flauidiflora*, a species with large glossy dark green rubbery leaves, almost similar in size and texture to those of *Ficus elastica*. It makes good growth in some of the warmer parts of Cornwall.

Many of the drier pine forests are carpeted with masses of the beautiful *Vaccinium fragile*, a shrub of 6—14 inches, with neat dull-green foliage and abundant heath-like blooms pale-pink in colour.

Catalpa Ducloixii is generally in cultivation over most of the province, the timber hard and durable, dull yellow in colour, being much in demand for domestic purposes. When well grown it forms a stately tree of 50—80 feet, flowering most profusely.

Populus tibetica and *lasiocarpa* are fairly common forest trees on most of the Ranges from Lat. 26° N., north and west. Both good timber trees and used to some extent by the Tibetans in the north-west.

Of *Betula*, there are several species on the higher ranges, the finest of all in form, size of foliage and bark-colour, being that named *Betula Delavayi* var. *Forrestii*. The bark is a pure silvery white.

Rhodoleia Championii? or a new species akin to that, is one of the most strikingly beautiful trees of the frontier, with delicately-coloured foliage and clusters of deep crimson fuchsia-like blooms. It is generally widely branched and attains a height of 60 ft.

Bucklandia populnea is another handsome tree of the frontier belt, and is common in mixed forests at from 6—9,000 ft. Full-grown specimens run to 90 ft. in height.

GEORGE FORREST.

November, 1923.

THE KEEPING OF POLLEN.

The pollen of many plants remains living and capable of forming pollen-tubes for a longer time in dry that in damp air. This was clearly shown in a series of experiments carried out by Pfundt (Jahrb. f. wiss. Bot., vol. 47, pp. 1-40), who kept the pollen both in ordinary air, and, by the use of exsiccators, in air of different degrees of humidity, and then tested the germination of the pollen.

A preliminary experiment of this kind with Rhododendron pollen has been made at Kew, and, although only a few observations were made, the result is interesting, as showing that the pollen of, at any rate, one species (R. DISCOLOR) can be kept alive a good deal longer than Pfundt found in the case of the single species of this genus tested by him (R. MOLLIS=AZALEA MOLLIS), rather longer in fact than any of Pfundt's records for other pollen.

Pollen of R. DISCOLOR was collected last year on June 26th, and some of it was at once put into an exsiccator, in which the air was kept fairly dry by a mixture of sulphuric acid and water (54 parts by weight of the acid to 46 of water, one of the strengths used by Pfundt, and stated to give 30 per cent. humidity). The rest of the pollen was placed in a loosely covered vessel, and was therefore exposed to the ordinary air in the Laboratory. Both lots of pollen were kept in the dark. To test the pollen, a small amount was removed and put into sugar solution of different strengths, 10 and especially 15 per cent. of cane-sugar being found to be the most suitable for this species.

Pollen from the exsiccator tested in July, October, January and April produced in each case a number of pollen-tubes, while pollen kept in ordinary air germinated in July but failed to do so on October 5th.

Thus in fairly dry air (in the exsiccator) the pollen of R. DISCOLOR was found to retain its power of germination from June till April, the exact number of days at the time of the last test being 291, as against 178 recorded by Pfundt for R. MOLLIS.

Two other species of Rhododendrons besides R. DISCOLOR were experimented with, and, in these also, pollen kept in ordinary air since June 26th was found to give no germination on October 5th.

The method of keeping pollen in dry or fairly dry air in an exsiccator may prove useful for the hybridisation of species of Rhododendron which flower at different times of the year. It remains to be seen, however, whether pollen, kept for a long time and still capable of forming pollen tubes, will have sufficient vigour to effect fertilisation.

ARTHUR W. HILL.

November, 1923.

THE RHODODENDRONS OF HUPEH PROVINCE, CENTRAL CHINA.

The ascent of the Yangtsze River from its mouth to near the city of Ichang, a distance of nearly one thousand miles, is from the view-point of scenery an uninteresting journey. The mighty river flows through a vast alluvial valley created by itself and its tributary streams. Here and there, as round Chinkiang and Kiukiang, isolated hills and mountains jut out like islands in the sea but on the whole the country is rich agricultural land, flat, wearying and monotonous to the traveller especially if the journey be made in winter. About forty miles below Ichang the scenery changes and the country becomes broken and picturesque. Around the city the hills are strikingly pyramidal in outline with prominent cliffs in the near distance. North, south and west of Ichang the country is cut up into an archipelago of peaks from 2,000 to 4,000 feet high which are inextricably linked by spurs with mountain ranges that attain altitudes of from 7,000 to 10,000 feet. Such is the configuration of the whole of western Hupeh and the contiguous part of Szechuan to the eastern edge of the famed Red Basin. There is no level land in the entire region which is too wild and savage for extensive agricultural development and with a marked absence of useful mineral deposits it is one of the poorest, most sparsely populated and least known parts of China. For these same reasons it is of particular interest to the botanist since the vegetation has been less molested there than in many other parts of that country. But even there every reasonably accessible bit of land either is, or has been, under cultivation though much of the country is of such a nature as to preclude the growing of crops even with Chinese patience and ingenuity.

Geologically speaking the region is made up mainly of Palaeozoic limestones capped with Mesozoic shales and sandstones, usually red in colour, which weather into sandy clays. From the edge of the Red Basin of Szechuan to the city of Ichang, the Yangtsze River has forced its way through mountain ranges and flows through a series of wonderful gorges whose stupendous almost vertical cliffs are from 1,000 to 2,000 feet high. At their lower levels all the small rivers and streams flow through narrow gorges bound in by steep cliffs. Indeed, bold cliffs are the outstanding feature of the topography of western Hupeh and the contiguous part of Szechuan. From the level of the Yangtsze River up to 3,000 feet altitude travelling is excessively arduous but above this it is not so tiring though in truth it is difficult enough. Where not under cultivation the hills and lower mountains are partly covered with woods of miscellaneous broadleaf trees, both evergreen and deciduous, with a great variety of shrubs and climbing plants on their margins and in the open country. Below 4,000 feet such Conifers as *Pinus Massoniana*, *Cupressus funebris*, *Cunninghamia lanceolata* and *Keteleeria Davidiana* are common. Above 6,000 feet *Pinus sinense* and *P. Armandi* are plentiful and the broadleaf trees are nearly all deciduous. At 8,000 feet and upwards the wooded regions are more extensive and several species of Fir and Spruce form fine forests. The open country above this altitude is clothed with Bamboos, a great variety of shrubs, coarse herbs and *Juniperus squamata* but

nowhere in this part of China can the vegetation be called alpine in character. Below an altitude of 3,000 feet no broadleaf evergreen Rhododendron is found though the red-flowered *R. Simsii* abounds and in season the countryside is ablaze with its blossoms of intense colour. On conglomerate rocks near Ichang the yellow-flowered *R. molle* grows sparingly. In rocky places among shrubs the lilac-colored *R. Mariesii* is found at elevations between 1,000 and 3,000 feet. In wet sheltered glens among a rich growth of evergreen broadleaf shrubs *R. pittosporaefolium* occurs as an occasional bush at altitudes between 3,500 and 5,000 feet, but is nowhere a common plant. It is in the copses and woods above 4,000 feet that evergreen broadleaf Rhododendrons grow in Hupeh. They increase in number as the altitude increases and are common between 6,000 and 10,000 feet though never so abundant as they are in western Szechuan where they dominate the higher forests and form magnificent belts of colour. In the woods and copses of Hupeh among broadleaf deciduous and evergreen trees they grow as scattered bushes or in small groups whereas in the coniferous forests they are a most important undergrowth often forming dense thickets. Above 8,000 feet Rhododendrons grow in more open country among other shrubs and in rocky places where there are no trees to give overhead shade *R. Fargesii* in pure stands often covers large areas.

I never met with *R. sutchuenense, R. auriculatum, R. discolor* or *R. Houlstonii* elsewhere than in woods and forests but the other species often grow in places where they do not receive the overhead shelter of trees. Indeed, *R. Augustinii, R. ovatum* and *R. micranthum* grows best on the edge of woods and on cliffs where they get almost complete exposure and are never found within the full shade of wood or forest. *R. Wilsonae* likes the companionship of deciduous shrubs and small trees but not that of evergreens be they broadleaf or coniferous. Woods in which Oaks are the dominant trees are a feature of the vegetation of Hupeh and it is in these that the Rhododendrons which do not grow above 7,500 feet altitude are mostly found luxuriating in the thick layer of humus which covers the forest floor.

The most widely distributed of the endemic species are *R. hypoglaucum, R. sutchuenense, R. maculiferum* and *R. discolor*. Very local is *R. auriculatum* known only from a few localities and in these quite rare. *R. sutchuenense* is found at the lowest altitudes of any of the evergreen broadleaf species and it is the first to open its blossoms; *R. Fargesii* and *R. maculiferum* grow at higher elevations than other Hupeh Rhododendrons and next to them in this respect comes *R. adenopodum*. No small-leafed Rhododendron of the class which covers so many hundreds of square miles of the Chino-Thibetan borderland has been discovered in western Hupeh or eastern Szechuan, neither can Rhododendrons be termed a dominant feature of the vegetation in these parts of China. They are, however, a fairly common and strikingly beautiful element of the flora.

Of the eighteen species nine are not known to grow elsewhere though one (*R. hypoglaucum*) is very closely related to a species indigenous in western Szechuan, and another (*R. Houlstonii*) is very close of kin to *R. Fortunei* of eastern China. *R. Augustinii* grows also in western Szechuan, where it is rather rare and so, too, does *R. pittosporaefolium* which has also been found in Hunan province. Quite recently *R. Wilsonae* has been found on the mountains of northern Kwangtung. Of the remaining six species, three (*R. ovatum, R. Mariesii* and

R. molle) have their headquarters in eastern China and their western limits of distribution in Hupeh. One (*R. micranthum*) is a widespread north China plant which has its southern limits in Hupeh; another (*R. yanthinum*) is a western species with its eastern limits in Hupeh. The remaining species (*R. Simsii*) is universally distributed through all the warm temperate parts of China.

The first of the endemic species was discovered about 1886 by A. Henry who altogether brought five new species to our knowledge though one was not recognised as new until 1910. Père P. Farges in the neighbourhood of Tchen-kcou-ting discovered between 1891 and 1894 six new species. In 1900 I added *R. Wilsonae* to the list. One species (*R. Augustinii*) was first introduced into cultivation by Père Farges who sent seeds to M. Maurice de Vilmorin in 1899. With the exception of *R. detersile* all the other species of the region were introduced into cultivation (twelve for the first time) by myself during 1900, 1901 and 1907 through seeds sent to Messrs. Veitch and to the Arnold Arboretum: also the stock of *R. Augustinii* in English and American gardens is from seeds collected by me. All have flowered in Britain where they have proved as hardy as the rank and file of evergreen Rhododendrons. Though comparatively few in number these Hupeh species are an important unit; several are in the front rank of the genus. The blue-flowered form of *R. Augustinii* is one of the most remarkable of Rhododendrons and *R. auriculatum* is unique as the last of its race to open its flowers in summer. Late-flowering and beautiful is *R. discolor*, and *R. Fargesii* is of its class one of the loveliest. The Rhododendrons of Hupeh are outlyers of a family whose headquarters is a thousand and more miles to the west. It was they who first attracted the attention of Mr. J. C. Williams in 1902 and laid the foundation of the now famous collection at Caerhays and incidentally established a new era in Rhododendrondom.

The three subgenera Anthodendron, Azaleastrum and Eurhododendron are represented among these eighteen species. Of Anthodendron, the section Tsutsutsi is represented by *R. Simsii*, the section Sciadorhodion by *R. Mariesii*, that of Pentanthera by *R. molle*; of Azaleastrum the section Euazaleastrum is represented by *R. ovatum*, that of the section Choniastrum by *R. pittosporaefolium* and *R. Wilsonae*; of Eurhododendron the section Leiorhodium is represented by nine species and that of Lepipherum by three species (*R. Augustinii*, *R. yanthinum* and *R. micranthum*). A full account of all the Hupeh species of Rhododendron with all their synonyms is given in the *Journal of the Arnold Arboretum* V. No. 2, April (1924). Here I have thought it sufficient to quote the original reference and one good figure when available. A key to the species is given but keys for the subgenera and sections are considered unnecessary since they appear in my account of the "Rhododendrons of North-eastern Asia," in Vol. II., No. 3, 1922 of the *Rhododendron Society Notes*. For the convenience of reference the species are arranged alphabetically.

CLASSIFICATION.

KEY TO THE SPECIES.

Leaves deciduous.

Leaves oblong-lanceolate, undersurface densely pubescent at maturity; corolla yellow..... *R. molle*, p. 170.

Leaves ovate to ovate-lanceolate, undersurface glabrous at maturity ; corolla rose-purple..... *R. Mariesii*, p. 170.

Leaves persistent.

Shoot clothed with appressed, strigose, gray to shining brown hairs ..... *R. Simsii*, p. 172.

Shoot not clothed with appressed, strigose, gray to shining brown hairs.

Flowers from clustered axillary buds, crowded at end of shoot ; leaves not lepidote below.

Flowers in fascicles of 3 to several ; stamens and pistil much longer than corolla..... *R. pittosporaefolium*, p. 171.

Flowers solitary ; stamens shorter than corolla.

Stamens 10, corolla funnel-form campanulate *R. Wilsonae*, p. 173.

Stamens 5, corolla rotate..... *R. ovatum*, p. 171.

Flowers from terminal and axillary buds, fascicled, crowded at end of shoot ; leaves lepidote below.

Corolla funnel-form campanulate, filaments villose at base.

Shoots villose, not verrucose when young ; midrib pilose or villose on under surface of leaf..... *R. Augustinii*, p. 164.

Shoots not villose, densely verrucose when young ; midrib glabrous on under surface of leaf..... *R. yanthinum*, p. 174.

Corolla rotate-campanulate, filaments glabrous *R. micranthum*, p. 170.

Flowers from terminal bud, umbellate or racemose ; leaves not lepidote below.

Corolla 5-lobed.

Leaves green on both surfaces.

Leaves glabrous, except midrib below.

Calyx annular, glabrous..... *R. sutchuenense*, p. 172.

Calyx saucer-shape, villose..... *R. maculiferum*, p 169.

Leaves densely clothed with rufous, floccose tomentum on the under surface..... *R. detersile*, p. 166.

Leaves pale gray or dun-coloured on under surface.

Indumentum uniform, firm, crustaceous ; calyx annular with 5 minute, erect teeth..... *R. hypoglaucum*, p. 168.

Indumentum not uniform, floccose and crustaceous ; calyx membraneous with 5 prominent reflexed lobes ..... *R. adenopodum*, p. 164.

Corolla 7-lobed.

Leaves glabrous, petiole purplish, glabrous.

Calyx annular, obscurely toothed ; pedicels glandular.

Flowers umbellate..... *R. Fargesii*, p. 167.

Flowers racemose..... *R. Houlstonii*, p. 168.

Calyx saucer-shape, membraneous with undulate teeth ; pedicels not glandular or very rarely so..... *R. discolor*, p. 166.

Leaves hairy, petiole bearded, glandular *R. auriculatum*, p. 165.

ENUMERATION OF ALL THE KNOWN SPECIES WITH THEIR FORMS AND HYBRIDS.

RHODODENDRON ADENOPODUM *Franchet.*

[In *Jour. de Bot.* IX. 391 (1895). Bean in *Gard. Chron.*, ser. 3, XLV. 291, fig. 125 (1909).]

This species is easily recognised by the floccose gray to dun-coloured tomentum on the under surface of the leaves, by its villous and glandular pedicels, its membraneous reflexed calyx and by its oblong cylindric hispid and glandular fruit. It was discovered in the neighbourhood of Tchen-keou-ting, a district in the extreme north-eastern Szechuan, by Père P. Farges. In Hupeh this Rhododendron is quite rare and is not known to grow south of the Yangtsze River. It is only known to me from two or three localities in the Hsing-shan district where it grows in thin woods among rocks between 5,000 and 7,000 feet altitude. I first found it in flower in mid-May, 1900, and gathered herbarium specimens (No. 1161) ; in October of the same year I collected seeds (No. 505) and sent them to Messrs. Veitch. This was the first introduction of this Rhododendron into Europe and the plants in English gardens are all from this source. In 1901, Père Farges sent seeds to M. Maurice de Vilmorin at Les Barres where a plant grown in a pot in an unheated greenhouse flowered in 1909 for the first time in cultivation. Since then it has flowered at Caerhays, at Kew and elsewhere. In a wild state this species blossoms during late April and May at the first burst of spring and not infrequently its flowers suffer from late frosts. The habit of this plant is somewhat ungainly being tall and rather sparingly branched ; the flower truss is loose and the colour of the corolla varies from pale to rose-pink. The lustrous green upper surface and the gray under surface of the leaves form a pleasing contrast. It is very distinct from other Rhododendrons of central China and amongst the older and better known species reminds one of *R. Smirnovii* Tranto, native of the Caucasus Mountains.

RHODODENDRON AUGUSTINII *Hemsley.*

[In *Jour. Linn. Soc.* XXVI. 19 (1899). Craib in *Bot. Mag.* CXXXIX., t. 8497 (1913).]

This is an exceedingly common species in Hupeh and is found on the mountains westward far into Szechuan. It is partial to the margins of woods but is happiest in open rocky situation where it is fully exposed to the sun. In Hupeh it occurs between elevations of from 4,000 to 7,000 feet and in north-western Szechuan from 6,000 to 9,000 feet. Usually it is a much-branched shrub of moderate size but frequently it is from 15 to 20 feet tall and as much in diameter. The plants vary considerably in degree of hairiness but the pilose or villose midrib on the undersurface of the leaf is a ready means of distinguishing *R. Augustinii* from all other related species. The fascicles are usually terminal and 3-flowered but on vigorous shoots often 6 flowers occur in each and lateral fascicles may also be present. The flowers vary in colour from pale purple to rose-purple, lavender and blue-purple, on some plants they are white. Some of the colour forms, especially those bordering on blue, are very lovely. The species is very free-flowering and in a wild state blossoms during the month of May.

This Rhododendron was discovered in Patung district during 1886 by Augustine Henry whose Christian name it worthily bears. It was introduced into cultivation by Père P. Farges who, in 1899, sent seeds to M. Maurice de Vilmorin at Les Barres where a plant flowered for the first time in 1902. In 1900 from the Changyang district I sent seed (No. 598) in quantity to Messrs. Veitch and in 1907 and 1908 from various localities in Hupeh and Szechuan to the Arnold Arboretum and all the plants in British gardens are from these sources. This Rhododendron is now well established in many English gardens where it flowers freely each year and has won for itself a host of admirers.

In the most common colour forms the flowers are shades of pale to rose-purple and this may be regarded as the type of the species.

A form with lavender- to blue-purple flowers has been recognised: violascens *Wilson*, and another with white flowers: album *Wilson*.

Rhododendron auriculatum *Hemsley*.

[In *Jour. Linn. Soc.* XXVI. 20 (1889). Hutchinson in *Bot. Mag.* CXLV., t. 8786 (1919).]

This magnificent species is well characterised by the hairiness of its foliage and flower stalks, by the cordate base of its oblong leaves with bearded petioles and by its large funnel-form, 7-lobed corolla. It is one of the finest of all the Chinese Rhododendrons and is unique in the lateness of opening its flowers and in commencing the season's growth. In a wild state this species opens its flowers in late July or early in August but under cultivation this is sometimes delayed even into September. On the young growth the lower part is furnished with crimson, very glandular scale-leaves which are a conspicuous and attractive feature. The leaves are large and handsome being sometimes fully a foot long and five inches wide. The flowers, each 3 to 4 inches long and nearly as wide, are pleasantly fragrant.

The species grows mainly in copses and woods, where deciduous Oaks predominate, at elevations between 5,000 and 7,000 feet, but is nowhere common. I have seen specimens growing in districts as far apart as Changyang in the south and Fang in the north but only once, and that in 1900, did I collect it in flower and fruit. The plant is more plentiful scattered through the wooded country round the hamlet of Kuan-pao on the border of Patung and Changyang districts than elsewhere so far as my knowledge goes. This is the type locality and it was here that I gathered the seeds. It is an arborescent shrub of excellent habit being sometimes 20 feet tall and even more through the crown though usually its dimensions are round about 12 feet. The plant everywhere favors cool situations where the soil is rich in humus and where it is sheltered from strong winds.

This Rhododendron was discovered in 1885 by A. Henry on the mountains round Kuan-pao; it was introduced into cultivation by myself in 1900 by means of seeds (No. 920) collected in November and sent to Messrs. Veitch. A large number of seedlings were raised of which one hundred were planted out in Coombe Wood Nursery and later distributed among British gardens where there are now growing many fine specimens. The best plants in cultivation are those at

Caerhays where it flowered for the first time in September, 1912. Since that date it has flowered in many gardens and is well-known and esteemed one of the grandest of all Rhododendrons. The late-flowering character is of great importance and in the hands of hybridisers may lead to the evolving of a race of late August and September flowering Rhododendrons. At Caerhays Castle it has been crossed with *R. decorum* Franch. and according to Millais (*Rhodod.* 125 (1917)) the plants in 1915, their third season, showed 70 per cent. *R. auriculatum* in the cross. At Kew according to Bean (in *Rhod. Soc. Not.* I. 193 (1918)) this species has been crossed with *R. ponticum* L. Probably other attempts to hybridise it has been made and the results of these experiments will be watched for with great interest.

A form with rose-pink flowers has been recognised : roseum *Wilson.*

Rhododendron detersile *Franchet.*

[In *Jour. de Bot.* XII. 260 (1898).]

This species was discovered near Touan-tchen in the district of Taning at an altitude of 7,500 feet by Père P. Farges. Franchet states that it belongs to the same group as *R. Edgeworthii* Hook. f. and is distinguished by the smooth upper surface of the small leaves, by its rufous floccose tomentum which soon disappears and by its well developed calyx. It is not in cultivation and is quite unknown to me.

Rhododendron discolor *Franchet.*

[In *Jour. de Bot.* IX. 391 (1895). Hutchinson in *Bot. Mag.* CXLIII., t. 8696 (1917).]

This common species in Hupeh is well distinguished from others by being everywhere glabrous, but its small, membraneous, undulate persistent calyx and by its gland-dotted pistil. It is plentiful in the woodlands between elevations of from 4,500 to 7,000 feet everywhere in western Hupeh and eastern Szechuan to the edge of the Red Basin. A robust plant of good habit it is usually a bush from 10 to 12 feet high and as much or more in diameter but often these dimensions reach 20 feet. The foliage is bold and leathery and the contrast between the purple petioles, the dark green upper surface and pallid under surface of the leaves is pleasing. The flowers are large, usually more or less pink in the bud and becoming pure white when fully exposed, fragrant and compacted into a fine rounded truss. It opens its flowers and commences to grow late in June and on this account is of exceptional value, a fact fully appreciated by those who have this species growing in their gardens.

This Rhododendron was discovered in the neighbourhood of Tchen-keou-ting by Père P. Farges between 1891 and 1894 ; it was introduced into gardens by means of seeds (Nos. 885, 885B) sent by me to Messrs. Veitch in the autumn of 1900. In 1907 I sent seeds to the Arnold Arboretum and these were distributed far and wide. It flowered for the first time in cultivation at Coombe Wood in June, 1911. In gardens this Rhododendron has proved very amenable, flowers in June and early July and by many is considered one of the finest of the Chinese species.

In 1902, before I knew the identity of this Rhododendron I suggested to Messrs. Veitch that it be named " R. Kirkii " after my friend, Dr. William Kirk, then of the Chinese Imperial Maritime Customs Service and stationed at Ichang. Later, plants were distributed under this unpublished name and, unfortunately, a good deal of confusion has been quite innocently caused. The typical form has pale pink passing to pure white flowers.

A form with deep pink flowers has been recognised : carneum *Wilson.* A hybrid between this species and a catawbiense hybrid has been named × R. holmleaense *Rehder* ; another with the garden Rhododendron " Konig Carola " has been named × R. konigdis *Magor.* This species has also been hybridised with other Rhododendrons in several gardens but I do not know if any of the progeny have received names. Bean (in *Rhod. Soc. Not.* I. 191 (1918)) says, " Several crosses with discolor as one parent have been made at Kew chiefly with such garden varieties as ' Pink Pearl,' ' Strategist,' ' Doncaster,' ' Memoir,' etc. But it has also been hybridised with some species as *Griffithianum* (*Aucklandii*), *maximum* and *occidentale,* the last of course an Azalea."

Rhododendron Fargesii *Franchet.*

[In *Jour. de Bot.* IX. 390 (1895). Hutchinson in *Bot. Mag.* CXLIII., t. 8736 (1917).]

This beautiful species is easily recognised among other Hupeh Rhododendrons by the shape and relatively small size of its leaves ; by its compact umbellate inflorescence and by its glandular pedicels and ovary. It grows wild on the high mountains of north-western Hupeh and contiguous Szechuan and is not known to grow elsewhere, for the statement by Millais that Forrest found this species in Yunnan is erroneous. Père Farges reports if from a calcareous region but I never saw it growing either in or on limestone. Its altitudinal range is from 6,500 to 9,500 feet though it is most plentiful round about elevations of 8,000 feet. At the lowest level of its distribution this plant grows in mixed woods, higher up it is common in forests of *Abies Fargesii* Franch., *Pinus Armandii* Franch., *Picea Wilsonii* Mast., *Populus tremula* var. *Davidiana* Schneider, *Betula albosinensis* Burkill and other trees. Above the level of forests it is abundant among shrubs and on the fully exposed slopes and mountain tops often forms extensive thickets. It is usually a bush from 6 to 10 feet high and broad, but often it is double these dimensions. The habit is good though the foliage is rather sparse and being small exposes clearly the polished branches. The flowers vary in colour from pale pink to rose-red, occasionally they are white and more or less dotted with rose-colour. The plant is exceedingly floriferous, every shoot terminating in a dense rounded truss of flowers. So abundantly does it blossom that the bushes frequently exhaust themselves and die. The flowers open from the middle of May until the beginning of June often while snow still lays in shaded places.

This Rhododendron was discovered between 1891 and 1894 by Père P. Farges near the village of San-ken-cheou in the district of Taning in eastern Szechuan. It was found by me in Fang district in western Hupeh and introduced into cultivation by means of seeds (No. 1250) sent to Messrs. Veitch in the autumn of 1901. All the plants in gardens are from this source. It first flowered in

Cornwall at Caerhays Castle in March, 1911, and about the same time in the garden of Mr. P. D. Williams, at Lanarth.

Though not so valuable to gardens as the late-flowering *R. auriculatum* Hemsl. or *R. discolor* Franch. this Rhododendron is my favourite among the Hupeh species. Its foliage and habit of growth, exuberance of blossoms, compact trusses and the cheery colour of its flowers are qualities pleasing and dear to me. It won my affection the first time I saw it capping a windswept ridge in May, 1901, and has held it ever since.

A form with flowers white spotted with red has been recognised: album *Wilson*. According to Millais (*Rhodod.* 162 (1917)) this species has been crossed at Leonardslee with a blood-red form of *R. arboreum* Smith.

Rhododendron Houlstonii *Hemsley & Wilson.*

[In *Kew Bull. Misc. Inform.* (1910) 110.]

A very beautiful species distinguished by its foliage, by its glandular pedicels, its nearly obsolete calyx and by its wide funnel-form nearly bell-shape corolla with relatively short ascending-spreading lobes. It is a critical species closely related to *R. Fortunei* Lindl. and to *R. discolor* Franch. but flowers three weeks earlier than the former and six weeks earlier than the latter. Though nowhere common it is widespread in Hupeh and eastern Szechuan growing in mixed woods at elevations of from 4,600 to 7,000 feet. It is usually a shrub from 6 to 10 feet tall and broad and I have not seen plants exceeding dimensions of 15 feet. The habit is compact and fairly dense and the trusses of flowers are borne well above the foliage. In colour the flowers are most pleasing shades of pink and the marking when present is inconspicuous. The glands on the pedicels and pistil may be sessile or stalked or both, and very numerous or sparse. The rank the plant is entitled to has puzzled me greatly but on the whole in the present state of our knowledge I think it is best considered as a distinct species. In habit of growth, in foliage and in form of inflorescence and in the colour of its flowers I regard this as one of the prettiest of the Hupeh species. In a wild state the blossoms open in late April or early May and there is a danger in gardens of its flowers being injured by late frosts. It is essentially a woodland species where rock and abundant humus prevail. This Rhododendron was discovered by **A**. Henry on the borders of Changyang and Patung districts in 1888; it was introduced into cultivation by means of seeds (Nos. 648, 648A) which I collected in the Hsing-shan district and sent to Messrs. Veitch in October, 1900. Plants flowered for the first time in cultivation in 1913 in Coombe Wood nursery.

Rhododendron hypoglaucum *Hemsley.*

[In *Jour. Linn. Soc.* XXVI. 25 (1889). Hutchinson in *Bot. Mag.* CXLII., t. 8649 (1916).]

This is well distinguished from other Hupeh species by the white crustaceous covering on the under surface of the leaves. It is a very common species in western Hupeh between 4,500 and 7,000 feet altitude and grows also in eastern

Szechuan, where it was found by Père P. Farges round Tchen-keou-ting in the north-east and by A. von Rosthorn near Nan ch'uan Hsien in the south-east. Though it skirts it does not cross the Red Basin but is represented in western Szechuan by the closely related *R. argyrophyllum* Franchet. In many places *R. hypoglaucum* is very abundant scattered through thin woods or, at its altitudinal limits, growing in open country among rocks. It is a much-branched plant of good habit sometimes 20 feet tall and as much in diameter and is very floriferous with rather small flowers in a compact truss. Both white and pink flowered forms grow wild being in fact equally common. The flowers open in May, are broader than deep and the corolla is narrowed abruptly to the base. The ovary and flower-stalks vary from glabrous to pubescent and glandular and the latter vary considerably in length.

This Rhododendron was first discovered in 1886 by A. Henry in the district of Patung and introduced into cultivation by seeds (No. 752) which I sent to Messrs. Veitch in the autumn of 1900. It first flowered under cultivation at Caerhays Castle in May, 1915, and was figured in the Botanical Magazine though the drawing is not very accurate. In a wild state the plants bloom from about the end of April until the end of May according to altitude.

A form with white flowers has been recognised : album *Wilson*.

Rhododendron maculiferum *Franchet*.

[In *Jour. de Bot.* IX. 393 (1895). Millais, *Rhodod.* 205 fig. facing p. 24 (1917).]

This species is distinguished by the shape of its ample leaves, the midrib on the under surface broad and covered with floccose hairs, and by its villous rhachis, pedicel and ovary. The bell-shape flowers are arranged in compact rounded trusses which terminate every shoot. It is a woodland plant, wide spread and common between elevations of from 5,000 to 10,000 feet throughout western Hupeh and contiguous Szechuan. It is most abundant in forests of *Abies Fargesii* Franch. above 8,000 feet altitude in Fang district. It is, indeed, a high-level species and with *R. Fargesii* Franch. is found at greater altitudes than any other Rhododendron in Hupeh. In a wild state it is in flower from mid-May until mid-June. Usually it is a bush from 8 to 15 feet tall and broad but I once saw it 30 feet high with a trunk 2 feet in girth being quite tree-like in appearance.

This Rhododendron was discovered round Tchen-keou-ting by Père P. Farges sometime between 1891 and 1894 ; it was introduced into cultivation by seeds (No. 944) which I collected in the district of Changyang in December, 1900, and sent to Messrs. Veitch. All the plants in cultivation are of this origin. It flowered for the first time in gardens at Caerhays Castle. In Cornwall it flowers in late March and early April but in colder districts it will be found to blossom later. It is a hardy sturdy species of good habit and abundant foliage. Though not one of the finest it is a very floriferous Rhododendron possessed of much quiet charm.

Rhododendron Mariesii *Hemsley & Wilson.*

[In *Kew Bull. Misc. Inform.* (1907) 244. Hutchinson in *Bot. Mag.* CXXXIV., t. 8206 (1908).]

This species is not uncommon in western Hupeh between altitudes of 1,000 to 4,000 feet where it grows on the margins of woods, on cliffs and amongst scrub where it is fully exposed. It is distributed from Fokien and Chekiang provinces of eastern China westward to south-eastern Szechuan and with *R. molle* G. Don is the only deciduous-leafed Rhododendron known in Hupeh. The habit of the plant is upright, rather narrow, from 4 to 10 feet tall with verticillate, twiggy ascending branches. The rose-coloured, dotted with red-purple, flowers are borne usually in pairs at the end of the naked shoots; sometimes the flowers are solitary, in others they are borne four or five together in fascicles. The story of the discovery and introduction of this plant is told in full in my *Monograph of the Azaleas of the Old World.* In 1900 I sent seeds (No. 683) from the Changyang district in Hupeh to Messrs. Veitch and plants raised from these seeds are growing in many English gardens.

Rhododendron micranthum *Turczaninow.*

[In *Bull. Soc. Nat. Mosc.* X., no. 7, 155 (1837). Chipp in *Bot. Mag.* CXXXIV., t. 8198 (1908).]

This small-flowered, northern species finds its southern limits of distribution in western Hupeh where it is a rare plant growing on cliffs between elevations of 5,000 to 6,000 feet. It is partial to fully exposed and windswept rocky places, and is a shrub from 5 to 6 feet tall and more in diameter, densely and intricately branched. It was introduced into cultivation by seeds (No. 1218) which I sent in the autumn of 1901 to Messrs. Veitch, and which were collected in the district of Paokang in Hupeh. The early history of this species will be found on page 101 of the Rhododendron Society's Notes for 1922.

Rhododendron molle *G. Don.*

[*Gen. Syst.* III. 846 (1834). Loddiges, *Bot. Cab.* IX., t. 885 (1824), as Azalea sinensis.]

This species is rare in Hupeh and is only known to grow on the hills of conglomerate rocks a little to the east of the city of Ichang. It is abundant in eastern China and especially on the mountains of the Chekiang province. In central China it is not common and Hupeh is the western limits of its distribution. This plant grows amongst coarse grasses and shrubs and in thin woods of *Pinus Massoniana* Lambert. It is a sturdy, sparingly branched shrub from 2 to 5 feet high taller than broad with large, rounded trusses of rich yellow, fragrant flowers terminating each shoot and opening before the leaves unfold. A full account of this plant will be found in my *Monograph of the Azaleas of the Old World.* The Hupeh type was introduced into cultivation in 1907 by means of seeds (No. 800) which I sent to the Arnold Arboretum.

The Rhododendron Society Notes.

Rhododendron ovatum *Planchon.*

[In *Rev. Hort.* (1854) 43. Hooker in *Bot. Mag.* LXXXIV., t. 5064 (1858), as Azalea ovata.]

This species is not uncommon between elevations of 4,000 to 7,000 feet in Hupeh but is not known to grow further west. It is distributed eastward to the shores of the Yellow Sea being found plentifully on the mountains of Kiangsu, Chekiang and Fokien provinces. It was originally known from the Chusan Islands but is most probably only cultivated in the temple grounds of these sacred islands. On the mountains around Kuling it is particularly abundant round about 4,000 feet altitude. This Rhododendron also grows in Hongkong, so Hupeh represents the northern as well as the western limits of its distribution.

It is a much-branched, twiggy shrub seldom exceeding 8 feet in height with rigid, ascending branches. The leaves are crowded at the ends of the branchlets and when young are a lovely violet-purple colour. The flowers are flat, of an undecided but pleasing shade of pink to pale rose-purple and open in May. In Hupeh it is partial to cliffs and rocky places where it grows mixed with other shrubs but is sheltered from strong winds.

This species was discovered on the Chusan Islands in the autumn of 1843 by Robert Fortune who sent seeds to the Horticultural Society of London the same year. Subsequently he found it wild on the mountains of the Chekiang province. Fortune tells of two forms, one with white and another with pink flowers. A white form is unknown to me in a living state.

Rhododendron ovatum was first found in Hupeh by A. Henry; in 1900 I sent seeds (No. 938) from the district of Changyang to Messrs. Veitch and in 1907 to the Arnold Arboretum from the same locality. Plants raised from my first consignment of seeds are thriving in Cornwall but have not proved very hardy in less favourable climates.

Rhododendron pittosporæfolium *Hemsley.*

[In *Jour. Linn. Soc.* XXVI. 29 (1889). Hutchinson in *Bot. Mag.* CXLI., t. 8601 (1915), as R. stamineum.]

This is a very remarkable species easily recognised by its fascicled flowers with spreading, recurving lobes and long exserted stamens and pistil. At one time I thought it the same as *R. stamineum* Franch. a Yunnan species and they are unquestionably very closely related but *R. stamineum* as described has much thinner leaves, smaller, pink flowers thirteen stamens and shorter genitalia. Experience has taught us that none of the Yunnan Rhododendrons extend into central China and, indeed, very few into western Szechuan as far north as Mt. Omei. Until both species are in cultivation, where their true relationship can be positively determined, it seems best to keep the two as distinct.

Hemsley's species is well-named for in foliage and habit it singularly resembles a Pittosporum. It is a broad, spreading shrub, sometimes 25 feet high and as much in diameter, with shining green leaves, crowded at the ends of the slender but rigid shoots. When young, and especially on seedling plants, the leaves are

of a rich bronze or purple hue and strikingly handsome. Mature bushes flower abundantly and the pure white blossoms often flushed with pink are sweetly fragrant and very pretty with their long and prominent stamens and spreading reflexed corolla-segments with a conspicuous yellow blotch.

This is a low-level Rhododendron, wide-spread through western Hupeh to Mt. Omei and Mt. Wa in western Szechuan between elevations of from 4,000 to 6,000 feet but is nowhere plentiful. It also grows in south-eastern Szechuan and in the south-western part of Hunan province. It is usually found on cliffs in hot, moist valleys among an exuberant growth of shrubs, mostly evergreen in character. Specimens collected on Mt. Omei and Mt. Wa have thinner leaves which are much less obviously reticulated on the upper surface than is the case with specimens from Hupeh.

It was discovered by A. Henry between 1886 and 1888 on the borders of Changyang and Patung districts and was introduced into cultivation by seeds (No. 887) which I sent from the same locality to Messrs. Veitch in the autumn of 1900; in 1910 I sent seeds (No. 4268) from Mt. Omei to the Arnold Arboretum. Plants raised from the seeds sent in 1900 flowered for the first time in 1911 at Caerhays Castle.

Rhododendron Simsii *Planchon.*

[In *Fl. des Serr.* IX. 78 (1854). Sims in *Bot. Mag.* XXXVI., t. 1480 (1812), as Azalea indica.].

This plant is abundant in western Hupeh up to 5,000 feet altitude where in May the thin woods, cliffs and scrub-clad hill-tops are a blaze of red from its flowers. It grows in all the temperate parts of China and in south Formosa and is extremely plentiful throughout the area of the Yangtsze Valley from near Ningpo in the east to Mt. Omei in the far west. The habit of this plant is twiggy and much-branched with a maximum height of about 10 feet but usually is only half this size. At low altitudes the leaves are large and persistent while at its upper limits of distribution the leaves are very much reduced in size and more or less deciduous. A full account of this species, the history of its discovery and introduction into gardens and its behaviour therein will be found in my *Monograph of Azaleas of the Old World.* From the altitudinal limits of the species in Hupeh, I sent seeds (No. 569) to the Arnold Arboretum in 1907 and plants raised from them are now cultivated in many gardens. I had hoped that this type would be hardy in Massachusetts but this has not proved to be the case.

Rhododendron sutchuenense *Franchet.*

[In *Jour. de Bot.* IX. 392 (1895). Hemsley in *Bot. Mag.* CXXXVI., t. 8362 (1911).]

This is the most arborescent of the Hupeh species and is well distinguished by its stout branches, its large leaves, glabrous except the midrib on the lower surface, its many flowered umbellate inflorescence and by its bell-shape, 5-lobed corolla. It is a noble Rhododendron wide-spread in western Hupeh and eastern

Szechuan and common between elevations of from 4,500 to 7,000 feet. It is always found in mixed woods often growing under the shade of evergreen Oaks and among *Arundinaria nitida* Mitford and other thin-stemmed Bamboos. In fact it shares with *R. auriculatum* Hemsl. and *R. Houlstonii* Hemsl. and Wils. greater love for shade than other Hupeh Rhododendrons. The leaves are tufted at the end of the branches, large, dark green often attenuate at the base and though the habit of growth is splendid the plants look best when seen from above. The flowers are large, very numerous and crowded into a dense rounded truss; the colour varies from pale to rose-pink and rosy lilac and the interior of the corolla may or may not be spotted or blotched with maroon or red-purple. At the lowest altitudinal level at which it grows wild the flowers open early in April before the snow has finally disappeared. High up on the mountains the flowering is delayed until May but this species is the earliest of its class to open its flowers. This was the first Rhododendron I saw in Hupeh and it was in bloom on April 9th, 1900.

Rhododendron sutchuenense was discovered by A. Henry in 1888 but was named from specimens gathered by Père P. Farges round Tchen-keou-ting between 1891 and 1894. It was introduced into cultivation by seeds (No. 517) collected by me in the autumn of 1900 and again (No. 1232) in that of 1901; these were sent to Messrs. Veitch. In 1907, I sent a large supply of seeds (No. 509) to the Arnold Arboretum and these were widely distributed. This Rhododendron flowered for the first time in the Coombe Wood nursery in 1910, when the plants were quite small. It is now growing and has flowered freely in many gardens and has proved quite hardy in Great Britain.

Among the many plants that have flowered slight variation in the shape of the leaf-base, in degree of pubescence on the midrib, in the colour of flowers and in the degree of spotting within the corolla-tube have been observed. Such individual differences are to be expected when a species is raised in large quantities from seeds. For garden purposes it is convenient to distinguish such forms but it is well to remember that they have horticultural rather than botanical significance. In establishing this species Franchet did not mention the colour of the flowers; that figured in the *Botanical Magazine* without a blotch in the corolla-tube may serve as the type though as a matter of fact in a wild state this is less common than the form with wine-coloured blotch which has been distinguished as: Geraldii *Hutchinson.*

In addition to the form *Geraldii* Hutchins. there is a hybrid of this species with the garden Rhododendron "Cornubia" which has been named × R. cornsutch *Magor.* According to Millais (Rhodod. 250 (1917)) this species has been also crossed with several garden Rhododendrons at Caerhays and no doubt this has been done in many other gardens.

RHODODENDRON WILSONÆ *Hemsley & Wilson.*

[In *Kew Bull. Misc. Inform.* (1910) 116.]

This is a twiggy shrub seldom more than 6 feet tall and quite distinct with solitary, pink, deeply lobed flowers, the lobes spreading from a short narrow tube. It is the rarest of the Hupeh species, being only known from one locality in the

Patung district where it grows with other shrubs and trees in rocky places between elevations of 5,000 and 6,500 feet. In 1917 it was discovered in northern Kwangtung by Rudolf Mell. It was discovered by me late in April, 1900, and in the autumn of this same year I sent seeds (No. 886) to Messrs. Veitch. All the plants in cultivation originated from these seeds. It flowered for the first time in cultivation in March, 1912, at Caerhays Castle in Cornwall. The young leaves on seedling plants are beautifully coloured, shades of brownish or purplish crimson masking the deep green of the mature leaf. In gardens, as yet, this Rhododendron has hardly fulfilled expectations.

RHODODENDRON YANTHINUM *Bureau & Franchet.*

[In *Jour. de Bot.* V. 94 (1891). Mottet in *Rev. Hort.* (1917) 348, t.]

From the related *R. Augustinii* Hemsl. this Rhododendron is distinguished by its verrucose branchlets, its glabrous, thicker, shorter and broader leaves, by the midrib not villose on undersurface and by its many-flowered fascicles. It is an uncommon plant in Hupeh though it occurs on mountain cliffs between 5,000 and 7,000 feet in Changyang district in the south and Fang in the north. Further north it has been collected in Shensi by W. Purdom who, unfortunately, gives no precise locality. However, *R. yanthinum* is really a western species which has its eastern limits of distribution in Hupeh. In western Szechuan it is abundant on the edge of woodlands and in thickets from Wa-shan and Mupin west to Tachien-lu between 5,000 and 11,000 feet elevation. Usually it is a bush from 5 to 8 feet tall and about as much in diameter but sometimes it is double these dimensions. The branches though thin are rigid and numerous and the habit of the plant is compact. It flowers during May and June and at its altitudinal limits north of Tachien-lu I have gathered it in blossom as late as July 9th.

This Rhododendron was discovered in the summer of 1890 in the neighbourhood of Tachien-lu by Prince Henri d'Orleans ; it was introduced into cultivation by seeds (No. 1433) collected by me on Wa-shan in October, 1903. The following year I sent more seeds to Messrs. Veitch and in 1908 and 1910 to the Arnold Arboretum. Plants raised by Messrs. Veitch flowered for the first time in May, 1907, at Coombe Wood nursery. The colour of the flowers is not attractive and this species is the least desirable of the Rhododendrons of Hupeh.

A form with white flowers has been recognised : album *Wilson.*

ERNEST H. WILSON.

PLANTS AT STONEFIELD, ARGYLL.

Though the reputation of Stonefield as a fine collection of Himalayan rhododendrons is probably known to most of the members of our Society, no account of the place has yet appeared in our Notes. It is not mentioned in Millais' great work, but Sir Herbert Maxwell devotes a graphic short chapter to it in his book on Scottish Gardens.

It is situated along the steep wooded hillside which forms the western shore of Loch Fyne immediately North of Tarbert. The annual rainfall averages about 70 inches. There is much natural woodland of oak, birch, rowan and hazel, and the ground is beautifully sheltered by a ridge of hills from the Atlantic winds which often blow up West Loch Tarbert from the W. and S.W. in great force. That the soil and climate are admirably suited to the growing of arborescent species is easily seen by the rapid growth of plantations of Pacific Coast conifers such as *Abies nobilis* and Douglas Fir : there are numerous very tall Larch and Common Silver-firs which grow with unusual rapidity.

The collection of Himalayan and other rare plants was made by the grandfather of the present Laird, Lt.-Col. C. G. P. Campbell, of Stonefield.

Sir Joseph Hooker had friends in Argyllshire, inherited doubtless from his father Sir William Hooker's Glasgow days. On several occasions he visited Kilmory near Lochgilphead on Loch Fyne not many miles North of Stonefield. Sir William had helped the lady of that house to lay out her garden in 1840, and from 1850 onwards his son sent her seeds and plants of Himalayan rhododendrons and others of his new introductions. Sir Arthur Campbell Orde of Kilmory tells me that it is to his grandmother by this means that the proprietor of Stonefield probably owed many of the rarer species now to be seen there in their maturity.

The plants described in this paper by no means exhaust the number of fine specimens at Stonefield but they are those which chiefly struck me on the two visits I have paid to the place at an interval of several years. The measurements were taken on the occasion of my last visit, June 6th, 1923. The heights are carefully estimated while the trunk girths and diameters are actual.

Near the lodge of the North Drive in a well sheltered position are growing three Eucalyptus trees which I believe are unsurpassed in Great Britain. They were pointed out to me by Colonel Campbell as *E. Gunnii* and Dr. Landsborough (in Trans. Bot. Soc. Edin. xx. 517 (1896), and xxiii., 144 (1905)) so called them. Elwes and Henry Vol. VI., page 1650 give the following earlier dimensions and say that Dr. Landsborough's identification was wrong and that the species is *E. urnigera*. My measurements of the three, girths taken at breast high, were respectively 80 ft. × 6 ft. 5 ins., 75 ft. × 8 ft. 6 ins., and 100 ft. × 6 ft. 1 in. The details as recorded by Elwes and Henry of the tallest of the three are as follows :—

Planted in 1881.
Height ,, 1896, 38 ft.
,, ,, 1905, 71 ft. × 4 ft. 4 ins. girth.
,, ,, 1910, 81 ft. × 5 ft. girth.

They have never been injured by frost and are growing rapidly.

In the same group is a fine specimen, insufficiently shown up, of that Chilian conifer rare in cultivation *Fitzroya patagonica* whose height is 40 ft. and girth 5 ft. 10 ins., larger than any recorded by Elwes and Henry elsewhere in the United Kingdom.

Other remarkable conifers in the neighbourhood of the above are a *Picea sitchensis* about 95 feet high, several large *Cupressus macrocarpa* and an *Abies Webbiana* 80 ft. high × 8 ft. 1 in. girth ; also a well-grown *Picea Morinda*.

Nearer the house I saw a *Thuja gigantea* of 100 feet and beside the drive I noticed three birches of no considerable size which are probably *B. utilis*. To the South of and below the house is a very fine *Pinus insignis* at least 90 feet high with a girth of 10 ft. 3 ins., also a *Pinus muricata* 40 feet high by 7 ft. 7 ins. girth ; no doubt this is the tree reported to the authors by Sir Herbert Maxwell and mentioned by Elwes and Henry Vol. V., page 1106, where, however, the dimensions were not given.

To enumerate all the old Himalayan rhododendrons in the environs of the house is unnecessary, but the following list of specimens and their dimensions will indicate the vigour which all these have shown although in most cases no mulching or special attention has been given to them; where they are growing in turf many seem to have somewhat exhausted the soil about their roots.

R. NIVEUM 12 feet high, 23 feet through and two other large plants of this species.

R. CAMPANULATUM 18 feet high was the largest I saw, but there are several other fine plants of it.

R. FALCONERI, planted in 1896 is 15 feet high, and another original plant is 23 feet high and has a stem dividing near the ground of 4 ft. 6 ins. girth below the division ; a third is 18 feet high in spite of mossy exhausted soil.

R. CILIATUM 8 feet high with a large progeny of natural seedlings.

R. THOMSONII 14 feet high and 18 feet in diameter, another 22 feet high and 18 feet in diameter, and several more.

R. ARBOREUM (pure white) 20 feet high and 4 ft. 6 ins. in girth of stem.

R. FULGENS, a fine plant, 15 feet high and of several stems which Col. Campbell has reported to me, unfortunately I did not see it.

R. AUCKLANDII, I saw one plant of but it was somewhat over exposed to westerly winds and not a remarkable specimen.

R. EXIMEUM, a very fine plant, 14 feet high which bore no flowers this year although Colonel Campbell told me that as a rule it flowers well.

R. ÆRUGINOSUM, 11 feet through.

R. HODGSONII, a young plant but 16 feet high and growing fast.

R. ARBOREUM (blood-red) 15 feet high and 22 feet in diameter.

R. ARGENTEUM, a very fine plant 15 feet high and 21 feet through in perfect vigour, but one side being spoiled by a ponticum.

R. MADDENII, 6 feet high and 10 feet in diameter, covered with flower buds. Though labelled R. CALOPLYLLUM, Professor W. W. Smith tells me that this is probably true R. MADDENII—its near relative.

R. BRACHYCARPUM, the fine plant I saw was in flower and measured 11 feet in diameter.

R. ARBOREUM (pink form) an immense plant fully 30 feet high, with six great limbs.

R. CAMPYLOCARPUM, a one-sided plant of 12 feet diameter.

R. LEPIDOTUM, 5½ feet in diameter and flowering sparingly.

There are several large plants of the almost hairless type of R. BARBATUM and of many old R. ARBOREUM hybrids, the tallest I saw was 27 feet high ; I also saw R. Thomsonii hybrids, and a very large plant of " GEORGE HARDY " laden with flowers also an immense hybrid of R. CAMPYLOCARPUM.

Perhaps the most remarkable rhododendrons at Stonefield are two splendid plants labelled R. WIGHTII, the first is 20 feet high and 18 feet in diameter, it flowered profusely in 1922 and many seedlings are coming up round it, the second is also 18 feet high and flowered for the first time four years ago. Colonel Campbell told me that the flowers opened yellowish turning to white. Unfortunately there were no flowers this year so I am in doubt if these are true WIGHTII with 5 lobes to the corolla or GRANDE of Wight (not ARGENTEUM) which has 6—8 lobes. If they turn out to be WIGHTII they must be the finest plants of that species in cultivation.

R. CILIATUM, R. THOMSONII, R. ARBOREUM and R. WIGHTII (?) produce naturally grown seedlings in great profusion at Stonefield.

Of other remarkable plants the following are worthy of mention :—

Cordyline australis 20 feet high.

Mitraria coccinea, a large plant in the walled garden.

Griselinia littoralis 25 feet high and 7 ft. 8ins. girth, and another plant of the same 38 feet high.

Pernettya mucronata, immense plants which spread from seed and suckers and become weeds.

Ilex dipyrena of 3 ft. 3 ins. girth.

Garrya eliptica of 3 feet girth.

Buxus balearica 13 feet high.

Tricuspidaria lanceolata 11 feet high.

Podocarpus chilina 18 feet high.

Desfontainea spinosa, an enormous plant with a diameter of 30 feet.

Philesia buxifolia 3 feet in diameter.

Azara microphylla 22 feet high.

Escallonia rubra 21 feet high and trunk girth of 3 ft. 3 ins.

Juniperus recurva 23 feet high.

Magnolia Campbellii 25 feet high and girth 2 ft. 9 ins.

Eucalyptus coccifera was in full flower when I saw it, a fine tree, 50 feet high by 4 ft. 4 ins. girth, overtopping and suppressing an Abis Pindrow which

unfortunately had been planted in too close proximity. This Eucalyptus is doubtless the tree mentioned by Elwes and Henry, page 1638.

No description of the trees at Stonefield should omit mention of a Spanish Chestnut with a huge bole and still in vigorous health growing near the shore to the South of the house.

At Glenakil, close to Stonefield, where Colonel Campbell resides, the garden has been laid out since 1872 and now contains fine plants of the following :—

Eucryphia pinnatifolia 10 feet high.

Veronica salicifolia 12 feet high.

Vaccinium ovatum 8 feet high.

Plagianthus Lyallii 10 feet high.

Abutilon vitifoluim, a large plant covered with flower when I saw it.

Clethra canescens.

Olearia macrodonta, many large trees.

Pittosporum Ralphii and *P. tenuifolium* large plants.

Escallonia Philippiana.

Elæagnus multiflora.

R. ZEYLANICUM, the Ceylon form of R. ARBOREUM with deeply veined leathery leaves the margins much recurved, perfectly hardy here and elsewhere in Argyll.

Berberis Darwinii, a tree 24 feet in diameter, 14 feet high by 4 ft. 2 ins. girth of trunk.

R. THOMSONII, a magnificent shapely plant 16 feet high.

Aesculus octandra 30 feet high.

Grevillea rosmarinifolia in flower when I saw it and 6 feet in diameter.

It would be hard to find a more suitable locality than Stonefield and Glenakil for the growing of the innumerable fine new Rhododendron species from China.

F. R. S. BALFOUR.

14*th July*, 1923.

THE RHODODENDRON SOCIETY'S EMBLEM.

I have ascertained the following particulars regarding the Society's emblem from Mr. Gerald W. E. Loder (who presented the die to the Society in 1922) and publish them here for purpose of record.

The design for the emblem was suggested by Mr. Loder and the truss in the centre of it was drawn by Sir Herbert Maxwell. The Greek word ῥοδοδενδροφιλοι, which signifies "Rhododendron lovers," was composed by Dr. M. R. James, Provost of Eton, and the Greek characters were also designed by Dr. James in conjunction with Mr. H. E. Luxmore.

I should be very glad to know whence any of the following plants can be obtained or would endeavour to arrange an exchange:—*Styrax shweliensis*, *Styrax langkongensis*, *Euonymus porphyrea*, *Ligustrum Coryanum*, *Deutzia Wilsonii*, *Rosa Forrestii*, *Rosa Soulei*, *Sorbus Sargentianum*, *Sorbus rufo-ferruginea*, *Syringa pinnatifolia* of Wilson.

CHARLES ELEY.

December, 1923.

HOLKHAM.

I had hoped to continue my notes of last year with some further descriptions of the rhododendrons at Fulmodeston Wood, but I found, on returning there this year, that I had practically exhausted the material for description in my last year's notes and though I believe there was originally a much bigger collection of that species than now exists, I fear they have disappeared in the course of time and I can find no further record in the old books of which I made an exhaustive search. Perhaps, therefore, I may be permitted to write about the species of plants that are now growing in Holkham Park.

There are no rhododendrons here of any size at present, but Lord Leicester has, I am glad to say, made a start in what is called " the American ground." Here he has made a small collection of some of the older species such as FALCONERI, BARBATUM, ARBOREUM (both red and white varieties), etc., and some of the older Chinese, YUNNANENSE, FORTUNEI and one or two others. They are thriving well.

The most interesting part of this truly magnificent park, however, is the " Pleasure Ground " where there are some very fine old specimens of trees.

I give the dimensions in height of the most important.

Pinus Laricio, three trees, 86 feet to 91 feet high. The biggest girth 12 feet at 5 feet from the ground.
Pinus Pallassiana 60 feet high.
Cedrus Libanii 70 feet high and 15 ft. 4 ins.
Juniperus drupacea 48 feet high.
Juniperus recurva 25 feet high.

There are besides these a very good collection of younger conifers comprising *Pinus lachuensis, bungeana, Gerardiana, Armandii, Nelsonii* and many others. The hard wood trees comprise a fine specimen of the Tulip Tree over 70 feet high and a very good plant of *Davidia involucrata* 20 feet high.

Holkham is renowned for having, I believe, the biggest Ilex in England and what is known as the " Obelisk Wood " holds the most magnificent specimen of this tree.

HEADFORT.

December, 1923.

MISCELLANEOUS NOTES.

There is not much to be recorded for 1923 about rhododendrons at Wakehurst. The mild winter of 1922-23 was followed by a chilly spring which was prolonged until the first weeks of June. Then followed a period of drought with only occasional showers ; but in October a record amount of rain (over 7 inches) for the month fell.

It was not a good flowering year for rhododendrons, but the growth on young as well as old plants has been greater than I remember in any former year.

Rhododendron AUREUM flowered for the first time at Wakehurst. It is a low growing species with narrow leaves very glaucous on the underside, and small bell-shaped flowers of a rich yellow colour. It flowered freely in May. It is reported to be tender but it has not so far suffered from frost with me. R. AUREUM was originally discovered by Delavay in Yunnan and has since been found by Forrest in the Tali Range.

There have been some paragraphs in the Gardening papers this summer on the value of aluminium sulphate in the cultivation of rhododendrons. It was stated that Dr. Frederick Coville of the United States Department of Agriculture had met with great success by treating the soil with aluminium sulphate. It would be interesting to know whether any member of the Rhododendron Society has repeated the experiment in this country, and with what result.

G. W. E. LODER.

November, 1923.

NOTES FROM LAMELLEN, 1923.

We had a very mild winter, and the first week in February produced flowers on a Rhododendron which came here from Coombe Wood under the number 1435 Wilson. There are two or three plants of the same species at Caerhays, but so far the name is undetermined. I sent flowers to Sir Isaac Bayley Balfour in 1919 and again to Professor W. Wright Smith this year. The latter's verdict is that he cannot bring it into line with any form of R. STRIGILLOSUM; that it comes extraordinarily close to the type of R. PACHYTRICHUM collected by David near Moupin in its leaves and indumentum, but its flower is quite distinct; and that it has got to be treated as a very distinct variety of PACHYTRICHUM or as a new species closely allied to it. As to the flower, it is compact, 16 to the truss, 1⅓ inch by 1⅛ inch campanulate, 5-lobed, carmine purple first shade (*Répertoire de Couleurs*), with a black blotch at the base of the interior, unspotted: filaments and style paler than corolla, stamens black, stigma pale red. As a cut flower the colour is not altogether satisfactory, but in the wood a well-clad bush with 30 or 40 flowers out is very striking. At the same time there was a first flower on another plant of Rhododendron No. 175 "CORNSUTCH" (CORNUBIA × SUTCHUENENSE). This has the same large foliage as the one mentioned last year, but the colour was a clear crimson pink, spotted on the three upper segments with dark crimson; 12 to the truss, 2½ inches by 3 inches, 5-lobed, widely campanulate, filaments and style rather paler than corolla, stamens very dark brown, stigma brownish-red. A good flower.

Near the end of February a plant of Rhododendron No. 236 (IVORIANUM × HÆMATOCHEILUM 1769W.) which I have called "IVORHÆM" flowered for the first time. Ten to the truss 1⅝ inch by 1½ inch, campanulate, 5-lobed, deep lilac rose blotched with crimson at the base, filaments and style blush, stamens brown, stigma red. The style is much exserted and a good deal longer than the filaments. I cannot say that this flower is an improvement on either of its parents.

The second week in March brought the flower of a rogue that I raised from Chinese seed, though unfortunately, I forgot to put on its label any indication of the number of the species with which it came. The leaves are rather leathery, 4½ inches long by 1¼ inch to 1½ inch across. Flower 16 to the truss, white tinged pink, especially when in bud, spotted throughout with crimson and having a large three-fold blotch of deep crimson at the base; 6-lobed campanulate 1¾ inch by 2 inches, style and filaments white, stigma reddish, stamens 12 brown. Prof. Wright Smith was puzzled by this and so far it has no name. It looks like one of the IRRORATUM series. About a month later several seedlings of R. MONOSEMATUM flowered and one of them was pure white.

In 1911 Mr. J. C. Williams gave me a pod of seed—648A W. HOULSTONII × AUCKLANDII and some of the plants resulting had their first flowers this season. There were eight flowers in a typical AUCKLANDII truss, white, flushed pink with a thin blotch of crimson at the base : 5-lobed, campanulate, 3 inches by 4 inches, filaments white, style and stigma greenish-white, stamens light brown. The leaves are intermediate between the two parents, being 11 inches long including a 2½ inch peduncle. A fine flower but somewhat indeterminate in colour.

During the third week in April a flower appeared on Rhododendron No. 438 ("COUNTESS OF HADDINGTON" × BULLATUM) which I have named Rhododendron IONË after my eldest daughter. This charming flower opens pale primrose but turns white with age and the plant is intermediate between the parents in leaf and form of flower. There were three bells to the truss, rather longer and with a broader tube than R. "COUNTESS OF HADDINGTON."

Early in May two Souliei hybrids flowered and they led me to have a higher opinion of this species as a parent than heretofore.

R. "SOULBUT" (SOULIEI × "MRS. BUTLER") had 7—9 flowers to the truss, blush white or pink with a heavy crimson spotting in the interior, openly campanulate, 5 or 6-lobed, 1$\frac{1}{16}$ inch by 3 inches, filaments white, stamens light brown, stigma green, style yellowish coated with minute red hairs.

R. "SOULKEW" (SOULIEI × KEWENSE) had 10 flowers to the truss, pink in bud, blush white when open and shaded pink outside, fleshy, openly campanulate, 5 or 6-lobed, lobes deeply cut, 2 inches by 3$\frac{1}{16}$ inches, filaments white, stamens light brown, stigma reddish green, style yellowish with a few minute red hairs. This was a particularly charming flower of very delicate colouring.

Then came a rogue from the seed box of Wilson's GALACTINUM. Prof. Wright Smith pronounces this a new species, probably of the GRANDE series and has suggested the name PEREGRINUM. It is a shrub of good habit, with thick ovate lanceolate leaves, 7 inches by 2$\frac{1}{16}$ inches, light green above and coated beneath with a thick light brown tomentum. Branches stout. Flowers about 14 to the truss, 7-lobed, white with crimson blotch and spots, campanulate 1$\frac{1}{16}$ inch by 2$\frac{3}{16}$ inches. Filaments white, stamens 14 brown, style and stigma tinted pink.

For the first time also R. 4275 W. ARGYROPHYLLUM *var.* CUPULARE flowered, 10 flowers to the truss, pure white spotted light crimson within, 5-lobed, campanulate 1$\frac{1}{16}$ inch by 1 inch. Filaments and style white, stamens 14 light brown, stigma cream. A neat little flower.

Second week in May R. "CINNKEYS" (CINNABARINUM × KEYSII) produced flowers. Its leaves are very like those of KEYSII, but more glaucous and glandular beneath. Flowers fleshy twice the size of KEYSII and in the best forms a brighter deeper red tubular but opening more at the mouth where the red shades into yellow. As in KEYSII there are apt to be two or three trusses at the end of the shoot, each truss containing 8—11 flowers. These are 1$\frac{3}{4}$ inch by $\frac{1}{16}$ inch, style

and filaments same colour as corolla, stamens 10 brown, stigma green. A remarkable flower.

At last after many years R. LONGESQUAMATUM (*syn.* BRETTII) flowered, during the first week in June. Twelve flowers in the truss, pale violet rose, darkest on the outside and deeper coloured in bud, with a large crimson blotch in the interior, 5-lobed, campanulate, 1½ inch by 2$\frac{3}{16}$ inches, style and filaments white, stigma greenish, stamens 10 light brown.

E. J. P. MAGOR.

21*st November*, 1923.

RHODODENDRONS AT BODNANT.

The well-established principle that it is best to write of things that one knows best and likes most, is my excuse for choosing this subject for my first contribution to the Notes of the Society.

The garden here is on a hill beside the tidal river Conway, about six miles from the sea. The general slope of the hill-side is south-west, towards the prevailing winds. But while it is somewhat wind-swept, east winds are practically unknown.

We have 15 degrees of frost in an average winter, but as much as 27 degrees was registered in the winter of 1917, and 20 degrees is no very exceptional experience. The rainfall measures about 30 inches in the year but it is well distributed, and the hot summer sun is not such a trial as in southern countries. The soil is a shaly rock overlain with a stiff but stony boulder clay; in a few places where the latter has been denuded a nice gravel surrounds the outcrop of rock.

The rhododendrons have chiefly been planted in a wooded dell and its branches formed by a little mountain stream which is a tributary of the Conway.

The first substantial planting of Himalayan and Chinese rhododendrons was made in the year 1909 in just the place that wiser heads would have shunned. The site was all right for shelter, a clearing in a shallow dell wooded with high oak that had been closely underplanted with yew some 20 years previously, but it was all wrong for soil, a dense clay wet with springs. The worst and wettest place went to the Himalayans, FALCONERI, "SHILSONII," ARBOREUM and "BEAUTY OF TREMOUGH," among them; but strange to say, they have all thriven in it.

Of the Chinese, some of the Veitch's earliest, SUTCHUENENSE, DISCOLOR and AURICULATUM were not as happy as the others, but I am inclined to think that this was due in part to too much shade as well as to the unkindness of the soil.

Many rhododendrons have been planted since then, in shade and sun, in gravel and in clay, but I am inclined to think that with us the moist, but not too moist, stiff, but not too stiff, soil is not amiss. At the same time, I confess that the likes and dislikes of rhododendrons are still much of a mystery to me; I can guess that a place is right or suspect that it is wrong—but it is only a guess or a suspicion and very often the plants themselves take quite a contrary view to mine.

As regards cultivation, all but the largest are planted, in the first instance, in trenched ground and fairly close together. As the trenching becomes crowded some are moved to isolated positions, or to form groups in individual holes. Peat we have abandoned as an unnecessary luxury, but the trenchings are covered in the autumn with the dead leaves that have been swept up, and when we can, we top-dress individual plants with leaf-soil.

Seeds are religiously picked off—a nice light job for the garden woman.

A record of failures is more instructive than a narrative of success and has a way of being very consoling to a reader who may be a fellow sufferer. It is necessary, therefore, to say that away from the shelter of our north walls, which are to us a very present help in time of trouble, GRIFFITHIANUM, ARGENTEUM and the MADDENII group (except for an odd CRASSUM hardier than its brothers) are hopeless, spring frosts completing the destruction that autumn and winter frosts have commenced.

The original seedling plants of " BARCLAYI " have a struggle, though grafted plants look happier. " BEAUTY OF TREMOUGH " emerges in spring with many flower buds frozen, and some of the newer and tenderer Chinese have not yet come out of the greenhouses and the frame. GIGANTEUM and KWAYI are being put out, however, for the first time this winter. Odd plants of AUGUSTINII, OREOTREPHES and MOUPINENSE, annoy us by dying suddenly without rhyme or reason, but those that survive appear to be in perfect health.

Our original plants of SOULEI from Wilson's first expedition have never done very well and two have died. Younger plants from a subsequent sending seem to have a somewhat better constitution and less difficulty has been found in growing most of them.

Of the original plants of AURICULATUM the one that has done best and flowered most regularly is planted in an exposed dry situation in full sun. This grows early and has flowered for many years without failing, but the growth is short. Another plant in a very wet stiff soil, sheltered all round by high trees but open overhead, has grown to twice the size, has much larger leaves but has only flowered twice. Others of the older plants have been tried in an orchard house, on a north wall, on a south wall and indoors, but with indifferent success, the experiments having been made to try and solve the difficulty of getting them to make their growth early enough in this climate to avoid their being damaged by autumn frosts ; one plant, indeed, put off its growth one year so late that it never grew at all, so that for nearly two years not a single new shoot or growth was made by this plant. The younger generation of AURICULATUM, however, seem to grow anywhere and to make their growth in ample time. Seedling SINOGRANDE are apt to make a second growth late in the autumn which gets killed or damaged. As a result, however, the plant breaks nicely the following year behind the damaged growth, and we get a nice bushy plant instead of the bean-stalk that one sometimes sees.

R. ARBOREUM, most of which we have planted of rather a large size, in a few instances have failed to do well for no apparent cause. It is difficult to foresee what situation they like and they have to be moved until they reach a place which suits them. One batch which was planted rather late in the spring suffered very badly from bark splitting, although most of them got over it.

We find that OREODOXA is very particular as to the amount of moisture in the soil ; drought and damp equally inconvenience it, but ample warning is given and the plant immediately picks up if moved to a more suitable place.

A solitary large plant of CYANOCARPUM has always looked a bit starved, but younger plants seem to be suited in a variety of situations.

Of the other Chinese and Himalayan species that we have none seem specially difficult to grow in our soil and climate.

The shelter of a north wall improves our climate almost to a Cornish level. Not only do GRIFFITHIANUM and " BARCLAYI " grow and flower but the scented section, other than NUTTALLII and DALHOUSIAE, thrive. A percentage of the flower buds always get frosted, varying with the species and the degree of frost experienced.

" COUNTESS OF HADDINGTON " is the worst—80 to 100 per cent. of the flowers being destroyed, while EDGWORTHII, curiously enough, carries its buds better than any of its hybrid progeny, rarely losing any. R. LINDLEYANUM carries its buds fairly well but in some cases the plant itself seems to lack vigour, though in others it does well. R. MADDENII grows too late for the shoots to ripen and its buds are very tender. On the whole, the best of the scented section on the north wall seems to be " PRINCESS ALICE " ; it is a fine vigorous grower and a large percentage of the flower buds survive.

In conclusion I would say that important as must be the place of rhododendrons in any garden with a good climate and without lime, we have endeavoured to keep them subordinate to the general scheme of the garden and not to allow the garden to become merely a rendezvous for rhododendrons, good and bad, healthy and sickly. But whether we can maintain this course in face of the successive invasions from China, reinforced by the growth of one's own hybrids and by the kind gifts of friends, is a question that will become each year more doubtful.

H. D. McLAREN.

December, 1923.

RHODODENDRON ARBOREUM AT PRESTONHALL, MIDLOTHIAN.

Mrs. Callendar's beautiful flower garden at Prestonhall, Midlothian, has attracted many visitors and experienced amateurs must have appreciated the evidence of skilful cultivation bestowed upon a fine collection of hardy plants; but for rhododendron lovers the chief interest lies at some distance from the house and garden, and I had been at Prestonhall twice or thrice before becoming aware of it. Even now, I can give but a superficial account of a very remarkable plantation of R. ARBOREUM covering about an acre of sloping ground.

It was in August that I viewed it, and all vegetation was dripping wet. Not being clad for woodland under such conditions, I was unable to take any measurements, nor could I ascertain when or by whom the plantation had been made; but the impression which I received was that there were probably one hundred plants ranging from 25 to 30 feet high. They are well sheltered by woodland on all sides; the soil appears to be good loam, overlying the carboniferous rock of the Midlothian coal measures. In August, of course, there was no flower on the plants, but the indumentum on the under surface of the leaves on such plants as I was able to handle, was tawny, probably indicating white or pale red blossom. There may very well be other varieties in the plantation, but even if the plants are all of the hardier CINNAMOMEUM race of R. ARBOREUM, it is somewhat surprising to find them flourishing and of so great size in a cold district four miles inland from the east coast of Scotland. I have come to regard R. ARBOREUM as the test species for the cultivation of Asiatic rhododendrons in this country. Where that species not merely lives, but thrives, it is safe to adventure with the majority of Indian and Chinese species. I certainly did not expect to find any variety of R. ARBOREUM flourishing luxuriantly in Midlothian. It does not look happy in the Edinburgh Botanic Garden where so many species do surprisingly well, favoured by an exceptionally suitable soil.

I hope to examine the plantation at Prestonhall at a season when the plants will be in flower.

HERBERT MAXWELL.

RHODODENDRONS AT ROWALLANE.

The year of 1923 in this locality has provided a dry spring, a cold summer and a wet autumn. For choice one would have preferred a damp spring, a warmer summer and a drier autumn. Still, on the whole there has been little to complain of, for if the first push of spring growth was undoubtedly restricted by dryness at the root and the resulting wood proportionately shorter, it subsequently matured well, and a free development of flower-buds has followed, particularly as regards the general run of garden hybrids. Here, as doubtless in other gardens, the season has brought its disappointments which the philosophic cultivator might, perhaps, do well to treat as incidents wherewith to accentuate his compensations. Thus, if vigorous specimens of R. DISCOLOR have entirely failed to reproduce their remarkable floral display of 1922—a loss greatly to be deplored—R. DECORUM has at least maintained its consistency, stepped boldly into the breach, and confirmed its hold upon our affections. In the same connection R. HOULSTONII has so far proved a shy bloomer, though the form of R. DISCOLOR known as R. KIRKII—whether in reality merely a synonym for R. DISCOLOR or not—is here an annually free-flowering subject, and betrays, at least in this respect, one distinctive characteristic.

In previous notes a humble tribute has been paid to the outstanding merits of R. NERIIFLORUM and R. CALLIMORPHUM. Time and experience do but tend to heighten our opinion of these two noteworthy plants, which never fail to bloom freely and stand effectively in the garden.

For R. WILLIAMSIANUM a new-found admiration has been formed since this spring, when a low-growing surface-spreading little bush covered itself with shell-pink bells, and presented as pretty a picture as one could wish to see. Here this plant singles itself out as a gem for a cool hollow.

Though R. HÆMATODES has, alas, so far shown no conspicuous freedom of flower, the quality of its blooms is outstanding, and the rich scarlet-crimson colouring attracts instant attention, particularly when lit up by sunlight.

Its ally, R. APODECTUM, is noteworthy as a new departure in colouring, and the flower needs to be held up to the light before its distinctive orange and red tinge can be fully appreciated.

R. BULLATUM is rapidly taking its rightful place amongst the choicest plants of its class, and has been this season a more than ever attractive subject at the base of a sheltering rock, with twelve three-flowered trusses open at the same time, whose fragrance on a warm spring day was quite delicious. This plant has never been injured by frost here, and in comparatively poor soil and a position not too damp and shaded, develops firm growth and sets flower-buds freely.

R. SULPHUREUM is undoubtedly the best yellow-flowered species that we have so far seen here, the colour a good clear sulphur-yellow free from the crudeness that disfigures its ally R. BOOTHII. Though small individually the flowers are of good substance, freely-borne and long-lasting, a small bush here giving a

bright display over a period of fully four weeks. In a cool shaded position we have high hopes of this plant.

Of R. *aff.* CRASSUM complimentary mention has been made in previous notes. Here it need merely be said that in June or July one may look in vain for anything finer in the genus than its long white fragrant trumpets blotched with yellow, rising from strong, upright stems amidst the handsome, bronze-green foliage.

The quality of flower in R. HABROTRICHUM may be variable, but in the best form comes a clear pale pink bloom faintly tinged with lilac and boldly blotched with purple, admirable in every way. At least one single-stemmed plant is developing here into a good upright specimen of striking character, and the species at its best may yet deserve more favourable recognition than it has hitherto appeared to receive.

Amongst a large batch of R. MADDENII raised from Col. Bailey's seed a distinctive form has been obtained here whose flower, though by no means rivalling the richness of the type, has a charm of its own in a snow-white, funnel-shaped form, reflexed at the mouth, and sweetly scented. The plant, both in foliage and flower seems on a somewhat smaller scale than is typical, but when well grown shows character and refinement.

Amongst Alpines few plants please us more than Mr. Magor's hybrid R. "FASTHIP" (FASTIGIATUM × HIPPOPHÆOIDES). A stout little tuft of glaucous foliage covers itself with lilac-blue bloom, and gives a charming effect in the rock garden in association with such as R. BRACHYANTHUM, R. LEDOIDES and R. SALIGNUM. In our experience this would seem to be another instance of the progeny proving superior to either parent.

In the same catagory, and from the same source comes the hybrid R. PROSTRATUM × FASTIGIATUM, a dwarf of much promise if scarcely so attractive in flower as the first named. This alpine section would seem to offer a fertile field for the hybridist, and R. INTRICATUM should provide a parent, on either side, of distinct possibilities. These diminutive plants have a charm all their own, are invariably easy of cultivation and, in the more sunny situations of the rock garden or along the front of stone-edged borders, provide an admirable foreground furnishing. In this connection we are very hopeful of the dwarf form of R. RACEMOSUM (19404 of Forrest)—seed of which we owe to Mr. J. C. Williams' kindness, and which has shown very free germination—a plant which ought to lend itself effectively to bold massing on irregular ground. The legginess of the typical plant is an unfortunate defect —shared also apparently by R. PRIMULINUM—and this new-comer of close and compact habit should be very welcome.

P.S.—We are anxious to obtain plants of the following rhododendrons:—ERIOGYNUM, BASILICUM, BUREAVII, and REPENS, and can offer in exchange DELAVAYI, *aff.* CRASSUM, MADDENII, AURICULATUM, AUSTRALE, THOMSONII, and ZALEUCUM.

H. ARMYTAGE MOORE.

6th December, 1923.

NOTES ON THE GARDEN AT MUNCASTER.

Muncaster stands on a broad shelf which juts out midway on the southern slope of a hill. This hill, the seaward end of Muncaster Fell, lies crescent-shaped and thickly wooded, sheltering the Castle and its garden from the prevailing North-west winds. Here some 300 ft. high, it rises rapidly inland until the top is reached a mile away and 750 ft. above the winding reaches of the tidal Esk below. Eastward, the wooded slopes of the river valley form a vista closed at the end by the dominating mass of Scawfell, now and for many weeks covered with a glistening mantle of snow. Westward lies arable land and a broad estuary where three rivers meet and flow through a single channel between yellow sand-hills to the sea.

Muncaster Fell is of grey granite much stained with red from the overlying mass of New Red Sandstone, now removed by denudation, but which has been the mother of the red sandy loam which mixed with granite grit forms the soil. This, with a rainfall of about 40 inches and a gulf stream climate, combines to produce favourable conditions for the growth of rhododendrons.

About the house are many old hybrids, mostly planted about 40 years ago. Among the most interesting are a series which appear to be seedlings of one raising, as among six much alike, no two are exactly the same. They are plants ranging from 12 to 18 ft. in height probably a CAMPANULATUM × AUCKLANDII cross, with large pink flowers and a leaf showing CAMPANULATUM type. Many plants of R. "ALTACLARENSE" type form tall masses of scarlet in early April, and a white hybrid, probably CAUCASICUM × ARBOREUM, prevails in March. Only one tree of true ARBOREUM, about 26 ft., a good pink form with a very tawny underleaf, appears among them. One very old plant has a curiously strong resemblance to R. "QUEEN WILHELMINA" both in flower and leaf. The ordinary garden hybrids of June flowering kinds are present in numbers and large size, but little planting can have been done in the last 30 years.

There are many fine old azaleas, some of the Ghent hybrids being especially well grown and up to 8 ft. high.

In 1919, 1920, and 1921, the first planting of Himalayan and Chinese rhododendrons and modern hybrids was begun. R. FALCONERI, 21 ft. by 14 ft. travelled from Tremough, and has flourished exceedingly and promises to flower all over for the first time in 1924.

A representative selection of the rhododendrons from Leonardslee has been added. THOMSONII × BARBATUM have been especially chosen, and more than 100 planted of this variety. Of four of R. ARGENTEUM, one of them 10 ft. high, all have grown well and rapidly, but none have flowered in three seasons. R. SINOGRANDE, a present from Caerhays, has produced leaves of 23½ inches. R. CILIATUM and R. EDGWORTHII hybrids have flourished, notably a very gnarled old tree of "LADY ALICE FITZWILLIAM," which had spent all its previous life under glass, has grown vigorously and flowered well since it has been planted out.

If our records are to be trusted, and it is not certain that they can, not more than 9° of frost have been experienced in the last 20 years, and this year, while at Bulstrode there was 14° in November, at Muncaster 4½° so far is the worst, not enough to spoil flowers of three *Schizostylis* or *Coronilla glauca*, though too much for hydrangeas.

The garden, favourable in most ways as a home for rhododendrons, suffers from too many beeches which monopolize situations otherwise desirable. At present all goes well, but it is fully recognised that all the garden's troubles are in front of it.

A bed of AZALEA "HINDOGIRI" surprised everyone by producing some very fine autumn and colouring effects, which investigation shows to be due to bark split, which it seems most probable dates from an April, 1923, frost of 6°. R. "HINOMAYO ROSÆFLORA" near by were not affected. At Bulstrode the November frost of 14° appears to have done terrible damage to buds, all R. EXIMIUM especially, which made their shoots late, even for their kind, have probably all gone; among some 20 removed, not one sound one was found.

R. BARBATUM × R. THOMSONII appear to be all right, but DECORUM seem mostly spoilt, and R. ARBOREUM (except "WINDSORII") the same, and even "LODERI" in some cases. Among the Leonardslee crosses at Bulstrode, young plants of R. FARGESII × R. ARBOREUM blood red, and "LODERI" × ARBOREUM blood red are both promising flowers, I believe for the first time. Their precocity is due to tight labels. That in Buckinghamshire we shall have many disappointments in 1924 seems very certain.

J. F. RAMSDEN.

December, 1923.

The Rhododendron Society Notes.

A NOTE ON THE RHODODENDRON BUG.

After reading the alarming account of this insect in the Royal Horticultural Society Journal of January, 1923, I found it on some old plants here and took it to Wisley for identification. I was somewhat relieved to find the older plants there infested with it. I have since looked for it in every Rhododendron garden I have visited this year and found it in all, so it must be very generally distributed. As it seems to confine its attention to last year's leaves, I think its importance has been over-rated in the article mentioned. I have to-day (8th Sept.) failed to find any on this year's leaves and a few plants sprayed with "Abol" in June have kept quite free from it.

A new enemy has, however, appeared this year which eats holes ½ to 1 inch diameter in the leaves of some large smooth leaved species, some young plants being badly attacked. Not a single caterpillar has been found and visits at night with a lamp have failed to disclose the culprit, which I fancy must be a beetle.

It might become a serious pest and I should be glad if any member can put me on its track.

Experience this year has confirmed the fact that the CAMPANULATUM family is more easily affected by drought than any other.

J. M. ROGERS.

8th September, 1923.

RHODODENDRON NOTES FROM EXBURY.

The winter of 1922/23 was exceptionally mild at Exbury, no frosts sufficient to cut rhododendron blooms being experienced even in late spring though for weeks the weather was cold and ungenial.

No new hybrid rhododendron seedlings of any merit were flowered during the season. R. FICTOLACTEUM produced on two plants really good white trusses, and the later introductions of this species are evidently far superior in their flowers to the earlier variety. Two or three plants of R. GALACTINUM had very similar trusses but smaller in size, and except for its undoubted hardiness this species does not appeal to me so highly.

One plant of R. HABROTRICHUM produced very pale pink flowers, almost white, quite pleasing in character and very much better than the ordinary type.

Some crosses made this year between ARBOREUM hybrids and CALOPHYTUM and SUTCHUENENSE resulted in good seed pods. R. DICHROANTHUM and R. HEAMATODES though tried on every rhododendron in flower have practically failed to produce seed, with the exception of HÆMATODES × NERIIFLORUM, which produced good pods.

The raising of seedlings from seed Mr. J. C. Williams very kindly presented from Forrest's gathering and also from Kingdon Ward's collecting has resulted in a large number of plants being pricked off. Quite by accident, late in the summer of 1922, a little of this Chinese seed fell on some granulated peat moss litter used to bed the seedling pans in and this seed germinated better than that in the prepared soil. As a result, experiments were made this year and seed sown in pans with nothing but granulated peat moss litter in them, and these have proved so successful that in future this preparation only will be used. The seed germinates more evenly ; the seedlings grow stronger and are of a better green ; they do not damp half so readily and, further, moss and weeds do not seem to grow anything like so thickly.

LIONEL DE ROTHSCHILD.

18*th October*, 1923.

NOTES FROM LOCHINCH.

Last year, 1922, I was so much taken up with the loss of my gardener and the difficulty of replacing him with a good one, with any experience of this type of West Coast gardening, that I forgot to send in any notes for the Rhododendron Society. The season of 1922 was not a very interesting season from the rhododendron point of view in these parts, as although there was a magnificent show of the later hybrids in wintry weather, there was a very poor show of flower in all the arboreums and earlier species. The complete absence of summer that year led to an even poorer display all round for this season, 1923.

Sir Herbert Maxwell and others have frequently commented in the Notes and elsewhere on the overcrowding of many of the older plants here, so last winter, rather than sacrifice some big plants without giving them a chance, we shifted them considerable distances, including such plants as white and pink ARBOREUM up to 18 feet in height and a R. "NOBLEANUM" in full flower 12 feet in height. The latter apparently did not suffer at all, though it has comparatively few flower buds this year, which are not yet opening, although the unmoved specimens have mostly been in flower since end of November. Specimens of R. ARBOREUM and R. THOMPSONII which were moved did not open their leaf buds until September, but now appear little the worse for the experience except for the death of a few lower branches. I am inclined to think that the cold wet season rather helped to save these plants, which, in several cases, are moved on to better drained situations than they had come from.

This season, 1923, has been the coldest and wettest on record, I think. Except for a few days in July there has been no hot or even warm weather, and the rainfall has been about 12 inches in excess of 1922 and 6 inches in excess of the average for previous 5 years. As a result, we had a miserable show of flower on all rhododendrons and we had *L. auratum* and other lilies still trying to open their flower buds in the middle of December, after up to 18° of ground frost and they eventually withered when at the point of opening. There is not a single cone on any kind of conifer and no seeds or berries on any tree or shrub except *Cotoneaster frigida* which is still covered with berries as it is every year here.

However, possibly as a result of the rest this year, there is extra good promise for next season, as nearly every kind of rhododendron is exceptionally well covered with flower bud.

I trust that strikes, elections, and other troubles will not intervene next spring to prevent friends and others interested, from coming to inspect the display, as occurred the last really good season we had here.

STAIR.

December, 1923.

NOTES FROM TOWER COURT, 1923.

Once more we have experienced a very dry summer and artificial watering has had to be continued until nearly the end of September. In October, however, rain at last arrived in such quantity as we have not known since August of 1920.

Our altitude, shelter and soil are all good, but the Ascot sun untempered by any sea atmosphere necessitates heavy shading. Frost does not trouble us very greatly, except for two or three glacial days in spring which play havoc with the growths of the IRRORATUM and OVATUM series.

Notwithstanding the atmospheric dryness, the big leaved rhododendrons have behaved remarkably well, responding bravely to pumped lake water, very soft, rather irony, and well sun-warmed.

Most of the series appear to be possible, but so far I have not met with success with R. LAPPONICUM. I fancy we have not enough wind and, damp mists being practically unknown, I am afraid our conditions are too different from those of their native Alps.

A great many seedlings have been raised from the Forrest and Kingdon Ward expeditions. Germination has been good, they grow vigorously and there appear to be many interesting plants.

Recently I have been converted to the use of powdered peat moss litter both for the seed and pricking off pans. As we never sterilise our soil, the labour saving from the absence of weeds is very great, while the root growth is immeasurably superior. Altogether, so far it has proved the very greatest success, but I have heard a rumour from a particularly well-informed source in the North, that it may not suit all varieties.

R. DIAPREPES again flowered this year and my high opinion of it was confirmed. It is certainly comparable with R. GRIFFITHIANUM both in foliage and flower, but I find it a difficult plant owing to its bark splitting tendencies. This splitting does not appear to be owing to frost, but in my most unlearned opinion to a lack of desire on the part of the main stems to increase in girth sufficiently to give adequate room for the sap flow. To help in this respect I crossed it in 1922 with R. AURICULATUM and good vigorous seedlings have resulted, which may prove to be really good plants and slightly easier than their mother. In that year I also fertilised it with its own pollen. The resultant seed germinated well and it will be interesting to compare their rate of growth with their hybrid half brothers. This year it has been crossed with two red and one mauve hybrids and seed has been gathered. A large red flowered July or August hybrid of good constitution would be a great acquisition to our gardens.

Of the newer hybrids, I think Van Nes has given us a very remarkable plant in his No. 119, R. " EARL OF ATHLONE." It is a magnificent pure rich dark red of excellent substance with a fine truss and apparently thoroughly hardy. Its foliage may lack character like so many hybrids, but it should be a great ac-

quisition to the colder gardens. His new red mollis "C. B. VAN NES," however, is not, I think, so good as Wallace's "DR. OESTHOECK," which is certainly a first-class red.

I hope this wet autumn will not exhaust our rainfall and that next year we may have for once a wet growing season. Saharan conditions make the development of a young garden a heart-breaking task.

J. B. STEVENSON.

Tower Court, Ascot, *December*, 1923.

RHODODENDRONS IN FROST.

The behaviour of rhododendrons in frost seems to deserve more attention than it has received, both on account of its own interest and as a possible factor in determining species and the grouping of species, as well as the parentage of hybrids. When the thermometer falls even two or three degrees below freezing point, nearly all rhododendrons make some response, but it varies greatly with the species and perhaps to some extent with the individual plant. Individual variation will not be discussed here. It is too much entangled with local variations in soil, air currents and exposure. The variation among species is quite independent of such causes, as anyone can see who walks round his garden on a frosty morning.

A few species, R. INSIGNE for instance, appear to take no notice at all. Others, like the ARBOREUM family or R. FALCONERI, merely droop their leaves, so do R. PONTICUM and R. SMIRNOWII. Others—and this group includes the bulk of the large-leaved sorts—curl up their leaves in an amazing manner. R. BARBATUM, R. THOMSONII, R. CAMPANULATUM, R. DISCOLOR, R. FICTOLACTEUM, R. CALOPHYTUM, R. SUTCHUENEUSE and R. OREODOXA are conspicuous examples. Other species, R. HODGSONII among them, try to curl up their leaves, but make a poor job of it.

The hybrids as a rule, merely look uncomfortable, with their leaves draggled and twisted. Occasionally they follow the example of one parent. R. LUSCOMBEI for instance follows R. THOMSONII and is a decided curler. The other reputed parent of this hybrid, R. FORTUNEI, appears to be a non-curler. This species is represented in the garden at Pollok by a single plant bought many years ago (from Mr. Smith, of Newry, I think) and passed by Sir Isaac Bayley Balfour as true to name, and by some seedlings from a fine old plant at Benmore in Argyllshire which has also, as the owner informs me, been pronounced authentic by the Edinburgh authorities. None of these curled their leaves in the recent frosts. On the other hand a plant of " MRS. CHARLES BUTLER," growing beside them, did curl up. This suggests that R. " MRS. CHARLES BUTLER " may be a hybrid after all and not as is now generally supposed, merely a form of R. FORTUNEI. It is true that the division into curlers and non-curlers seems to strike right across the Fortunei series. R. FORTUNEI (except " MRS. CHARLES BUTLER ") and R. DECORUM are non-curlers. R. DISCOLOR and R. AURICULATUM are pronounced curlers. Few performances in the vegetable world are more surprising than the rolling up of their large leaves on a frosty morning. The diameter of the pendent cylinders is scarcely more than that of a pencil and each points directly earthwards. It is impossible to see R. DECORUM standing beside them with its broad leaves still expanded without wondering whether the botanist is justified in placing them in the same series. It seems like grouping the Esquimaux with the Hottentots.

How far the curling of the leaves is a successful precaution against frost and how far the habit is an indication of hardiness, limited experience forbids me to speculate. I can remember no case in which a curler has been injured by

frost except when the growth was immature. In the garden of a shooting lodge at 1,300 feet R. CAUCASICUM, which is a curler, is certainly much less susceptible to frost than R. PONTICUM or R. SMIRNOWII. The last few winters have afforded few opportunities of studying this question and the writer never happened to be in touch with many rhododendrons when there were more than 5 degrees of frost. It is only in the hope of drawing others into the inquiry and the less worthy motive of escaping the penalty of not contributing to the Notes, that these superficial observations are submitted.

JOHN STIRLING-MAXWELL.

Corrour, Inverness-shire.

CONTOUR, CLIMATE AND DISTRIBUTION.

The vast number of Rhododendrons now known enable us to generalise a little as to their distribution throughout the region of maximum concentration. That region is the mountain system from Sikkim to Szechuan.

Having regard to climatic conditions, and to the consequent types of vegetation, as well as to the distribution of genera and species, we can divide this region into two dissimilar parts—a western, distinguished by an Indo-Malayan flora, and an eastern, distinguished by a Chinese flora.

The Indo-Malayan region, for our present purpose, comprises the basin of the Irrawaddy, and its tributaries, and the valley of the Salween from latitude 28° 30′ south.

The Mekong-Salween divide forms its eastern boundary up to 28° 30′, north of which the Salween Irrawaddy divide assumes that function.

The Chinese region comprises the plateau of Yunnan, and the eastern continuation of the Himalayan axis in Szechuan. Further north it includes the Tibetan province of Tsawarong (which itself includes Tsa-rong).

Throughout the whole of this vast region the rivers flow from north to south, and the mountain ranges trend in the same direction. Thus the Yunnan plateau, like the Irrawaddy basin, slopes from north to south also. But the Yunnan plateau also drops steeply westward towards the low lying basin of the Irrawaddy.

Indo-Malayan Region. Rainfall 80 to 140 in. distributed throughout the year but heaviest in summer. " Dry " season of two to four months, but usually not consecutive. Atmosphere always saturated, heavy dews or mist when there is no rain. No drought. Snow line 13,000 ft. to 15,000 ft. Valleys hot and muggy. Perpetual rain or mist on the high ranges. Climate vile in the valleys of the N'Maikha, Malikha, and their tributaries. In the Htawgaw Hills there is a minimum of fine weather. Further east, on the lower slopes of the Yunnan plateau, the dry season is longer and more pronounced, and at T'eng-yueh (5,000 ft.) there is a distinct " cold weather."

The characteristic types of vegetation met with between 3,000 and 13,000 feet are as follows :—

(i.) Indo-Malayan jungle.
(ii.) Temperate Rain Forest (Tree Rhododendrons and epiphytes).
(iii.) Spruce and Rhododendron Forest.
(iv.) Alpine region. (Carpet Rhododendrons).

Generally speaking, the basin of the Upper Irrawaddy is a highly mountainous, finely dissected, region covered with dense forest. It is shut off from the Tibetan plateau to the north and from the Yunnan plateau to the east by a double or triple arc of lofty snow-clad ranges. Westward it slopes down gradually to the plains of Assam, though there are some higher intervening ranges. In the south it slopes up more gradually to the plateau of Yunnan, beyond the Salween.

Chinese Region. Rainfall 40 to 80 in. most of which falls in the summer. The " dry " season is partly a cold weather and partly a hot weather season, and exceeds four months. In Szechuan the tendency is to have a four-season cycle, with rain in summer and late winter, and two more or less marked drought seasons. Snow line 16,000 to 18,000 feet. Atmosphere dry. Valleys and plains (such as the Ta-li and Likiang plains) warm weather—except during the rainy season—sunny, especially in autumn, early winter, and spring. Winters very cold and dry. In the north the rainfall is under 50 in. and the drought is pronounced. It is thus convenient to sub-divide the region into a northern Szechuan area and a southern Yunnan area.

The characteristic types of vegetation met with between 7,000 and 15,000 feet in the Chinese region are :—

(i.) Pine Forest.
(ii.) Mixed Forest, Conifers predominating.
(iii.) Conifer Forest (Larch, Spruce, Juniper).
(iv.) Abies Forest and Rhododendron scrub.
(v.) Alpine.

The Chinese region may be described as an immense grooved plateau, barred with lofty ranges whose peaks sometimes exceed 20,000 feet in height.

Lying, as it does, outside the great Indo-Malayan funnel of Burma-Assam, which gulps the rainfall as it sweeps in from the south-west. The Chinese region is screened from the monsoon by the mountainous arc already referred to. Extremes of aridity are soon reached in the gorges of the Yangtze, Mekong and Salween (the last named north of lat. 28° 30′) ; and north of 31° on the plateau also.

The type of vegetation met with depends chiefly on rainfall and its distribution in time. Hence we find dense mixed forest prevailing west of the rain screen, thinner Conifer forest and moorland to the east. The growth of rhododendrons and other plants is of greater size on the western flanks of the divides.

But since the rainfall is attracted to the high lands, the climatic conditions depend partly on altitude. Above the tree line, irrespective of altitude, the vegetation is of one type (alpine) both east and west of the dividing line, and over considerable areas, it tends to be similar in composition.

Rhododendrons, regarded from this point of view, flourish best when they enjoy these conditions best suited to tree growth, namely, abundant moisture at all seasons, with adequate temperature. Being temperate and (occasionally) sub-tropical plants, they thrive most luxuriantly where the mountains are highest. Consequently, we may expect to find them most prolific where we find a combination of these conditions. Such is, in fact, the case, though the regions in which these conditions are fulfilled in the highest degree are still inaccessible.

With regard to the boundary lines shown on the map, for the most part they follow mountain ranges, which appear to be more effective as barriers than are rivers ; but plants must necessarily ignore such boundaries to some extent, and mix along the barrier itself.

Considering now the two main regions, Indo-Malayan and China, let us enquire how far the distribution of Rhododendrons conforms to the boundary

here indicated. It will be sufficient if we confine our attention to some of the chief sections.

The following are confined entirely, or mainly, to the Indo-Malayan region :—

R. LEPIDOTUM (all Himalayan except R. sino-lepidotum, which is Chinese).
R. GRIFFITHIANUM (Himalaya only).
R. MADDENII (90 per cent. Indo-Malayan).
R. STAMINEUM (chiefly Indo-Malayan).
R. GRANDE (75 per cent. Indo-Malayan).
R. FALCONERI (75 per cent. Indo-Malayan).
R. BARBATUM (chiefly Indo-Malayan).
R. ARBOREUM (chiefly Himalayan).
R. IRRORATUM (chiefly Indo-Malayan).

With regard to the Irroratums, these have been described as confined almost entirely to Yunnan. This is true only if we regard the political frontiers of Yunnan. On analysis of 29 species, only 5 appear as Chinese, according to our definition. Four come from the Mengtzu district, which lies south of the tropic, and therefore well within the coast belt of Indo-Malayan affinities, which stretches up to the neighbourhood of Fuchou. Four come from the Mekong-Salween divide, which is itself the boundary, and seven from the Salween Irrawaddy and Salween-Shweli divides, which lie west of the boundary. The remainder are Burmese, Assam (1) or Bhutan (1).

The following sections are confined entirely, or mainly, to the Chinese region :—LAPPONICUM, FORTUNEI, TRIFLORUM, TALIENSE, LACTEUM, ROXIEANUM, SCABRIFOLIUM, FRAGRANS.

From the above, it might be expected that the high alpines would be less restricted in their range. Thus we should look to find such sections as LAPPONICUM, FORRESTII, LEPIDOTUM and CAMPYLOGYNUM, more or less evenly distributed over the region of high peaks from Sikkim to Szechuan. Such, however, is not the case. So complete is the climatic contrast between the Salween-Irrawaddy divide in the west, and the equally lofty Mu-li ranges of Szechuan in the east (though the distance between them is less than 150 miles) that the alpine rhododendrons are entirely dissimilar.

The Lapponicums are almost entirely confined to the Chinese region and especially to the dry Szechuan area.

The Lepidotums, with one exception, are confined to the Himalaya.

The Forrestii and Campylogynum sections are almost entirely confined to the misty peaks of the Indo-Malayan region (and more especially to the Burma-Yunnan boundary range).

The Saluenense and Cephalanthum series are rather less restricted in their distribution.

And so with the other groups. The Hæmatodes, Sanguineum and Neriiflorum series, with fleshy corollas, are almost entirely confined to the wetter ranges of the west ; the Virgatum series chiefly to the dry ranges of the east.

From what has been said, it will appear evident that Rhododendrons are found in almost any conceivable situation, having regard to the fact that they

are woody plants. They are found in semi-tropical jungle, in rain forest, in conifer forest, in bamboo thickets, in bogs, on alpine lawns, moors and screes, on cliffs and rocks, and finally in the Indo-Malayan rain forest as epiphytes. And now, shall we walk round ?*

Leaving the plains at Myitkyina, we turn S.E. through the Kachin Hills where few Rhododendrons exist, and a week's journey brings us to Tengyueh, 5,000 ft. Here are a few species of the Grande, Barbatum, Neriiflorum series and the Fortunei series is represented by R. RASILE.

North east of us lies the Shweli-Salween Divide, a small parish, full of good things. We shall visit it later.

Continuing our way eastwards, we cross the Shweli-Salween Divide itself, the tropical Salween Valley, and finally the Mekong, and turning Northwards we gradually ascend to the higher and drier Yunnan plateau, arriving after a thirteen days' march at Tali. Between Tengyueh and Tali we pass many species on the way, such as DIAPREPES, CILIICALYX, SCOTTIANUM, MACKENZIANUM, RACEMOSUM, NEMATOCALYX, AUSTRALE, MICROPHYTUM, CRASSUM, etc. In an area about half-way DELAVAYI predominates ; it is a rather localised species, although it is seen again in lesser quantity on the Shweli-Salween Divide, east of Tengyueh.

From Tali we will look eastwards across the lake, and view the Plateau of Ghi-shan, on which there lives only one species, ERIOGYNUM of the Irroratum series.

Now looking westwards from Tali, we see towering above us the great Tali Range, 14,000 ft., the home of many species of the first importance—LACTEUM, NERIIFLORUM and its allies, DICHROANTHUM, HÆMATODES, DIMITRIUM ; BLANDULUM of the Selense series ; the Triflorums being represented by CHARTOPHYLLUM, PHOLIDOTUM, RUBIGINOSUM ; CRASSUM of the Maddenii series, with CEPHALANTHUM and CAMPYLOGYNUM themselves ; WARDII and others of the Campylocarpum series ; SUPRANUBIUM, thriving at the highest altitude known for a representative of the Maddenii series, and naturally TALIENSE itself.

Crossing the Sung-Kwei Pass, the home of FICTOLACTEUM, and continuing northwards, we come to the snowy Li-chiang Range, 20,000 ft. This great Range which entirely occupies the whole of the Yangtze Bend, the beginning of the home of the Lapponicums, carrying IMPEDITUMS and INTRICATUMS in vast profusion, is also noted for many other species, ADENOGYNUM of the Taliense, BEESIANUM and DICHROPEPLUM of the Lacteum and RHAIBOCARPUM of the Selense series ; EUANTHUM, CROCEUM and PURALBUM of the Campylocarpums ; RHANTUM of the Fortunei, and the low growing PROSTRATUM of the Saluenense with LEDOIODES to represent the Cephalanthums and SCABRIFOLIUM and ROXIEANUM to complete the variation.

After crossing the Yangtze at Feng-Kou near the apex of the loop, and travelling through Yungning northwards for four more days, we reach Muli, 9,000 ft., facing the valley of the Litang River, the centre of the Lapponicum sea, and we find ourselves on a lofty limestone plateau.

* See Map (for which the Society is indebted to Mr. Wilding) facing page 212 at end of this number where Mr. Wilding's "Walk round" will be found indicated by a green line.—C.C.E.

There are here few species—AGGLUTINATUM representing the Lacteum series, TRIFLORUM, CLEMENTINÆ and RACEMOSUM themselves, but all predominant is the almost unbelievable mass of colour given by the Lapponicum, Cephalanthum, Virgatum series over hundreds of square miles of moorland.

Standing at Muli and looking N.E. off the map, 100 miles away is Tatsien-lu or Tachien-lu, where we are still amongst Lapponicums, and 50 miles further we see Mupin, famous for Wilson's introductions, such as BRACTEATUM, CALOPHYTUM, DENDROCHARIS, DAVIDII, DECORUM, DOLERUM, FARGESII, FLORIBUNDUM, HANCEANUM, LUTESCENS, MOUPINENSE, ORBICULARE, OREODOXA, PACHYTRICHUM, POLYLEPIS, SOULIEI, STRIGILLOSUM, VILLOSUM, WATSONII, WILTONII and YANTHINUM.

Further still, a little S.E. is Mt. O-mei, with FABERI and HEMSLEYANUM, and should our eyesight be that of an eagle, and a good eagle at that, we should see 500 miles off, the middle of Hupeh, the home of AURICULATUM and SUTCHUENENSE.

Turning back from Muli and marching west for ten days, we reach the lofty wind-swept Chung-tien Plateau, 14,000 ft., and find species of the Lapponicum, Taliense, Fragrans, Irroratum, Neriiflorum and Campylocarpum series with TRAILLIANUM and UVARIFOLIUM representing Lacteum.

Continuing westwards we again cross the Yangtze and change our direction north, reaching the Kari-Pass, 13,000 ft., notable for ALUTACEUM, GLISCHRUM, MEGERATUM, and PRÆSTANS, the northern form of the southern SINO-GRANDE.

We now cross the Mekong-Yangtze Divide at 16,000 ft., and descend to the village of A-tun-tzu, leaving the snow caps of Bei-ma-Shan on our left, by no means fully explored, but holding species of Selense, Saluenense, Campylocarpum and Triflorum series.

At Atuntzu itself we find DRYOPHYLLUM and LEVISTRATUM of the Lacteum series.

Due west we cross the Mekong and climb the heights of the Mekong-Salween Divide, parts of which exceed 20,000 ft.

First visiting Kagwrpw, we find representatives of the following series:—Neriiflorum, (CHLANDOTUM, EUDOXUM,) Roxieanum, (COMISTEUM, PŒCILODERUM,) Forrestii, (REPENS, SERPENS,) Selense, (PAGOPHILUM,) Thomsonii, (ECLECTUM,) Lapponicum, (CHRYSEUM).

Then to Doker-La, 14,500 ft., finding certain of the Taliense, Campylocarpum, Neriiflorum, Roxieanum series, and another Grande, PROTISTUM, growing at 13,000 ft.

Then south to Sila and Tze-Ku on 28° N., perhaps CORIACEUM of the Falconeri series is the most remarkable of Rhododendron Flora, together with CERACEUM, an Irroratum, and SELENSE, SALUENENSE, SANGUINEUM and FORRESTII again.

Turning west we cross the Salween River at Chamutong, and ascend the Kiu-chiang-Salween Divide, and from the heights of Gompa-La we look down upon the Taron Gorges.

On Gompa-La we find a remarkable development of the Neriiflorum, San-

guineum, Hæmatodes and cognate series, and also of FORRESTII, SALUENENSE and other alpine forms.

Descending we continue amongst fairly similar species, until near the Kiu-Chiang River, 6,000 ft., where we strike those of the Indo-Malayan flora, with SINO-NUTTALLII, BULLATUM and some of the Maddenii series, all growing in heavy jungle, and the whole vegetation semi-tropical.

We continue south, and have now to face the vilest climate and the most testing travel, a mile an hour being good progress through the precipitous gorges, choked with vegetation and chunks of rock.

After about 50 miles we arrive at Nyitadi at the foot of the Chawchi Pass, where Reginald Farrer died. Here are AIOLOSALPINX, CALOXANTHUM, APERANTUM, CHARITODES, CHAWCHIENSE.

Another weary 80 miles due south brings us to the Chimili, Hpimaw and Htawgaw district, possibly the vilest of the vile in climates! Compensation is found in many beautiful species, such as AGAPETUM, CALOSTROTUM, CYCLIUM, DENDRICOLA, EUCHROUM, GENESTIERIANUM, GIGANTEUM, HEPTAMERUM, REGALE, SIDEREUM, SPERABILE, PREPTUM and PROPHANTHUM.

Immediately south we make our last visit to that small, but very wealthy area, the Shweli-Salween Divide, containing members of the following series:— Neriiflorum, (EUCHAITES, APODECTUM, LIRATUM,) Stamineum, (MACKENZIANUM), Thomsonii (MEDDIANUM), Falconeri (ARIZELUM, MEGAPHYLLUM, BASILICUM), Irroratum (CEROCHITUM, ARAIOPHYLLUM, LAXIFLORUM), Barbatum (HABROTRICHUM, BURRIFLORUM), Campylocarpum (CALLIMORPHUM), Lacteum (FULVUM), Maddenii (LASIOPODUM), Heliolepis (DESQUAMATUM, PLEBEIUM), Triflorum (ERILEUCUM, ZALEUCUM), Fortunei (DIAPREPES), and the Grande family represented by SINO-GRANDE.

So to Tengyueh, from there to retrace our steps to Myitkyina, and home.

E. H. WILDING.

January, 1924.

NOTES ON EDINBURGH BOTANICAL GARDEN AND SOME FINE RHODODENDRONS IN CORNWALL.

Some time back I went to Edinburgh Botanic Garden to ascertain particularly what rhododendrons Mr. Cooper had found in Bhutan. Sir Isaac Bayley Balfour, with the readiness to help gardeners, for which so many of us have to be grateful to him, had arranged all his dried specimens of rhododendrons along lines of desks so that it was easy to walk down them and get a general idea of what Mr. Cooper had found. He had been, I believe, on ground unvisited by Booth, and on some very high ground. The general effect on looking over the specimens was to make you feel that here were most of the Indian rhododendrons again, it may be some are a little different, but the variations were not apparently greater than you get in the same plants in different parts of England and Scotland, which makes many of us shy of giving the names of some of the species when out of flower, and are in a climate and soil different to that we know. There may, of course, be new forms amongst them, but it was hard to see where, and it was not an encouragement to keep many of the seedlings if you had them.

The Professor also had on view, the specimens of all the rhododendrons Mr. Forrest has found in the three years he had been away. To do any sort of justice to them would require a great deal more time than I was able to give to their examination, but it would well repay any member of the Society to go there to see them, for they cover all the ground from the largest forms to the smallest, and most of them are in cultivation, so that you have a chance of knowing something of the nature and value of the many new species Mr. Forrest has found.

I saw also many rhododendrons out of doors, and amongst other things noticed that the fine bed of R. ROYLEI and R. CINNABARINUM has been broken up, and is going to another garden; this bed always interested me, because I understand the various forms came out of one packet of seed.

There are, of course, countless things of interest in the Garden, but amongst rhododendrons the group of R. MOUPINENSE was far the best and healthiest lot of that plant I have yet seen, it was growing in a large pocket on the top of one of the branches of the rockery. Probably in flower and out of flower this is the most attractive small rhododendron now in general cultivation out of all the many rhododendrons Mr. Wilson has given us. Also, it is quite distinct from any other species I know. It appears to feel the cold in its flower bud, for it has not set seed at Caerhays as yet, but we have only had it flowering properly for one season. I do not know of any stock of this plant in the trade but perhaps some member of the Society does?

It may be of interest to Rhododendron growers to have some idea of where in Cornwall the finest specimens of Rhododendron are to be found.

Probably the finest specimen of any kind is "SIR CHARLES LEMON" at Carclew, on account of its great size, of the remarkable refinement of the flower, which is a good white, and of the unusual beauty of the foliage, particularly of

the under-side of the leaf, which is the most brilliant contrast in colour to the surface of the leaf, which any member of the family gives us as far as I know.

The late Mr. Daubuz always said that this plant came out of a sowing of Indian seed, and it has every appearance of being a good form of the Indian ARBOREUM, which is endless in its variation; there is, too, in the Temperate House at Kew, a plant called Cunninghamii (I think), which, if you cleaned the leaves of the soot on them, appears to be in all respects the same plant, and of about the same age.

At Heligan there are at least four plants of the highest merit. "MR. TREMAYNE," which is a red Aucklandii hybrid, having a better habit, finer foliage, and as well coloured a flower as any of the many red Aucklandii hybrids in this county. Of "THE HONBLE. MRS. TREMAYNE" I don't think it would be easy to give the parentage, but it carries much of the fine colour we know in "LADY ELEANOR CATHCART," with the size of bloom which comes from the use of Aucklandii as a parent, certainly I have seen no rhododendron to compare with it on its own particular lines. Then the big specimen of R. THOMSONII has probably no rival in the west of England, either as regards its great height, or the extraordinary number of flowers it carries in a good year. There is also at Heligan a most interesting form of R. MADDENII which flowers in May, and quite early in May, it is a very fine plant indeed, with larger individual flowers than I have seen elsewhere, but I don't know whether the name Maddenii would be accepted by all who saw it, some might wish to call it "JENKINSII," some CALOPHYLLUM, others CRASSUM, for these names have all been given to this type.

I think the finest plants of the pure Aucklandii are at Tregrehan, and so, too, is the best plant, and the best pure white form of R. UNGERNII; I once got a distinct scent of sandal wood from one of its flowers, but in the last two years have failed to do so, flowering as it does late in June it is a very remarkable shrub.

The big R. FALCONERI at Tregothnan is in some ways one of the best plants of this family in the County, but R. FALCONERI does not often give a good crop of flower anywhere, and on that account is not so good a garden plant.

These are some of the best single specimens in this district, but if a visitor were down here and found himself late for the Indian Section, he would find at Lanarth a series of hybrids from "R. BROUGHTONII" × pink AUCKLANDII made by the owner, which come later, have an immense range of colour, and a vigour and freedom of growth very good to see. The remarkable part of this crop is that out of the large number of plants which were raised, there were not more than 10 or 12 per cent. of low merit.

J. C. WILLIAMS.

A NOTE UPON RHODODENDRON SERIES.

Rhododendron growers have in the last twelve years been flooded with such numbers of new species as to be overwhelmed by them, and find it difficult to know one from another, or, what is more important, which are the best ones to grow for their purposes. This difficulty is not new in gardening, for those who cultivate Primulas are in the same trouble, and those who grow Orchids are met by it in an even worse form, and other instances would be easy to find. Probably much of the difficulty arises from the angle at which we approach the problem. I have found, as others have also found, that if you go first of all to the published descriptions, the mass of detail is difficult to follow, and as regards much of it, not always presented in a form which a gardener, as distinct from a botanist, finds it easy to make use of. On the other hand, if you begin by taking the plants as they develop in your garden, and watch their characteristics during growth, particularly in the early stages of seedling life when their differences show more and more in each period of their growth, then you find on going to the printed descriptions much which, as the result of your contact with the living plants, is most interesting and instructive. And it is the stirring of interest by contact with the plants which will make it easy to remember them, such contact presenting the facts in a simple form. It is also a help to get into one's head where exactly the different species come from, and if you get an outline map, and mark down roughly where they are found, it makes a clearer track to work along when the memory is in difficulties. The Rhododendron Society would do a real service if it could get out such maps for the use of members, and even better if the general gardener could obtain them.

But the system which the late Sir Isaac Bayley Balfour was each year pressing more and more on the attention of those of us so fortunate as to enjoy his personal help and guidance, is, I think, the direction in which we shall get most help. He in later years constantly associated a plant, when discussing it, with the group most nearly allied to it, and if we carry this out in such notes or other details as we may have of our gardens, the relationships and names are easier to manage ; indeed, it is more than likely that the average grower will do little more as regards names than group the families, just as has long been done with the Arboreums under the name of " ARBOREUM series," and not bother about the name of each species.

It will happen, too, that the nature of one's garden will compel most of us to turn to the families best suited to it, the soil and climate compelling this in the long run.

For instance, those in open exposed places, but having a suitable soil, would turn to the dwarfer kinds, and other low growing sorts, such as the mountain forms in the case of a rock garden, or most of the Triflorums grouping round the Yunnanense, Chartophyllum, Davidsonianum series for groups nearly approaching full sunshine.

In the cases of some of the Irroratums and most of the Decorums, it is the

experience here that in a summer like 1921 they flourished when the woodland things such as the Arboreums, most of the big Hooker forms, and the Falconeri, Argenteum series, were injured or killed.

At any rate, it is clear that no one garden is going to do all the species well, for we in the South West are agreed that the set Souliei and Campylocarpum are hardly ever seen here doing as well as they do in Sussex, and only the great beauty and refinement of that set induce some of us to go on with them at all.

This year, in June at Edinburgh, there was on a big plant of SOULIEI many scores of big blooms in flower at one time, and the plant did not seem distressed by them, whilst such a production of bloom at Caerhays would be almost certainly a symptom of ill-health.

In conclusion, I would urge that those interested in the matter should keep for themselves a book in which the different series are kept together in their different families, these being in alphabetical order and so also the members of the families. Perhaps some may not care for the labour of doing this, but there is no easy way of learning any difficult thing except by close contact with it.

J. C. WILLIAMS.

October, 1923.

LIST OF PAST AND PRESENT MEMBERS OF THE RHODODENDRON SOCIETY.

1st January, 1924.

The names of those who have ceased to be Members of the Society are indicated by italics and an asterisk.

HONORARY MEMBERS.

*1916. *BALFOUR, Professor Sir ISAAC BAYLEY, K.B.E., F.R.S., Etc.*

1916. BEAN, WILLIAM JACKSON,
CURATOR OF THE ROYAL BOTANIC GARDENS, KEW.

1920. FORREST, GEORGE,
BROOMHILL HOUSE, LASSWADE, MIDLOTHIAN.

1922. HILL, DOCTOR ARTHUR WILLIAM, M.A., D.Sc., F.R.S.,
DIRECTOR OF THE ROYAL BOTANIC GARDENS, KEW.

1917. MANGLES, MISS CLARA,
LITTLEWORTH CROSS, SEALE, FARNHAM, SURREY.

1917. MOORE, SIR FREDERICK WILLIAM, M.A., M.R.I.A., F.L.S.,
WILLBROOK HOUSE, RATHFARNHAM, CO. DUBLIN.

1917. PRAIN, LIEUT.-COLONEL SIR DAVID, C.M.G., F.R.S., ETC.,
12, HEATHVIEW GARDENS, PUTNEY HEATH, LONDON, S.W.15.

1917. SARGENT, PROFESSOR CHARLES SPRAGUE,
ARNOLD ARBORETUM, HARVARD UNIVERSITY, MASS., U.S.A.

1922. SMITH, PROFESSOR WILLIAM WRIGHT, M.A., F.R.S., F.L.S., ETC.,
REGIUS KEEPER OF THE ROYAL BOTANIC GARDEN, EDINBURGH.

1920. WILSON, ERNEST HENRY, M.A.,
ARNOLD ARBORETUM, HARVARD UNIVERSITY, MASS., U.S.A.

MEMBERS.

1915. BALFOUR, Lieut.-Colonel FREDERICK, R. S.,
Dawyck, Stobo, Peebleshire, N.B.

1915. CLARKE, Lieut.-Colonel STEPHENSON R., C.B.,
Borde Hill, Cuckfield, Sussex.

*1915. *DORRIEN-SMITH, Major ARTHUR A., D.S.O.*

1915. ELEY, CHARLES CUTHBERT, M.A., F.L.S.,
East Bergholt Place, Suffolk.

*1915. *GODMAN, Dame ALICE.*

1917. HEADFORT, The Rt. Hon. the Marquis of, K.P.,
Headfort, Kells, Co. Meath.

1917. HOLFORD, Lieut.-Colonel Sir GEORGE LINDSAY, K.C.V.O.,
Westonbirt, Tetbury, Gloucestershire.

1915. JOHNSTONE, GEORGE H.,
Trewithen, Grampound Road, Cornwall.

*1915. *LLEWELLYN, Sir JOHN T. DILWYN, Bart.*

*1915. *LODER, Sir EDMUND GILES, Bart.*

1915. LODER, GERALD W. E., M.A., F.L.S.,
Wakehurst Place, Ardingley, Sussex.

1915. MAGOR, EDWARD, J.P.,
Lamellan, St. Tudy, Cornwall.

1923. McLAREN, The Hon. HENRY DUNCAN,
Bodnant, Tal-y-cafn, North Wales.

1915. McDOUALL, KENNETH,
Logan, Stranraer, Wigtownshire, N.B.

1916. MAXWELL, The Rt. Hon. Sir HERBERT E., Bart., F.R.S., D.C.L., Etc.,
Monreith, Whauphill, Wigtownshire, N.B.

1915. MILLAIS, Lieut.-Commander JOHN GUILLE,
Compton's Brow, Horsham, Sussex.

1916. MOORE, H. ARMYTAGE,
ROWALLANE, SAINTFIELD, CO. DOWN.

1915. NIX, CHARLES G. A., M.A.,
TILGATE FOREST LODGE, CRAWLEY, SUSSEX.

*1915. *NIX, JOHN A.*

1922. RAMSDEN, SIR JOHN FRECKEVILLE, BART.,
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1919. RAYLEIGH, THE LADY,
BEAUFRONT CASTLE, HEXHAM, NORTHUMBERLAND.

1915. ROGERS, LIEUT.-COLONEL J. M.,
RIVERHILL, SEVENOAKS, KENT.

1915. ROSS-OF-BLADENSBURG, LIEUT.-COLONEL SIR JOHN F. G., K.C.B.,
ROSTREVOR HOUSE, ROSTREVOR, CO. DOWN.

1920. ROTHSCHILD, MAJOR LIONEL DE
46, PARK STREET, LONDON, W.

1917. STAIR, LIEUT.-COLONEL THE RT. HON. THE EARL OF, D.S.O.,
LOCHINCH, CASTLE KENNEDY, WIGTOWNSHIRE.

1923. STEVENSON, JOHN BARR,
TOWER COURT, ASCOT, BERKSHIRE.

1917. STIRLING-MAXWELL, SIR JOHN MAXWELL, BART., F.S.A.,
POLLOK HOUSE, POLLOKSHAWS, GLASGOW.

1920. WILDING, EUSTACE HENRY,
WEXHAM PLACE, STOKE POGES, BUCKINGHAMSHIRE.

1915. WILLIAMS, JOHN CHARLES,
CAERHAYS CASTLE, GORRAN, CORNWALL.

1915. WILLIAMS, PERCIVAL D.,
LANARTH, ST. KEVERNE, CORNWALL.

HONORARY SECRETARY.
CHARLES C. ELEY, EAST BERGHOLT PLACE, SUFFOLK.