

RHODODENDRONS

1973



The Royal Horticultural Society
95p

ACKNOWLEDGEMENTS

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THE ROYAL HORTICULTURAL SOCIETY
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CONTENTS

The Garden at Royal Lodge. By T. Hope Findlay and Alan Hardy	page 5
Cuttings for the Amateur. By I. Simson Hall	13
Pine Bark as a Rooting Medium for Cuttings. By A. Turner	20
The use of Fertilisers for Rhododendrons. By F. J. Harris	23
Frost Damage in Scotland, April 1973. By Peter Cox	29
Some thoughts on Evergreen Azaleas. By Arthur George	32
The cultivation of Malesian Rhododendrons. By E. F. Allen	35
Rhododendron Species encountered on the Hilliers Plant Trek to East Nepal 1973. By Roy Lancaster	39
The National Rhododendron Garden, Olinda, Australia. By A. W. Headlam	46
 Rhododendron Notes	
The Rhododendron Species Foundation. By R. L. Shaw	53
Some Answers to "Yaku . . . Which?" By T. Hope Findlay	54
Obituary: Robert Keir. By H. R. Fletcher	56
Camellias at Leonardslee. By Sir Giles Loder	57
Camellia Breeding. By J. T. Gallagher	59
Growing Camellias under Glass. By James Smart	62
Asiatic Magnolias in a Cornish Garden. By Nigel Holman	67
Magnolias at Nymans by Natural Fertilization. By Cecil G. Nice	76
Additions to the International Rhododendron Register	78
Camellias which have received awards	85
Awards at London Shows 1973: camellias, magnolias, rhododendrons	88
The Camellia Show, 1973	91
Truro Show, 1973	93
Index	95
Index to Advertisers	98

ILLUSTRATIONS

Her Majesty Queen Elizabeth the Queen Mother at Royal
Lodge

front cover

Figures

1. <i>Rhododendron luteum</i> at Royal Lodge	<i>page</i> 6
2. The woodland garden	8
3. The log garden	10
4. The formal garden round the Little House	11
5. A prepared rhododendron cutting	15
6. A simple propagating box	17
7, 8. <i>Rhododendron arboreum</i> in Nepal	42
9. 'Mrs G. W. Leak' at Olinda	51

Acknowledgements

Front cover: Cecil Beaton

Figs. 1-4: The Field

Figs. 7, 8: Roy Lancaster

Fig. 9: A. W. Headlam

The Garden at Royal Lodge

T. HOPE FINDLAY AND ALAN HARDY

We are indeed grateful to Her Majesty Queen Elizabeth The Queen Mother for permission to describe some of the wonderful rhododendrons and other plants in the woodland garden at Royal Lodge, Windsor Great Park.

The garden, 200 feet above sea level, is a well wooded area with the finest old oaks, chestnuts, sycamore, birch and cedars that anyone could wish to see. The branches of these magnificent trees have been carefully lifted, showing the immense trunks to great effect while providing perfect top cover for the plants beneath. The soil is rich in humus, as indeed is most of Windsor Great Park, and is a sandy loam, locally known as Bagshot Sand. Rainfall is typical for the Thames Valley area, some 23 inches a year. With this small amount of water it is surprising how well the rhododendrons grow, particularly the large leaved varieties noted for their love of moisture and a humid atmosphere.

It has been said that plants which are loved, grow and flourish. Her Majesty is, to say the least, passionately fond of rhododendrons. No doubt visitors to the Rhododendron Show and to Chelsea will have noted her keen interest and knowledge in them, and so it seemed natural for us to find the plants at Royal Lodge growing so happily.

Methods in this garden are "go ahead", new plants being introduced, while older ones are pruned or thinned to make way for larger or better varieties. This is progress, and is a policy which could well be adopted in many more collections of rhododendrons. From past experience, we know that these plants suffer more than most shrubs when crowded together. There is nothing worse than having to look skywards when walking round a garden, with the natural consequence of a severe pain in the neck!

We visited Royal Lodge on a damp spring day, and were amazed at the size and age of many of the plants. What nicer introduction to a garden can there be than to see in full flower two massive clumps of *Rhododendron luteum* (Fig. 1), well spaced on green lawns they made a perfect picture. These plants are at least 100 years old, and still going strong. They are about 12 feet high and some 21 feet across with thick gnarled trunks – and of course the scent is of the sweetest.

We know that here the azalea can become a weed, but it is such a desirable weed, surely one to encourage. In a little dell beyond the azaleas, other larger rhododendrons are to be found in company with *Metasequoia glyptostroboides*. From New Zealand come two huge *Nothofagus cliffortioides* which are at least 40 feet high.

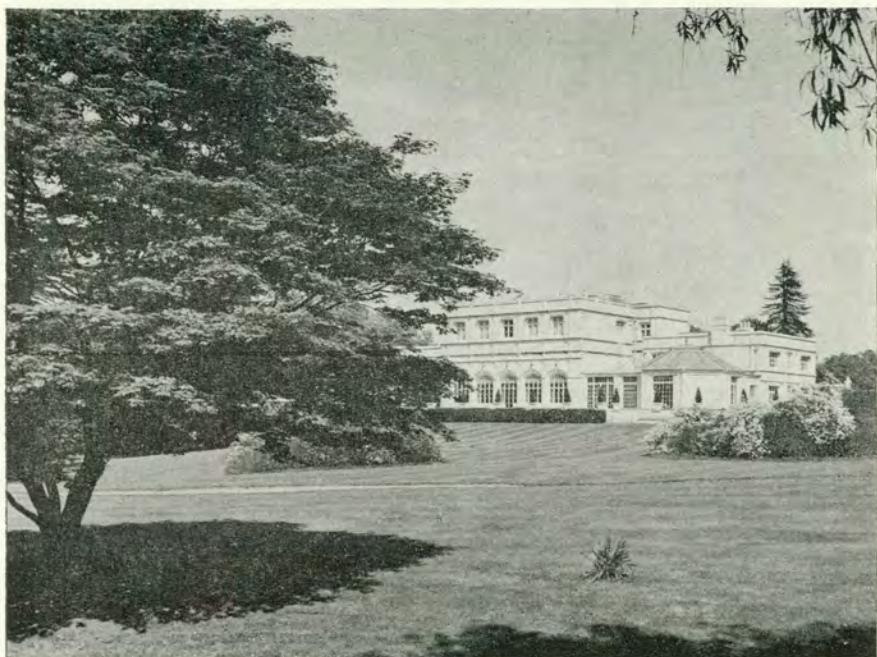


Fig. 1

Royal Lodge with plants of *R. luteum* about 100 years old on the right, and a fine *Acer palmatum* 'Rubrum' in the left foreground.

The largest, and in our opinion, the best rhododendron in the garden is a very large and well furnished *R. mollyanum*, of Brodick fame. This specimen is one of the tallest we have seen, and is some 24 feet high. It has lovely foliage, with leaves 18 inches long and 9 inches across. The flowers are pink, in trusses of up to 20 pips – a wonderful plant to grace any garden.

Some of the other large leaved species are *R. falconeri* at 24 feet in height, *R. praestans*, and *R. arizelum*. There is also the very old hybrid between *R. grande* and *R. hodgsonii*, i.e. 'Elsae', which is now 15 feet by 15 feet. Close by in this same little dell is a huge *R. calophytum* and a very good *R. barbatum*, 18 feet in height. This latter must be one of the old introduction sent back by Joseph Hooker. It has large leaves and fine blood red flowers which complement the lovely reddish, plum coloured bark.

As we leave this dell, we pass a nice bank of the early flowering *R. lutescens*, which has been reduced to 8 feet. It must have been up to 16 feet but this species stands pruning well – no one need hesitate to hit it hard!

Moving on, we came to a very fine specimen of *Embothrium coccineum*, close to which *R. bureavii* was showing its splendid foliage, with a

large and spreading *R. sperabile* nearby. As the garden led on to more open woodland, *R. fargesii*, a fine species of the Fortunei series caught the eye, as did a large *R. thomsonii* grouped with an equally large *R. campylocarpum elatum*. What a good grouping and colour association these two make!

Others in this area are *R. oreotrepes*, *R. cinnabarinum roylei*, *R. rubiginosum* (18 feet high) and *R. fulvum* (12 feet by 12 feet). The latter is shaded by a great *Nothofagus obliqua*, some 60 feet high. Near the upper end of the wood are some very fine specimens of *R. arboreum*, about 24 feet high, truly arboreal and free flowering, in various shades of pink and white. Close by is the invaluable *Magnolia salicifolia* planted in 1950. This was a rooted cutting, and is now 40 feet. Here also we came across one of the many different *Acers* in the garden, a fine specimen of *Acer capillipes*, with *R. haematodes*, *R. basilicum* and *R. sutchuenense* in attendance.

At the top of the garden, and sheltered from the wind, a great mass of *R. augustinii* gladdens the eye – 12 to 14 feet high, surely one of the best blue-flowered species one could wish for.

Retracing our steps to the little log garden, or the miniature Chelsea as it is sometimes called, we found banks of *R. yunnanense* and *R. racemosum*, and nestling near a large *Magnolia × soulangeana* is the world famous *R. yakusimanum*. This plant is 5 by 6 feet, bushy in formation, and this year giving of its best. We counted at least 100 flower heads – what a compact plant this is, a perfect parent for producing new hybrids.

It was pleasing to see a large bush of *R. fortunei* covered in flower bud, soon to fill the garden with its delicious scent, and a good specimen of *R. dichroanthum* equally well laden with buds.

Before leaving the species for the hybrids, mention must be made of the great *Davidia involucrata*, certainly the best plant we have seen in Berkshire or Surrey. We were fortunate to see this lovely Chinese tree at its best, with the huge white flowers fluttering against a clear blue sky. It was a magnificent sight with the branches covered in "hand-kerchiefs" sweeping right to the ground, a generous response to the skilful care which has given this *Davida* sufficient elbow-room to develop into such a fine specimen. By contrast, it was particularly pleasing to look down again to a carpet of English bluebells surrounding a huge sycamore, the grey of its trunk adding sparkle and lustre to the simplicity of the flowers.

Hybrid rhododendrons are represented by both old and new varieties. Perhaps the star plant is a fine 'Loderi King George', of world fame. Here at Royal Lodge it is at least 20 feet high, and as many feet through, but unlike many Loderi elsewhere, this one sweeps the ground. When we visited, its enormous trusses weighed down the branches to ground level. Its delicate scent was noticeable throughout the garden. For beginners, this hybrid certainly needs room to develop its true character.

Nearby were the blues, the dwarfer 'Bluebird', 'Blue Tit' and 'Blue Diamond' associated well with the taller *R. augustinii*, *Magnolia × soulangiana* and *Pieris forrestii* – the latter 22 feet high. The earlier flowering *R. 'Emasculum'* is pleasing in early spring.



Fig. 2

A woodland scene with *R. 'Loderi King George'* in flower in the background.

Among the great old oaks, beautifully sited is a great specimen of *R. 'Beauty of Littleworth'*, with large pink candle-like buds; this is a fine old hybrid. Here too is a nice cream 'Penjerrick' of lovely form, also an old 'Luscombei', and its near relation, 'Richard Gill' of deeper colour.

Near the large specimens of *R. arboreum* mentioned earlier, is a fine hybrid from this species, namely 'Boddaertianum' (*R. arboreum* × *R. campanulatum*), of tree-like growth and with good large trusses.

We were surprised to see *Crinodendron hookeranum*, a large bush, some 6 feet in height, and flourishing well. One can only hope that the winters will be kind and allow it to grow as well as it does in the softer climate of Cornwall and south-west Scotland.

Many modern hybrids are represented in this garden. They include 'May Day', 'Fusilier', the lovely 'Vanessa Pastel' – a large bush indeed, and 'Matador', 'Fabia', the early flowering 'Choremia', Hawk and 'Jalisco' the latter about 12 feet high.

Away from the species and planted in an open oak woodland may be found a range of older hybrids. They were given room years ago, and have now matured and are forming large individual specimens. What more pleasant sight can one see than this large group – 'Mrs G. W. Leak', 'Loder's White', 'Dr. Stocker', 'Ascot Brilliant', 'Mrs Ellice', 'Earl of Athlone', and a host of others whose names have been forgotten – all assembled here in their glory.

No garden is complete without the colourful Kurume azaleas. In such a setting as Royal Lodge they act as a complement to other rhododendrons. Near a very large *Cercidiphyllum japonicum* is a grand bank of 'Hinomayo', one of the best of all the Kurumes; it is hardy, very floriferous and seldom fails. In the little dell are a great mass of mixed Kurumes in colours of rose pink, white, salmon and scarlet, and this provides a feast of colour in early May.

The deciduous azaleas are here too in quantity, one of the main features in spring being the Azalea Walk, with some of the best hybrids from Exbury and Windsor, intermixed with the older Mollis hybrids. These, with *R. luteum* produce very fine autumn colour as an extra bonus.

To end the season will come the sweetly scented white rhododendron 'Polar Bear' – flowering as it does in August, and what better way is there to bring the season to a close?

So far no mention has been made of camellias, but we saw many fine bushes of well known varieties which had just finished flowering. Particularly noteworthy were the large bushes of *Camellia* × *Williamsii* hybrids. There were also many other parts of the garden we longed to describe, such as the fine collection of roses, and the beautiful garden surrounding the Little House. However our main objective was the woodland garden with its wealth of rhododendrons.

Plants in any garden nearly always have a history or a story, none more so than the plants at Royal Lodge. Records of all the plants and their origins have been most carefully kept, an object lesson to all keen gardeners. It is, however, to the vigour, health and happiness of the plants that we pay tribute to Mr Macdonald and his staff. The



Fig. 3

Kurume azaleas in the Log Garden.

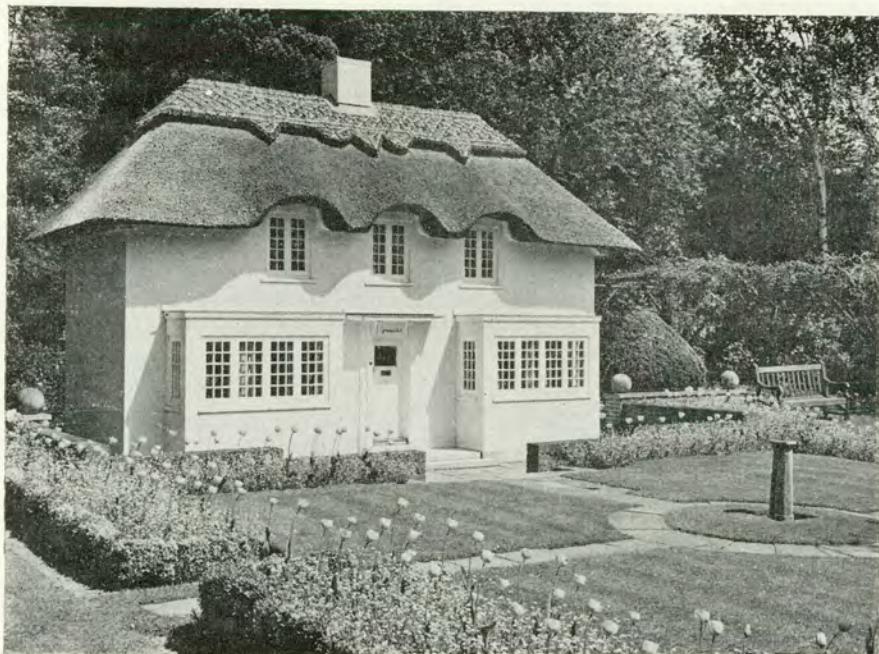


Fig. 4

The formal garden round Y Bwthyn Bach, the Little House presented by the people of Wales to Their Royal Highnesses Princess Elizabeth and Princess Margaret.

care and attention bestowed on them is amply rewarded by the flowers themselves.

We are deeply grateful to Her Majesty for so kindly allowing the use of her personal photographs to illustrate this article, and for the help we have received in its preparation. We sincerely hope that we have been able to do justice to this beautiful garden, surely one of the finest woodland settings in the British Isles.

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Cuttings for the Amateur

I. SIMSON HALL

Walking round one of the great rhododendron gardens, whether in the south of England or in the west of Scotland, one is lost in wonder at the beauty of these magnificent shrubs. It is difficult to believe that trees, as so many of them are, were raised originally from seeds or cuttings.

To attempt to repeat the process seems almost ridiculous for an amateur, but it is well worth while trying, for this marvellous genus, which will provide colour in favourable circumstances from January to August, has a range of size and habit which will bring interest and joy to even the smallest suburban garden. There are sun lovers and shade lovers and some which seem able to withstand the most outrageous insults of our climate.

A visit to one of the specialist nurseries is the quickest way to satisfy the ambitious garden owner, but unless his pocket is very deep he will quickly realise that there are definite limits to this form of self-indulgence. The answer is to raise his own rhododendrons – together with the exercise of some patience, which is very necessary until the first results are seen, for it is hard to believe that most of these lovely flowers are within our own reach.

There are several ways of propagating rhododendrons but for the amateur the method of growing from cuttings is the simplest, particularly as he rarely requires many plants of any one variety. Not all rhododendrons will grow from cuttings, and many provide a challenge demanding the highest skill and the most sophisticated equipment, but on the other hand there is a very large number of species and hybrids which can be grown in any garden without elaborate apparatus.

All that is needed is a real love for the plants and the ability to take a little trouble to understand their needs. Nature is wonderfully adaptable and forgiving but she requires assistance in the form of some equipment which will give protection and the proper growing environment.

Rooting of cuttings

After preparation, a cutting forms roots from the cambium layer of the stem, which lies between the outer covering of the stem and the central pith. Until the new roots are formed and begin to function the cutting has to be kept alive and the longer the roots take to appear the more difficult it is to keep the cutting going. The functions of respiration and absorption are necessary to continue the physiological

business of living. A climate must be created which provides optimum conditions of humidity, heat and light, each as it is needed.

Humidity. This is essential to prevent the cutting losing moisture through the leaves, for if it does, the cutting will flag and quickly die. With no roots the moisture cannot be replaced from the soil. The higher the moisture content of the air the better, up to saturation, and this is the basis of the modern methods of propagation under mist in which the cuttings are never allowed to become dry.

Heat. The temperature surrounding the cuttings should be kept constant so far as is possible both in the rooting medium and in the air. Although some rhododendrons, chiefly small leaved varieties, seem to dislike heat, in general the more heat used, up to a maximum of 20°C. (70°F.), the quicker will be the rooting.

Some experienced growers say that the larger the leaf the more heat is required.

Light. The processes of plant life are made possible by photosynthesis. This is a complicated chemical change by which the plant turns energy derived from light into carbohydrates which the plant can then use as required to assist growth and other functions.

The means available to the amateur are almost always a compromise for if he is going to meet all the plant's needs in respect of temperature, humidity and light, and to maintain these at optimum levels, he is either going to give up golf, fishing and everything else, or must instal equipment of scientific standards.

One of the first things the amateur must learn is how much is possible with simple methods and when he has discovered this, ambition will almost certainly urge him to improve his equipment and so enlarge his horizons.

The time to take cuttings

This is a subject which still can be argued about, though in general most propagators are agreed that from the middle of September onwards is the best time to take cuttings from the average hybrid or medium sized species. The *Lapponicum*s are frequently taken as late as December. There is no doubt that this can be regarded only as a very rough approximation, for seasons differ in temperature and rainfall so the shoots do not mature at the same time each year. Rhododendrons which flower in different months do not ripen their cuttings at the same time and indeed all the shoots on any one rhododendron may not be ready at the same time. A great deal of the skill in propagating lies in the ability to select shoots which are just right. There is little doubt that modern methods of application of moisture, heat and light, together with such aids as hormone rooting powder, have given greater latitude to the period within which cuttings may be taken.

Recently a batch of cuttings containing a large number of varieties was taken of necessity in the spring. They were placed in a propagating case with a bottom heat of 21°C. (70°F.) under mist. Somewhat to my surprise the take was the best I have ever had. On reflection, however, this might be regarded as in line with the modern experiments with light, where growth of rhododendrons has been greatly accelerated by increasing the duration of the light received by the plants. It seems

possible that in this northern climate the amount of light received by spring cuttings, both in respect of hours and of intensity, has caused faster rooting than in the case of cuttings taken in the late autumn when the light in this latitude is diminishing rapidly.

Taking the cuttings

The cuttings should be taken in the cool of the morning or in moist conditions. They should be placed immediately in a polythene bag or other suitable container. A handful of moist sphagnum in the container will keep the air humid, and the cuttings are kept shaded. They must never be allowed to become dry or to be exposed to extremes of temperature. Although cuttings taken in this way can be kept for a few days they should be inserted in the compost as soon as possible.

Choosing the cuttings

Avoid very actively growing shoots. Being in full and vigorous growth these need the maximum of skilled care, so look for others which will not be so demanding. These may often be found at the side or the back of a bush, and can be up to four to six inches long. The character of the plant often decides the size of the cutting; small-leaved rhododendrons may make very little growth.

The cutting taken is of the same year's new growth and it should be neither too hard nor too soft and thin whippy shoots are avoided. If the cutting will just bend without breaking it is probably about the right stage. Remember when removing the cutting to take if permissible a little more than is finally required for this will make it possible to recut the shoot so that a perfectly fresh surface is exposed when planting.

Preparing the cutting

A razor-sharp knife is essential. The cutting is freshly cut to a leaf base and the top reduced to two or three leaves. With large-leaved rhododendrons the leaves may be halved to make the cutting more

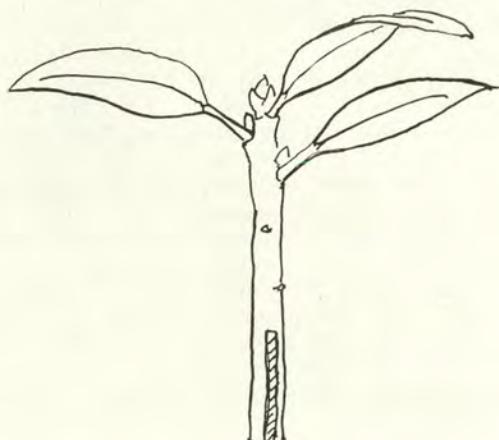


Fig. 5

A rhododendron cutting showing the wound on stem.

manageable and to save space, for overcrowding is liable to encourage disease especially in humid conditions. It is true, also, that the larger the leaf area the greater will be the loss of water by transpiration. A balance must be struck between the needs of photosynthesis and excessive bulk in the cuttings.

The cutting is shortened if necessary to about three to four inches and the end of the stem is wounded. A thin slice of the cortex an inch long is taken from the base of the cutting to expose the cambium layer, the object being to expose the cambium and enlarge the area from which roots may grow. The system of wounding has rendered unnecessary the practice of taking cuttings with a heel. After wounding, the cutting is dipped into a rooting hormone, either as a powder or in solution.

The cutting medium

A number of substances have been tried for this purpose and each gardener should find out what suits him best and stick to the same medium. Whatever is used it should be moisture retentive and contain sharp sand to help drainage and encourage rooting. Sharp sand and peat in equal proportions is frequently used. My preference is for sharp sand and chopped, fresh sphagnum moss, which should be one of the red varieties.

Recent research seems to indicate that there is some antiseptic property in sphagnum which makes it particularly suitable in a situation where the cuttings may have to stay in the medium for a considerable time.

Containers for cuttings

The least complicated way of rooting cuttings is to sink a wooden box with the bottom knocked out and a sheet of glass over it, in a border. It should receive maximum light but no direct sun. The box should contain a bottom layer of drainage, covered with some coarse material such as rotted leaves to prevent the rooting material from filtering down and clogging the drainage. On top of this is placed a layer of compost such as John Innes Potting No. 2 or 3, without lime, or a mixture of loam, peat and sand, one part of each. Above this again is the rooting medium, sufficiently deep to take the cuttings. The box should be watered well to settle the compost.

The cuttings are inserted without too much pressure, for if the peat is compressed, the air, which is essential to roots when they form, may be forced out. The box is then covered with its glass, on top of which is a sheet of newspaper weighted down to keep it in place. The shading can be maintained for up to three months if necessary, but it may be removed earlier if the cuttings show signs of rooting. The glass should be removed occasionally and wiped dry to prevent cold drips on the cuttings, but if the box has been set at a slight angle rain and condensation will run off. The compost must not be allowed to become dry and should be watered when necessary with a fine rose or spray.

This method helps to maintain an even microclimate within the box, but it is necessarily a compromise and therefore will give success with only a limited range of plants.

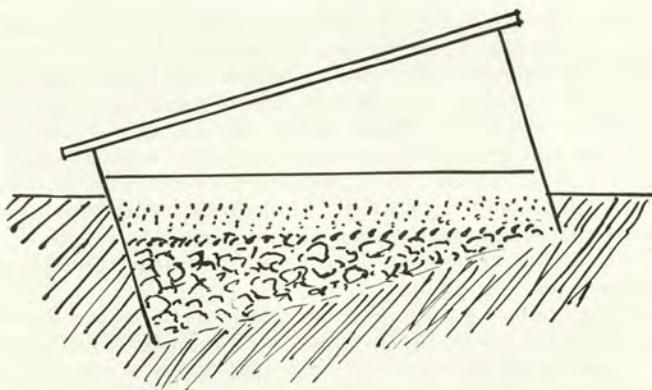


Fig. 6
A propagating box sunk in a border.

Where only a few cuttings are available the same principles are applied, using a small pot. This can be covered by a polythene bag which is kept well above the cuttings by hoops of wire. A rubber band is slipped over to keep the bag close to the pot and prevent evaporation while another is placed just above the rim of the pot to make the condensed moisture run down on to the soil. This ensures that only the minimum of attention is needed. Plastic pots and seed pans with clear plastic covers can now be obtained and the latest types have controllable ventilation. Containers of this kind have the advantage that they can be moved about in a greenhouse or frame to make use of any available source of bottom heat. When water is required the container should be immersed up to half its depth until the soil is sufficiently moist.

Patience is required with these methods and the time required should be reckoned in months rather than weeks. Fifty to sixty per cent of the cuttings can be expected to root by these simple means and once success has been obtained it is more than likely that other, more difficult types of rhododendron cuttings will be attempted and these require other aids to rooting.

Special methods of propagation

Experiments in the basic requirements of heat, moisture and light have produced methods which greatly accelerate rooting and give much higher rates of success than are possible with the simple regime just described.

Heat. There are several different ways in which heat can be provided. The air surrounding cuttings can be warmed or the medium in which they are planted can be heated, sometimes both methods are used at once, but bottom heat is the more important. The heat should not be allowed to fluctuate and the gardener should always know the temperature he is using. Thermometers for this purpose are not expensive.

A simple, easily arranged source of heat is a light bulb in a metal

box on which the container of cuttings is placed. More sophisticated arrangements are based on the use of cables which are usually embedded in sand under the medium on which the pot or box is placed, or in which the cuttings are planted. These cables are supplied with or without a thermostat. Those with no thermostat are carefully calculated for the area recommended and the maker's instructions should be followed closely. As a rule these cables will raise the temperature of the rooting medium by 11 degrees (centigrade) above the temperature of the surrounding air. If a higher temperature than 15°C. (59°F.) is needed a thermostat should always be used and about 25°C. (77°F.) is the usual maximum.

Moisture. The higher the temperature the more moisture is necessary, up to complete saturation, to provide the humidity which enables the plant to conserve all its energy for rooting. Water is supplied through a jet which gives a fine spray or mist when needed. This can be turned on by hand but the best method of control is by an electronic leaf which detects any dryness and switches on the mist until everything is thoroughly wet.

There are other methods such as a time-clock which can be set to give predetermined quantities of water or a light-sensitive device which can be supplemented by a time-clock to take over when there is no light.

When the temperature is high and mist is being used aeration is of the greatest importance, the air must never be allowed to become stagnant.

Light. Control of the light received by the cuttings completes the ideal environment. The technique for this is long past the experimental stage and special electric bulbs and tubes are now produced for the purpose of supplying the particular qualities of light necessary for growth.

These lights are fixed over the propagating bench or case and if the duration of light is lengthened the rooting time is reduced. For instance it was found that four or five hours of this added light, each evening from dusk, halved the average rooting time when mist and a constant temperature of 21°C. (70°F.) was being used.

In commercial practice the use of a growing room is becoming popular in place of the conventional greenhouse, so that all growth factors are completely under the grower's control. This principle is being applied by some amateurs, using a growing box or cabinet in which moisture, light and temperature can be accurately controlled. (See Simpson, C. M., 1972. The propagation of Ericaceae from cuttings. *J. Scot. Rock Gdn. Club*, Vol. 13, pp. 74-78.)

Potting on cuttings

While not strictly part of the process of rooting cuttings, this is still a most important part of growing for it is at this stage that many cuttings may be lost.

One of the chief problems is to decide how long the cutting should remain in the rooting medium. In the box in the border there is little difficulty, for the cuttings are left where they are until they become crowded and demand more space. It is on the bench, or where a few pots are being handled that doubts arise, chiefly concerned with feeding.

For the professional who handles large batches of similar kinds of plants in controlled conditions space can be provided for an orderly

plan of management, but a busy man, handling small numbers amid the clutter of the average amateur's greenhouse, can have difficulties.

Should the cutting be potted on whenever it is rooted or should it be carried on until it is larger and stronger and better able to stand up to the somewhat spasmodic attention it is likely to get in the second phase of its existence? Sphagnum and peat contain little or no feeding and although the cuttings will continue to grow in these media for many months they will grow far better if they are fed. If, therefore, the grower has doubts about his ability to cherish his newly potted cuttings it is better to postpone the potting-on till the cuttings are stronger, keeping them going meantime with dilute liquid feeds.

Whenever there are obvious signs of rooting, cuttings which have been started in heat may be hardened off, or "weaned". In this process heat and moisture are progressively reduced until the cuttings are accustomed to normal conditions on the bench of the greenhouse. This can be done automatically where a mist unit is in use, but in other cases the pot containing the cuttings is enclosed in a polythene bag and placed on the bench, by opening the bag very gradually the cuttings can be accustomed to the change of environment.

The simplest way to decide if the cuttings are rooted is to make sure the pot is damp and then knock out the contents by tapping the pot gently on the edge of the bench, the new roots will be seen round the side of the compost. This does no harm to the cuttings.

There are at this stage of the plant's life two shocks to its progress, hardening off and potting on. Never subject the cutting to both at once, either harden off and then pot on, or pot on and return the plant to the same controlled environment. The young plant has enough to cope with in just staying alive.

Compost

A mixture of peat, sand and good turf loam in equal parts, with the addition of an organic fertiliser such as hoof-and-horn, makes a good compost; if leafmould (lime-free) is available this may be substituted for part of the loam. It is particularly important that the sand used in the potting is really sharp and coarse because the proper place for drainage is in the compost, not at the bottom of the pot.

For amateurs like myself who are busy, or possibly lazy, much the easiest way to look after potted-on cuttings is on a sub-irrigated bench by capillary watering. In this condition crocking prevents water absorption by breaking the capillary column.

Young plants require protection for the first winter at least, possibly longer in severe northern conditions, but planting out time should be judged by the progress being made by the plants.

A final word of advice to the amateur is write it all down. Unless records are kept it is difficult to learn anything and the same mistakes will be made over and over again. Carefully recorded observations become of increasing value and those who have the time to devote to individual plants have an advantage over those for whom commercial pressures preclude the use of anything but tried and proven methods.

After all many of the great rhododendron gardens of this country are tributes to the skill and patience of dedicated amateurs.

Pine Bark as a Rooting Medium for Cuttings

A. TURNER

Following correspondence between Mr J. R. Aaron of the Forestry Commission and Mr C. D. Brickell, Director of the Royal Horticultural Society's garden, Wisley, Mr Aaron met senior staff at Wisley on September 10, 1970. He explained that the Forestry Commission had been experimenting with pine bark to find suitable uses for it in horticulture. The material was available in large quantities from their felled timber and machinery had been installed to break it down into coarse particles suitable, in their opinion, for mulching, plunging material, use in orchid potting composts and sundry other purposes. It was suggested that the bark might also prove useful in the propagation department as a rooting medium for cuttings, and to enable us to give it a trial in various sectors of the garden a generous quantity was provided for Wisley.

I have long felt that in plant propagation too much emphasis is often placed on the precise constituents of the rooting medium and that provided certain basic rules are applied then variation within defined limits will have no adverse effects. The main considerations are that whilst having the ability to retain moisture the compost should also be well aerated, and this implies that it has the ability to drain off any surplus water quickly. It is well known that these characteristics can be obtained by mixing together peat and sand; the most widely used mix is probably 50% peat and 50% sand. Vermiculite, perlite and, more recently, expanded polystyrene granules are among materials used instead of sand. The pulverised pine bark seemed to offer a good substitute for peat as it has the ability to absorb and retain moisture within the granules whilst allowing all free water to drain away.

The bark lacks any readily available plant food, in fact it can create nitrogen deficiency if mixed in the raw state with soil. This food shortage is not an important factor when cuttings are rooting and can be corrected by liquid feeds or compensated for by foliar feeding after roots have formed. Although the pH of the material is not specifically stated in Forestry Commission literature a sample tested at Wisley gave a reading of pH 5.5, which is nicely on the acid side and very suitable for rhododendrons. Perhaps it should be pointed out that bark ammoniated by the Forestry Commission in early trials registered about pH 8.0, an unacceptably alkaline reading for most purposes.

With some exceptions, mainly in the Azalea series, I prefer to take

cuttings of rhododendrons in the autumn and early winter. However, other demands on available time set our schedule back slightly, so that it was mid-October when the first cuttings were taken but December by the time the last were inserted. Over twenty species or hybrids of rhododendron were included in the wide range of semi-hard and softwood cuttings used in this small test of pine bark as a rooting medium. The cuttings when prepared were 3 or 4 inches long according to the characteristics of the plant involved. Growths of the current year of suitable size and vigour were selected, side growths being pulled from the parent plant with a heel of older wood attached, tip growths severed so that $\frac{1}{8}$ inch of older wood remained at the base of the cuttings. A slice wound was made on each cutting, a sliver of bark $\frac{1}{2}$ inch long being cut away from one side of its base which was then dipped into water, shaken and dipped into indolylbutyric acid rooting powder before insertion in the rooting medium.

The pine bark used in this instance had been stacked and weathered for a year but experience gained since then indicates that there is no inhibition of rooting or other ill effect when new material is used. No sand, grit or other drainage material was added and on a subsequent occasion when 1 part polyolefin granules was added to 3 parts of pulvressed pine bark no significant advantage was noticed.

Cuttings were lined out in the bark in plastic seed trays and placed under intermittent mist with bottom heat thermostatically controlled at 75°F. (24°C.) in the bench sand bed. Air temperature in the glasshouse was maintained in the range of 50°-55°F. (10°-13°C.).

Early inspections showed that in several instances roots were appearing four weeks after insertion and many of the cuttings were extremely well rooted and ready for potting after eight weeks. *Rhododendron oreotrophe* behaved badly; remembering the way in which this delightful species often drops many of its leaves in the winter months it might have reacted more favourably had the cuttings been taken earlier in the programme. The few evergreen azalea cuttings, taken months later than is normal for this type of plant and only included to note their response, rooted well, although slowly. Rhododendrons 'Emerald Isle' and 'Jalisco' proved difficult, the former not unexpectedly as its beauty of bloom is not supported by a good constitution.

A list of the rhododendron species and hybrids tested is given below. As the number of cuttings inserted was not constant throughout the programme the rooting has been given as a percentage figure in each instance.

<i>Date inserted</i>	<i>Name of Rhododendron</i>	<i>Percentage rooted</i>	<i>Quantity of root system</i>	<i>Date potted</i>
14.10.72	Bric-a-Brae	100	very good	17.12.72
	Chink	100	very good	
	Christmas Cheer	100	very good	
	Tessa Roza	100	very good	
15.10.72	drumonium	90	very good	3.1.73
	Elizabeth	100	very good	
	Seta	100	very good	
	Sir William Lawrence (evergreen azalea)	90	very good	

<i>Date inserted</i>	<i>Name of Rhododendron</i>	<i>Percentage rooted</i>	<i>Quantity of root system</i>	<i>Date potted</i>
30.11.72	Jalisco	60	reasonable	8.3.73
	Kirin (evergreen azalea)	80	good	9.2.73
	Malvatica	90	very good	
	nitens	90	very good	8.3.73
	Palestrina (evergreen azalea)	90	very good	9.2.73
	Renoir	100	very good	
9.12.72	Blue Diamond	100	very good	9.2.73
	Electra	100	very good	8.3.73
	Fabia	100	very good	9.2.73
	Impi	100	very good	9.2.73
	oreotrephe	30	poor	8.3.73
	<i>ravum</i>	80	reasonable	
	Sapphire	100	very good	9.2.73
	yakusimanum (F.C.C. form)	90	very good	

It should perhaps be emphasised that no attempt was made to set out a controlled experiment. The aim was to gather enough information to enable a broad assessment to be made of the potential of pine bark in propagation. Results with most of the plants used which in addition to rhododendrons ranged from some warm glasshouse plants to *× Cupressocyparis leylandii* and *Ilex 'Golden King'*, were very encouraging.

Whilst rooting percentages were no higher than those obtained when using more orthodox rooting media the root systems were, in the main, exceptionally good and roots were formed more rapidly than expected. It is felt that pulverised pine bark provides a good alternative to peat when used for a cutting rooting bed, and this was the point we had hoped to clarify.

Bearing in mind the rapidity with which peat stocks are being consumed it is probably wise to look for alternatives. Until recent years the many thousands of tons of coniferous bark from felled timber was a waste product, we have obviously been far too slow in realising its many uses in horticulture.

The use of Fertilisers for Rhododendrons

F. J. HARRIS

Although the use of fertilisers for most economic crops has received a tremendous amount of attention over the last 100 years, the attention paid to ornamental plants in general has been relatively small, and when one narrows the field even further to the ericaceous plants which have their own particular requirements, then available published information becomes very scanty.

1. *Why use fertiliser?*

When considering the fertilisation of rhododendrons, the first question must be, "Why do it", when the species grow so well in their own habitat without fertiliser. The answer must be that most of us enthusiasts are growing them in conditions far removed from those they naturally enjoy. We bring species from a wide range of climatic and soil conditions and plant them in our gardens and expect plants from 14,000 feet in the Himalayas to grow within probably ten feet of a plant from the European Alps or one from the rain forests of western China or from the southern parts of the United States. Further, we want that plant to reach flowering size quickly so that it must put on as much new growth as possible during its early years. Yet that new growth must be hardened off before it has to cope with winter conditions quite remote from those of its natural home.

Further, we want our plants to flourish when they are planted in soils which have, at least in many of our smaller gardens in Britain, been cropped heavily for a hundred years. It has to be remembered that grass, when grazed by animals, removes nutrients from soil just as do other crops, so that the soil may well be deficient in the nutrients which are essential for the plant's growth. Humus can be returned to the soil relatively readily in the form of, for example, peat or decayed vegetable matter, preferably leaf mould, but these materials do not generally contain sufficient nitrogen, phosphorus or potassium for optimum growth of rhododendrons. This is particularly true when growing plants on soils where the main nutrients, phosphorus, potassium and nitrogen, may be either rapidly fixed in the soil, so that they become unavailable to the plants, or else may be leached out of sandy soils or even out of less sandy soils in heavy rainfall areas.

If then we consider the materials most readily available to remedy these deficiencies, fertilisers are the answer. Fertilisers, it must be made clear at the outset, are not in any way a replacement for humus and it is difficult to understand why anyone will pay perhaps several pounds for a rhododendron plant and yet be reluctant to spend perhaps

a further 25p (only one-fifth or tenth of the cost) on peat to mix well into the planting hole and a further few pence on fertiliser which, when once used, can help the plant to give increasing pleasure over many years.

2. *The role of fertilisers in nutrition and the diagnosis of deficiencies of minor elements.*

As already mentioned, the major fertiliser materials generally required by the plants are nitrogen, phosphorus and potassium and, since none of these materials can be handled in their pure elemental forms, all are chemically combined by fertiliser manufacturers with other elements into forms which are acceptable to plants. It is not possible to state simply the individual function of these elements in the plants owing to the interactions which occur, but in very general and in some ways oversimplified terms, they may be regarded in the following ways. Nitrogen is the material which encourages vegetative growth and so an ample supply is necessary for the plant to produce large leaves. In conjunction with magnesium, it forms chlorophyll essential for the plant to make full use of sunlight for healthy growth.

Phosphorus, which encourages root formation, particularly in the early stages, is the material involved in the energy transfer systems which the plant uses in transforming water, air, carbon dioxide and minerals into the plant tissue and subsequently is useful in encouraging flower bud formation.

Potassium plays its part in the processes mentioned above but has also been shown to be an important element in helping the young growth to ripen and harden so that it is better able to withstand the conditions experienced during a severe winter. In addition, it is important in producing plants able to withstand attack by disease organisms.

There are a considerable number of other elements which, though essential for the plant, are usually required in smaller amounts. Nevertheless, a deficiency of one of these can have a marked effect on the plant's performance. Of these elements, magnesium is perhaps required in the largest amounts by the plant; it not only plays its role in direct uptake for use in chlorophyll formation, but probably also helps in controlling excessive uptake of lime and of potassium. Iron is also required in very small amounts by the plant but if the soil is of the correct pH (acidity), there is usually sufficient present without further addition being required. The last one to be mentioned is calcium (lime); deficiency of this is rare in Britain, but cases have been reported on some very acid soils.

It is difficult for the amateur to diagnose the cause of ill-health of a plant when it is attributable to one of these deficiencies since all tend to show up as a yellowing, either over the whole leaf or between the veins, and generally give an unhealthy appearance to the plant. Since, however, this condition can be brought about by a considerable number of other factors, including waterlogging, nitrogen deficiency (brought about sometimes by the use of some mulches, such as sawdust which can utilise large amounts of nitrogen during their breakdown), high soil pH (excess lime in the soil), some virus diseases and even unseasonable weather.

To diagnose which factor is responsible, a definite plan of treatment has to be adopted. Perhaps the first thing to do is to take samples of the foliage, have it analysed, and then follow the subsequent recommendations. On the other hand, many amateurs prefer to tackle the problem themselves first and a technique used by the author has been as follows: First, give the plant a foliar spray with a dilute solution ($\frac{1}{2}$ to 1%) of Epsom salts (magnesium sulphate) – this should be applied in late evening, never in full sun. If this has not shown any benefit in two to three weeks, then magnesium deficiency is unlikely to be the cause. The next step is to spray with one of the sequestrene compounds containing iron and other trace elements following the maker's instructions. If this does not produce the desired effect, then the use of a dilute spray of urea solution applied in late evening using a concentration of about one level teaspoonful in 2 gallons of water is worth trying. If this shows signs of correcting the condition, then nitrogen deficiency is indicated and soil application, as mentioned later, is required. If all of these fail, then foliar analysis is, as suggested before, the best means of tackling the problem. Certainly there is one golden rule when treating a sick plant – do not try heavy feeding as a means for correcting the trouble until one is sure that it is correct. It is wise to close with a note of caution; some virus diseases will cause yellowing of foliage and the treatments suggested above may mask this condition for a time. If the symptoms return quickly after treatment and a second application of foliar feed does not cure the trouble then for a valuable plant expert opinion is required.

3. Use of the major plant nutrients.

The minor nutrients discussed above can in a few circumstances prove limiting to the growth of the plant, but the major nutrients, nitrogen, phosphorus and potassium, are the elements with which most growers will be mainly concerned.

Since none of these is used in their simple elemental form, then one has to consider the most suitable form in which they should be used, particularly in relation to the growth stage of the plant. Clearly a treatment which could be handled by a mature plant could kill seedlings or newly rooted cuttings.

If one then looks at the problem in terms of the various growth stages of a plant, the first is the seedling or cutting stage. Next comes the stage at which they are transplanted into pots or boxes; this is followed by transplanting into the open ground for growing on and finally there is the treatment of the mature plants.

3.1 Fertilisation of seedlings or cuttings

For seedlings or cuttings it is usually unnecessary to give much fertiliser and indeed my strong recommendation is to do little in the way of feeding at this stage except possibly for an occasional foliar spray with a very dilute solution of one of the proprietary liquid fertilisers sold for this purpose. At this stage my preference is for one of the seaweed-based products used at about $\frac{1}{4}$ of the strength recommended – sprayed in the evening: perhaps a case of overcaution but better sure than sorry. It is, however, well worth while giving con-

sideration to this subject since it must be remembered that repeated overhead watering can leach nutrients from plant leaves.

3.2 *Transplants*

At the stage of transplanting either the seedlings or rooted cuttings, they are usually ready for some root feeding and at this stage nitrogen, phosphorus and potassium can be very valuable to stimulate growth. It has been my experience and, more important, that of most, if not all, of the authoritative workers on the subject that nitrogen is best given to rhododendrons in the form of an ammonium compound and it is generally advisable to avoid fertilisers containing urea or nitrate at this stage, though hoof and horn may be used if preferred.

For the phosphorus source it is generally best to use a material which does not contain calcium (lime) for there have been cases where repeated application of, for example, superphosphate has caused a build-up of calcium in the soil to the detriment of the plant; bonemeal can have a similar effect. While uncommon, it is, therefore, generally worth while avoiding this possibility and using fertiliser based on either ammonium phosphate or potassium phosphate which has the added advantage of contributing one of the other essential elements.

With potassium again, it is strongly advised to avoid the usual Growmore type of product which utilises potassium in the form of the chloride and instead choose one based on either potassium sulphate or potassium phosphate.

For the amateur it is difficult to meet all these requirements, and fortunately reputable fertiliser manufacturers have foreseen it and they market products which are in line with the requirements. One such product known to the author which is commonly available in Britain and in some overseas countries is "Rose Plus" sold by I.C.I. and there are doubtless some others. This material should be incorporated into the potting compost (I use a 1, 1, 1 lime-free loam, peat, sharp sand mixture) at a maximum rate of approximately 2 oz per bushel (8 gallons).

On the other hand, my strong preference is for a product based on magnesium ammonium phosphate, such as "ENMAG", manufactured by Scottish Agricultural Industries or "MagAmp" manufactured by the American company W. R. Grace. Both of these are based on magnesium ammonium phosphate; they meet all the requirements and in addition provide magnesium as well as the major nutrients in a relatively slowly available form which enhances their value considerably since they become safer to use. For this purpose they can be mixed with the 1, 1, 1 potting compost at the rate of around 3 or 4 oz per bushel.

3.3 *Open ground planting*

While the same criteria generally apply at the planting out stage (preferably in late spring to avoid frost damage), one can now increase the fertiliser rate. A practice which has proved very satisfactory is to dig out the planting hole putting the soil removed to one side. Some peat is then mixed into the soil surrounding the sides and bottom of the hole and a further and more substantial amount of peat mixed with

the soil that was removed – about 2 parts soil to 1 of peat is usually a satisfactory mixture. To this soil peat mixture is then added the fertiliser – about 6 to 8 oz per bushel in the case of magnesium ammonium phosphate or some 3 to 4 oz in the case of "Rose Plus". The mixture is then used to fill in around (not over) the root ball. A note of warning should again be given at this stage. It is unwise, in most places, to use a fertiliser containing nitrogen after mid to late July since this can encourage second growth on the plants which may not ripen and so is vulnerable to frost damage during the winter. Any plants planted out during autumn are then best not fertilised until the following spring when a top dressing of around a half to 2 oz of fertiliser per plant (depending on the size of the plant) should be given.

3.4 Fertilising established plants

For fertilising well established plants which one is trying to push on to flowering size, a technique which has been found successful is to mix the fertiliser (any of the above-mentioned) with peat, again at the rate mentioned for use in the planting hole; and mulch with this in spring or early summer. Again it has been my experience that an application too early of nitrogen can force young growth which may later be damaged by late frost. It is good practice in areas where such frosts may be experienced to delay the application until late April or even early May.

4. Application of fertilisers for special purposes

4.1 Flower bud initiation

During a recent visit to the north western United States I was told of a technique practised in that area and although I have not used it myself, it reminded me that an old plantsman had told me of it some years before. The technique is to apply superphosphate as a top dressing in late January (as weather permits). This clearly cannot influence flowering during the year in which the fertiliser is applied (since the buds were formed the previous summer and autumn), but it is said to encourage the plant towards flower-bud formation on the new growth during the year of application. Since superphosphate contains lime, care should be taken in the rate of application, except on very acid soils.

4.2 Hardening off late growth

In the case of those species or hybrids which make late growth or even second growth, more rapid ripening and hardening can frequently be obtained by a surface application in September of sulphate of potash. A probable application rate for this would be around 1 oz evenly applied over the root ball of a plant about 2 to 3 feet high.

4.3 Urea spray for flower bud initiation

For those who like experimenting, a technique which has been used to cause flower bud formation in some fruit trees at the expense of growth buds is to spray the new growth with a very dilute solution of urea, probably a concentration of around 20-30 parts per million could be tried. I have, in fact, tried this technique on one half of a

plant of *R. macabeanum* grown from seed which, though about 12 years old, had failed to produce flower. In this case, one flower bud was formed on the sprayed part of the plant and did flower the following spring. Clearly this is no proof that the technique is a valid one, though the plant has not flowered again in the four years following the application, no subsequent treatment being given. It is sad to relate that the flower produced was one of the poorest coloured *macabeanums* I have ever seen, but who could throw out a 12 year old *macabeanum* after its first flower even though it was a poor colour. Perhaps the colour was the result of the treatment and, who knows, next time (if ever), it will be a lovely brilliant yellow form. I still hope !!!



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Frost Damage in Scotland, April 1973

PETER A. COX

Every year one hears people express their opinion that it has been a unique, most extraordinary, exceptional, abnormal or some other type of unusual season. Naturally every season is different from the last and as with people's faces, no two years are exactly alike but such is our British nature that we are always criticising the weather, often in unkind terms.

I will launch out and say that the winter and spring of 1972-73 really were quite unbelievably odd. Nearly all over the country it was exceptionally mild, rather as the previous winter. But on top of that it was the driest winter on record in many areas, especially in eastern Scotland, and this drought is still partially with us in mid-June. It remains to be seen what trouble we will all be in by late summer.

The early spring was interrupted by aggravating frosts in March and early April and very few early rhododendrons had a chance to flower properly. So with cold winds, drought, periodic frosts and May Day strikes, we viewed our prospects at the Rhododendron Show in London with little enthusiasm. Then came April 29. The evening of the 28 was horribly clear and a bitterly cold breeze blew from the north. The following morning the sun shining on the damaged blooms and growth revealed the worst, virtually everything resembling brown puddings.

In this district the temperature dropped to 20°F. (-6 $\frac{3}{4}$ °C.), 12°F. of frost. Reports from colder areas further inland were of 14 to 17°F. of frost while in Argyll and Dunbartonshire, 6°F. of frost were recorded and 10°F. of frost further inland. Islands such as Brodick apparently escaped with no damage. The following night produced more frost followed by snow, up to 6 inches in places but this helped the severe drought conditions and did little further harm.

Six weeks have now passed since that frost, in many places the lowest April temperatures ever recorded. Not only were all flowers and growth destroyed, but a very high percentage of all flower and leaf buds were partially or completely ruined. Bark split is rife, especially on young stock lined out last year. This bark split might have been much worse for if the soil had been damp, more sap would have run hence the bark would have been more vulnerable. Triflorums and Cinnabarinums are the worst split followed by *R. griersonianum* hybrids. Even so-called hardy hybrids such as 'Betty Wormald' were affected and only opened one or two pips per truss. A tremendous amount of distorted growth has appeared.

Few people realise what frost can do to growth buds and we frequently get queries as to what is wrong with their rhododendrons. All types of distortion, puckering and chlorosis can arise which can be

very ugly. One poor species had its primary growth frosted in March and its secondary growth in the late April frost.

The question is this, is it better to knock out all badly shaped growth, to allow a secondary flush to appear? Or leave it alone on the chance that either flower buds will form for the following year or the primary growth bud will elongate and make fresh growth. It must be remembered that many will not flower on secondary growth, especially among the large-leaved varieties. For those with larger collections, it would be very time consuming to go around inspecting every growth of the worst affected specimens. It is usually a case of nature knows best and leave well alone.

As always in these circumstances, many plants that are considered hardiest succumbed while those regarded as tender, came through with flying colours. Take *Obtusum* (evergreen azaleas). 'John Cairns', a very hardy reliable cultivar, failed to open a flower while two, normally a little bud tender although later flowering, 'Everest' and *R. indicum* 'Balsaminaeflorum' have rarely been better. Nearly all my dwarf yellow *R. ludlowii* hybrids which have never failed here before, were rather forward for the time of year and hardly opened a bud and even later species such as *R. keleoticum*, only produced the odd bloom. On the other hand, most forms of *R. campylogynum* and *R. trichostomum* have been marvellous and one clone of *R. callimorphum* and *R. griersonianum* are good.

To turn to camellias, 'Donation' failed us at last, for the first time ever. In the past it has come through everything the weather could throw at it with flying colours. Yet, 'Cornish Snow', 'Hiraethlyn', 'St. Ewe' and to a lesser extent 'J. C. Williams' flowered perfectly. A large collection of new Williamsii cultivars failed (they are rather young) but the American 'Brigadoon', a real winner here for several years, was terrific with full sized flowers of perfect quality a week after the frost and with no wall protection.

Magnolias were almost the worst damaged plants of all, especially in Argyll where all young growth was wiped out. Here at Glendoeck, *M. globosa* (Himalayan form) still has almost bare branches after six weeks, a *M. sargentiana robusta* hybrid has started to grow again, *veitchii* and *soulangiana* had some half size blooms and *M. stellata* carried on again after the frost. One out of three *M. wilsonii* is flowering while *M. sieboldii* has failed completely in a very sheltered position.

To sum up, few plants may actually have been killed, although it remains to be seen how many young rhododendrons will subsequently die of bark split. Many of the larger rhododendrons and magnolias are sure to flower poorly next year.

Late September.

The drought is still with us although there has been just enough rain since June to avoid real trouble. Further deaths of young stock from bark-split have been among *Obtusum* azaleas, Triflorums, particularly one clone of *R. yunnanense* and certain hybrids, especially of *R. griersonianum*. The chief surprise has been the tremendous set of flower buds, notably on plants where the young growth was distorted but not destroyed. More flower buds than expected have appeared on second growth so we look forward in general to a good show in 1974, barring frost, and more drought.

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Some thoughts on Evergreen Azaleas

ARTHUR GEORGE

Fifteen years have elapsed since the R.H.S. Garden Wisley staged that memorable display at the 1958 Chelsea Flower Show of the complete collection of the Wilson Fifty Kurume Azaleas. The arrangement is still vivid in my mind for it was artistically superb – the bright colours of the azaleas softened and complemented by acers and hostas.

Since that date important new additions have been made to the evergreen azaleas in general cultivation in this country. Possibly the most outstanding are the exotic and large flowered Glen Dale azaleas from America, and more recently the even larger and more spectacular strain from Australia, but none of these has yet been fully tested for hardiness in this climate.

In spite of these interesting introductions, I am firmly of the opinion that flowers do not necessarily have to be large to be more pleasing and I still find a blending of Kurumes very attractive to my eye. Their masses of small, dainty flowers seem more in keeping with the size of the plants and I prefer to see them growing by themselves rather than mixed with even the larger flowered Malvatica hybrids.

Unfortunately the naming of some of the Wilson Fifty would still appear to be in some confusion and perhaps it is possible another attempt could be made to sort them out before they are lost for all time. When the Tower Court collection of evergreen azaleas came to Hydon most of the Wilson Fifty were said to be amongst them but we have never been able to reconcile the labelling with the descriptions given in the 1959 Rhododendron Year Book. To name but a few, the plant we grow as 'Aya Kammuri' (W. 19) is a warm salmon pink, not a rose pink. 'Ukamuse' (W. 47) taller growing and one of the last to flower is also salmon, not vermillion, with distinctive long white stamens; and 'Oino-Mezame' (W. 26) is clear, light pink rather than deep rose. If at all possible these differences should be clarified.

Four of the Wilson Fifty have now received the Award of Garden Merit; of these 'Kure-no-Yuki' must be supreme amongst white evergreen azaleas, and 'Kirin' the finest of the light pinks. 'Irohayama' and 'Kimigayo' both received an Award of Merit in 1952 – both are delightful and most useful, the former with its lavender margined flowers, cream at the centre, and the latter with a pinker rim and pronounced chestnut spotting; their soft colourings make excellent barriers between the brighter colours. 'Hana Asobi' (W. 50) is another which does extremely well with us but the mass of tiny brick pink flowers are usually past their best by Chelsea time. 'Asagasumi' (W. 14) is also superb and very hardy with vivid shocking pink flowers. Purple

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is never the most popular colour but we find 'Kiritsubo' (W. 24) a first class plant for hardiness and flowering, and given the right colours to complement it, it can look magnificent. Not included in Wilson's Fifty best Kurumes is the little gem 'Hatsugiri', a beautifully compact growing evergreen azalea, absolutely hardy with a mass of vivid magenta-purple flowers which positively glow.

The Tower Court cross of the Kurume azalea 'Kirishima' with Malvatica produced the Eira azaleas which came to Hydon as numbered clones. With flowers not much bigger than most of the Kurumes, these blend in well with them, and with their Gilbert and Sullivan names, have now become well established. They are particularly good garden plants being both very hardy and free flowering. Their colours range from a very soft pink, 'Peep-Bo', and a delightful pale, silvery mauve, 'Tit Willow', to the rich claret pink of 'Nanki-Poo' and deep purple 'Pooh-Bah', and they have the added advantage of being longer lasting in flower.

In order to produce a slightly taller evergreen azalea with smallish flowers, which could be used to back a planting of Kurumes, I crossed 'Tit Willow', 'Nanki-Poo' and 'Princess Ida', on to *kaempferi*. These have turned out, as I hoped they would, with an increased colour range from the salmon orange 'Kakiemon' to the vivid cyclamen purple-pink of 'Mary Meredith', all with brilliant coloured autumn foliage.

I have also grown from seed sent from Japan, the rare evergreen azalea 'Komiyamae'. The plants are very tall and slender growing with masses of tiny mauve or rose pink flowers and of course they are completely hardy.

Amongst the more compact, small flowered evergreen azaleas, I must make mention of the delightful pale mauve *R. kiusianum*, a neat and compact plant with attractive foliage. Very similar to it, but with bright candy pink flowers is the plant we grow under the name of Garne's Hybrid, but which I am bound to think is just another clone of *kiusianum*. Lower growing than either of these, in fact of creeping habit, is another charming little evergreen species *R. nakaharai* 'Mariko', with dark green, hairy leaves and bright salmon-orange flowers, large for the size of the plant, and which do not appear until late June or July.

Whilst my own personal preference will always be for the dainty Kurumes, it would be foolish not to rate very highly the potential of the new exotic introductions from America and Australia if they prove to be hardy, for they are entirely different from any other garden azaleas so far in cultivation, and the Australian varieties are said to grow to 6 to 8 feet.

The past two or three years have been very difficult ones for evergreen azaleas. The prolonged periods of drought and sudden, occasional sharp frosts early in the autumn have resulted in a severe loss of flower, and in a number of cases, even with established plants, this has proved to be fatal, particularly so on lighter soils.

The cultivation of Malesian Rhododendrons

E. F. ALLEN

During the last seven years my wife and I have grown the tender, lepidote, Vireya rhododendrons in some quantity, both from seedlings and cuttings, and we have been so surprised by several peculiarities of their nutritional requirements that, quite recently, I thought that a search of the relevant scientific literature might well yield information of practical value. However, this literature proved to be very restricted in spite of the great importance of the genus to gardeners.

H. Tod (Tod 1959), in a most valuable paper, demonstrated that *Rhododendron* is calcifuge not because the lime content of the healthy plant is low but because it is capable of assimilating calcium from acid soils which are very low in that element. Now an important secondary effect of high soil acidity is an excess of soluble aluminium and manganese and a shortage of available phosphate and molybdenum. Clearly plants which grow naturally on soils of very high acidity can cope with these excesses and shortages and one must take this into account when preparing a potting compost. Tod's experimental work consisted in the chemical analysis of leaves taken from healthy plants of both rhododendrons and many other plants. Making use also of similar figures obtained by T. Wallace, he found that the levels of magnesium, potash and phosphate tended to be lower in rhododendrons than in other plants, whilst levels of iron were higher and of manganese much higher. By contrast the level of calcium was much closer to the "other plants" range.

I have been unable to discover any direct study of the all-important nitrogen nutrition of epiphytic rhododendrons but certain other work has proved to have some relevance. Thus rainfall contains appreciable quantities of inorganic nitrogen (Eriksson 1952), this being equivalent to an annual addition of 3-12 kg/ha of the element – say an average of 6.7 lb/acre. Assuming that most of this derives from the fixation of atmospheric nitrogen and its reaction with water, half would be present as ammonium nitrate and half as the hydroxide. Hence the rainfall content of ammonium nitrogen would be about twice that of nitrate nitrogen. The greater importance of ammonium nitrogen agrees with practical findings in this country with the manuring of terrestrial rhododendrons.

It has been demonstrated that, in the humid tropics (Ruinen 1965), two genera of nitrogen-fixing bacteria are common on the leaf surfaces

of tropical vegetation. The same worker suggests that these organisms derive the energy for nitrogen fixation from organic matter exuded from leaves, said to be as much as one ton/ha/year.

That other organisms can fix nitrogen on leaf surfaces has been shown in Puerto Rico (Edmisten & Harrelson 1969) in a series of carefully conducted and elegant experiments. Blue-green algae were important agents and some of the fixed nitrogen was transferred to the host leaf within a 48-hour period.

Possible practical lessons to be learnt from all this research would, I suggest, be as follows:

1. Nitrogen should be given to cultivated rhododendrons frequently, in great dilution and in an organic form which readily yields ammonium nitrogen.
2. The normal nutrient bases – potash, calcium and magnesium – are unlikely to be needed in appreciable quantity, since the rhododendron plant seems to be capable of extracting them in sufficient quantity from the surfaces of rocks and tree-bark.
3. To our standard compost of moss-peat, leaf mould and chopped bracken, pieces of rotting bark of non-coniferous trees could well be added on an experimental basis.

PRACTICAL EXPERIENCE

In a simple trial using equal-sized seedlings of *Rhododendron macgregoriae* I was able to demonstrate, in less than one year, that:

1. 20% by volume of oakwood, acid topsoil added to our standard potting compost was markedly harmful by reducing both branching and vigour of growth.
2. That an Allen speciality known as 'Trout Tea' was beneficial in that more vigorous growth resulted although the leaves of treated plants were not always so uniform a green in colour as those of the less vigorous control plant.

To prepare 'Trout Tea' it is first necessary to be a successful angler. The freshly caught trout are cleaned promptly and washed in clear rainwater. The resulting slurry of blood, skin-slime and guts is passed through a coarse sieve and the liquid fraction applied at once to choice plants. Previous experience had shown that this treatment was entirely beneficial to epiphytic orchids, potgrown camellias and delicate foliage plants. The skin slime forms a natural wetting agent and is, I understand, of protein origin. The fish blood would certainly provide a readily available source of nitrogen, together with much smaller quantities of potash and phosphate. Surprisingly, this treatment has not resulted in any unpleasant smells in the glasshouse, even when the liquid is kept overnight before use. However, keeping for any longer period is not advised. The solid residue should be buried promptly, at least one spit deep, close to the rooting zone of a deserving shrub.

Of all the rhododendrons which we grow in pots seedlings of the epiphytic *R. brookeanum* have given most trouble. These clearly dislike plastic pots and also need an open compost but this dries out rapidly in clay pots. Complete drying out often results in wilting and death.

A partial solution to this was discovered by chance when it was noticed that one seedling in an old 'Laconeil' pot was showing superior growth and a deeper green leaf colour than other seedlings in clay or plastic. This brand of pot seems to be made of a coarse sawdust bound together with a synthetic resin. A fresh supply of these pots was obtained in three sizes, 3½, 5 and 7 inch and subsequent experience has confirmed that seedling rhododendrons growing in them thrive better than in either clay or plastic. A further cultural refinement is to keep all small pots in fibreglass trays on a two-inch layer of damp 'Lytag', this being a synthetic gravel-substitute which is absorbent yet neutral in reaction. This practice ensures less trouble from moss and liverworts and the prothalli of ferns, all of which are a great nuisance.

A mulch of fresh, green sphagnum moss, as suggested by Mr Peter Cox, has also proved to be of benefit – especially to young seedlings. This is not obtainable from trade sources in East Anglia and other mosses are no substitute.

With regard to other nutrients, magnesium, in the form of a dilute solution of Epsom salts, has not proved beneficial. This is perhaps unexpected as it is often of benefit to hardy hybrids. Similarly a very dilute solution of potassium permanganate was found to be harmful and led to severe chlorosis.

Some hybrid populations produce a proportion of chlorotic small seedlings and experience has shown that these will often respond to one application of a 0.5% solution of ferrous sulphate. Even when the response is favourable the chlorotic upper leaves do not change colour but the next new flush is a healthy green. It should be noted, however, that iron applied in chelated form, as a sequestrene, seems always to be toxic.

Seedlings of most species have proved to be surprisingly easy to manage once it is appreciated that they must not be allowed to dry out. Initial pricking out seems best postponed until after April and a pinch of old compost in the bottom half of each small pot is usually of benefit.

On an experimental scale I am now testing the addition to the potting compost of one-fifth by volume of broken bark of elm, robinia and sycamore. It is a little too soon to say if this is of benefit. Conifer bark is not being tested because such trees appear not to be favoured as hosts in the forest.

PESTS AND DISEASES

Mealy bugs can be a real nuisance and they must not be allowed to multiply. Their control depends on ant eradication and, for this purpose, I have relied on regular sprays with the new and safe bioresmethrin and this, I understand, will soon be on the retail market. This must be reinforced by treating established mealy bugs with a camel hair brush dipped in methanol or isopropanol. The addition of a few drops of a nicotine emulsion makes the alcohol more lethal. After each growth flush has been completed the drying leaf bracts at the flush base must be rubbed off as they often give shelter to mealy bugs.

Regular sprays with bioresmethrin will also help to control vine and clay-coloured weevils (*Otiorrhynchus* spp.). These are infuriating

pests as they feed nocturnally on the edges of young leaves.

The agent of the dieback which follows the drying out of pot plants of *R. brookeanum* would seem to be a fungus since death can be long delayed, but not finally prevented, by a prompt application of Benlate as a drench.

If grey mould appears in a seed pan it can be checked by watering with Benlate but careful removal of the mouldy patch with tweezers seems to be just as effective.

NOTES ON INDIVIDUAL SPECIES

R. brookeanum 'Mandarin'. Everything possible should be done to make a young cutting branch freely. One technique is to remove the entire fourth flush, for rooting, when three breaks should develop.

R. brookeanum 'Mesilau'. This clone has proved to be a little more free-branching than 'Mandarin' and the flowers have a similar colour.

R. brookeanum 'Titan'. This is the only clone, of four, which behaves as a long day plant, flowering as it does in June-August. It has paler vermillion flowers than the other three short day clones and is very much more vigorous. It may possibly be of hybrid origin although there are no obvious signs of this.

R. suaveolens 'Painted Snipe'. In the forest we saw only one flower head per plant yet our original plant, now in a 14-inch plastic tub, produced 90 heads of flowers in July, 1972. It looks like being an outstanding introduction to the coolhouse as it is easy to manage in our standard soilless potting mixture.

R. lowii. This slow-growing species has still not flowered and certainly all the flowering plants which we saw on Mt. Kinabalu gave every sign of great age. By contrast the epiphytic *R. brookeanum* would seem to be short-lived in nature.

R. aurigeranum. Dr Sleumer tells me that this species, which seems to be quite easy to grow, might well prove to be nearly hardy. Our seedlings have not yet reached flowering size.

R. konori. Young seedlings dislike plastic pots but have otherwise proved easy to manage. The young foliage is very attractive.

R. stenophyllum. Our one plant and also a newly rooted cutting both perished as a result of quite a minor temperature variation caused by a power cut during the 1971-72 winter. This is a pity as Dr Sleumer knew of no other plant of this species in cultivation.

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I am greatly indebted to Dr J. K. Coulter, of Rothamsted Experiment Station, for help in tracing my first three references.

Rhododendron Species encountered on the Hilliers Plant Trek to East Nepal 1973

ROY LANCASTER

The above trek was organised by Thomas Cook & Son Ltd. and was the first trek of its kind to be allowed into the Himalayan foothills of east Nepal. Its success was due in no small part to P. H. Delves of the above firm and to M. Cheney of Mountain Travel, Kathmandu.

Twenty members, including myself as leader, flew into Biratnagar from Kathmandu on the 15 April and continued by road to Dharan Bazaar to spend our first night under canvas. Our party was accompanied by nine Sherpas including a cook and two assistants. To carry the tentage and stores a total of fifty tribesmen, mainly Limbus, had been hired as porters.

The first two days took us north over the Sanguri Ridge and up the steep hillside to Dhankuta an important hill town. The early afternoon temperatures on both days reached 110°F. and resulted in the collapse of one of our members from heat exhaustion. Another member contracted pneumonia and a third suffered from general exhaustion complicated by influenza. Fortunately Dhankuta possessed a small radio station enabling us to send an urgent request to Kathmandu for a helicopter to evacuate all three sufferers. Treatment on the spot was administered by our own doctor using medical supplies carried by the party.

Despite this somewhat ominous beginning the rest of the trek went according to plan. We followed the ridge above Dhankuta and beyond Hile on the track which leads eventually to Terhathum and Taplejung. Long before either of the above were reached we turned north to follow the Milke Bhanjang, a gradual climb through *Rhododendron* forest to a high point of 11,000 feet. A one-day climb on to the main ridge of the Milke Danda took us to 12,000 feet and a host of *Rhododendron* species before returning down the valley to Side Pokhari and thence to Chainpur. Our airlift from Tumlingtar on May 1 brought to an end fifteen days of interest and spectacle during which we had tasted some of the most visually exciting country in the world.

Area covered by Trek

The following table explains the day by day route of the trek (beginning at Dharan Bazaar) and the rhododendrons encountered.

Day	Evening camp	Height in feet (approx.)	Rhododendrons seen	
1	Lua Khola	600		
2	Dhankuta	4,800		
3	„	4,800		
4	Between Hile & Basanteur	5,706		
5	Basanteur	7,100	(<i>arboreum</i> – silver-backed form)	
6	Chowki	8,500	(<i>arboreum</i> ; <i>lindleyi</i> ; <i>dalhousiae</i>)	
7	Sida Pokhri	9,300	(<i>arboreum</i> ; <i>triflorum</i> ; <i>barbatum</i> ; <i>thomsonii</i> ; <i>glaucophyllum</i>)	
8	Lam Pokhri 1	10,000	(<i>arboreum</i> ; <i>barbatum</i>)	
9	Lam Pokhri 2	10,500	(<i>arboreum</i> ; <i>barbatum</i> ; <i>hodgsonii</i> ; <i>glaucophyllum</i> ; <i>campanulatum</i> ; <i>camelliiflorum</i>)	
10	To ridge of Milke Danda and return to Lam Pokhri 2	12,000	(<i>arboreum</i> ; <i>barbatum</i> ; <i>campanulatum</i> ; <i>campylocarpum</i> ; <i>cinnabarinum</i> ; <i>hodgsonii</i> ; <i>lepidotum</i> ; <i>wallichii</i>)	
11	Poklavan	6,500	(<i>arboreum</i> and lower down silver-backed form)	
12	Side Pokhari	5,200		
13	Chainpur	4,800		
14	Tumlingtar	1,600		
15	„	„		

Rhododendron Species

The main aim of the trek was to see rhododendrons in flower and we were not disappointed, for although we only reached a height of 12,000 feet (on one day) we encountered no less than fourteen species of which nine were in flower.

Species seen (in order of appearance)

R. arboreum (silver-backed form)
R. dalhousiae
R. lindleyi
R. arboreum
R. barbatum
R. triflorum
R. thomsonii
R. glaucophyllum
R. camelliiflorum
R. hodgsonii
R. cinnabarinum
R. campanulatum
R. campylocarpum
R. lepidotum
R. wallichii

Flowering stage

flowering just finishing
 flower-buds swollen
 in full flower
 flowering just beginning
 flower-buds still tight
 in full flower
 flowering just beginning
 flowering just beginning
 flower-buds swollen
 flower-buds still tight
 no flower

Collections

All species (excepting *R. dalhousiae* and *R. wallichii*) were collected as seedlings by members of the party. Seedlings were partially cleaned of soil (to reduce weight) and wrapped in damp moss before packing (tops exposed) in polythene bags. All collections were placed in bamboo baskets and carried by two porters.

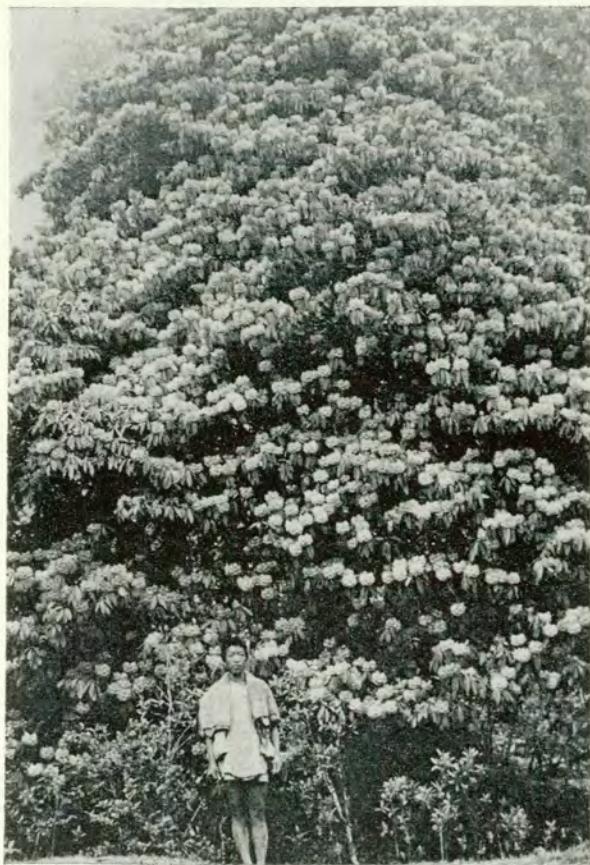
Judging from members reports received since returning, the seedlings have suffered far less than we expected. Considering the high temperatures (90 - 110°F.) experienced during the seven days from leaving the heights to our return in the U.K. this is cause for great satisfaction.

R. arboreum. This species, as expected, provided the greatest flower spectacle of the whole trek. It was the first species encountered - in forest on the hillsides between Hile and Basanteur. Here mainly large individual specimens occurred, accompanied by several species of evergreen trees including *Quercus* spp. and *Mahonia napaulensis*. The leaves were silvery beneath and the flowers, just over, were deep crimson.

The following day, on the hillside above Basanteur, this species began to appear more frequently, first as individual trees of 30 to 40 feet in the forest then later as forest itself. For the next six days *R. arboreum* was never out of our sight and was the dominant tree in the vegetation. Its flowers stared us in the face when we emerged from our tents in the morning and its lengthening shadows signalled the approach of night. Sometimes we emerged from dark, dense, canopied walks into open glades frequented by *Piptanthus nepalensis* and *Rosa sericea*, the former sporting clusters of golden pea-flowers and the latter flaunting long prickle-clad stems studded with creamy-yellow blooms. Suckering *Daphne bholua* formed clumps and patches here and there, whilst *Berberis hookeri* showered yellow petals all around. On the edge of these glades occurred the finest specimens of *Rhododendron arboreum* I have ever set eyes upon. Dense mounds and cones 30 to 40 feet high standing bedecked with flowers from head to foot, looking, for all the world, like exotic versions of the flower pyramids, once such a feature of the Chelsea Flower Show. Colours varied from pure white (uncommon) through pink to deep red. The dominant colour however began rose-red in bud, opened to rose and faded to flesh colour. Leaves were buff-coloured beneath. These forms occurred up to an altitude of about 11,500 feet on the Milke Bhanjgang above Lam Pokhri 2 (Figs. 7, 8).

Rhododendron arboreum is the National Flower of Nepal and is beloved by the hill people for its colour and flamboyance. During our passage through the *Rhododendron* forests many of our porters plucked trusses to decorate their baskets.

R. barbatum. An easily-recognised species, first encountered on the hillside above Chowki, being particularly plentiful on the ridge approaching Sida Pokhri. Here it grew with *R. arboreum*, attaining 20 to 30 feet, with attractively peeling stems and relatively small heads of rich red flowers. It occurred in some quantity along the main length of the Milke Bhanjgang and up the slopes of the Milke Danda above Lam Pokhri 2 to about 11,500 feet.



Figs. 7 and 8
Magnificent
specimens of
Rhododendron
arboreum in Nepal.



R. camelliiflorum. We did not find this species until Lam Pokhri 2 where it occurred in some quantity in the forest around the camp. Several specimens were quite large, with long drooping stems several feet long. Most had found a home in old specimens of *Sorbus cuspidata* and *Acer sterculiaceum* with at least one individual several feet up in an old *R. arboreum*. The last specimen found occurred at an altitude of about 10,300 feet. Although no flowers were present this species was easily recognised by its dark green pointed leaves, densely brown-scaly beneath.

R. campanulatum. Not until we had reached Lam Pokhri 2 did this common Himalayan species put in an appearance. Once introduced it proceeded to cover the ridge up to and on to the Milke Danda where it was the dominant rhododendron. Flowers were just opening and in some places had already imparted a blue haze to distant hillsides. All flowers seen were uniform in colour and in my eyes equal to, if not better than the form in cultivation known as Knap Hill.

R. campylocarpum. We found this species only on the ridge of the Milke Danda. Here it formed thickets 8 to 10 feet high in company with *R. campanulatum* and *R. cinnabarinum*. Unfortunately we arrived too early for flower.

R. cinnabarinum. Yet another species which only occurred on the hillside above Lam Pokhri 2 and on the Milke Danda although there was just one isolated specimen near Sida Pokhri. It appeared in some quantity on the Milke Danda forming thickets, often with *R. campanulatum* and *R. campylocarpum*. Unfortunately we were too early (by 2 or 3 weeks) for the main flush of flower and only a comparatively few specimens deemed to show us anything. Those flowers we saw were basically yellow, overlaid apricot in bud. We found nothing approaching the cinnabar-red forms we had expected. The leaves of these plants were a distinct pale green with no hint of "bloom".

R. dalhousiae. Several plants of this erect-stemmed, lanky species were found above Basanteur, growing in both *Mahonia napaulensis* and *Lyonia* sp. Flower-buds were swollen but no sign of flower.

R. glaucophyllum. A dwarf species found on two occasions. Near the track beyond Sida Pokhri it clothed a small bank for several square yards. Flowers, just opening, were creamy-white flushed pink. A single plant with similarly-coloured flowers was found by the track near Lam Pokhri 2.

R. hodgsonii. This handsome, large-leaved species was first noticed in the forest just below the track and on the eastern slope of the Milke Bhanjgang in the vicinity of Lam Pokhri 2. Here it formed spectacular creamy-barked trees of 20 to 30 feet, bearing large terminal heads of pink flowers. During our day's climb to the Milke Danda we found this species dominant in some areas, forming groves and thickets, but always on the east-facing side of the ridge. Both here and on the Milke Danda itself the common form possessed flowers of deep magenta or reddish purple in tightly congested heads, very different from the pink form whose trusses were larger and looser, with larger individual flowers. The description of this species in the *RHS Rhododendron*

Species Handbook and in *The Species of Rhododendron* refers to the magenta form whilst that of Bean (*Trees and Shrubs Hardy in the British Isles*) describes the pink form. It is the latter form which is illustrated (Fig. 108) in J. D. A. Stainton's recently published *Forests of Nepal*.

The local distribution of the two forms appeared distinct. The pink form occupied the lower part of the range (10,500 to 11,500 feet) and the magenta form the higher regions (11,500 to 12,000 feet), the two forms mingling quite freely midway. It must be emphasised here that the above notes and comments are based on *R. hodgsonii* as seen growing on a single ridge and are not applicable to the species and its distribution generally.

R. lepidotum. A common dwarf shrub first seen on steep banks between Chowki and Sida Pokhri and more plentifully on the Milke Danda. It was too early for flower.

R. lindleyi. This species we found on only one occasion, just before Chowki. It was a lax-habited shrub growing as an epiphyte 10 feet up in the crotch of a *Lyonia* sp. The 4 to 5 feet long stems leaned towards the track flaunting terminal clusters of sweetly-scented white trumpets in our faces.

R. thomsonii. Surprisingly, apart from a few isolated seedlings above Lam Pokhri 2, the only specimen seen of this beautiful species was a

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dense 6 feet high bush growing by the track at Sida Pokhri. Its flowers were a dark wine-red and slightly "bloomy", a most desirable form indeed.

R. triflorum. We found this species in some quantity as we descended the ridge to Sida Pokhri. It was a loose-habited shrub with rather bare stems dwarfed by the tall shapely columns of *R. barbatum*. Flowers were pale yellow.

R. wallichii. On the Milke Bhanjgang above Lam Pokhri 2 we found a single plant with no flowers. It was a small specimen of 2 ft., rather stunted and resembled *R. campanulatum* in leaf and shoot except that the former were glabrous beneath. Mr Davidian has identified a specimen as belonging to *R. wallichii*.

The National Rhododendron Garden Olinda, Australia

A. W. HEADLAM

All things have a beginning, and it is only logical that one should, before describing the Australian Rhododendron Society's National Garden at Olinda in the Dandenong Ranges, go back some fourteen years to the initial formation of the Society.

In 1964, several members of the Ferny Creek Horticultural Society requested, and were granted permission to form a rhododendron Study Group, and its success was reflected in the Australian Rhododendron Festival held at Ferny Creek for several years.

In 1958, in an endeavour to further the interest in rhododendrons, the Australian Rhododendron Society was formed, its aims being to extend the interest of the Society to other parts of Australia and encourage the production of Australian raised hybrids, as well as communicating with kindred Societies in other parts of the world.

The Society held its first show in a small hall in the recreation reserve at Olinda from October 29, to November 1, 1960, the date being chosen to coincide with the peak of the flowering season, taking advantage of the public holiday on the first Tuesday of November (Melbourne Cup Day), when many visitors converge on Melbourne for the horse racing season.

During this festive period, numerous people visit the Dandenong Ranges, some twenty-five miles from Melbourne, to see the gardens and nurseries with their colourful displays, not forgetting of course, the Australian Rhododendron Society's Annual Show, which is becoming one of the well known events of the year.

The Australian Rhododendron Society, after its first successful show at Olinda, decided that a National Rhododendron Garden in the Dandenongs would be an acquisition, both to the Society and the State of Victoria.

Representations were made to the Government and after lengthy negotiations, a permissive occupancy lease of one hundred acres of forest land was approved, with a proviso that it was to be maintained by the Society without cost to the State, a quite formidable undertaking, and the development of the first fifty acres was started in 1961.

The location of the garden amongst mountain ash and other native trees in the Dandenongs is an outstanding one, a lovely area which looks out from a ridge over the River Yarra valley with the Warburton Ranges making an imposing background.

The climate in the Dandenongs is almost ideal for growing rhodo-

dendrons and their allied species, the altitude of 2,000 feet, the rich acid volcanic moisture retentive soil combined with a rainfall of 50/60 inches, of which a good percentage falls in summer months. Occasional falls of snow in winter months rarely last more than a day, and frosts on few occasions are severe enough to cause any appreciable damage; bud damage is rarely seen, although an occasional heavy frost has at times been known to damage a number of open flowers.

Factors which contribute to the ideal conditions are the stands of mountain ash (*Eucalyptus regnans*), which grow true and straight to a height of up to two hundred feet before they branch out, other eucalypts with crowns at lower levels which help break the fall of rain and reduce the force of the wind, whilst at lower levels again blackwoods (*Acacia melanoxylon*), and other members of the *Acacia* family, as well as myrtle beech (*Nothofagus cunninghamii*), sassafrass (*Atherosperma moschatum*), and the Victorian Christmas bush (*Prostanthera lasianthos*), twelve to fifteen feet high with white flowers in panicles from December onwards, and along the gullies and streams tree ferns (*Dicksonia antarctica* and *Cyathea australis*) with their long spreading green fronds, all help to form a thick layer of humus on the forest floor.

In winter, clouds often envelop the higher parts of the mountain, and mists also help to create humid conditions in the summer months.

It was realised from the outset that the formation of the garden would be a formidable task and would tax the Society's resources to the utmost. However, it has been the dedication of members, past and present, the generosity of nurserymen and members in donating plants and money, and ultimately recognition and welcome financial assistance from the Government and Tourist Development Association which has finally brought about the realisation of the original concept.

Early in 1961 an area of sixteen acres was fenced, roads and tracks were prepared, and part of the land was planted with rhododendrons and azaleas, one of the features being a line of some sixty *R. arboreum* along the southern boundary of the garden.

Members formed groups and worked on Saturday afternoons, and gradually the garden began to show promise. However, in January 1962 bush fires swept through the garden, destroying many of the trees left for shelter as well as rhododendrons and other trees and shrubs. Fortunately the fire did not reach the line of *R. arboreum*, which have grown quite well; some are now up to eight feet in height and all have the typical habit producing densely foliated branches which reach down to the ground, a useful characteristic, which, as well as giving the plant a pleasing appearance, also provides a good deal of shade for the root run, a valuable consideration in our summer months when temperatures at Olinda often reach 90° and occasionally in the vicinity of 100°F.

Although *R. arboreum* is frost tender in many parts of the northern hemisphere, temperatures at Olinda rarely fall below freezing point, so there is no problem in this regard. The flowers vary considerably in colour, from blood red through the bright reds to pink and white. There are also in the garden a number of *R. arboreum cinnamomeum*, and the rusty brown indumentum makes an attractive sight as the leaves are stirred by the wind.

The bush fire was a severe setback to the Society, however valuable assistance was received from the Forests Commission in clearing away the fire damaged trees, and members were again faced with the task of replanting. Many of the nurserymen generously donated plants, and members brought along rhododendrons from their own gardens, and the lost ground was steadily regained.

The small hall in the Recreation Reserve was now quite unable to cope with the competitive and Society's exhibits, and it was decided to build a show hall in the garden, a not inconsiderable undertaking. Members were not, however, deterred and the erection of a building with a Show Hall 64 feet by 48 feet adjoining a meeting room thirty feet square was begun.

Much of the work was done by members and contracts were let for the more difficult construction. Eventually the hall was completed and the first show held in October/November 1966, which was a great success; the nurserymen's exhibits were staged in marquees in the garden. The completion of the show hall was a milestone in the history of the Society, and enabled more work to be carried out in the garden. Each year the annual show has attracted more attention, and with the many earlier flowering locally raised hybrids, it became necessary to hold an early show, some four weeks before the main show.

One of the aims has been the preservation of the natural slopes and features, such as the creek with its tree ferns and other native trees and shrubs, and helping to fit the garden into the existing landscape by creating a woodland garden with a balance between the indigenous and imported trees and shrubs.

A large pond has been formed at the head of the creek and the surrounding slopes planted with Kurume azaleas which, when in flower, make an attractive sight from various vantage points in the garden. On following the paths leading down the slopes, one may see the Kurumes attractively reflected in the clear waters of the pond. The overflow runs down a timbered valley to where a large lake has been formed, and this provides a water supply for the garden in summer months.

The slopes on one side of the creek have been reserved for a species garden, and the collection is gradually increasing, many additions being from generous donations of material by members and nurserymen, as well as from donors in other parts of the world. A study group has been formed, the aims being to secure the best available forms of species, and eventually to exchange species with other interested Societies. There are species ranging from the large-leaved members of the genus right through the whole range to the dwarf growing specimens which are being planted in the rock garden. The last register of species disclosed that the garden contained over two hundred and forty species and variants.

An area of five acres above the lake has been set aside for the planting of the main species group, and members by participating in the planting, and later weeding and generally looking after the area, may watch the progress and growth, the formation of flower buds and eventually see the flowers, thereby gaining knowledge of the habit and appearance of species through a complete growth and flowering cycle.

Another area has been set aside for use as a proving ground for locally raised rhododendrons, and it is being filled with hybrids which have been raised with an emphasis upon those with an early flowering habit suited to our particular climatic conditions. Most of the imported hybrids are late flowering and can suffer considerable damage by hot weather in our late spring and early summer.

The southern boundary has been planted with groups of rhododendrons in the Maddenii Series and Subseries and Edgeworthii Series; groups of *R. nuttallii* make an impressive sight in flower and are of particular interest to visitors from overseas where these species, with a few exceptions, are generally confined to greenhouse cultivation.

R. maddenii, *polyandrum*, *bullatum*, *crassum*, *ciliocalyx*, *dalhousiae* and *lindleyi* may be seen along the slopes of the southern boundary, and the air is heavily perfumed in the flowering season, which is extended often until Christmas time or later, and is followed in January by *R. kwayi*, a species with bright green foliage and crimson flowers. Flowering in mid-summer, it requires protection from sun and wind, and is one of our latest flowering rhododendrons.

Amongst the species which flowered last season were *R. zeylanicum* with its deep green polished leaves and scarlet trusses, *R. morii* with attractive white flowers flushed with deep rose markings, whilst *grande*, *sino-grande*, *giganteum*, *falconeri*, *fictolacteum*, *macabeanum* and *protistum* create considerable interest because of their foliage, and of course later by their flowers.

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The Triflorum Series and Subseries are well represented by groups of *R. austustinii* whose attractive lavender-blue flowers with a yellowish green blotch on the upper lobe blend tastefully with the surroundings. The flowers seem to vary in intensity from season to season, as well as at different times of the day, the pink shadings being accentuated by bright sunshine, whilst the blues come into their own when cloudy conditions prevail or the plant is shaded by trees in the garden.

R. lutescens is also admired, firstly for the long willowy branches with their bronze new growths, for the primrose yellow flowers, and finally in the autumn when the leaves turn to yellow and bronze.

Groups of *R. davidsonianum* and *R. yunnanense* add interest with their profusion of flowers varying from almost white to pink, pale rose and lavender rose, and on one of the slopes above the pond one may see a number of *R. rubiginosum*, whose flowers vary not only in size, but also in colour from rose lilac to pink and rose, and make a very fine display with their masses of flowers in the spring.

At the head of the creek a focal point of interest is a plant of the fascinating *R. yakusimanum*, which opens from deep pink buds to pale pink and eventually white. It is some three feet high and four feet across, and the new growth with its fawn indumentum creates almost as much interest as the flowers. Nearby is a pink form of *R. aberconwayi*, and in the surrounding area are groups of *R. williamsianum*, 'Humming Bird' and 'Elisabeth Hobbie'.

A grant from the Government provided sufficient funds to build a permanent housing for the trade displays, a three hundred foot long pavilion sheeted with steel which has been painted a dull green, and fits unobtrusively into the landscape. The roof has alternate sheets of clear fibre-glass providing a good natural light for the displays which make an impressive sight at Show time with the colourful massed display of rhododendrons, deciduous azaleas and many other interesting and attractive trees and shrubs, Japanese maples, *Enkianthus*, *Pieris*, *Corylus avellana* 'Contorta' and *Mahonia bealei* to mention a few.

The grant also covered the cost of a large greenhouse which has been used to house the Malesian rhododendrons, as well as a quarantine house with heated propagating benches and mist spray, which is an acquisition when plant material is imported, and also when propagating rhododendrons and other shrubs for the garden.

An outcrop of natural rock has been used to advantage to form a rock garden and this is being developed and planted. On the steep slope above the pond, another rocky outcrop is being developed, the large rocks, far too large to move, have formed a backbone, and the slopes have been terraced and edged with smaller rocks. Paths with stepping stones are being formed to lead through the rock garden to the pond and back to the entrance gate. The intention is to use this area for dwarf growing rhododendrons and other rock plants, however, due to the steepness of the terrain, ground cover will have to be extensively used to prevent soil erosion.

Some of the trees in the garden have been planted along the walks, flowering cherries, spruce, silver birch and many of the coniferous family. Two large groups of deciduous azaleas make a blaze of colour in late spring and early summer; there are two areas, one for the Exbury

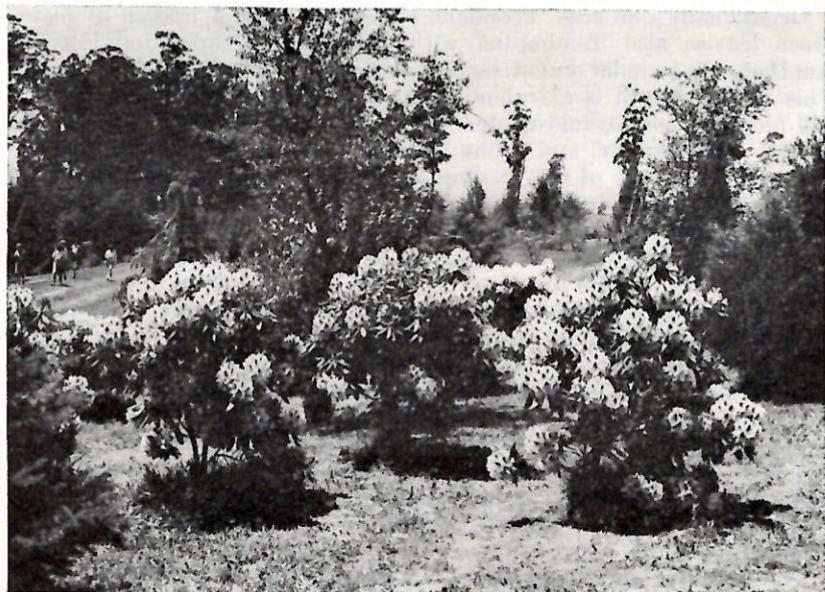


Fig. 9

A group of 'Mrs G. W. Leak' at the Rhododendron Gardens, Olinda: photographed in 1968.

strains and on the other side of a sweeping path, the Ilam azaleas. It is well worth a visit to the garden in the autumn to see the brilliant display of colour before leaf fall.

Having already commented upon a number of species growing in the garden, perhaps one should mention some of the hybrids, and for a popular choice it would be difficult to leave out 'Alice', 'Pink Pearl', 'Jan Dekens', 'Cynthia', 'Dr. Stocker', 'Loderi King George', 'Elizabeth', 'Tally Ho', 'Sappho', 'Lady Chamberlain', 'Royal Flush' and many others.

Other hybrids which attract considerable attention are a group of 'Mrs G. W. Leak' sited in a prominent position close to a wide path leading down the slope, this is probably one of the most photographed groups of rhododendrons in the garden.

A very well known rhododendron in Australia, 'President Roosevelt', one of the few rhododendrons with variegated foliage, is said to be a sport of 'Limbatum' whose flowers are identical, but whose leaves are a plain dark green. Its origin is somewhat obscure, but extensive enquiries have revealed that it was imported from Charles Mesman of Holland in 1930, in whose catalogue it was listed as 'President Roosevelt'. The well formed trusses of pale pink flowers are margined bright red and make a startling contrast against the attractively variegated foliage.

Occasionally one sees 'President Roosevelt' with a branch of plain green leaves, also 'Limbatum' with a branch of variegated foliage. Another very popular and attractive rhododendron is 'Marion' (Cheal's). This rhododendron is extremely early flowering, and may be seen in full bloom almost in mid-winter, and is closely followed by 'Christmas Cheer', 'Nobleanum' and 'John Waterer'. 'Marion' has been extensively used by one of our leading hybridists to breed a race of early flowering rhododendrons, and many of these as well as other locally raised hybrids may be seen in the test garden.

One of the features of the garden is the Nature Trail. This is an area where the stream overflows from the dam and flows down a deep valley - the undergrowth has been cleared to make way for a path, but the indigenous trees have been left in their natural state; these include blackwoods and other acacias, sassafrass, myrtle beech, as well as many tree ferns (*Dicksonia antarctica* and *Cyathea australis*). On the hottest days the atmosphere is cool in the densely shaded valley which is frequented by many native birds including the attractive lyre bird. If one proceeds quietly, and with a certain amount of luck, it is possible to see them, however, even if they cannot be seen their cries may often be heard as they are noted for their ability to mimic other birds.

The valley is also the home of a number of wombats, a large marsupial animal which burrows into the banks of the creek. The crystal clear stream is crossed by a rustic bridge and the track eventually leads back to one of the main paths in the garden.

Each year brings new interest in the garden, *R. sinogrande* is about to flower for the first time, rhododendrons which were planted at spacings to allow for future expansion suddenly seem to have grown up and one wonders how long it will be before they are touching one another!

Plantings of deciduous trees are now making an impact on the landscape with their vivid colourings, liquidambars (*L. styraciflora*), flowering cherries, *Malus ioensis*, *Cornus* and many forms of Japanese maples including *Acer palmatum* 'Dissectum' and the attractive mounds of *Acer palmatum* 'Dissectum Atropurpureum' and groups of silver birches with their graceful habit of growth all add to the beauty of the landscape.

One of the maples which is certainly worthy of special mention is *Acer hookeri*, some fifteen feet high and as much across. Its red young shoots attract attention and its rather large entire leaves colour extremely well and persist until early winter.

As time and finance permit, the whole of the garden will eventually be brought under cultivation, however, having now reached almost the half-way mark, it would be wise to pause and get the first section fully established before moving into the second and final phase of completing the National Rhododendron Garden at Olinda.

Rhododendron Notes

"THE RHODODENDRON SPECIES FOUNDATION"

It was interesting to read Mr Dan E. Mayers' point of view in *Rhododendrons* 1972 and of his concern for owners of small gardens in Britain with an enthusiasm for rhododendron growing, but I am not sure that he understands the circumstances in this country.

Like the chicken and the egg enigma it is not easy to say precisely who started what, but it is safe, and true surely, to say that the professional and the amateur rhododendron enthusiasts worked readily and happily together to collect, raise, establish, increase, promote and distribute rhododendrons. The Rhododendron Society's annals and later the Royal Horticultural Society's Year Books bear witness to this.

Granted the amateurs were hardly the small garden owners Mr Mayers refers to but, as a result of the joint effort made to foster rhododendron culture, species and hybrids were available to any interested amateur even though his garden was only big enough to accommodate a few alpine shrubs.

Today the system is as sound as ever with the Royal Horticultural Society providing a service to its members, providing a further service to the trade and at the same time the Society brings together at Wisley a wide range of plants for trial and comparison, amongst them rhododendrons. In addition such institutions at Windsor Great Park, the Royal Botanic Gardens at Kew (with Wakehurst) and Edinburgh (with Benmore and Logan) contribute significantly to maintain and disseminate Britain's wealth in the genus *Rhododendron*.

These sources of rhododendrons combine with the horticultural commercial companies which include, amongst many others, such famous names as Hillier, Reuthe, Russell, Slocock and, more recently, Mr George of Hydon Nurseries and Messrs Cox of Glendoick. There is thus little to discourage the small grower unless it be the cost of buying plants but Mr Mayers has to admit that even the Foundation costs money and that its members must pay for service.

I can excuse Mr Mayers confusing England with Britain but being a gardener with loyalty to botanic gardens I hope he will not forget that botanic gardens in Britain, in various ways, directly and indirectly, give a service to the British public and occasionally this service is willingly extended even as far as the Rhododendron Species Foundation now and in the past.

Finally is the Rhododendron Species Foundation as well known and as effective as it might be in the USA? Judging by the number of

independent enquiries received in UK for plants or cuttings of *Rhododendron* species, one wonders.

R. L. SHAW

SOME ANSWERS TO YAKU WHICH?

Having read Mr Dan E. Mayers' interesting article in the 1972 Year Book, I must comment and perhaps enlarge on some of his statements.

Regarding the two plants of this species sent to Exbury, we have at Windsor a clone of each. The differences between them are - (1) the size of leaf, and (2) the number of spots in the flower itself. It is only by close examination that these differences are apparent. The Exbury plant has a slightly smaller leaf and a lesser number of spots in the flower. Both grow as a 'hump' when in full sun, and both like a fairly dry position in the garden. When grown in shade, both tend to get "drawn" and out of character. From my experience of growing both clones, I feel the F.C.C. went to the right plant.

I would dispute Mr Mayers' remark that the first crosses made with *R. yakusimanum* were with *R. 'Doncaster'*. In any case, I think these were among the worst crosses made. I have yet to see a good hybrid produced between *R. yakusimanum* and any of the old hardy hybrids. The quality of the foliage is poor, as is the quality of the flowers, whatever the colour.

Mr Mayers is really out of touch when he quotes Exbury Gardens and Waterers as being the chief breeders with *R. yakusimanum*. Many good new hybrids were made at Wisley by the late Mr Francis Hanger when curator - to name three - 'Renoir' A.M. 1961, 'Telstar' A.M. 1966, 'Lady Bowes-Lyon' A.M. 1962 - all are top class hybrids. Mr George from Hydon Nursery bred from *R. yakusimanum* and 'Morning Cloud' A.M. 1971 and 'Morning Magic' are two of his crosses.

At Windsor, my first crosses with *yakusimanum* as pollen parent were made in 1947 and included a cross with Loderi 'Sir Joseph Hooker'. This cross produced the well-known 'Seven Stars' A.M. 1967. This is a lovely pink fine-textured flower with good quality foliage. It produces a well-shaped dome some 6 feet high and 14 feet across.

Notwithstanding the success with this species-hybrid cross, I have always favoured crosses between true species. Success has been achieved in producing 'Streatly' (the cross between *R. aberconwayi* and *yakusimanum*) A.M. 1964 and Cory Cup Winner.

R. 'Wishmoor' is another winner, A.M. 1972. This is a cross between *yakusimanum* and *R. litiense*. It has a lovely compact truss, yellowish orange in colour, a good-textured flower with fine foliage.

A *R. souliei* hybrid with *yakusimanum* has this year been given an A.M. after trial at Wisley.

The most recent crosses I have made I look forward to seeing in flower in a year or so. These are between *R. yakusimanum* as the seed parent and *R. arboreum* (pink), *R. irroratum*, *R. roxieanum*, *R. globigerum*, *R. 'Mariloo'* (*lacteum* × 'Dr Stocker') and *R. dasycladum*.

These are a few of the many hybrids I have made with *R. yakusimanum* and some as garden plants are equal in value to the parents.

I should like to stress the point that in making any hybrid, the parents must be chosen with the greatest of care. Haphazard hybridisation is a complete waste of time.

Having read Mr Mayers' article through very carefully several times, I am still undecided as to whether he favours using *R. yakusimanum* for hybridising, whether he does not favour it for hybridising, or indeed is he in favour of hybridising at all. Perhaps in a future article he may enlighten me. I should hate to think that I have spent some 28 years or so of hybridising in vain!

T. HOPE FINDLAY, M.V.O., V.M.H.



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ROBERT KEIR

Robert Keir, born in 1895 at Fungarth, Dunkeld, and well-known – and well-beloved – for over half a century by all growers of rhododendrons, died in August 1973, whilst on holiday in his native Scotland, at the age of 78. Sixty-six of these years were devoted to the growing of plants for at the age of 12 he was given employment in the gardens of Dunkeld House where he spent six years before entering the Royal Botanic Garden, Edinburgh, as a gardener-in-training, in August 1913. The following year, with several of his young colleagues, he enlisted into the 5th Battalion, Cameron Highlanders, being severely wounded in France and receiving an honourable discharge in 1919 when he returned to the Edinburgh Garden to continue his course of training and to gain valuable experience in the cultivation of many of the Chinese rhododendrons introduced during the first four expeditions of George Forrest. Whilst still in training in Edinburgh he married, in 1921, Beatrice Mary Foss with whom he shared the happiest of lives until she died in the spring of 1973.

The head gardener at Dunkeld House had recommended Robert Keir to Edinburgh as "a real good boy – and very steady"; and, always young in heart, this was an apt description of him for the rest of his life, which, from 1922 until he retired in 1960, was spent growing rhododendrons in the famous garden of Mr and Mrs J. B. Stevenson at Tower Court, Ascot. Here, he proved himself a great gardener and as such he was recognised by the Royal Horticultural Society by the award, in 1951, of the A. J. Waley Medal for his work on rhododendrons, the Associateship of Honour in 1956, and, of course, the Long Service Medal.

Initially, at Tower Court, he was assisted by several gardeners, but after the death of Mr Stevenson in 1950 he was alone; alone except for Mrs Stevenson. The pair of them, whose admiration for each other was past all telling, worked furiously together in a successful endeavour to convert Tower Court into a viable commercial proposition. Their partnership was the admiration and envy of the rhododendron world. Together, and unaided, for ten years they not only propagated many thousands of rhododendrons but dug up from the Tower Court Garden hundreds and hundreds of fairly mature plants, some of them weighing many hundredweights each, and loaded and despatched them all over the country – and beyond.

This remarkable partnership ended in 1960 when Robert Keir retired. The following year Roza Stevenson married Major-General Eric Harrison of Tremeer, St Tudy, Cornwall. Tower Court was sold and many of the garden's splendid rhododendrons both species and hybrids, found their way into the Harrison's home in Cornwall. One of these plants of which Mrs Stevenson was inordinately proud was one which she herself had raised and named; the lovely yellow-flowered hybrid between *Rhododendron lacteum* and R. 'Luscombei' which she had been happy to call 'Robert Keir' and which had received the Award of Merit in 1957. Major-General Harrison recently put 'Robert Keir' into commerce with the hope, as he says, "that it will be a memorial to a fine, loyal and honourable gentleman".

HAROLD R. FLETCHER

Camellias at Leonardslee

SIR GILES LODER

It is interesting to observe that the first coloured print of a camellia occurred in George Edwards' book on birds. In 1745 in his *Natural History of Birds*, there is featured a peacock pheasant from China standing on a bough of a camellia. This plant is clearly distinguishable as a camellia resembling *C. reticulata* 'Capt. Rawes' as we now know it. The caption continues "this beautiful flowering tree was raised by the late curious and noble Lord Petre in his stoves at Thornden Hall, Essex". For more than a century afterwards camellias continued to be raised by similar curious and noble people in their stove houses, as, except for areas in the south-west of England, it was considered a conservatory plant.

Not long after the house at Leonardslee was built in 1856 a camellia, *C. japonica variegata*, was planted close by. The exact date of planting is not known, but it was illustrated in the *Gardeners' Chronicle* of 1907 as "a large camellia bush in the open air", measuring some 66 feet in circumference and 11½ feet high; and calculated to produce some 5,000 to 6,000 double pink flowers in a season. This bush is still surviving and flowering well – it must have reached its century by now.

My grandfather, observing how successfully this camellia flourished outside, may well have been encouraged to plant more. Our present camellia walk, planted at the turn of the century, has trees of almost tree-like proportions, showing how well they thrive in the south-east of England.

In the mid-fifties a further large area, devoted wholly to camellias was cleared and planted out. Here enthusiasts can compare the various varieties, named as well as can be, in similar conditions, without searching for them all around the garden. This area, although with an oak screen above, faces east and indeed is a testing ground for the hardiness of the different varieties, which now comprise several hundred large plants.

This trial area quickly showed that the large-flowered types, chiefly from America, would not show their best outdoors in this part of England, and so two cold houses were planted out with such types. Here, protected from March winds and April showers, and the occasional spring frosts, they can develop their large flowers, and continue flowering over quite a long period with unblemished blooms. The comparison in flower size, and type, indoors and out, is often striking.

Reverting to actual varieties, the extra vigour of the Williamsii hybrids is noticeable and their succession and abundance of buds make them very useful out-of-door plants. The newer hybrids from New Zealand seem to be following this trend. Without going into a long list of varieties, we find that the following *japonica*'s are excellent: 'Donckelari', 'Adolphe Audusson', and 'Altheaflora' among the reds, 'Lady Clare' an outstanding pink, but unfortunately a poor habit of growth; 'Haku-Rakuten' and 'Nobilissima' excellent whites, with 'Lady McCulloch' and 'Countess Lavinia Maggi' for those who like a variegated flower. Others which flower well include 'R. L. Wheeler', 'Rubescens Major', 'Mathotiana Supreme' which is completely different to the type 'Mathotiana', 'Gloire de Nantes'. The species *saluenensis* thrives well, and is best seen grown in a clump with the light and dark pink forms. However, *C. reticulata* must be grown on a wall in this area to be successful, but the wild form grows and flowers well as a bush. *C. sasanqua* also must be well grown, and flowers well every autumn.



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Camellia Breeding

J. T. GALLAGHER

With many camellia lovers still reeling from the recent avalanches of new plants which have hit us from America, Australia and New Zealand, the thought of helping nature to create a few more may appear to veer towards lunacy. Having recovered from the initial impact the fact remains that really good camellias – which grow and flower easily out of doors – are still surprisingly few. Time, the severest test of all, has left three home bred products, 'Donation', 'Inspiration' and 'Leonard Messel' well ahead in the English scene.

For the amateur the breeding of new camellias rapidly becomes the most interesting and fascinating aspect of their culture. Plants develop as it were a personality and are soon regarded in a completely different light. Unfortunately experience can be gained only through time plus a lot of help from more experienced breeders.

The first excitement with the flowers produced from crosses using the new importations of *Camellia reticulata* from the Yunnan as seed parents soon wore off, as although these hybrids have such outstanding and large flowers, they do require greenhouse culture for success except in very favoured parts of Britain. The hybrid vigour of these plants can be quite alarming in an amateur's greenhouse. As a recent example in my own small greenhouse the chance seedling *reticulata* 'Arch of Triumph' grew at such a rate last year that I cut off two 3 feet chunks last autumn. Already this spring, the stumps have thrown about sixteen new leaders. It is surprising how quickly one's friends vanish when trying to give them a greenhouse plant having such a vigorous nature. For this reason there would seem to be little point in most of us following this line of breeding.

Crosses using *Camellia reticulata* forms as pollen parents and *Camellia japonica* as seed parents are quite a different story. Scions and seeds sent to me by Mr David Feathers of California of crosses between *C. japonica* 'Lady Vansittart Red' and *C. reticulata* 'Crimson Robe' have proved very hardy and free flowering. Out of the first generation in seedlings crossed amongst themselves, I have a very nice double white, quite apart from the various seedlings Mr Feathers has reared himself. After seeing many of Mr Feathers slides and growing quite a number of his F2 seedlings, I feel that this cross is an essential one in every breeder's diary. Unfortunately, it seems to be a long term line, as it is essential to take the cross at least to the second generation to obtain the full potential from the cross. (At this stage Lawrence on *Practical Plant Breeding* becomes an essential bedside bible to addicts!) It is as well to remind readers that at the time Mr

Feathers made his crosses there was serious doubt among experts that such a cross was possible. Mr Feathers' purpose in using 'Lady Vansittart' was really as a very handy form of *Camellia japonica* coupled with a 'tracer' hooked leaf. The possible permutations between *C. japonica* and *C. reticulata* are vast, and considerable thought must be given to the choice of parents beforehand. *Camellia japonica* cultivars are so developed now, that greater freedom of flowering and improved foliage plus of course hardiness must rate very high in the selection of a seedling from such crosses.

My own preference is for a straightforward Williamsii cross using one of the many excellent forms of *Camellia saluenense* George Forrest found for us in China. The results are very encouraging and quite truthfully all my seedlings have been worth the effort even though none so far are destined for the nurseryman. The cross is simple to make and it appears to be quite easy to produce plants similar to 'J. C. Williams' or 'Mary Jobson'.

Using three selected forms of *C. saluenense* as seed parents and many different *japonica*'s as pollen parents, it is quite astonishing how many seedlings are on the go at the end of a few years. So much so that this spring I have had to slow down a bit in an effort to catch up on the cultivation side.

So many growers seem confounded that my plants set seed at all that a few comments on technique might be interesting. Watching the camellias growing outside at Wisley over some years one sees quite a number of seed pods are formed most years provided we do not have a late frost. With this in mind I emasculate and pollinate as many flowers as I can in my own garden so long as the plants continue to flower. The bud is prized open, the anthers plucked off before they have opened, the stigma immediately dipped in pollen and the pollinated flowers labelled with the date and pollen parent all in one operation. I do not find it necessary to wait until the stigma is sticky. The same pollen is used over a period of a few months without any perceptible deterioration in its viability. The collection of pollen is, I feel, very important. My method is to collect the anthers just as they are bursting or in a fluffy yellow condition into hand gelating capsules size '00'. The capsules are then flagged with a ribbon of paper on which the name and year of the pollen is recorded. These capsules are then stored in a well sealed bottle containing calcium chloride or silica gel. After about 24 hours the pollen is completely dry and by giving the capsule a vigorous shake, a quantity of good pollen adheres to the top or bottom of the capsules. Using this half of the capsule the stigma of the flower to be pollinated can be dipped into the pollen thus simplifying and speeding up the pollen transference. The capsule, resealed and returned to the calcium chloride jar, is used again and again as more flowers become available for pollination.

Freak flowering seasons can be of great benefit to the amateur

breeder. This season with the wild forms of *Camellia reticulata* flowering out of doors so late would seem to be an excellent opportunity to dabble with the pollen. So far all looks well and with a bit of luck it might prove to be a year that this camellia sets seed in my part of the country. Under glass I do not aim now for very high temperatures but find a shaded moist frost free house with the seed parents planted or sunk in soil beds the most successful. The greatest mistake is to assume a cross to be too difficult or that it will not happen. It is astonishing how many of the professional geneticists theories of the 1950's have been disproved by amateurs blithely tripping over rickety bridges.



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Growing Camellias under Glass

JAMES SMART

My total experience of growing camellias under glass covers a span of only four years, so I cannot write with any pretence to authority on the subject. However, perhaps I can present some of the advantages, pleasures, problems, hazards and near-disasters that I have had during this time. With such a limited experience I cannot hope to supply all the answers but can certainly pose some of the questions.

Why grow camellias under glass? The first obvious advantage is that the frost can be kept off the opening blooms and, by careful selection of species and cultivars, there is pleasure in the greenhouse from autumn through winter into spring. This can be done with an absolute minimum of heating, only sufficient to keep out the actual frost when the buds start to show colour. I would say in fact that it is a positive advantage to let a little of the early frost affect the plant which is then likely to bloom earlier than it would have otherwise; after the last two mild winters the camellias have been slow in coming into bloom in the spring in the greenhouse, to such an extent that the temperature has had to be raised to 60°F. (15.5°C.) or more for 2 or 3 weeks in late February and early March in order to bring the flowers out in time for the R.H.S. Camellia Competition in mid-March; except for this date line the thermostat would have been left at 35° throughout. Camellias are therefore a very economical form of winter flower to grow: after the original expenditure on the greenhouse itself, the cost of heating is absolutely minimal in contrast to the requirements of most other winter blooming cut flowers.

Secondly the speed of growth under glass is very striking; I put up my house in early 1969 and, wanting to grow the *reticulata*'s amongst others, I chose one with a height at the ridge of over 14 feet.

This was then filled with *reticulata*'s, *japonica*'s, hybrids, and a few *sasanqua*'s and species. No plant was more than 2 feet high when planted and the majority very much smaller. Now, 4 years later, the tallest, 'Mouchang', 'Francie L.', 'Debbie', 'Wonderland', 'Lucy Hester', 'Barbara Mary', 'Daintiness', 'Elsie Jury', and 'Leonard Messel' are 10 to 12 feet tall and there are very many plants of 7 feet or so. The contrast in growth and development is evidenced by 'Elsie Jury': there were two identical plants of this hybrid in the garden in 1969: one was left where it was and the other was moved into the greenhouse. Today, March 1973, the outdoor one is 3½ feet tall and has 6 buds on it, the one in the greenhouse is 7 or 8 feet tall and has over 100 good blooms or buds on it, after considerable disbudding. The benefit of glass is particularly evident this year when, due to the vagaries of the

weather in the summer of 1972 both camellias and rhododendrons are very poorly budded out of doors in my garden, and yet under glass heavy disbudding had to be done in late summer.

This then is the benefit accruing from glass in 1. Better growth of plant; 2. More flowers; and 3. Freedom of the blooms to develop without heed to the weather, be it wind, rain, snow, or frost. The next benefit comes through the quality of the individual bloom.

Visitors to the greenhouse assume, until assured to the contrary, that there are special greenhouse varieties. With a very few exceptions such as the Yunnan *reticulata*'s these are exactly the same species and cultivars that are grown outside; they have become virtually unrecognizable under glass with just the frost kept off them — unrecognizable because both size and form are usually modified. Size is affected even when the frost is kept off just from the time that the buds start to swell.

The greenhouse was put up and planted in January 1969 and at that time I had had growing in the open garden two plants of *C. Williamsii* 'Caerhays'. One was left out and the other planted in the greenhouse. They both bloomed at the same time, but the blooms in the greenhouse which had been exposed to the elements until January and only been protected from frost since then were twice the size of those remaining outside.

As to the form of the flower, I find that the longer the plant remains under glass the nearer it comes to the American form of bloom. Normally there is a tendency for flowers of camellias in this country to have a different form from that in the United States, those over here having more petals or petaloids than the same variety in America. Thus semi-double flowers in the U.S. such as 'R. L. Wheeler' and 'Drama Girl' tend to be anemone-formed in this country. However, after several years in the greenhouse these same plants are bearing semi-double flowers very similar to the American form; is this due to lack of frost, to more fertilising or what? I incline to the view that it is the greater heat in the summer to ripen the wood, coupled, possibly, with less frost. 'Guilio Nuccio' always has extra petaloids with me even under glass but I think it improves a bit each year and Sir Giles Loder has shown by exhibits of this cultivar that it can be grown to perfection here.

The joys of greenhouse culture of camellias therefore lies in the improved blooms and the avoidance of damage from frost, wind and rain, the rapidity of growth, and in the better appreciation of scent in those few species which possess it. I have particularly enjoyed the scent of 'Vernalis', 'Barbara Mary', 'Scentsation', and 'Fragrant Jonquil' this year as well as that of the *sasanqua*'s earlier on. The camellia house also provides winter jobs when it is impossible to garden outside, disbudding, striking cuttings, grafting, and hybridising.

As every cloud has its silver lining, so the converse is true, and I have only so far spoken of the silver lining. Difficulties and hazards arising from greenhouse culture come under four headings: watering, sunburn, fertilisers and disease.

Watering. Under-watering is usually fairly apparent when there is young growth on the plant, though this tender growth will wilt in any case in the heat of the day, but at other times of year a camellia shows a shortage of water less than many other plants by reason of its very stout leaves. If under-watering occurs during the summer months, this may result in a severe bud-drop later in the year. In my experience this happens with certain species and cultivars more than with others. For the last three years *C. reticulata* 'Shot Silk' has lost all its buds just at the stage when they were swelling and beginning to colour. This on a bush 7 to 8 feet tall which has every appearance of health and vigour otherwise. At least 100 buds develop to this stage after disbudding.

I feel this must be a watering problem, but it could, I suppose, equally well, be excess water rather than under-watering, and I have not yet solved at what time of year I am getting the watering wrong. Others to be affected are *C. reticulata* 'Butterfly Wings', and a *C. reticulata* 'Crimson Robe' × 'Shot Silk' seedling. Yet *reticulata* 'Wild Form', 'Mouchang', 'Lila Naff', and 'William Hertrich' are unaffected. Other plants involved in this way are the double white *sasanqua* and *C. japonica* 'Pope Pius XXIII'. All the plants receive identical watering as I water and feed the whole greenhouse by overhead spray lines. This is of itself less than ideal as the plants do not receive individual attention but it is the only practical solution from the labour point of view in my case, as hand watering by hose is too time consuming. However it is extremely easy to lose plants this way. Pot-bound plants if planted into the ground can easily die of drought although the surrounding soil is moist if individual watering is not given. Overhead watering has a further disadvantage as I have been growing small plants that I want to bring on alongside larger plants. This can and has resulted in the loss of the smaller plants by the roots of the larger taking all the water, and, equally, by my own fault from lack of observation at the crucial moment I have lost small plants from over-watering, and this is virtually an irreversible process once the plant is seen to be suffering.

As to sunburn this is an obvious accentuation as a result of the glass of what may occur out of doors and shading must be given before the sun gets too hot. Sunburn affects the young growth most, of course, but can affect the old leaves too and particular care must be taken in not letting the foliage be wet when the sun is hot, so overhead watering should only be done in the evenings.

Fertilising is, I believe, desirable as the plants put on so much growth and flower so freely in the greenhouse; I personally prefer feeding little and often rather than to fertilise once or twice a year. A feed of fertiliser is particularly necessary if plants are grown in pots as the chemicals are leached from the soil by watering. I only grow about a dozen plants in pots and this last year omitted to fertilise regularly with the result that the flowers are very poor and about a quarter the normal size. Excess fertiliser is another hazard and it is not easy to strike the right balance.

Finally diseases and pests. Fortunately the camellia is singularly

free from disease and pests compared with other plants; however the occurrence of both is accentuated in the greenhouse. Greenfly is quite likely to occur in the young growth and, according to some authorities, this may well cause the spread from plant to plant of virus disease which gives yellow patches on the leaves, and this too increases the tendency to sunburn. Early observation of the greenfly is desirable to prevent spread. The same applies to tea scale which occurs on the back of the leaves and can easily be missed in the early stages before the tell-tale black soot appears on the top of the leaves.

Blistering followed by a corky development on the backs of the leaves also occurs and may be due to faults in watering or fertilising. It does not appear to injure the plant or affect the flowers. Petal blight, a fungus disease which produces a brown rot in the flower, has fortunately not reached us yet from California, but it could be very troublesome under greenhouse conditions.

One fairly obvious point about greenhouse culture is that by reason of the amount of growth that is put on, the plant can become very congested and it is therefore desirable to keep the shoots thinned out so that the flowers have a chance to develop. This pruning needs doing in the spring and, if necessary, repeating later on in the year. Disbudding is also desirable as in the greenhouse every single bud de-

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velops into a good flower unlike out of doors where the risk of frost or rain ruining the open flower makes it essential to have other buds to come on.

Camellias grown under glass have given me great pleasure in the last four years, and quite a few headaches too, but I can thoroughly recommend it to anyone who has a few square feet of cold greenhouse to spare. I do not think that after so many years of camellia culture in the garden there is any risk of them becoming indoor plants again as they used to be before it was realised that they did not need protection. I am sure that many more people in this country could get great pleasure from them for a nominal expense in areas where without glass it is impossible to grow camellias satisfactorily.

Asiatic Magnolias in a Cornish Garden

NIGEL HOLMAN

Honey fungus must have been responsible for a great deal of bad language over the years. So extensive was the destruction wrought by this menace amongst my father's rhododendrons that he gave up the unequal struggle, and in the ten years up to his death in 1959, concentrated on growing those genera which appeared to tolerate honey fungus, notably camellia and magnolia. Of the two, magnolias became the love of his gardening life, especially the deciduous tree species from Asia with precocious flowers in early spring, that he saw in such perfection at Caerhays and Trewithen. Sadly, he was to see none of his later plantings in flower, but what a heritage for his family, not only for their floral display, weather permitting, but also for the opportunity he has given me of studying this genus at close quarters.

The first to flower, at the end of February in some seasons, is the type form of *M. campbellii*, with deep pink flowers. This species has the well deserved reputation of taking thirty years or more to flower from seed, so you can imagine my father's depression when the only *campbellii* in the garden was blown over by a gale in 1952. This had been grafted on to unsuitable rootstock, and the girth of the scion above the union was four feet three inches, whereas that of the rootstock was thirteen inches, a ratio of four to one. In 1953 he obtained a layer four feet high; this surprised me by flowering in 1967, with only three flowers, but showing that a layer could be the answer for the impatient. By 1973 it had reached 45 feet, with a spread of 36 feet, and a girth (at 5 feet) of 3 feet 1 inch. In its native home in the western Himalayas *M. campbellii* can reach 150 feet, and I look forward to measuring this tree in the year 2000! Another layer, planted in 1958, has yet to flower. This species will give due warning of reaching maturity by the production of spur-like side branches.

From the same area of the Himalayas comes the white variety, *M. campbellii alba*, and this is the dominant form in its native home. *Alba* flowers two to three weeks later than the pink and when much younger from seed. The flowers are a pure white that would bring credit to a washing line, and the envy of your neighbours. Frank Kingdon Ward describes the effect they had on him in Sikkim, ' . . . gaze down in wonder on the dark forest, lit by thousands of milk white glowing cups, hung like beacons in the bare trees, and be silent'.

Those who wish to grow this form must insist on having a plant vegetatively propagated from the F.C.C. tree at Caerhays, as it rarely, if ever, comes true from seed. My father planted three seedlings, all raised from the tree at Caerhays. The first, planted in 1953,

has white flowers with a tinge of pink. It flowered for the first time in 1965. Despite showing signs of illegitimacy, this seedling has become one of the glories of the garden, being exceptionally free flowering, and having the largest flowers of any of our magnolias, up to 17 inches in diameter. It is now over 40 feet high with a wide spread, and had over 2000 flowers in 1972. Another seedling flowered at thirteen years from seed and has pink flowers of great substance. The third, planted in 1959, has yet to flower. All these seedlings have swooping lower branches, and this appears to be a characteristic of this form.

Moving east along the Himalayas into northern Burma, *M. campbellii* is replaced by its close relative, *M. mollicomata*. This, in strict taxonomic terms, is a sub-species of *campbellii*, but I hope that it will be raised to specific rank in the future. For this to happen, the taxonomists will have to take notice of how plants perform in cultivation, rather than rely on the dried specimens in the herbarium. From the gardener's point of view, its later flowering, paler flowers, in which the pink is tinged with purple, and the much younger age it flowers from seed, distinguish it from the type *M. campbellii*. An example of how quickly it can flower from seed is given in George Johnstone's *Asiatic Magnolias in Cultivation*, when he quoted the record of a seedling raised by my father; "seed received 18 October 1936 and sown November, germinated May 1937, planted out April 1938, first flower bud observed November 1945, and thirty-five buds counted November 1946". Over the years this plant has not distinguished itself, and is now a narrow, scruffy tree 31 feet high, with pale, almost white flowers. My father raised another from the same seed pod, and these two trees illustrate to a marked degree the variation one can get with magnolia seedlings, as this second seedling has purplish pink flowers, a different growth habit, being 35 feet high and 36 feet across, and flowers two to three weeks later than its sister. Another of our *mollicomata*'s, planted in 1949, grows like a Lombardy poplar, 30 feet high with a 10 feet spread, a form suitable for the smaller garden.

Much as I would like to see *M. mollicomata* given specific rank, I think it even more important for that remarkable magnolia growing at Lanarth, raised from Forrest seed no. 25655, collected in Yunnan, to be recognised as a separate species. At present it has the clumsy title of *M. campbellii* subsp. *mollicomata* convar. *williamsiana* 'Lanarth'; not a very happy example of the binomial system! Quite apart from the deep lilac purple of its flowers, its oblong leaves and large, densely pubescent over-wintering growth buds set it apart from any other member of the Campbellii group. It is also on the soft side, having been killed at Borde Hill, and a seedling here was cut to the ground. This has now recovered, but I consider it unfortunate that this magnolia should be coupled with one of the hardest of all these early flowering Asians, *M. mollicomata*. Over the past year or two seedlings raised at Lanarth in the early fifties have flowered in various Cornish gardens, and some of these seedlings have surprised their owners by having even darker flowers than the Lanarth parent. Two of these seedlings given to my father in 1954 have yet to flower. As to its name, I suggest *M. williamsiana*, with the clonal name, 'Lanarth' reserved for any progeny vegetatively propagated from the tree at Lanarth.

A further example of the gap between the horticulturist and the botanist is found with *M. sargentiana* and its variety, *robusta*. George Johnstone, in his book, writes how he fought, and lost, a battle to get *robusta* recognised as a separate species. Let us hope that when they come to review this genus the botanists will relent. They may well look similar on the herbarium sheet, but are poles apart when grown in the garden. The botanists maintain that the forms in cultivation represent too small a sample, and that when more are introduced, it could well be that some of these will be found to be intermediate between *sargentiana* and *robusta*, showing how closely related these two are to each other. Unless there is a dramatic change in the political climate of China, the odds on the botanist or the gardener ever seeing these intermediates are very long, as their home is Yunnan, not far south from the Chinese atomic bomb testing grounds.

M. sargentiana has always been a disappointment in this garden. My father planted two in 1938, both of which have formed thin, spindly trees that suffer badly from die-back, and although the flowers are a very fine deep pink, they are sparingly produced, and easily damaged by wind. This is not a magnolia that I would recommend. It is a very different story with *robusta*; any of our *robusta*'s have more flower in one year than the sum of the two *sargentiana*'s in ten.

Some years ago *mollicomata* was the magnolia everyone was talking about. I remember a visitor to the garden, a semi-professional horticultural journalist, telling me that the magnolia I must plant was *mollicomata*, but I do not think he had ever seen *robusta* in flower, nor, for that matter, *mollicomata*! To me, the flowers of *robusta* have a delicacy, both in colour and texture, that is lacking in any member of the *Campbellii* group. Equally as tough as *mollicomata*, *robusta* flowered superbly in April 1963, despite the thermometer falling to 14°F. (-10°C.) in February. If you are lucky, *robusta* will flower at twelve years from seed, although you may have to wait fifteen years or more. My father planted seven seedlings, four of which came true in flower. I am fortunate in that this quartet covers the whole range of flower colour found in *robusta*, from white through shades of pink, to one that is deep purple in bud. Typical *robusta* forms a wide spreading tree branched to ground level, which means that you can have a good look at the flowers without a step-ladder. In the 1972 Year Book Mr Findlay suggested magnolias as shade trees, and that a well balanced tree should be one-third clear stem and two-thirds branched. With all respect, I strongly object to this concept! I like to look at my flowers at close quarters; the tallest *robusta* here raised, from 1942 seed, is now 45 feet high, and if my father had followed Mr Findlay's advice, the nearest flower would be 15 feet off the ground.

The three *robusta* seedlings that show hybrid origin came here from Caerhays in 1953. After checking the records of Caerhays, it appears that my father had the wrong plants (which happens with even the best regulated nurseries), as they are all undoubtedly *campbellii* × *robusta*. The first flowered in 1967, but was not very exciting. The previous autumn I had noticed that the flower buds were an odd shape for *robusta*; the shape of the over-wintering flower buds is very characteristic of the various species, and it is easy to tell, for example,

campbellii from *mollicomata*, or *sargentiana* from *robusta*. I included a sketch of this bud in a letter to a fellow magnolia enthusiast, and he replied that "it looked as if one of your buzzards had sat on it!", thereby giving it a clonal name. Two years later occurred one of those occasions that lighten a gardener's life — the first flowering of 'Hawk', the second of this trio; it had round tepals, five inches in diameter, and a colour rivalling 'Lanarth' — a flower of great substance. Unfortunately 'Hawk' is an early flowerer, and it takes a mild winter for it to be at its best. It showed its true colours in 1972, and proved to be a superb hybrid, a credit to Caerhays, and, in my opinion, superior to Mr Raffill's *campbellii* × *mollicomata*. The third seedling is a disappointment, with pale flowers inferior to either of its parents.

One of the glories of Caerhays is their tree of *M. sprengeri* var. *diva*, the pink goddess. She is, however, a fickle jade, seldom producing legitimate children. In 1953 my father planted a *diva* seedling in a picked position near the house. Fifteen years later this flowered for the first time with pale, insipid flowers no better than a mediocre form of *soulangiana*. This often happens with *diva* seedlings, and this is certainly a variety that must be vegetatively propagated. So unreliable is *diva* from seed that one wonders whether it is not a natural hybrid, originating in the wilds of China with *M. denudata* as one of its parents. Another seedling, planted the same year (1953), has yet to flower.

To soften my disappointment with the *diva* seedling, 1968 saw the first flowering of a seedling *M. dawsoniana* that came here from Caerhays in 1944. This species normally has pale pink flowers fading to white; in 'Chyverton' they are red in bud fading to pink, a very lovely colour. Over the past year or two, I have noticed how the depth of colour will vary, seemingly affected by the severity of the winter — low temperatures darkening the flowers, as it does with some camellias. At one time I considered that 'Chyverton' must be *diva* × *dawsoniana*, but after close comparison with the type *dawsoniana*, I am certain that it is botanically pure. From the gardener's point of view, the great value of 'Chyverton' is the resistance of the flowers to frost. Four years ago we had 8°F. (-5°C.) of air frost at the end of March, which was enough to turn all the magnolia flowers into brown pulp, all, that is, except for the *dawsoniana*, which was unmarked.

All these magnolias belong to the Section *Yulania*, the name derived from the first to be introduced, the Yulan, *M. denudata*, or as my father called it to his dying day, *conspicua*. 1980 will mark the bicentenary of its introduction from China, an occasion that should be duly celebrated, as *M. denudata* is still one of the loveliest of all white magnolias. There are two forms in cultivation, and the one that you want to get hold of is the purple-eyed variety, as this has much finer flowers. It is slow growing here, a 45 year old tree being not more than 20 feet high. Its pure white cousin is a good deal more vigorous.

Flowering at the same time as *denudata* are four Asiatic species of the Section *Buergeria*, *stellata*, *kobus*, *salicifolia* and *cylindrica*. The first three are widely grown, but *cylindrica* is still a comparative rarity in cultivation, being only introduced to the U.K. in the early fifties. This Chinese species has very beautiful white flowers on short spurs

all along the main branches, giving an enchanting effect. The flowers are more substantial than those of any other member of this section, and this species appears to be a link between Buergeria and Yulania. Although it is still early days, it looks as if one will have to allow plenty of room for *cylindrica*, our best specimen already being 16 feet \times 16 feet.

M. stellata has the reputation of being the slowest growing of all magnolias, but this is not the case in this garden. My father planted a group of *M. stellata* in 1935, and the best of these is now 15 feet high, whereas *M. liliiflora*, planted in 1930, is still no more than 7 feet high. The *stellata* are planted in front of a great mass of the old *R. arboreum* hybrid, 'Cornish Red', planted in 1870, and towering up to 50 feet – a splendid combination. I have followed my father's example by planting the taller growing *M. salicifolia* on another side of the 'Cornish Red'.

I am lucky in having a free flowering form of *M. kobus*. Some American taxonomists have suggested that *stellata* should be merged into *kobus*. I consider this would be a senseless exercise, resulting in the further widening of the gap between the botanist and the horticulturist.

The slow growing *M. liliiflora* is the only Asiatic member of the Section *Tulipastrum*, and differs from all the members of Yulania and Buergeria by flowering after the leaf. These flowers, a rich vinous purple, first appear at the end of April, and go on opening until the middle of July, the longest flowering season of any of our magnolias except for the American *M. grandiflora*. *M. liliiflora* is famous for being one of the parents (with *denudata*), of *M. × soulangiana*. The *liliiflora* of Sou lange Boudin was a different form from the one we grow today. From its description in Loudon's *Arboretum et Fruticetum Britannicum* (1838), I suspected that Boudin's *liliiflora* was itself *liliiflora* \times *denudata*, making *soulangiana* a F2 hybrid, with a double dose of *denudata*, thereby explaining the near white flowers of so many of the forms of *soulangiana*. I suggested this in a letter to Mr J. E. Dandy, the doyen of magnolia botanists; the suggestion provoked a strong rebuke, but I still wonder!

The end of May sees the flowering of four members of the Section Oyama, *sieboldii*, *wilsonii*, *sinensis* and *globosa*, all with pendulous to semi-pendulous white flowers. These seem comparatively short lived. *M. sieboldii* is no longer in the garden, and a big group of *wilsonii* planted out in 1935 has reduced in numbers over the years. This is partly due to *wilsonii* being one of the few magnolias affected by honey fungus. I find the hybrid, *Highdownensis*, a better plant than either of its putative parents, *wilsonii* and *sinensis*. My father raised quite a number of seedlings from his original *Highdownensis*, all of which are the image of their parent, and I question whether it is a hybrid. If it was, you would expect its children to differ, some showing the influence of one parent and some of the other. I think it is a form of *M. sinensis*.

From the point of view of this garden, the most interesting member of this section is *M. globosa*. This is because we have two forms, Chinese and Indian, the Indian being very rare in cultivation. The Chinese was

introduced by Forrest as *M. tsarongensis*. Some time later, this was merged into *globosa*, one of Hooker's discoveries on his great Himalayan expedition of the 1840's. This merging always infuriated my father, who could not understand why two so dissimilar forms should be considered as one. It was not until a few years ago that I found the answer, when I was given the opportunity of going through the magnolia material in the Herbarium at Kew: Hooker's material is the same as Forrest's. Both had the heavy rufous tomentum characteristic of the Chinese form. I began to wonder what our plant was, as there was nothing in the Herbarium under *globosa* like it. It had been introduced by Gill of Penryn in 1936. My father was in the nursery picking up some rhododendrons when he noticed a small magnolia in a pot. On enquiry, he was told that it was *M. globosa*, that had been sent back with a consignment of rhododendrons from Sikkim, and he was welcome to have it. It differs from Hooker's dried specimen by having almost glabrous young growth and leaves. After further research, thanks to our County Library, I found our *globosa*, described and illustrated, in an article on "The Magnolias of British India" by King, in *The Annals of the Royal Botanic Gardens, Calcutta* (1891). There was no mention by King of the type found by Hooker, and one is led to speculate that Hooker's was an aberrant form. My efforts to get *M. globosa* split into two sub-species have so far been unsuccessful.

From the gardener's angle, the important difference between the two is that the Indian is bone hardy, whereas, the Chinese, coming into leaf four weeks earlier, is tender, and can only be well grown in the milder counties. Both of them form large shrubs, the biggest here being 20 feet by 20 feet. One of the Chinese *globosa*, raised from seed at Trewithen in 1938, has really effective golden autumn colour, the only magnolia in the garden to make any sort of show in this respect.

The flowers of all the species of this section are strongly scented, which adds to their attraction. Another section whose members have strong smelling flowers is *Rhytidospermum*, which has three Asiatic species, *hypoleuca*, *officinalis*, and *rostrata*. All these have large leaves in whorls at the end of their branches - the umbrella-trees. The original umbrella-tree was the American species *M. tripetala*, at one time named by a French botanist, "M. parapluie", an attractive name for a singularly unattractive magnolia, as its flowers have the most revolting smell. When it first flowered in this garden, my father, as was his wont with anything new, brought a flower into the house, where it was proudly placed on the hall table. Next morning, as the family descended for breakfast, they were greeted by the most obnoxious smell - windows were opened, the bacon and eggs ignored, and an intensive search was mounted for the dead rat under the floor-boards. Fortunately, before any damage was done, my mother rumbled the source, and the flower of *tripetala* banished to the dustbin.

The Japanese *M. hypoleuca*, however, has, to me, a most attractive scent. How delighted my father would have been that this magnolia has reverted to the name with which it was planted in this garden in the early 30's. I can remember him being absolutely furious with me for telling him that he should label it *M. obovata*! *M. hypoleuca* norm-

ally forms a tall growing tree, but the specimen here has made a huge, broad spreading bush, 45 feet by 45 feet. My father pinched out the leader when it was still a small plant, and has so made it a more effective garden plant. The bole is $6\frac{1}{4}$ feet in diameter, the largest girth of any of our magnolias. I find it difficult to differentiate between *M. hypoleuca* and the closely related Chinese *M. officinalis*. The shape of the leaf is certainly different, but our *officinalis* is still young, and I have not yet had the opportunity to compare the flowers.

M. rostrata has not been a success story here. It has been tried at various times, but, when still in the baby stage, has succumbed to frost. There is a big seedling, raised from the tree at Trewidden, but this has not come true, as it lacks the brown indumentum typical of this species. It is interesting to me that the two Chinese magnolias with this heavy indumentum, *rostrata* and *globosa*, should both be tender. It is the same with that close relative of magnolia, *Michelia doltsopa*. At Trewithen there used to be two *doltsopa*'s which were heavily tomentose — most attractive specimens which were killed by the winter of '62-63, whereas *Michelia doltsopa* here, a colder garden than Trewithen, survived with little damage. Ours is a form with only slight tomentum, tending towards the glabrous *Michelia floribunda*. This could well be a pointer for those would-be growers of this very lovely tree who garden in the colder parts of the country — only try the near-glabrous forms. This theory of hairiness being related to hardiness is one of the reasons why I suspect that *M. williamsiana* 'Lanarth' could prove a failure for the cold garden.

All the magnolias so far discussed are deciduous. The range of evergreen magnolias introduced from Asia is very narrow; only two, *M. delavayi* and *M. nitida*, are suitable for outdoor cultivation, and of these, *M. nitida* is on the borderline of hardiness even in the mildest of counties.

M. delavayi, with its large, handsome, dull green leaves, will form an immense bush if given room to expand. I find it very hardy here, and it came through the '62-63 winter without a trace of damage. In flower it is disappointing; it promises well, with great, fat buds, but it is very seldom that you see a perfect flower, as they are very short lasting, and tend to open at night. It gives me the impression of being an ideal tree for a cemetery.

If I had room for only one magnolia, my choice would fall on one of George Forrest's most distinguished introductions from China, *M. nitida*. *Nitida* means shining, and this is why I like this species so much; it has the most beautiful, shining, dark green leaves, with the added attraction of the young leaves being a brilliant bronzy purple. It gives me pleasure at all times of the year — the perfect rent payer. It has small, primrose yellow, sweet smelling flowers at the end of April, bright green fruit cones, and orange seeds. There are two forms in cultivation; one, as seen at Caerhays, forms a large, conical shaped bush, with a flash of purple on the outer tepals of the flowers. The second, the 'Lanarth' form, makes a narrow, columnar tree, with the flowers lacking the purple flash. The great disadvantage of this species is that it is very tender, especially when young, and difficult to get established. My father had three attempts before he could get it going.

Planted in 1958, it has formed a narrow tree 14 feet high. It first flowered in 1970. It was raised from the tree at Lanarth, which, when I last saw it in 1961, was 25 feet high.

An outstanding feature of these Asiatic magnolias is the variation found within the species. The best of these variants should be given a clonal name, and released to the trade for vegetative propagation. This would make certain that the gardener, having parted with more guineas than his bank manager would approve of, will be not disappointed, as he could be with a seedling. It is important that those fortunate enough to have elite types should be prepared to share them with others. This applies to every genus in cultivation. Only vegetative propagation and widespread distribution can ensure the preservation in cultivation of these outstanding individuals.

Having purchased your expensive clone, it is vital that it should be given a good home. Magnolias are tolerant of a wide variety of soils, and will grow happily in the most improbable places. What they bitterly resent is deep planting; they are surface rooters, and will never thrive if buried up to their eyebrows. Too often, when visiting gardens, I see poor, stunted magnolias, looking older than their years: in almost every case this has been due to deep planting. Its effect on growth is only too well illustrated in this garden. For some years my father employed an old boy who liked to make sure that his plantings would not blow out of the ground! In 1954 he planted our first *M. cylindrica*. This never looked healthy, and because I thought it was going to die, I planted another in 1961. The second specimen is now 16 feet by 16 feet, over twice the size of the first. This has now been replanted, and on lifting, I discovered that it had been buried at least a foot.

Because of their surface rooting, the gardener should be careful not to cultivate near to the bole of a magnolia. Their roots have a remarkable spread, and with an old tree, they will fan out a long way beyond the area covered by the top growth. I found this out when a 28 feet high *M. robusta* was given carriage exercise in 1958. Fortunately it was a triple-header, and before lifting, two of these were removed, leaving a very shapely tree. Not having a crane, and with manpower at a premium, it was decided to bare-root it. When tracing the roots, I found them as far as 60 or 70 feet away from the trunk. We ended up with a 9 feet diameter umbrella, with the thinnest root about one inch in diameter; I was glad that my father was away, as I could not see how it could possibly survive. Before replanting, any broken roots were carefully trimmed, and all cut surfaces treated with Arbrex. The move was made in early March, and, fortunately, was followed by a wet spring; the tree was never artificially watered. For the next few years it made little growth but it has been accelerating ever since, and is now over 40 feet high. One of the effects of moving was that it took many years to flower, and it was only this last year that it flowered profusely, fifteen years after the move, and thirty-three years from seed.

The record for fast growth amongst our magnolias is held by a hybrid of questionable parentage. In the spring of 1964, whilst exploring Treseder's Nurseries with the editor of this booklet, Alan

Hardy, we noticed some magnolias labelled *M. soulangiana* × *mollicomata*. Ever intrigued by something new, I carried a 3 feet plant home; this is now 30 feet high. I never had much hope for the flowers, as I remembered being singularly unimpressed by *M. soulangiana* × *campbellii*, a hybrid raised by Charles Raffill, flowering at Lanarth, and was not over excited when I noticed a flower bud in the autumn of 1972. By the beginning of April I was more interested, as by then the bud was a rare size for a first-timer. In mid-April the perules at last split to reveal a colour so good that I let my Celtic temperament get the better of me, and shed tears of excitement. It is difficult to make a judgement from one flower, but it was certainly one of the most beautiful magnolia flowers I had ever seen. I hope that one day, in the future, I will bring it up to London, together with *M. dawsoniana* 'Chyverton', for inspection by Floral Committee B. As to its parentage, *mollicomata* could well be one, but as to the other, a large question mark. I am certain that it could not be *soulangiana*.

I have named it 'Treve Holman', in memory of a man to whom I owe so much, and who, in a quiet and unassuming way, built up over the thirty years he gardened at Chyverton, a collection of magnolias that would be the pride of any man.



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The concern of the late Colonel L. C. R. Messel, during the years of 1939-45, was that young plants of trees and shrubs should be raised from seed in order that after those years, there would be a young generation of plants grown to perpetuate these plants at Nymans. He saved many seeds himself, notably seed of *Magnolia stellata* var. *rosea*. and his efforts resulted in the introduction of *Magnolia* 'Leonard Messel'.

This tree has since been acclaimed as one of the best magnolias raised, both for its habit of growth and its flowering in early life. The yearly profusion of its lilac pink flowers which are of deeper colour in bud form, are quite lovely.

Propagation by layering and by cuttings has resulted in distribution on a fairly wide scale of this beautiful tree. After 1945, the need for saving seed was encouraged, and other magnolias raised from seed were noted to vary in foliage from those of the seed parents. In one case, from selected seedlings of *Magnolia sieboldii*, one was selected, which was as if it were a reproduction of the glorious *Magnolia watsonii* and this tree is now twenty feet high and has flowered well.

Still another magnolia whose seed parent is *M. tripetala*, showed great promise when one of two flower buds formed on a lower branch and flowered. In this case the pollen parent is most likely to be *M. obovata*. This tree has now been given a better position in the garden and a main leader is making great headway. In recent years, seeds saved from *Magnolia sprengeri* var. *elongata*, a tree that is growing quite near to *M. campbellii*, have been raised and these plants by their leaf form, suggest the pollen parent is *M. campbellii*. These magnolias are now twelve feet in height and one waits for the sight of flower buds.

Ten years ago a seedling magnolia was raised, from one of two seeds sown of *Magnolia denudata*, and it first flowered seven years later. This magnolia named after The Countess of Rosse, 'Ann Rosse', received the Award of Merit from The Royal Horticultural Society when shown on April 19 of this year, 1973. Its flower is almost lily like in appearance with its ovate but slightly elongated petals, flushed deeply with pink from the base and fading to white. The leaves of this magnolia tend to be like small *M. campbellii*, and was no doubt the result of being pollinated by a seedling magnolia, growing some forty yards away from the *M. denudata* at Nymans.

Other magnolias at Nymans raised from this seedling are nearing flowering stage, so no doubt some of these will be equally as beautiful as their parent. With all these magnolias one might say they are nature's gifts to the garden.

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Magnolias

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Mr Treseder's comprehensive and important book includes all the temperate species of magnolia introduced to cultivation from America and Asia, with details of their performance in British gardens as well as in other parts of the world, together with the many hybrids and crosses which have flowered and been recorded up to the date of publication. The book is sponsored by the Royal Horticultural Society, and it will be published in the spring of 1974. Illustrated with 32 colour plates from drawings by Marjorie Blamey, numerous reproductions in colour from photographs, and line drawings in the text. Demy 4to.

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ADDITIONS TO THE INTERNATIONAL RHODODENDRON REGISTER, 1973

(Colour references, except where otherwise stated, are to the
RHS Colour Chart.)

Azonea ('Azor' × 'Catanea') raiser: G. Guy Nearing (U.S.A.). Red Group 54B, 55B; a few faint spots Greyed-Orange Group 165B.

Baby Mouse (form of *campylogynum*) raiser: Capt. Collingwood Ingram (U.K.) Deep plum-purple. A.M. 1973.

Bangkok (*catawbiense* var. *album* × (*dichroanthum* × (*griffithianum* × *auriculatum*))) raiser: Dr David G. Leach (U.S.A.). Light to strong purplish pink 5RP 7.5/9 shading in centre to pale orange-yellow 7.5YR 10/4; outside light to strong purplish pink 7.5RP 7.5/10; blotch and dorsal spotting dark reddish orange 10R 4/9 (Nickerson).

Big Girl (un-named white × 'Avocet') raiser: Howard Phipps (U.S.A.). Pale purplish-pink 2.5 RP 9/2 with orange-green blotch. (Nickerson.)

Boulodes ('Boule de Neige' × *Loderi* seedling) raiser: G. Guy Nearing (U.S.A.). Red Group 56B, turning white, with vague blotch, Yellow Group 3C.

Cairo ('*Catalgla*' × *fortunei*) × ('*Eidam*' × *williamsianum*) raiser: Dr David G. Leach (U.S.A.). White, small blotch and peripheral spotting dorsally strong to vivid greenish-yellow. 7.5Y 7.5/10. (Nickerson.)

Churchill (*falconeri* × *sinogrande*) raiser: Lionel de Rothschild (U.K.). Yellow Group 4D reverse suffused Yellow Group 4C, with small blotch Red-Purple Group 60A. A.M. 1971.

Decalglia ('*Catalgla*' × *decorum*) raiser: G. Guy Nearing (U.S.A.). White, spotted Green Group 143D, reverse at first Yellow-Green Group 150D.

Decimus (form of *zoelleri*) collected West New Guinea by Prof. C. J. van Steenis. Throat Yellow-Orange Group 21A with broad band of Orange-Red Group 31B at lip. A.M. 1973 when exhibited by The Director, Royal Botanic Gardens, Kew.

Dextranea	(‘Catanea’ × White Dexter hybrid). G. Guy Nearing (U.S.A.). White with faint yellowish tinge, spotted blotch purplish towards centre, greenish further out.
Dorothy Lonsdale	(‘Elizabeth’ × ‘Helen Fox’) raiser: H. D. Rose (Aus.). Red Group 46B, slightly spotted on upper lobe.
Douglas R. Stephens	(‘The Hon. Jean Marie de Montague’ × unnamed white hybrid) raiser: Mr and Mrs J. Freeman Stephens (U.S.A.). Red Group 54B, deep red blotch in throat and spots on upper lobes.
Dukeshill	(‘Kiev’ × ‘Lady Digby’) raiser: Crown Estate Commissioners (U.K.). Scarlet red. A.M. 1973.
Dusky Dawn	(‘Vibrant’ × ‘Jalisco’) raiser: Major Gen. E. G. W. W. Harrison (U.K.). Pale apricot turning near-white.
Elizabeth	(parentage unknown) raiser: Howard Phipps (U.S.A.). Deep purplish pink 7.5RP 6/12, with two conspicuous red blotches 5R 3/7 (Nicker-son.)
Sidamon-Eristoff	(‘Vulcan’ × ‘Boule de Neige’) raiser: Ray Kruse (U.S.A.). White, shaded or suffused Red Group 54A, reverse also Red Group 54A.
Elsie Whipple	(‘Goldfort’ × ‘King George’) raiser: H. D. Rose (Aus.). Yellow Group 2D, deepening in throat to Yellow Group 2C.
Ester Dudley	(‘Peregrine’ × <i>yakusimanum</i>) raiser: Crown Estate Commissioners (U.K.). Creamy white. A.M. 1973. (Wisley Trial.)
Fernhill	(‘Britannia’ × <i>delavayi</i>) raiser: K. Van de Ven (Aus.). Red Group 53B, slightly spotted on upper lobe.
Fire Prince	(‘The Hon. Jean Marie de Montague’ × unnamed white hybrid) raiser: Mr and Mrs J. Freeman Stephens (U.S.A.). Cherry red with very deep red spots on upper lobes.
Freeman R. Stephens	(<i>bullatum</i> × <i>johnstoneanum</i>) raiser: G. A. Judson (U.K.). Creamy white, yellow blotch in throat.
Geoffrey Judson	(parentage unknown) raiser: Charles Dexter (U.S.A.). Red-Purple Group 57C, all lobes spotted Red-Purple Group 60A.
Gigi	(Exbury Azalea Seedling × ?) raiser: J. A. Marty (Aus.). Orange-Red Group 32C with blotch on upper lobe of Orange Group 24A.
Gilda	(‘Atrier’? × (‘Atrosanguineum’ × <i>griersonianum</i>)) raiser: Joseph B. Gable (U.S.A.). Red Group 38A, blotch of radiating striped Orange-Red Group 33B.
Golden Salmon	

Good News	(‘Britannia’ × ‘Romany Chal’) raiser: John Henny (U.S.A.). Crimson scarlet.
Ingos Rubellum	(‘Infanta’ × ‘Goshawk’) raiser: Capt. Collingwood Ingram (U.K.). Red Group 55B at base of corolla, paling to Red Group 55D, with dark red blotch.
Island Sunset	(form of <i>zoelleri</i> , collected Goodenough Is., New Guinea by D. B. Stanton, Aus.). Yellow-Orange Group 17B in tube, deepening to Orange-Red Group 33B on lobes.
James C. Stephens	(‘The Hon. Jean Marie de Montague’ × unnamed white hybrid) raiser: Mr and Mrs J. Freeman Stephens (U.S.A.). Red Group 54D, with red blotch in throat: red spots on upper lobes, a few on lower lobes.
Lagg	(<i>macabeanum</i> × <i>magnificum</i>) raiser: National Trust for Scotland, Brodick, Isle of Arran (U.K.). Yellow-Grey Group 150D with staining deep in throat of Greyed-Purple Group 186C deepening to Greyed-Purple Group 187D.
Lemon Lodge	(‘Prelude’ × selfed?) raiser: Pukeiti Rhododendron Trust Inc. (N.Z.). Yellow Group 4B.
Lisa Broom	(‘Hinodegiri’ × ‘Tancho’) raiser: K. M. Marsh (Aus.). Red-Purple Group 62B.
Lorien	(<i>souliei</i> × <i>wardii</i>) raiser: J. J. Crossfield (U.K.). Yellow-Green Group 150D.
Magnagloss	((<i>wardii</i> × <i>discolor</i>) × ?) raiser: G. Guy Nearing (U.S.A.). Greyed-Purple Group 186D with conspicuous blotch extending into spots of Greyed Group 182A.
Margaret Alice	(un-named hybrid × ‘Elizabeth’) raiser: Mr and Mrs J. Freeman Stephens (U.S.A.). H.C.C. Tyrian Rose, with small red streaks in throat.
Martha Phipps	(parentage unknown) raiser: Howard Phipps (U.S.A.). Pale yellow suffused pink, inner corolla close to Red Group 41D shading to Yellow Group 4D in throat.
Maureen	(<i>williamsianum</i> × ‘Lem’s Goal’) raiser: Halfdan Lem. Red Group 56A to 56C with yellow cast at base.
May Time	(<i>catawbiense</i> var. <i>album</i> × <i>yakusimanum</i> ‘Koichiro Wada’) raiser: Dr David G. Leach (U.S.A.). White, with very faint dorsal ochre spots: outside faintly flushed on ribs deep to strong purplish-pink 5RP 6.5/9. (Nickerson.)
Merle Finimore	(‘Hinodegiri’ × ‘Tancho’) raiser: K. M. Marsh (Aus.). Red Group 47D.
Moorheim’s Pink	(<i>williamsianum</i> × ‘Genoveve’) raiser: D. Hobbie (W. Germany). Pink. A.M. 1972.

Mountain Flare	(‘Boule de Neige’ × Loderi ‘King George’) raiser: G. Guy Nearing (U.S.A.). Red Group 50D with faint greenish to purplish speckling.
Muriel Pearce	(‘Anna’ × ‘Fusilier’) raiser: Halfdan Lem (U.S.A.). H.C.C. 23/3. Pale rose-madder, darker edged. H.C.C. 23/2 with plentiful dark red spotting. H.C.C. 824 on upper lobes and with a few spots throughout.
Nathan Hale	(parentage unknown) raiser: Charles Dexter (U.S.A.). Red-Purple Group 63B, centre 62B, blotch Red-Purple Group 60A.
Nuance	(<i>catawbiense</i> var. <i>album</i> × ((<i>neriflorum</i> × <i>dichroanthum</i>) × <i>discolor</i>)) raiser: Dr David G. Leach (U.S.A.). Pale orange-yellow 7.5YR 10/4, broadly suffused around edge – strong purplish pink 5RP 7/9 bold dorsal and some lateral rayed spotting of strong greenish-yellow. 7.5Y 7/9 (Nickerson.)
Olive Judson	(<i>oreotrephes</i> × ‘Lady Chamberlain’) raiser: G. A. Judson (U.K.). Rosy carmine, darker markings in throat.
Orange Supreme	(Exbury Azalea Seedling × ?) raiser: J. A. Marty (Aus.). Orange-Red Group 30D, flushed Orange-Red Group 33A with blotch on upper lobe of Orange Group 25A.
Osaka	(‘Madame Petrick’ × ‘Pink Dream’) raiser: J. Heursel (Belgium). Red-Purple Group 67D-73C with blotches of Red-Purple Group 58B.
Parker’s Pink	(parentage unknown) raiser: Charles Dexter (U.S.A.). Red-Purple Group 63B, fading to white in throat; Red-Purple Group 60A, dense in throat, thinning out into two rays of spots.
Party Pink	(‘Mrs Furnival’ × <i>catawbiense</i> var. <i>album</i>) raiser: Dr David G. Leach. Moderate purplish-pink 25RP 7/8, shading to pale purplish-pink in throat 2.5RP 9/2, with conspicuous dorsal and partial lateral spotting strong yellow 2.5Y 7/10. (Nickerson.)
Peking	(<i>catawbiense</i> var. <i>album</i> hybrid × (<i>catawbiense</i> var. <i>album</i> ‘La Barr’s White’ × ‘Crest’)) raiser: Dr David G. Leach (U.S.A.). Brilliant greenish-yellow 7.5Y 10/8, with dorsal blotch and sparse spotting dark red. 2.5R 3/7. (Nickerson.)
Peppermint Stick	(‘Moser’s Maroon’ × <i>yakusimanum</i>) raiser: Ben Lancaster (U.S.A.). White, edged Red-Purple Group 57D. Lightly spotted. Yellow-brown on upper petal. White flower centre appears star-shaped.

Pink Ghost	(<i>yakusimanum</i> × 'Pauline') raiser: Royal Horticultural Society (U.K.). White, flushed very pale pink, spotting on lower segments of Greyed-Orange Group 163B.
Pink Globe	(<i>catawbiense</i> form × (<i>griersonianum</i> × <i>fortunei</i>)) raiser: G. Guy Nearing (U.S.A.). Red Group 55B with small blotch Red Group 53C.
Pinkie Price	(('Meadowbrook' × <i>fortunei</i>) × ('Meadowbrook' × <i>fortunei</i>)) raiser: Howard Phipps (U.S.A.). Deep purplish-pink 7.5RP 6/12, shading to almost white, with two green blotches 10Y 6/7. (Nickerson.)
Pirouette	(<i>yakusimanum</i> 'Koichiro Wada' × 'Pink Petticoats') raiser: J. G. Lofthouse (Canada). Red-Purple Group 62C.
Promise of Spring	(<i>strigillosum</i> × ?) raiser: J. G. Lofthouse (Canada). Red-Purple Group 58C, spotted in upper lobe.
Rangoon	('Fanfare' × 'Gertrude Schale') raiser: Dr David G. Leach (U.S.A.). Moderate to dark red. 2.5R 3/7. (Nickerson.)
Red Crest	('Britannia' × <i>delavayi</i>) raiser: K. Van de Ven (Aus.). Red Group 53B, slightly spotted on upper lobe.
Red Lion	('Tally Ho' × <i>catawbiense</i> form) raiser: G. Guy Nearing (U.S.A.). Red Group 45A with a few very faint spots.
Red Puff	('Golden Horn' × 'Catanea') raiser: G. Guy Nearing (U.S.A.). Red Group 53C, speckled Red Group 47A.
Romy	('Inamorata' × 'Mrs J. Millais') raiser: E. G. Millais (U.K.). Primrose yellow.
Rose Marsh	('Leopold Astrid' × 'Hinodegiri') raiser: K. M. Marsh (Aus.). Red-Purple Group 65B.
Rosenoble	(<i>arboreum</i> ? × ?) raiser: Hon. H. E. Boscowen (U.K.). Red-Purple Group 68C with darker veining, throat paling to a white with light uniform spotting of Red-Purple Group 66A. A.M. 1973.
Roslyn	('Purpureum Elegans' × 'Everestianum') raiser: Paul Vossberg (U.S.A.). Purple-Violet Group 82B, to paler centre Violet Group 84D. 82D reverse.
Saint Minver	(<i>russatum</i> × 'Saint Breward') raiser: Major-Gen. E. G. W. W. Harrison (U.K.). Violet blue.
Saint Wenn	('Blue Diamond' × <i>scintillans</i>) raiser: Major-Gen. E. G. W. W. Harrison (U.K.). Mauve.

Scintillation	(percentage unknown) raiser: Charles Dexter (U.S.A.). Red-Purple Group 67D shading lighter towards centre, 69c, spotted Yellow-Green Groups 151A, 152D on upper lobe(s). Reverse Red-Purple Group 67c.
Sea Spray	('Mrs Lindsay Smith' × 'Jalisco Goshawk') raiser: Capt. Collingwood Ingram (U.K.). White with a distinctive flare of reddish-brown spots.
Shanghai	(('Mrs Furnival' × <i>catawbiense album</i>) × unnamed seedling) raiser: Dr David G. Leach (U.S.A.). Pale purplish pink 2.5RP 9/2, suffused edge with light purplish-pink 2.5RP 8/5, strong orange-yellow 7.5YR 7/11, spotting at top of dorsal and lateral lobes. 7.5YR 7/11, to dark greenish yellow at base. 7.5Y 6/7. (Nickerson.)
Signal Horn	('Atrosanguineum' × 'Goldsworth Yellow') raiser: G. Guy Nearing (U.S.A.). Red Group 54c to 51B at edge, conspicuously spotted blotch of Red Groups 46A to 54c.
Singapore	('Fanfare' × 'Gertrude Schale') raiser: Dr David G. Leach (U.S.A.). Moderate to strong red 2.5R 4.5/12 with pearly overlay. (Nickerson.)
Snowstorm	(<i>yakusimanum</i> × 'Cary Ann') raiser: J. G. Lofthouse (Canada). White, rose-spotted.
Stanway	(<i>fortunei</i> × 'Jalisco') raiser: Edmund de Rothschild (U.K.). Yellow Group 8D, deepening in throat to Yellow Group 8B and with deeper bar of colouring on each petal.
Suede	(<i>haematodes</i> × <i>bureavii</i>) raiser: G. A. Judson (U.K.). Red, fading to deep rose, with brown speckles in throat.
Susan Lonsdale	('Loder's White' × 'Kew Pearl') raiser: H. D. Rose (Aus.). White, tinged Red-Purple Group 63D, heavily spotted on all lobes with Red-Purple Group 59B.
Trumpeter	(un-named hybrid × ('Mars' × <i>catawbiense</i> var. <i>rubrum</i>)) raiser: Dr David G. Leach (U.S.A.). Strong red 5R 3.5/14 with dorsal spotting darker red. (Nickerson.)
Wally Zeglat	(<i>fortunei</i> 'Lu Shan' × ?) raiser: W. Zeglat (Canada). Red-Purple Group 68B fading to 68D with brown speckled blotch.
Warburton	('Loder's White' × 'Kew Pearl') raiser: H. D. Rose (Aus.). White, tinged Red-Purple Group 63D and lightly spotted on upper lobes with Red-Purple Group 59B.

Wendy Lonsdale ('Elizabeth' × *neriiflorum* var. *euchaites*) raiser: H. D. Rose (Aus.). Red Group 45c.

Wheatley ('Westbury' × 'Meadowbrook') raiser: Howard Phipps (U.S.A.). Red-Purple Group 57D, shaded 61D towards outer edge: outside 61D; rays in throat Yellow-Green Group 144c.

Windbeam ('Conestoga' seedling × ?) raiser: G. Guy Nearing (U.S.A.). Red-Purple Group 63D, spotted Orange-Red Group 35A and Red Group 39A.



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CAMELLIAS WHICH HAVE RECEIVED AWARDS

Award recommendations to Camellias subsequently verified by the R.H.S. Council, were originally made by the Floral Committee, which first met in 1859. In 1924 the Floral Committee was divided into 2 sections. Floral Committee 'B' adjudicating over all trees, shrubs (including camellias) and botanical species, Floral 'A' being allocated all florists plants. From 1953 camellias have been under the jurisdiction of the Rhododendron and Camellia Committee.

Awards: F.C.C. First Class Certificate.

S.C.C. Second Class Certificate (awarded from 1862 to 1888).

A.M. Award of Merit (instituted in 1888).

P.C. Preliminary Commendation.

<i>Species</i>	<i>Award</i>
<i>cuspidata</i>	A.M. 1912 (J. Veitch)
<i>japonica</i>	F.C.C. 1956 (Crown Estate)
Adolphe Audusson	A.M. 1950 (Loder)
Altheaflora (as <i>Anemoniflora</i>)	A.M. 1967 (Mrs S. Williams)
Altheaflora <i>Grandiflora</i>	P.C. 1968 (Denny)
Altheaflora <i>Variegated</i>	P.C. 1962 (Cutts)
Angel	P.C. 1957 (Waterer)
Anna Bruneau	A.M. 1956 (Rothschild)
Apollo	A.M. 1933 (Preston)
Apple Blossom	A.M. 1958 (The Misses Godman)
Augusto L. Gouveia Pinto	P.C. 1967 (Loder)
Ballet Dancer	P.C. 1961 (Cutts)
Barbara Woodroof	F.C.C. 1891 (Paul)
Beauty of Waltham	P.C. 1967 (Harrison)
Campsii Alba	F.C.C. 1879 (Hovey)
C. M. Hovey	A.M. 1956 (Waterer)
C. M. Wilson	F.C.C. 1885 (Williams)
Commendatore Betti	F.C.C. 1862 (J. Veitch)
Contessa Lavinia Maggi	A.M. 1956 (Waterer)
Coquetti	P.C. 1967 (Loder)
Dainty Maiden	A.M. 1953 (Crown Estate)
Daitairin	F.C.C. 1969 (Loder)
Drama Girl	A.M. 1900 (R. Veitch)
Devonia	P.C. 1958 (Urquhart)
D. Herzilia de Freitas	A.M. 1960 (The Misses Godman)
Magalhaes	A.M. 1898 (Paul)
Donekelarii	A.M. 1967 (Loder)
Duchess of Teck	P.C. 1962 (Waterer)
Edelweiss	F.C.C. 1958 (Crown Estate)
Edwin H. Folk	
Elegans	

<i>Species</i>	<i>Award</i>
<i>japonica</i>	
Emilia Lechi	S.C.C. 1866 (Bull)
Emperor of Russia	A.M. 1956 (Urquhart)
Exquisita	F.C.C. 1894 (Paul)
Fred Sander	A.M. 1921 (Sander)
Furoan	A.M. 1956 (Crown Estate)
General Hector Macdonald	A.M. 1900 (Sander)
Gertrude Preston	A.M. 1962 (Mrs G. Preston)
Gloire de Nantes	A.M. 1956 (Crown Estate)
Guest of Honor	A.M. 1967 (Loder)
Julio Nuccio	A.M. 1962 (Cutts)
Haku-Tsuru	A.M. 1968 (Crown Estate)
Hana-Fuki	A.M. 1956 (Crown Estate)
Imbricata Alba	A.M. 1960 (The Misses Godman)
Jupiter	A.M. 1953 (Loder)
Kelvingtoniana	F.C.C. 1869 (Baxter)
Kimberley	A.M. 1934 (R.B.G., Kew)
Konronoku	A.M. 1960 (Crown Estate)
Lady Clare	A.M. 1927 (Rothschild)
La Maestosa	F.C.C. 1869 (Bull)
Lanarth	A.M. 1960 (M. P. Williams)
L'Avvenire	A.M. 1964 (Rothschild)
La Vestale	F.C.C. 1890 (Turner)
Lavinia Maggi Rosea	F.C.C. 1867 (Bull)
Lawrence Walker	P.C. 1962 (Cutts)
Madonna	F.C.C. 1865 (Lee)
Magnoliiflora	A.M. 1953 (Crown Estate)
Masterpiece	P.C. 1961 (Cutts)
Mathotiana	P.C. 1957 (Aberconway)
Mathotiana Rosea	A.M. 1954 (Waterer)
Mercury	A.M. 1948 (Rothschild)
Monstrosa Negri	F.C.C. 1865 (Lee)
Mrs Anne Marie Hovey	F.C.C. 1897 (Hovey)
Mrs D. W. Davis	F.C.C. 1968 (Crown Estate)
Mrs H. Boyce	P.C. 1972 (Ingram)
Mrs J. Buchanan	A.M. 1898 (Paul)
Nagasaki	A.M. 1953 (R.H.S., Wisley)
Pearl Maxwell	P.C. 1960 (Waterer)
Pink Champagne	A.M. 1960 (H.M. the Queen)
Pink Flora	P.C. 1948 (Aberconway)
Pink Pearl	A.M. 1950 (Ingram)
Pride of Waltham	A.M. 1898 (Paul)
Prince Frederic William	A.M. 1953 (R.H.S., Wisley)
Princess Alexandra	F.C.C. 1873 (Henderson)
Princess Mary	F.C.C. 1866 (Salter)
Professor Filippo Parlatore	F.C.C. 1863 (J. Veitch)
Reine des Beautés	F.C.C. 1865 (Standish)
R. L. Wheeler	A.M. 1959 (Waterer)
Roi Leopold	S.C.C. 1865 (Veitch)
Rubescens Major	A.M. 1959 (Waterer)
Snow Chan	P.C. 1964 (Cutts)
Snow Goose	A.M. 1953 (Loder)
Sodegakushi	A.M. 1930 (Millais)
Speciosa	A.M. 1930 (Messel)
Sweetheart	P.C. 1962 (Cutts)
The Duchess	A.M. 1891 (Paul)
Tomorrow	A.M. 1960 (H.M. the Queen)
Trionfo de Loddi	F.C.C. 1866 (J. Veitch)
Yours Truly	A.M. 1960 (R.H.S., Wisley)
<i>reticulata</i>	
Buddha	A.M. 1962 (Crown Estate)
Captain Rawes	F.C.C. 1963 (Crown Estate)
Liuyehinhung	A.M. 1967 (Crown Estate)
(syn. Willow Wand)	

<i>Species</i>	<i>Award</i>
<i>reticulata</i>	
Mary Williams	F.C.C. 1964 (F. J. Williams)
Paochucha (syn. Noble Pearl)	A.M. 1963 (Crown Estate)
Shitzetou (syn. Lion Head)	P.C. 1969 (Crown Estate)
Simplex	A.M. 1944 (Rothschild)
Sungtzelin (syn. Pagoda)	F.C.C. 1865 (Standish)
Superba	A.M. 1948 (C. Williams)
Tataochung (syn. Crimson Robe)	F.C.C. 1967 (Crown Estate)
Taymhung (syn. Shot Silk)	F.C.C. 1967 (Crown Estate)
Trewithen Pink	A.M. 1950 (G. H. Johnstone)
Tzepao (syn. Purple Gown)	A.M. 1966 (Loder)
<i>rosaeflora</i>	A.M. 1928 (R.B.G., Kew)
<i>saluenensis</i>	A.M. 1930 (Messel)
<i>sasanqua</i>	
Azumanishiki	F.C.C. 1892 (J. Veitch)
Foliis Variegatis	P.C. 1935 (Rothschild)
Fujinomine	F.C.C. 1865 (Bull)
Minenoyuki	P.C. 1958 (Sandhurst Nurseries)
Narumigata	A.M. 1964 (Loder)
	A.M. 1953 (Aberconway)
<i>tsaii</i>	A.M. 1960 (Crown Estate)
<i>× williamsii</i>	A.M. 1969 (J. C. Williams)
Caerhays	P.C. 1959 (Cutts)
Celebration	P.C. 1964 (Loder)
Cherub	A.M. 1960 (Aberconway)
Citation	A.M. 1971 (Smart)
Debbie	A.M. 1964 (Mrs Alison Johnstone)
Delia Williams	F.C.C. 1952 (Clarke)
Donation	A.M. 1953 (R.H.S., Wisley)
Francis Hanger	A.M. 1965 (F. J. Williams)
George Blandford	F.C.C. 1942 (C. Williams)
J. C. Williams	P.C. 1963 (Price)
Lady Gowrie	A.M. 1942 (C. Williams)
Mary Christian	A.M. 1967 (R. Veitch & Sons)
Mildred Veitch	A.M. 1950 (C. Williams)
November Pink	A.M. 1957 (Crown Estate)
Pink Wave	A.M. 1947 (C. Williams)
St. Ewe	
<i>reticulata hybrids</i>	
Elizabeth Johnstone	A.M. 1957 (G. H. Johnstone)
Francie L.	A.M. 1972 (Smart)
Inspiration	A.M. 1954 (Rothschild)
Leonard Messel	F.C.C. 1970 (Countess of Rosse)
Maud Messel	A.M. 1969 (Countess of Rosse)
Salutation	A.M. 1936 (Clarke)
<i>Other hybrids</i>	
Exaltation	A.M. 1968 (Crown Estate)
Foundling	P.C. 1972 (Crown Estate)
Glen's Orbit	A.M. 1962 (Mrs G. H. Johnstone)

AWARDS AT LONDON SHOWS, 1973

AWARD TO CAMELLIA 1973

Camellia reticulata 'Mouchang' (*C. reticulata* 'Cornelian' × *C. reticulata* 'Moutancha'), F.C.C. March 13, 1973, as a flowering plant for the cool greenhouse. Flowers single to semi-double, up to 6 inches across. Colour Red Group 55B with darker veinal markings of Red Group 55A. Leaves up to 6½ inches long and 3½ inches across; serrate. Raised by Howard Asper (U.S.A.); exhibited by Dr J. A. Smart, Marwood Hill, Barnstaple, N. Devon.

AWARDS TO MAGNOLIAS 1973

Magnolia 'Princess Margaret', F.C.C. April 17, 1973, as a hardy flowering tree. Exhibited by The Crown Estate Commissioners, The Great Park, Windsor, Berkshire.

Magnolia 'Ann Rosse', A.M. April 17, 1973, as a hardy flowering tree. Exhibited by the Countess of Rosse and the National Trust, Nymans Gardens, Handcross, Haywards Heath, Sussex.

Magnolia 'Caerhays Surprise', A.M. April 17, 1973, as a hardy flowering shrub. Exhibited by F. Julian Williams, Esq., Caerhays Castle, Gorran, St. Austell, Cornwall.

Magnolia 'Charles Coates', A.M. June 12, 1973, as a hardy flowering tree. Exhibited by the Crown Estate Commissioners, The Great Park, Windsor, Berkshire.

AWARDS TO RHODODENDRONS 1973

Rhododendron parryae, F.C.C. April 17, 1973, as a flowering plant for the cool greenhouse. Native of Assam. Truss lax, 4-flowered. Flowers fragrant funnel-shaped, 7 cm. long and 11.5 cm. across, coloured white Group 155D with greenish-yellow blotch. Stamens 10, held within corolla; style held free of corolla. Calyx rudimentary green, hairy. Pedicles up to 2 cm. long. Leaves up to 8 cm. long and 4 cm. across, elliptic, both surfaces lightly scaly. Petioles 2 cm. long, flattened, scaly and fringed with brown hairs. Collector not recorded. Exhibited by Geoffrey Gorer, Esq., Sunte House, Haywards Heath, Sussex.

Rhododendron campylogynum var. *leucanthum*, A.M. June 12, 1973, as a hardy flowering plant. Exhibited by Capt. Collingwood Ingram, The Grange, Benenden, Kent.

Rhododendron campylogynum 'Baby Mouse', A.M. June 12, 1973, as a hardy flowering plant. Exhibited by Capt. Collingwood Ingram.

Rhododendron 'Dukeshill' (*R. 'Kiev'* × *R. 'Lady Digby'*), A.M., May 21, 1973, as a hardy flowering plant. Crossed, raised and exhibited by Crown Estate Commissioners, The Great Park, Windsor, Berks.

Rhododendron Loderi 'Sir Joseph Hooker' (*R. griffithianum* × *R. 'Lady Digby'*), A.M., May 21, 1973, as a hardy flowering plant. Crossed and raised by Sir Edmund Loder, exhibited by Mrs A. H. Potter, King's Copse, Pinewood Road, Wentworth, Surrey.

Rhododendron 'Nobleanum Venustum' (*R. arboreum* × *R. caucasicum*), A.M., January 30, 1973, as a hardy flowering shrub. Exhibited by The Lord Aberconway and The National Trust, Tal-y-Cafn, Colwyn Bay, Denbighshire, N. Wales.

Rhododendron 'Rosenoble' shown as *R. arboreum* var. *roseum*, A.M., March 13, 1973, as a hardy flowering plant. Trusses loose, rounded, 16 to 18 flowered, up to 6 inches across. Corolla 5-lobed. Length of corolla $2\frac{1}{2}$ inches; diameter $2\frac{1}{2}$ inches; tubular-campanulate; colour Red-Purple-Group 68c with darker veining, throat paling to white with light, uniform spotting of Red-Purple Group 66a. Stamens 10, irregular in length. Filaments white, anthers dark brown. Length of style equalled or slightly exceeded by longest stamens. Style and stamens held within corolla. Calyx rudimentary, green. Pedicels up to 12 mm. long, glabrous. Leaves lanceolate to narrowly elliptic, up to 8 inches long and $2\frac{7}{10}$ inches across, mucronate, obtuse to oblique. Undersurface of leaves covered with grey plastered indumentum. Petioles sturdy, rounded, up to $\frac{4}{5}$ inches long. Petioles and prominent mid-rib lightly covered with indumentum. Thought to have been an original introduction of Gill (circa 1910), exhibited by the Hon. H. E. Boscawen, High Beeches, Handcross, Sussex.

Rhododendron roxieanum var. *oreonastes*, A.M., May 1, 1973, as a hardy flowering plant. Flowers in compact truss of up to 20, up to 2.7 cm. long and 2.5 cm. across, campanulate, White Group 155D with petals tipped Red-Purple Group 61c and darker red-purple spotting in throat. Stamens 10, brown-anthered, irregular in length and held within corolla. Style of equal length. Calyx rudimentary, green, hairy. Leaves narrowly lanceolate to linear, up to 8 cm. long and 8 mm. across, reflexed, undersurface covered with rusty brown indumentum. Collector not recorded. Exhibited by Crown Estate Commissioners, The Great Park, Windsor, Berks.

Rhododendron thomsonii, A.M., May 1, 1973, as a hardy flowering plant. Trusses loose, up to 14 cm. across, 10 to 12 flowered. Flowers campanulate, up to 4.5 cm. long and 7.5 cm. across, Red Group 53B in throat, darkening at corolla rim to 53a and with strong veining. Stamens tightly clustered, irregular in length, held within corolla; anthers dark brown. Style of equal length. Nectaries prominent. Calyx 5 joined lobes, up to 1.4 cm. long, greenish-red. Leaves broadly elliptic, 8 cm. long and 5.5 cm. across, undersurface glaucous. Collector not recorded. Exhibited by Crown Estate Commissioners, The Great Park, Windsor, Berks.

Rhododendron zoelleri 'Decimus', A.M., April 3, 1973, as a flowering plant for the temperate greenhouse. A single 7-flowered truss shown. Flowers funnel-shaped, 5-lobed, 9 mm. across and 7.5 mm. long, lobed to almost half-way, a broad band of Orange-Red Group 31B at lip, with throat Yellow-Orange Group 21A. Stamens 10, slightly irregular in length, of equal length with corolla. Stamens brownish-yellow. Style of equal length. Stigma green. Calyx rudimentary. Bud scales persistent. Pedicels up to 4 mm. long, strongly flushed red. Leaves elliptic, 18 mm. long and 7.5 mm. across. Petioles rounded, up to 2 mm. long. Collected Wissel Lakes, West New Guinea at 1,800 m. (collector not recorded), exhibited by The Director, Royal Botanic Gardens, Kew.

Rhododendron 'Sirius' (*R. crassum* × *R. cinnabarinum* var. *roylei* 'Magnificum'), P.C., June 12, 1973, as a hardy flowering shrub. Crossed and raised by Messrs G. Reuthe, exhibited by Major A. E. Hardy, Sandling Park, Hythe, Kent.

The Camellia Show 1973

April 17 and 18

The drought last summer, and again this spring, and cold drying winds, with recent snow and frost even in the west, combined to make the 1973 show at Westminster very disappointing.

Many thanks should go to those exhibitors who struggled to support the show, without totally abandoning their usual high standards. J. Trehane & Sons managed to put up a big stand which included a very large number of the newer introductions. There were also several enthusiastic and most welcome new competitors.

The classes for Williamsii hybrids were noticeably less affected by the bad weather. Most of the *C. japonica* varieties were barely out, and miserably small, the singles being the worst.

General Harrison, from Cornwall, won class five, with 'Rogetsu', one of the few white blooms in the show. We understand it is growing in full sun.

High Beeches (The Hon. E. Boscawen) had a very creditable 'Lady Clare', winning a large class of this variety, and Mrs Tame, from Middlesex, a lovely deep toned 'Kelvingtoniana', winning class 23 for anemone- and paeony-formed self-coloured cultivars.

Sir Giles Loder, from Sussex, won class 37, which requires six cultivars of *Camellia japonica*. Mr Robert Strauss, from Sussex, won the class for a bloom of *saluenensis*. There seems to be a very wide variation in this species.

Class 43, for single cultivars of *C. × Williamsii*, was full, and contained a bloom of 'Red Queen', shown by Mr Waiman from the Isle of Wight. A good red, this is an entirely new colour break in *C. × Williamsii*. Mrs Tame won the class for 'Donation', a large class of good blooms, but containing only one from Sussex and that not placed. This is most unusual! Class 45, for any *C. × Williamsii* cultivar, other than a single or 'Donation', was won by Mrs Eunson with a most lovely 'Elsie Jury' bloom. Mrs Eunson's garden is in Middlesex, on light sandy soil, and she tells us that her 'Elsie Jury' is only four years old, and none of her camellias is more than eight years old.

General Harrison won class 49, requiring four blooms, with 'Leonard Messel', 'Brigadoon', 'Debbie', and 'Donation', and Mr Waiman won the Leonardslee Bowl with 'Mercury', 'Captain Rawes', 'Leonard Messel', 'Mary Thomas', 'General Lamorciere', 'Kelvingtoniana', 'Elegans', 'Inspiration', 'Hind Moru', 'Watkin', 'Mathotiana' and 'Mars'. There were three very competitive entries.

The sprays were obviously even more difficult to find. Among the winners, Mrs MacDonald from Surrey had her very reliable 'Margharita Coleoni', and Sir Giles Loder had *reticulata* 'Captain Rawes', a good spray of the dark form of *saluenensis* and a nice 'Anticipation'.

There was again a large class of *C. × Williamsii*, won by The Countess of Rosse and The National Trust from Nymans, Sussex, with a lovely spray of 'J. C. Williams'. Sir Giles Loder won the six sprays with 'Lady Clare', *reticulata* 'Captain Rawes', 'Cornish Snow', 'J. C. Williams', 'St. Ewe' and 'Inspiration'.

The prize for an arrangement of camellias was taken by Mrs MacDonald, using 'Margharita Coleoni' in a wine bottle. It would be nice to see some new competitors in this interesting and challenging class, and it is not required for them to grow their own flowers.

A.P.B.; H.E.B.



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The Truro Show, 1973

This year was an early show in Truro; it was held on the 11 and 12 April, and this was undoubtedly the Year of the Magnolia. Rhododendrons and camellias were disappointing for the second year running, very few of the large-leaved rhododendrons flowering at all, with the notable exception of *R. macabeanum*, and most others producing not more than 25% of their normal quota of flowers. Forty years ago, I remember my father saying that they were resting after a previous good year. This year the phenomenon was not confined to Cornwall, and most of us were inclined to blame the long dry summer. One of our distinguished judges however told us that this was not so, and that the flower buds started to form much earlier in the year than generally supposed, and that we could blame the cold wet spring of 1972. Several camellia growers complained of bud-drop.

The magnolias however were superb, better than I can remember at any time in the last twelve years. It would be nice to see such a splendid display at Vincent Square. The date was a little late for *M. campbellii*, but *M. dawsoniana*, *M. sargentiana robusta* and *M. cylindrica* were seen at their best.

In the section for Ornamental Trees and Shrubs, *Michelia dolosopa* was conspicuous, a very good form of *Rhododendron schlippenbachii* was shown, and the Abbiss Memorial Trophy for the most outstanding cut or growing plant in the competitive classes went to Mr N. T. Holman's *Magnolia dawsoniana* 'Chyverton', a really magnificent exhibit.

Mr Holman also won the George Johnstone Memorial Trophy for the most points in the Magnolia section showing, besides *M. dawsoniana*, *M. cylindrica*, *M. mollicomata*, a *M. sprengeri* seedling, *M. campbellii* × *sargentiana robusta*, and *M. soulangiana speciosa*. Other notable exhibits in this section included 'Leonard Messel', 'Peter Veitch', *M. kobus*, *M. stellata*, *M. veitchii*, *M. campbellii alba*, *M. denudata* and *M. sargentiana robusta* × *sprengeri diva* (the last from Caerhays).

In the camellia section, the R.H.S. Silver Medal went to the winner of the class for 6 blooms of *C. japonica*, Commander Bernard Penrose, who showed 'Dear Jenny', 'Drama Girl', 'Elegans', 'Gloire de Nantes', 'Grand Prix' and 'Joseph Pfingstl'.

The class for six different camellias was won by General Harrison with 'Brigadoon', 'Debbie', 'Grand Slam', 'Guilio Nuccio', 'Leonard Messel' and *reticulata*. The Camellia Cup for twelve different camellias went to Mr N. T. Holman with 'Anticipation', 'Blackburniana', 'Citation', 'Debbie', 'Donation', 'Gloire de Nantes', 'Inspiration', 'Lady Clare', 'Mildred Veitch', *reticulata*, *reticulata* f. *simplex* and 'Salutation'.

The Camellia spray classes were very good and a fine spray of *C. reticulata* was noticed. Mr Maurice Petherick won the class for six

sprays with an exhibit which included 'Adolphe Audusson', 'Donck-*elarii*', 'Jupiter' and 'Nigra'.

The Rhododendron classes on the whole were below standard for this show. The class for six species, for which the Mrs Charles Williams Trophy was awarded this year, only attracted one entry, consisting of *R. arboreum* f. *roseum*, *R. erubescens*, *R. irroratum*, *R. macabeanum*, *R. mollyanum* and *R. thomsonii*. The class for three species had more entries and was won by Mrs Johnstone with *R. delavayi*, *macabeanum*, and *sino-grande*. The class for any species of the Falconeri or Grande series comprised four magnificent trusses of *R. macabeanum*, and the judges were hard put to it to decide between them before awarding the prize to the truss in perfect condition, shown by Mr J. M. Williams of Penwarne, a very welcome new exhibitor at this show. This exhibitor also showed a fine *R. lindleyi* in the Maddenii or Edgeworthii class.

In the class for a spray of the big-leaved series, a previous self-denying ordinance was forgotten and three magnificent sprays of *R. macabeanum* were shown, the prize going to Mrs Johnstone of Trewithen, whose lovely plant was illustrated in the 1962 Rhododendron & Camellia Yearbook, and is perhaps the finest in the country.

In the hybrid classes, General Harrison once again won the class for six trusses, showing 'Diane', 'Edmundii', 'Mariloo', 'Shepherd's Delight', and his own 'Joan Scobie' and *irroratum* × 'Lacs'. This exhibitor also won the class for three hybrids raised by himself.

The class for one hybrid was won by a magnificent form of 'Glory of Penjerrick', shown by Colonel George Coode, a hybrid which received an Award of Merit as long ago as 1904. Another good red hybrid, which received its A.M. in 1935, was 'Hermione', which won the class for one hybrid raised in the exhibitor's own garden.

The hybrid spray classes were not well filled, but a magnificent spray of 'Loderi King George' was noticed, shown by Mr J. M. Williams, and also the very good *cinnabarinum* hybrid, 'Caerhays Lawrence', shown by Mr Julian Williams.

All in all, it was a good show, and a credit to the exhibitors, some of whom showed considerable foresight in picking early as, after a mild winter, we had hail two days before the show, followed by snow.

E. W. M. M.

Index

Ailen, E. F., on Cultivation of Malesian rhododendrons, 35-38
 Asiatic magnolias in a Cornish garden, by N. Holman, 67-75
Camellia
 Adolphe Audusson, 58, 94
 Altheaflora, 58
 Anticipation, 92, 93
 Arch of Triumph, 59
 Barbara Mary, 62, 63
 Blackburniana, 93
 Brigadoon, 30, 91, 93
 Butterfly Wings, 64
 Caerhays, 63
 Captain Rawes, 91, 92
 Citation, 93
 Cornish Snow, 30, 92
 Countess Lavinia Maggi, 58
 Daintiness, 62
 Dear Jenny, 93
 Debbie, 62, 91, 93
 Donation, 30, 91, 93
 Donckelarii, 58, 94
 Drama Girl, 93
 Elegans, 91, 93
 Elsie Jury, 62, 91
 Fragrant Jonquil, 63
 Francie L., 62
 General Lamorciere, 91
 Gloire de Nantes, 58, 93
 Grand Prix, 93
 Grand Slam, 93
 Giulio Nuccio, 63, 93
 Haku-Rakuten, 58
 Hinu Maru, 91
 Hiraethlyn, 30
 Inspiration, 91, 92, 93
 J. C. Williams, 30, 93
japonica variegata, 57
 Joseph Pfingstl, 93
 Jupiter, 94
 Kelvingtoniana, 91
 Lady Clare, 58, 91, 93
 Lady McCulloch, 58
 Leonard Messel, 62, 91, 93
 Lila Naff, 64
 Lucy Hester, 62
 Margharita Coleoni, 92
 Mars, 91
 Mary Thomas, 91
 Mathotiana, 91
 Mathotiana Supreme, 58
 Mildred Veitch, 93
 Mouchang (F.C.C. 1973), 62, 64, 88
 Nigra, 94
 Nobilissima, 58
 Pope Pius XXIII, 64
 R. L. Wheeler, 58
 Red Queen, 91
reticulata, 58, 93
reticulata f. simplex, 93
reticulata, Wild Form, 64
 Rogetsu, 91
 Rubescens Major, 58
 Saint Ewe, 30, 92
saluenensis, 58, 92
 Salutation, 93
sansanqua, 58, 64
 Scentsation, 63
 Shot Silk, 64
 Vernalis, 63
 Watkin, 91
 William Hertrich, 64
williamsii, 60
 Wonderland, 62
Camellias
 breeding, by J. T. Gallagher, 59-61
 diseases, 65
 fertilising, 64
 at Leonardslee, by Sir Giles Loder, 57
 pests, 65
 pruning, 65-66
 sunburn, 64
 Show 1973, 91-92
 under glass, by J. Smart, 62-66
 watering, 64
 Cox, P. A., on Frost damage in Scotland, April 1973, 29-30
 Cuttings for the amateur, by I. S. Hall, 13-19, figs. 5, 6
 Evergreen azaleas, some thoughts on, by A. George, 32, 34
 Findlay, T. H., on The Garden at Royal Lodge, 5-11, figs. 1-4
 Findlay, T. H., on Some answers to Yaku which?, 54-55

INDEX

Fletcher, H. R., on Robert Keir, 56
 Frost damage in Scotland, April 1973, by P. A. Cox, 29-30

Hall, I. S., on Cuttings for the amateur, 13-19, figs. 5, 6
 Headlam, A. W., on The National Rhododendron Garden, Olinda, Australia, 46-52, fig. 9
 Holman, N., on Asiatic magnolias in a Cornish garden, 67-75

Gallagher, J. T., on Camellia breeding, 59-61
 George, A., on Some thoughts on evergreen azaleas, 32, 34

Hardy, A., on The Garden at Royal Lodge, 5-11, figs. 1-4
 Harris, F. J., on The use of fertilisers for rhododendrons, 23-28
 Garden at Royal Lodge, by T. H. Findlay and A. Hardy, 5-11, figs. 1-4

Keir, Robert, by H. R. Fletcher, 56

Lancaster, R., on Rhododendron species encountered on the Hilliers Plant Trek to East Nepal 1973, 39-45
 Loder, Sir G., on Camellias at Leonardslee, 57

Magnolia
 Ann Rosse (A.M. 1973), 76, 88
 Caerhays Surprise (A.M. 1973), 88
campbellii alba, 67, 93
campbellii mollicomata - see *mollicomata*
 Charles Coates (A.M. 1973), 88
Chyverton, 70, 93
cylindrica, 70, 93
dawsoniana, 70, 93
delavayi, 73
denudata, 70, 93
globosa, 30, 71
 Hawk, 70
hypoleuca, 73
kobus, 71, 93
 Lanarth, 68, 73
 Leonard Messel, 76, 93
liliiflora, 71
mollicomata, 68, 93
nitida, 73
 Peter Veitch, 93
 Princess Margaret (F.C.C. 1973), 88
rostrata, 73

salicifolia, 7, 71
sargentiana, 69
sargentiana robusta, 30, 69, 74, 93
sieboldii, 30, 71
sinensis, 71
 × *soulangiana*, 7, 30, 71, 93
sprengeri diva, 70
stellata, 30, 71
stellata Rosea, 76
 Treve Holman, 75
tripetala, 72
 × *veitchii*, 30, 93
wilsonii, 30, 71

Magnolias at Nymans by natural fertilization, by C. G. Nice, 76
 Magnolias, planting, 74
 Malesian rhododendrons, cultivation of, by E. F. Allen, 35-38

National Rhododendron Garden, Olinda, Australia, by A. W. Headlam, 46-52, fig. 9
 Nice, C. G., on Magnolias at Nymans by natural fertilization, 76

Pine bark as a rooting medium for cuttings, by A. Turner, 20-22

Rhododendron
aberconwayi, 50
arboreum, 7, 40, 41, 47, 94, figs. 7, 8
arboreum cinnamomeum, 47
arizelum, 6
Asagasumi, 32
 Ascot Brilliant, 9
augustinii, 7, 50
aurigeranum, 38
 Aya Kammuri, 32
barbatum, 6, 40, 41
basilicum, 7
 Beauty of Littleworth, 9
 Blue Diamond, 7, 22
 Blue Tit, 7
 Bluebird, 7
 Boddaertianum, 9
 Bric-a-Brac, 21
brookeanum, 36-37
brookeanum Mandarin, 38
brookeanum Mesilau, 38
brookeanum Titan, 38
bullatum, 49
bureavii, 6
 Caerhays Lawrence, 94
callimorphum, 30
calophyllum, 6
camelliflorum, 40, 43
campanulatum, 40, 43
campylocarpum, 40, 43
campylocarpum elatum, 7

INDEX

Rhododendron—cont.

campylogynum, 30
campylogynum leucanthum (A.M. 1973), 88
campylogynum Baby Mouse (A.M. 1973), 88
 Chink, 21
 Choremia, 9
 Christmas Cheer, 21, 52
ciliocalyx, 49
cinnabarinum, 40, 43
cinnabarinum roylei, 7
 Cornish Red, 71
crassum, 49
dalhousiae, 40, 43, 49
davidsonianum, 50
 Diane, 94
 Dr. Stocker, 9
drumonium, 21
 Dukeshill (A.M. 1973), 89
 Earl of Athlone, 9
 Edmundii, 94
 Electra, 22
 Elisabeth Hobbie, 50
 Elizabeth, 21
 Elsae, 6
erubescens, 94
 Everest, 30
 Fabia, 9, 22
falconeri, 6, 49
fargesii, 7
fictolacteum, 49
fortunei, 7
fulvum, 7
 Fusilier, 9
glaucophyllum, 40, 43
 Glory of Penjerrick, 94
grande, 49
griersonianum, 30
griersonianum hybrids, 29
haematodes, 7
 Hana Asobi, 32
 Hatsugiri, 34
 Hawk, 9
 Hermione, 94
 Hinomayo, 9
hodgsonii, 40, 43–44
 Humming Bird, 50
 Impi, 21
indicum Balsaminaeflorum, 30
 Irohayama, 32
irroratum, 94
 Jalisco, 9, 22
 Joan Scobie, 94
 John Cairns, 30
 Kakiemon, 34
keleticum, 30
 Kimigayo, 32
 Kirin, 22, 32
kiusianum, 34

Kiritsubo, 34
Komiyamae, 34
konori, 38
Kure-no-Yuki, 32
kwayi, 49
 Lady Bowes-Lyon, 54
lepidotum, 40, 44
lindleyi, 40, 44, 49, 94
 Loder's White, 9
 Loderi King George, 7, 94, fig. 2
 Loderi Sir Joseph Hooker (A.M. 1973), 89
lowii, 38
ludlowii hybrids, 30
 Luscombei, 9
lutescens, 6, 50
luteum, 5, fig. 1
macabeanum, 28, 49, 93, 94
macgregoriae, 36
maddenii, 49
Malvatica, 22
 Mariloo, 94
 Marion, 52
 Mary Meredith, 34
 Matador, 9
 May Day, 9
mollyanum, 6, 94
morii, 49
 Morning Cloud, 54
 Morning Magic, 54
 Mrs Ellice, 9
 Mrs G. W. Leak, 9, 51, fig. 9
nakaharai Mariko, 34
 Nanki Poo, 34
 Nobleanum Venustum (A.M. 1973), 89
nitens, 22
nuttallii, 49
Oino-Mezame, 32
oreotrephes, 7, 21, 22
 Palestrina, 22
parryae (F.C.C. 1973), 88
 Peep-Bo, 34
 Penjerrick, 9
 Polar Bear, 9
polyandrum, 49
 Pooh-Bah, 34
praestans, 6
 President Roosevelt, 51
protistum, 49
racemosum, 7
ravum, 22
 Renoir, 22, 54
 Richard Gill, 9
 Rosenoble (A.M. 1973), 89
roxieanum oreonastes (A.M. 1973), 89
rubiginosum, 7, 50
 Sapphire, 22
schlippenbachii, 93

INDEX

Rhododendron—cont.

Seta, 21
 Seven Stars, 54
 Shepherd's Delight, 94
sino-grande, 49, 52
 Sir William Lawrence, 21
 Sirius (P.C. 1973), 90
sperabile, 7
stenophyllum, 38
 Streatly, 54
suaveolens Painted Snipe, 38
sutchuenense, 7
 Telstar, 54
 Tessa Roza, 21
thomsonii (A.M. 1973), 7, 40, 44–45,
 89, 94
 Tit Willow, 34
trichostomum, 30
triflorum, 40, 45
 Ukamuse, 32
 Vanessa Pastel, 9
wallichii, 40, 45
williamsianum, 50
 Wishmoor, 54
yakusimanum, 7, 50, 54
yunnamense, 7, 50
zeylanicum, 49

zoelleri Decimus (A.M. 1973), 90

Rhododendrons

diseases, 38
 frost damage to, 29–30
 nutrition, fertilisers for, 23–28
 pests, 37–38
 propagation by cuttings, 13–19
 20–22, figs. 5, 6
 species encountered on the Hillier
 Plant Trek to East Nepal 1973
 by R. Lancaster, 39–45
 Species Foundation, by R. L.
 Shaw, 53–54

Shaw, R. L., on The Rhododendron
 Species Foundation, 53–54

Smart, J., on Growing camellias
 under glass, 62–66

Some answers to Yaku Which?, by
 T. H. Findlay, 54–55

Truro Show 1973, 93–94

Turner, A., on Pine bark as a
 rooting medium for cuttings,
 20–22

Use of fertilisers for rhododendrons,
 by F. J. Harris, 23–28

Advertisers' Index

American Rhododendron Society	92	Knap Hill Nursery Ltd.	12
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