

**Historical Survey of Rhododendron Collecting,  
with emphasis on its close associations with horticulture.**

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(P.H. Brydon, ARS Journal Editor).

Shortly after being invited to deliver this inaugural von Mueller Memorial lecture I was examining the plants in the mountain garden at Tjibodas, in Java and there, after all these years, was a very fine collection of Eucalyptus, some 150 feet tall, introduced from Australia by Ferdinand von Mueller. The broadly ranging interests and abilities of this remarkable man were felt far beyond the Australian continent. His great interest in New Guinea plants - though he himself was unable to make the time to visit that island - gave some of the earlier indications of its interesting flora. Further to his prophesying that a rhododendron would be found in Queensland, he also prophesied in 1884 that "it is probable that these superb kinds of plants occur in numerous specific forms throughout the higher regions of the Papuan Island". It is a pity he could not have been here today to see some of the fine plants discovered and introduced since his time.

## Geographical distribution of the rhododendron.

In consideration of many aspects of rhododendron lore the geographical distribution of the genus should receive due consideration, and while most of us are familiar with this it may be well to summarize briefly. From the large aggregation of species in the great clefts and gorges of W. China, N.E. Burma, and S.W. Tibet, the genus extends broadly in three directions. Firstly, the least vigorous extension extends westward through the Himalaya and the Caucasus to the Alps of Europe, giving us such well-known species as *R.ponticum*, *R.caucasicum*, *R.ferrugineum*, and *R.hirstum*. Secondly, we have an extension eastward through east and N.E. Asia across to N. America, and thirdly, and at the present time most pertinently, the extension South - a vigorous generic probe terminating with *R.lochiaie* in Queensland and with *R.subpacificum* and other species in the Solomons. Let us further investigate this southern probe.

Firstly, it is generally accepted that the section of the genus involved - the Malesians, evolved during the course of a migration through the Malay Peninsula down through Sumatra and Java thence down through Celebes to New Guinea. This may well be, but we should also consider the migratory routes through Formosa and the Philippines. What happened in the Celebes area? Did the genus go straight down to New Guinea? Or did it also branch West? Fragments of evidence are difficult to obtain but consider this picture. In the Malay Peninsula and in Sumatra are three species, which may give an indication as to what has taken place. These are elepidotes with obvious superficial affinities with the main mass of rhododendron to the North. More closely, however, consider the first of them, *R.wrayi*. In Malaya this makes a tree, 50 feet high with great gnarled trunks - to the casual observer for all the world like a relative of *R.arboreum*, though in fact its affinities are closest to *R.pennivenium* from Yunnan. It forms a striking contrast with such species as *R.malayanum*, which often grows epiphytically on its trunk and limbs. Further South in Sumatra we have *R.atjehense* which is clearly related to *R.ningyuenense* from S.W. China and the third species, *R.korthalsii* has affinities with species such as *R.araiophyllum* and *R.ombrochares*. It may be

well to mention at this stage that in my opinion these three species should be amenable to hybridization with less heat tolerant species from the Himalaya, Burma and China to give definite prospect to the hybridizer in a climate such as Australia. These are the Malesians which could be profitably exploited. *R.wrayi* has recently been introduced into cultivation, and firm effort should now be made to secure the others.

No logical line of thought could consider attempting to hybridize *R.wrayi* with, for instance, *R.malayanum* - they are too far apart genetically and morphologically, yet here they are, in Malaya growing together. Is it not feasible that while *R.wrayi*, *R.korthalsii* and *R.atjehense* could have evolved from a straightforward migration down the Peninsula, and may in fact be relic species, the other rhododendrons, of obvious Javanese character, may have evolved more dramatically over the long migration route via the Philippines, Borneo, and Java. Their anatomical adaptations to environment appear so much more sophisticated than that of our three relics. However, this particular pudding needs chewing over a deal before it can be swallowed. If true, its indications to the hybridizer are plain - he may get his best results by finding prospective parents for the more sophisticated Malesian species by looking to the Philippines, Formosa and East China rather than to Burma and its adjacent states.

It would appear that when the genus reached New Guinea it encountered almost utopian climatic and environmental conditions, so much so that we have here what could be termed a sub-centre secondary only to the primary focus on the Mainland of Asia. From observation in the field it is all too apparent that from the broad variations within species (I have in mind such plants as *R.beyerinckianum* and the frequent occurrence of natural hybrids with such widespread species as *R.macgregoriae*), that the genus is still in a state of flux, and exhibit characters which suggest New Guinea provides the most unstable rhododendron population in the world.

### Early introduction of rhododendrons into cultivation.

While in China and Japan rhododendrons have been cultivated assiduously for many centuries, the rest of the world - and at this stage I am squinting at this from the European viewpoint - knew little of rhododendrons apart from those belonging to the Western extension. In 1343 a Moorish traveller recorded *R.zeylanicum* from Adam's Peak in Ceylon - the earliest recorded wild plant from that island - but it was not until 1656 that the first rhododendron was taken into captivity - *R.hirsutum*. At the beginning of the 19th century there were only 15 species in cultivation, all from America and Europe. Although *R.arboreum* was officially discovered in 1796 it was not introduced to Britain until 1815, but when it first flowered horticulturists immediately grasped the opportunity of producing hardier red flowered hybrids with the tougher Americans and with *R.ponticum* and *R.caucasicum*. It was not until Joseph D. Hooker explored the Himalaya in 1849-51 that the first great boost to cultivation was felt. Hooker's plants gave a fresh conception of rhododendrons - the huge leaves of such species as *R.falconeri* and *R.grande*, the huge flowers of *R.griffithianum*, and the scent of *R.dalhousiae* - interest was stirred in botanical and horticultural circles as vigorously as it had ever been in its history. Not only did Hooker's collections make their way to Kew, but also to the gardens of some of his friends and acquaintances, many of whom lived on the mild western British seaboard, thought most suitable by Hooker for the growth of Himalayan plants. This distribution of seed laid the foundations of the intimate associations still extant today between the botanical world and the amateur rhododendron grower associations, stronger perhaps than those existing in work connected with any other genus. Even today in such gardens as Heligan and Carclew in Cornwall, and at Castle Kennedy and Stonefield in Scotland, many of Hooker's plants are still in rude health - undiminished in their vigour by the fortunes and misfortunes of over a century and by present day conditions which make it impracticable to cosset them to any great degree. Only two years ago in Lord Leicester's woods at Fulmodestone in Norfolk - one of the coldest areas in the British Isles - I saw original plants of Hooker's *R.arboreum* and *R.grande* in good health, species which are not generally considered hardy in Europe. Even after this time there

is much to learn regarding the so-called hardiness of plants, although in this country the problems are largely at the other end of the temperature scale, and only now are ideas being formed on the tolerance of certain species to a hot, dry environment.

Almost contemporary with Hooker was Thomas Lobb; a Cornishman who was employed by Veitch's - perhaps the greatest nursery firm of all time - to collect plants of horticultural value. In 1843 - before Hooker - he set sail for Singapore and then visited the adjacent islands, subsequently visiting the Malay Peninsula, Borneo, and the Philippines. Although his introductions were limited in number - and considering the tardy transport of the age it is remarkable he got back as much as he did - they were of immense value and interest, and among them were the first Javanese rhododendrons. Lobb was a man of immense determination, but his work has never received the acclaim accorded to Hooker's. Their objects and social status were different, and in those days the latter often determined one's results. Nevertheless, Veitch's set to work on Lobb's rhododendrons so that by 1897 they were able to exhibit plants and their hybrids in flower throughout the year. At this stage the Javanicums began to be considered a race apart, a collection of pampered hot house beauties - as indeed they were treated in those days, and even now this opinion exists in certain horticultural circles both in Britain and the United States.

The 19th century also saw the first suspicions of the great wealth of rhododendron in China - *R. fortunei* arrived in cultivation, but in the main it was the collections of French Missionaries such as David, Delavay and Farges which excited interest. In 1899, Veitch's decided to investigate further and sent out E. H. Wilson and from then on the scales were ever increasingly weighted in favour of the Mainland Asiatics by the vast numbers of new species introduced by men such as Frank Kingdon Ward, Forrest, Farrer and Rock. In those days China, Northern Burma, and to a lesser extent Tibet were accessible to the plant hunter and New Guinea was reckoned inaccessible

owing to its unknown character and dangerous natives - how the position has reversed!

The glowing prospects of the Chinese hunt stirred many rich amateur rhododendron growers to pour in money to get expeditions on the move, though it has been a source of never ending amazement to me why more of them did not have a go themselves. Private enterprise provided the money and enthusiasm and reaped beauty and interest while science doggedly tallied up the score, and there is little doubt that much species splitting occurred at this stage, which will have to be corrected when a long overdue revision of the genus is undertaken.

#### **Field collecting techniques.**

The methods of the principal collectors were somewhat naturally different. Men such as Kingdon Ward, Rock and Farrer preferred to see all their plants in their natural habitat and to collect them personally, while Forrest preferred setting up a base in a promising locality and from there to send out trained local inhabitants to do most of the actual collecting - sitting like a spider in the middle of its web accumulating the spoils and later distributing them to his backers. Both methods have their exponent, but at present when plant collectors are persona non grata over the interesting areas of Mainland Asia and when the centre of interest is becoming reoriented to Malesia, Forrest's method would in general prove unsatisfactory. In New Guinea, for instance, the number of species in an accessible and defined area would be limited to perhaps 8 or 10 - well within the collecting capabilities of one man, apart from the great advantages to be gained from seeing a plant in its natural environment. Again it is in the plant hunters own interest to get his eye in the genus or genera in which he is interested, and once this is accomplished he will spot many a rarity which the untrained local inhabitant may overlook.

#### **Woodland gardens in Britain.**

In those halcyon times during the first three decades of this century such was the flood of species from China, Burma and Tibet that the gardens of

expedition shareholders began to burst at the seams. So many seedlings were raised that they could not be contained within the generally formal confines of a British garden, and so in order to accommodate them provisions were made to plant them in surrounding woodlands - apart from the fact that it was discovered the plants thrived better under such conditions, the informality of the ensuing layouts seemed peculiarly appropriate to the British scene and gave rise to the now familiar woodland garden. While all this was going on it was a thousand pities that the current virile interest in Australia in the genus had not been more apparent - who can guess as to what species would have thrived, say, here in Victoria, which succumbed to the European climate or were allowed to fizzle out on account of their collectors descriptions not being sufficiently glowing. Nevertheless there were men here such as Bert Chandler who were sufficiently stirred to bring back plants from Britain which laid the foundations for the great upsurge - ever increasing in momentum - here in Australia today. Even at this late date there are still many species in Britain which should be imported into Australia, especially perhaps from some of the northern and Scottish gardens where the labeling and identities of certain plants are sinking into obscurity. Even the plants themselves in certain cases have a precarious hold, and efforts should be made to secure vegetative propagating material before they are lost. This surfeit of rhododendron would have been better digested if the partakers of the feast had been present in greater numbers. Nevertheless, up until 1939 most of these plants were well documented and their owners were usually only too willing to share propagating material with anyone who was interested. This interest, however, applied in general only to the hardier species and both botanists and gardeners became so involved that they ignored what was virtually a third of the genus - the Malesians - all except one, Dr. Sleumer, whose work embracing the whole genus stems from this period.

#### **Dr. Sleumer and the Malesians.**

It is difficult in some respects to understand how most botanists who have worked on the genus have been able to justify this glaring omission in their work. Perhaps this close association with the amateur rhododendron world

has been responsible in part, in so much as the greater part of the collections of living plants were in the hands of amateurs. They provided the living material for scientific research, and we may think ourselves fortunate that much work on rhododendrons has been carried out from living material than from dried herbarium specimen which may distort characters to such an extent as to divorce them from reality. Any plant studies based entirely on dried material are limited - a valid comparison would, I think, be the anatomist who would base his anatomy on the mummy of a Pharaoh. Had, however, the Javanese plants still been in favour, I think that botany would have been forced to do more than merely acknowledge their existence.

As it was, social conditions at the turn of the century favoured the great landowner who could well afford the vast ranges of glass, heat, and labour at that point thought necessary for the cultivation of Java rhododendrons. Come the 1918 War great bites were taken from the overloaded plates of the very rich - resulting in their pulling in their horticultural horns. It would appear that this period encompassed the first great setback for Lobb's plants. Still however they were grown by the dedicated few - Sir George Holford of Westonbirt, Lionel de Rothschild of Exbury, and Lord Aberconway at Bodnant - but they were in any event mostly hybrids, and were treated as curiosities - something to take one's friends to see after dinner. Kew, of course, which distributed some of the plants to the United States, kept a fairly comprehensive collection - largely on account of their decorative value for the public, and when the Westonbirt collection was dispersed much of it went to Kew and to Lord Aberconway at Bodnant. Come the Second World War more urgent matters than Java rhododendrons took priority. Interest in this section of the genus had reached rock bottom, and the great majority of plants in cultivation died out through neglect. At this stage few new species were coming into cultivation, even from Burma and China - the portcullis of the bamboo curtain was rapidly closing. Interest in the genus was at this stage being kept alive by the hybridists and many of the hybrids produced during this period are admirable garden plants - crosses were made with much more thought than was the case with many of those made in the inter-war years

when far too many were named which were not improvements upon either parent. Crossing for crossing's sake is seldom justifiable. Awareness began to develop of the immense attractions of foliage in rhododendron species such as *R.bureavii*, *R.mallotum*, and *R.lepidostylum*, and the interesting effects which could be effected by their careful grouping.

### **The introduction of New Guinea rhododendrons.**

Not until the early 1950's did anything really new arise, and then came hints of the value of New Guinea rhododendrons. Stonor wrote an article in the 1951 R.H.S. Yearbook, and the Division of Botany in Lae were coming up with several interesting species. Few people in Britain took notice - it almost appeared as if the vitality and enthusiasm so characteristic of British rhododendron growers was spent - in line perhaps with the current general mood of the country. Those who were interested were dubious of their value in Europe after hearing for so many years they would need hot house conditions, and adjusted day length, and, if that were not enough, they were extremely difficult to grow. Yet it appeared to some that plants from high tropical altitudes could still get chilly feet, and they might not like the heat to which they might be subjected. It presented a challenge, and who is as quick to take up the glove as a rhododendron grower? Still the problem remained, how to get hold of seed or young plants. No one seemed sufficiently keen to give an expedition backing and those who would have liked to, simply did not have the finances to risk on such a venture. Eventually a few species were raised from Stonor's seed in Edinburgh and it soon became obvious that these plants preferred lower temperatures - in fact they were perfectly at home in a house devoted to tender Mainland Asiatic species. The flowers weren't outstanding, but the plants presented a refreshing change in character.

### **New Guinea rhododendrons in Australia.**

In September 1959, seed of *R.christianae* was collected in the Daga area of Papua, New Guinea by the Reverend Canon N. Cruttwell who sent some to the Australian Rhododendron Society. This seed was germinated by the foundation President of the Society, Mr. A. Bramley, and young plants were

distributed to Members of the Society, both in Australia and overseas, in May 1961. This distribution appears to be the first distribution of plants of New Guinea species anywhere in the world.

As one of two botanists of the second expedition to New Guinea of the National Herbarium, Leyden, Dr. H. Sleumer flew to Manila in May 1961, and arrived in New Guinea later the same month. After a most successful expedition he left for Brisbane in February 1962. Dr. Sleumer sent seed to Boskoop, Edinburgh, San Francisco and Australia.

From his very last trip into the field of this expedition, he sent seed of *Rr.arfakianum*, *erosipetalum*, *konori*, *laetum*, *inconspicuum*, *asperum*, *macgregoriae*, *phaeopeplum* and *zoelleri* to Mr. B. Clancy of Melbourne, a Member of the Australian Rhododendron Society. Mr. Clancy handed the bulk of this seed to Mr. Bramley and both succeeded in obtaining a good germination.

The dispatch of seed from this expedition was a turning point in the development of the Malesian rhododendron. The enormous value both to science and to horticulture of these plants began to be appreciated and dormant interests, especially in Australia and the United States were aroused. From this seed, plants of *Rr.laetum*, *konori*, *inconspicuum* and *arfakianum* were distributed by the Australian Rhododendron Society, together with seedlings of *R.lochiaae*. Subsequently, your Society distributed plants of *R.commonae* and *R.macgregoriae*, which were raised by Mr. T. Lelliott. Both Mr. Bramley and Mr. Lelliott succeeded in hybridizing *R.christianae* and *R.lochiaae* almost simultaneously in 1962-63. This was the first hybrid to be raised from a New Guinea species and plants of this hybrid, along with others made by Mr. Lelliott, were distributed by your Society.

The British lion, however, still lay flicking his tail behind *R.yakushmanum* and a host of *R.griersonianum* hybrids.

### **New collecting techniques.**

Now the collection of rhododendrons in Malesia is gathering momentum and is developing its own special techniques. We are fortunate that the Administration in Papua New Guinea is sympathetic to requests from plant hunters to visit the territory, and it is now possible to visit Indonesia with reasonable facility. From the horticultural viewpoint the most important aspect of the plant collector's work is to get back living material, and while in the past rhododendrons have been almost invariably introduced into cultivation from seed, air transport makes it possible and even desirable to look to other methods, i.e., cuttings and young plants. This represents a radical change in the technique of plant collecting. A further factor is the comparatively short viability of Malesian rhododendron seed and its availability. An expedition to New Guinea specifically to collect seed would be ten times more expensive than is the case as things stand - there would be such a long wait for some species with the prospects of expensive trips back to specific localities. Mainland Asiatic plant hunters spent whole seasons in the wilds seeing plants in flower in the spring then returning in the autumn to collect the seed. In Malesia the seasons are much less variable, and it is often difficult to predict when a plant will flower. Obviously we do not see anywhere near the number of flowering plants which men like Kingdon Ward encountered. In fact, it is seldom that one encounters whole populations of rhododendron in flower simultaneously or regularly - the time varies both between species and localities. In other words the plants are neither so prominent nor numerous out of flower, and, while in China and Burma they were largely recognized in flower, if we were to rely on this in New Guinea where they are not so prominent, we should miss an enormous number of species. It is important in Malesia to get one's eye in for foliage as opposed to flower. It is surprising how easily this may be accomplished.

We read of plant hunters in Burmese forests only becoming aware of rhododendrons by the fallen corollas. It is possible though to spot rhododendrons by training oneself to recognize the varying rhododendron habits and foliage characters - one is occasionally misled but the occasions

become less frequent. Methods such as this are obviously the prerequisite of the specialized collector and a person engaged in general collecting would have great difficulties. As in most other walks of life this is the age of the specialist collector. In certain circumstances it is necessary to fell trees in order to see epiphytic plants more closely, and here we have an enormous advantage over the collector who was dependent upon seed to get his plants into cultivation - it matters not a whit whether the plant is in fruit or not, cuttings can be easily taken. Such methods do not allow for long sojourns in the field - the cuttings and young plants must be cared for, and to give them a good chance they should be dispatched within a week to ten days. This involves getting back to an airport. An additional advantage to be gained from cuttings is the quick availability of any especially good varieties seen in the field - this could save years of work selecting superior plants from batches of seedlings. Small plants generally make excellent introductory material, but one can not always be certain of these species, let alone whether they are of good variety. In addition they are sometimes extremely hard to find.

#### **Malesian rhododendrons in the wild.**

The rhododendron in the wild is a vastly different plant to its relatives grown under cultivation - its habit often leaves much to be desired, it appears often to be half starved, and almost invariably its leaves have been ravaged by insects. Frequently rhododendrons are found as epiphytes, but this mode of life is a measure of their supreme adaptability rather than a manifestation of a preferred way of life. How frequently it is implied in literature that Malesian rhododendrons are invariably epiphytic! Such statements are far from the truth even when applied to such species as *R.javanicum*, *R.retusum* and *R.jasminiflorum*. These plants prefer to get their roots in the ground, which often consists of a gravel-clay mixture and not a rich loamy soil as one might expect. Where the soil is rich, it is so overshadowed by trees that the light requirements of plants such as rhododendrons cannot be met. It has been observed that the roots of Malesian rhododendrons are frequently thickened, especially in epiphytes - a xerophytic adaptation which becomes lost under terrestrial cultivation, but it may be that if this root storage system

could be encouraged it would be of help in successfully growing these plants during drought. Frequently in the forests and jungles of Laesia, healthy epiphytic plants are found during dry seasons whose roots are surrounded only by crisp dry mosses, their water requirements met from their root reserves. This adaptation manifests itself early in life and the hypocotylar root thickening of seedlings with only two or three true leaves is frequently noticed. This does not invariably occur in seedlings germinated under cultivation - what is the factor which triggers it off?

Weevils and larvae of various genera constantly attack rhododendrons - not only do they devour mature leaves, even of such coriaceous species as *R.superbum* - but they frequently destroy most of the growing shoots, giving the plant a grotesque appearance, but seldom do such depredations cause the death of the plant. Insects do however fulfill one useful function, they effect cross pollination. Critically considered, the actual pollination is the least important aspect as rhododendrons are in any case fertile to their own pollen - one plant being sufficient to establish a population. What is important is the range over which insects are able to distribute pollen. While it is obvious that in a genus such as rhododendron, which exhibits a high degree of specific endemism, each locality with its own species or varieties remains comparatively stable only for as long as introgressions by other neighbouring species are not made through the mechanical process of pollen transference by birds or insects who may be assisted by wind.

One would imagine that in New Guinea with its massive blue hazed ridges often isolated by deep forested valleys, the chances of this happening were remote, and such appears to be the case. The numerous natural hybrids in general occur in areas whose vegetation has been interfered with by man, or on occasion landslides. The occurrence of rhododendrons at lower altitudes has been greatly encouraged by the felling of great forests, track and road making. All these activities provide space for them to drop down to ground level. The great Alps of Mainland Asia have been less interfered with, with subsequent lack of evidence of hybridity, but when these species are taken

into cultivation and planted in quantity, as they are in many British gardens, the percentage of natural hybrids among their offspring is high. I am sure that many of you who have collected seed from such open pollinated plants will appreciate the validity of this statement. In many ways the bees have done better than the heavy hand of man when the value of the ensuing hybrids is considered.

### **Tasks ahead.**

Now, I think rhododendron growers have two main tasks. Firstly, I consider as much as possible should be done to ensure the survival of rare species - independent of horticultural merit - whose fate may be uncertain. Many of these plants are in Britain but as part of our mutual heritage it is important that they be introduced to Australia. Many of them, particularly perhaps those of the *Maddenii* and *Edgeworthii* series would benefit greatly from the climate here. Efforts are being made at the present time to catalogue and in some cases to propagate such plants but much remains to be done. Secondly, further investigation of the Malesians must go ahead and still greater efforts must be made to introduce more of them into cultivation. Simultaneously, and one hopes, spontaneously, both botanists and gardeners should be persuaded to give this section the recognition which is so long overdue. The genus must be considered in its entirety.

### **Some Malesian species.**

Once sufficient numbers of plants become established in cultivation it should not be long before this recognition materializes. No one can deny the sheer magnificence of *R.konori* or *R.superbum*. To see the great trumpets of *R.superbum* outstanding against the fast falling night, their scent spicing the air, is an experience of a lifetime. Other species are of comparable merit but are as yet less well known. Only by much further effort to collect and introduce these plants can they be brought to the notice of everyone.

It may be well to review at this stage some of the more notable plants which we now have in cultivation. *R.macgregoriae* should probably be considered

first. One of the most exciting varieties of this species to be lately found is one with scented flowers and incredibly narrow lanceolate leaves, and there are others with much larger and better coloured blooms; by selected breeding between these varieties it should be possible to produce superior plants to any which may be found in the field. *R.konori* and *R.superbum* are now sufficiently well established from several localities, and recently Mr. Lelliott flowered *R.konori* - a world first! We will soon be able to decide which we prefer - though all are, I think, beautiful and the final decision will remain very much a matter of individual taste. For instance, the variety of *R.konori* at Edie Creek has much smaller foliage than most, closer one would think to *R.superbum* than to the typical varieties - with a fairly broad range of flower colour from an overall deep pink through white with a pink tube, to purest white. However we digress from the classification and now it may be well to consider a few species in their subsections.

In Subsection Pseudovireya, not one noted for large flowers, I feel I ought to mention *R.retusum*. Although it was collected by Lobb it is not a spectacular plant. I recently collected it from the volcano Gadeh in Java which he visited. This time a form with petaloid stamens was found which has been grown on from cuttings - if this character is stable it could lead to the refoundation of a race of "double" Malesian hybrids. Not one of those bred in the 19th century has survived. Others brought in from the wild include *R.nummatum*, a natural hybrid which I found at Edie Creek, but in itself, singularly unspectacular, with small muddy-red flowers. Some were the smallest I have seen in the genus. *R.gaultheriifolium* is growing quite well, though a form with greenish-yellow flowers might prove a better introduction. *R.invasorium* can put on quite a show on occasion with 4-5 flowered umbels of deepest red. *R.perakense* which I recently collected in Malaya has yet to show its worth. *R.scortechinii*, also from Malaya, is a pretty thing. Though it may not flower profusely its yellow colour should be an acquisition. *R.ericoides* is growing at Kew, though at the moment it is proving difficult. Plants such as these would probably all thrive in pots if they were not overwatered - an appealing thought.

In the Subsection Siphonovireya we have only captured one species as yet, *R.herzogii*, but it has proved a rare acquisition. Anyone who has admired honeysuckle cannot fail to find it appealing. Almost every locality I have visited in New Guinea has had its population - on rocks, in clay and gravel, and as a highly competent epiphyte. It may be worth recording that at the top of Daulo Pass I found a small plant whose foliage appeared similar to that of *R.cinchoniflorum*. However its identity must wait, one of the handicaps and intriguing possibilities of collecting unfamiliar seedlings.

Subsection Phaeovireya contains three of the most fabulous plants in the genus; two of them have already been mentioned, *R.konori* and *R.superbum*. Close too is *R.phaeoepulum*, a minor edition of *R.konori* from West Irian, but perhaps more spectacular is *R.hellwigii*, young plants and cuttings of which were recently collected. None of the plants I saw were in flower but the character of the foliage was in itself remarkable, a slightly scaled down *R.superbum*. Faded corollas gave hint of the dark red fleshy flowers, which had gone before. Another interesting species is *R.rarum* - enormously variable and widespread in the Highlands. Here again it is met through a wide range of situations, both terrestrial and epiphytic. By far the largest and best-coloured form I have yet seen I found as an unflowered plant near Nondugl in 1965. Already it has provided several cuttings for distribution. *R.hooglandii* could, I think, be almost passed off as a curiosity but for its remarkable aspect of foliage - it has a distinct oriental appeal, and would no doubt be striking in an expensive flower arrangement or even bonsaid. *R.dielsianum*, *R.phaeochitum*, *R.beyerinckianum* and *R.leptanthum* all appear of the same ilk, but good forms are striking and surprisingly common. The young foliage is also of quality, along with that of many others in this subsection. *R.solitarium* forms quite a large plant up to 25 feet high, and has characteristically prominent venation on the under-surfaces of its leaves. Its flowers, in generous trusses, vary from pure white to the palest pink and are strongly scented of carnations. During my latest expedition I found only one small plant of this species at Mairi Creek, out in the open, but on top of nearby Mt. Kaindi

it was regenerating rapidly along a native track through an area where many trees had been recently felled.

In the Subsection Malayovireya, *R.fallacinum* and *R.acuminatum*, were recently sent back from Borneo by B. L. Burtt to Edinburgh, their merits yet undecided. *R.malayanum* has been in and out of cultivation several times, but is now, I think, well established in Australia. It is a versatile and interesting plant with good flower colour - if only they had been a little larger. However it has been well and successfully hybridized in the past, and there is no reason why it should not be useful in the future.

In the Subsection Albovireya nothing is wildly exciting, *R.aequabile* is probably the pick of the bunch, and this has been grown by Kew for some time. *R.yelliotii* is similar to *R.inconspicuum*, but perhaps of greater merit in flower.

The Subsection Solenovireya provides us with more exciting things. *R.multinervium* with its ghostly white corollas and *R.maius*, which was recently collected from the upper reaches of the Fatima River from a superb variety. This was done from cuttings as there were no young plants to be found. The buds of this species are attractive with shining scales of a peculiar wine red colour. In general, and when growing terrestrially, it is most attractive in character with glossy foliage. *R.crutwellii*, of almost equal merit, is now well established from Canon Cruttwell's introductions under his numbers 1410 and 1430 from Goodenough Island among others, but perhaps the finest plant in the section is *R.pleianthum*. In the past I have extolled the virtues of this plant ad infinitum - I dare hardly add to this praise at the moment. It appears, however, to be growing well in gardens and a few more years should bring it to flowering size. *R.jasminiflorum* has been with us a very long time. Recently however, a seed introduction has been made from a form with a pale pink corolla tube - it may be an improvement.

The Subsection Euvireya is divided into series, but to speed up matters they

will be ignored here. *R.anagalliflorum* has been much confused with *R.gracilentum* - there is little obvious difference, but the leaves of the former seem a little more curved and coriaceous. *R.gracilentum* is a superb small rhododendron with enormous potential. It has a greater, or at least equal, appeal to any dwarf rhododendron yet to come from the vast mountain ranges of Mainland Asia. During an intensive investigation of the old gold-workings at Edie Creek recently, I found the species in superb forms with variable foliage and with flowers from the palest pink to bright red. There is perhaps evidence here of introgressions by other species involving principally *R.invasorium*. *R.womersleyi* with its distinct fastigate habit and densely set leaves is well worth growing, and when it is lit up by drooping deep red bells is very fine. In nature it prefers damp conditions and is often found growing up through sphagnum tufts. With this in mind, and having seen species such as *R.hooglandii* in similar situations I covered the beds at home with various mosses - this certainly helps to keep up humidity, the plants don't have to be watered so often, and all the Malesians appear to enjoy it - as also do such species as *R.nuttallii* and *R.dalhousiae*. *R.saxifragoides* has enormous appeal. Its tufted habit alone is unusual but its nodding blood red corollas place it in the front rank of dwarf shrubs along with such species as *R.forrestii* and *R.campylogynum*. *R.stenophyllum* with its spidery leaves has only this year been sent back to Edinburgh from Borneo - its appeal is similar to that of *R.hooglandii*. *R.citrinum*, I found it after much searching in Java perched on a mossy trunk over-hanging the effluent from a hot spring - the atmosphere highly humid. I only saw one pale yellow flower, attractive enough in its way but disproportionately small in comparison with the foliage. Its evaluation as a garden plant may take some time. *R.vandeursenii* we have in cultivation, and its comparatively large deep crimson corollas make it well worth growing, certainly of greater value than *R.commonae* which was one of the first species to be sent back to Edinburgh by Stonor. Incidentally it has not yet flowered. *R.pauciflorum* which I recently sent back from Malaya should be a choice morsel for those who like small plants amenable to pot cultivation. As I saw it, it flowers reasonably well with beautifully formed rose-red flowers. It appeared to be often dried out in moss and peaty debris, so should be able to stand a

bit of drought. *R. vitis-idaea* is excellent and has grown well and flowered twice since I introduced it three years ago; it is now growing in Australia. Dr. Sleumer informs me that one plant of *R. porphyranthes* is growing in the Netherlands and this is now being propagated. It appears to be of considerable horticultural value. *R. luteosquamatum* is certainly less so. Its small flowers close to the colour of third grade canned salmon. However, it is by far the most successful colonizer at Edie Creek where its numbers exceed by 30 per cent the next most numerous species - *R. invasorium*. It does, however, grow out in the open on extremely hot dry banks, so it may be it has useful genes, or would make a good hedge. *R. inconspicuum* is nearly related, and though I have read that this species makes great show in Papua I have never seen it produce any spectacle in New Guinea. *R. atropurpureum* from Mt. Wilhelm is a more interesting plant which should show its worth in a few years, certainly more spectacular than *R. buxifolium* which has been sent back to Kew from Borneo.

In another series, *R. pachycarpon* is one of the most interesting rhododendrons I have seen - its lemon-yellow flowers most striking. This species appears to be difficult in Australia, but no effort should be spared to ensure its survival. Recently, in Edinburgh, a small plant with similarly coloured but smaller flowers and different foliage bloomed; it was collected by the British Museum Expedition to New Guinea in 1964-65. It may be new. *R. robinsonii* while certainly inferior to say *R. javanicum* itself is nevertheless worth growing. It was interesting in Malaya as being a low altitude species growing in many cases in the rock crevices of granite ridges. Its obviously highly developed heat and drought resistant qualities should be borne in mind. *R. multicolor* has been with us for some time, and most plants in cultivation have been distributed by Kew from an old introduction. *R. javanicum* and its hybrids set the standards by which the whole Malesian section was judged in the past, and there is no doubt that it is a superb plant. Recent introductions are perhaps superior to the earlier ones of the last century and once again hybrids are being produced using it as a parent especially with New Guinea species. In the wild it forms a very substantial bush, though as I saw it not

unusually terrestrial, its epiphytic habit has been much overstressed. Perhaps the best form to date belongs to a plant in the garden at Tjibodas in Java, and cuttings of this are now growing in Australia. It is surprisingly hardy - even Veitch in the last century remarked that it succeeded well with merely the shelter of a greenhouse, and having plodded through the Javanese jungles in icy cold rains it's not difficult to understand why. The average temperature in this area is only 64 deg.F. and falls have been known to only 6 degrees above freezing. I think we may expect to hear more of this plant in the future - in fact its future may be brighter than its past.

*R.leucogigas* is a good plant, but in so far as its foliage goes, it will never have the appeal of such species as *R.falconeri* and *R.eximium*, though its large flowers will be appreciated. *R.macgregoriae* we have already mentioned, and although it is a common species both in and out of cultivation, it would be foolish to pass it off as being second rate. *R.christianae*, better known and in better variety in Australia than anywhere else, is in itself worth growing and it will be interesting to see the results of the current bout of hybridization. *R.laetum* is another plant more widely grown in Australia than anywhere else - its fragrant flowers are indeed beautiful. *R.scabridibracteum* has not its quality. I introduced small plants three years ago and still do not know their quality. *R.longiflorum* is another old timer, which may in the future be used to recreate some of the lost hybrids of the past. *R.aurigeranum* was one of the first large yellow flowered species sent back from New Guinea, and while we now have others of equal merit it still retains its charm. Only recently I saw two large bushes smothered in flower - glowing on a hillside near Bulolo. The visual impact was almost overpowering. *R.zoelleri* is a plant of similar quality, and recently I found a colony growing along a limestone ridge - the limestone, however, was overlaid with a thick layer of humus. Of the same stamp, but much better is a plant I found in the Bubu Valley above Goraina recently. From opening buds the colour of the Jade Vine, twelve flowered trusses expanded loosely over a foot into beautiful flowers coloured deep yellow inside the tube and with pale to salmon pink corolla lobes. Sufficient plants were in flower to be able to choose a superb variety, and this has been

introduced into Australia both by cuttings and seed. As no rhododendron collecting has been done in this locality, the species may turn out to be new - in any event a superb thing. *R.arfakianum* has been known since 1878, but has only been introduced to cultivation comparatively recently - it is a worthy addition. *R.culminicolum* was described not much later, in 1899 by Mueller. Its varieties *culminicolum* and *angiense* are both now grown. I have seen much of this species on the Fatima River and at Marafunga, and though its flowers are often of striking colour they are not large enough to make a real impression. *R.brookeanum* is another long established species. Some beautiful hybrids were produced in the past with its aid but it is fine enough on its own account to merit efforts being made to grow it more widely.

We have covered a great deal of ground inevitably some of it inadequately. In the future, plant hunters must not only continue to search New Guinea but also to investigate Celebes and other islands of the archipelago, and thereon north through the Philippines to Formosa. I should like to think that the main base for such operations will become Olinda, with the Australian Rhododendron Society's finger deeply in the pie. Dedicated amateurism can so often produce results which science itself is unable to complete satisfactorily. Together the combination is almost invincible.

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