THE RHODODENDRON YEAR BOOK

1950

NUMBER FIVE

THE ROYAL HORTICULTURAL SOCIETY

Acknowledgements

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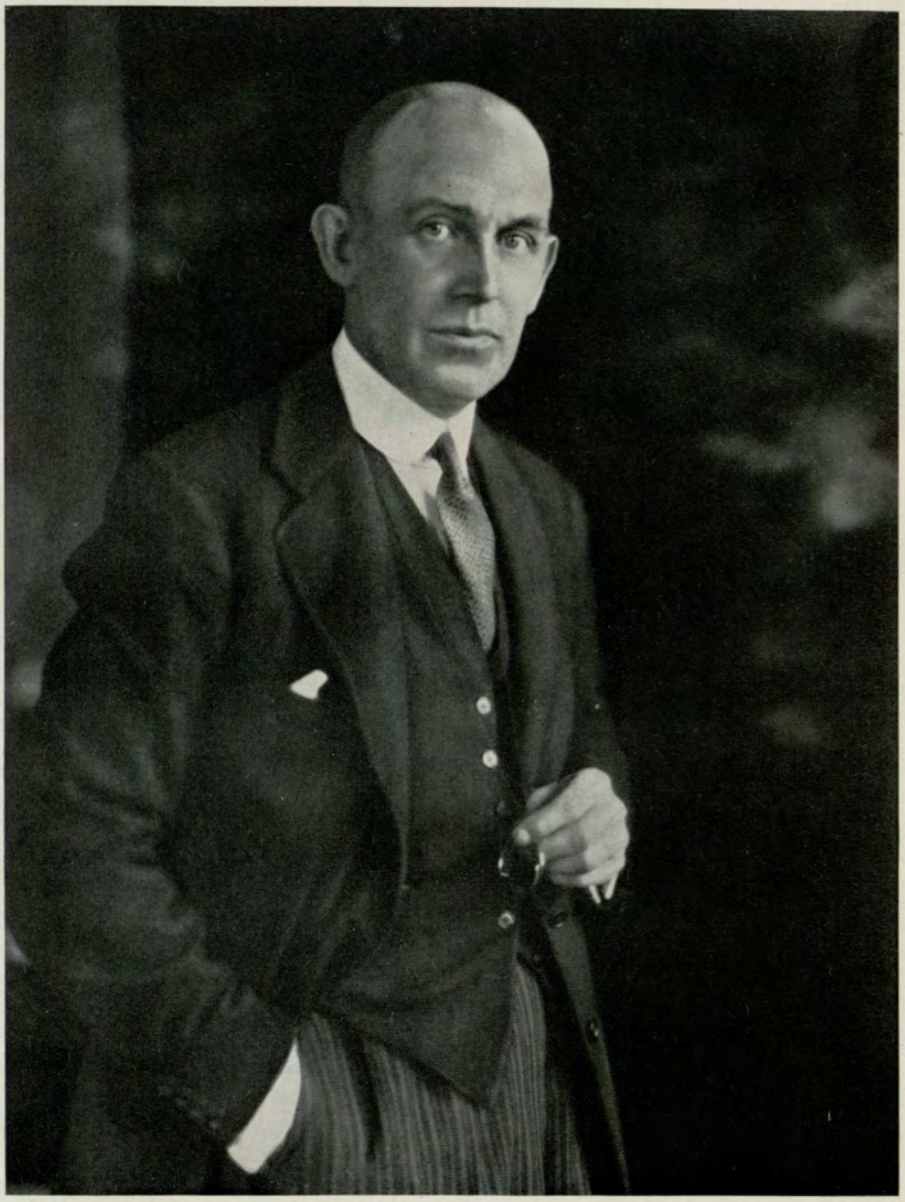

JOHN BARR STEVENSON, V.M.H.

THE RHODODENDRON YEAR BOOK 1950

NUMBER FIVE

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LIST OF ILLUSTRATIONS

J. B. STEVENSON, V.M.H.

JOHN BARR STEVENSON, who died this spring, had an absorbing enthusiasm for Rhododendrons. He was a master, not only of their cultivation, but of the botanical side of that great genus.

In his garden at Tower Court, Ascot, he grew probably the most complete collection of the species in this country. He was not only content with growing one form of a species, but he grew plants, as far as possible, of the various sendings from China, so that if they varied, he had specimens of each type.

In the Dell, a partially wooded and picturesque depression near the house, he had a plant, as far as possible, of every species and of every type of that species, a scheme which might very well be adopted by a Botanic Garden.

A skilled seed-raiser, with the help of MRS. STEVENSON, he had, of course, many duplicates, and these he planted picturesquely about his large garden with its shallow valleys and pleasing contours. He planted them, not in a collection, but for effect, and most beautiful that effect was in the spring.

He tried few hybrids, but those that he made were of very great merit; notably his 'Polar Bear,' a hybrid between *R. auriculatum* and *R. diaprepes*. Very fine too was his 'Azor,' a hybrid between *R. Griersonianum* and *R. discolor*, and his 'Amor,' an unusual hybrid of *R. Griersonianum* × *R. Thayerianum*. There were also charming dwarf plants which he named 'Tessa' and 'Redcap.'

He did not plant lavishly of other people's hybrids, but he had a collection of a few of the very best.

Grown on sandy peaty soil, his Rhododendrons all looked flourishing, a dry summer being their only enemy.

Apart from Rhododendrons and Azaleas, he grew a very complete collection of Sorbus, of which he was very fond, and a number of Magnolias and other fine plants. It was, indeed, an education to be taken round the garden by him.

He had a distinguished business career, becoming Managing Director of the great firm of Holland, Hannen and Cubitts Ltd., from which he retired during the war when there was but little building to occupy them.

He was a most valued member of the Council of the Royal Horticultural Society, both from his knowledge of plants and his business and literary ability. His was the guiding spirit of that

most useful and distinguished volume *The Species of Rhododendrons*. He was Chairman of the Publications Committee of the Royal Horticultural Society.

We have to mourn the loss of one, who not only helped us greatly, but who was the most pleasant of companions and the most able and generous of gardeners.

ABERCONWAY

THE WOODLAND GARDENS OF WINDSOR GREAT PARK

By E. H. SAVILL, C.V.O., C.B.E., M.C.

WINDSOR GREAT PARK lies, for the most part, in the County of Berks but the south-eastern extremity is in the County of Surrey, the whole extending to an area of 4,800 acres. It is bordered on the north by the Thames and Windsor Castle and on the south by the main London-Exeter road, A.30.

In by-gone days it formed part of the forest which covered the greater portion of south-east England and a glance at the map reveals the few settlements which dotted the area at that time. Thus Englefield Green, which adjoins the Great Park, establishes an early settlement of the Angles in this part of Wessex and Danesfield a little further up the Thames places the Danes on the local map.

We have Swinley, the ley or pasture for the swine, and Bagshot (badgers holt, or wood) which is but a few miles away.

Windsor itself was a later settlement and the Park from Norman times, or before, was preserved in its pristine character as the traditional hunting-ground of the Monarch. Many of the ancient Oaks of the original forest remain as a monument of the past.

In its physical nature the Park may be divided into three sections, i.e. the northern plain of heavy London clay with an outcrop of chalk on which the Castle stands, the central higher belt of loam and the southern broken area of sandy hills and dales, interspersed with ponds and lakes. It is in this southern area that the Woodland Gardens have been formed. Geologically, the soil is described as Bagshot sand but there are pockets of Bracklesham clay in places.

Vegetation, for the most part, consists of Birch, Beech, Sweet Chestnut (introduced here about 1760) and vast areas of Ponticum Rhododendron introduced a little later and established as game coverts.

Although there are extensive and well-established gardens near the Castle, in particular at Frogmore, advantage had not been taken of the natural soil conditions at the southern end of the Park to start a woodland garden, as was done in the last century by so many great land-owners throughout the country, and it was only some fifteen years ago that it was decided that interest for visitors to the Park might be

increased if a collection of flowering trees and shrubs were added to the many other natural beauties of the place.

There were already in existence the fine avenues, such as the Long Walk and Queen Anne's Ride, and large expanses of water, in particular Virginia Water and Obelisk Pond, both landscaped and surrounded by forest trees. Further, the whole Park and much of the Forest adjoining was intersected with beautiful grass rides and glades, originally formed during the reigns of GEORGE III and IV. These great trees and rides made a perfect setting for gardening on a big scale, for without such a background a garden cannot mature for many years.

The decision having been taken, it was then necessary to select an area sufficiently wooded for shelter, sufficiently high to avoid, as much as possible, damage by late frosts, and above all, having the right soil.

For very many years there had been in existence a small nursery garden at Parkside, which is situated on the eastern boundary of the Park, near Englefield Green, and south of the Bishopsgate entrance. This nursery was surrounded by plantations of Beech and Chestnut, together with a few Oaks and Conifers. It had originally been planted as a game covert and the floor was completely covered with Ponticum Rhododendrons. The area extended to about 20 acres.

In 1934 a start was made, first by erecting a rabbit-proof fence round the perimeter and then cutting glades and vistas through the Rhododendrons, a few being left to form shelter belts, and others which had height and character being retained as individual specimens. At one side of the area there was a small ditch which fed Obelisk Pond. This was stepped back in places and widened and two small ponds were formed where the level of the ground permitted embankments to be made to form the pond-heads.

A combination of circumstances led to the commencement of the Valley Gardens in Windsor Great Park—quickly to be nicknamed "Upper Burma" by some of our men who had returned to us after serving in that quarter, owing to its jungly nature and for the fact that first of all we planted there the big-leafed species of Rhododendron.

The Woodland Garden at Parkside had been in existence for some years but was fully planted up: in fact, after the war period, it was in dire need of thinning and reorganizing. This and the generosity of great gardeners in this country who offered shrubs of many kinds, but for the most part Rhododendrons and Azaleas, compelled us to look for a larger area of ground suitable for the purpose.

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 1—The upper pond in the gardens at Parkside (See p. 13)

Photo, "The Times"

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 2—A young orchard of flowering cherries and crabs underplanted with drifts of Daffodils See p. 13)

Photo, Sport & General Press Agency Ltd.

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 3—The Parkside Gardens in winter with *Prunus yedoensis* in flower (See p. 13)

Photo, Sport & General Press Agency Ltd.

Photo, J. E. Downward

FIG. 4—Entrance to the garden. *Clematis chrysocoma* growing along a Rabbit-proof fence and up into the Holly tree behind (See p. 13)

Photo, N. K. Gould

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 5—The lake in Parkside Gardens in winter

Photo, "The Farmer & Stock-breeder"

FIG. 6—One of the main valleys at the Valley Gardens when the clearing work commenced in February 1946 (See p. 13)

Photo, "Country Life"

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 7—The same view taken exactly a year later. The glade has been opened up and sown to grass and the sides of the valley have been partially planted up. (See p. 13)

Photo, "Country Life"

FIG. 8—The Valley Gardens. A cross view taken from the further end of the glade; in the foreground the ground has been dug over, exposing the bracken roots to frost (See p. 13)

Photo, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 9—The Amphitheatre with first year's planting of Kurume Azaleas (See p. 13)

Photo, J. E. Downward

FIG. 10—Kurume Azaleas in flower in the Amphitheatre in first year of planting (See p. 14)

Photo, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 11—First year cuttings in cold frames of Kurume Azaleas (See p. 14)

Photo, J. E. Downward

FIG. 12—Kurume Azaleas: second year from cuttings (See p. 14)

Photo, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 13—*R. obtusum*, 80 to 100 years

The chosen site consisted of a series of wooded valleys, roughly parallel to each other and all falling from a sandy plateau down to the bed of Virginia Water, a large artificial lake extending to some 130 acres, originally constructed in CHARLES II time and extended by WILLIAM AUGUSTUS, Duke of Cumberland, about 1750. These valleys face south and are clothed with grand old Beech, Sweet Chestnut and Scots Pine, interspersed with scattered Birch and Sycamore. The floor was a dense mat of tall bracken with occasional thickets of Ponticum Rhododendron, the home of rabbits, foxes and badgers, undisturbed apart from occasional visits of foresters to deal with fallen or dying trees.

The site seemed ideal. What about soil conditions and what about frost? We had little doubt about the soil, and trial holes in various places confirmed it to be ideal; just sufficiently acid with a layer of 2 feet or so of sand overlaying clay, with water percolating down from the natural reservoir contained in the sandy plateau above. Thermometers were placed at various altitudes and readings taken throughout the winter and spring of 1943/4. Furthermore, some small plants of *Rhododendron sinogrande* and *R. Falconeri* were procured from our good friends at Exbury and planted in stages down the Valley (Fig. 17). Records proved favourable and in the summer of 1945 we commenced the preparatory work.

Trees had to be felled, vistas had to be formed and paths made—a short sentence to write, but, in execution, work which took prolonged and careful study and many months to complete. It is only in the United States that trees can be "replaced"; here the merits of every single one have to be carefully studied before its fate is decided—a single error means an eternity of regret.

It will be readily understood that direction alone cannot achieve the object in view. A sympathetic and understanding lieutenant and a gang of willing "hands" are both essential and in these respects we were most fortunate. In 1943 MR. HOPE FINDLAY joined our staff, having served his apprenticeship at Bodnant and graduated in other well-known gardens, and it is largely due to his ability, enthusiasm and co-operation that we have been able to achieve that which we have done. His inspiration has been infused into the staff of men under him and it is no exaggeration to say that no one could wish to work with a keener and more enthusiastic team. No distance is too great from which to collect a plant and no plant too big. We have been as far afield as Muncaster in Cumberland and Lamellen in Cornwall.

It will be seen from the foregoing introductory remarks that we are dealing with two gardens of different ages, and lying half a mile apart. It would, however, be convenient to deal with them as one unit for the remainder of this article.

It must be remembered that in dealing with woodland areas there is usually found a top layer of good humus, most inviting to the inexperienced planter, but on that account a snare and a delusion. It is seldom found that, apart from the top few inches, the soil is anything but poor. The ground is full of competing tree roots; and in any event it has been the usual practice in this country to grow timber only on soils and in places where agricultural crops cannot thrive. At Windsor we favour good and thorough cultivation of the planting ground and look upon that operation as the first essential, the top spit being mixed with the subsoil and additional leaf mould incorporated. Tree and bracken roots are forked out and burnt, and if possible the ground is left to aerate for some months before planting takes place. It must further be remembered that if the ground is properly worked rain does not run away on the surface but is conserved in the soil. It is further an essential in our judgement to provide supplementary water supplies, gravity-fed from a pond through two-inch pipes being the ideal, but company's water will do if no other source is available. We have found that lime-impregnated water is not harmful to acid-loving plants where the soil conditions are favourable.

Picture, therefore, two large wooded areas with surplus trees removed, paths formed, rides and glades sown to grass, water laid on and the planting ground fully prepared. What about plants? Can they be procured of such a height and width that they immediately fall into scale with their surroundings? This is not everyone's fortune, neither is it possible for all types of plants. Rhododendrons and Azaleas can, with care and with sufficient man-power, be moved at any size but so many things which associate with them can only be planted out from nursery beds; and of course scarce plants for the most part can only be purchased as nursery stock.

Our good fortune was very great, for in the early days the late MR. LIONEL DE ROTHSCHILD of Exbury became interested in our project, and so also did the late MR. J. B. STEVENSON of Tower Court, Ascot. These two great benefactors are responsible for the majority of the mature Rhododendrons now at Parkside Gardens and they both gave very large quantities of these and other plants, and seemed to delight in their generosity. Further, they both were happy to pay us frequent

visits and to share their great knowledge with us. That was the foundation from which our stock of Rhododendrons was bred but later we had generous gifts from our President, LORD ABERCONWAY, SIR JOHN RAMSDEN, MRS. SPENDER CLAY and many others. Some readers will remember that in the 1930's, and even before, the late MR. HARRY WHITE of the Sunningdale Nurseries used to hold annual auction sales, mostly of species Rhododendrons. Full advantage was taken of these sales and many good species were purchased at most modest prices.

Everyone has a favourite colour, whether it be for a horse, or a dress, a car, or a plant. We have all heard of the 'bloody reds' of Bodnant. Some specialize in the *Griersonianum* crosses or the *eriogynum* crosses. We at Windsor prefer the yellows represented by the species *campylocarpum*, *croceum*, *Wardii*, *Macabeanum* and others; and some readers will have noticed the hybrids at Windsor with the varietal names of 'Hawk' and 'Jalisco,' of which we have a fairly large range. These plants were a charming gift to the writer by MR. LIONEL DE ROTHSCHILD some years ago (when they were yet but seedlings in a pan) at the end of a delightful weekend spent at Exbury. We were going round the propagating department and there appeared to be a surplus stock of these seedlings, which normally might have been thrown away. However the writer went away with a large consignment in his car, little realizing at that time what a splendid gift it was.

Rhododendron 'Hawk' is a cross between *R. Wardii* and R. 'Lady Bessborough,' which is itself a cross between *R. campylocarpum elatum* and *R. discolor*. R. 'Jalisco' is a cross between R. 'Dido' and R. 'Lady Bessborough,' 'Dido' being derived from *R. dichroanthum* and *R. decorum*, and was raised by the late MR. EUSTACE WILDING at Fulmer. This, being a cross between two hybrids, has thrown plants of an infinite variety of colour, from almost white to the strongest yellow, and from pale orange to deeper shades of the same colour. The yellows are for the most part beautiful plants, the best so far being the variety 'Elect,' which attained an Award of Merit in 1948.

In our search for yellow Rhododendrons, we were most fortunate in acquiring, from the splendid garden at Townhill, near Southampton, Rhododendron 'Gladys' in its varieties, this being a cross between *R. campylocarpum elatum* and *R. Fortunei*. Some of these are now established in the Valley Gardens and they are a very great feature each year, as they never seem to fail to throw a full crop of trusses.

At the risk of overburdening these notes with detail more

appropriate perhaps to the *Rhododendron Handbook*, a few more references to the acquisition of plants must be made.

Mention has already been made of the garden owned by the late MR. EUSTACE WILDING, which was well known to the writer when MR. WILDING was alive. Apart from the large collection of Rhododendrons, there were splendid specimens of Enkianthus, home bred Azaleas, *Oxydendrum arboreum*, Maples, Hamamelis and other acid-soil plants. A chance visit in the spring of 1949 revealed that this garden, like so many others, had gone through a period of considerable neglect owing to shortage of labour during the war. It was ascertained that the property had been acquired by an industrial firm and that the house had been converted into flats for members of the staff. The garden was clearly of secondary importance, but many good plants were still surviving and were of immense size, *Rhododendron* × 'Shilsonii' being some 18 feet in height, 'Queen Wilhelmina' of considerable age, and the original plants of 'Dido,' and many good species including *Albrechtii*, *pentaphyllum*, *dichroanthum*, *Stewartianum*, *trichocladum*, *Wasonii*, *insigne*, *basilicum*, *galactinum*, *Falconeri*, and so on.

An enquiry was made as to whether this firm would care to consider the sale of certain selected plants for transference to the gardens in Windsor Great Park, a short note of our ambitions being included with the enquiry. It was indeed a surprise when the answer came back that the firm could not consider selling any plants, but that they would be delighted to give all that were of interest to our project. This was a wonderful and unexpected offer, and it included some of the very best plants we now have in the Gardens. We were able to obtain huge plants of Enkianthus, including varieties of *cernuus rubens*. *Oxydendrum arboreum* were growing to a height of 27 feet; some of these were moved last autumn and have come into full leaf this spring.

There are some people who think that Rhododendrons should be planted unsullied by any other genera, and there are some who are convinced that Rhododendrons and Azaleas are not fit for each other's company. There are others who feel that the all-important factor is to work out an elaborate colour scheme and are always endeavouring to plan harmony of colour to their troubled eyes. It is fortunate if colour-blindness or some other defect can quieten this restless craving. In our judgement harmony of form is more important than that of colour and we are not perturbed if some of the strange mauves and puces find themselves immediately in front of the strongest reds, provided the former are derived from the Kurume,

malvatica or other kindred varieties and provided they are in association with such plants as Magnolias, Cherries, Halesias, Cornus and Enkianthus, to mention but a few, to give foliage contrast.

To give some impression of the work that has so far been completed, it would be as well now to refer to some of the illustrations which accompany this article.

Fig. 1 shows a part of the upper pond in the Gardens at Parkside, with a Plane tree framing the bridge at the pond head; in the foreground are plants of the wild Kingcup, a most valuable waterside plant in the early spring; in the middle distance Mollis Azaleas are coming into flower. The Oaks and Chestnuts are coming into leaf and give some indication of the mottled shade which woodland plants desire.

Fig. 2 shows a young orchard of flowering Cherries and Crabs, sparsely underplanted with drifts of Daffodils. This orchard is planted in rigid lines. It is a relief from the informality of the remainder of the garden.

Fig. 3 is a winter scene at the water's edge, with one tree in flower, namely Prunus 'Yoshino' (*P. yedoensis*), but the winter sunlight on the stems of the Oaks, and the first leaf of the Weeping Willow, compensate for the lack of colour.

Fig. 4 shows an entrance to the garden, with *Clematis chrysocoma* growing along the rabbit-proof fence, and up into a Holly tree beyond. A flight of steps is preferred to a gate at ground level as an additional guard against rabbits.

Fig. 6 taken in the winter of 1946 shows one of the main valleys at the Valley Gardens as clearing work was commenced. Virginia Water can dimly be seen through the trees in the distance, but its full importance is masked by a thick belt of Ponticum Rhododendrons, Birch and other trees in the middle foreground.

Fig. 7 shows the same view taken exactly a year later. The glade has been opened up and sown to grass, thus carrying the eye through to the water. The sides of the valley have been partially planted up.

Fig. 8 is a cross view, taken from the further end of the glade; in the foreground the ground has been dug over, exposing the bracken roots to frost. These have since been removed and the ground planted with Tree Heaths, Cistus and other plants.

Fig. 9 is a general view of part of a large amphitheatre, which it is hoped will soon be covered with a collection of Kurume Azaleas, of many colours and shades, to form a vast patchwork quilt. The first year's planting can be dimly seen in the illustration.

Fig. 10 is a close-up of some of the first year's Kurumes in blossom. These were taken from cuttings and are three years old. Figs. 11 and 12 show the method of propagation of some of these Kurumes in cold frames. The cuttings are started in cool greenhouses without any bottom heat in early July.

A reference to the Gardens in Windsor Great Park would not be complete without the inclusion of those at The Royal Lodge, the home of THEIR MAJESTIES, KING GEORGE VI and QUEEN ELIZABETH. The house was originally built by KING GEORGE IV, during the reign of GEORGE III, but the majority of it was demolished a few years later by his successor, KING WILLIAM IV. In some ways there was good reason for this action. It will be remembered that GEORGE III, father both of GEORGE IV and WILLIAM IV, had many children to house; neither of his sons had the same problem to solve, and so The Royal Lodge and other houses became redundant. All that remained was a small house with six or seven rooms. However, it proved to be, with suitable additions, an ideal home for Their present Majesties, situated as it is in the heart of the estate which they love and in which they take a keen interest.

Naturally one of the earliest tasks to be undertaken was the formation of a garden. I should really say *their* garden, for it has been entirely formed and planted by THE KING AND QUEEN both of whom have great knowledge and love of an English garden and of the plants that will grow in it.

Some members of the Rhododendron Group were privileged to see these gardens this spring and they went away enraptured by their beauty and restfulness, and by the lovely plants that THEIR MAJESTIES have raised there. The house stands on the edge of a gentle slope, facing west. The windows of the main rooms look on to sweeping lawns and grass glades flanked on the north by vast Cedars and leading to a large wood, the home of great Oak and Beech; the floor is carpeted in spring with Primroses, Violets, Daffodils and Bluebells—a comfortable, happy wood full of enchantment.

Here too, in corners and recesses, may be seen the many fine specimens of Rhododendrons, Azaleas, Magnolias, Davidias, Cherries, and other species, all of which have been planted by THE KING AND QUEEN during the last fifteen years.

As in other parts of the Park, Rhododendrons grow extremely well. There are mature plants of 'Loderi' in many varieties. 'Penjerrick,' 'Lady Bessborough,' 'Lady Chamberlain,' 'Elsae,' 'Queen Wilhelmina,' and among the species, *R. sinogrande*, *R. Falconeri*, *R. Augustinii*, *R. Griersonianum*, *R. Macabeanum*, *R. Thomsonii* and many others.

Particular mention should be made of the blue form of *Hydrangea hortensis* which is such a valuable summer shrub and which gives of its very best at The Royal Lodge. Most of the Magnolias can be seen there though some as yet have to reach maturity.

Enough has been said perhaps for readers to realize that THEIR MAJESTIES can be included as amongst the keenest and most knowledgeable of gardeners in the country. They delight to hear of new and interesting plants and to plan alterations to fit them in. Soon it will be the home of Primulas and Lilies in many varieties and it is already the home of some of the choicest Daffodils, which have been raised.

In another part of the garden can be seen collections of old Roses, Lilacs, herbaceous plants and everything that goes to make a setting for one of the most lovely of English homes.

In conclusion it may be said that the work of forming the Gardens in the Great Park goes on. It is aided by the generous support and encouragement of THEIR MAJESTIES, by the sympathy of THE COMMISSIONERS OF CROWN LANDS and by the appreciation of our efforts which has been so generously shown by our very many visitors.

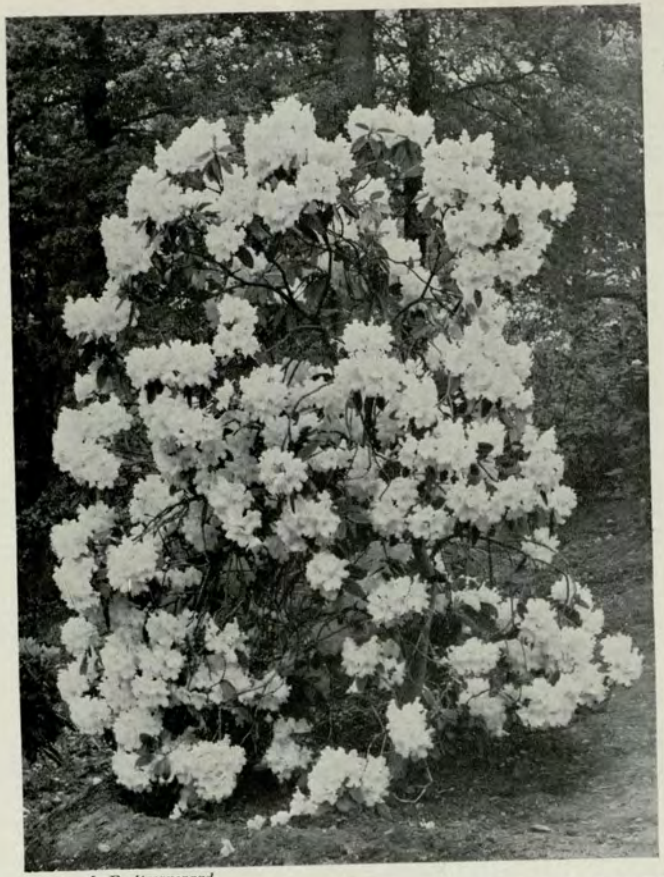
RHODODENDRON 'LODERI' AND ITS VARIETIES AND HYBRIDS

By SIR GILES LODER, BT.

ALTHOUGH many hybrid Rhododendrons have been raised in recent years, R. 'Loderi' is still considered one of the best of the large-flowered varieties. This cross was made in 1901 by the late SIR EDMUND LODER, who, in his later years, turned his versatile brain to gardening when he found his eye and body could no longer follow the more active pursuits in which he excelled. At that time little had been done or was known about the hybridizing of Rhododendrons beyond the various nurseryman hybrids amongst the *caucasicum* and kindred species. Even at this relatively early date, SIR EDMUND foresaw what is often overlooked nowadays—the importance of selecting the very best possible material for the intended cross. In this case, he selected a particularly sweetly scented and large-flowered *R. Fortunei*, amongst the several he had, as the seed parent. But as he did not consider as good enough any of the *R. Griffithianum*, which he had, COLONEL FRED GODMAN kindly allowed him to use the pollen from a particularly fine plant of that species which was then growing in the cold house at South Lodge.

Many seedlings were raised from this cross, and they proved to be vigorous growers, some with leaves a foot long. The first plants bloomed in 1907, and the care that had been taken in the selection and raising of this cross was soon apparent. As with many other crosses, different varieties appeared as the seedlings in due course flowered. R. 'Loderi' var. 'White Diamond' was amongst the first to flower, producing a handsome truss, with individual flowers 6 inches in diameter, of pure white with a faint splash of colour in the throat. As with all the other seedlings the sweet scent of the seed parent is carried on in its offspring.

In var. 'King George,' the trusses are distinctly pink when they first open; but they quickly lose this colour, and the fully developed truss is pure white, with no blotch in the throat, and often having 10–12 flowers to each truss, which, like all the other varieties, stands "well up" in the centre. R. 'Loderi' var. 'Pink Diamond' (F.C.C. 1914) is probably the deepest pink of the family, retaining its colouring throughout its full flowering period, whilst var. 'Pink Coral' retains its lighter pink colour; but has also a puce-coloured blotch at the base of its flowers.



Photos, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 14—*R.* 'Loder's White'

FIG. 15—*R.* 'Loderi King George'

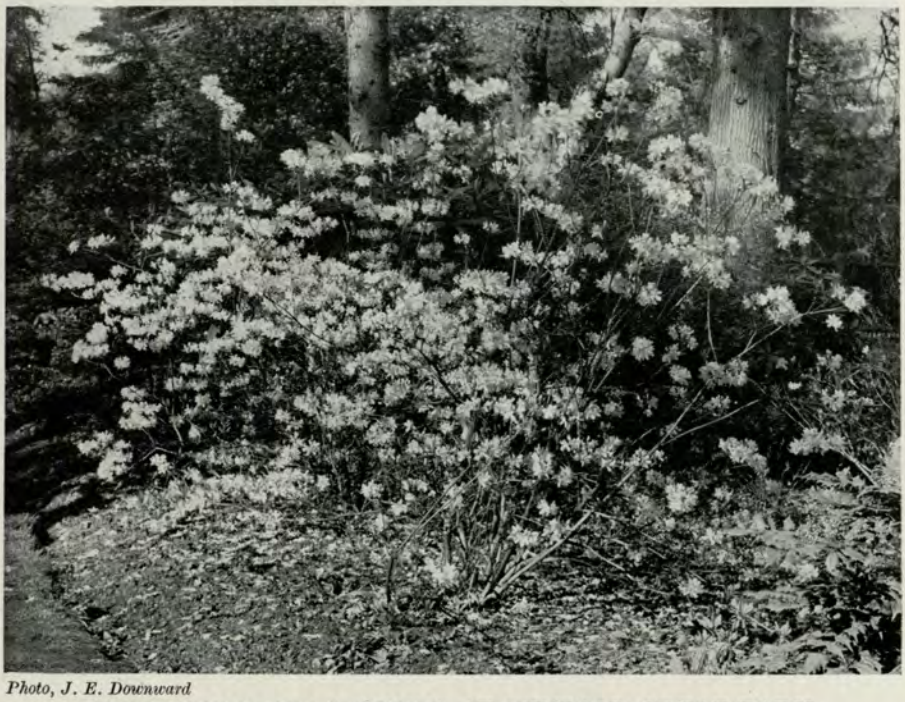
Photo, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 16—*R.* 'Gladys' at the head of one of the Valley Gardens

Photo, N. K. Gould

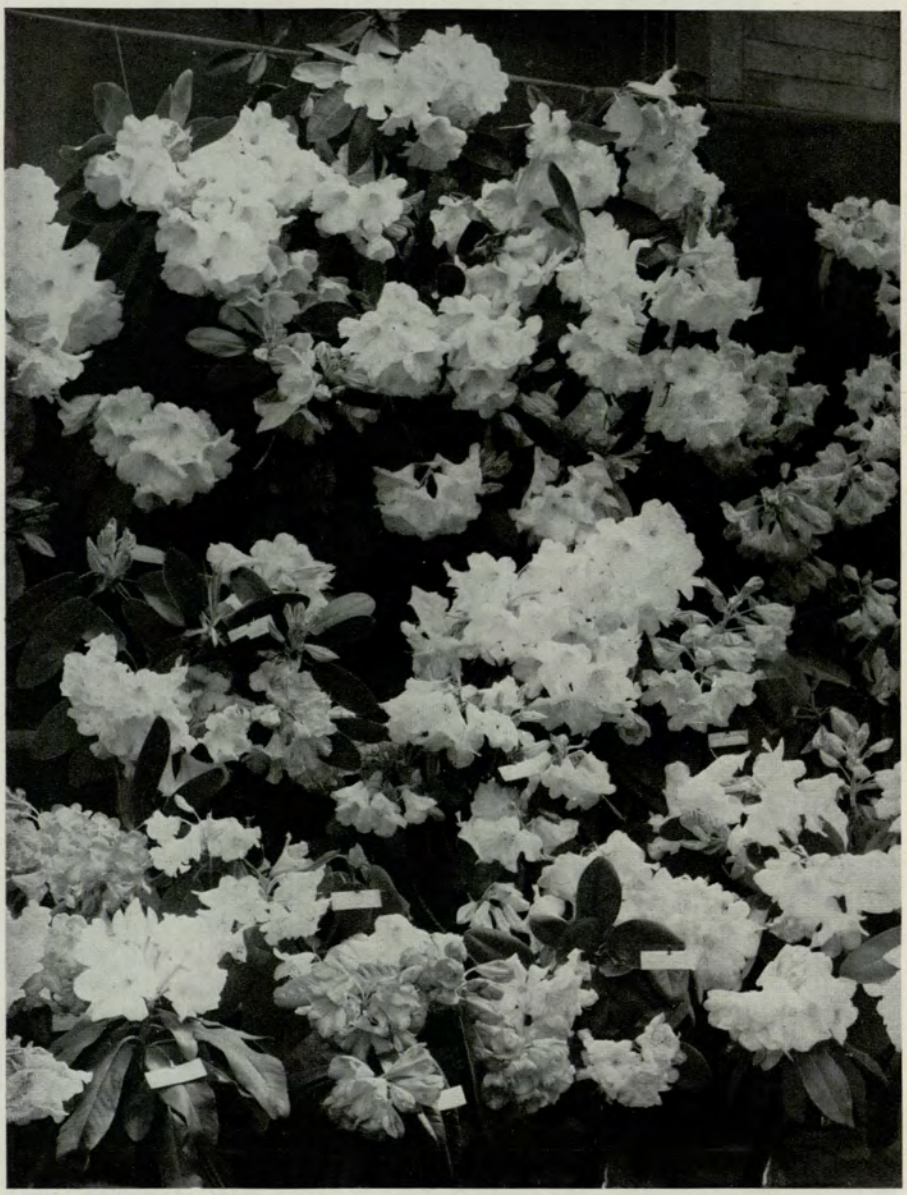
FIG. 17—One of the Valley Gardens, *R. sinogrande* in the foreground (See p. 9)



Photo, J. E. Downward

THE WOODLAND GARDENS AT WINDSOR GREAT PARK

FIG. 18—*R. Vaseyi*



Photo, J. E. Downward

FIG. 19—Part of Sir Giles Loder's exhibit of R. 'Loderi' and its varieties and hybrids at the Rhododendron Show, 1950 (See pp. 16–19)

R. 'Loderi' var. 'Sir Edmund' was the last to flower, in fact it was not until well after his death in 1920 that the plant produced its large trusses and was named after him. The flowers are "veined" pink when they first open, fading to a clear blush pink; whilst var. 'Sir Joseph Hooker,' another well-known type, has even more prominent pink veining to its flowers. Varieties 'Pink Topaz' and 'Dairymaid' have a slight green tinge to their flowers, which otherwise fade from pink to white, whilst varieties 'Patience,' 'Venus' and 'Gamechick,' though growing in similar conditions, seem to flower a week or two later than the others. The leaf shape and colour normally does not give any indication to the variety; some having a deep green leaf, others with a type of "mackerel" striping, to a lesser or greater degree. Varieties 'Sir Edmund,' 'Pink Topaz' and 'Pink Diamond' have a plain green leaf.

The same cross has subsequently been tried many times, both by SIR EDMUND LODER and others, and using *R. Fortunei* as the seed parent, as was originally done, and also as the pollen parent, but the progeny has never seemed to come up to the full quality of the original plants. We have many such plants growing at Leonardslee in the woods, where they make excellent decorative plants, and, carrying the same scent as *R. Fortunei*, provide a very pleasant background.

However, when one turns to R. 'Loderi' hybrids, one finds the strength of the strain fully shown. Some seedlings of crosses between the various varieties of 'Loderi' show great promise and an appreciable improvement in the quality of the flower. R. 'Princess Marina' (A.M. and cup for the best hybrid in the Show, 1948) is a cross between var. 'King George' and var. 'Sir Edmund.' It has a remarkable texture to its flowers, which are as much as 7 inches across, and forming a well built-up truss, which is a faint pink, fading to white in colour. Some other seedlings from this cross have a distinct creamy tinge to their flower, and all show great substance. R. 'Loderi' has also been successfully used, both at Leonardslee and elsewhere as a parent plant in the making of other hybrids, as a glance at the Rhododendron stud book will show. A particularly successful cross is with *R. sutchuenense*, producing 'Seagull' (A.M. 1938) and 'Seamew' (A.M. 1940), which has a magnificent truss of flower in March as well as a beautiful habit and foliage. The cross with *R. irroratum*, producing 'White Glory' (A.M. 1938) and 'Pink Glory' (A.M. 1940), is another early flowerer of equal hardiness. Allied with 'Queen Wilhelmina,' producing 'Sunset' (A.M. 1931); 'Halopeanum,' producing 'Snow Queen' (A.M. 1934); 'Barclayi,' producing 'Cretonne' (A.M. 1940) and 'Cornish Cross' producing

'Ruthelma' and 'H. Whitner,' vigorous plants with large outstanding trusses have been made, many with a deeper shade of colour than any pure R. 'Loderi.' Further progeny of these crosses show promise too, R. 'Mrs. C. Whitner' ('Snow Queen' × 'Loderi' var. 'Sir Edmund') gaining an award in 1935. All these hybrids have a good erect habit, have proved perfectly hardy and are strong growers.

For propagation purposes, layering by the normal means provides a way of obtaining a true replica of the original plant; but like most large-flowered Rhododendrons, it takes several years for the layer to root, and before it can be severed from the parent plant. Grafting gives good results, and if the soil is not particularly suitable for Rhododendrons, it is often found that such grafted plants, on vigorous root stocks like *R. ponticum* perhaps give better results than those plants on their own roots. However, care must be taken, as with all other grafted plants, to look out for, and cut out, any sucker growths. There is also the possibility, when the plant has grown to a large size, of it snapping off at the graft, during moving operations, or high winds. As the soil is ideally suited to Rhododendrons at Leonardslee, we favour growing all our plants on their own roots.

In favourable surroundings, R. 'Loderi' grows to a large size, and indeed the original plants are still growing well. In some cases they have reached a height of around 25 feet and some have a circumference of 80 feet, being well "clothed" down to the ground. The amount of flower that these plants carry is staggering, the buds first standing up like pink candles of a Christmas tree. Then as they gradually open, the trusses obliterate all sign of the foliage beneath. The number of trusses on a large plant runs into several thousand, so that the weight of this crop of flowers runs into a matter of hundredweights. It is almost essential if the plants are to flower well the following year, to pick off the dead flower heads before the strength of the plant has gone into forming seed pods which are of a large size. In fact such is the profusion of flowers in some years that 50 per cent. of the flower buds can be picked off before they open, so that the remaining trusses can show their individual beauty better. Flowering as they do (in Sussex) about the middle of May, the buds are very seldom caught by late frosts, and, as an illustration of their hardiness, the flowers which were picked for a stand of varieties of R. 'Loderi,' which gained a Gold Medal at the 1950 R.H.S. Rhododendron Show, were gathered during the heavy snowstorm at the end of April (it being an exceptionally early year) yet the flowers on the plants which had to withstand several inches of snow for a couple of days were equally as good

as those picked earlier, and later buds showed no signs of frosting. The young growths have very attractive long bright red bracts, and to see a large plant covered with these bracts standing up is almost as good as a second flowering season. No trouble has been experienced with autumn frosts catching them before they had hardened; nor has bud blast yet shown itself on the plants.

R. 'Loderi' shows itself to the best advantage in open woodland. It is well worth while to trench the intended planting site to a couple of feet, as though, like all Rhododendrons, they are surface rooted, it must be remembered that, as in the course of time they grow strongly in size, the roots correspondingly go downward as well as spread. If this is done before planting, and assuming the soil is not too light and sandy, no watering is required once the plant is established. A light mulching of bracken or similar material will naturally assist it, and with these slight demands, such a plant should flourish and give pleasure for many years.

RHODODENDRONS AS EVERGREENS

By A. T. JOHNSON

IN considering the immense influence exerted by Rhododendrons upon our gardens during the last half-century, an increasing influence, their value as evergreens has been rather overlooked. Yet when it is realized that for the greater part of the year we have little but their foliage to go upon for garden adornment it seems odd that their status as evergreens has not been more sympathetically approached. We have gone a long way since we toyed with the illusion of a Baconian *ver perpetuum* by filling our gardens and woodlands with Cherry-Laurels, but we did not achieve anything much better in that respect when the Pontic and American Rhododendrons, along with *R. arboreum*, presented the breeders with the means of flooding our borders with hybrids which, no matter how gallantly they may have served their time as flowering shrubs, are pathetically poor in foliage. But even in later days when we had more promising material at hand with which to produce shrubs with attractive foliage as well as flower, we shall find little indication of any definite realization on the part of the hybridists that Rhododendrons must be considered from the evergreen as well as the floral point of view.

Now can it be claimed that we of to-day, with a still more extensive choice at hand, have in our pursuit of flower colour and form been any more aware of the importance of foliage in Rhododendrons? Many modern hybrids are beautiful as evergreens, but this is the happy result of their having had parents which excelled as such. On the other hand it may be disconcerting to find that beauty of foliage in the species has been lost in the hybrid offspring. If our object be brilliance of blossom only, then all credit be to those who have induced the laggard *R. repens* to glow into splendour by an infusion of other blood. But the average gardener, and especially to-day when so many are adopting informal shrub growing as a means of solving an economic situation which has come to stay, will surely be wiser to concentrate on such Rhododendron species or hybrids which can be regarded as shrubs of year round garden value, rather than upon those which blaze into colour for a while and then cease to be of any interest, save to the few. Indeed, I would go so far as to say that not a few species of little or no account as flowering shrubs are so worthy of garden room that I would, in our woodland conditions, not

Colour photograph : J. E. Downward

Rhododendron ' Trewithen Orange ' F.C.C. April 4, 1950.
Shown by G. H. JOHNSTONE, O.B.E. (See p. 124)

exchange the blue-leaved, weak flowered *R. lepidostylum* (Fig. 50) for the gorgeous *R. haematodes*. Nor would I rate *R. lutescens* lightly because of its so modest contribution in blossom, remembering that its foliage, tossing over the water with a willowy grace, is very lovely when, from April onwards, it is flushed with a burnish of rosy-purple.

We may be expecting too much in suggesting that the hybridist with a one-way mind in quest of colour (as if colour were the chief end of gardening) should divert a share of his zeal upon the not less important matter of leafage. Nor is there any need to do so, for we have Rhododendrons in plenty which will fulfil to the utmost any claims we may have for a shrub that is both good in flower and attractive in foliage at other seasons. And these range from the little Lapponicums with their infinite range of gentle leaf tints to such middle sizes in Triflorums as *R. oreotrephes* and *exquisetum* to the Cinnabarinums and the Thomsonii Series. It may be that the larger-leaved species of the Fortunei Series and more particularly those of the Falconeri and Grande are outside the scope of most shrub growers. One may go further and suggest that, even where space and conditions prevail, these noble species demand careful placing and perhaps segregation, preferably in association with trees of size and dignity. But there is no escaping the majestic beauty of their architectural foliage, nor the rich colouring other than green distinguishing the leaves of many and touching so high a note in such as *R. eximium* with its fiery glow of orange-chestnut indumentum. As for their young growths, those bold cockades of kid-white, ice-blue, sea-green, amber, golden-fawn or burnt orange, often brushed over with a frosty iridescence and ribboned with crimson or yellow bud sheaths are among the most impressive features of this great family. They may even fully compensate for that lack of blossom we have to expect for many years, even earn for such a dismal shrub as *R. coriaceum* a place of recognition (Fig. 20).

But I will not pursue the subject further, and comparisons, we remember, may be odious. My purpose has been to show by a few suggestions how Rhododendrons should, by more attention being paid to foliage, be of greater all-round usefulness in the average garden. R. × 'praecox' and R. × 'Shilsonii' we must always have, but how incomparably greater the year round garden value, because of their foliage, are R. × 'Sir Charles Lemon,' the 'Lady Chamberlain' group, and 'Cornish Cross.' And how much more attractive when not in flower is *R. orbiculare* than *strigillosum*, *R. Souliei* than *neriiflorum*, though all may be equally beautiful when in bloom.

In the pursuit of brilliance in colour we have gone far, some say too far. In accepting the Rhododendron's place as an evergreen we have not gone far enough. If, thanks to many of the species introduced since the century was young, we have done something to alleviate the drabness of the off-season plantation endured by our forbears, we still have to realize—as was said of Roses long ago—that it is not so much the garden for the Rhododendron that matters, as the Rhododendron for the garden.

RHODODENDRONS IN A WOODLAND GARDEN IN WEST SOMERSET

By NORMAN G. HADDEN

IT was about sixteen years ago that I decided to try to grow Rhododendrons and other shrubs under more natural conditions than I could provide for them in my garden. Half a mile west of the garden there is a well-sheltered combe running down towards the sea, protected from the worst of the gales which come up the Bristol Channel and across Exmoor. Two fast flowing streams run down the combe and their two springs form small bogs that never dry out. The land between the two streams is very steep, rising to a height of nearly 400 feet and as the soil is very stony drainage is excellent.

The native woodland is mainly Oak and Birch with a few Ash and Rowan trees, carpeted with Whortleberry and patches of Heather. Native ferns abound, Male, Lady, Aspidium, Hay-scented, Blechnum, and Polypody. Bracken was all too much in evidence at first but regular cutting has reduced it to negligible quantities, though some fronds penetrate from outside the boundary fence every year. The whole enclosed area is under two acres but owing to the lie of the land and variety of planting sites it appears to be larger. It was necessary to exclude not only rabbits but Red Deer so that a fairly high and substantial wire netting boundary fence had to be put up.

From the upper part of the wood one has a glorious view over Porlock Bay and across to South Wales, framed by Oak woods on either side (Fig. 21). Like most Somerset woods it is full of bird life, the nest boxes being tenanted by Marsh, Great and Blue Tits, Redstarts and Nuthatches while Buzzards are constantly soaring overhead and nest further up the combe.

Having cleared out the worst of the Brambles and cut down the poorest of the trees we moved most of the Rhododendrons from the garden (some of which were already of a fair size, e.g. *decorum*, 'Loderi,' 'Pink Diamond,' etc.). The loamy soil with its thin layer of peaty leaf-soil has suited them well and very few have failed to respond to the conditions offered them. No attempt has been made to clear the natural undergrowth where this consists of Whortleberry or Heather as I like to obtain the effect of the Rhododendrons growing as naturally as possible—in fact visitors have compared the hillside with bits of Tibet and the Himalaya. Part of the south-eastern slopes are too hot and dry for Rhododendrons

though Knaphill Azaleas flourish in the less arid portions, with Cherries, Brooms and Leptospermums. A small reservoir has been constructed higher up one of the streams so that in very dry weather sprinklers can be turned on and left to work as long as required; the plants undoubtedly appreciate the humid atmosphere thus produced and grow well even in the driest seasons.

Large leaved species are represented by *Rhododendron sinogrande* (KINGDON-WARD'S and FORREST'S forms), *Falconeri* and *giganteum* (now 10 feet high in spite of having been defoliated in the severe winter of 1947). *R. Macabeanum* came to me early in the war as a fairly big plant and had to be planted in the garden, no labour being available to help me take it to the wood. R. 'Loderi King George,' 'Pink Diamond,' 'Loder's White' and several unnamed seedlings of similar breeding are now good plants which are a lovely sight at the height of their flowering season. About a dozen *R. decorum* seedlings make a fine show about the same time. Two nice plants of *R. Thomsonii* were laden with flowers this year for the first time and prove to be of a very good form.

The season begins early in January with *R. mucronulatum*, best of which are two large plants raised from seed from the Arnold Arboretum by my friend MR. E. B. ANDERSON who gave them to me eighteen years ago; they are even more floriferous and a better colour than those generally grown. *R. moupinense* and *R. leucaspis* are usually the next to flower, followed early in March by a tall-growing rosy-purple form of the hybrid *R.* 'Spinulosum' which came from a French nursery and is superior to the usual form of this cross. It grows at least 10 feet high and is very showy and hardy. We seldom experience more than ten degrees of frost in the wood so that the more tender species and hybrids are well worth growing. *R. Lindleyi*, for instance, has developed into tall straggly plants 12 feet high (as is the normal habit of these epiphytic species) and its huge exquisitely formed white blooms are indeed a joy to behold and to smell. The old hybrid 'Lady Alice Fitzwilliam' is another grand plant so heavily scented that its fragrance carries for a considerable distance. In very severe winters the buds have been killed but I have never seen the plants themselves hurt by frost. Heavy snow has broken branches occasionally.

R. manipurense and *R. megacalyx* are especially welcome for delaying their flowering until most of the others are over and here again are two deliciously scented species. I do not find the *R. bullatum* forms quite so reliable in flowering and their

sprawling habit is not an advantage, but the pink form is a great beauty. 'Countess of Haddington,' 'Countess of Sefton' and *R. Taggianum* are still young plants but are growing well, as is *R. rhabdotum*. *R. Nuttallii* is being planted out this summer having outgrown its home in the Alpine House; it will require the most sheltered spot we can offer it and may have slight winter protection.

R. Griersonianum and some of its magnificent hybrid progeny are naturally the high-lights of June—'Azor' indeed carries on to the end of July. 'Tally Ho!' 'Vulcan,' 'Pandora,' 'Fabia,' 'Arthur Osborn,' 'May Day,' 'Fusilier,' 'Romany Chai,' these are a few of this noble race which are settling down well here. 'Polar Bear,' one of the very best and latest flowering of all Rhododendron hybrids, bloomed here for the first time in August this year. Other stalwarts like 'Cynthia,' 'Mrs. Leak,' 'Queen Wilhelmina' and 'Britannia' can be relied upon to give a good account of themselves annually and provide plenty of rich colour.

The more rocky slopes are proving suitable homes for many of the smaller species; *R. pemakoense* looks extremely well grouped with Heaths and *Lithospermum diffusum*, also *R. flavidum* and the tiny pink flowered *R. serpyllifolium*. A colony of Kurume Azaleas grouped at the foot of a steep bank gives a charming blend of pink shades for some weeks in May, while a group of a dozen *R. obtusum amoenum* isolated from other colours which would clash with its glowing magenta is always greatly admired.

Completely sheltered by the steep hillside from early morning sun the large flowered Azaleas (*R. Schlippenbachii, Weyrichii, amagianum, pentaphyllum* etc.) grow and flower well; all are plants of high quality and great beauty alike in flower and foliage. *R. Albrechtii* is most attractive when covered with rich rosy flowers in early April before the leaves unfold and is soon followed by its taller kinsman *R. Vaseyi*. The lovely scarlet *arboreum* hybrid 'Cornubia' has grown into a tall plant, very effective in the March sunlight against the soft green background of the hillside. 'Gill's Triumph' is somewhat similar but considerably later and stands out well beside its white neighbour 'Dr. Stocker.' *R. Wardii* has grown into a large shrub but as it has never flowered yet I do not know if it is really a good yellow form or a washy cream one.

All the Triflorum Series lend themselves particularly well to this type of wild gardening, whether they are selected blue forms of *R. Augustinii* or the charming mauve or lavender shades of *R. oreotrephes, yunnanense, timeteum, Davidsonianum*

or others of the group. The soft yellow *R. Keiskei* is always a joy in early spring, much more effective here than the popular *R. lutescens*. The deep yellow *R. Valentinianum* has grown well but does not flower freely; close beside it is a flourishing plant of the blood-red form of *R. aperantum* which is really floriferous though not an easy plant everywhere. *R. repens* on the other hand is very shy flowering here though it grows well.

My favourite yellow *R. campylocarpum* usually gives a good account of itself, as does the beautiful *R. caloxanthum* whose butter-yellow blooms are tipped with scarlet in the bud.

When the last of the Rhododendron flowers are really over for the year, we look forward to the glorious autumn colouring of the leaves of *R. luteum* which seldom fail to brighten dull October days although this is not a good district for autumn tints.

We grow many other choice shrubs besides Rhododendrons in the wood and are never without flowers there. The *Camellia Sasanqua* varieties begin to open in November and along with Heaths provide interest and colour through the dreary winter days.

DWARF RHODODENDRONS FOR THE SMALL GARDEN

By C. E. PUDDLE

THE first half of this century has seen a great change in the varieties of Rhododendrons grown in our gardens. Through the untiring efforts of a small band of gallant plant hunters, large numbers of new species have been introduced, which show a marked variation in size, shape, and range of colour from those previously in cultivation. It was quickly realized by numerous enthusiasts that these new species provided a great opportunity for the discriminating hybridist with the result that to-day we have available for our gardens an entirely new race of hybrids, in addition to a mounting number of new species.

In many gardens some of the older species and hardy hybrids with their compact heads of flower have been somewhat pushed to the background by these newer introductions. Their looser trusses of blossom in a much wider colour range, combined with their varying habits and contrasting leaf and flower shapes make them a most valuable addition to any lime-free garden.

The future seems to point, with but few exceptions, to a land of small gardens and for this purpose there is no doubt that the dwarfer species and hybrids will become the most popular. A far greater number of varieties can be grown in a small space thus giving the garden great interest whilst their size makes them much easier to handle with the minimum of labour. With a little careful planning and the judicious placing of a few of the taller growing varieties both intermediately and as a background, a Rhododendron garden of great charm can be constructed using almost solely these dwarfer species and hybrids.

The taller Rhododendrons to be seen to perfection need ample space so that their graceful shape and mass of bloom can be admired from all sides. When planting the dwarfer types, however, it must be borne in mind that although each plant is a gem in itself, the most pleasing effect is obtained by the careful massing and blending of the many different colours. They need to be planted fairly close together so that when fully grown they freely intermingle and form a carpet of colour, relieved by their different foliage and varying heights. One of the most successful schemes is to group the dwarfest in the

form of valleys, making the higher ridges with others of intermediate height, completing the planting with a background of taller varieties or good evergreens. Such a garden allows for the inter-planting of groups of Lilies, Meconopsis, Primulas and other interesting plants which will provide colour when the Rhododendrons are over.

The initial preparation of the soil is of vast importance, for it may be many years before thorough cultivation can again take place. The extra labour involved in the trenching of the ground, and the incorporation of leaves, leafsoil, and peat will be amply rewarded in later years. It will be found that it is much better to increase the humus content of the existing soil rather than to bring in an entirely new medium.

Rhododendrons are most accommodating evergreens and can be moved and planted at almost any time of the year except for the hottest summer months. During the operation the chief precaution is to avoid deep planting which causes the loss of many plants. They are all shallow rooting forming a mass of fibrous roots, and even large specimens have comparatively few roots reaching any depth. When plants are received from other gardens or nurseries it often happens that they have been growing in vastly different soil to that in which they will be planted. When this occurs it is advisable to break up the ball and remove a reasonable amount of soil, for if planted as received the roots seldom grow further than the old ball and make little headway for a considerable period.

The grouping of the various species and hybrids calls for some knowledge of their habit, ultimate size, and flower colour. It is a matter of personal opinion as to whether species and hybrids are mixed but one interesting scheme would be to select one of the dwarf species which has been extensively used as a parent by the hybridists, and to confine one section or valley to this species and its progeny. One valley might contain for instance *Rhododendron repens* with its many forms and hybrids, whilst others could be devoted to *R. Williamsianum*, *R. haematodes*, or members of the Lapponicum Series and their offspring. Although these groups would be a complete section in themselves they must take their rightful place as part of the whole scheme. No jarring note should occur and careful attention must be paid to the blending of the colours, for a considerable number of different shades can be seen from any one position in a garden of dwarf Rhododendrons.

Once planted this type of garden presents little difficulty in maintenance and can be truly called labour-saving. After a year or two when the plants have grown together there is

little room for weeds whilst the picking of the seedpods is much easier than with the taller varieties. The humus content of the soil must be maintained, and where possible rotting Oak or Beech leaves should be carefully forked into the beds during the winter taking care to avoid damaging the roots. As the plants grow this may become impossible and the beds can be top-dressed with leafsoil or peat but in no circumstances must the balls of the plants be covered too deeply, It is better to err on the shallow side otherwise in a number of years the plants become buried and soon deteriorate in health. All dead wood should be kept cut away from the plants.

The dwarf Rhododendrons are on the whole fairly easily propagated. The species can be raised from seed which should be thoroughly cleaned, and providing some heat is available sown as soon as ripe. If they are kept growing when pricked out and given the shelter of a frame for the first year of their life the majority present no problem. From cuttings many species and hybrids can be easily rooted in either a heated or cold propagating frame, the former being of course much the quicker. Heel cuttings of the current year's growth taken in July and August according to the season and the growth of the individual plant, are most successful. When rooted they should be potted up or planted in a shaded frame until well established. If placed in an exposed position when planted out it is advisable to give them a short stake at first, to prevent the stem being torn from the delicate roots. Layering is easily accomplished, in fact many of the dwarf varieties do this naturally when their branches touch the soil.

Although great progress has been made in the development of Rhododendrons there is still much scope for the keen hybridist. It is, however, essential to have a definite aim when making each new hybrid as indiscriminate crossing can only lead to disappointment. The production of a really good hybrid can give the enthusiast a wealth of satisfaction.

The number of dwarf species and hybrids suitable for the small garden is considerable and mention can only be made of some of those that have proved most successful. The selection of varieties is a matter of personal choice, after taking into consideration the site and climate of the district in which they are to be planted. The majority of the dwarf types are hardy in this country, but if certain varieties do well in a garden it is far better to make large plantings of these types than to grow for the sake of variety species which never look happy.

The Neriiflorum series contains many species especially

suitable for the small garden, and its members have been widely used in the production of numerous fine hybrids. Perhaps *R. repens* has been the most popular parent due no doubt to its fine colour and its very dwarf habit, seldom reaching above 9 inches high in any of its various forms. In itself it is a rather difficult plant preferring a site sheltered from the hottest sun, and ample moisture in the summer. Its bright scarlet flowers are rather sparingly produced but its dwarf compact creeping habit makes it an interesting plant throughout the year.

As a parent, however, *R. repens* has many virtues, for besides its attractive dwarf habit and flowers of intense colour, its hybrids are very free flowering and strong growers. When hybridized with *R. Griersonianum* it produced R. 'Elizabeth,' perhaps the finest of all dwarf hybrids yet raised. The deep red flowers are in trusses of five or six flowers and so abundantly produced that at the end of April the leaves are almost hidden. It reaches a height of 30 inches when fully grown but retains the close habit of growth of *R. repens* and grows much quicker lengthways than upwards.

R. 'Ethel' ('F. C. Puddle' × *repens*) has flowers of a most attractive shade of crimson-scarlet with a coloured calyx of the same shade. It is very dwarf and compact in habit and equally free flowering. For depth of colour R. 'Carmen' (*didymum* × *repens*) is hard to beat whilst R. 'Jaipur' (*repens* × *Meddianum*) bears at the ends of its drooping branches four or five nodding flowers of crimson-scarlet. Of more upright growth but not more than 30 inches in height is R. 'Yeoman' (*repens* × 'Choremia') a quick grower with flowers of intense scarlet which are produced in early April. R. 'Little Ben' (*neriiflorum* × *repens*) and R. 'Little Bert' (*euchaites* × *repens*) form a delightful pair of hybrids each with equally fine compact habits and deep red flowers. Other hybrids of *R. repens* of special note are R. 'Hyperion' (*repens* × 'Cardinal') R. 'Fascinator' (*repens* × 'Hiraethlyn') and R. 'Charm' (*repens* × 'Shilsonii').

One of the best of all the dwarf species is undoubtedly *R. haematodes*. Its spreading habit and attractive dark green leaves clothed beneath with brown indumentum, make it a most conspicuous plant throughout the year. When well established it freely produces its brilliant scarlet-crimson flowers which form neat trusses towards the end of April. It is perfectly hardy and should be grown in every garden.

R. haematodes has proved a most successful parent, for its hybrids retain its close growing habit and have in most

cases an enlarged calyx of the same colour as the corolla. In extreme cases the calyx is almost the same length as the corolla and this is well illustrated in R. 'Welkin' ('Eros' × *haematodes*). This admirable dwarf growing hybrid produces at the end of April numerous heads of scarlet-crimson flowers.

R. 'May Day' (*haematodes* × *Griersonianum*) has proved very popular, and although a little taller than those previously mentioned it will be most useful to form the side of the valleys. Its loose trusses of cerise-scarlet flowers are very freely produced. Of a somewhat similar height are R. 'Phoebus' ('F. C. Puddle' × *haematodes*) and R. 'Vega' ('Fabia' × *haematodes*) both well worth a place in every garden. Much dwarfer is the very dark R. 'Chiron' (*haematodes* × 'Barclayi') which combines the good qualities of its excellent parents.

There are many fine Rhododendrons which win but few prizes on the show bench, but which as garden plants far excel their more honoured relatives. R. 'Aspansia' ('Astarte' × *haematodes*) is such a plant for it immediately attracts notice in the garden and yet blends so admirably into the whole scheme. It is a variable hybrid with countless loose trusses of flowers varying in shade from the deepest blood red to white flushed rose. A group of the various forms certainly makes a most pleasing combination.

A break in the red shades can be made by the deep orange or salmon pink *R. dichroanthum*. This variable species reaches in some forms a height of 6 feet and is an excellent grower. It has given rise to one of the best known hybrids R. 'Fabia' (*dichroanthum* × *Griersonianum*) a really fine plant perhaps at its best in its variety 'Tangerine' with orange-red flowers. Other good hybrids of *R. dichroanthum* are R. 'Burning Bush' (*dichroanthum* × *haematodes*) R. 'Arma' (*dichroanthum* × *repens*) and R. 'Sea Nymph' (*dichroanthum* × *chaetomallum*).

Rhododendron aperantum has not gained the popularity that it deserves due no doubt to it being rather difficult to establish in some districts. It appears to like company and several plants will grow closely together and form a vast spreading mass of not more than 18 inches in height. It succeeds best in semi-shade and needs ample moisture during the summer months. When grown as a mass owing to the great variation in this species one gets flowers of deep rose, white, orange and yellow with of course many intermediate shades. Of its hybrids R. 'Blush' ('Ouida' × *aperantum*) with flowers of soft pink and R. 'Aperemia' (*aperantum* × 'Choremia') with deep red flowers are probably the best.

The Sanguineum group is somewhat confused in its naming

but it contains several fine dwarf plants for the small garden. The deep black-crimson flowers of *R. didymum* and *R. haemaleum* are attractive in their distinctive way and both are good growers. *R. roseotinctum* has a charm all of its own with its white flushed rose bell-shaped flowers. Another species with unusual flowers is *R. parmulatum* which has creamy flowers with plum coloured spots. All these reach a height of about 4 feet and would form an unusual but charming corner of the garden.

With its distinctive small heart-shaped leaves and spreading habit *R. Williamsianum* is well to the forefront of the best dwarf species. It rarely reaches more than 3 feet in height and when well grown is covered with numerous small trusses of clear shell-pink bell-shaped flowers. Although it needs an open position to flower well, it must be shaded from the hottest sun and have ample moisture. It has one drawback, its most attractive bronze young shoots are very prone to damage by late frosts and in the colder districts it is well worth giving some temporary shelter during a frosty period. When seen at its best there is no doubt that this Rhododendron is worthy of the illustrious name it bears.

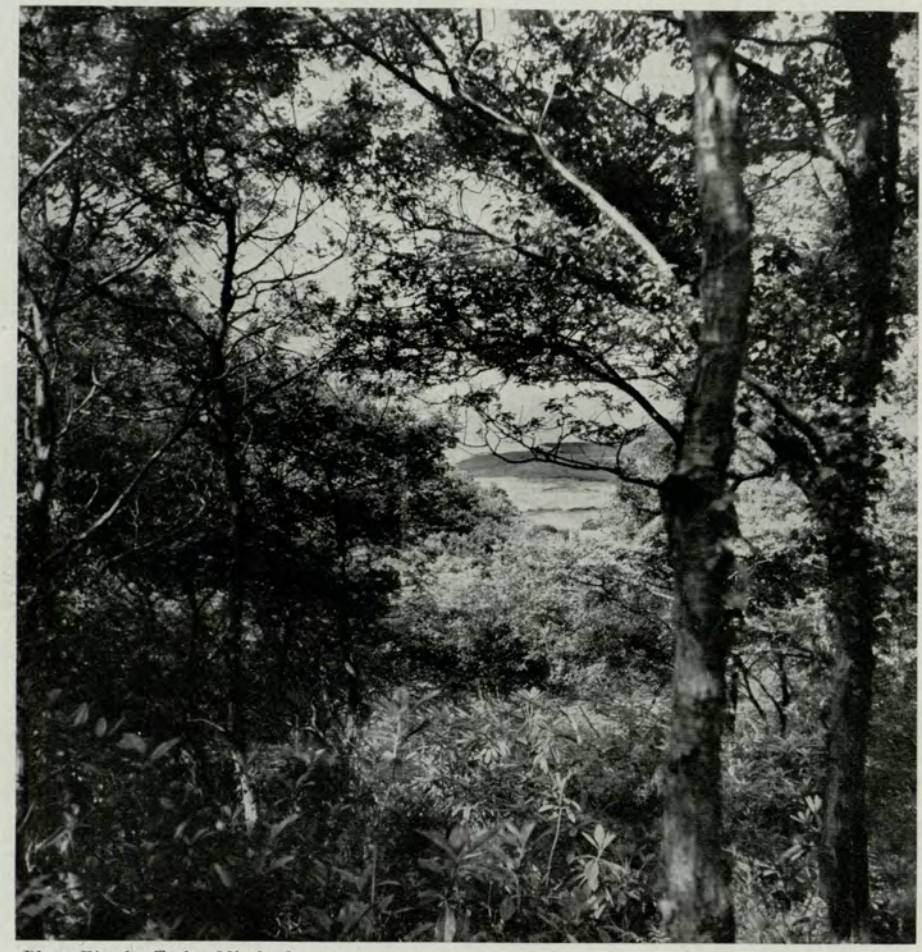
It has been much used as a parent and its offspring are bound to gain in popularity in the gardens of the future. Of very close growth and forming a neat rounded bush up to 3 feet R. 'Humming Bird' (*Williamsianum* × *haematodes*) produces its deep cherry red flowers at the end of April. It makes a charming picture and the best forms combine admirably with the other pink and yellowish *Williamsianum* hybrids. Two hybrids of rather similar growth and flower are R. 'Cowslip' (*Williamsianum* × *Wardii*) and R. 'Moonstone' (*Williamsianum* × *campylocarpum*). Both help to supply the less common yellow shades and make a break amongst the deeper colours. The dwarfer R. 'Varna' (*Williamsianum* × 'Caman') shows great variation in colour and may be pink, yellow, or orange with many intermediate shades. Amongst the more typical pinkish hybrids R. 'Carola' ('Ouida' × *Williamsianum*) R. 'Wilbar' (*Williamsianum* × 'Barclayi') and R. 'Pallida' (*Williamsianum* × *Griffithianum*) are the best of the dwarfer varieties. A really charming group can be made with these neat hybrids with their rounded foliage and bell-shaped flowers.

The more tender Boothii Series provides some really distinctive Rhododendrons for the milder counties, but two members are well worth a trial in all parts of the country. *R. leucaspis* needs a sheltered position, for it is at its best early in March when the large flattish white flowers with dark anthers are

Photo, A. T. Johnson

RHODODENDRONS AS EVERGREENS

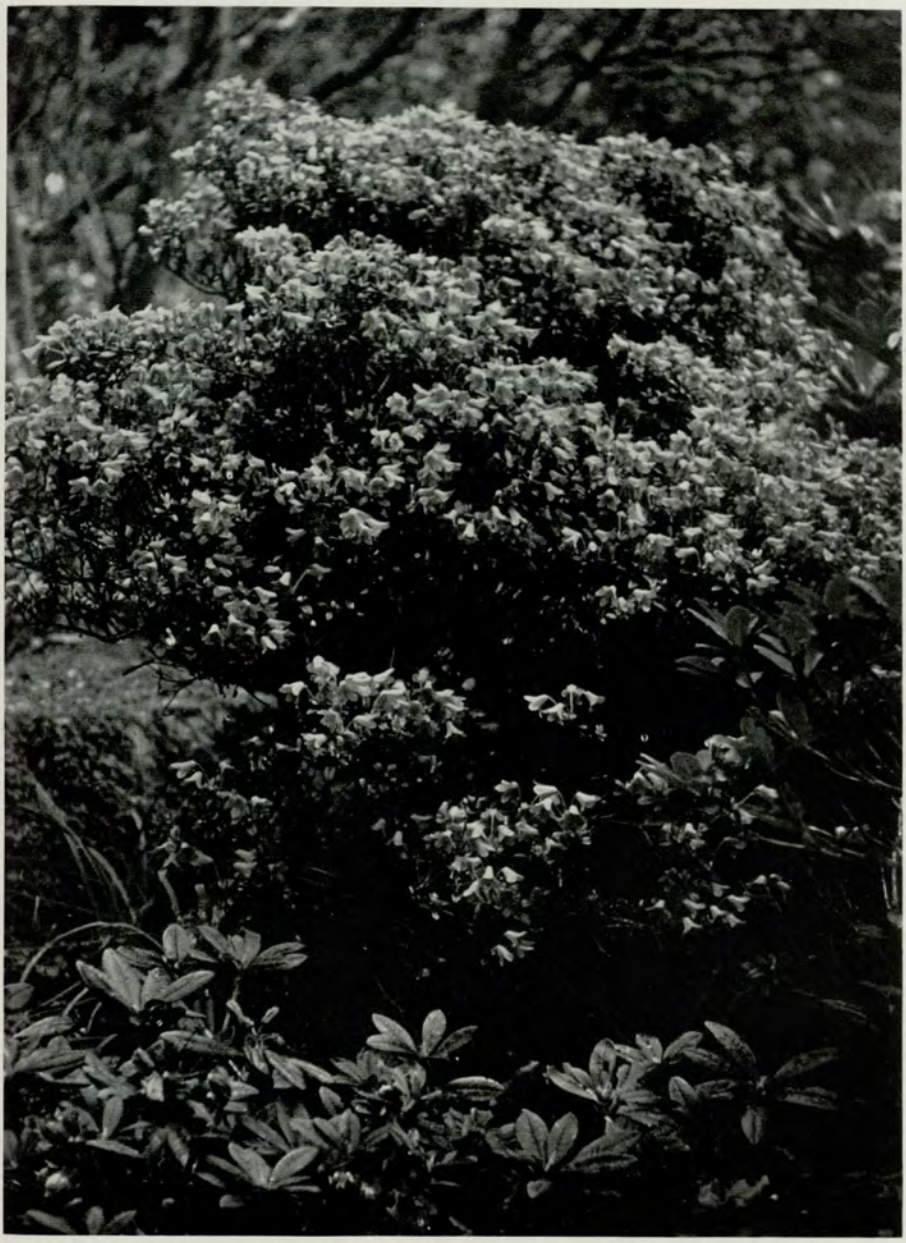
FIG. 20—The white kid-like leaves of *R. coriaceum* (See p. 21)



Photo, Kingsley Tayler, Minehead

FIG. 21—Rhododendrons in Mr. Norman Hadden's garden in West Somerset

(See p. 23)



DWARF RHODODENDRONS FOR THE SMALL GARDEN

FIG. 22—*R. campylogynum* at Bodnant (See p. 34)

Photos, N. K. Gould

DWARF RHODODENDRONS FOR THE SMALL GARDEN

FIG. 23—*R. racemosum*, Forrest's dwarf form at Wisley, 1950
(See p. 35)

FIG. 24—*R. oreotrephes* at Wisley in 1950

most attractive. *R. tephropeplum* flowers in April producing its rose-plum blossoms in abundance. These species are hardier than is generally supposed, but the dainty *R. megeratum* can only be recommended for sheltered districts.

One of the earliest of the hardy dwarfer species to flower is *R. moupinense*, and in February providing the frost keeps away the white or pinkish flowers give a foretaste of the great wealth of colour to come. A fine garden plant but a little later in flowering is R. 'Cilpinense' (*ciliatum* × *moupinense*). It is very free flowering and is covered with a mass of pinkish-white flowers. R. 'Bric-a-Brac' (*moupinense* × *leucaspis*) has flowers of white similar to *R. leucaspis* in shape and forms an equally neat bush.

Plants of the distinctive Cinnabarinum Series make a most interesting group with their characteristic narrow tubular flowers held in loose trusses that hang down and provide a cascade of intense colour. For the dwarf garden all but *R. concatenans* are somewhat tall except for use as a background or spot plants. The most attractive glaucous foliage makes *R. concatenans* a plant to be admired throughout the year and when accompanied by its rather open apricot flowers, it certainly presents a unique picture. It usually reaches a height of 4 to 6 feet and several new hybrids of somewhat similar height have been produced. R. 'Peace' (*concatenans* × *caeruleum album*) with white rather tubular flowers and R. 'Conroy' (*concatenans* × *cinnabarinum* var. *Roylei*) with deep orange flowers with a touch of red make an ideal combination, when planted together.

The closely related Triflorum Series also contains many fine tall Rhododendrons but in *R. Hanceanum* and *R. Keiskei* it gives us two of the finest yellow dwarf species. The best form of the former, variety *nanum*, is ideal for the front of the garden, reaching little more than 9 inches in height and having upright trusses of pale yellow flowers. *R. Keiskei* is also very dwarf and its lemon yellow flowers are freely produced at the end of March. Rather similar to *R. concatenans* mentioned above but with more tubular flowers *R. xanthocodon* is equally worth growing.

The large Lapponicum Series provides many species for the small garden coming as they do from some of the highest altitudes. Although blue and mauves are the predominant shades there are yellows and an odd white. In nature they must provide a wonderful mass of colour and form a covering to the hillsides like that provided by heather in this country. Many of the species have a neat compact habit but others

become rather straggly and may need to be cut down to the ground when they will shoot away freely from the base in favourable districts. They are very easily propagated from cuttings and it is best to have a reserve of small plants to replace any losses. They require ample moisture to succeed well and any dead branches caused by their compact growth should be cut away in the winter.

One of the strongest growers is the lilac-rose or lavender *R. hippophaeoides*, whilst the dwarfer *R. impeditum* has light purplish-blue flowers. *R. russatum* is always outstanding in a collection for its deep purplish blue blossom and others of note are *R. intricatum*, *R. fastigiatum*, *R. ravum*, *R. scintillans*, and *R. orthocladum*. The best yellows are *R. chryseum* and *R. muliense*, being dwarfer than *R. flavidum*, whilst the interesting white species *R. microleucum* is well worth consideration.

The true blue Rhododendron has perhaps not yet been produced but the hybrids between the Triflorum and Lapponicum Series are certainly rapidly advancing towards this goal. The Triflorum used is naturally *R. Augustinii* and at least four fine hybrids have been produced, R. 'Blue Diamond,' R. 'Blue Tit,' R. 'Russautinii' and R. 'Bluebird.' They are all excellent plants for any garden with the latter if anything being the truest blue. Another fine Lapponicum hybrid in the less common yellow shade is R.'Yellow Hammer'(*flavidum* × *sulfureum*). It is a most upright grower and forms a spire of dainty tubular flowers up to 8 feet in height and is ideal for planting amongst the dwarfs to give the garden some height.

The Saluenense Series contains some of the dwarfest species, *R. prostratum* and *R. radicans* being only about 4 inches high. They creep over the surface of the ground forming a mound of purplish flowers during April and May respectively. They are none too easy to do well but once established in a fairly moist position soon cover a large area. *R. saluenense* itself has most attractive silvery foliage and forms a small bush 2 feet in height with purplish-crimson flowers.

It is very difficult to say which is the most fascinating of all the species but *R. campylogynum* (Fig. 22) and *R. myrtilloides* are certainly two which would always be placed high on the list. They both form very dwarf creeping bushes not above a foot in height and with their plum or reddish-black flowers held well above the foliage of deep green present a most pleasing plant for the edge of the bed. They love to grow amongst rocks and scramble freely over them enjoying the extra moisture and coolness at the root which they provide.

Their near allies in the Glaucum Series *R. charitopes* and *R. glaucum* itself are much stronger growers and form spreading bushes from 2 to 3 feet in height. *R. charitopes* has pinkish flowers which are deeply spotted and *R. glaucum* also produces pinkish flowers. It is perhaps at its best in the dwarfer so-called Mountain form which has larger and deeper pink flowers.

The Anthopogon and Cephalanthum Series contain many gems. The Anthopogons are all dwarfs up to 2 feet in height and form rather upright plants. The small tubular flowers are arranged around the tips of the young shoots and in *R. anthopogon* are pink, *R. Collettianum* white flushed pink and *R. tsarongense* white with a yellow tube. Of the Cephalanthums *R. Sargentianum* with beautiful lemon-yellow flowers must certainly be grown. It is dwarf and ideal for this type of garden. The taller *R. radinum* is also very fine with white tinged pink blossoms whilst in *R. ledoides* the pale rose flowers are arranged in compact balls. Other equally good plants are *R. sphaeranthum*, *R. crebreflorum*, and *R. cephalanthum*. This group of Daphne-like flowered Rhododendrons are none too easily grown but are well worth a little extra care. They like a little shade and plenty of moisture and a very acid soil.

Strangely enough the Ponticum Series provides the lovely *R. yakusimanum* suitable for the milder districts. In bud it is a most attractive pink opening to produce countless white flower heads. *R. chrysanthum*, also from Japan, has pale yellow flowers, and both need special care if they are to flourish.

Rhododendron racemosum is well known but it is most variable and can either be very poor or very good. The better forms, especially the very deep pink variety are worth a place in every garden and their flower laden branches form a mass of colour (Fig. 23). *R. virgatum* is also a most attractive plant and where it does well produces an abundance of its larger mauve-pink flowers.

Quite distinct in flower is the group formed by *R. scabrifolium*, *R. spiciferum*, and *R. spinuliferum*. The latter is sometimes 6 feet in height but its deep red tubular flowers with their protruding anthers and stamens always command attention. *R. spiciferum* with pinkish flowers and *R. scabrifolium* with white or pink flowers are both dwarfer plants but are not altogether hardy in all parts.

From the Taliense Series comes the lovely *R. Wasonii*. In its yellow form it is a really fine plant with most attractive dark green foliage felted beneath with deep reddish-brown indumentum. The pinkish form is also attractive and has long been known as *R. rhododactylum*.

The rather difficult Lepidotums can only be recommended to the enthusiast. *R. Baileyi* with dark purple flowers, the dwarfer *R. imperator* and the creeping *R. patulum* provide a trio which need much skill to grow successfully.

One of the newest species, *R. Aberconwayi*, will certainly be a great favourite in future years. Its typical saucer-shaped white flowers are flushed with pink and remind one of the beautiful *R. Souliei*. It is very free flowering and a good grower with quite distinctive leaves.

The many species mentioned are only a few of many more which would naturally find a place in most small gardens. Hybrids of all shades are being constantly produced and many have a rather complex parentage. This gives greater variation in the resulting offspring but many of these are most excellent garden plants. R. 'Kenneth' ('Elizabeth' × 'Hiraethlyn'), R. 'Abessa' ('Elizabeth' × 'Laura Aberconway') and R. 'Dainty' ('Elizabeth' × 'May Day') all show the influence of the lovely R. 'Elizabeth' and are really fine dwarf hybrids. Others of note are R. 'Charmaine' ('Charm' × 'May Day') a most delightful blood-red hybrid no more than a foot high, R. 'Ruth' ('Barclayi' × 'Ethel') and R. 'Ramillies' ('Ethel' × 'Redwing').

No article on dwarf Rhododendrons could end without mention of the lovely Azalea Series. Their brilliant shades and pastel colours make them quite distinct and if kept away from the brilliant reds of the dwarf Rhododendrons and associated more with the blues and pink shades some lovely schemes can be planned.

The deciduous species in the form of *R. Albrechtii* (bright rose), *R. Schlippenbachii* (pale rose-pink), *R. pentaphyllum* (rose-pink) and the popular *R. Vaseyi* will form a colourful corner during March, April and May.

The evergreen Azaleas need a little more shade and a damper situation but where they thrive they are the ideal plant for any garden. The Kurumes form a carpet of many colours if planted in a mass but look equally beautiful if planted in groups of each variety with an under planting of dwarf Ericaceous plants. The newer race containing *R. indicum* blood have larger flowers but have yet to prove themselves in this country.

When planning a garden of dwarf Rhododendrons it will be found that a few plants of the taller upright varieties will help to relieve the general effect and to accentuate the raised portions of the valleys. There is not a wide choice of suitable plants but the Triflorum Series and Cinnabarinum Series contain several which serve the purpose admirably. The lovely

blue *R. Augustinii*, the pink *R. Davidsonianum* and the white *R. caeruleum album* are all of fairly upright habit. The yellow shades can be provided by *R. lutescens* and the pink or white forms of *R. yunnanense* also look well. *R. cinnabarinum* and its variety *Roylei* are equally suitable and these can be supplemented by their hybrids, R. 'Yunncinn,' R. 'Oreoroyle' and R. 'Oreocinn.' The two fine hybrids from Exbury 'Lady Chamberlain' and 'Lady Rosebery' with their many shades should always be incorporated into the general scheme.

The dwarf Rhododendrons provide a wealth of interest in the garden, for in a small space representatives of the whole genus can be planted together and blended so as to give a colourful display from February until the end of June. They are most fascinating and a joy to cultivate and the grower will be greatly rewarded for his energies. As garden plants they are supreme but until more consideration is given to the garden value of plants rather than their show capabilities few prizes will come his way. The hybrids show great progress and the future will undoubtedly produce plants much superior to those which we consider the best to-day.

SIR JOSEPH HOOKER AND THE RHODODENDRONS OF SIKKIM-HIMALAYA

By PATRICK M. SYNGE

JOSEPH HOOKER was the first of the great Rhododendron collectors. Although prior to his journeys a few Himalayan species had been sent home, chiefly through the efforts of DR. WALLICH, the Curator of the Calcutta Botanic Gardens, and MR. GRIFFITH, who had journeyed in Bhutan, the great richness in species of the range was still unknown. Those sent home by JOSEPH HOOKER are among the finest of all garden and cool greenhouse species of Rhododendron, while from them has been raised a vast flowering and ever-increasing pyramid of notable and beautiful hybrids. It is hardly possible to go round any garden, however small, in which Rhododendrons are grown without passing plants either of species collected by HOOKER or of hybrids derived wholly or in part from them—*Thomsonii*, *barbatum*, in part *Griffithianum* (*Aucklandii*), *Falconeri*, *triflorum*, *campylocarpum*, *cinnabarinum* and *cinnabarinum Roylei* are only a few which immediately spring to mind.

So it is very fitting that Rhododendron lovers should pay tribute to JOSEPH HOOKER in this Year Book.

In addition JOSEPH HOOKER must have been a very remarkable man, and he has also left us a great legacy of books and journals.

Blessed with a seemingly infinite fund of enthusiasm and gifted with very considerable powers of accurate observation, JOSEPH HOOKER lived his ninety-four years in a time of the greatest scientific development and change and himself contributed in no small amount to this change. As a friend and confidant of CHARLES DARWIN he doubtless played a part in the great crystallization of the theory of evolution. In fact his biographer LEONARD HUXLEY even writes "The story of JOSEPH HOOKER'S life-work is, in one aspect, the history of the share taken by botany in establishing the theory of evolution and the effect produced upon it by acceptance of that theory. He began with unrivalled opportunities, and made unrivalled use of them. As a botanist he was born in the purple, for in the realm of Botany his father, SIR WILLIAM HOOKER, was one of the chief princes, and he had at hand his father's splendid herbarium and the botanic garden."

SIR WILLIAM HOOKER was Professor of Botany at Glasgow during JOSEPH'S boyhood and student days, and in addition to

the academic side of University life and botany, the Highlands were close, and many were the long collecting expeditions from Loch Lomond northwards and westwards in which the HOOKER brothers indulged, at first led by their father and in company with his students, later on their own. It was magnificent training ground for the Himalaya. Even at the early age of six JOSEPH HOOKER is recorded as having referred to a moss by its full Latin name, both generic and specific, although he admitted later that his identification was incorrect. From his mother, a daughter of MR. DAWSON TURNER, F.R.S., of Norwich, he may well have learnt, in addition to more scientific interests, an understanding of art and an aptitude for drawing, she being descended from the COTMANS. His biographer remarks again, however, that "his faculty was that of the copyist rather than the art lover," but surely this is a most useful attribute for the botanical artist, one of the most specialized of all forms of artistic work. As a young man he was also as keen on insects as on plants and formed a large collection.

In September 1839 HOOKER, then only 22, sailed as botanist and assistant surgeon in the *Erebus* on ROSS's Antarctic expedition and was away for four years, visiting in that time S. Africa and Australia, Tasmania, New Zealand, Tierra del Fuego and the Falkland Islands, as well as the Antarctic regions, and for over half a century the expedition held the record for journeying furthest South.

The regions beyond the Antarctic Circle, however, yielded very little for the botanist, and much of his time was spent with the tow net studying the marine plankton. His results were published, on his return, in six quarto volumes. While JOSEPH HOOKER was away his father moved to Kew where he was appointed Director in 1841.

He returned from the lengthy voyage in September 1843, just four years after he had left. The next four years he spent chiefly at Kew working with his father in his herbarium and preparing his *Flora Antarctica*, but he also lectured for a time in Edinburgh, where he was disappointed of the Professorship, and travelled over the country and in Ireland for the Geological Survey. However, no settled post appeared and he began to turn restless eyes towards another expedition, this time to some tropical mountain range. His biographer has recorded that one of his early favourite books was TURNER'S *Travels in Tibet* with its first description of the great mountain Chumalhari. He was to be the first European to approach Chumalhari since TURNER'S embassy in 1783. The Eastern Himalaya and the Sikkim valleys up to the snows of the Tibetan frontier were then practically

unknown and Sikkim was under our Protectorate. With the powerful aid of LORD AUCKLAND, the First Lord of the Admiralty, to whom HOOKER as a naval officer still owed at least nominal allegiance, and DR. FALCONER, a former Indian Resident and now Vice-President of the Royal Society, the necessary arrangements were made for an official mission, and a grant was made by the Treasury of £400 per year for two years, a meagre enough sum when the present costs of Himalayan expeditions are considered. However, HOOKER received much official aid and he sailed for India in November of 1847, in the *Sidon* with LORD DALHOUSIE, the new Governor-General, whose suite he was invited to join at Cairo. The help of LORD AUCKLAND and LORD DALHOUSIE was commemorated by HOOKER with the dedications of two of the finest Rhododendrons.

Before he left, two events gave him particular pleasure, in 1847 he was elected a Fellow of the Royal Society, surely, at the age of thirty, one of the youngest Fellows ever elected. DR. WALLICH has recorded that he had a "vast majority, a majority much greater than any among the eight candidates that were successful." In this period also began his lifelong friendship with CHARLES DARWIN, and as early as 1845 DARWIN was warning his friend to beware of overwork and prescribing a novel prescription. " You ought to have a wife to stop your working too much, as MRS. LYELL peremptorily stops LYELL"—a prescription which HOOKER followed in July 1847 when he became engaged to FRANCES HENSLOW, daughter of the Cambridge Professor of Botany. After one of HOOKER'S visits to Down House, DARWIN writes, "I learn more in these discussions than in ten times over the number of hours reading."

It was January when he arrived in Calcutta and much too early in the year for any Himalayan travel, so he filled in the time with local collecting expeditions in the little-explored hills of South-west Bengal and working in the famous Botanic Gardens built up by DR. WALLICH and GRIFFITH. No Rhododendrons were found on these journeys in Bengal. However, in the spring he travelled up to Darjeeling and there entered the Rhododendron country. Here he found a kindred spirit in MR. HODGSON, a well-known zoologist and former Resident at the Court of Nepal, and HOOKER made his home with him when in Darjeeling. Probably he could have found no more knowledgeable host on Indian geography, natural history and ethnology. To him HOOKER dedicated *Rhododendron Hodgsonii*, one of the finest of the large-leafed Rhododendrons. HOOKER'S other great friendship here was with DR. CAMPBELL, the political agent to Sikkim, for whom *Magnolia Campbellii* was named. The

Rhododendron named after his wife is less grown, and is now generally regarded as a subspecies of *arboreum*. Later they travelled together.

Travel in the mountains was not easy then. There were few paths, and even the main ones were without the rest houses since built. HOOKER's object was to reach the snows. To do this it was necessary to plunge into deep valleys and then climb up again to traverse precipitous mountain spurs, while the tracks and bridges of swinging bamboo, where they existed, were both liable to destruction from torrential rain and landslides. In the lower forests there would be leeches and constant humidity and tangled lianas, while in the high valleys there would be bare moorlands and rocky defiles where only a few poverty-stricken herdsmen lived and where the nights were freezing.

Political difficulties also intervened as they do to-day in so many parts of the Himalaya. The RAJAH OF SIKKIM, although maintained on his throne against the Bhutanese by British influence, appeared to be largely under Chinese influence and did all he could to discourage British travellers.

HOOKER's first trip took place in May, when he went into Sikkim territory as far as the junction of the rivers Rungeet and Teesta. He brought back three species of Rhododendron which he described as "one scarlet, one white with superb foliage and one the most lovely thing you can imagine; a parasite on gigantic trees, three yards high, with whorls of branches and 3–6 immense white, deliciously sweet-scented flowers at the apex of each branch. It is the most splendid thing of the kind I have ever seen, and more delicate than the others." This must have been *R. Dalhousiae*, named after the wife of the Governor-General, which forms the frontispiece and one of the finest plates in the volume of *The Rhododendrons of Sikkim-Himalaya*. The frontispiece (Fig. 26) showing the plant as an epiphyte is a plate of unusual charm, while he writes there, "Certainly, whether we regard the size, the colour or the fragrance of the blossoms of this plant, they are the noblest of the genus Rhododendron. The odour partakes of that of the Lemon. In age the flowers assume a delicate roseate tinge and sometimes become spotted with orange, which rather adds to, than detracts from, their beauty." HOOKER records that it was growing as an epiphyte on the branches of *Magnolia Campbellii*, and it is pleasant to contemplate the idea of the two in flower together, which would have been a magnificent spectacle, although probably the Magnolia would generally flower the earlier. More generally it was epiphytic on Oaks and other trees. Unfortunately, like the majority of the epiphytic Rhododendrons, *R. Dalhousiae* is tender, being rated

"F" in the *Rhododendron Handbook*. However, as a cool greenhouse plant it is well worth growing and it is a pity that it is so rarely seen. It also has another unique distinction in that with *R. Griersonianum* it is the parent of 'Grierdal,' the only Lepidote-Elepidote Rhododendron hybrid so far known. With *R. ciliatum* it is also the parent of that lovely Rhododendron 'Countess of Haddington.'

Later he records his trouble in getting seed, "for you cannot see the plant on the limbs of the lofty oaks it inhabits, except it be in flower, and groping at random in the woods is really like *digging for daylight*. . . . You must remember it is no light work to be the pioneer of these fine things. I have obtained, however, plenty of young plants and will send a tin case, direct, on my return to Darjeeling."

The scarlet Rhododendron was almost certainly *R. arboreum*, one of the very few species already known in England, having been described and figured by SOWERBY first in its good blood-red form in J. E. SMITH'S *Exotic Botany* in 1804 from a description and drawing made on the spot by CAPT. HARDWICKE in "Sireenagur" in 1796. CAPT. HARDWICKE also sent home seed, and it is possible that the first introduction was from this seed. It is not recorded when it first flowered in this country. DR. WALLICH probably sent home more seed. We do know, however, that there are still trees of this Rhododendron growing in the West of Scotland and probably some also in Cornwall from seed collected by JOSEPH HOOKER, and these have attained a very great size, probably as large or maybe even larger than in the Himalaya. *R. arboreum* has nearly always transmitted some tenderness to its hybrids, but they are excellent for the South and South-West while in the *Handbook* its recorded hybrids are only second in number to those of *R. Griersonianum*. We have only to think of 'Red Admiral,' 'Cornubia' and 'Shilsonii' for three of the best.

The large-leafed species mentioned was *R. argenteum*, now merged in the *Species of Rhododendron* in *R. grande*, but in HOOKER'S form still easily distinguished by the beautiful silvery indumentum on the under-surface. HOOKER records that its white flowers are second in size only to those of *R. Dalhousiae* while the plate shows to full advantage the lovely pink bud-scales surrounding the young leaves of the new shoot and was the one in the book which pleased HOOKER best (Fig. 27). *R. grande* was described in the *Calcutta Natural History Journal* in 1847 from a collecting in Bhutan, probably by GRIFFITH, and so takes precedence by two years over the first part of HOOKER'S work.

The monumental work on *The Rhododendrons of Sikkim-Himalaya*, edited by SIR WILLIAM J. HOOKER from the notes and

drawings of his son, was published in three parts between 1849 and 1851, while JOSEPH HOOKER was still in the mountains. The plates were drawn and engraved by FITCH from the sketches of JOSEPH HOOKER. This probably explains one or two divergencies between the plates and the plants as we know them. I doubt whether anyone has seen a truss of *R. cinnabarinum Roylei* so full and so tight or so brilliant in colour as the one portrayed, and HOOKER himself later admitted that it did not give a good idea of the plant, being from a stunted specimen growing in a very exposed position. The majority of the plates, however, are astoundingly accurate, while the classification and description of the species is so clear and thorough, that even in these unfortunate days of constant change of nomenclature, practically all the names still remain with us as the standard ones and of those few which have been merged in other species, in practically all the cases JOSEPH HOOKER'S own notes foreshadowed this. HOOKER found forty-three species of Rhododendron on his journeys and practically no species have been added since from that area. Thirty are figured and described in *The Rhododendrons of Sikkim-Himalaya.*

In the same month, May 1848, he also made an expedition to the mountains of Tonglo (10,000 feet) in the long subsidiary range dividing Sikkim from Nepal and not very far distant from Darjeeling. He recorded that it was full of botanical treasures and the top was 1,000 feet above his previous trip, thus presenting a total change in the Flora. Unfortunately it rained ceaselessly, five of his fifteen men fell sick and he had to leave behind some of the bulkier parts of his collection. HOOKER wrote a little later, "Such lots of rain was never seen nearer than the West of Scotland. Plants seem to enjoy it, for they are coming out and flowering faster than ever."

An account of this trip was published in the *Journal of the Horticultural Society* for 1852 and would still be a great assistance to anyone covering the same ground. *R. barbatum* and *R. Falconeri* were collected on this trip. The former had previously been collected by WALLICH but the latter is a HOOKER plant and in this paper he describes it as "in point of foliage the most superb of all the Himalayan species," a description with which many might still agree to-day. The rust-coloured indumentum has been inherited by its magnificent child by *R. sinogrande*, *R.* 'Fortune.' *R. Falconeri* first flowered in this country in 1856, presumably from seed or plants collected on this trip (*Bot. Mag.* t. 4924). HOOKER noticed and recorded that in spite of a remarkable growth of Hepaticae and Lichens the trunk of both Rhododendrons, owing to their smooth paper bark, were remarkably

free from mosses and liverworts, as were also the bamboos, an observation noted later by KINGDON-WARD.

An unusually interesting and later paper in the Horticultural Society's *Journal* for the same year gives his observations on the raising of Rhododendron seeds, on variations within the species and the possible occurrence of natural hybrids (he thought this unlikely, an observation also supported by KINGDON-WARD), on the soil, a sample of which he had analysed, and finally on the species, with a key and an enumeration. This paper must be considered as giving his more mature views on the species in contrast to those contained in *The Rhododendrons of the Sikkim-Himalaya*, which was largely compiled from his notes while he was still in India. The rest of the year 1848 he seems to have spent in and around Darjeeling attending to the great masses of material that his collectors brought in. At one time he had eighteen in the field and the more important plants he sketched, while he sent loads of living plants for Kew down to Calcutta for forwarding. All the collecting papers had to be changed daily and dried individually over the fire, no light task when he records that the pile from his Tonglo trip was six feet in the drying papers.

After seemingly endless negotiations with the RAJAH OF SIKKIM and much pressure from LORD DALHOUSIE and DR. CAMPBELL, HOOKER was able to set out again towards the end of October on his journey to the snows, taking a party of fifty-six. He went due West, crossing the frontier into Nepal, thence northwards to the western shoulder of Kanchenjunga and the Tibetan passes. It was late in the season and in the higher valleys the snow was beginning to fall. Nevertheless HOOKER succeeded in reaching through deep snow a pass on the divide above the 15,000 feet level and looked down into Tibet. He returned through Sikkim, meeting CAMPBELL on the way and sharing in the formal interviews between the RESIDENT with the RAJAH and his chief minister the DEWAN. After parting from CAMPBELL, HOOKER, although it was still the depth of winter, moved North again to Jongri, a deserted Yak Post at 13,000 feet on an outlying spur of the Kanchenjunga massif. The ground was frozen sixteen inches deep. It took hours to dig holes for his thermometers. HOOKER recorded that many of the mosses and Lichens he had seen last on the wild mountains of Cape Horn and the rocks of the Antarctic islands. Here also he records the two commonest of British weeds the grass (*Poa annua*) and the 'Shepherd's Purse.' However, apart from the discomforts he records that the journey yielded a rich botanical harvest. Ten species of Rhododendron, one or two of them new,

were found on the way up above the pines. He noted for the first time the heavy resinous scent of the leaves of the dwarf Rhododendron (probably *R. setosum*) and the Bhutanese ascribed their mountain sickness to this cause.

During this journey on the return at about 11,000 feet he first found *R. Hodgsonii* and acclaims at "the beauty of its foliage, which was of a beautiful bright green with leaves sixteen inches long, while the ground was covered with flakes of its bark as delicate as tissue paper and of a pale flesh colour." While not perhaps quite so spectacular in leaf as *R. Falconeri*, and with flowers of a rather dull purple, *R. Hodgsonii* is one of the hardiest of the large-leafed species, being graded "B" as against the "C" of *R. Falconeri* from a thousand feet lower. In the account of this journey also occurs his first reference to *R. Thomsonii* and *R. campylocarpum*, although it is only a passing observation on the sheep feeding on them. Perhaps it was only later that he realized what treasures he had found. *R. campylocarpum* is not figured till the last part of *The Rhododendrons of the Sikkim-Himalaya*, and by then obviously HOOKER appreciated its full value, since he writes that the shrub "when loaded with its inflorescence of surpassing delicacy and grace, claims precedence over its more gaudy congeners and has always been regarded by me as the most charming of the Sikkim Rhododendrons." He adds that the plant "exhales a grateful honeyed flavour from the lovely bells and a resinous sweet odour from the stipitate glands of the petioles, pedicels, calyx and capsules." One of the great attractions to me of HOOKER'S writing is that he mingles his artistic enthusiasm and appreciation with exact descriptions of the smallest characters, a combination which is now tending to become much rarer in present-day scientific writing. As a parent of notable hybrids of medium size which are plants for every Rhododendron garden, *R. campylocarpum* must stand very high indeed, both in this form of HOOKER'S and in the later introduced var. *elatum*.

HOOKER records that none of the Rhododendrons was in flower at this season but the species were easily recognized by their indumentum and by the shape of their seed capsules. He returned to Darjeeling on January 19, 1849, with eighty loads of his collections.

We must think of JOSEPH HOOKER at this time as the studious boyish figure portrayed by GEORGE RICHMOND in his portrait of 1855 reproduced as a frontispiece to the *Life and Letters*, rather than the bearded figure of the later, better known portraits. To this period also belongs the attractive print (Fig. 25) showing HOOKER seated on a log among the mountains, wearing a bow-tie

and cloaked, as in an academic gown, in his Bhotia coat and receiving gifts of Rhododendrons and other flowers from native figures. This print is based on a water-colour drawing made by WILLIAM TAYLER, the Postmaster-General for India. The flowers however are altered, since the original showed his Lepcha Sirdar presenting a fine spray of *Dendrobium nobile*. Probably the Rhododendrons were inserted as a tribute to his special interest in them. Of the curious combination of dress in TAYLER'S picture HOOKER wrote at the time "My dress was the puzzle, but it was finally agreed I should be as I was when in my best, a Thibetan in the main, with just so much of English peeping out as should proclaim me no Bhotea, and as much of the latter as should vouchsafe my being a person of rank in the character. So I have on a large, loose, worsted Bhotia cloak with very loose sleeves; it is all stripes of blue, green, white and red and lined with scarlet. Enough is thrown back to show English pantaloons and my lower extremities cased in Bhotea boots. My shirt is romantically loose and open with a blue neckerchief, which and my projecting shirtwrists show the Englishman. My cap is also Thibetan. . . . On the top is a silver-mounted pebble and a peacock's feather floats down my back. The latter are marks of rank."

FITCH at Kew copied and amended this and HOOKER complained of the anachronism of introducing to the foreground the fruits of *Hodgsonia* which occur in September with the Rhododendron flowers of May, a habit, however, quite in keeping with the old Dutch flowerpieces. MR. FRANK STONE made a third version, and it is probably from this that the engraved plate was taken.

Early in May 1849 HOOKER was able to set out again from Darjeeling, this time journeying through Eastern Sikkim, following the river Teesta to its head waters, passing eastward of Kanchenjunga to the passes leading into Tibet, which he was able just to enter in the region of Tungu. HOOKER optimistically wrote "I am very pleased to think that *anyone may now go*, the eggshell is broken." He described Tibet as the "most sterile country in the inhabited globe" but still was deeply interested.

It was on the latter part of this journey that HOOKER and DR. CAMPBELL were seized as hostages while the Dewan of Sikkim tried to extort better terms in the treaty between Sikkim and India and the trip of three months extended to eight. It is probable that HOOKER travelling alone would not have been molested, but DR. CAMPBELL as Political Agent and Resident was the prize. HOOKER, himself, appears to have made friends easily with the mountain peoples and to have been respected by them.

The highest pass he attained on this trip was the Donkiah at 18,466 feet, and in order to obtain a still wider view over Tibet, he scrambled up the mountain side another 1,000 feet, at that time a record for altitude in climbing. The flora at these heights was all new to him. It was from 18,000 feet that he collected *R. nivale*, which he christened 'Snow Rhododendron,' he calls it "the loftiest of all shrubs and hitherto of any known plant" and describes it as follows :

"The hard woody branches of this curious little species, as thick as a goose-quill, straggle along the ground for a foot or two, presenting brown tufts of vegetation where not half a dozen other plants can exist. The branches are densely interwoven, very harsh and woody, wholly depressed: whence the shrub, spreading horizontally, and barely raised two inches above the soil, becomes eminently typical of the arid stern climate it inhabits. The latest to bloom and earliest to mature its seeds, by far the smallest in foliage, and proportionately largest in flower, most lepidote in vesture, humble in stature, rigid in texture, deformed in habit, yet the most odoriferous, it may be recognized, even in the herbarium, as the production of the loftiest elevation of the surface of the globe—of the most excessive climate—of the joint influences of a scorching sun by day, and the keenest frost at night—of the greatest drought followed in a few hours by a saturated atmosphere—of the balmiest calm alternating with the whirlwind of the Alps. During genial weather, when the sun heats the soil to 150°, its perfumed foliage scents the air; whilst to snow-storm and frost it is insensible, blooming through all, expanding its little purple flowers to the day, and only closing them to wither after fertilization has taken place. As the life of a moth may be indefinitely prolonged whilst its duties are unfulfilled, so the flower of this little mountaineer will remain open through days of fog and sleet, till a mild day facilitates the detachment of the pollen and fecundation of the ovarium. This process is almost wholly the effect of the winds." He further records that the odour of the plant much resembles that of "Eau de Cologne."

After this magnificent description many will feel tempted to grow this little Lapponicum, but unfortunately it is not really a good garden plant and is very rarely seen, while the flowers are rather a magenta shade of purple, but the idea of introducing the "Eau de Cologne" scent might well tempt the hybridist.

HOOKER started on his fourth and last expedition with DR. THOMSON on May 1, 1850, this time to the Khasia Hills of Assam. He records that "scenery was splendid, far more beautiful than

any part of the Himalaya, and much more Brazilian in character," but the highest point was only 6,000 feet and so there were no hardy species of Rhododendron, although the flora was very rich. He found *R. formosanum* as low as 2,000 feet. This is a tender member of the Maddenii Series. He returned to England in March and settled rather uncertainly at Kew to work on his collections and the great projects of the *Flora Indica** and the *Flora Antarctica*, but in 1855 he was appointed as assistant director of Kew under his father and ten years later succeeded him as director, a post he held for twenty years, only retiring from old age. In 1855 appeared also the magnificent folio with coloured plates of Himalayan plants chiefly collected by MR. CATHCART from around Darjeeling and edited by HOOKER. There were, however, no Rhododendrons in this book. In 1854 also was published his ***Himalayan Journals***, a descriptive travel book to compare with those of DARWIN and WALLACE. In this type of book there is probably less ephemeral and topical human interest than in the modern type but much more solid information and observation, a good example of which is his observations on the time of flowering and seeding of the Rhododendrons as exemplified by the following table:

"16,000 to 17,000 feet, *R. nivale* flowers in July; fruits in September = 2 months.
13,000 to 14,000 feet, *R. anthopogon* flowers in June; fruits in October = 4 months.
11,000 to 12,000 feet, *R. campanulatum* flowers in May; fruits in November = 6 months.
8,000 to 9,000 feet, *R. argenteum* flowers in April; fruits in December = 8 months."

Among the other Rhododendrons collected were many very fine epiphytic species. Although these are too tender for English gardens outside the most favoured areas, they are most attractive plants for the cool greenhouse, where they can either be planted out or grown in large tubs or pots. Practically no artificial heat is required.

The plate (tab. XXI) (Fig. 29) of *R. Edgeworthii* is one of the finest in the whole book and HOOKER describes this plant as "a truly superb species from the size of the flowers and their roseate tinge on a white ground, also on account of the rich colour in the leaves, bracteas, stipules, calyx etc., while the very unwrinkled

* One volume of 581 pages of this work was published in 1855 with the assistance of DR. THOMSON, but unfortunately the work was never completed on this scale. The *Flora of British India*, edited by HOOKER throughout was later published in seven volumes between 1872 and 1897.

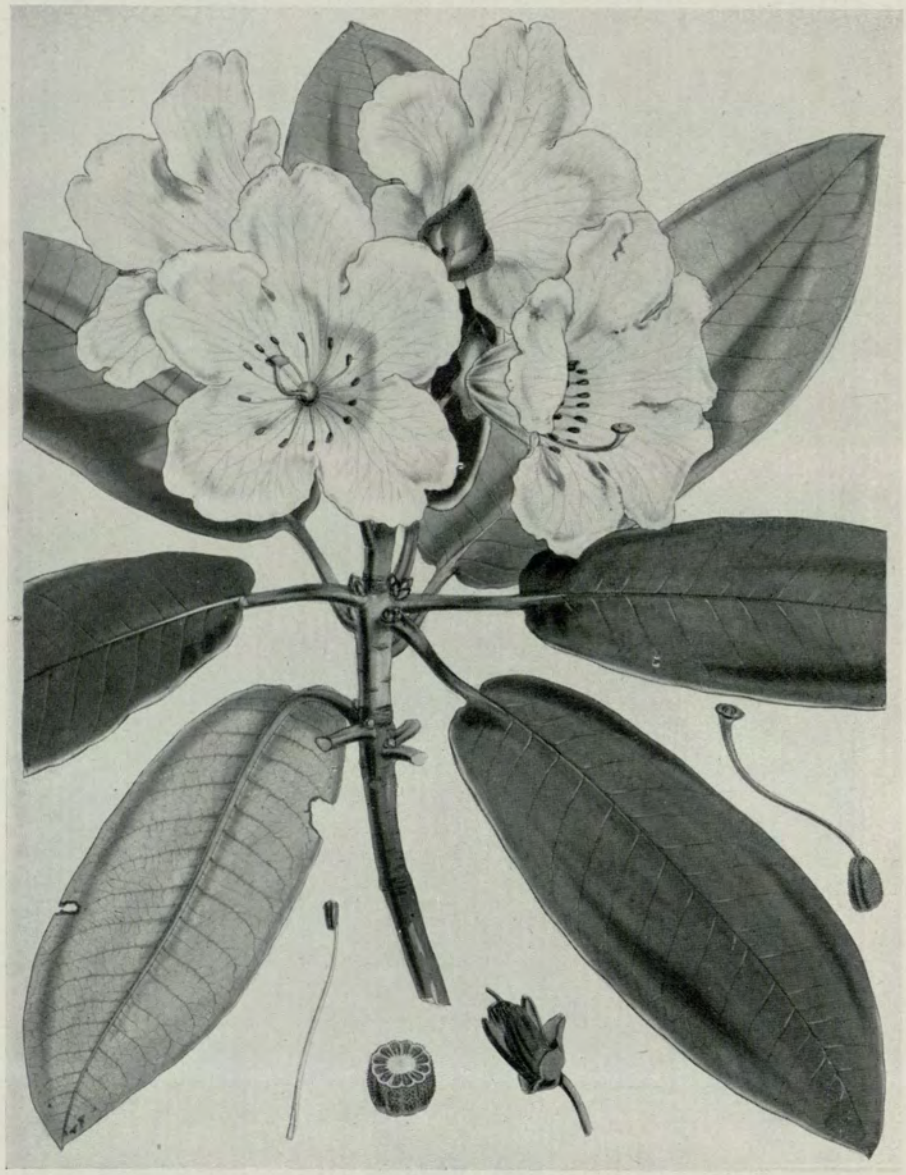
FIG. 25—Sir Joseph Hooker in the Himalaya. From an engraving by Frank Stone
(See p. 45)

RHODODENDRONS OF THE SIKKIM-HIMALAYA

FIG. 26—*R. Dalhousiae*, an epiphyte (See p. 41)

RHODODENDRONS OF THE SIKKIM-HIMALAYA

FIG. 27—*R. argenteum* (See p. 42)



RHODODENDRONS OF THE SIKKIM-HIMALAYA

FIG. 28—*R. Aucklandii* (*Griffithianum*) (See p. 49)

surface of the leaf adds much to its beauty." HOOKER seems to have been the first collector to appreciate Rhododendron foliage at its true worth and to value it as highly as Rhododendron flowers. Also epiphytic are *R. camelliaeflorum* and *R. pendulum*, two unusual plants which are rarely seen in this country. These are correctly portrayed with a pendulous habit. *R. Maddenii* from the same zone is represented by an attractive but slightly less spectacular plate, showing well the rufous colour underneath the leaves. HOOKER grouped this plant with *R. cinnabarinum* and *R. cinnabarinum Roylei*, although now it is considered as the type species of the Maddenii Series. It makes a shrub of 6–9 feet and SIR WILLIAM HOOKER in the *Botanical Magazine* compares its flowers to those of *Lilium candidum*.

The large-leafed species are well represented in the collection. We have already discussed *argenteum*, *Hodgsonii* and *Falconeri*, he also found and portrayed *R. Aucklandii*, a very beautiful species in its own right although a tender plant, and as a parent of fine hybrids one of the most valuable plants ever introduced. HOOKER recorded that the flowers were the largest of the genus that he knew (Fig. 28). He had at that time probably not seen *R. Nuttallii* from Bhutan. In his synopsis of Himalayan Rhododendrons, however, published in *H.S. Journal*, 1852, p. 94, he comes to the conclusion that this is a very variable plant but is synonymous with *R. Griffithianum* of DR. WIGHT'S *Icones*, the prior publication. He comments that the drawing in this later work "seems to have been prepared from very bad materials." *R. Wightii*, although of the Lacteum Series, might also be said to come into this group of the larger-leafed species, and HOOKER observes that it replaces *R. Hodgsonii* as one ascends the mountain, being the most prevalent species at 12,000–13,000 feet. He describes it "as yielding, in beauty of inflorescence, to none among the yellow flowered group to which it belongs."

Among the species of the lower zones he also lists *R. ciliatum* and *R. virgatum*, although I doubt whether FITCH'S plate of the former does justice to the plant, particularly in colour.

It was among the species of the middle or alpine zone from 10,000 to 14,000 feet which he compares to the alpine region of Southern and the sub-alpine of Middle and Northern Europe, to the climate of Scotch Fir, etc., that HOOKER found the greatest richness of Rhododendron.

Here were *Falconeri* and *Hodgsonii* up to 12,000 feet, *Thomsonii* (with which he lumped *candelabrum*) up to 13,000 feet, but in moist valleys, *Wightii* up to 14,000 feet, *campanulatum*, one of his most valuable finds, up to 14,000 feet, and *Wallichii*, which HOOKER first considered to be a separate species and then reduced

to a variety of *campanulatum* and which DR. COWAN has recently raised again to specific status, and *fulgens* up to the same height. *R. lanatum* was found in Eastern Nepal and in Sikkim from 10,000 to 12,000 feet and the beautiful portrait shows well the thick white woolly indumentum of the under-surface of the leaves. This species is not very common in English gardens and is reported to be shy-flowering. In this zone he also found *campylocarpum* and *cinnabarinum*, in which he later included *Roylei* as a variety, an arrangement still followed, and *glaucum* (now under an unfortunate application of the homonym rule to be known as *glaucophyllum*). In this zone ranging from 12,000 to 13,000 feet he also places *R. pumilum*, the smallest of all the Sikkim Rhododendrons, but an attractive species.

As species of the Upper or "Arctic" zone from 14,000 to 18,000 feet he lists *R. lepidotum* (in which he includes *elaeagnoides*, *obovatum*, and *salignum* as varieties) *anthopogon*, *setosum* and *nivale*. HOOKER well realized the extreme variability of *lepidotum* and portrays both purple and yellow forms.

HOOKER realized in his day the problems of nomenclature with which we are only too familiar to-day and in his *Life* we find these passages:

"The search for novelties loomed too large; in the absence of good organisation between botanists, mere species-mongering had led to unspeakable confusion and overlapping. Observers had given different names to the same plant in different regions; their unco-ordinated observations tended to obscurity rather than light."

"What is to become of specific Botany I cannot think. I have only last week found out that the little *Rhododendron anthopogon* described by DON, WALLICH, ROYLE, LINDLEY, HOOKER and three times by HOOKER-fil. is the very old *Osmanthus pallidus*—absolutely identical—not a variety even! I also took up the *Indian Vaccinia* and found that out of 16 species figured in WIGHT'S *Icones* no less than 9 were bad and old!"

"Man had not found what Nature indeed had denied, a common standard for differentiation between species, varieties and transitional forms; nor an independent basis for that abstraction, the specific type, so useful as a label, so dangerous as a determinant."

BIBLIOGRAPHY

HOOKER, J. D. *The Rhododendrons of Sikkim-Himalaya* (Edited by Sir W. J. Hooker) 1849–51.

—— "Notes, chiefly botanical, made during an excursion from Darjeeling to Tonglo." (*J. Hort. Soc.* 1852. Vol. VII, pp. 1–23.)

—— "On the climate and vegetation of the temperate and cold regions of East Nepal and the Sikkim-Himalaya Mountains." (*J. Hort. Soc.* 1852. Vol. VII, pp. 69–131.)

—— *Himalayan Journals; or notes of a naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia mountains, etc.* 2 vols. 1854, reissued 1 vol. 1905.

—— *Illustrations of Himalayan Plants.* Chiefly made for the late J. F. Cathcart, 1855.

—— and THOMSON, T. T. *Flora Indica.* Being a systematic account of the plants of British India together with observations on the structure and affinities of their natural orders and genera. Vol. 1, 1855.

HUXLEY, LEONARD. *Life and Letters of Sir Joseph Dalton Hooker.* 2 vols, 1918.

SMITH, JAMES EDWARD. *Exotic Botany.* Vol. 1, 1804.

RHODODENDRON GROWING IN THE PACIFIC NORTH-WEST

By GEORGE D. GRACE

THE growing of Rhododendrons in the Pacific Coast of America, extends roughly from the region of San Francisco, California, on the south to Alaska on the north, and from the Cascade Mountains in Oregon and Washington to the Pacific Ocean. This is a strip of land up to 100 miles wide and is the territory covered by our native species *R. californicum*, also known as *R. macrophyllum*.

The planting of Rhododendrons in gardens east of the Cascade Mountains has been successful in some cases with special care, but this area is not considered suitable for Rhododendrons on account of cold winters and hot dry summers.

The weather in the western part of Oregon and Washington, wherein I shall confine my remarks, is varied. Along the coast line it is rather cool in summer and seldom has much frost during the winter, with an average of 51·2°, of course varying somewhat in different localities. In the valleys between the Coast Range of Oregon and the Olympic Mountains in Washington and the Cascade Range, which includes the Puget Sound area, lies the centre of population where naturally the growing of Rhododendrons has taken to the garden. The temperature in this region in many ways is similar to that of the British Isles.

The south-west coast of Oregon and Washington is somewhat like Cornwall, and inland is much like that near London or Edinburgh. The rainfall averages about 41·89 inches annually and usually is very plentiful from October to May. June, July, August and September usually require some artificial irrigation, especially during some rather dry spells. Fortunately most years this area is quite free from late spring frosts.

The uncultivated land, consisting mainly of valleys and mountains, is covered generally with dense growth of evergreen conifers such as Fir, Hemlock, Spruce, Cedar, and in some localities Pine. Intermingled with these there is an abundance of Alder, Maple, Ash, Oak and Willows, the hillsides often sprinkled with Dogwood, Madrona and a host of other plants and trees.

R. californicum, which is literally scattered over millions of acres in the Pacific North-west, while not accorded any stars and not used in the making of new hybrids, need not apologize to anyone for it is indeed a magnificent plant in nature. I have

driven through miles of the Oregon Coast Highway, flanked on either side by this Rhododendron in full bloom, with its soft pink covering the hillsides with its marvellous beauty. Such scenes can be duplicated many times throughout Oregon and Washington (Figs. 30 and 31).

A dozen years ago, on the south-west coast of Oregon within view of the blue Pacific Ocean, I found a very fine group of these plants covering about fifty acres. I noticed shades of Rhododendrons from pure white to deep pink or rose colour, some of the specimens growing to at least 25 feet high, some of them very exceptional specimens and selected forms. I dug up one of these plants for my garden and each season it literally covers itself with blooms. I have been asked many times for the name of this supposedly fine hybrid. Incidentally *R. californicum* is the State flower of the State of Washington.

I would not do justice to my section of the country if I did not mention that grand species *R. occidentale* whose natural habitat is South-western Oregon and North-western California. It certainly is one of the most beautiful shrubs to be found in the United States. In April I visited in the heart of the *occidentale* country near Brookings, Curry County, Oregon. In this beautiful setting along the ocean to the west and the Coast Range covered with evergreen trees to the east, the State of Oregon has set aside an Azalea State Park. Included in this is also a large acreage of selected specimens of fine Azaleas for the public to enjoy. Many of these plants were in full bloom. During the blooming season, which lasts for several months, one can drive for miles with the roadside fringed with their beauty. The blooms are quite varied from white to rose and apricot with intermediate shades. Their fragrance in the wild is most delightful. They are readily adaptable to cultivated gardens and parks and may be seen in many collections. In Laurelhurst Park, Portland, may be seen a very fine old collection of *R. occidentale* covering the hillside. Recently while travelling down the Sacramento River Canyon I could see these plants in full bloom bending out over the water. *R. occidentale* seems equally at home on the mountainside in exposed positions as in the moist semi-swamp condition where they are perfectly happy and respond with vigorous growth.

The past twenty-five years has seen a tremendous growth of interest in both species and hybrid Rhododendrons. There are many fine old specimen plants throughout the North-west. A number of the old hardy Waterer hybrids came to Portland around the year 1905–06. These were brought to Portland by the British Government for display at the LEWIS & CLARK Exposition and found their way into the older gardens and parks.

Among them are 'Fastuosum flore pleno' and allied Ponticum hybrids, 'Madame Masson,' 'The Bride,' 'Old Port,' 'Caractacus,' 'Lady Grey Egerton,' 'Cynthia' and others. To-day these very fine specimens may be seen. In the 1920's 'Pink Pearl,' 'Alice,' 'Doncaster' and 'Gomer Waterer' were planted extensively. At the present time 'Pink Pearl' is by far the most widely grown hybrid in the average garden.

One of the outstanding characters in Oregon Rhododendron lore was the late E. J. MISCHE, a highly trained plantsman who made many fine plantings of Rhododendrons in Portland parks around 1907–12 including some very fine plantings of *R. japonicum* (*Azalea mollis*), *R. occidentale* and other species. These are still one of the finest sights to be seen in the Portland area. MR. MISCHE was the first exchange student from Kew Gardens. He created the Peninsula Rose Gardens, Laurelhurst Park, and other outstanding beauty spots in Portland. He later produced the famous Rockefeller Roof Garden in New York City.

The park system in Portland is fortunate in having hundreds of Triflorums. No doubt the seeds of these plants are from the DR. ROCK expedition in Western China. These consist mainly of *R. Augustinii*, *yunnanense* and *Davidsonianum*.

In the South-west district of Portland, at Broadway and Lincoln Street, are six different plantings of these species. It is truly a remarkable sight during the blooming season with the *R. Augustinii* predominating and the *R. yunnanense* and *R. Davidsonianum* sprinkled among them.

The cemeteries in and around Portland contain many very fine specimens of old hardy type Rhododendron hybrids. There is one plant in Lincoln Memorial Park about 18 feet high and 12 feet wide that is a favourite, and I seldom fail to make a special trip each season to see this particular plant alone, and to-day I have one in my garden. I have never been sure of the correct name of this fine old hardy hybrid. I don't see how we can altogether rule out some of the fine old hardy hybrids such as 'Cynthia,' 'Gomer Waterer,' 'Madame Masson,' and many others.

The late JAMES E. BARTO of Junction City, Oregon, who became a member of the British Rhododendron Association in 1927, has probably done more than any other person in the distribution of species Rhododendron in the Pacific North-west. By the year 1940 MR. BARTO had around 500 species of Rhododendrons and Azaleas in his collection. These came from such famous collectors as GEORGE FORREST, F. KINGDON-WARD, DR. ROCK, and DR. HU and MR. YÜ of China. The late MR. MAGOR and MR. DE ROTHSCHILD and other outstanding growers sent pollen from

England from which many hybrids were made. MR. BARTO told me shortly before his death of his many hybrid seedlings. One which he was especially interested in was *R. californicum* × *Thomsonii*. These crosses were made on very selected forms of *R. californicum*. Of these came some fine reds, some of them being able to withstand the sun for several weeks without fading. Thousands of plants, both hybrids and species, of MR. BARTO, are to be found in the gardens of collectors and growers along the Pacific Coast. MR. BARTO'S death, coupled with a disastrous fire which destroyed his home, records and many plants, was a great loss to lovers of Rhododendrons everywhere.

The American Rhododendron Society has plans to have a memorial garden planted in the very near future in his memory.

I should mention the garden of W. G. TUCKER of Fairview Boulevard, Portland, who made perhaps the earliest planting of the late English hybrids in this part of the country. For years this planting was the mecca of Rhododendron fans who wished to see a quite complete collection of the starred Rhododendron hybrids. It was always a preview for me in my earlier efforts to see those fine hybrids in bloom at their peak, which to me was an unforgettable experience.

H. H. HARMS, on Johnson Creek Boulevard, near Portland, a noted Camellia expert, also has a very fine woodland garden with an excellent collection of hybrids and species. Among these are many from the BARTO collection: *R. Fortunei*, *campylocarpum*, *arboreum*, and *neriiflorum* which are especially good. It was at MR. HARMS' garden that I saw the first R. 'Loderi' in bloom, and what an exquisite sight it was!

Among other gardens that have notable collections of fine hybrids and species are those of MR. RUDOLPH HENNY and MR. JOHN HENNY of Brooks, Oregon, and those fine gardens, in the Eugene area of Oregon, of MR. DEL JAMES, MR. MARSHALL LYONS and DR. ROYAL GICK.

MRS. A. C. U. BERRY near Portland, one of the sponsors of the original DR. JOSEPH ROCK expedition in Western China, has a very outstanding woodland garden entirely of Rhododendron species: nice forms of *R. repens*, *Griersonianum*, *aperantum*, *decorum*, *arizelum*, along with many varieties of Primula and other rock garden plants. It has always been a delight for Rhododendron fanciers to see this garden.

In the Seattle area the late DR. CECIL TERRY made a very fine collection of Rhododendron species and pioneered much interest among the early collectors in the Puget Sound area. It has been my pleasure to visit the gardens of MR. HERBERT IHRIG who has a good collection of species on Bainbridge Island, near Seattle.

The collection of MR. JAMES BRENNAN of Edmonds, Washington, overlooks the wide expanse of Puget Sound and the Olympic mountains. MR. and MRS. DON GRAHAM have one of the pioneer plantings of the English hybrids. This garden was planted more than fifteen years ago and to-day is a magnificent sight. I have been privileged to visit this garden during the blooming season for a number of years. The group of 'Loderi,' 'Loder's White,' 'Dawn's Delight,' along with other fine plants in a setting of Magnolia, Davidia and many other specimen trees and shrubs are something to be long remembered. MR. GRAHAM has a series of floodlights and when the garden is lit up it is a veritable fairyland.

I should also mention the gardens of MRS. EDWARD GARRIOT, MR. HALFDAN LEM, MR. CARL ENGLISH, MR. and MRS. O. B. THORGRIMSON of Seattle. Also that of MR. ENDRE OSTBO, a nurseryman of Bellevue, Washington, who has a very fine collection of hybrids and has furnished thousands of plants for North-west gardens.

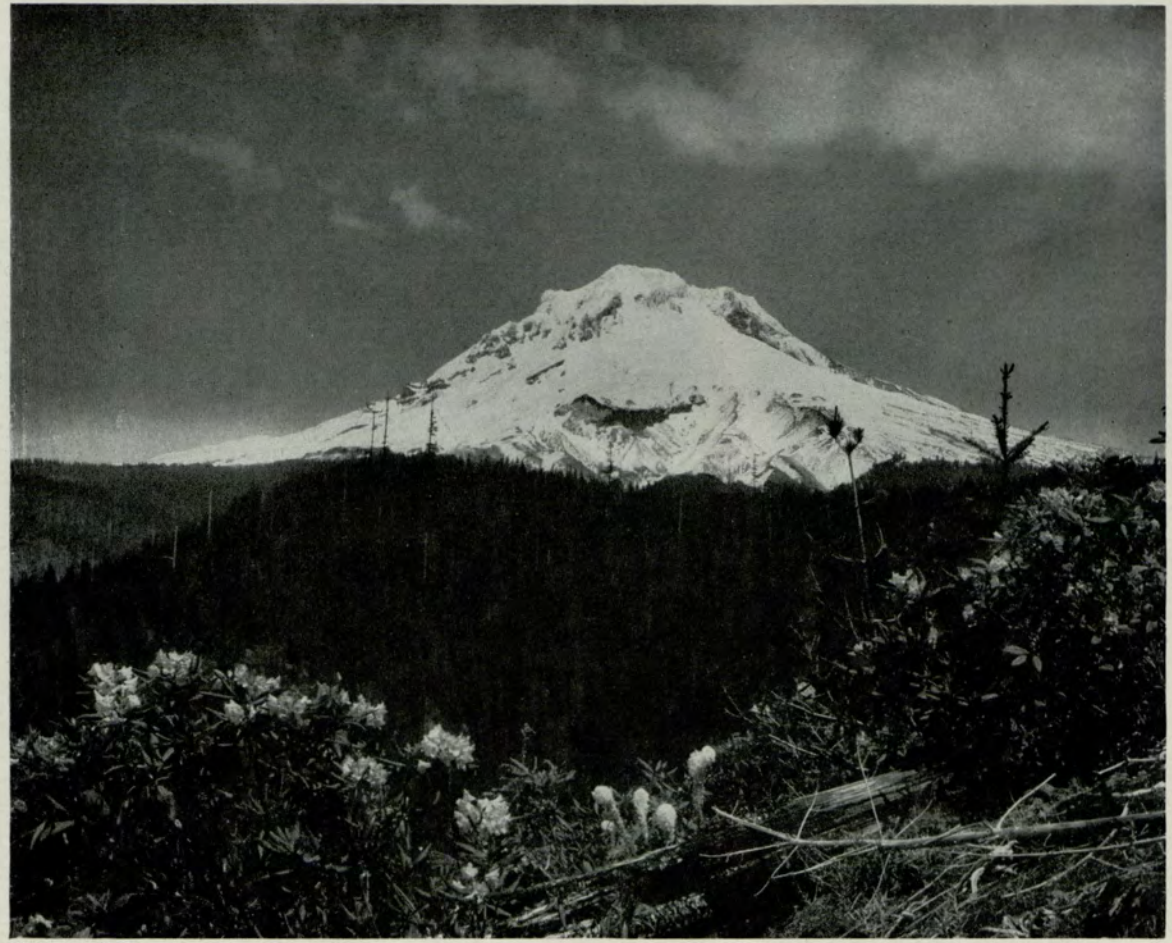
The Washington Arboretum at Seattle, under the careful supervision and guidance of MR. BRIAN MULLIGAN, has a very fine collection of Rhododendrons and Azaleas. The Arboretum is located near the campus of the University of Washington to which it belongs. It no doubt is, and will be more so in the future, one of the showplaces of the Pacific North-west. MR. MULLIGAN came to the Arboretum from the Royal Horticultural Society's gardens at Wisley where he assisted MR. R. L. HARROW, formerly Director.

The interest in Rhododendron growing in the North-west in the last ten years has almost reached flood tide. The collector's gardens here are in no sense as large as the famous gardens visited on the Rhododendron tour in England in 1949. Here truly is a place where the Rhododendrons are for everyone. Many a home owner with only a fifty by one hundred foot lot will have a small collection of them. There are some very fine showings, both small and large, in this evergreen section. It is hard to go through a newer residential section and find a home without one or more Rhododendrons in its foundation planting. I should say it is the number one plant in practically every landscaping effort. It is also to be noted that in almost every landscape nurseryman's advertisement Rhododendrons and Azaleas are headlined as features. The average beginner in Rhododendrons is attracted by the very large and glowing trusses of the hybrids. After he becomes more experienced I believe he finds the species more entrancing.

The winter of 1949–50 in the North-west, has been one of the

RHODODENDRONS OF THE SIKKIM-HIMALAYA

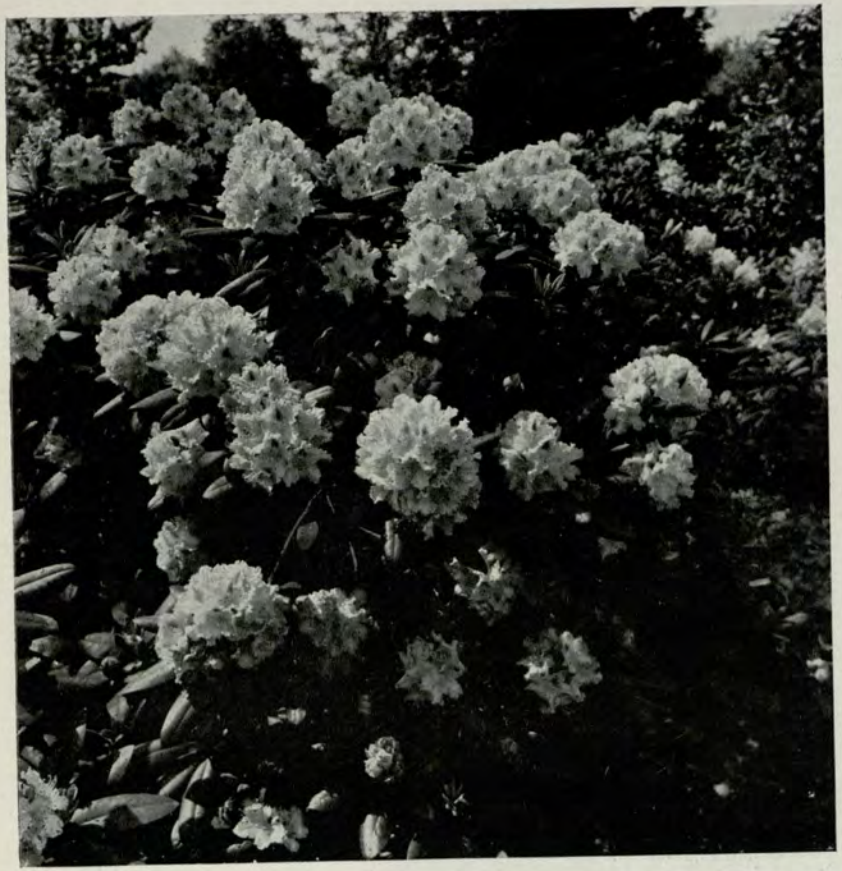
FIG. 29—*R. Edgeworthii* (See p. 48)



Photo, Bob Bovee

RHODODENDRONS IN THE PACIFIC NORTH-WEST

FIG. 30—*R. californicum* at 3,500 ft. with Mt. Hood in the background (See p. 53)



RHODODENDRONS IN THE PACIFIC NORTH-WEST

FIG. 31—*R. californicum* (See p. 53)

Photo, J. E. Downward

THE RHODODENDRON SHOW, 1950

FIG. 32—A compact plant of *R. Aberconwayi* (See p. 118)

Photo, B. Bovee

RHODODENDRONS IN THE PACIFIC NORTH-WEST

FIG. 33—*R.* 'Loderi' var. 'Game Chick' in Mr. Grace's garden

coldest winters on record at the Weather Bureau in seventy-five years. Only now we are evaluating the true picture of what has really happened. The American Rhododendron Society is making a survey as to the amount of damage to the different varieties and we will soon have the reports. We have never before quite appreciated the meaning of hardiness. In fact we have been a little on the boastful side as to what we could raise in our climate, but when the temperature dropped to minus 18° F. in some places, there was a rude awakening. We have been able to grow the 'D' and 'E' ratings outside with ease in most of our winters. A great many of the plants which we thought dead are now coming back, some with much damage, others only slightly hurt. *R. Griersonianum* in some cases have died and their hybrids such as 'Tally-ho' and 'Fusilier' have suffered severely. 'Cornubia' and other *arboreum* hybrids such as 'Duke of Cornwall,' have been hard hit. Some were killed. 'Gill's Crimson,' 'Dr. Stocker,' and many of the Slocock hybrids lost their buds but apparently were not damaged too much otherwise. 'Elsae' × *R. sinogrande,* which I prized very highly, were completely killed while *R. Falconeri* suffered little damage. I was much pleased that a large plant of 'Penjerrick' seemed to suffer little or no damage; in fact it produced a number of trusses. *R. yunnanense* and *R. Davidsonianum* were defoliated, while *R. Augustinii* apparently were not hurt.

Much discussion has been raised as to the starred ratings and merit of the different hybrids here in the Pacific North-west. So much depends on the location, soil condition, care and temperature that it is not entirely possible for all ratings to fit all locations. I have found in my own garden, by careful observation for perhaps ten years, that the British ratings fit almost all plants that I have bloomed, very well. I believe a very commendable job has been done. Some varieties will not be at home in hot or dry locations, also some of them are not always at their best close to the ocean. The importation of Rhododendrons and Azaleas from England has been quite extensive the last ten years or so with good success in most cases, although in some cases the losses have been very heavy on account of shipping and other delays. The U.S. Bureau of Plant Quarantine requires that all soil be removed from the roots, and the fumigation which at present seems very severe is such that many of the plants have been badly burned if not killed. Many scions have been sent airmail with a fair degree of success.

There is an increasing interest in hybridizing and no doubt many good things will come from the gardens here. While we have been handicapped in not having in some cases selected

species, this is being gradually overcome as selected forms are being found or imported.

MR. J. G. BACHER, a plantsman of wide experience, who grows many of the original DR. ROCK seedlings has done successful hybridizing for many years and has had some fine results. MR. RUDOLPH HENNY of Brooks, Oregon, has been doing extensive research and hybridizing. We are already beginning to see some fine results of his work.

I should mention also DR. CARL HELLER of Portland, Oregon, and MR. DEL JAMES of Eugene, who are doing some notable work along this line. This by no means covers the field.

In the Seattle area MR. HALFDAN LEM, MR. ENDRE OSTBO and MR. LESTER BRANDT, all nurserymen, have been doing some plant breeding with marked results. MR. BRANDT has been specializing on *R. repens* and other dwarf type Rhododendrons.

It was my pleasure to meet MR. F. J. ROSE, Head Gardener, of the famous Townhill Park Gardens near Southampton, England, at the Rhododendron Conference in London in 1949. I am sure MR. ROSE must be a very remarkable hybridizer for I have seen the results of some of the seeds of his crosses which he sent in 1939 to nurserymen in Seattle, Washington. I only wish MR. ROSE could see some of the fine plants which are scattered all over the Pacific North-west that have come from his crosses. I have perhaps twenty or more of them in my garden. To mention a few: *R. Griersonianum* × 'Lady Bessborough' is one of the finest reds in my garden and it is as fine a *Griersonianum* hybrid as I have ever seen. R. 'Loderi' × *Souliei*, which I saw at MR. LEM'S garden near Seattle, Washington, was a very fine cross of the 'Penjerrick' type, the trusses hanging in great clusters, and looking like a real weeping Rhododendron. Some of the 'Azor' type of these crosses turned out extremely well and I should say would rate four stars any day. The cross 'Peter Koster' × 'Loderi' was voted the outstanding plant at the Tacoma show last year. At the show in Seattle in May of this year some seedlings were shown of the 'Margaret Dunn' type cross that were outstanding and I should say should receive an award. They had gorgeous trusses of yellow to apricot shadings. It is our good fortune to have received seeds from MR. ROSE.

A group of North-west Rhododendron enthusiasts in 1944 organized a Rhododendron Society in Portland, Oregon. Interest in the society from many points of the United States was so great that it was imperative that we should incorporate it into a national society. It was then incorporated as the American Rhododendron Society in 1945 and now has a membership of around 500, representing many states in the United States and many foreign

countries. The Society publishes a quarterly bulletin and during the years 1945 to and including 1949 published a Year Book. As a Director and former officer of the Society I wish to express the appreciation of the American Rhododendron Society for the fine co-operation and the many helps so freely extended to us by the British Rhododendron Association and the Rhododendron Group of The Royal Horticultural Society.

The American Rhododendron Society has held annual Rhododendron shows in May of each year in Portland, and has accredited an annual show at the Washington Arboretum for several years. These shows have been received with wide acclaim by the public.

What species or hybrids are the most popular in the Pacific North-west? For answer, I would say each one to his own likes and dislikes. Much depends on what plants have been the most readily available by the growers and nurserymen, also the influence of those varieties that have been seen at the Rhododendron shows or in different individual gardens. Whenever there has been a fine Rhododendron displayed at one of the shows it usually results in a mad rush at the nurseries to procure it. However, by a large margin, hybrids have been so much in evidence on account of scarcity in the past of good species.

Practically all of the starred hybrids listed in The Royal Horticultural Society's Handbook are available in the Pacific North-west, although many are still very scarce. The plants which have received awards usually are much in demand. I should mention a few hybrids amongst a very great number which are very popular here. One could not help putting in *R. Griffithianum* and its hybrids at the head of the list with those very magnificent 'Loderi' varieties also at the top. 'Beauty of Littleworth,' 'Pink Pearl,' 'Loder's White,' 'Mother of Pearl' and 'Dr. Stocker' are others which need no description. *R. Fortunei*, a sister plant of *R. Griffithianum*, has produced some very attractive hybrids. 'Naomi' is greatly admired by all who see it. Another *Fortunei* hybrid, 'Goldfort' of the yellows, attracted much interest at the Rhododendron show in Portland this year. One could not help but make mention also of the Slocock hybrids, viz.: 'Unique,' 'Mrs. W. C. Slocock,' 'Dairymaid,' 'Souv. of W. C. Slocock' and 'Elspeth' are among some of the finest hybrids ever made. They have fine foliage, grow rather low and compact, bloom tremendously and, all in all, are much liked and in evidence in our gardens. I have a 'Damaris' which has bloomed in my garden several years. I have yet to see a superior bright yellow hybrid in bloom.

In recent years many wonderful *Griersonianum* hybrids have

been introduced into our gardens. I mention only a few which are very popular: 'Tally Ho,' 'Fusilier,' 'Azor,' 'Romany Chai,' 'Fabia' and a score of others. These certainly draw much attention and interest. Other red hybrids are: 'Britannia,' 'Earl of Athlone,' 'Gill's Crimson,' 'Lady Bligh,' 'J. G. Millais,' 'Cornubia,' 'J. J. De Vink,' 'G. A. Sims,' 'C. B. Van Nes,' and 'Mars.' These are a few of the reds much in evidence. The bright reds seem to be always very popular, especially with the men. As one friend of mine said, "I like all kinds of Rhododendrons, just so they are red."

There are probably more pinks in our gardens than any other colour. 'Pink Pearl' and 'Alice' are old standbys, while 'Mrs. G. W. Leak,' 'Mrs. Furnival,' 'Madame Chauvin,' 'Lady Stuart of Wortley,' 'Amy,' and 'Azor' are later additions along with that dainty *Williamsianum* hybrid 'Bow Bells.'

I have already mentioned 'Loderi' in the white Rhododendrons but I should also mention 'Mrs. Lindsay Smith,' 'Mother of Pearl,' and a favourite of mine 'Snow Queen.' 'White Swan' was judged the best plant at the Seattle show two years ago and last year it was adjudged the best truss in the Portland show.

'Purple Splendour' is the most widely grown purple. Of the bluish shade Rhododendrons I mention 'Blue Peter,' 'Susan,' and 'A. Bedford.' Of the dwarf blues 'Impeanum,' 'Blue Tit,' 'Blue Diamond,' 'Augfast' are much in evidence. The *R. Augustinii* with its beautiful bluish shades, along with its sister Triflorums, *R. yunnanense* and *Davidsonianum*, are certainly near the top, being some of the finest species in existence.

Space will not permit me to mention scores of other hybrids and species which are equally attractive and that are grown in gardens of the Pacific North-west. The outlook for continued interest in the culture of Rhododendrons and allied plants in the Pacific North-west is large indeed. I believe we are only in the beginning. This evergreen region is increasing in population and more and more of its people are becoming flower conscious, and there is ever a new challenge in the production of hardier types for colder locations of this great country, better large blooms, better species types, better blues, better large type orange coloured Rhododendrons, to mention only a few. No doubt new species will become popular and new aims and objectives will ever be in the minds of the Rhododendron growers of the Pacific North-west.

'PINK PEARL' AND ITS PROGENY

By FREDERICK STREET

THERE is an old indoor game, played by the fireside, which the *Week-End Book* calls "Suggestions." It is started by someone saying a word and the next person says any word suggested by the first. To a great many people the word "Rhododendron" at once suggests 'Pink Pearl.' To others, 'Pink Pearl' would suggest 'Gold Privet,' 'Aucuba' or even 'Aspidistra.' To those with a fair general knowledge of plants and gardening 'Pink Pearl' is the Rhododendron of Rhododendrons. To others, with a more specialized knowledge of the genus, it is the lowest of the low.

With two such diverse schools of thought, the one praising its virtues and the other lamenting its faults, it must, at least, be admitted that 'Pink Pearl' is a plant of character. 'Pink Pearl' is to the Rhododendron as 'Mrs. Sinkins' is to the Pink, 'Paul Crampel' to the Geranium and 'Jackmanii' to the Clematis. It is very nearly, if not quite, a household word. Or, to be more strictly accurate, two words. Without detracting from its charm or adding to its odium, I suggest that there is much in the name. This particular "Rose-tree" by any other name would still not smell, but I doubt if it would have achieved such fame without "alliteration's artful aid." Not only does the name roll off the tongue—"P" is one of the easier consonants—but it is also a description and a eulogy in two words of one syllable. Suppose it had been called 'Waterer's Aucklandii Hybrid' or 'Broughtaug' or 'Cynthaug'? It would still be widely grown, it would still delight or disgust, but it would probably not qualify as the best-known Rhododendron.

My suggested alternative names bring me to the parentage and the raiser. MILLAIS gives the parentage as 'George Hardy' × 'Cynthia.' MR. DONALD WATERER has kindly lent me some notes written by his father, the late MR. GOMER WATERER, who introduced 'Pink Pearl,' which was raised by his father, the late MR. JOHN WATERER. These notes give the parentage as 'George Hardy' × 'Broughtonii.' The influence of 'George Hardy' is very strong. The similarity between the foliage and flower can be seen clearly. It is difficult to trace any characteristic of either 'Broughtonii' or 'Cynthia.' 'Broughtonii,' an old arboreum hybrid, would suggest a flowering period before the end of May when combined with the influence of *Griffithianum* in 'George Hardy,' another early flowering variety. These Rhododendrons

flower in the beginning of May which is now the zenith of the Rhododendron season, but when 'Pink Pearl' was introduced, the end of May to early June was the peak. Being something of a reactionary in all things, I consider that it is a pity that so many Rhododendrons introduced in recent years should flower before the middle of May. Except in favoured gardens they are far more vulnerable to spring frosts. But, as a very famous writer and a very famous reactionary used to say, that is another story.

It is, I feel, of great interest and importance to realize that although 'Pink Pearl' has considerable *Griffithianum* blood, it is not the result of a direct cross with that species. This is true of a great many of the not-so-old hardy hybrids. It is particularly true of many of those raised by the late MR. GOMER WATERER between the two wars. His aim was to achieve the beauty of *Griffithianum* in a Rhododendron which could also boast the same hardiness as the old hybrids. He succeeded with many plants besides 'Pink Pearl.' I feel that much of present-day hybridization will have only a limited success because hardiness is being sacrificed on the altar of beauty.

If it is not already known, if it is not already a little obvious from the foregoing, I must confess to being an admirer of 'Pink Pearl.' I will try to give a restrained and objective description. The foliage, for a hardy hybrid, is good. It cannot claim to the beauty of *sinogrande*, *Falconeri* nor *fictolacteum*, but as an evergreen shrub it has good evergreen foliage. When it is growing really well the leaves are often more than a foot long. The habit, generally, is good. It is not so 'leggy' as 'George Hardy' but it can become a little loose and straggly, particularly in half shade. In the open the habit is more compact. This would support MR. WATERER'S description of the parentage. 'Cynthia' could not be described as compact, but 'Broughtonii' is definitely close-growing. The flowers of 'Pink Pearl' are large, the truss is good and holds up well. On established plants the flowers and trusses are enormous. The colour is soft pink and the most attractive state of the truss is when it is half open. The lower half is fully open with soft pink flowers of good shape and size while a few buds stand above these in a shade deeper pink. When it is fully open and about to fade there is a tendency to blue in the colour. 'Pink Pearl' is hardy and free flowering. Probably its greatest claim to popularity is that it can be relied on to produce a generous crop of flower year after year even under the most trying conditions.

I am the first to admit that there are many better Rhododendrons than 'Pink Pearl.' But a great many of its peers can only

be grown in the more favoured gardens. 'Pink Pearl' is not quite a plant for the million, but it is certainly one for the hundred thousand. It needs little beyond a lime-free soil.

The early career of 'Pink Pearl' was not without incident. At the time when it was introduced (it received an Award of Merit in 1897) it was an outstanding plant even in foliage alone. This story is told by a few very old men of Bagshot:—

The late MR. GOMER WATERER used to watch the seedling each year for the first flower bud. When the plant set bud for the first time it was still comparatively young. Then the watch became daily—almost hourly. MR. WATERER went to the trial grounds at Bagshot first thing every morning to see the progress made in the night. One morning, to his horror, the plant had gone! One can imagine the consternation—the questioning of foremen, the search, the speculation, the result of many years' work disappearing in the night. The plant could not be found on the Nursery.

It is easy to play detective after the event, but the solution to the mystery was based on two facts. In the nineteenth century even propagation was a closely guarded secret—hybridization more so. Trial grounds were always in a wild and inaccessible part of the nursery and might appear to the uninitiated to be neglected. It might easily be thought that a plant from such a place would not be missed. The nursery worker was always interested in the plants and an occasional shrub for his own garden was regarded as a normal perquisite. The value of the first 'Pink Pearl' would only have been known to a few members of the firm. The humble labourer with an eye for a good Rhododendron and his front garden would not have been considered as a possible culprit. The enquiry would have been conducted on a higher level with a 'Black Tulip' background. Dark deeds by rival firms would probably have been thought to be the motive—not a better cottage garden.

A day or two after the disappearance of the plant MR. WATERER was walking past some cottages where one of his men lived. He looked over the fence of one and saw, in a place of honour in the centre bed, the one and only plant of 'Pink Pearl.' It was at once restored and the morning, afternoon and evening pilgrimage was resumed.

When MR. WATERER had a stock of the plant he exhibited some specimens at Manchester. The first purchaser of 'Pink Pearl' was LADY ANNETTE DE TRAFFORD, who was at once struck by its beauty. When he exhibited 'Pink Pearl' at one of the Temple Flower Shows (*circa* 1900) it was very much admired by QUEEN ALEXANDRA who congratulated him personally. The

following is an extract from MR. WATERER'S notes about 'Pink Pearl.'

"At this same show which coincided with Derby Day, I went into the show about 7 A.M. and I was talking to one or two people on the way to the tent when I saw a man I knew in Manchester, all got up with a grey top hat and buttonhole preparatory to starting off to drive to the Derby. It was FRED HARDY who, besides owning that good horse Happy Man, was a keen gardener, particularly so on Orchids and Rhododendrons. Seeing me he stopped, asking me if I had anything good to show him. We went into the tent and he spotted 'Pink Pearl' at once. He asked me the price, and ordered 25 of them and then he suddenly turned to me and said, 'Make it 150, and I will send some to my friends.'

"Well, he sent me instructions later to send plants to various addresses all over the country, England, Scotland, Wales and Ireland. Those two chance incidents made it unnecessary for me to advertise 'Pink Pearl.' I sold all I could produce and it is still a best seller in 1937."

That is a little of the history and character of 'Pink Pearl.' Whatever its faults, whatever its virtues, it must be conceded that it is the best-known Rhododendron. It is almost an institution—it is like the Albert Memorial, you may not like it, but you would miss it if it were gone. In an exhibit at a Flower Show eight visitors out of ten will greet 'Pink Pearl' as an old friend. And seven of the eight will greet it affectionately as a very dear old friend.

Almost as well known is the paradoxically named 'Mother of Pearl.' Although the name is not quite so easy to say as 'Pink Pearl' it is certainly a very good description of the colour. It is a paradox because 'Mother of Pearl' suggests the 'Mother of Pink Pearl,' but it is, in fact, a sport from 'Pink Pearl.' This is one of the very few successful sports from a Rhododendron. I know of few others except that strange museum piece *ponticum variegatum*. 'Mother of Pearl' is a delightful plant opening with pale pink buds fading to pure white flowers of equal size to 'Pink Pearl.' Fully open it is white and lacks the blueness which is one of the faults of the parent. Although a delightful and popular variety it is the nurseryman's bane. The habit and foliage are exactly the same as 'Pink Pearl'—it is impossible to distinguish the two varieties when they are out of flower. A careless hoe may knock a label and the plants will be mixed. Then they are "frozen" until they flower again and are renamed. In 'Mother of Pearl' the influence of *Griffithianum* is even more strong than in 'Pink Pearl.' The flowers have a delicate scent which is not,

Photo, J. E. Downward

FIG. 34—*R. yakusimanum* from Exbury, exhibited at Chelsea, 1950

Photos, J. E. Downward

FIG. 35—*R.* 'Winsome' A.M. May 23, 1950. Shown by Lord Aberconway and the National Trust (See p. 124)

RHODODENDRON AWARDS

FIG. 36—*R.* 'Conroy' A.M. May 23, 1950. Shown by Lord Aberconway and the National Trust (See p. 122)

RHODODENDRONS AT BRODICK CASTLE

FIG. 37—A Rhododendron species near *R. magnificum*

Photo, J. Cameron

RHODODENDRON AWARDS

FIG. 38—*R. magnificum* A.M. March 21, 1950. Shown by Lt.-Col. D. R. Carrick-Buchanan (See p. 123)

Photo, J. E. Downward

Photos, J. E. Downward

RHODODENDRON AWARDS

FIG. 39—*R.* 'Inamorata' A.M. June 27, 1950. Shown by E. de Rothschild, Esq. (See p. 123)

FIG. 40—*R.* 'Angelo' var. 'Sheffield Park' A.M. June 13, 1950. Shown by Captain A. Granville Soames (See p. 122)

perhaps, noticeable in the open at a distance. As we often have to hold 'Mother of Pearl' for the Chelsea Show we keep the plants in a cool barn. In a closed space, in the evening, the scent is quite distinct. Incidentally, although it may seem a little artificial, I think that one of the greatest pleasures I experience from growing Rhododendrons is from the plants, which are a little early for Chelsea. Every evening I go to the nursery about ten o'clock to shut the barn as a precaution against a late frost. I always switch on the lights to see these plants, which are usually very near perfection with one or two "pips" still to open. With the added satisfaction of looking at the culmination of six months' work of forcing and retarding, according to the weather, the barn full of Rhododendrons is particularly beautiful under electric light.

Although there is only one sport there have been many hybrids—and most of these have been raised in Holland. It is surprising that the Dutch should have made greater use of 'Pink Pearl' as a parent than the British. The reason is probably the eternal quest by all gardeners to grow something difficult—something, perhaps, not entirely hardy for the district, something which is a challenge to their skill. Winter in Holland is more severe than in England. By the *Rhododendron Handbook* rating 'Pink Pearl' would be classified as "D." The objective of the Dutch hybridists has been two-fold—to improve on 'Pink Pearl' with the same degree of hardiness and to produce a similar plant but more hardy. The first, I should say, has been achieved but not the second.

One of the Dutch hybridists who has used 'Pink Pearl' extensively as a parent is MR. L. J. ENDTZ of Boskoop. Unfortunately he only recorded a few of the crosses made and is only certain of the parentage of three of his hybrids—Rhododendrons 'Professor Hugo de Vries,' 'Souvenir de Dr. S. Endtz' and 'Hollandia' (formerly 'G. T. Streseman'). As there is some controversy about the first I asked MR. PETER KOSTER of the firm of M. KOSTER AND SON to check this for me with MR. ENDTZ this spring (1950). He confirmed the parentage as 'Pink Pearl' × 'Doncaster.' MILLAIS also gives this parentage and it is recorded in a catalogue for 1923 when my uncle, the late FREDERICK STREET, first offered the plants for sale.

The controversy concerns the great similarity between this Rhododendron and Rhododendron 'Countess of Derby'—'Pink Pearl' × 'Cynthia.' For all practical purposes these two Rhododendrons are the same. The truss and size of flower of both are a little larger than those of 'Pink Pearl.' The colour is a little deeper and is more pure. 'Countess of Derby' was raised

about 1913 by the late MR. HARRY WHITE when he was manager at the Sunningdale Nurseries. 'Professor Hugo de Vries' was probably raised about the same time and introduced into this country after the 1914–18 war. I claim to be able to tell the difference between the two in that the foliage of 'Professor Hugo de Vries' is slightly obovate while that of 'Countess of Derby' is broadly lanceolate. This difference in leaf is very small and is a little more noticeable on larger plants. The habit of 'Countess of Derby' is better, for 'Professor Hugo de Vries' is inclined to be "leggy"—which is surprising in a 'Doncaster' cross. There is a week's difference in the flowering period, 'Professor Hugo de Vries' being the later. This would be expected from the breeding, as 'Cynthia' flowers a fortnight before 'Doncaster.' These minor points of difference are only of academic interest, and I should hesitate to swear to a particular plant as being one or the other. I repeat my earlier statement—to all intents and purposes these two hybrids are the same.

Rhododendron 'Souvenir de Dr. S. Endtz' is more distinct. The parentage of this plant is 'Pink Pearl' × 'John Walter.' Last year I had these three Rhododendrons growing together and the family likeness was obvious. R. 'Souvenir de Dr. S. Endtz' has a flower and truss a little smaller than those of 'Pink Pearl' but the colour is deeper and the habit is more compact. The advantages do not sound very startling, but I am very fond of this Rhododendron and consider that it is a definite improvement on 'Pink Pearl.' It does not have a "washed-out" look when the truss is fully open and seldom becomes straggly.

Another compact hybrid is 'Hollandia' (formerly 'G. T. Streseman')—'Pink Pearl' × 'Charles Dickens.' Strangely enough, this Rhododendron has the appearance of being a hybrid of 'Cynthia' rather than of 'Pink Pearl.' The foliage is a darker green and the flower is a deep crimson rose. Doubtless it was raised for the German market (although the original name would have given it only a brief popularity) for its breeding should make it more hardy than 'Pink Pearl,' but my experience has shown it to be about the same. I found some plants labelled 'G. T. Streseman' in the Nursery on my return from the Army and I thought that they must be the only ones in existence. I was very surprised to be asked my opinion by a fellow Nurseryman of a new variety 'Hollandia,' which he had imported shortly after the war (1939–45)—'Hollandia' was none other than 'G. T. Streseman.' This renaming might cause confusion as I understand that there was once a very old hybrid called 'Hollandia' although it is not now obtainable.

The parentage of Rhododendron 'Professor Zaayer' is more or less defined. MR. ENDTZ gives this as 'Pink Pearl' × an unknown red (a C. B. VAN NES hybrid or seedling). I should say that R. 'Langley Park' is the most likely hybrid raised by MESSRS. C. B. VAN NES to have been used, but it might well have been 'Nuneham Park,' 'Bulstrode Park' or 'Borde Hill.' The foliage and habit certainly lean towards those of 'Langley Park.' 'Professor Zaayer' is a distinct variety and has the advantage over any other 'Pink Pearl' hybrid of looking its best when it is fading. In this state the colour can be described as bright, light red with a hint of orange. A fault, probably inherited from 'Langley Park,' is that although not a tall-growing Rhododendron it is inclined to be loose and the branches fall open from the centre, particularly when it is growing in half shade.

With 'Professor Zaayer' we end the list of 'Pink Pearl' hybrids of definite parentage. The remainder have been described by MR. ENDTZ as being crosses with 'F. D. Godman,' 'Charles Dickens,' 'H. W. Sargent' and other hardy hybrids. But I think that the parentage of one other 'Pink Pearl' hybrid can be assumed with some degree of certainty. Rhododendron 'Annie E. Endtz' has a marked resemblance to R. 'Lady Annette de Trafford.' The habit is compact and shapely, the colour and shading are exactly those which might be expected from such a cross—pale pink with an extenuated blotch. 'Lady Annette de Trafford' has a distinct habit and the young growth is studded with protective, scale-like leaves which are more prominent in this Rhododendron than in any other hardy hybrid. This characteristic has been passed on to R. 'Annie E. Endtz.' It is a pity that the cross made with 'Pink Pearl' and the Rhododendron named after its first purchaser should not be more outstanding. It is not better than 'Pink Pearl' and I am doubtful if it is better than 'Lady Annette de Trafford,' for although the flower is larger it is not of such good colour except in bud. It flowers about three weeks before 'Lady Annette de Trafford' which, in my opinion, is no advantage. 'Lady Annette de Trafford' is one of the latest and finest of the old hardy hybrid Rhododendrons.

Very much the same as one another and somewhat similar to 'Professor Hugo de Vries' and 'Countess of Derby' are Rhododendrons 'Dr. O. Blok' and 'Antoon van Welie.' I remember seeing 'Dr. O. Blok' when my uncle had grown it for the first time. I remember it then as being a shade more blue than 'Pink Pearl' with a larger flower and good regular habit. Seeing it again last year it seemed to be less blue and very similar to 'Countess of Derby' but with a suggestion of a yellow flare in the centre. Soil, climate and season can make a great deal of

difference to colour. One might suggest "Z" for a Rhododendron one year and think it worthy of "stars" the next!

I must confess to but a passing knowledge of R. 'Antoon van Welie' having only seen it at various shows. It is a shade deeper pink than 'Dr. O. Blok' and the yellow shading is a little more pronounced. Both these Rhododendrons are good and the habit of 'Dr. O. Blok' is certainly a point in its favour. It makes a fine specimen plant.

R. 'Dr. A. W. Endtz' is another 'Pink Pearl' hybrid of a different type. I am doubtful if the other parents named by MR. ENDTZ were responsible for this variety. The habit, flower and character suggest a cross between 'Pink Pearl' and 'Kate Waterer.' It is a large-flowered hybrid of a definite and unashamed lilac-pink. The colour certainly has a shade of blue but it is an honest shade. In addition, it has a yellowish centre which again suggests 'Kate Waterer.' The texture, size and shape of the flower is good, the truss is large and the flowers last well.

The most recent introduction from MR. ENDTZ' seedlings raised from 'Pink Pearl' is R. 'Jan Dekens.' The parentage of this Rhododendron is not known and I should hesitate to make a guess. The habit is good, being more compact than that of 'Pink Pearl.' The flowers are not so large but they are deeper in colour. The advantage of this variety over its parent is that the flowers are attractively frilled. This would indicate the same breeding as R. 'Souvenir de Dr. S. Endtz'—'Pink Pearl' × 'John Walter.'

Very similar to 'Jan Dekens' is R. 'Marion' (another duplicated name) recently introduced and raised by MESSRS. FELIX and DYKHUIS of Boskoop. This Rhododendron is the result of a cross between 'Pink Pearl' and *catawbiense*. The foliage is larger and darker than that of 'Pink Pearl' while the flower, which has a light centre, is frilled in the same way as 'Jan Dekens.' The colour, considering the parentage, is remarkably pure. If this plant has inherited the hardiness of *catawbiense*, it will be a most useful variety for Europe and the colder parts of the U.S.A. It may prove to be the achievement of the second object of the Dutch hybridists' aim to improve on 'Pink Pearl'—the same flower but more hardy.

Before passing from the good and very good hybrids of 'Pink Pearl' to the definitely bad, I should like to mention another plant raised by M. KOSTER and SON which has obvious traces of 'Pink Pearl' although the parentage has not been recorded as such. The young foliage of R. 'Mrs. Charles Pearson' is very similar to 'Pink Pearl,' but when it is mature it is darker and more

rounded. The flowers open with a delicate flush of pale mauve and the throat is lightly spotted with burnt sienna; as it fades it becomes pure white and is almost exactly the same as the fully open flower of 'Mother of Pearl.' 'Mrs. Charles Pearson' is a fine Rhododendron which appeals to the lover of the large truss as well as to the purist who prefers the more delicate shades of colour.

R. 'Mrs. Charles Pearson' ends the list of hybrids raised from 'Pink Pearl' which can be regarded as definite improvements or as different Rhododendrons worthy of cultivation. I hesitate to pass judgment and suggest that any one of them is greatly superior to 'Pink Pearl' because we do not yet know if they will flower so regularly and freely under all conditions. This will only be known when specimens have been tried out in gardens of all kinds in all parts of the country. I will make a tentative prophecy, subject to country-wide reliability. 'Countess of Derby,' 'Professor Hugo de Vries' and 'Souvenir de Dr. S. Endtz' may yet oust 'Pink Pearl'; either of the first two where a tall-growing variety is required and the third for a situation needing a more compact plant. 'Hollandia,' 'Professor Zaayer,' 'Dr. A. W. Endtz,' 'Jan Dekens' and 'Mrs. Charles Pearson' are different from 'Pink Pearl' and are all hybrids worth growing. 'Annie E. Endtz' is a good Rhododendron but not outstanding. The same may be said of 'Dr. O. Blok' and 'Antoon van Welie.' 'Marion' (FELIX and DYKHUIS) will probably be very useful for cold climates.

But not all the hybrids from 'Pink Pearl' have been good because they have been cultivated and sold. Probably the worst of these is a variety called 'Topsvoort Pearl' which, fortunately, I only know by repute. I understand that the colour is a depressing shade of magenta pink. As the foliage and habit are exactly the same as 'Pink Pearl' and 'Mother of Pearl,' this imposter may be responsible for some of the adverse criticism of 'Pink Pearl.'

R. 'Aristide Briand' is a plant of much better habit and foliage than 'Pink Pearl.' I was looking at the few plants that I have left recently and to see it out of flower one would call it 'Pink Pearl Plus.' It has a good flower, a good truss, but the colour can only be described as dirty, magenta crimson.

Some people like R. 'Pink Perfection,' but to me it seems to epitomize all that is bad in 'Pink Pearl.' The truss is too conical, it lacks grace and is vulgar. The colour is blue-pink all the time and a little more so when it is fading. Fortunately this variety can be distinguished from 'Pink Pearl' by its slightly red petiole.

These three are but a few of the hybrids which have been raised from 'Pink Pearl,' and in comparison with those that are good they are very few.

And from the bad and the very bad we pass to the very good —to two varieties that call for superlatives of the Metro-Goldwyn-Meyer order. The best of all, the finest of the type so far raised are two Rhododendrons which, although they cannot be described as hybrids from 'Pink Pearl,' may certainly be included in these notes. R. 'Betty Wormald' and R. 'Marinus Koster' are the gems of the collection. Whether the two names are really necessary is a matter which will be decided by time. So far as I can see there is very little difference between them. MR. PETER KOSTER, who raised both, gives the parentage of 'Betty Wormald' as 'George Hardy' × an unknown red and he can only say of 'Marinus Koster' that it was selected from a batch of mixed seedlings. On his recommendation I bought some young plants of 'Marinus Koster' which flowered a little this year. I have known 'Betty Wormald' for some time and comparing the two I could see very little difference. 'Betty Wormald' received an Award of Merit in 1935 and 'Marinus Koster' in 1937. 'Marinus Koster' was given a F.C.C. at the trials at Wisley in 1948.

As will be seen from the parentage the cross is similar to that of 'Pink Pearl.' The identity of the "unknown red" is probably one of the 'Doncaster' × 'Griffithianum Hybrid' varieties. The influence of *Griffithianum* is stronger in 'Betty Wormald' than in any other hybrid of the 'Pink Pearl' group. The foliage and wood bear a marked resemblance to the species, but the hardy hybrid influence has made them better able to withstand the cold. The flower is the largest of all and the truss is equally good. The colour is a rich pink with a deeper shading in the throat. It is a pure colour. One possible fault is that 'Betty Wormald' is not quite so hardy in the bud as 'Pink Pearl.' Where a severe early autumn frost will destroy one "pip" of 'Pink Pearl,' it will take two or even three of 'Betty Wormald.' Possibly it is not quite the plant for all sorts and conditions of gardens such as that very accommodating variety 'Pink Pearl.'

'Pink Pearl' and its progeny are possibly not Rhododendrons for the specialist who has a garden where the more ethereal varieties and species may be grown. They are, as an experienced gardener once described them to me, "good garden decorators." They flower freely, they will withstand difficult conditions, the flowers and trusses are large and of good colour, they are late enough to miss a great many spring frosts and, given suitable Rhododendron soil, they always look well. But their most

important asset is their ability to give a fine show of flower year after year in practically any situation in all parts of Great Britain.

(I am very grateful to MR. DONALD WATERER of the Knaphill Nursery Company, MR. J. P. C. RUSSELL of the Sunningdale Nurseries and to MR. PETER KOSTER of the firm of M. KOSTER AND SON, Boskoop, for the help which they have given me in compiling these notes.)

SOME OBSERVATIONS AND NOTES ON BUD BLAST ON RHODODENDRONS

By FREDERICK STREET

UNFORTUNATELY, I cannot claim to have received the scientific training for research which is generally necessary for the salvation of a plant from an unknown disease. My excuse for recording my observations and comments on "Bud Blast" on Rhododendrons is that they may possibly be of some help to those more qualified for this work. They may also encourage others to submit their views which, in turn, may provide the vital clue.

The onset of "Bud Blast" has been insidious. It has developed as a malignant disease. The first shock of the discovery of the Lacewing Fly (*Leptobyrsa Rhododendri*,) until recently the only harmful pest of Rhododendrons, at Minley Manor near Camberley early in the century, was sudden and complete. The only similarity between the fly and the fungus is that the origin of each is obscure.

I would first venture to suggest a possible cause of "Bud Blast." Except to those who have a number of Rhododendrons affected by the disease, the difference between "Bud Blast" and autumn frost damage was a little difficult to determine. The helpful notes from the R.H.S. Gardens at Wisley with the clear photograph in the issue of the R.H.S. Journal for June 1950 have now made this difference clear. Basing my theory on the doctors' method of clinical diagnosis I suggest that a frost may have been the original cause of the present rapid spread of the disease. Furthermore, I suggest that it may be possible to trace the increasing virulence to one particular frost. I refer to that fatal night in the South of England of the 17th May 1935, when a ground temperature of 13° F. (19 degrees of frost) was recorded at Farnborough.

It is probably no exaggeration to say that 90 per cent. of all Rhododendron buds in the areas affected were killed by this frost. The remaining 10 per cent. had either flowered before this time or were in very sheltered gardens and not affected. It is probable, too, that very few of these dead buds were removed from the plants. In fact, this would have been an impossible task in large gardens with large plants. My tentative theory is that the dead buds left rotting on the plants provided a breeding ground for the fungus. It may well have

been present before in a very small way but good health and sound constitution had kept it in check. Unfortunately we were afflicted by similar but less severe frosts, in the succeeding years before the war. These may have helped to aggravate the disease.

To support this theory I am happy to say that the Rhododendrons at Heathermead Nursery are almost entirely free from "Bud Blast." I picked between a dozen and twenty affected buds from several thousand plants this year. I think that the reason for our immunity was probably my pessimism after the death of my uncle, the late FREDERICK STREET, in 1942. He was a great optimist who, firmly and rightly, believed that there would again be great interest in gardening when the War was over. I had often tried to persuade him to change completely to Market Gardening as the best alternative for several years. Even up to his death at the age of 82 he was convinced that the plants would be wanted again. Unfortunately I failed to be guided by his advice. During a period of leave from the Army I walked round the Nursery with the Manager and marked practically every plant over 3 feet high for destruction (to make way for cabbages) or for harsh pruning. The result has been good and bad. Although we have no "Bud Blast" we have very few specimen plants. If my theory should prove false then I have no consolation. It is another instance of the failure of youth to be guided by age.

A point of interest which I noticed about the few damaged buds on my plants this year was that they were all growing under trees. While I do not suggest that this is another possible cause I submit that it is possible for the trees (my experience has been with Oak and Birch) to act as hosts, particularly where the disease has become widespread.

I believe that it is a general experience that the older hybrids are the worst affected. It is possible that their constitution and breeding may not make them suitable for the generally accepted ideal Rhododendron conditions of light woodland. One old hybrid in particular—Rhododendron 'Old Port'—is very much better from all points of view when it is grown in the open. I have not seen this variety affected by "Bud Blast," I refer to its general health and flowering capacity. Although there are no records of the breeding of the early hybrids it is generally accepted that they were evolved from *Rhododendrons catawbiense, caucasicum, campanulatum, maximum, ponticum* and *arboreum.* In their natural state most of these species grow both in the open and in woodland. It is possible that the forms growing in the open have a slightly different character from those

growing in woodland and forest. It is probable that the plants growing in the open were the more spectacular. It is probable, too, that the seed of these was easier to collect than that of the woodland forms. Human nature being what it is, this may well have been the seed collected. The characteristics enforced by an open situation may have been handed on to the early hybrids.

If this suggestion that the parents of the early hybrids were definite forms most suited to an open situation, woodland conditions might, in time, reduce the resistance of the plants. If, in addition, the trees act as hosts to the disease these two factors may almost constitute the cause.

It has been suggested that the "Leaf Hopper" (*Graphocephala coccinea*, Forster) is the cause of "Bud Blast." That it might be a contributory factor to a disease of this kind was foreseen by MR. G. FOX WILSON. In a note on the pest in the Year Book of the Rhododendron Association for 1937 he says:

"The invasion of secondary agents (fungal and bacterial organisms) through the feeding punctures of the insect may prove to be more serious than the feeding of the insect itself."

I live on the outskirts of Chobham where the presence of the "Leaf Hopper" was first reported (1936/37) although it had been observed by MR. HUGGETT, gardener to WILLIAM CLARKE, ESQ., of Windlesham Moor, Windlesham, as early as 1928. If the "Leaf Hopper" is the cause it might be expected that the disease would be rampant in this district. Yet it is virtually non-existent on Heathermead Nursery (3 miles from Chobham). To test the "Leaf Hopper" theory I marked several plants in July 1949 which were covered with this insect. None was affected with "Bud Blast." All are in perfect health.

During the course of the last three years I have been asked to inspect many Rhododendrons affected with "Bud Blast." My experience has shown that it is almost impossible to discover any difference in the resistance of particular varieties; one will be the worst in one garden and immune in another. One possible connection is that many Rhododendrons with strong traces of *arboreum* blood seem to be affected but, again, this is not consistent.

My own experience with *arboreum* hybrids is confined to R. 'Lady Eleanor Cathcart' (*arboreum* × *maximum*) and R. 'Mrs. R. S. Holford.' In the summer of 1947 R. 'Lady Eleanor Cathcart' set flower bud on a number of young plants—an unusual happening for it does not normally flower well until the plants are fairly large. In the autumn I lifted a number of these plants

for exhibition. Some went into a house to force for Chelsea, some were plunged in the open for the first June show at the Hall and others were planted between a greenhouse to the north and a small copse to the south to retard them for the show at the Hall at the end of June. This, I feel, may not add very much to the general knowledge about "Bud Blast" but I record it chiefly as an example of the strange inconsistency of the fungus. None of the plants suffered from "Bud Blast" except one of the two planted between the greenhouse and the copse. And the strange part is that one of these was badly affected, all the buds were diseased, while the other, growing beside it, was untouched and flowered perfectly.

'Lady Eleanor Cathcart' is one of the few older hybrids of known parentage—*arboreum* × *maximum*. I think that it may be assumed that R. 'Mrs. R. S. Holford' also has a strong trace of *arboreum* blood. It is a very old hybrid and there were few species at that time which could have given just that shade of salmon red other than *arboreum*. My notes on R. 'Mrs. R. S. Holford' are different from the normal and would, fortunately, only be experienced by a Nurseryman. It is not without interest that I first noticed "Bud Blast" at Heathermead Nursery on some plants of R. 'Mrs. R. S. Holford' growing in the half shade (3 o'clock onwards) of some Oaks. But that is probably not abnormal and suggests little and proves less.

It happened, last autumn, that I sent a parcel of Rhododendrons, ordered at one of the spring shows, to an address in the North of Scotland. Unfortunately, the consignee had gone abroad between the time of the show and the time of delivery. My advice card was re-directed abroad and I was, therefore, unaware that it would not be possible to effect delivery. The plants were despatched in due course and because the consignee was abroad they were not delivered. In addition, there was some delay on the Railway with the result that these six plants spent nearly a month in a tight straw bundle. Rhododendrons are very tough plants and none was much worse for this except a plant of 'Mrs. R. S. Holford.' This plant appeared to have become affected with "Bud Blast" on the journey and the leaves were also discoloured. Whereas the others survived the ordeal of a month's very close confinement and have now grown well the plant of R. 'Mrs. R. S. Holford' failed to recover, apparently dying from a virulent attack of "Bud Blast" affecting the leaves as well as the buds.

I suggest the following connection as another "cock-shy" to be proved or disproved—the month in the bundle without light and air produced in a short time the same effect as that of

woodland conditions over a longer period. As this last theory is even more speculative than the rest I feel that I should re-emphasize my object in writing these notes which is to suggest possible lines of investigation and to record observations which may be of use in research already going forward.

Although it is based on the rather flimsy evidence of the foregoing this, then, is my theory:

"Bud Blast" may not be a new disease. The present wide areas affected are due to the following causes:

(1) Unsuitability of woodland conditions to the old hardy hybrids, particularly those with a strong *arboreum* blood.

(2) Many plants having suffered badly in the May frost of 1935 and subsequent late frosts became more vulnerable to the disease.

(3) Deciduous trees in particular may harbour the fungus and thus help it to spread.

(4) The punctures made by the "Leaf Hopper" make healthy plants more susceptible to the disease once it has taken hold. (The evidence for this is stronger than for the other deductions being supported by MR. G. FOX WILSON'S note in the Rhododendron Association's Year Book of 1937).

I would suggest that the only real remedy is severe and skilful pruning and the burning of all wood removed. This will do no harm to large Rhododendrons and only means the loss of flower for one year—where "Bud Blast" is present this is already lost. Pruning should be carried out in late April or early May. A mulch of peat and cow manure should be given to the plants to encourage new growth and keep them in good health. To prevent a recurrence of the disease any frosted buds must be removed in addition to the careful picking of dead flower—here it is important to remove the whole of the truss and not leave part on the plant to rot. Where plants of the older hybrids are growing in woodland the trees should be thinned to allow plenty of light and air. Spraying with nicotine powder in July to keep down the "Leaf Hopper" will be an added precaution.

I am more than prepared for my theory to be proved wrong. I submit that it is a possible, even probable, explanation. The answers to the following questions may add to the evidence or refute it:

(1) Is "Bud Blast" confined to gardens where the older hybrids are growing in woodland?

(2) Are plants in the open, and well away from affected areas, free from the disease?

(3) Is "Bud Blast" more prevalent in the areas affected by the May frost of 1935.

(4) Is there any common denominator, I suggest *arboreum* blood, to the varieties affected?

CHROMOSOME NUMBERS IN SPECIES OF RHODODENDRON

By E. K. JANAKI AMMAL, D.Sc., I. C. ENOCH, B.Sc. and MARGERY BRIDGWATER

THERE are about 1,000 species of Rhododendron known to the systematic botanist—and of these 732 have been listed in the 1947 *Handbook of Rhododendrons* as being in cultivation. The number of Rhododendron hybrids is legion and more are being added to the list every year. A knowledge of the chromosome numbers of the species of this important genus should therefore be of interest both to the systematic botanist and to the Rhododendron breeder, in fact to all Rhododendron lovers.

We have counted the chromosomes of 360 species involving in all about 550 counts. They include representatives from all but one of the 43 series into which the species of Rhododendron are grouped. To facilitate easy reference to morphological description and geographical distribution of the species, we have followed the alphabetical order of the Series as in the book *Species of Rhododendron* published by the Rhododendron Society under the editorship of the late MR. J. B. STEVENSON. The subseries and species within the series are, however, arranged in ascending order of chromosome numbers. The basic chromosome number x in the genus Rhododendron is 13, and it will be seen from our list that a very large number of species are diploids (2n = 26). Tetraploids (2n = 54 = 4x), and hexaploids (2n = 78 = 6x), are common or even the general rule in some series. We have come across only one octoploid species, *R. pholidotum* (2n = 104 = 8x) in Heliolepis series, and one dodecaploid, *R. manipurense* (2n = 156 = 12x) in the Maddenii. This last number is also the highest for the family Ericaceae to which the Rhododendron belongs.

The new collection of Rhododendron species on Battleston Hill in Wisley Gardens forms the foundation of our investigations, and the Royal Botanic Gardens at Kew and Edinburgh have contributed in all about 150 plants, chiefly the tender species. Some of these have been in cultivation in the greenhouses of Kew and Edinburgh Gardens for several decades and we wish to thank the Directors and staffs for the privilege extended to us to collect and study them. We also wish to thank LORD ABERCONWAY for several species from Bodnant, and LORD DIGBY for *R. scyphocalyx* and MR. HOWLETT for *R. Prattii*.

Finally, we wish to thank MRS. STEVENSON who has so kindly allowed us to examine some of the Rhododendrons at Tower Court. This collection probably represents the largest assembly of Rhododendron species in any private garden in England. It may in fact be considered as the living herbarium to illustrate the 'Species of Rhododendron.' Here we have a collection of species in which geographical races and collections of different explorers are grown side by side. An examination of just over 65 species from Tower Court has shown that there exist not only differences in chromosome numbers between the species composing a series, but also differences between individuals classed as a single species by the systematic botanist.

The species problem in Rhododendron will finally be solved by a study of living populations such as these. Thus the importance of preservation and study of populations of Rhododendron species (with their collection numbers) brought together from distant lands by the enterprise and daring of botanists from JOSEPH HOOKER to KINGDON WARD, cannot be overstated.

		SOURCE OF MATERIAL*
Series ALBIFLORUM		
R. albiflorum	2n = 26	TC
Series ANTHOPOGON†		
R. anthopogon KW. 10541	2n = 26	E
R. temoense	2n = 26	W
R. tsarongense	2n = 26	W
Series ARBOREUM		
Sub-Series Arboreum		
R. arboreum	2n = 26	W
R. arboreum album	2n = 26	W
R. niveum	2n = 26	W
R. silvaticum	2n = 26	W
R. zeylanicum	2n = 26	K, E
Sub-Series Argyrophyllum		
R. argyrophyllum	2n = 26	W
R. Hunnewellianum	2n = 26	K
R. insigne	2n = 26	K
R. Ririei	2n = 26	W
R. Thayerianum	2n = 26	W
Series AURICULATUM		
R. auriculatum	2n = 26	W
R. Griersonianum F. 15815	2n = 26	E

* B = Bodnant; E = Royal Botanic Garden, Edinburgh; K = Royal Botanical Gardens, Kew; TC = Tower Court; W = R.H.S. Gardens, Wisley.

† Series belonging to Lepidote section.

		SOURCE OF MATERIAL*
Series AZALEA		
Sub-Series Nipponicum		
R. nipponicum	2n = 26	W
Sub-Series Obtusum		
R. indicum var. balsaminaeflorum	2n = 26	TC
R. indicum var. macranthum	2n = 26	W
R. linearifolium	2n = 26	W
R. linearifolium var. macrosepalum	2n = 26	TC
R. mucronatum	2n = 26	W
R. mucronatum var. Noordtianum	2n = 26	W
R. Oldhamii	2n = 26	TC, E
R. obtusum var. amoenum	2n = 26	W
R. obtusum var. Kaempferi	2n = 26	W
R. obtusum Kaempferi forma Mikawanum	2n = 26	W
R. pulchrum	2n = 26	W
R. phoeniceum var. calycinum	2n = 26	K
R. scabrum	2n = 26	K
R. serpyllifolium	2n = 26	TC
R. Simsii var. eriocarpum	2n = 26	W
R. Tschonoskii	2n = 26	W
R. tosaense	2n = 26	TC
R. yedoense	2n = 26	W
Sub-Series Schlippenbachii		
R. amagianum	2n = 26	W
R. Mariesii	2n = 26	TC
R. reticulatum	2n = 26	W
R. quinquefolium	2n = 26	TC
R. Schlippenbachii	2n = 26	W
R. Weyrichii	2n = 26	W
Sub-Series Canadense		
R. Albrechtii	2n = 26	W
R. pentaphyllum	2n = 26	TC
R. Vaseyi	2n = 26	W
R. canadense	2n = 52	TC
Sub-Series Luteum		
R. alabamense	2n = 26	W
R. arborescens	2n = 26	W
R. atlanticum	2n = 26	K
R. austrinum	2n = 26	TC
R. canescens	2n = 26	W
R. japonicum	2n = 26	W, TC
R. luteum	2n = 26	W
R. molle	2n = 26	W
R. nudiflorum	2n = 26	W

* B = Bodnant; E = Royal Botanic Garden, Edinburgh; K = Royal Botanical Gardens, Kew; TC = Tower Court; W = R.H.S. Gardens, Wisley.

Photos, J. E. Downward

FIG. 41—*R.* 'Gladys' var. 'Rose' A.M. May 2, 1950. Shown by the Commissioners of Crown Lands, Windsor Great Park (See p. 122)

RHODODENDRON AWARDS

FIG. 42—*R.* 'Mariloo' var. 'Eugenie' A.M. April 4, 1950. Shown by E. de Rothschild, Esq. (See p. 123)

Photo, J. E. Downward

RHODODENDRON AWARDS

FIG. 43—*R.* 'Janet' A.M. April 4, 1950. Shown by E. de Rothschild, Esq. (See p. 122)

		SOURCE OF MATERIAL*
Series AZALEA—*continued*		
Sub-Series Luteum—*continued*		
R. oblongifolium	2n = 26	W
R. occidentale	2n = 26	W
R. prunifolium	2n = 26	TC
R. roseum	2n = 26	W
R. serrulatum	2n = 26	W
R. viscosum	2n = 26	W
R. viscosum var. strictum	2n = 26	W
R. viscosum var. rhodanthum	2n = 26	W
R. viscosum var. glaucum	2n = 26	W
R. viscosum var. nitidum	2n = 26	W
R. roseum	2n = 26	W
R. calendulaceum	2n = 52	W
R. calendulaceum var. croceum	2n = 52	W
Series BARBATUM		
Sub-Series Maculiferum		
R. longesquamatum	2n = 26	TC
R. maculiferum	2n = 26	W
R. Morii KW. 10955	2n = 26	E
R. pachytrichum	2n = 26	W
R. strigillosum	2n = 26	W
Sub-Series Barbatum		
R. barbatum	2n = 26	W
R. Smithii	2n = 26	W
Sub-Series Crinigerum		
R. Bainbridgeanum	2n = 26	W
R. crinigerum	2n = 26	K, W
Sub-Series Glischrum		
R. diphrocalyx	2n = 26	K
R. glischrum	2n = 26	W
R. habrotrichum	2n = 26	W
Series BOOTHII†		
R. aureum KW. 5446	2n = 26	E
R. auritum	2n = 26	TC
R. Boothii	2n = 26	TC
R. chrysodoron F. 25446	2n = 26	E
R. leucaspis	2n = 26	W
R. megeratum	2n = 26	B
R. tephropeplum	2n = 26	B
R. xanthostephanum (aureum)	2n = 26	W

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† Series belonging to Lepidote section.

		SOURCE OF MATERIAL*
Series CAMELLIAEFLORUM		
R. camelliaeflorum	2n = 26	TC
R. lucidum	2n = 26	W
Series CAMPANULATUM		
R. Batemanii	2n = 26	K
R. campanulatum	2n = 26	W
R. fulgens	2n = 26	W
R. lanatum	2n = 26	W
R. Sherriffii	2n = 26	W
R. Wallichii	2n = 26	W
Series CAMPYLOGYNUM†		
R. campylogynum	2n = 26	W
R. myrtilloides	2n = 26	W
Series CAMTSCHATICUM		
R. camtschaticum	2n = 26	W, K
Series CAROLINIANUM†		
R. carolinianum	2n = 26	W
R. minus	2n = 26	W
Series CEPHALANTHUM†		
R. cephalanthum	2n = 26	B
R. crebreflorum	2n = 26	W
R. kongboense	2n = 26	W
R. ledoides	2n = 26	K
R. radinum	2n = 26	W
R. Sargentianum	2n = 26	E
R. sphaeranthum	2n = 26	W
R. trichostomum	2n = 26	W
Series CINNABARINUM†		
R. cinnabarinum var. Roylei	2n = 78	W
R. cinnabarinum var. blandfordiaeflorum	2n = 78	W
R. concatenans	2n = 78	W
R. Keysii	2n = 78	W
Series DAURICUM†		
R. dauricum	2n = 26	K
R. mucronulatum	2n = 26	W
Series EDGEWORTHII†		
R. bullatum	2n = 26	K
R. Edgeworthii	2n = 26	W
R. pendulum	2n = 26	TC
R. seinghkuense	2n = 26	TC

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		SOURCE OF MATERIAL*
Series FALCONERI		
R. arizelum	2n = 26	K
R. basilicum	2n = 26	K
R. coriaceum	2n = 26	W
R. eximium	2n = 26	E
R. Falconeri	2n = 26	W
R. fictolacteum	2n = 26	W
R. galactinum	2n = 26	W
R. Hodgsonii	2n = 26	B
Series FERRUGINEUM†		
R. ferrugineum	2n = 26	W
R. hirsutum	2n = 26	W
Series FORTUNEI		
Sub-Series Calophytum		
R. calophytum	2n = 26	W
Sub-Series Davidii		
R. planetum	2n = 26	W
R. praevernum	2n = 26	K
R. sutchuenense	2n = 26	W
Sub-Series Fortunei		
R. decorum	2n = 26	W
R. discolor	2n = 26	W
R. Fortunei	2n = 26	W
R. Houlstonii	2n = 26	W
R. Sheltonae	2n = 26	W
R. vernicosum	2n = 26	W
R. diaprepes	2n = 26	TC
R. diaprepes var. gargantuum	2n = 39	TC
Sub-Series Griffithianum		
R. Griffithianum Cooper 2315	2n = 26	E
Sub-Series Oreodoxa		
R. erubescens	2n = 26	K
R. Fargesii	2n = 26	W
R. oreodoxa	2n = 26	W
Sub-Series Orbiculare		
R. orbiculare	2n = 26	W
Series FULVUM		
R. fulvoides	2n = 26	W
R. fulvum	2n = 26	W
R. niphargum	2n = 26	W

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		SOURCE OF MATERIAL*
Series GLAUCUM†		
R. brachyanthum	2n = 26	W
R. charitopes	2n = 26	W
R. charitostreptum	2n = 26	W
R. curvistylum KW. 5843	2n = 26	E
R. glaucophyllum	2n = 26	W
R. glaucum	2n = 26	W
R. hypolepidotum	2n = 26	W
R. pemakoense	2n = 26	W
R. pemakoense KW. 6301	2n = 52	E
R. pruniflorum	2n = 26	W
R. tsangpoense KW. 5844	2n = 52	E
Series GRANDE		
R. coryphaeum	2n = 26	W
R. giganteum	2n = 26	E
R. Macabeanum	2n = 26	W
R. protistum	2n = 26	W
R. sidereum	2n = 26	W
R. sinogrande	2n = 26	W
R. Watsonii	2n = 26	K
Series HELIOLEPIS†		
R. aporinum	2n = 52	TC
R brevistylum	2n = 52	W
R. desquamatum	2n = 52	W, TC
R. rubiginosum Rock 03892	2n = 52	TC
R. rubiginosum	2n = 52	W
R. rubiginosum var. album	2n = 78	W
R. rubiginosum	2n = 78	TC
R. heliolepis	2n = 78	W, TC
R. pholidotum	2n = 104	TC
Series IRRORATUM		
Sub-Series Irroratum		
R. Aberconwayi	2n = 26	W
R. araiophyllum	2n = 26	K
R. Hardingii F. 15954	2n = 26	E
R. hylothreptum F. 5848	2n = 26	E
R. irroratum	2n = 26	W
R. lukiangense	2n = 26	E
R. ningyuenense	2n = 26	E
R. Shepherdii	2n = 26	TC
Sub-Series Parishii		
R. Elliottii KW. 7725	2n = 26	E
R. eriogynum F. 3508	2n = 26	E
R. facetum Farrer 1444	2n = 26	E
R. Kyawi (R. prophantum)	2n = 26	K
R. venator	2n = 26	W

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		SOURCE OF MATERIAL*
Series LACTEUM		
R. Beesianum	2n = 26	W
R. lacteum	2n = 26	W
R. Traillianum	2n = 26	W
R. Wightii	2n = 26	W
Series LAPPONICUM		
R. achroanthum	2n = 26	W
R. chryseum	2n = 26	W
as R. muliense F. 20432	2n = 26	TC
as R. muliense KW. 4023	2n = 26	TC
as R. muliense Rock 03829	2n = 26	TC
R. fastigiatum	2n = 26	W
R. fastigiatum Yunnan	2n = 52	E
R. fimbriatum F. 22197	2n = 26	E
R. glomerulatum	2n = 26	W
R. hippophaeoides Rock 21289	2n = 26	TC
R. hippophaeoides	2n = 26	K
R. hippophaeoides F. 21	2n = 26	TC
R. impeditum	2n = 26	W, TC
R. litangense F. 21297	2n = 26	E
R. microleucum F. 22108	2n = 26	E
R. orthocladum F. 16287	2n = 26	TC
R. orthocladum F. 21289	2n = 26	TC
R. polifolium	2n = 26	TC
R. paludosum	2n = 26	W
R. scintillans	2n = 26	W
R. scintillans F. 19450	2n = 26	TC
R. setosum	2n = 26	TC
R. spilanthum	2n = 26	E
R. stictophyllum	2n = 26	W
R. telmateium F. 29260	2n = 26	E
R. Websterianum	2n = 26	W
R. intricatum	2n = 26	TC
R. intricatum	2n = 52	W
R. lapponicum	2n = 26	Upsala. E
R. lapponicum var. 'Strawberry'	2n = 26	W
R. lapponicum 430/32	2n = 52	K
R. lysolepis	2n = 26	W
R. lysolepis KW. 4456	2n = 52	TC
R. rupicola	2n = 26	W
R. rupicola F. 20464	2n = 52	TC
R. rupicola F. 30889	2n = 52	TC
R. idoneum F. 9	2n = 26	TC
R. idoneum McL.S. 127	2n = 78	TC
R. flavidum	2n = 26	TC
R. flavidum	2n = 78	K
R. flavidum (White form)	2n = 78	W

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		SOURCE OF MATERIAL*
Series LAPPONICUM—*continued*		
R. compactum	2n = 52	W
R. capitatum	2n = 52	W
R. dasypetalum	2n = 52	W
R. Edgarianum	2n = 52	K, TC
R. drumonium R. 25377	2n = 52	E
R. ramosissimum	2n = 52	TC
R. ramosissimum KW. 5385	2n = 52	TC
R. russatum Rock 59209	2n = 39!	TC
R. russatum Rock 59564	2n = 52	TC
R. russatum	2n = 52	W
R. russatum Rock 21974	2n = 52	E
R. violaceum	2n = 52	TC
R. yungningense	2n = 52	TC
R. ravum F. 10423	2n = 52	E
R. ravum KW. 4486	2n = 52	TC
R. ravum F. 10435	2n = 78	TC
R. cuneatum	2n = 78	W
R. complexum	2n = 78	K
R. tapetiforme F. 19674	2n = 78	TC
Series LEPIDOTUM†		
R. imperator	2n = 26	W
R. lepidotum	2n = 26	K
R. obovatum	2n = 26	W
R. Baileyi	2n = 52	K
R. patulum	2n = 52	K, W
Series MADDENII†		
Sub-Series Ciliicalyx		
R. carneum	2n = 26	W
R. ciliatum	2n = 26	K
R. ciliicalyx F. 6764	2n = 26	E
R. Cubittii	2n = 26	E
R. Cuffeanum	2n = 26	E
R. dendricola F. 17227	2n = 26	E
R. formosum	2n = 26	K, E
R. inaequale	2n = 26	W
R. Johnstoneanum	2n = 26	W
R. Lyi	2n = 26	K
R. Parryae	2n = 26	E
R. scopulorum	2n = 26	K
R. Scottianum	2n = 26	E
R. supranubium	2n = 26	E
R. Valentinianum Rock 22302	2n = 26	E
R. Veitchianum	2n = 26	K

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		SOURCE OF MATERIAL*
Series MADDENII†—*continued*		
Sub-Series Megacalyx		
R. Dalhousiae	2n = 26	K
R. Lindleyi KW. 8546	2n = 26	E
R. megacalyx	2n = 26	B, E
R. Nuttallii	2n = 26	K, E
R. sinonuttallii	2n = 26	K
R. Taggianum F. 25865	2n = 26	E
Sub-Series Maddenii		
R. calophyllum	2n = 26	K
R. crassum	2n = 52	W
R. crassum F. 467	2n = 78	E
R. crassum Yu 21031	2n = 78	E
R. Maddenii KW. 7136	2n = 52	K
R. Maddenii Cooper 4980	2n = 78	E
R. polyandrum	2n = 78	TC
R. manipurense L. & S. 6573	2n = 78	TC
R. manipurense KW. 11532, KW. 2400	2n = 78	TC, E
R. manipurense KW. 9584	2n = 156	W
R. manipurense KW. 8400	2n = 156	TC
Series MICRANTHUM†		
R. micranthum	2n = 26	W
Series MOUPINENSE†		
R. moupinense	2n = 26	W
Series NERIIFLORUM		
Sub-Series Forrestii		
R. repens KW. 5845	n = 26	E
Sub-Series Haematodes		
R. Beanianum	2n = 26	W
R. chaetomallum	2n = 26	K
R. haematodes	2n = 26	W
R. mallotum	2n = 26	W
R. pocophorum	2n = 26	W
Sub-Series Neriiflorum		
R. euchaites	2n = 26	W
R. floccigerum	2n = 26	W
E. neriiflorum	2n = 26	W
R. phaedropum	2n = 26	W
R. sperabile F. 25569	2n = 26	E

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		SOURCE OF MATERIAL*
Series NERIIFLORUM—*continued*		
Sub-Series Sanguineum		
R. aperantum	2n = 26	B
R. apodectum	2n = 26	W
R. citriniflorum	2n = 26	W
R. dichroanthum	2n = 26	W
R. didymum	2n = 26	W
R. haemaleum	2n = 26	W
R. sanguineum	2n = 26	W
R. scyphocalyx	2n = 26	Lord Digby
Series OVATUM		
R. leptothrium	2n = 26	K
Series PONTICUM		
Sub-Series Caucasicum		
R. adenopodum	2n = 26	K
R. Ungernii	2n = 26	W
R. brachycarpum	2n = 26	W
R. caucasicum	2n = 26	K
R. Degronianum	2n = 26	W
R. Fauriei	2n = 26	W
R. hyperythrum	2n = 26	W
R. Makinoi	2n = 26	W
R. Metternichii	2n = 26	W
R. Smirnowi	2n = 26	W
R. yakusimanum	2n = 26	W
Sub-Series Ponticum		
R. californicum	2n = 26	W
R. catawbiense	2n = 26	W
R. maximum	2n = 26	W
R. ponticum	2n = 26	W
Series SALUENENSE†		
R. calciphilum	2n = 26	W
R. calostrotum F. 2712	2n = 26	TC
R. calostrotum Farrer 1045	2n = 26	TC
R. charidotes F. 25560	2n = 26	TC
R. keleticum F. 21756	2n = 26	TC
R. keleticum F. 19915	2n = 26	TC
R. nitens KW. 5482	2n = 26	TC
R. chameunum Rock 03951	2n = 26	TC
R. chameunum F. 30911	2n = 26	TC
R. radicans F. 19919	2n = 26	E
R. cosmetum	2n = 26	W
R. cosmetum	2n = 52	TC

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		SOURCE OF MATERIAL*
Series SALUENENSE†—*continued*		
R. riparium	2n = 26	W, TC
R. riparium F. 25566	2n = 52	TC
R. saluenense	2n = 26	TC
R. saluenense Exbury (dwarf form)	2n = 26	TC
R. saluenense KW. 7012	2n = 26	TC
R. saluenense	2n = 26	W, TC
R. saluenense F.	2n = 52	TC
R. prostratum F. 30891	2n = 52	TC
Series SCABRIFOLIUM†		
R. hemitrichotum	2n = 26	W
R. mollicomum F. 10347	2n = 26	E
R. pubescens	2n = 26	W
R. scabrifolium	2n = 26	W
R. spiciferum	2n = 26	W
R. spinuliferum	2n = 26	W
Series SEMIBARBATUM		
R. semibarbatum	2n = 26	TC, W
Series TALIENSE		
Sub-Series Adenogynum		
R. adenophorum	2n = 26	K
R. Balfourianum	2n = 26	K
R. Bureavii	2n = 26	W
R. dumicola	2n = 26	W
R. mimetes var. simulans	2n = 26	W
R. Prattii	2n = 26	Howlett
Sub-Series Roxieanum		
R. bathyphyllum	2n = 26	K
R. Roxieanum	2n = 26	W
R. tritifolium	2n = 26	W
Sub-Series Taliense		
R. aganniphum	2n = 26	W
R. flavorufum	2n = 26	W
R. vellereum	2n = 26	TC
Sub-Series Wasonii		
R. Wasonii	2n = 26	B
R. Wiltonii	2n = 26	W

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		SOURCE OF MATERIAL*
Series THOMSONII		
Sub-Series Campylocarpum		
R. callimorphum	2n = 26	W
R. caloxanthum	2n = 26	W
R. campylocarpum	2n = 26	W
R. cyclium	2n = 26	W
R. telopeum	2n = 26	W
Sub-Series Martinianum		
R. Martinianum	2n = 26	W
Sub-Series Selense		
R. beimaense	2n = 26	W
R. rhaibocarpum	2n = 26	B
R. selense	2n = 26	W
R. selense sub-species probum	2n = 26	W
Sub-Series Souliei		
R. croceum	2n = 26	W
R. litiense	2n = 26	W
R. Souliei	2n = 26	W
R. Wardii	2n = 26	W
R. Williamsianum	2n = 26	W
Sub-Series Thomsonii		
R. cerasinum	2n = 26	W
R. cyanocarpum	2n = 26	W
R. eclecteum	2n = 26	W
R. Hookeri aff. KW. 3238	2n = 26	E
R. Meddianum	2n = 26	W
R. Stewartianum	2n = 26	W
R. Thomsonii	2n = 26	W
Series TRICHOCLADUM†		
R. chloranthum	2n = 26	TC
R. trichocladum	2n = 26	B
Series TRIFLORUM†		
Sub-Series Polylepis		
R. polylepis	2n = 26	W
R. Amesiae	2n = 52	W
R. concinnum	2n = 52	W
R. pseudoyanthinum	2n = 52	TC

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		SOURCE OF MATERIAL*
Series TRIFLORUM†—*continued*		
Sub-Series Triflorum		
R. bauhiniiflorum KW. 7731	2n = 26	E
R. flavantherum	2n = 26	W
R. Keiskei	2n = 26	W
R. lutescens	2n = 26	W
R. triflorum	2n = 26	W
R. ambiguum	2n = 52	W
R. xanthocodon	2n = 78	W
Sub-Series Yunnanense		
R. rigidum	2n = 26	K
R. suberosum F. 26463	2n = 26	E
R. aechmophyllum	2n = 52	K
R. charianthum	2n = 52	K
R. zaleucum	2n = 52	W
R. Searsiae	2n = 52	W
R. chartophyllum	2n = 78	W
R. Davidsonianum	2n = 78	W
R. siderophyllum	2n = 78	W
R. yunnanense	2n = 78	W
Sub-Series Augustinii		
R. Augustinii	2n = 52	W
R. chasmanthum	2n = 52	B
Sub-Series Oreotrephes		
R. exquisitum	2n = 52	W
R. artosquameum	2n = 78	W
R. oreotrephes	2n = 78	W
R. timeteum	2n = 78	W
Series VACCINIOIDES†		
R. vaccinioides	2n = 26	K
Series VIRGATUM†		
R. oleifolium	2n = 26	K
R. racemosum	2n = 26	W
R. virgatum	2n = 26	W
TROPICAL SPECIES		
R. jasminiflorum	2n = 26	K
R. javanicum	2n = 26	K
R. Lochae	2n = 26	K
R. retusum	2n = 26	K

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† Series belonging to Lepidote section.

POLYPLOIDY IN THE GENUS RHODODENDRON

By E. K. JANAKI AMMAL, D.Sc.
(R.H.S. Gardens, Wisley)

INTRODUCTION

IN 1753 when LINNÆUS established the genus Rhododendron he placed seven species under it. Until the nineteenth century there were only nine. The era of Rhododendron begins with the collection of thirty magnificent species from the Sikkim Himalayas by JOSEPH HOOKER in 1850. These he sent to Kew from where they were distributed to various gardens in this country. At the beginning of the present century there were about a hundred species in cultivation. Over five hundred have been added since then through the collections of WILSON, FARRER, FORREST, KINGDON-WARD, SHERRIFF and LUDLOW, TAYLOR and YÜ, and more are arriving every year in the gardens of Europe and America from the great home of Rhododendron, the Sino-Himalayas—that sub-tropical region of the monsoon belt which extends from Sikkim and Bhutan eastwards into the heart of China, northwards into Tibet, south-eastwards into Assam and Burma. It is from this region—the home of many beautiful and hardy plants—that more than half of the eight hundred species of Rhododendron in cultivation have come.

CLASSIFICATION

The classification of Rhododendrons is unique in Botany. In *The Species of Rhododendron* which is the book of reference for the study of the genus, the eight hundred species are grouped into forty-three series, with several sub-series under some of them. Each series is centred round the best-known, often the oldest known, species, from which the series also takes its name. Around these "Master Species" revolve like the planets round the sun, one to as many as fifty species, and around some of these species may be gathered sub-species, revolving like moons—to continue the analogy. While there is a strong family likeness between the species that compose a series, they often overlap so much that it is very difficult—nay impossible in many cases—to state where a species ends and a new one begins. This flexibility of the species, however annoying it may be to the systematic botanist, is of the greatest interest to any student of Variation, for nowhere in nature is it possible to see so clearly a population of

plants in which the minute gradations from one type to another are so well preserved as in Rhododendron. Nowhere, too, in the plant kingdom have we such a large assembly of species with such diverse morphological characters held together under one generic name. This is partly due to the stamp of "nobility" bestowed on the genus by its patrons and to the conservatism of the nobility of this country who grow them and would resist any attempt to separate from its ancestral stock a plant which had even a remote affinity to the noble genus. Thus has been brought together a collection of plants from the far ends of the earth, whose analysis is bound to shed light not only on the species problem but on even more fundamental questions relating to Plant migration, Distribution and Evolution.

DR. HUTCHINSON, with his usual intuition for tracing phylogenetic relationships, has published in the 1946 *Rhododendron Year Book* the family tree of Rhododendron. It is this classification which I have used as a framework on which to build the cytological edifice of the genus. It will be seen that a number of sub-series have been given the status of series by HUTCHINSON.

Three rather well defined sections, chiefly distinguished by their leaf characters, emerge from this galaxy. They are (1) *The Glabratae*—the glabrous leafed, also known as the Azalea Section in which HUTCHINSON also includes series Albiflorum, Ovatum and Semibarbatum ; (2) The *Lepidotes* with scales on their leaves, of which the tiny *R. lapponicum* with a circumpolar distribution and the Rock Rose, *R. ferrugineum* of the Alps, are good examples ; and (3) the *non-Lepidotes*, in which the hairs take the place of scales. Most of the last are, like *R. arboreum*, large trees and in general also show characters considered by systematists to be "primitive."

CYTOLOGY

What light do chromosome studies shed on the classification of Rhododendrons ?

There have been so far only two published records of chromosome studies in Rhododendron—the first was a study of sixteen species and nine hybrids by K. SAX in 1930 and the other chromosome counts of nine Japanese Rhododendrons, mainly Azaleas, by M. NAKAMURA in 1931 (see *Chromosome Atlas of Cultivated Plants*, by C. D. DARLINGTON and E. K. JANAKI AMMAL). All the species examined by SAX and NAKAMURA were diploids, $2n = 26$, except two Azaleas, *R. canadense* and *R. calendulaceum* from north-eastern North America, which were tetraploids. These remain the only two polyploid species found among the Azaleas and the only two polyploids in America, (see Map p. 97).

A list of chromosome numbers of 368 species involving about 550 counts made at the cytological laboratory at the Royal Horticultural Society's Gardens, Wisley, is published above in this book. From this list, it will be seen that a large section of the species are diploids (2n = 26). This includes the entire section of the primitive *non-lepidotes* of which 156 species were examined by us. The one exception was an aberrant triploid seedling of *R. diaprepes* found in cultivation in Tower Court gardens.

It is when we come to the *Lepidote* section that we come across polyploidy on a grand scale—in all 78 polyploids were found here representing more than a third of the species in which counts were made. The chart opposite gives a bird's-eye view of polyploidy in this section.

DISTRIBUTION OF POLYPLOIDS IN LEPIDOTES

Polyploids occur in eight out of the twenty-four series of this great section and the degree of polyploidy ranges from triploids 2n = 39 to dodecaploids, 2n = 156 as shown below.

Diploids and tetraploids in *Glaucum, Lepidotum, Saluenense.*

Diploids, tetraploids and hexaploids in *Lapponicum* and *Triflorum.*

Diploids, tetraploids, hexaploids and one dodecaploid in *Maddenii.*

Tetraploids, Hexaploids and Octoploids in *Heliolepis* (no diploids).

Hexaploids only in *Cinnabarinum.*

The most prevalent type amongst polyploids is the tetraploid, forty-four in number, next come the hexaploids with twenty-two species.

The series Cinnabarinum of Sikkim first collected by HOOKER are *all hexaploids* and it is interesting to note that *R. concatenans* which might be described as an Assam version of the Sikkimese *R. cinnabarinum* is also a hexaploid. The Rhododendrons of Sikkim and Bhutan are markedly devoid of tetraploids, only hexaploids and diploids being found in this region as also in Assam and N. Burma (see map on page 98). The hexaploid Cinnabarinums of Sikkim may have migrated from more south-easterly regions or they may have arisen directly from diploids by doubling of the chromosomes of aberrant triploid hybrids.

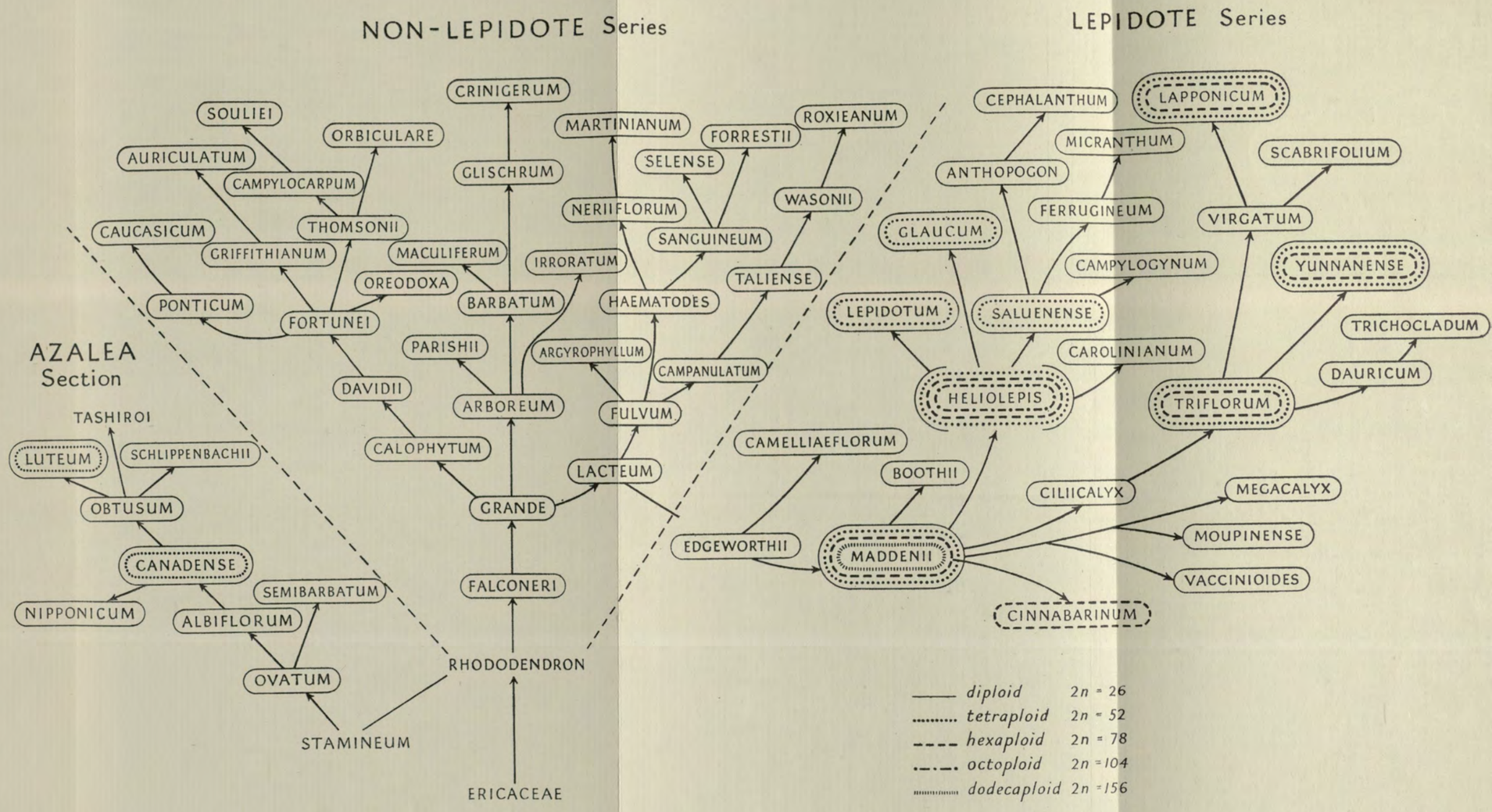
As expected in a plant that depends solely on sexual reproduction for its distribution, triploids, which are noted for their high sterility, are rather rare, but they have been collected in the vicinity of tetraploids as in the *R. russatum* found by Rock.

CHART FOR POLYPLOIDY IN RHODODENDRONS

The framework of this diagram is the chart for the classification of Rhododendrons by DR. J. HUTCHINSON, published in the *Rhododendron Year Book*, 1946. Upon this phylogenetic tree, I have superimposed the type of polyploidy found in the series.

According to HUTCHINSON, the most primitive species in the genus are found in the non-Lepidote section. Cytological support is given to this assumption by the fact that the series included in the section are all diploids ($2n = 26$).

The occurrence of several complex polyploid series like *Maddenii*, *Triflorum* and *Heliolepis* with a surrounding satellite of diploids, gives a bird's-eye view cytologically of species formation in Rhododendron.



Their presence indicates that hybridization does take place between diploids and tetraploids in nature. Chromosome doubling in these triploids can give rise to hexaploids.

It will be seen from the chart that the Series *Maddenii* is a sort of "Mother Series" from which emerge wholly diploid sub-series like *Megacalyx* and *Ciliicalyx* and the hexaploid *Cinnabarinum*.

The diploid *Maddenii* will probably be found to be related to the little-known tropical Rhododendrons of Malaya, the Philippines and New Guinea. Four tropical species examined by us, including *R. Lochae* (the only species in Australia), are diploids.

In the sub-series Maddenii we have an interesting example of the occurrence of two chromosome numbers in the same species, *R. manipurense* K.W. 11532 and L. & S. 6573 from S.E. Tibet are hexaploids, while K.W. 8400 from Assam and the Mishmi hills and K.W. 9584 from Upper Burma and the Tibetan frontier are dodecaploids (2n = 156). Tetraploid and hexaploid forms of *R. Maddenii* and *R. crassum* were also found.

It is obvious that such discoveries can be made only when chromosome studies are made on *more than one collection of the same species*. We have done this only in a few species of Lapponicum, Maddenii, Glaucum and Saluenense series from the collections at Tower Court and Edinburgh.

More polyploids than diploids occur in the Triflorum and Lapponicum Series. This group of hardy mountaineers have adapted themselves to life on high mountains by polyploidy. According to KINGDON-WARD in *R.Y.B.* (1947) who knows Rhododendrons intimately in the wild, "the highest alpines do not flower before June, by which time enough snow has been melted to expose them." In general it has been found that within a series the earliest flowering Rhododendrons are diploids and the later ones tetraploids. Thus polyploidy has been one of the ways in which these groups have been able to combat the difficulties of altitude. This aspect of polyploidy in Rhododendrons will be dealt with more fully elsewhere. Suffice it to say that there exists a marked correlation between polyploidy and altitude and this is best seen in the Series Triflorum, where diploids like *R. polylepis*, *R. triflorum* and *R. flavantherum* are never found over 9,000 ft. while tetraploids like *R. ambiguum*, *R. zaleucum* are found only over 10,000 ft.

Hexaploids seem to be a mixed group and have in general a wider range, some of them like *R. siderophyllum* definitely keep between 6,000 and 7,000 ft., while others like *R. chartophyllum* extend from 6,000 to 11,000 ft.

It is very likely that when more species of Triflorum have been collected and analysed for chromosome number, here too

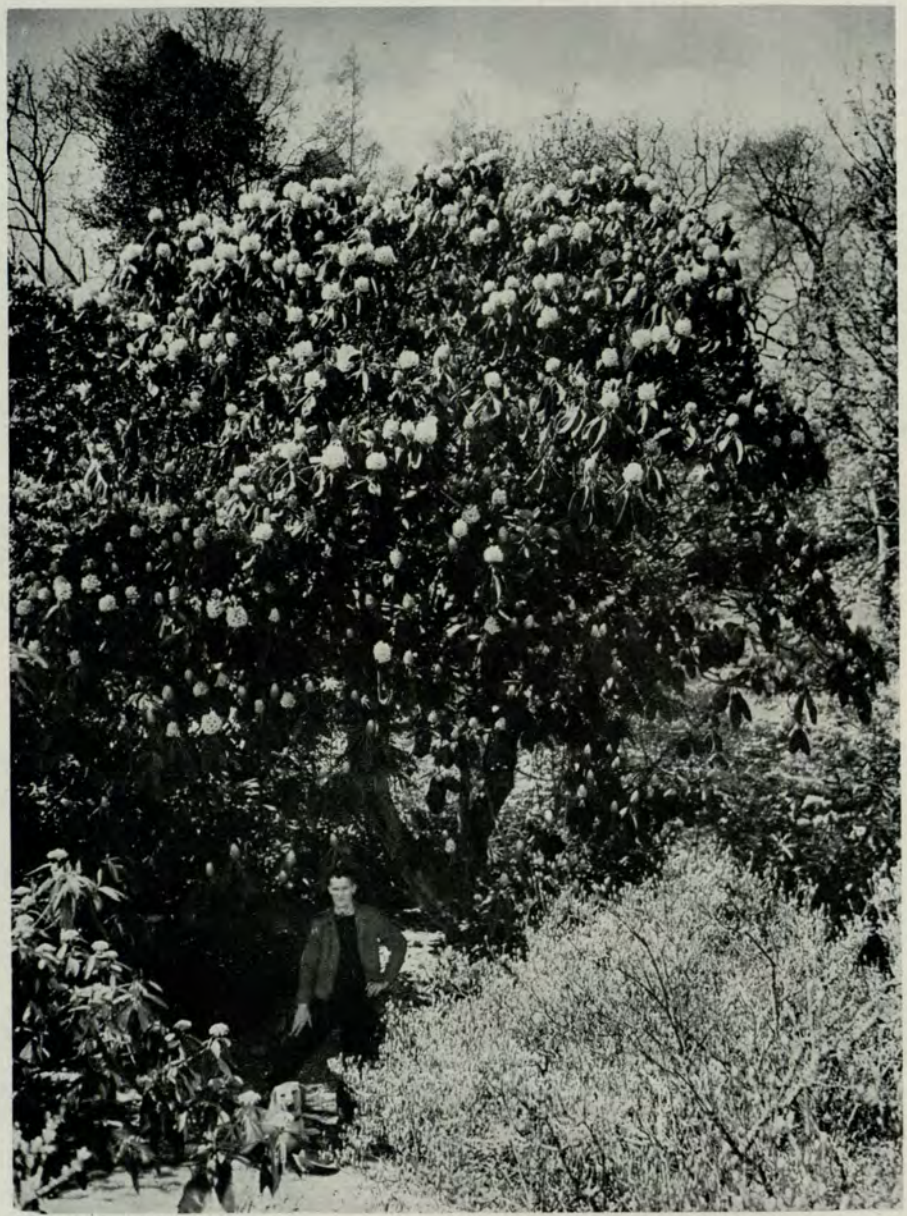
cryptic polyploid forms will be found within species which the systematic botanist has been unable to distinguish by morphological differences.

We now turn to another polyploid series of hardy mountaineers, the Heliolepis, in some respects the most advanced of the *Lepidotes*. No diploids have been found in this series so far.

According to DR. HUTCHINSON, this Asian series is related to the geographically widely separated *Ferrugineum* and *Carolinianum* series of the Alps and N. America. In one series at least, i.e. *Heliolepis*, the absence of species with the diploid chromosome number seems to point to a reverse and convergent movement rather than that indicated by DR. HUTCHINSON. It is highly probable that these "Mother Series" are "freezing-pots" where diploids are undergoing active speciation by hybridization followed by chromosome doubling or trebling. It only requires a change in the direction of arrows in DR. HUTCHINSON'S chart to bring out the evolutionary relationships between the diploid satellite series and the polyploids they have given rise to. The only octoploid Rhododendron, *R. pholidotum* (see map on p. 98), was found in the heart of Rhododendron country—the high mountains of Yunnan and Western Szechwan, where tetraploids and hexaploids are found growing side by side.

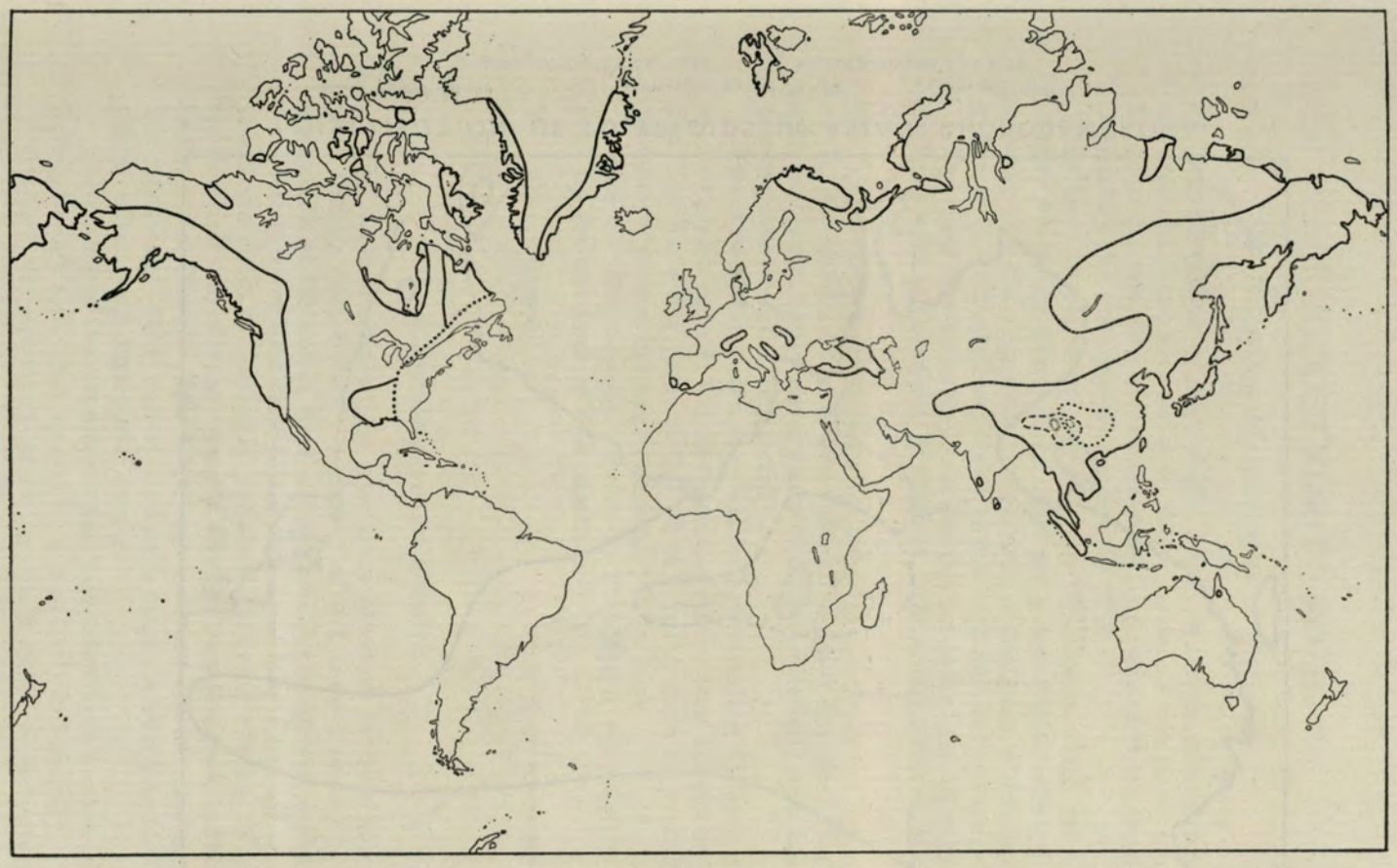
Photos, P. M. Synge

FIGS. 44 and 45—*R. Macabeanum* at Trewithen, Cornwall (See p. 99)



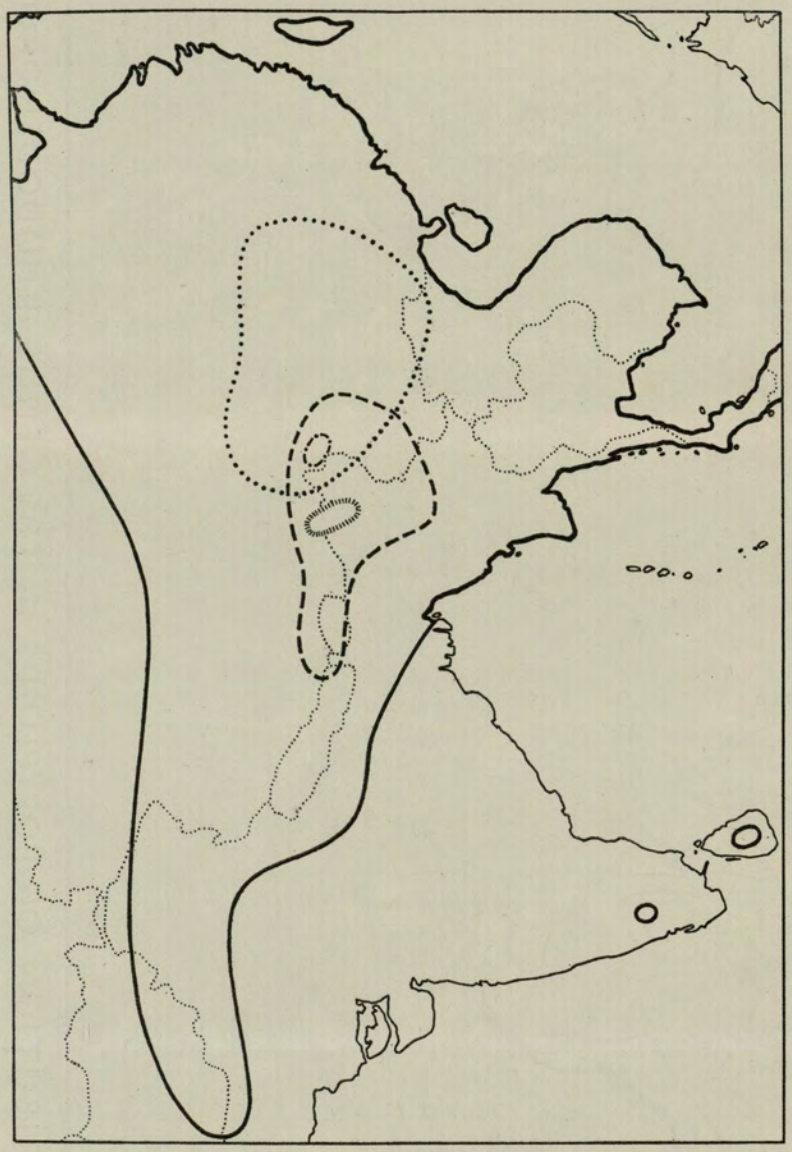
Photo, "The Bulletin," Glasgow

FIG. 46—*R. Falconeri* from Hooker's seed collected in 1849, photographed April 1950 in Mr. Gibson's garden at Rhu. (See p. 101)



DISTRIBUTION OF POLYPLOIDS IN THE GENUS RHODODENDRON

——diploid 2n = 26 .....tetraploid 2n = 52 – – –hexaploid 2n = 78 –.–.–octoploid 2n = 104 ·····dodecaploid 2n = 156


DISTRIBUTION OF POLYPLOIDS IN ASIAN RHODODENDRONS
diploid 2n • 26
tetraploid 2n • 52
hexaploid 2n • 78
octoploid 2n • 104
dodecaploid 2n • 156

RHODODENDRON NOTES

Rhododendron Macabeanum at Trewithen

THE Trewithen plant, which raises so much admiration amongst those who see it in flower, is one of two given me by COLONEL BOLITHO of Trengwainton, who raised them from seed under the KINGDON-WARD number 7742.

Of the two plants given to me one has flowers which are a muddy white, but those of the other are a clear yellow which is enhanced by the very dark green leaves of the plant which has grown to be a shapely bush about 10 feet high and 24 feet across.

It flowers very well every year and has not so far been affected by frost, even in the winter of 1946–47. The truss, which carries 30–40 flowers opens fully to form a complete, rather stiff rosette, the flowers being 8 lobed (Figs. 44 and 45).

It may be of interest to add that, although it appears to set seed each year, I have never so far obtained virile seed from my plants; however, it layers readily.

I have not used *R. Macabeanum* for hybridization either as a seed or pollen parent, but as there are many other Rhododendrons within a few yards of this plant it is the more surprising that no virile seed has been collected.

Here *R. Macabeanum* flowers in mid-March reaching its peak by the last week of that month.

Trewithen, Cornwall GEORGE H. JOHNSTONE

Rhododendrons at Brodick

The Rhododendrons this year have bloomed exceptionally well, though unfortunately a shower of wet snow followed by sharp frost at the end of April killed a number of blooms, and a very strong wind with frost in the middle of May killed all the young shoots on two plants of *giganteum* (FORREST 27730). For the first time one of these FORREST *R. giganteum* flowered, in the beginning of March. The flower was a darker colour than the KINGDON-WARD (6782) variety—a deeper magenta with a decided "shot" effect, with dark bluish purple.

The plants of the KINGDON-WARD *giganteum* were a mass of flower, though somewhat spoiled by a frost early in February.

Another fine specimen which has only come to flowering

during the last two or three years is *grande* (KINGDON-WARD 6261) —the most lovely pink of any Rhododendron in this garden.

The various plants of the Maddenii series are flowering well, but not quite so covered with bloom as last year.

A new variety (new in Brodick at any rate), flowering since about the third week in June, has just been sent to DR. MACQUEEN COWAN to be identified. He says, "I find from correspondence that this seed is part of the so-called MCLAREN collection . . . The plant is near *R. decorum* but rather a fine form and may perhaps be worth a varietal name but I shall have to first discover whether I can find out any particulars about its locality of origin and so on." Unfortunately during the War most of the labels got lost which accounts for this uncertainty as to its exact name. It is apple-blossom pink, with a scent like *auriculatum*, but the flowers are smaller.

R. Elliottii has flowered well this year, and so did *formosum*.

R. rhabdotum flowered in the early part of July, and was a magnificent sight covered with bloom, but unfortunately the very heavy rain which fell from the 14th July for four or five days completely spoilt the flowers.

Brodick Castle, Isle of Arran THE DUCHESS OF MONTROSE

Rhododendron Griffithianum × *auriculatum*

(or the reverse cross)

I WONDER if those who have grown this cross find it unusually and unaccountably susceptible to Root disease (Honey Fungus I imagine). We have succeeded in slaying so many during the last dozen or so years and not only small young plants, but established plants 10–15 feet high which had started to flower and had done so for a number of years. We don't rate the cross high among the offspring of *Griffithianum* but it is an attractive enough thing, flowering relatively late as it does. I think we have one decent plant left out of the many we have tried. And in every case it has been this plant which has died in all varieties of situations and soil and exposure, while neighbouring plants, in many cases rated as far more tender, have continued to flourish.

We wonder if there may be a predisposition to fungoid root disease in that cross, whichever way round it has been made?

Glenarn, Rhu, Dunbartonshire A. C. GIBSON

Sir Joseph Hooker

Rhododendrons *Falconeri* and *Thomsonii*—(1849–1850)

A plant still grows here, and continues to flourish, though I "hae ma doots" for how long. It is one of the seedlings from HOOKER'S 1849 or 1850 introductions. A picture of *Falconeri*, in flower, was published in the *New Flora and Sylva* a matter of ten years or more ago.

My wife, my mother and I spent a short time checking up on the dimensions of this plant to-day. We found that the height was 25 feet from ground level. The projection of the circumference, as measured by pegs on the ground was a matter of rather over 90 feet (Fig. 46).

At the ground level, the trunk took the tape at 6 feet 3 inches in circumference. At a height of roughly 6 feet from the ground (I was used as the yardstick) the branches were five in number and the circumference of each measured respectively: 1 foot 1 inch, 2 feet 3 inches, 1 foot 5 inches, 2 feet and 1 foot 6 inches.

At a height of 6 inches, where the trunks bifurcated we found that, of the two main bosses, one had a circumference of 3 feet 4 inches and the other of 3 feet 7 inches.

This old plant never sets seed on its own pollen and is self sterile, as might be expected, unless we intervene with a paint brush. But several of the many of its artificially inspired offspring planted near by have flower buds in promise for the 1950 flowering season and I fear we may have to cut these out, or bequeath them elsewhere, otherwise the Bee population is sure to work between the old tree and one of the pups, if these, or other big-leaved Rhododendrons are living within a radius of 100 yards or so, even in our woodland conditions in the West of Scotland. Another danger, in my mind, is likely to be *R. Macabeanum*, one flowering plant of which, again, is within 100 yards of the old and majestic and revered plant which is the subject of my note. An odd *fictolacteum* and *arizelum*, within a similar distance, might spell disaster, *qua* seed setting, and they are present too. So also are flowering plants of *basilicum* and *eximeum*.

Quoi faire? I suppose that we cut out, or transplant all the other big-leaved species, within a radius of 50 yards or more, because we most certainly could not pick off the seed heads which the old warrior might set in 1950 if pollinated by any one or more of the above.

A comparable plant of *R. Thomsonii*, of the same vintage, died after the great snowfalls of the 1941–46 winters. It lost trunk after trunk through sheer weight of snow, and in the end,

what was left of it fell a victim to Honey Fungus as we diagnose that disease. Fortunately here also, as in the case of *Falconeri*, we have many replacements, now at flowering size.

Glenarn, Rhu, Dunbartonshire A. C. GIBSON

*A Note on the Ripening of Rhododendron seeds**

How long do Rhododendron fruits take to ripen? When is the proper time to collect seed? Long experience has taught me that it is unwise to collect seed of alpine species in South-East Asia before the second half of October. November is absolutely safer though you may have to scrape away the snow to get at them!

But these dwarf plants were not in flower before June, and above 13,000 feet not before July; and the latter are under deep snow again by November, by which time they have probably scattered their seeds. Thus four to five months seems to be the maximum time needed by alpines to ripen their seeds.

Any collector who, banking on the fine weather usually experienced between October and Christmas, delays collecting seed of alpine Rhododendrons till December, however, is asking for trouble. The capsules of most alpine species open widely, the seeds are like dust, and a light puff of wind scatters them, leaving every valve empty. Here a film of early snow, which usually melts within a week or two, has a conservation value.

Down in the damp valleys, however, that is in the warm temperate zone, it is different. Here grow big-leafed tree species like *R. magnificum* and huge-flowered species like *R. Nuttallii* whose immense capsules are still tightly shut in December. The latter do not open before Christmas, though they may gape at the seams. The flowers, however, open in February or March, and the seeds take nine to ten months to ripen.

At intermediate altitudes where are both tree and shrub species of Rhododendron, whose flowers open in April, May or June, the seeds also ripen in November, or December.

Thus the answer to the question, How long does a Rhododendron take to ripen its seed is: any time, from four to ten months, depending on the species.

(Since the opening of the capsule is a question of the drying out of the valves, the seeds may actually be ripe some time before the capsule opens. And since big thick-walled capsules, such

* This was intended as an addition to CAPTAIN KINGDON-WARD'S paper Rhododendrons in the Wild, published in the Report of the Rhododendron Conference last year, but unfortunately was received too late for insertion.

as those of *R. Nuttallii* are characteristic of a damp climate, the time taken to ripen seeds may not really be so variable as it appears.)

Collectors should note that a few seeds of most forest Rhododendrons can usually be extracted from the capsules, even so late as April in the year following flowering; but not after the rainy season has set in.

F. KINGDON-WARD

Rhododendron moupinense

When I received the seeds I noticed that the collector mentioned that it was an epiphyte and consequently I planted the young plant in an old tree stump where it has grown most successfully and flowered beautifully every year. In fact to my mind it is one of the most beautiful Rhododendrons and, if it gets through the frost, forms a magnificent sight in the early spring. I am afraid the photograph does not show very well that the shrub is growing in a tree, which is one of the great features of its beauty (Fig. 49).

Swansea ADMIRAL A. WALKER-HENEAGE-VIVIAN

Rhododendrons in an Australian Garden

(Some extracts from letters received by the Editors from MR. LEIGH S. FALKINER, Huntly Burn, Mount Macedon, Victoria.)

Most, if not all, of the species we have here were, I think, originally imported from the East by a MR. RYAN in the 1870's and the names ascribed to them, now, are of doubtful authenticity. Some are even unknown. Some are still surviving in the late MR. RYAN'S garden. Rhododendrons thrive in the hills around Melbourne, and this is true of the hilly country around Sydney and Adelaide. They are also grown in gardens in those cities, but they require plenty of shade and water and only the morning sun, or diffused sunlight. They do not give the results as regards growth or size of flowers that are obtained in the hills.

Our garden "Huntly Burn" is situated on the eastern slope of Mt. Macedon (3300 feet). Our altitude is 2000 feet above sea level, 40 miles north of Melbourne. The soil is volcanic red loam of great depth, with no clay or rock subsoil. Analysis shows a *p*H value of about 4.6. The decay of vegetable matter through centuries in a situation of dampness, humidity and shade has resulted in the formation of soil containing much humus and

organic matter. In places it is almost peaty, and we have abundance of leafmould from the imported deciduous trees, many of which are well over 50 years old. Conifers of great size are also numerous and provide shelter from wind and shade.

Originally the mountainside was covered with a fairly dense Eucalyptus wood with an undergrowth of indigenous shrubs. Ferns and bracken still abound along the tiny mountain streams.

Of necessity we have to grow some of our Rhododendrons almost in the open. The only shade these get is provided by conifers and other trees which protect them from the western sun and to some extent from the midday sun. Others grow near or under deciduous trees such as Oaks, Silver Birches, Limes or very large Apples and Pears. The more tender ones are grown with a background of evergreen trees or shrubs, and under the branches of conifers so that they receive only the morning sun, and some broken shade in the summer. I have never risked such plants as *arboreum*, *Augustinii* and *Falconeri*, or 'Loderi' and other tender hybrids in any more exposed positions, as I understand they require a certain amount of protection from severe frost and snow.

Our main difficulties are heat and drought in summer, and severe frosts and light snow in winter. About the end of the normal flowering season we sometimes have weeks without rain, and quite often hot, drying, dust-laden winds blow. This, of course, necessitates watering the shrubs. The water we have to use, although crystal-clear and tasteless, contains a percentage of iron sufficient to turn pink Hydrangeas blue. Hydrangeas, by the way, grow to perfection if given sufficient water and shade.

To offset these conditions we have abundant winter rains and mists, and plenty of humidity in summer; and for the most part moisture-laden air all the year round. The average rainfall is 34 inches. Owing to the nature of the soil and the sloping contour of the ground the drainage is excellent. In order to keep the soil moist in summer and to combat frost in winter we find it necessary to mulch freely. Provided this is done many of the hardy hybrids such as 'Alice,' 'Cynthia,' 'Broughtonii,' 'Pink Pearl,' 'White Pearl' and others do reasonably well once they are established. Their flowers soon fade and lose their colour in the full sun at midday in summer, and partial shade suits them better.

With regard to the species (with the exception of the more tender ones such as *arboreum*, *Augustinii* and *Falconeri* which I have had the opportunity of observing) they seem to be as hardy as the "B" group of hybrids. I am by no means an authority on Rhododendrons, and our range of species is very limited,

and their names doubtful. Because of their trumpet shape and number of stamens etc. I concluded many of them to belong to the Maddenii Series. One, known here as *calophyllum*, is, I notice, described as not in cultivation in England. We have *Fortunei*, *Wightii*, *Falconeri*, *grande*, etc. correctly named, and others called *glaucum*, *Gibsoni* and *virginale*. When I was in England I was told that the old hybrid 'Fragrantissimum' is very tender, and I never saw one there. Here it grows magnificently, reaching a height of about 10 feet, and is most floriferous. The flowers are of great size. This Rhododendron needs heavy pruning to keep it bushy.

As in England we find Oak leaves about the best for mulching, but we use other slow-rotting leaves, and even Pine-needles. I have never seen sawdust used, but some of my friends mulch with Wattle-bark after it has been used by the tanners. We also topdress with well-rotted cow manure in late spring. Green grass-clippings are not good. Grown in reasonably suitable conditions our Rhododendrons are free from pests and diseases and their flowers are comparable with the average English blooms. I think I told you in a previous letter that our shade temperatures here range from below freezing to 100° F.

Since my last letter I have made further observations and enquiries on the behaviour of Rhododendron species here.

The consensus of opinion among both nurserymen and amateurs is that with few exceptions they are as hardy as most hybrids, which seem to be more hardy with us than they are in England. The exceptions are mostly of the tree type such as *arboreum*, *diaprepes*, *Falconeri*, *grande*, *sinogrande* etc., which, of course, are damaged by high winds and cannot endure drought, severe frost or snow. Some of these large-leaf Rhododendrons do not take kindly to transplanting once they have become large plants. Some growers strongly condemn even light cultivation of the soil around their roots: this seems to apply to all the species. Specimens of the above in and around Melbourne are 60 years old or more, and 15 to 20 feet high.

The best collection of hybrids and Azaleas is to be found in MR. H. E. BROOKE'S garden some 50 miles from Melbourne on Mt. Macedon, where many large specimens of choice varieties are growing under appropriate conditions of shade and shelter, in artistic groupings and layout. Many species are also represented there. There are other private gardens with a good assortment of Rhododendrons, and some of the nurserymen have many good varieties for sale as well as the older and less desirable sorts.

Rhododendron 'Countess of Haddington'

In the *Rhododendron Handbook* this beautiful hybrid is said to be "usually a greenhouse shrub." It was raised by PARKER, and in 1862 it was awarded F.C.C. It is only given two stars in the list: probably it deserves another. Its parents are *ciliatum* × *Dalhousiae*. Its fragrant flowers are white, flushed with rose. In winter, if it is at all severe, the 'Countess' loses her flower buds. After the mild winter of 1948–49 my little plant smothered itself with flowers, at the end of April.

The plant came to me in 1941 as a baby (through the kindness of COLONEL E. H. W. BOLITHO), and I found the very nook for it where it has stood the winters well (two of unusual severity). The profusion of its flowering must have somewhat exhausted it this year, and I was careful to pull off all the flower heads afterwards. In doing so I was delighted to find what a strong aromatic scent the capsules have—very much like that of the leaves of scented-leaf pelargoniums.

Lis Escop. Truro J. W. HUNKIN, BISHOP OF TRURO

THE RHODODENDRON SHOW
May 2 and 3, 1950

By N. K. GOULD

ONCE again the Rhododendron season has come and gone, and it should be remembered for its freedom from the disappointment so often experienced as a result of spring frosts or early summer drought. Certainly the bad spell of weather in late April, when many gardens were temporarily covered by a deep layer of snow, did a great deal of damage in some places, but there was little or no evidence of this to be seen at the Show a week later. The competitive classes, eighty-two in number, were accommodated on parallel, tiered stages at the far end of the New Hall, and the large and varied groups occupied the major part of the remaining floor-space.

One of the most notable exhibits we have seen, and which won the Society's Gold Medal, was arranged by SIR GILES LODER, BT., and consisted entirely of varieties and hybrids of Rhododendron 'Loderi' from his garden at Leonardslee, Horsham. The vases, arrayed on high tiers against the wall under the clock, held large branches laden with bloom; affording a unique opportunity to observe the delicate gradations of tone and hue between the several varieties. Some of the more outstanding were 'King George,' 'Dainty Maid,' 'Pink Coral,' 'Patience,' with enormous flowers, 'Georgette', a variety of unusually good colour, and 'Venus' with wide open, pale flowers. Among the hybrids, some of which were un-named, the following were especially conspicuous: 'White Glory,' 'White Lady,' 'Cretonne,' 'Sunkist' and 'H. Whitner.'

The Silver-gilt Flora Medal was awarded to MESSRS. HILLIER & SONS of Winchester, for a large floor group, dominated by a huge bush of a lovely ivory-coloured 'Lady Bessborough.' A somewhat smaller specimen of 'Naomi' var. 'Pink Beauty' at one end was balanced by a plant of *Bodinieri* at the other, and arranged around these were *Schlippenbachii*, 'Glory of Littleworth' in very good condition, and 'China' with large cream flowers contrasting most effectively with the rich colour of 'Earl of Athlone' and 'Phoebus.' A pleasing underplanting of several Kurume Azaleas and various small-flowered species completed the exhibit.

THE SUNNINGDALE NURSERIES, Windlesham, staged an extensive exhibit consisting of Azaleas in a wide range of varieties.

The Kurumes, planted in large batches, included the ever-popular 'Hinomayo' and 'Hinodigiri,' the white 'Seikai,' 'Irohayana' in apple-blossom pink, and 'Azuma Kagami' of similar hue. Several of the large-flowered 'Wadai' varieties were shown, also the snowy 'Palestrina.' Height in the centre was provided by a plant of the rose-shaded cream Rhododendron 'Day Dream.'

MESSRS. D. STEWART & SONS, LTD., of Ferndown had a flat and pleasingly open exhibit of Azaleas with a few Japanese Maples scattered among them. Around a central mass of 'Pontica' (*R. luteum*) there were batches of 'Orange Beauty,' 'Palestrina,' 'Favorite,' a very pleasing deep rose pink, and *obtusum amoenum.*

In the group arranged by MESSRS. J. WATERER, SONS & CRISP, LTD., of Bagshot, Azaleas were more closely massed, and the variously pink-shaded 'Feodora,' 'Apple Blossom,' 'Alice' and 'Ivette' predominated. Contrast was supplied by specimens of 'Blue Tit' and *fastigiatum*, and the centre was filled by a large bush of *obtusum amoenum.*

The outstanding feature of the KNAP HILL NURSERY COMPANY'S exhibit was a twelve-foot bush of *rubiginosum* bearing plentiful lilac blossoms, flanked by a fine half standard 'Pink Pearl' and a shapely example of 'Loder's White.' The front of the group was finished with yellow and orange Azaleas.

MR. FREDERICK STREET, of Heathermead, Woking, concentrated on hardy hybrids, showing a fine range, including 'Mount Everest,' 'Bodartianum,' the striped 'Hugh Wormald' and the violet-blotched, white, 'Sappho.' Other favourites like 'Purple Splendour,' 'Mrs. Lindsay Smith' and 'Letty Edwards' were represented, and all were in perfect condition.

The Competitive Classes were numerous, and for the most part well filled. Despite the bad weather less than a week before, exhibitors were able to produce a great variety of flowers in very fine condition.

Five exhibitors entered for Class 1, which required one truss of each of eight species, and among their entries were to be found no fewer than twenty-four different species, drawn from many different series. The first place was taken by LORD ABERCONWAY and the NATIONAL TRUST with a collection made up of *arboreum* and *Griffithianum* in very beautiful forms, a large and shapely truss of *Hodgsonii*, together with *campanulatum*, *Thomsonii*, *Fortunei*, *fictolacteum* and *Falconeri*. SIR HENRY PRICE'S second prize entry comprised *Falconeri*, *fictolacteum*, *decorum*, *Thomsonii*, *habrotrichum*, *arboreum*, a lovely truss of a pure sulphur-yellow *lacteum* and a small and dark *haematodes*. ADMIRAL WALKER-HENEAGE-VIVIAN was third, showing *Lindleyi*,

euchaites, Elliottii, Johnstoneanum, Griffithianum, venator, sinogrande and *grande*.

In Class 2, for three species, the quality was equally high. COLONEL R. S. CLARKE took the first prize with *venator, lacteum* and *Falconeri*. The HON. JOHN MCLAREN showed a large blush-lilac *fictolacteum, Falconeri* and another species of the same series, for second place. THE COMMISSIONERS OF CROWN LANDS were third with *campylocarpum, Fortunei* and an unusually attractive frilled and spotted *fictolacteum*; and LORD ABERCONWAY fourth with the last-named species in a lovely dark rose form (Rock 59588), *Wightii* and *vernicosum*. Among the five other exhibits a very shapely, deep-coloured *niveum* from SIR HENRY PRICE was conspicuous.

As usual, the standard in Class 3, for eight hybrids, was very high. The first prize went to MR. E. DE ROTHSCHILD for a noteworthy collection of 'Fortune,' 'Gaul,' 'Yvonne' var. 'Pride,' 'Carita,' 'Kiev' and 'Gibraltar' (a pair of intensely-coloured *Elliottii* hybrids), 'Naomi' and 'Karkov.' ADMIRAL WALKER-HENEAGE-VIVIAN'S second prize entry consisted of 'Grand Prix,' 'Luscombei,' 'Beauty of Littleworth,' 'W. Leith,' 'Bulstrode Park', 'Beryl' and two un-named hybrids. For the third place LORD ABERCONWAY put in 'Cornish Cross,' 'King George,' 'Gretia' of superb fiery crimson, 'Laura Aberconway,' 'Fair Maiden' of glowing carmine, and three un-named plants whose parentages were given as *Thomsonii* × *Fortunei, Houlstonii* × 'Penjerrick,' and 'Rose Perfection' × *Griffithianum*, respectively.

Class 4 called for one truss each of three hybrids. From Exbury came 'Cornish Cross,' 'Chanticleer' and a grand truss of 'Idealist,' to win the first prize. ADMIRAL WALKER-HENEAGE-VIVIAN was given second place for an extremely dark blood-red *pocophorum* hybrid, 'Pink Glory' and an un-named *Thomsonii* hybrid. 'Luscombei,' 'Letty Edwards' and 'Venus' won the third prize for MR. D. W. HOWLETT.

In Class 5, for one species, the McLaren Challenge Cup was won by LORD ABERCONWAY with the Carclew variety of *Falconeri* followed by the blush form of *Aberconwayi* from THE COMMISSIONERS OF CROWN LANDS. Next in order of merit came the superb dark rose *fictolacteum* mentioned above, and a clean lavender-coloured *Hodgsonii*, both from Bodnant. Most of the other eleven entries were species of the Series Falconeri.

Class 6, for a single truss of one hybrid, was naturally popular, and no fewer than fourteen entries appeared. ADMIRAL WALKER-HENEAGE-VIVIAN took the Loder Challenge Cup with a pale flesh-pink flower from 'White Glory' × 'Cornish Cross,'

LORD ABERCONWAY'S exhibit of 'Laura Aberconway' and COLONEL CLARKE'S 'Hermione' were placed second and third, respectively. Some other outstanding entries were MR. J. B. STEVENSON'S fine form of 'Damaris,' SIR GILES LODER'S 'Pink Bride,' and a good example of 'Lady Digby' shown by LORD DIGBY.

In Class 7, one truss or spray of each of six hybrids raised by, or in the garden of, the exhibitor, were required. MAJOR DE ROTHSCHILD brought from Exbury a charming set consisting of 'Idealist,' 'Eleanore,' 'Carita,' 'Fortune,' 'Kiev' and 'Naomi' var. 'Glow,' to win the Crosfield Challenge Cup. For the second prize LORD ABERCONWAY showed 'Ivery's Scarlet,' 'Fair Maiden,' 'Adlo,' 'Cardinal,' a hybrid from *Griersonianum* × *Delavayi*, and 'King George' × (*herpesticum* × *Griersonianum*). Bodnant plants also filled the third place, and among these were 'Laura Aberconway,' 'Thais,' 'Coreta', and some un-named hybrids.

One spray or branch, with one or more trusses, of either a species or a hybrid, was asked for in Class 8, the height from the top of the vase not to exceed 30 inches. LORD DIGBY entered a large spray of a very pleasing blue form of *Augustinii*, to win the first prize. 'King George,' in lovely condition, filled the second and third places, from ADMIRAL WALKER-HENEAGE-VIVIAN and LORD ABERCONWAY, respectively. Nine other entries formed an interesting and varied group.

A single truss of *arboreum* or its subspecies was specified for Class 9. Nearly a dozen entries illustrated the remarkable colour-range of the species, a bright pink and a light crimson-scarlet from Bodnant filling the first and third places and the second prize being awarded to LORD DIGBY for a pretty carmine-pink variety. Any other Rhododendron of the same series was admissible to Class 10, and here ADMIRAL WALKER-HENEAGE-VIVIAN scored with a charming lavender *niveum*. MR. STEVENSON'S second prize entry consisted of a deeper purple form of the same species, followed by a clear rose-pink *argyrophyllum* from LORD ABERCONWAY.

In Class 11, Barbatum Series, SIR HENRY PRICE showed a close-trussed, rose-coloured *habrotrichum*, ADMIRAL WALKER-HENEAGE-VIVIAN *crinigerum*, white with basal maroon blotch, and MR. STEVENSON *habrotrichum*.

Nearly all the exhibitors in Class 12, for a truss or spray of the Boothii Series, relied upon *tephropeplum*, and this species was shown in a deep and rich rose form by ADMIRAL WALKER-HENEAGE-VIVIAN to win first prize and in a much paler form by LORD DIGBY for the second. LORD ABERCONWAY'S *megeratum* was third.

One truss of any Rhododendron of the Campanulatum Series was called for in Class 13. MESSRS. SLOCOCK'S specimen of *Wallichii*, of a pleasing clear lavender shade, was placed first, LORD ABERCONWAY'S wide-belled heliotrope *campanulatum* second, and the last-named species, almost white with a flush of colour, won the third prize for ADMIRAL WALKER-HENEAGE-VIVIAN.

Class 14, for a spray of the Cinnabarinum Series, not to exceed 18 inches from the top of the vase, attracted only three entries. THE COMMISSIONERS OF CROWN LANDS entered a very shapely specimen of *concatenans*, for the first prize, LORD DIGBY'S *cinnabarinum* var. *blandfordiaeflorum* was second, and another nice *concatenans* from Exbury filled the third place.

Eleven exhibits were entered in Class 15, requiring one truss of the species *Falconeri*, and showed a good deal of variation. All were good, and the judges must have experienced difficulty in awarding the prizes. The first four were from SIR HENRY PRICE, MR. E. DE ROTHSCHILD, MR. STEVENSON and LORD DIGBY. The trusses of *fictolacteum* in Class 16 displayed considerable variation in form if not in quality. SIR HENRY PRICE won the first prize with a bold truss of large white, frilled blossoms, LORD DIGBY'S deeply blotched form was second. The DUCHESS OF MONTROSE showed a flower with unusually deep lobes and attractive rose marginal colouring, and the HON. JOHN McLAREN secured the fourth place with a pale lilac, rather narrow-tubed form. Other interesting things were shown by MR. STEVENSON, THE COMMISSIONERS OF CROWN LANDS, LORD ABERCONWAY, ADMIRAL WALKER-HENEAGE-VIVIAN, and MR. E. DE ROTHSCHILD.

Class 17 was open to other species of the Falconeri Series. The prize-winning entries here were a light rosy-lavender *Hodgsonii* from Bodnant, a delicate ivory-coloured *basilicum*, with fine foliage, from ADMIRAL WALKER-HENEAGE-VIVIAN, and a white, maroon-spotted *rex* from MR. STEVENSON.

It was rather surprising to find only five entries in Class 18, for a truss of *Griffithianum*. The prizes were taken by ADMIRAL WALKER-HENEAGE-VIVIAN, the DUCHESS OF MONTROSE, and LORD ABERCONWAY. The next class, for any other species of the Fortunei Series, was rather more strongly supported, with nine entries. LORD DIGBY'S *Fortunei*, in an even, deep pink colour, was first. MRS. D. M. ROGERS brought a flesh-pink *decorum* to win second place, and LORD ABERCONWAY'S nicely shaped truss of *Fortunei* was third. Several exhibitors entered *orbiculare*. LORD DIGBY and LORD ABERCONWAY were the only exhibitors in Class 20, for a truss of any Rhododendron of the Fulvum Series, showing very similar trusses of the species *fulvum*.

In Class 21, for a truss of any species of the Grande Series, the DUCHESS OF MONTROSE swept the board with a magnificent truss of *sinogrande*, high and well-spaced, with perfect leaves up to 24 inches long. ADMIRAL WALKER-HENEAGE-VIVIAN'S *grande* and LORD ABERCONWAY'S *coryphaeum* were also impressive, and were awarded the second and third prizes, respectively.

Class 22, for species of the Irroratum Series, is never very well filled, and on this occasion only two prizes were awarded; the first to MR. E. DE ROTHSCHILD for a heavily maroon-flecked example of the type species, the second to THE COMMISSIONERS OF CROWN LANDS, for the blush-pink, spotted form of *Aberconwayi*. In the next class, for a truss of the Lacteum Series, the first place was filled by a very pure sulphur-yellow *lacteum* from SIR HENRY PRICE, followed closely by the same species with a somewhat more compact truss from LORD ABERCONWAY. A handsome truss of *Wightii* from ADMIRAL WALKER-HENEAGE-VIVIAN won the third prize, and the same species was entered by six other competitors.

In Class 24, for any Rhododendron of the Megacalyx Sub-series, from two exhibits ADMIRAL WALKER-HENEAGE-VIVIAN'S specimen of *Lindleyi* was chosen for a prize. In the following class, for other species of the Maddenii Series, the first prize went to MR. D. W. HOWLETT for a beautiful sulphur-yellow *burmanicum*. ADMIRAL WALKER-HENEAGE-VIVIAN won the second, with a three-flowered truss of the rather uncommon *Lyi*, with pure white flowers and foliage markedly glaucous beneath. LORD ABERCONWAY entered a nice form of *inaequale* for the third place, and also showed *Valentinianum*.

The Sub-series Haematodes was represented in Class 26 by two good trusses of the type species, shown by THE COMMISSIONERS OF CROWN LANDS and LORD ABERCONWAY. MR. E. DE ROTHSCHILD put in *Beanianum*. In Class 27, for a truss of the Neriiflorum Sub-series, the prizes went to MR. E. DE ROTHSCHILD, LORD DIGBY and MRS. ROGERS, who all entered *euchaites*. There were also exhibits of *sperabile*, *floccigerum* and *neriiflorum* from other competitors. No award was made in the following class, where the sole entry was a small truss of *aperantum*, the only species admissible, from LORD ABERCONWAY. In Class 29, for any species of the Sanguineum Sub-series other than *aperantum*, LORD DIGBY'S *scyphocalyx* the only exhibit, went unawarded.

Class 30, reserved for species of the Taliense Series, attracted only two entries; MR. HOWLETT took the first prize with *Prattii*, its wide, blush-pink flowers forming a neat truss, and LORD ABERCONWAY won the second for the pale sulphur-coloured *Wasonii*.

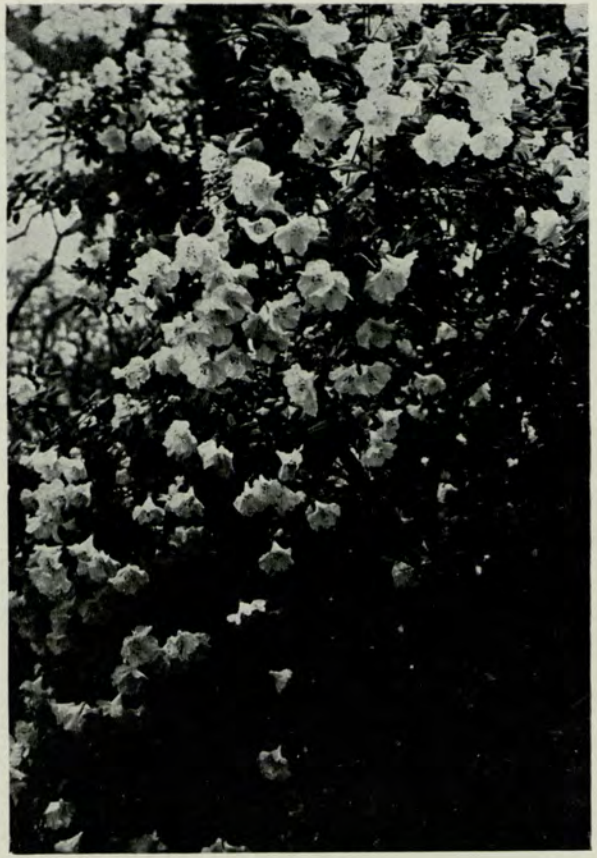
Photo, J. E. Downward

RHODODENDRON AWARDS

FIG. 47—*R.* 'Fascinator' A.M. April 4, 1950. Shown by Lord Aberconway and the National Trust (See p. 122)

Photo, J. E. Downward

FIG. 48—*R. prunifolium* A.M. August 1, 1950. Shown by the Commissioners of Crown Lands (See p. 123)



Photo, Mogridge

FIG. 49—*R. moupinense* as an epiphyte in Admiral Walker-Heneage-Vivian's garden (See p. 103)

Photo, A. T. Johnson

RHODODENDRONS AS EVERGREENS

FIG. 50—*R. lepidostylum* (See p. 21)

There was keen competition in Class 31, which required a spray of any species of the Campylocarpum Sub-series, all but two of the exhibitors showing the type species. The DUCHESS OF MONTROSE showed an exceptionally handsome clear yellow form which was awarded the first prize; and two entries from LORD DIGBY filled the second and third places.

In Class 32, for a spray of any species of the Martinianum or Selense Sub-series, the only exhibit was from LORD ABERCONWAY, who showed a very pretty, compact, truss of *rhaibocarpum* with deep rose, widely-expanded bells.

A well-flowered spray of a richly-coloured and wide-flowered form of *Williamsianum* entered by LORD ABERCONWAY, received the first place in Class 33, for the Souliei Sub-series, and LORD DIGBY'S rather smaller flower of the same species was second.

The next class, for the Thomsonii Sub-series, was filled by a handsome truss of *Thomsonii* with long, evenly-coloured corollas from the DUCHESS OF MONTROSE; and very good examples of the same species from ADMIRAL WALKER-HENEAGE-VIVIAN and LORD ABERCONWAY.

In Class 35, for a spray of any deciduous Azalea, THE COMMISSIONERS OF CROWN LANDS gained the first prize with an excellent form of *Vaseyi*, in perfect condition, and a very similar spray shown by MR. STEVENSON was given second place. Following this came a beautiful spray of *Schlippenbachii* from LORD DIGBY. Among several other entries LORD ABERCONWAY'S richly-coloured *Albrechtii*, COLONEL CLARKE'S *tosaense*, and a branch of *quinquefolium* from Exbury were conspicuous. The next class required sprays of three different deciduous Azalea species. In the first place were *Schlippenbachii*, *reticulatum* and *Albrechtii* from Bodnant; in the second MR. DE ROTHSCHILD had *quinquefolium*, *Mariesii* and *Albrechtii;* and in the third were *canadense*, *Vaseyi* and *reticulatum*, from THE COMMISSIONERS OF CROWN LANDS.

The classes for evergreen Azaleas provided a very spectacular display. In Class 37, for a single spray, SIR GILES LODER won the first prize with a magnificent branch of 'Hinodegiri,' covered with flowers in perfect condition, and the CROWN LANDS exhibit of the same variety won the third. The second place was occupied by a very clear pink *roseum* from ADMIRAL WALKER-HENEAGE-VIVIAN. SIR GILES LODER also entered *linearifolium*. 'Hinodegiri' was shown by MAJOR HARDY and MR. HAWORTH-BOOTH, LORD DIGBY showed the uncommon double mauve 'Fuji-manyo,' and MR. DE ROTHSCHILD the brilliant 'Eddy.' In the next class, for sprays of three different evergreen Azaleas, ADMIRAL WALKER-HENEAGE-VIVIAN'S group of *obtusum* var.

amoenum, 'Inashoto' and 'Nyacino' was given first place, followed by 'Hinomayo,' 'Apple Blossom' and 'Apollo' from MR. DE ROTHSCHILD, and *Kaempferi*, 'Hinomayo' and 'Hinodegiri' from THE COMMISSIONERS OF CROWN LANDS. An extra prize was awarded to LORD DIGBY for 'Kimigayo,' 'Hinodegiri' and 'Apple Blossom.'

Some very neat and pretty exhibits were to be seen in Class 39, for any species of the Anthopogon or Cephalanthum Series. THE COMMISSIONERS OF CROWN LANDS showed *radinum* for the first prize, LORD ABERCONWAY took the second with *cephalanthum*, and MR. DE ROTHSCHILD'S *sphaeranthum* was placed third. It was somewhat surprising to find only one entry in the next class, for the Campylogynum Series, and this was an attractive light rosy-violet variety of the typical species from THE COMMISSIONERS OF CROWN LANDS. In complete contrast, Class 41 displayed sprays of the Edgeworthii Series, and here there was a superb spray of the very large, pink-flushed *bullatum* Rock 59202) entered by LORD STAVORDALE and given first prize. There was also a lovely *Edgeworthii* from MR. STEVENSON, and the distinct yellow *seinghkuense* (K. W. 6793) shown by MR. HOWLETT.

In Class 42, for any species of the Glaucum Series, the species *glaucum* was entered by six competitors, the first and third places being filled by LORD ABERCONWAY, the second by LORD DIGBY. In Class 43, for the Heliolepis Series, the first and second places were occupied by two distinct forms of *desquamatum* from LORD DIGBY, and the third by LORD ABERCONWAY'S *rubiginosum*.

Species of the Lapponicum Series were required in Class 44. THE COMMISSIONERS OF CROWN LANDS were awarded the first prize for a vivid violet-blue *scintillans*. LORD ABERCONWAY took the second with *chryseum*, and MR. DE ROTHSCHILD'S light rosy-purple *ravum* was given the third. The three entries in Class 47, for a spray of the Saluenense Series, all of the type species, were from MR. STEVENSON, LORD ABERCONWAY and MR. DE ROTHSCHILD. The DUCHESS OF MONTROSE won the first prize in Class 48, for any species of the Scabrifolium or Virgatum Series, with a large and shapely branch of *spinuliferum* with narrow orange-red bells. The same exhibitor's rose-pink *spiciferum* was given second place, followed by COLONEL CLARKE'S *spinuliferum*. There were only two entries in Class 49, for the Trichocladum Series—*chloranthum* from COLONEL CLARKE and *trichocladum* from LORD ABERCONWAY.

There was no lack of entries in Class 50, for a spray of *Augustinii*, and all were of high quality and good colour. The

prizes in this class went to MR. DE ROTHSCHILD, LORD DIGBY and MR. HOWLETT. In the next class, for any other species of the same Sub-series, ADMIRAL WALKER-HENEAGE-VIVIAN brought a lovely blue form of *chasmanthum* and a more mauve-tinted form, which filled the first and second places. The third place was taken by LORD ABERCONWAY'S delicate blue, green-spotted form of the same species.

Class 51 required a spray of a species of the Oreotrephes Sub-series, and here LORD DIGBY was the most successful exhibitor, his two forms of *timeteum* being placed first and second. The remaining prize went to MR. DE ROTHSCHILD for a good dark-hued *oreotrephes*. Unusually rich colour was in evidence in the next class, for the Polylepis Sub-series, where MR. STEVENSON won the first prize with his fine violet *pseudoyanthinum*. LORD DIGBY and LORD ABERCONWAY supplied sprays of *concinnum* to fill the second and third places.

The Triflorum Sub-series was represented in Class 54 by a goodly variety of species. LORD ABERCONWAY entered a charming specimen of the waxy buff-yellow *xanthocodon*, which won the first prize; and the second place was occupied by a rosy-purple *triflorum* (Mc.L. A. H. 314) also from Bodnant. From the same garden came *flavantherum*; LORD DIGBY showed *concatenans*; and MRS. ROGERS entered *ambiguum*.

All the credits in Class 55, for a spray of any species of the Yunnanense Sub-series, went to LORD ABERCONWAY, who entered *Davidsonianum* var. *roseum*, showing perfect form of flower, a large, full branch of *caeruleum* var. *album*, and a paler, more lilac-tinted *Davidsonianum*. Among the other entries we noticed a most attractive, white-flowered *zaleucum*, from ADMIRAL WALKER-HENEAGE-VIVIAN. The last class of the main species section, for any species not already catered for, produced only two entries. One was an unlabelled pink flower which had much the appearance of *Souliei*, from LORD DIGBY; the other was a pink-flowered form of *Aberconwayi*, from Bodnant.

In Class 57, for a single truss of any hybrid of the Arboreum Series, 'Cornubia' and *arboreum* × *Griffithianum*, entered by LORD ABERCONWAY, filled the first and second places; a hybrid of *grande* and *arboreum*, labelled 'Red *argenteum*', from Exbury, was third. In the next Class, for one truss of a named variety of 'Loderi,' 'King George' was the choice of most competitors. Fine bold trusses of that variety from SIR GILES LODER, LORD DIGBY and ADMIRAL WALKER-HENEAGE-VIVIAN were selected as the prize-winners. Class 59 asked for any hybrid between *Griffithianum* and any species other than *Fortunei* and *campylocarpum*. MR. STEVENSON'S 'Lamellen' was placed first, followed

by 'Cornish Cross' from LORD ABERCONWAY and MR. DE ROTHSCHILD.

Class 60, for a truss of any hybrid between *Griffithianum* and a hybrid, always has exciting possibilities, and in the first place on this occasion was MR. DE ROTHSCHILD'S large, pure white variety of 'Yvonne' so well-named 'Pride.' LORD ABERCONWAY showed a very interesting flower raised from 'Cornish Cross' × *Griffithianum*, and SIR GILES LODER 'Pink Bride.' A very high standard was also attained in the next class, for a single truss of 'Penjerrick.' ADMIRAL WALKER-HENEAGE-VIVIAN won the first prize with a cream form with contrasting red pedicel and style, and a very similar exhibit from MR. DE ROTHSCHILD was given second prize. LORD DIGBY'S flower, in the third place, was the pure white, green-stalked form. LORD ABERCONWAY showed one of his distinct pink forms.

A dozen or more very delightful exhibits found their way to Class 62, for a truss of any hybrid of the Campylocarpum or Souliei Sub-series other than 'Penjerrick' or 'Mrs. Randall Davidson'; and of these MR. STEVENSON'S clear yellow 'Damaris' was given the place of honour. A pretty form of 'Letty Edwards' with shapely truss of sulphur bells, from MR. HOWLETT, was second, and LORD DIGBY'S 'Campxen,' with broad, flared and waved corollas third. Some others of note were MESSRS. SLOCOCK'S 'Devonshire Cream,' ADMIRAL WALKER-HENEAGE-VIVIAN'S 'Unique,' and 'Gladys' from THE COMMISSIONERS OF CROWN LANDS.

Class 63 required one truss of any hybrid of the Neriiflorum Series. CAPTAIN ADAMS-ACTON showed a handsome currant-red hybrid of *neriiflorum* and *haematodes*, which gained the first place; and from Bodnant came the glowing 'Phoebus' and 'Hiraethlyn' to fill the second and third places.

Few classes were more popular with the competitors than Class 64, for a truss of any Thomsonii hybrid. The deep rose-red 'Luscombei,' from ADMIRAL WALKER-HENEAGE-VIVIAN won the first prize, and the same variety from MAJOR HARDY was third. MR. DE ROTHSCHILD entered a handsome truss of 'Chanticleer' which filled the second place. In the next class, for a *Griersonianum* hybrid, all three places were filled by entries from LORD ABERCONWAY, with 'Laura Aberconway,' 'Fair Maiden' and 'Siren.'

Class 66, for a single truss of any Azaleodendron attracted only three entries, of one variety, 'Glory of Littleworth,' the exhibitors being LORD DIGBY, MR. DE ROTHSCHILD and MR. HOWLETT.

Hybrids of the Cinnabarinum Series were represented in

Class 67 by some beautiful examples of several interesting plants. From THE COMMISSIONERS OF CROWN LANDS came a spray of 'Lady Rosebery' to gain the first prize. This was closely followed by a floriferous branch of a good form of 'Lady Chamberlain' from SIR HENRY PRICE, and a more deeply coloured form of the same hybrid from LORD DIGBY. The last-named exhibitor also entered 'Cinnkeys'; and LORD ABERCONWAY showed 'Peace,' 'Royal Flush' and 'Lady Chamberlain' var. 'Bodnant Yellow.' There was also a high standard of quality in the next class, where a truss or spray of a hybrid of Maddenii or Edgeworthii parentage was required. LORD ABERCONWAY took the first prize with a spray of 'Tyermanii' carrying four trusses, each composed of three immense white flowers. The second prize went to COLONEL CLARKE for a truss of five huge, yellow-flushed, Lily-like blooms of *Taggianum* × *Nuttallii*. MAJOR HARDY took the third with a large branch of the lovely 'Fragrantissimum'; and a fourth prize was awarded to CAPTAIN ADAMS-ACTON for 'Felise.' This was raised from *ciliatum* × *burmanicum*, and has rather small, wide-belled, shrimp-pink flowers in trusses of about twelve.

Blue was the dominant colour in Class 69, for a spray of a hybrid between the Triflorum and Lapponicum Series. The prize-winning entries were LORD ABERCONWAY'S 'Bluebird,' of intensely rich colouring, 'Blue Tit' from MESSRS. SLOCOCK, and 'Blue Diamond' from SIR HENRY PRICE. In the following class, for a hybrid between the Triflorum Series and any series other than Lapponicum, MR. HOWLETT showed an attractive amethyst hybrid *Augustinii* × *desquamatum*. MR. DE ROTHSCHILD'S 'Eleanore' filled the second place, and complete contrast was provided by LORD ABERCONWAY'S elegant white-flowered 'Peace,' which was placed third.

There was but one entry in Class 71, for a hybrid of *repens* or *aperantum*, and this was LORD ABERCONWAY'S 'Elizabeth' in glowing Turkey-red. Class 73 called for any hybrid between two species other than those already provided for, and here there was an interesting variety of colour and form. In the first place was 'Yellow Hammer' from Bodnant, then came 'China' from MESSRS. SLOCOCK, and 'Lady Digby' from LORD DIGBY. Among the other entries MR. DE ROTHSCHILD'S 'Humming Bird,' that distinctive and charming product of *haematodes* × *Williamsianum*, was conspicuous, as were also LORD ABERCONWAY'S *sinogrande* × *Wightii*, and the HON. JOHN MCLAREN'S *eximium* × *sinogrande*.

In Class 74, for any hybrid between a species and a hybrid other than those provided for in the foregoing classes, LORD

ABERCONWAY'S 'May Morn' was first, MR. DE ROTHSCHILD'S 'Kiev' second, and MESSRS. SLOCOCK'S 'Goldfort' third. In the following class, for a hybrid between two hybrids not already provided for, LORD ABERCONWAY filled the first and third places with 'Thais' and 'Alcibiades,' and the second was occupied by MR. DE ROTHSCHILD'S 'Janet.'

MAJOR HARDY won the first prize in Class 76, for six nurserymen's hardy hybrids, with 'Goldsworth Pink,' 'Rose Perfection,' 'Harvest Moon,' 'Bodartianum,' 'Cunningham's Sulphur' and 'Langley Park.' MESSRS. SLOCOCK'S second prize entry comprised 'Goldsworth Pink,' 'China,' 'Earl of Athlone,' 'Letty Edwards,' 'Dairymaid' and 'Mount Everest.' LORD DIGBY'S selection, which was given third place, was 'Bodartianum,' 'Luscombe's Scarlet,' 'Apple Blossom,' 'Cynthia,' 'Gauntlettii' and 'Mrs. G. W. Leak.'

In Class 77, for one plant of a dwarf species for the rock-garden, there were only two entries, both from THE COMMISSIONERS OF CROWN LANDS: a nice, compact bush of *radinum*, covered with blush-pink flowers, and a smaller specimen of *impeditum*. In the following class, for a specimen plant not over 4 feet high, of any Rhododendron, THE COMMISSIONERS were again successful with a well-grown bush of *Aberconwayi*, carrying numerous blossoms (Fig. 32), and an almost perfect bush of 'Hinomayo' completely covered with bloom. MR. DE ROTHSCHILD supplied a young plant of 'Prelude,' with plentiful large sulphur-yellow flowers, for the third place.

The first prize in Class 79, for two leaves of each of six Rhododendrons, was won by the DUCHESS OF MONTROSE, who showed fine specimen leaves of *giganteum*, *basilicum*, *Falconeri*, *sinogrande*, *arizelum* and *Macabeanum*. The second prize went to LORD DIGBY, who chose *Falconeri*, *recurvoides*, *Macabeanum*, *crinigerum* var. *euadenium*, *mallotum* and *sinogrande*, and the third to ADMIRAL WALKER-HENEAGE-VIVIAN, for a collection consisting of *mallotum*, *sinogrande*, *seinghkuense*, 'Lucifer,' 'Taranto' and 'Princess Mary of Cambridge.'

It is to be regretted that so few competitors submit entries in Class 80, for a vase or bowl of cut flowers, for Rhododendrons, if selected with judgement, provide admirable material for indoor decoration. There were only two entries this year. The HON. JOHN MCLAREN arranged a number of rather large flowers, in cream, pink and blood-red, in a white china vase, with branches of rather heavy foliage. MRS. ROGERS chose a brass bowl and filled it with rather smaller types, such as *Augustinii*, *yunnanense* and *ambiguum*.

The last two classes were for those who had not previously

won a prize at the Rhododendron Shows. In Class 81, for a species, the DUCHESS OF MONTROSE was the only exhibitor, with a fine specimen of *Griffithianum*; in Class 82, for a hybrid, MR. M. HAWORTH-BOOTH'S 'Orion' and 'Agnes Beaufort' filled the first and second places, and MR. A. P. COSTAIN'S *Fortunei* × *Thomsonii* was third.

RHODODENDRON GROUP MEETINGS, 1950

MEMBERS of the Group and their friends met on two occasions during the season; at a Dinner on the evening of the first day of the Show, and on an excursion to the Gardens at Windsor Great Park on Saturday, May 6.

Before the Dinner we had the pleasure of attending a lecture by DR. GEORGE TAYLOR, Deputy Keeper of the Botany Department of the British Museum (Natural History), on his journey to S.E. Tibet in 1938. As befitted the occasion the emphasis was on Rhododendrons, but in the course of his lecture DR. TAYLOR described many other rare and choice plants and showed a series of very beautiful coloured slides and films. A party of about fifty sat down to dinner. LORD ABERCONWAY presided, and we were fortunate in being able to entertain DR. J. F. ROCK, who gave us a brief but vivid account of his adventures in China a year before.

At half-past nine on the following Saturday morning a coach party of about thirty set out to visit Windsor. Our hopes, it must be admitted, were not very high; for rain had begun to fall from an overcast sky some two hours earlier, was falling heavily when we left London, and showed no sign of abating when we reached the Great Park. We decided, however, that rain should not defeat our intention of seeing the Gardens; so, joined by other members who had come by car, we started on a tour of the Valley Gardens, on the North banks of Virginia Water. Under the guidance of MR. E. H. SAVILL, the Deputy Ranger, and his colleagues MESSRS. LINDSAY and FINDLAY, dampness and discomfort were soon forgotten in our excitement and admiration. Elsewhere in this volume MR. SAVILL has given us an account of the making of these Gardens, but he has modestly refrained from describing fully the tremendous success already achieved in the transformation of a great area of natural woodland into a superbly planned and planted landscape garden.

After an excellent luncheon at the Royal Ascot Hotel, we inspected the Parkside Gardens where many Rhododendrons and Azaleas were at the height of their beauty, the nurseries and greenhouses. Then on to the York Club to partake of a delicious tea kindly prepared by the Great Park Group of the Women's Institute.

We had been informed that THE KING had graciously given permission for us to be shown the Royal Lodge Gardens, and we eagerly made our way there after tea. The privilege of visiting

these charming gardens was most highly appreciated by all, but the day's proceedings reached an unexpected and delightful climax when THEIR MAJESTIES came out to receive the party and to accompany us on our walk round.

Rhododendrons were, of course, prominent, but we noted many other fine things, especially the shapely Davidia, covered with flowers; and we were not long in THEIR MAJESTIES' company without realizing what enthusiastic and knowledgeable gardeners they are. All too soon this delightful occasion came to an end, and we reluctantly made our way back to London. All were agreed that the day had been a great success, and the warmest thanks of the Group are due to MR. SAVILL for his kindness in arranging for our visit.

N. K. G.

RHODODENDRON AWARDS FOR 1950

Rhododendron 'Angelo' var. 'Sheffield Park' (*discolor* × *Griffithianum*) **A.M.** June 13, 1950. This magnificent variety of the popular hybrid bears large, narrow leaves often up to 8 inches in length. The heavy, globular truss is typical of its parents and is up to 9 flowered. The corolla is large, broadly campanulate, 3½ inches × 5½ inches wide and pure white, except for a faint, greenish-yellow blotch deep in the base of the tube. Exhibited by Captain A. Granville Soames, Sheffield Park, Uckfield, Sussex. (Fig. 40.)

Rhododendron 'Conroy' A.M. May 23, 1950. A fine garden hybrid resulting from the cross between *cinnabarinum* var. *Roylei* and *concatenans*. The loose truss is composed of about 6 pendent flowers each tubular-campanulate in shape, deeply lobed, glaucous, fleshy and coloured a pleasing shade of light orange (H.C.C. 12/2) with a rosy tinge. White scales cover the calyx, pedicel, petiole, and underside of the foliage. Exhibited by Lord Aberconway, C.B.E., LL.D., V.M.H., and the National Trust, Bodnant, North Wales. (Fig. 36.)

Rhododendron 'Fascinator' A.M. April 4, 1950. A hardy flowering shrub resulting from a cross between 'Hiraethlyn' and *repens*. The truss, about 9 flowered, is loose and flat-topped, bearing funnel-shaped blooms of a rich Carmine (H.C.C. 21) shot with Turkey Red (H.C.C. 721) and some faint spotting. Exhibited by Lord Aberconway, C.B.E., LL.D., V.M.H., and the National Trust, Bodnant, North Wales. (Fig. 47.)

Rhododendron 'Francis Hanger' A.M. June 27, 1950. An unusual-coloured hybrid of late-flowering habit from the cross *dichroanthum* × 'Isabella.' Each large truss, composed of about 7 flowers, is loose and flat-topped. The corolla is large and fleshy, with deeply cut lobes, the margins of which are frilled and edged with a delicate, light tinge of pale rose that contrasts pleasantly with the deep, yellow colouring of the remaining part of the corolla. Exhibited by E. de Rothschild, Esq., Exbury, nr. Southampton.

Rhododendron 'Gladys' var. 'Rose' (*campylocarpum* × *Fortunei*) **A.M.** May 2, 1950. The lax, irregular truss of this plant is made up of 9 flowers each with a long, red-stained pedicel. The corolla is of a pale-cream colour darkening on the upper three lobes and showing a crimson blotch in the throat; in contrast, the buds are light, rosy-pink. Exhibited by the Commissioners of Crown Lands, Windsor Great Park, Berks. (Fig. 41.)

Rhododendron 'Janet' ('Dr. Stocker' × 'Avalanche') **A.M.** April 4, 1950. The robust habit of this plant makes it particularly suitable for the larger type of garden. Its flowers are nearly 5 inches wide, with deep lobes and waved margins. The upper three petals show a basal stain of deep crimson which is thrown into relief by the pure white of the remaining part of the corolla. Exhibited by E. de Rothschild, Esq., Exbury, nr. Southampton. (Fig. 43.)

Rhododendron 'Inamorata' (*Wardii* × *discolor*) **A.M.** June 27, 1950. This hybrid exhibits the finest characters of both of its parents; the flowers are similar to those of *Wardii* and its robust habit, derived

from *discolor*, will doubtless make it the subject of future hybridization. Each flower has a long pedicel and is flat-campanulate in shape; its colour is a pale shade of yellow with a small, spotted, crimson blotch in the throat. The style is long, prominent and distinctly papillose. Exhibited by E. de Rothschild, Esq., Exbury, nr. Southampton. (Fig. 39.)

Rhododendron 'Kiev' ('Barclayi' × *Elliottii*) **A.M.** May 2, 1950. Each loose, flat-topped truss of this hybrid is made up of about 8 flowers. The corolla is campanulate, 3 inches long and 4 inches wide, large and fleshy with distinct, basal nectaries and coloured a deep, unusual shade of Blood Red (H.C.C. 820/3) which is darkened by heavy spotting, especially on the upper three lobes. The petiole is stout and scaly and the leaves long with a dull mat-green colouring. Exhibited by E. de Rothschild. Esq., Exbury, nr. Southampton.

Rhododendron magnificum A.M. March 21, 1950. This member of the Grande Series was collected by Capt. F. Kingdon-Ward and introduced from Upper Burma in 1931 under his number K.W. 9200. In favoured gardens it makes a fine tree with large leaves 11 inches long and 4 inches wide. The tubular flowers are coloured Fuchsine Pink (H.C.C. 627/2) with darker venation, and are borne in a large, dome-shaped truss. The species is, however, somewhat slow to reach maturity and it is often several years before flowering commences. Exhibited by Lt.-Col. D. R. Carrick-Buchanan, Corsewell, Stranraer, Wigtownshire. (Fig. 38.)

Rhododendron 'Mariloo' var. 'Eugenie' A.M. April 4, 1950. This strong-growing hybrid from the cross 'Dr. Stocker' × *lacteum* is ideally suited to the woodland garden. Its funnel-shaped flowers, up to 4 inches across, are of a pale-cream colouring, darkening on the upper three lobes, marked with small, crimson spots and stained with crimson in the base of the throat. The flowers, up to 17 in number, are borne in a large, heavy, flat-topped truss. Exhibited by E. de Rothschild, Esq., Exbury, nr. Southampton. (Fig. 42.)

Rhododendron 'Morawen' A.M. May 23, 1950. A magnificent hybrid from the cross 'Isabella' × 'Shepherd's Delight.' Each leaf is up to 8 inches long and 3 inches wide, and while of a light green colour above is somewhat paler beneath. The truss is large and heavy, consisting of up to 14 flowers, each of which is funnel-campanulate in shape, fleshy and of a pleasing Phlox Pink shade (H.C.C. 625/1) with the upper three petals slightly marked with dark-pink spotting. Its stamens are thirteen in number, pubescent and sited in deep, basal nectaries. Exhibited by Admiral A. Walker-Heneage-Vivian, C.B., M.V.O., D.L., Clyne Castle, Blackpill, Swansea.

Rhododendron prunifolium A.M. August 1, 1950. A deciduous species belonging to the Series Azalea, which is especially valuable on account of its late flowering season. The flowers are 1½ inch across, saucer-shaped with a slender tube ½ inch long, borne about nine together in flattish trusses. The colour is Vermilion (H.C.C. 18/1). The leaves are pale green, oblanceolate, cuneate at the base and strigose on the midrib beneath. Exhibited by the Commissioners of Crown Lands, The Great Park, Windsor. (Fig. 48.)

Rhododendron 'Rouge' A.M. June 13, 1950. This hybrid was raised by the late Mr. Lionel de Rothschild from the parents T.L. No. 1249 × *Elliottii*. Its leaves are about 8 inches long, broadly lanceolate and pale mat-green in colour. Flowers, borne in a heavy truss, are large and fleshy, 3¼ × 4½ inches wide, broadly campanulate and show pronounced lobing. Exhibited by E. de Rothschild, Esq., Exbury, nr. Southampton.

Rhododendron 'Trewithen Orange' F.C.C. April 4, 1950. This beautiful hybrid is the result of a cross between 'Full House' (*cinnabarinum* var. *blandfordiaeflorum* × *Maddenii*) and *concatenans*. The truss consists of about 5 pendent, deeply-lobed flowers coloured a pleasing shade of Carrot Red (H.C.C. 612/1-612) with a faint, rosy blush. Exhibited by G. H. Johnstone, Esq., O.B.E., Trewithen, Cornwall. (Colour plate opp. p. 20).

Rhododendron 'Winsome' ('Humming Bird' × *Griersonianum*) **A.M.** May 23, 1950. A fine vase of this plant was shown illustrating its strong, floriferous habit. The truss is irregular, loose, pendent and shows a varying number of flowers. The long corolla is coloured Neyron Rose (H.C.C. 623) with edges marginate and slightly waved. The leaves are similar to its parent *Griersonianum*, being mucronate, recurved, dull green above, and the underside covered with a loose brown tomentum. Exhibited by Lord Aberconway, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales. (Fig. 35.)

RHODODENDRONS AT WISLEY, 1950

The following varieties of Rhododendrons were recommended for Awards after trial at Wisley, by the Rhododendron Trials Committee, who made their recommendations for awards on May 5 and May 31, 1950, as given below.

Rhododendron (Azalea) **'Addy Wery'** (*malvatica* × 'Flame') **A.M.** May 5, 1950. Of compact, dwarf, very free flowering habit, evergreen, with 1 or 2 open funnel-shaped flowers on a truss. The corolla 1¾ inch diameter, the five petals Blood Red (H.C.C. 820/2) on Orient Red (H.C.C. 819/2) with a dull orange-bronze flush. Raised and introduced by The Old Farm Nurseries, Boskoop, Holland, and sent by Messrs. M. P. Cooper & Son, Muirfield, Ferndown, Dorset.

Rhododendron (Azalea) **'Apple Blossom'** (*Azuma Kagami*) **A.M.** May 5, 1950. Of compact, dwarf, very free flowering habit, evergreen, with 2 or 3 open funnel-shaped flowers in a truss. The corolla 1¾ inch diameter, the ten petals Neyron Rose (H.C.C. 623/2) with a small blotch of Phlox Pink (H.C.C. 625). Sent by the Knap Hill Nursery, Ltd., Woking, Surrey.

Rhododendron 'Dawn' A.M. May 5, 1950. Bush compact, very free flowering, carrying the trusses well above the foliage, with 8 large open funnel-shaped flowers in a round, flat-topped truss. The corolla 4 inches diameter, 2¾ inches long, margins somewhat reflexed, of good texture; colour white flushed Phlox Pink (H.C.C. 625/3); buds flushed Phlox Pink (H.C.C. 625/2). Sent by Messrs. Waterer, Sons, & Crisp, Ltd., Bagshot, Surrey.

Rhododendron (Azalea) 'Exquisita' A.M. May 31, 1950. Plant vigorous, forming a well-shaped, compact, free-flowering bush with deciduous light glossy green foliage. Flower trusses flat domed, 12 to 20 flowered. Flowers 2 inches long, 2¼ inches diameter, long funnel-shaped, expanded, creamy-white with a soft flush of Amber Yellow (H.C.C. 505/2), blotched Saffron Yellow (H.C.C. 7/1). Raised and sent by Messrs. W. C. Slocock, Ltd., Woking, Surrey.

Rhododendron (Azalea) 'Homebush' A.M. May 31, 1950. Plant vigorous, free flowering, forming an erect, graceful shaped bush, with deciduous, light green foliage. Flower trusses round, with 14 to 16 flowers. Flowers semi-double, open funnel-shaped, 1¼ inch diameter, 1¼ inch long, Neyron Rose (H.C.C. 623) on a base of Rose Madder (H.C.C. 23/1). Raised by Knap Hill Nursery, Ltd., Woking, Surrey, and sent by Messrs. W. C. Slocock, Ltd., Woking, Surrey.

Rhododendron (Azalea) 'Knap Hill Pink' A.M. May 31, 1950. —Plant vigorous, very free flowering, forming a well-shaped bush, with deciduous light glossy green foliage. Flower trusses dome-shaped, 6 inches across, with 14 to 18 flowers. Flowers open funnel-shaped, almost flat, 2¾ inches diameter, five petals, Phlox Pink (H.C.C. 625/1) flushed Neyron Rose (H.C.C. 623/1) margins darker, blotched Saffron Yellow (H.C.C. 7/1). Raised and sent by Knap Hill Nursery, Ltd.. Woking, Surrey.

Rhododendron (Azalea) 'Marion Merriman' A.M. May 31, 1950. Plant vigorous, forming a free-flowering, low, well-shaped bush, with deciduous light glossy green foliage. Flower trusses large, dome-shaped, 18 to 30 flowers per truss. Flowers flat, open, six petals, 3 inches diameter, Chrome Yellow (H.C.C. 605/1) flushed Indian Yellow (between H.C.C. 6/1 and 6/2) with a large Cadmium Orange (H.C.C. 8) blotch. Raised, sent and introduced by Knap Hill Nursery, Ltd., Woking, Surrey.

Rhododendron 'Scandinavia' ('Hugh Koster' × 'Betty Wormald') **A.M.** May 31, 1950. Plant of bushy habit, free flowering. Flower trusses round to dome shaped, 14 to 18 flowered. Flowers 3½ inches diameter, open funnel-shaped, Cardinal Red (H.C.C. 822) on a Rose Red (H.C.C. 724) base, with a black blotch. Raised, introduced and sent by Messrs. M. Koster & Sons, Boskoop, Holland.

Rhododendron 'Lavender Girl' (*Fortunei* × 'Lady Grey Egerton') **A.M.** May 31, 1950. Plant of compact, free flowering habit. Flower trusses dome-shaped, 16 to 20 flowered. Flowers open funnel-shaped, 3¾ inches diameter, at margins of petals Amaranth Rose (H.C.C. 530/2) passing to a paler shade at centre which is white. Raised, introduced and sent by Messrs. W. C. Slocock, Ltd., Goldsworth Nursery, Woking, Surrey.

Rhododendron (Azalea) 'Mustard' A.M. May 31, 1950. Plant of vigorous, free flowering habit, forming a well-shaped bush, with light glossy green deciduous foliage. Flower trusses flat dome-shaped, 9 or 10 flowered. Flowers flat open, 3 inches diameter, Indian Yellow (H.C.C. between 6/1 and 6/2) with a large blotch of Indian Yellow (H.C.C. 6). Raised, introduced and sent by Messrs. W. C. Slocock, Ltd., Goldsworth Nursery, Woking, Surrey.

RHODODENDRON COMMITTEE MEETINGS 1950

MARCH 21, 1950—MR. CHARLES WILLIAMS, M.P., in the Chair, and eight other members present.

Award Recommended

Award of Merit

To *Rhododendron magnificum* (votes 7 for, 0 against), as a hardy flowering shrub from LT.-COL. D. R. CARRICK-BUCHANAN, Corsewell, Stranraer, Wigtownshire.

Other Exhibits

Rhododendron ('Elsae' × *eximium*), from THE RT. HON. THE EARL OF STAIR, D.S.O., K.T., Stranraer, Wigtownshire.

Rhododendron Macabeanum (F.C.C. 1938), from LT.-COL. D. R. CARRICK-BUCHANAN, Corsewell, Stranraer, Wigtownshire.

Rhododendron ? sutchuenense to be sent to Edinburgh for verification of its name, from CAPT. COLLINGWOOD INGRAM, Benenden, Kent.

APRIL 4, 1950—MR. CHARLES WILLIAMS, M.P., in the Chair, and eleven other members present.

Arising out of the previous Minutes.—DR. J. MACQUEEN COWAN has verified that the plant brought before the Committee on March 21 as *Rhododendron magnificum* was correctly named and identified CAPT. COLLINGWOOD INGRAM'S plant, submitted as *Rhododendron ? sutchuenense*, as *Rhododendron praevernum*.

Awards Recommended

First Class Certificate

To *Rhododendron* 'Trewithen Orange' ('Full House' × *concatenans*) (votes 12 for, 0 against), as a hardy flowering shrub, from G. H. JOHNSTONE, ESQ., O.B.E., Trewithen, Cornwall.

Award of Merit

To *Rhododendron* 'Fascinator' ('Hiraethlyn' × *repens*) (votes 6 for, 0 against), as a hardy flowering shrub, from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales.

To *Rhododendron* 'Mariloo' var. 'Eugenie' ('Dr. Stocker' × *lacteum*) (votes 7 for, 0 against), as a hardy flowering plant, from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.

To *Rhododendron* 'Janet' ('Dr. Stocker' × 'Avalanche') (votes 11 for, 0 against), as a hardy flowering plant, from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.

Other Exhibits

R. 'Rhythm' (*aperantum* pink form × *repens*), *R.* 'Beauty of Tremough' Bodnant form (*arboreum* × *Griffithianum*), *R.* 'Chiron' ('Barclayi' × *haematodes*), *R.* 'Grandex' (*eximium* × *sinogrande*), *R.* 'May Morn' red form ('May Day' × *Beanianum*) (A.M. 1946), *R. basilicum* (Farrer 873) and *R.* 'Nymph' (*repens* × 'Largo'), from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and the National Trust, Bodnant, North Wales.

R. 'Avalanche' var. 'Alpine Glow' ('Loderi' × *calophytum*) (A.M. 1938), from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.

R. 'Countess of Sefton' (*Edgeworthii* × *multiflorum*), from G. LANE-ROBERTS, ESQ., Mill House, Tewin, Herts.

R. 'Evening' (*Hodgsonii* × 'Mansellii' var. 'Muriel'), from SIR GILES LODER, BT., Leonardslee, Horsham, Sussex.

APRIL 18, 1950—LT.-COL. LORD STRATHCONA AND MOUNT ROYAL, in the Chair, and twelve other members present.

Exhibits

R. 'Gillian Spencer' and *R.* 'Gillian Spencer' var. 'Bodil' (*haematodes* × 'Ascot Brilliant' × *neriiflorum*) and *R.* 'Caroline Spencer' (*Fortunei* × *Williamsianum*), from MURRAY ADAMS-ACTON, ESQ., 37 Palace Gate, Kensington, W. 8.

MAY 2, 1950—COL. E. H. BOLITHO, D.S.O., in the Chair, and thirteen other members present.

Awards Recommended

Award of Merit

To *Rhododendron* 'Kiev' ('Barclayi' × *Elliottii*) (votes 10 for, 0 against), as a hardy flowering shrub, from E. DE ROTHSCHILD, ESQ., Exbury, nr. Southampton.
To *Rhododendron* 'Gladys' var. 'Rose' (*campylocarpum* × *Fortunei*) (votes 7 for, 0 against), as a hardy flowering shrub, from THE COMMISSIONERS OF CROWN LANDS, Windsor Great Park, Berks.

Selected for trial at Wisley

Rhododendron (*Kurume*) 'Phyllis Elliott,' from CLARENCE ELLIOTT, ESQ., Rectory Farm, Moreton-in-Marsh, Glos.

Other Exhibits

R. mishmiense (A.M. 1940) and *R. Championae*, from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., Bodnant, North Wales.
R. 'Alcibiades' ('Hiraethlyn' × 'F. C. Puddle'), from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales.
R. deleiense (A.M. 1935), from MICHAEL HAWORTH-BOOTH, ESQ., Farall, Haslemere.
R. 'Spinbur' (*spanuliferum* × *burmanicum*), from THE RT. HON. THE EARL OF STAIR, K.T., D.S.O., Stranraer, Wigtownshire.
R. ('Romany Chal' × *Griersonianum*), from LORD STAVORDALE, Abbotsbury, Weymouth.

MAY 23, 1950—MR. CHARLES WILLIAMS, M.P., in the Chair, and thirteen other members present.

Awards Recommended

Award of Merit

To *Rhododendron* 'Morawen' ('Isabella' × 'Shepherd's Delight') (votes 12 for, 0 against), as a hardy flowering shrub, from ADMIRAL A. WALKER-HENEAGE-VIVIAN, C.B., M.V.O., D.L., Clyne Castle, Blackpill, Swansea.
To *Rhododendron* 'Conroy' (*cinnabarinum* var. *Roylei* × *concatenans*) (votes 12 for, 0 against), as a hardy flowering shrub, from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales.
To *Rhododendron* 'Winsome' ('Humming Bird' × *Griersonianum*) (votes 9 for, 0 against), as a hardy flowering shrub, from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales.

Cultural Commendation

To THE COMMISSIONERS OF CROWN LANDS, Windsor Great Park, Berks, for a particularly fine plant of *Rhododendron* 'Hawk' var. 'Merlin' (*Wardii* × 'Lady Bessborough').

Selected for Trial at Wisley

Rhododendron (*Azalea*) 'Carolina' and *Rhododendron Azalea* 'Golden Eye,' from THE COMMISSIONERS OF CROWN LANDS, Windsor Great Park, Berks.
Rhododendron (*Azalea*) Nos. R.2, P.1, B.61, B.61 (A) and *Rhododendron* (*Azalea*) 'Clarissa,' from MESSRS. D. STEWART & SONS, LTD., Ferndown Nurseries, nr. Wimborne, Dorset.
R. mucronatum var. *magnificum*, from CAPT. COLLINGWOOD INGRAM, Benenden, Kent.

Other Exhibits

R. 'Leo' (*Elliottii* × 'Britannia'), *R.* ('Fusilier' × *Griersonianum*), and *R.* 'Bulldog' ('Earl of Athlone' × *Elliottii*). from COL. E. H. BOLITHO, D.S.O., Trengwainton, Penzance, Cornwall.

R. (*Griffithianum* × 'The Don') and *R. crinigerum* var. *euadenium* (Forrest 25818), from LORD DIGBY, D.S.O., M.C., Cerne Abbey, Dorchester, Dorset.

R. 'Theresa' ('Romany Chal' × *Griersonianum*) and *R.* 'Perseverance' ('Lady Chamberlain' × *cinnabarinum*), from LORD STAVORDALE, Abbotsbury Gardens, nr. Weymouth, Dorset.

R. 'Thais' ('Euryalus' × *Loderi*) and *R. Aberconwayi*, pink form, from LORD ABERCONWAY, C.B.E., LL.D., V.M.H., and The National Trust, Bodnant, North Wales.

R. 'Hawk' var. 'Exbury' (*Wardii* × 'Lady Bessborough') and *R.* 'Repose' (*lacteum* × *discolor*), from E. DE ROTHSCHILD, ESQ., Exbury, Southampton.

R. (*litiense* × 'Grierdal,') *R.* (*neriiflorum* × 'Tally-Ho,') *R.* (*Griffithianum* × *arboreum* blood red) and *R.* ('Britannia' × *discolor*), from ADMIRAL A. WALKER-HENEAGE-VIVIAN, C.B., M.V.O., D.L., Clyne Castle, Blackpill, Swansea.

R. Souliei (F.C.C. 1909) *R. orbiculare* (A.M. 1922) and *R. croceum* (A.M. 1926), from MAJOR A. E. HARDY, Sandling Park, Hythe, Kent.

R. 'Hawk' var. 'Kestrel' (*Wardii* × 'Lady Bessborough'), from THE COMMISSIONERS OF CROWN LANDS, Windsor Great Park, Berks.

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(*a*) = *Azalea*

(The species mentioned in Dr. Janaki Ammal's paper on Chromosome Numbers are arranged by their Series and so have not been included in this Index.)