

Plant Hunting in Papua New Guinea

With Special Reference to Rhododendrons

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Introduction

I wish to express my thanks to the Australian Rhododendron Society for inviting me to attend and address this Conference. It is good to meet so many botanical friends.

My Background

Little did I think when a young man that I should be plant hunting in Papua New Guinea! I have always been a keen botanist from the age of five and took my degree in Botany at Oxford. Even as a kid I longed to have a new plant after me, but I thought it a most unlikely eventuality. However I was convinced that my primary vocation was to be a priest, and that botany would remain just a hobby.

However, during the war, which I spent as a theological student and then a curate in Britain, I received a clear call to go out as a missionary to P.N.G., where many of our missionaries had been murdered by the Japanese, and the Bishop was appealing for replacements.

So, in 1946 I sailed for P.N.G. with the idea of staying five, or at the most ten years, and have stayed for 42 so far. P.N.G., its scenery, its people and its plants get under your skin. In the course of my pioneering work in the mountains of East Papua I had a unique opportunity for botanizing and of finding new plants. My childish ambition was soon fulfilled when in 1947 I found *Rhododendron christiana*.

Mount Simpson

I will start from there, as *R.christianae* was the first Rhododendron that I encountered in P.N.G., my first plant introduction into Australia, and perhaps the first P.N.G. Vireya in cultivation. It has proved a most popular species, and has been used to create many hybrids. It was named by Dr. Hermann Sleumer of Leiden, the only person who has attempted a full classification of the Malesian Rhododendrons. He named *R.crutwellii* after me, and asked me to suggest a name for the other new species, which I dedicated to my dear mother Christian, who worked with me in P.N.G. for 31 years and died last year at the age of 93. I think it is a fitting memorial. I found it on a cliff-side on the way up the mountain, its typical habitat. It is one of the yellow-orange group of subsection Euvireya and pollinated mainly by butterflies.

The other species I found on Mt. Simpson was *R.crutwellii*, tubular, white and scented, a typical member of the moth-pollinated high altitude species (Subsection Solenovireya). When I first saw it I couldn't believe it was a Rhododendron; its flowers looked more like a honeysuckle. This group of tubular-flowered Rhododendrons are unique to these islands.

The general title of this talk permits me to mention that on the very summit (3000m) I found my first P.N.G. gentians. I had always been fascinated by this genus, but little did I expect to find it in P.N.G., only five degrees from the equator. But there they were, tiny, vivid blue stars, unmistakable gentians. There proved to be two species, both of them new, and one was named *Gentiana crutwellii*. Mt. Simpson is a gruelling mountain to climb, being extremely steep, so that we were crawling on hands and knees and holding on to tufts of grass at times. Patrol Officer Greg Neilsen and I were the first white men to climb it.

The Daga Country

The next phase in my Rhododendron collecting was when I pioneered the Daga country, a series of valleys in the Owen Stanley Range between Mts.

Simpson and Dayman. Apart from an annual government patrol and an occasional plantation recruiter, it was virtually unexplored. Though stationed on the coast at Menapi, I felt it on my conscience to take the gospel to these people and to start schools and aid-posts. It was five days walk from Menapi through crocodile-infested swamps and then climbing up and down rugged mountains. I used to patrol there once or twice a year, taking a month to do it. Inevitably I found all sorts of plants, including Rhododendrons and a host of orchids. *R.christianae* was everywhere from 500 to 1800m, visible from afar, even from a plane flying over. Here and there I found the magnificent *R.zoelleri*, both on steep slopes and as an epiphyte blazing in the treetops. Also epiphytic was *R.konori* with 7-lobed flowers up to 17cms across, the sweet scent smellable from metres away. It belongs to a small group in subsection Phaeovireya probably pollinated by bats. I couldn't believe the size of it.

Above 1300m I found *R.macgregoriae* often as an epiphyte, but, on open slopes as well, ascending right up into the alpine shrubberies of Mt. Dayman. This is the commonest Rhododendron in P.N.G., very distinctive but variable in colour and shape of foliage. The wide open flower with very short corolla tube is characteristic. It hybridizes very freely with almost any species and seems to have a rather dominant role.

Before long I felt drawn to climb Mt. Dayman, on the other side of the Daga. On the way I had to cross a pass called Garatun at 1500m. There I first found the delightful little epiphyte *R.leptanthum*, with zygomorphic flowers of vivid pink. It is typical of the high altitude bird-pollinated species, whose pink to red corollas are curved to fit the honey-eater's beak. Nearby grew the magnificent orchid, *Dendrobium lawesii*, with blood red flowers, also bird-pollinated.

Mt. Dayman is reached by a spur, Mt. Mon, where huge *Nothofagus grandis* trees form a dense green canopy. On their branches are hanging gardens of epiphytes, including another new species, *Rhododendron hyacinthosmum*,

with flowers like *R.konori*, but smaller and 5-partite. They are normally white but occasionally shell-pink, and scented like hyacinths.

Higher up, in the shrubberies and 'elfin wood', was another new species, *R.rhodoleucum*, with round amplexicaul leaves and fat tubular flowers, deep pink in the tube and white at the lobes, and of course scented. In the distance they look like apple blossom. Also on Dayman we saw plenty of *R.cruttwellii*, and in one area only, another new species, *R.tuba* intermediate between *R.rhodoleucum* and *R.cruttwellii* and may be a hybrid between them. *R.cruttwellii* was also hybridizing with *R.macgregoriae*, a surprising combination. *R.macgregoriae*, that 'Don Juan' of Rhododendrons, was also hybridizing with *R.inconspicuum* to produce a delicate salmon flowered plant. *R.inconspicuum* itself is often a rather worthless plant, but some of the Dayman forms had larger and quite showy flowers.

Besides Rhododendrons the family Ericaceae includes many other attractive genera. One of these is *Dimorphanthera*, a genus of scandent shrubs, often epiphytic, and draping trees with great ropes of brilliant pink, red, or occasionally cream flowers. *Dimorphanthera moorhousiana* can be so densely covered with flowers, that you could hardly stick a pin between them. The forest floor beneath is a red carpet. I have seen them visited by honey-eater birds of the genus *Melidectes*, the colour of whose breast matches the flowers.

In 1966, having built an airstrip at Agaun, I and my mother were able to move into the Daga and live there for the next 10 years. I cannot leave the Daga without mentioning Rhododendron 'Birat Red'. I picked up a small seedling on a ridge above a gorge with a spectacular waterfall near a remote village called Birat. I had assumed it was *R.zoelleri*, and brought it years later to Goroka. When it flowered it turned out to be quite different from that species, with flowers of a beautiful soft red. It is now flourishing at the Lipizauga Botanical Sanctuary and producing seed. Is it a new species or a hybrid? If the latter, of what?

Mount Suckling

In 1972 I initiated an expedition to Mt. Suckling, which has been very inadequately explored. It was so inaccessible that we had to be dropped by helicopter into a gorge at 1500m and find our way to the top. After three unsuccessful attempts we got to 3200m on the south spur, Goe Dendeniwa, the second word meaning 'red'. It was indeed red - red rocks, red *Vaccinium* regrowth, red moss and red Rhododendrons! The whole ridge was covered with a shrubbery of *Rhododendron beyerinckianum* with bright scarlet flowers. Later the expedition did get to the summit, but I had to return early to get back to my duties. By this time they had cut a track down a ridge, avoiding the gorge, and I was able to walk out. On the river gravel in the gorge we found two more rare Rhododendrons, *R.carringtoniae*, with tubular white flowers arranged like a shuttlecock and *R.truncicolum*, which also grows as an epiphyte on the tall hoop pine trees (*Araucaria cunninghamii*) nearby. This is a new species discovered by me on Mt. Dayman. Its zygomorphic flowers are bright rose-pink.

Goodenough Island

While in the Milne Bay province I also climbed to the top of Goodenough Island which rises sheer from the sea. It was so steep that we had to spend the first night in a cave, and the second on top of a narrow col. There was no space to peg out the tent ropes, so we had to tie them to shrubs of *R.goodenoughii*, with its large white tubular flowers. This species is endemic to the island. The wind nearly blew us off the ridge but the ropes and the Rhododendron held. Saved by a Rhododendron!

Mount Gahavisuka

After 30 years in the Milne Bay Province I moved with my mother to Goroka in the Eastern Highlands, abandoning my bush life for the rectorship of a 'civilised' town. Here I started to lobby for an environmental park (which had been proposed, but nothing done) and a botanic garden to grow native highland plants as a conservation project. I explored Mt. Gahavisuka, a spur

of Mt. Otto, close to Goroka, and thought it ideal for the project. It has both dense mountain rain-forest and open savannah, with a lime-free soil, ideal for Rhododendrons and orchids. The idea would be to integrate the garden into the bush on the lines of Pukeiti.

At the age of 65 we are expected to retire from the mission. Luckily the Provincial Government, who were very keen on my project, gave me the job of setting it up and appointed me the first curator. I remain an honorary assistant to the Anglican Church, but am employed by the Eastern Highlands Provincial Government, I am in fact both a curate and a curator!

I started this work in 1982 and in the next year the Mt. Gahavisuka Provincial Park and Lipizauga Botanical Sanctuary were officially opened. A special road was built to give access. The L.B.S. is now an accredited member of the Botanic Gardens Conservation Secretariat of the I.U.C.N., based at Kew Gardens, London. Our membership is sponsored by the Royal Botanic Garden, Edinburgh, where last year we sent a young Papuan man for training in botany and horticulture. He has just returned.

Local Species

Even within the Park area (77.4 hectares = 200 acres) there is an extremely rich natural flora, including the following Rhododendrons: *Rr. macgregoriae*, *multinervium*, *herzogii*, *pleianthum*, *superbum*, *phaeochitum*, *culminicolum*, *scabridibracteum*, and *rarum* among others. The last three have bright red flowers, *rarum* being a charming small epiphyte, usually dangling from the trees. *R.phaeochitum* has highly lepidote young foliage and long pale pink flowers. *R.superbum* lives up to its name with huge 7-partite (probably) bat-pollinated flowers of white to pink with a dark centre. It is usually a robust epiphyte, often on Nothofagus.

We also have several natural hybrids and three mysteries. The first mystery is *Rhododendron '121'*, a magnificent species, as big as a small tree, whose tubular flowers are pink and white. Is it an unusual form of *R.maius*? The

second is *Rhododendron* '122', a beautiful pink-flowered species with shiny leaves and absolutely straight corollas. Is it a hybrid of *R.multinervium* x *culminicolum*, but if so why straight tubes when both the parents have curved? The third (*R.* '432') is a single plant with deep rose-red flowers. These are curved and more likely to be the hybrid suggested above. Too many mysteries!

Highlands Collecting

Since my arrival at Goroka in 1976 I have done a lot of collecting in the highlands, bringing plants back to grow at the L.B.S.. I have been to the Enga Province and collected *R.pleianthum* in white to pink, the finest being the pink form from Mt. Maip. There also are the small cream epiphyte *R.calignis* and the bizarre bi-coloured *R.christi*, both doing well in the Sanctuary. I have waded thigh-deep through Kain swamp to see the marvellous colour forms of *R.commonae* (the normal red, with near white, pink and salmon variations). I have been to Mt. Giluwe, far enough to see the beautiful *R.blackii* with its characteristic orbicular leaves and brilliant red flowers, but not far enough to see the unique alpine cushion plant, *R.saxifragoides*, which grows in high alpine bogs. I have had this brought to me and am trying to grow it in the L.B.S.. On this and other mountains I have collected the smallest of all Rhododendrons, the prostrate *R.rubineiflorum* with its surprisingly large ruby flowers.

I have climbed Mt. Wilhelm to 4000m with its rich alpine flora, including many Rhododendrons, some of them hybrids. The scenery is magnificent and a fitting setting for the beautiful *R.womersleyi* and the unique *R.atropurpureum*. Here also I found *Rr. yelliottii* and *gaultheriifolium*, two similar but distinct species, the former hybridizing with *R.commonae*. One of the most beautiful plants on Mt. Wilhelm is the shrubby *Dimorphanthera collinsii* var. *montis wilhelmi*, with deep red tubular corollas tipped with yellow. It grows between the two lakes.

I have frequently visited Wau, Mt. Kaindi and Edie Creek, where a number of unique Rhododendrons occur. Around Wau the golden yellow *R.aurigeranum* is common, so appropriately named as its colour reflects the gold in the ground. It hybridizes with *R.konori*. At Edie Creek there is (or was) a beautiful pink form of *R.konori*, which forms an unusual hybrid with *R.herzogii*. Here also are *Rr.lindaueanum* and *invasorium*, both found nowhere else. On Mt. Kaindi itself are the beautiful little *R.gracilentum*, a delicate epiphyte with single pink bells, and the robust pink and white tubular *R.solitarium*, which seldom flowers. I have brought both of these to the Sanctuary, as they are endangered species, due to the progressive destruction of Mt. Kaindi by gold-mining.

Last but not least in 1986 I went to Bougainville Island, where only two Rhododendron species are recorded. I found both of them. The tubular white but rather small-flowered *R.loranthiflorum* grows near the Panguna mine and the rare and beautiful white lily-flowered *R.luraluense*, is one of the last plants to survive at the limit of vegetation on Mt. Balbi, braving the sulphurous fumes from the smoke-belching volcanic vents above.

Although I have not been to the West Sepik I must mention one Rhododendron from there which I acquired through Paul Kores. It is *R.baenitzianum*, a rare and beautiful species allied to *R.zoelleri*, but with larger leaves and more numerous flowers with a golden centre and salmon-orange lobes. I do not think it is in cultivation.

Hybrids

Finally I must say a word about the hybrids, many of which I have already mentioned. It seems that wherever two or more species grow together there are likely to be hybrids. Section Vireya seems to be in a state of flux or, perhaps one should say, of evolution. At Litipinaga near Mt. Michael the hill-sides are covered with Rhododendrons, *Rr. macgregoriae*, *zoelleri* and *dielsianum*. These are all hybridizing freely. The commonest is *R.macgregoriae* x *dielsianum* (pale to deep salmon), and the next

R.macgregoriae x *zoelleri* (yellow to orange), the rarest *R.zoelleri* x *dielsianum* (yellow-pink). They are all charming plants, the first two combining the floriferousness of *R.macgregoriae* with the colour and size of the other two. There is a wide range of forms from resemblance of one parent or the other to strictly intermediate forms. I have many of these growing at the sanctuary and they make a pretty sight. To me they are just as attractive as many of the artificial hybrids, and do not look incongruous in the natural vegetation.

Conclusion

I would like to conclude this paper by inviting any of you to come up and visit our Park and Sanctuary, a mere 11 kilometres from the centre of Goroka. We have magnificent mountain rain-forest at an altitude of from 2000 - 2600m with superb views of mountains and valley, about 60 taxa of Rhododendrons and uncounted orchids, not to mention several species of Birds of Paradise roaming freely in the trees. Please let me know if and when you are coming. My telephone is 72 2128. Hope to see you there.

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