

WOODLAND GARDENING

WITH RHODODENDRONS, MAGNOLIAS,
CAMELLIAS AND ACID-LOVING PLANTS

Kenneth Cox

Coming soon

Scottish Rhododendron Society

Yearbook No 19

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Front: *Rhododendron citriniflorum* var. *hormaeum* in Yunnan by John Roy

Back Top: *Rhododendron leptocarpum*

Back Bottom: *Rhododendron keysii*

Both in Arunachal Pradesh by Jacqueline Petton

Editorial

It's that time again, when our Yearbook is published. This edition has articles about wide ranging subjects, and has been a pleasure to edit.

Plant diseases are a constant worry for gardeners, and our Technical Director has put together an in depth look at what is going on. He gives some insight into current problems, and possible solutions. Included is a key to diagnosing problems.

With importing plant material from the wild becoming almost impossible for most because of the Nagoya Protocol, propagating from the plants we have in our gardens is important. In this Yearbook is an article on how to hand pollinate your rhododendrons.

Following on from a previous article on *Sorbus* there is a description of another favourite grown from seed. When seed is collected, you never quite know what will germinate and an article describes how a rhododendron grown from seed has turned out to be slightly different to what was expected.

Reports on two important ground breaking expeditions to the wild are included. An article on changing landscapes, and some reminiscing of a different kind from early days of the Society conclude the contents.

As I write this, the Beast from the East has just receded, where low temperatures and heavy snowfall have caused chaos. Hopefully this has not affected your gardens too much.

Read on and enjoy.

John Roy

Back to Arunachal 2016

Jacqueline Petton

Translation: Catherine Canela

Our group of Bretons, all members of the ‘Société Bretonne du Rhododendron’, was more important this time: besides the former members (Gilles Rouau, Jacky Bronnec, Alain Bleogad, Béatrice and Gilles Stephan, Jacqueline and Jean-François Petton) two other friends joined the usual party: Patrick Bellec a leader of previous travels in China and Hervé Le Bars, just retired.

We had chosen to go back to the western part of Arunachal Pradesh, the West Kameng District, near the Bhutanese border, an area we had already explored in 2007 and 2009. Leaving from Lubrang village, we hoped we would, this time, be able to reach the Sela Pass, then botanise in the Chander area. To avoid being stopped by the snow at the higher altitudes, we decided to start mid-May, quite aware that the blooming season of some species would be over but eager to discover these familiar places later in the season.

We arrived at Guwahati airport in the Assam plain on May 15th at 7.30 am after two stop-overs in the middle of the night in Bombay and Calcutta. Somebody was waiting for us but it was not Anong, Oken’s brother who led our three previous treks, but Siddhang Gurung, a smiling and relaxed young man who accompanied us during our stay. He told us Anong was not with Abor Travels and Expeditions anymore: he organizes rafting expeditions in the Siang valley. But Siddang (Sid) proved a perfect guide, calm, mindful and full of good humour which is all the best. And what’s more he would be our cook as the person who was supposed to do the cooking had to stay in Sikkim because of the death of a member of his family. We hadn’t come to the Himalayas for the cooking, of course, but the high morale of the troops is also in the pot, really.

As planned, we did reach the Sela Pass and followed the Poshing La trail as far as Sangya, admiring some rhododendrons at their flowering peak such as *R. keysii*, *R. campylocarpum*, *R. bhutanense* and *R. anthopogon*, marvelling at the beauty of the young leaves that were just opening out on other species.

For the first time we had the great pleasure to see the flowers of the lovely perennials inhabiting these slopes: *Llyodia flavonutans*, a few *Mandragora caulescens*, lots of



Primula of course among which the rare *P. kingii* etc...

The readers who wish to know more about these 2 weeks spent in this well-known and often explored area can find a detailed report of it in English on the website of the French 'Société Bretonne

du Rhododendron' <http://www.societebretonnedurhododendron.com/trek.php>

BUT what was really new to all of us was the last days of the trip: Tashi had in mind another place in the surroundings, right opposite these Chander/Quetum slopes, on the other side of the Kameng River: the Mandala area which, according to him, was quite rich in rhododendrons and had not yet been explored by Westerners. Easy to reach by car, comfortable camping site, no difficult walk for our tired legs... As we had a few spare days before taking our plane, everybody agreed to his idea; the car drivers would come and fetch us in Thungri, drive down to Muna in the valley and up to Mandala.

At a roadside restaurant near

Above: *Primula kingii*

Right: *Rhododendron keysii*



Muna we had some food and a beer while Sid's team went shopping in Dirang and filled up the petrol tanks. The river was beautiful but the people who live on its banks use it as a dump (our beer cans were thrown away into the water under our eyes). We had to wait a long time for our guides. We could admire beautiful red birds. It was hot and dry, the vegetation was Mediterranean (albizias, pines...).

The road up to Mandala was quite narrow but recently asphalted. We arrived rather early, in the middle of the afternoon, luckily, for the heat was unbearable as there were eight of us in Oken's car; he got it back at the end of a trek which took place a week before in Mechuka: a Dutch and two New-Zealanders were looking for *Arisaema* but the trek was interrupted because of snow, rain and disagreement. We had to sit on the arm-rests to fit in the car! I caught a glimpse of some bright yellow orchids in the trees, Gilles Rouau saw *Rhododendron dalhousiae* var. *rhabdotum* and possibly *R. griffithianum* but we couldn't stop: the camp had to be set up before nightfall which is around 4.30 pm here.

On arriving at Mandala (3000m) the sky was still dazzling; the landscape was grandiose and apocalyptic at the same time: a fire had devastated the primary forest of gigantic *Tsuga dumosa*, leaving the burnt down trunks of these giants pointing their shortened silhouettes towards the sky. Planks strewn on the ground gave evidence that the remnants were now cut up by woodcutters directly on the spot, under the supervision of forest officers whose lodge could be seen nearby. Sid told us this is a preserved area.

Vigorous thickets of *Rhododendron arboreum* and *R. kendrickii* were taking over the space, taking advantage of the light the black *Tsuga* phantoms could no longer confiscate. A few maples displaying their bright scarlet samaras had taken advantage of the forest fire to grow faster and higher than their neighbours. Some perennials (possibly *Lilium* and *Polygonatum*) were just getting out of the earth.

Tashi and Sid drove to Mandala (about 3km away) and Mechopso to have a look round for the next day's outing.

We didn't start early the following morning as initially planned, because of the rain; we preferred to wait until it stopped. To make up for lost time, instead of following the road, Tashi made us cut through the hairpin bends and climb the very steep slope. We noticed, not far away from the camp, a *Rhododendron keysii* of a colour which was out of the ordinary: more of a yellow shade than the usual orange. Those of us who



Two colour versions of
Rhododendron lepidotum



went to see it were immediately attacked by leeches. A bit higher, an arborescent *R. barbatum* exhibited its remarkable trunk.

Tashi had promised a rich area and we were not disappointed: *Abies densa* with big blue cones were here as well, *Schisandra* with pale yellow flowers, *Clematis*, very floriferous *Berberis* and, as far as rhododendrons were concerned, small wonders: *R. lepidotum*, some with small pale yellow flowers, some with purple flowers, along with an intermediate pink. A little before the village of Mandala, some epiphytic *Maddenia* which were too far away so that we couldn't identify them, *R. keysii*, and mostly, an impressive population of *R. kesangiae* showing their young shoots, with an underside a golden fawn which was superb. Exceptional, these *R. kesangiae*! They reseeded themselves as fast as they could: good proof of their vigour as the plants we have seen were still quite young. Stout non epiphytic *R. camelliflorum* raised their surprising young foliage with purplish pink scales whereas the *R. megeratum* had superb red brick leaves.

Another surprise: the diversity of the indumentum at the back of the *Rhododendron falconeri* leaves, noticed by Jacky: classical bright orange for most, milk chocolate for some; a possible hybridisation but with what other species? There were only two big-leaf rhododendrons growing here: *R. falconeri* and *R. kesangiae* and none has a chocolate coloured indumentum. The few natural hybrids they have produced were easily recognizable; the mystery wasn't cleared until we got back: according to K. Rushforth, the hybrids of *R. falconeri* x *R. kesangiae* show a chocolate indumentum.



***Rhododendron kesangiae* new growth**

As for the perennials: a *Podophyllum aurantiocaulum* with short bronze green leaves, their back ribbed and shiny, was noticed by Gilles Stephan in a ditch after the whole group had gone past it with-

out seeing anything. *Disporum*, an elegant Liliacea, *Lepisorus*, a strange thread-like fern, *Smilacina*, some kind of Solomon's seal....

The old village of Mandala is hanging on a hill; it's a traditional village of stock-breeders and shepherds, made of wood huts and plaited bamboo. The roofs are made of planks on which they pile large stones. The road which was being built and which passed below the village had given birth to a one street village which sheltered the workers and woodcutters who were building it.

They were temporary houses for obviously their inhabitants follow the progress of the construction site. They were also made of boards but they had metal-sheet roofs and their surroundings were strewn with cans, plastic and scrap metal...

We came across a smiling shepherd in a traditional costume, wearing goat skins on his back and chest and a boiled-wool hood with horns.

We took a break for a meal before taking the road down towards Mechopso and this allowed us, before the group separated, to take some photos as a

Shepherd in traditional costume



souvenir. Most of the group turned back towards the camp staying on the road; Jacky, Hervé, Gilles Rouau and myself decided to keep going towards Mechopso for some time. We might discover some *Maddenia rhododendrons* at this altitude, who knows? The landscape we discovered was really worth some more walking: a very green slope showing, like a patchwork, the remnants of a primary forest (majestic *Tsuga dumosa*) lost amongst a dense population of *R. arboreum*, *R. kendrickii*, *R. keysii* and *Clethra* which looked as if they were going to conquer the territory which was left available. We were rewarded with the discovery of a *R. leptocarpum* which was beginning to open its flowers, a first for me. Another new plant: a large white anemone with mauve petal undersides.

On the way back we followed the road, scrutinizing in vain the ditches, looking for *Podophyllum* at the beginning and then for mauve *Rhododendron lepidotum*, which were not easy to find as the plants in flower were rare. What's more, they grew isolated, hanging over the rocks above the road in well drained places. We came across an obvious hybrid of *R. kendrickii* x *R. barbatum*, as wide as high, and a beautiful *Enkianthus deflexus*. We discovered a very small plant on a vertical face made of clay and lichens, a *R. lepidotum* perhaps, with extremely tiny leaves. We were back at the camp a little after 5 pm. It hadn't rained since we left!

Wednesday, June 1st: it was the end of our trek; we had to go down to the valley and be at our hotel around midday. After breakfast we took another group photo, this time for the Abor Country Travels. Then we walked back for a few kilometres on the road to Dirang while our equipment was being packed into the vehicles.



We noticed a few *Rhododendron lepidotum* again (two of them with mauve flowers), a young specimen with its foliage showing similarities with both *R. thomsonii* and *R. sherriffii*, some *R. grande* and a bit lower down a *R. dalhousiae* var. *rhabdotum*, some *R. edgeworthii*. In the area, there were quite a lot of *Schefflera*, young *Magnolia* and numerous species of peren-

Enkianthus deflexus

nials like *Arisaema* and *Pyrola*. Later on, a short stop allowed us to get out of the vehicles to admire some *Dendrobium* with yellow flowers which grew as epiphytes on the trees along the road.

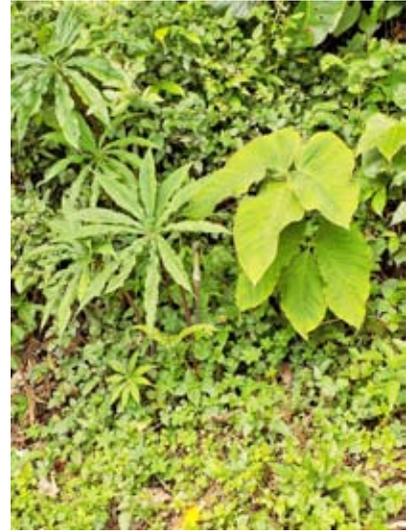
We were in Dirang, which was very busy, before midday but Tashi insisted on inviting us to his place on the other side of the town to eat momos (bought in a shop) with beer and tea. The road was being tarred, so the way there we took 45 minutes but on the way back, an hour and a half!

Finally we reached the Pemaling Hotel, but at 4.30 pm. We had to shower, sort our things and tidy them up; we didn't have much time left and the nap we had been looking forward to had to be forgotten! In the evening we met Tashi, his brother, one of the drivers and Sid in the restaurant of the hotel to say goodbye. A 'Trek 2016' cake had been made by the hotel staff.

On the day after, June 2nd, a long drive down the valley from Dirang to the Mahseer Balipara Reserve was awaiting us. We left at 7 am in beautiful weather. Hardly 15 minutes later an unexpected traffic jam stopped us in Dirang-Bosti: yes even far away from everywhere, the only North/South Road of the Kameng can be overloaded... Once more we had to push the pick-up truck; it still had a starter problem. The next stops would be first for a quick photo of the snowy Mount Gorichen and then, another one 3km before Bomdila when we caught sight of a *Rhododendron dalhousiae* var.

rhabdotum, hanging as always from the mountain side; one of our drivers climbed up and after some acrobatics, got us a superb branch covered in flowers. We took advantage of this to loosen our legs a bit, walking for some time along the road looking for *R. boothii* which grows at this height. We hadn't found it this year. However, Gilles Rouau discovered at last a few specimens of *R. griffithianum* and as for Béatrice, she found a

Doritis taenialis



Arisaemas



Photo by Patrick Bellec

tiny orchid with mauve flowers (*Doritis taenialis*). The last stop would take place at a spot of *Cardiocrinum* in full bloom growing in great number on each side of the road on steep slopes.

It had taken two and a half hours to cover the 27 kms which separate Dirang from Bomdila. From then on we would go without stopping towards Mahseer which we reached at 2.30 pm.

Oken arrived at just about the same time as we did, his arm in a sling because he had broken his collarbone in a motorbike accident. We were received in this tea plantation by a couple: Leslie, a British woman born in India and her husband who was of Indian origin. Four of our porters left immediately towards Itanagar. As for us, after a nice lunch and a refreshing bath (since the temperature was about 34°C), we would fill the rest of the afternoon in a very nice way, walking across this nature reserve, planted with old tropical trees and full of animals more or less noisy: monkeys, birds, colourful butterflies, huge snails, dragonflies, fireflies...) We discovered that this haven of peace was protected by barbed wire and that soldiers firing in bursts, very close, troubled this heavenly atmosphere.

The next day, June 3rd, we had to go to Guwahati airport (a 4 hour drive); we waited for the cars for more than 2 hours and in spite of the motorway being finished, we got there just in time to have our luggage checked in; we had just a few bananas and apples as a meal. Oken honoured us with his company down to the very last minute.



Cardiocrinum giganteum

Finally we didn't regret this choice of a later date to botanise in the places we had partly explored previously: we had been able to go everywhere without being blocked by the snow; we had admired blooms in late flowering rhododendron species such as *R. anthopogon*, *R. bhutanense*, *R. campylocarpum*. The beauty of the young foliage in earlier flowering species largely compensated that their flowers were over and the perennials, earlier hardly out of the ground, showed us their first corollas, a promise of wonderful pastures covered in flowers in June and July. One could stay in these mountains for a whole year without ever getting bored.

**Pictures in this article by Jacqueline Petton
except where indicated**

Another Small Rowan – *Sorbus rufopilosa*

Anne M Chambers

The article by Ian Douglas in the 2017 Year Book prompted me to describe my favourite small rowan, *Sorbus rufopilosa*, its relationships and how I came by this little-known species.

In the autumn of 1990 I was a participant in a group led by Keith Rushforth shortly to enter Tibet; we proposed to follow in Kingdon Ward's footsteps and cross the Doshong La into the fabled land of Pemako. Then word came that our destination could not be guaranteed, alternatives were suggested and a majority opted for Bhutan. Although deeply disappointed that our long-planned trip had to be delayed – until 1995 – I looked forward very much to seeing Bhutan. It soon worked its magic, the country, its people and flora were endlessly fascinating.

The trip was not without challenges; we travelled out on October 1st, theoretically at the end of the monsoon, and safely negotiated Bhutan's notoriously landslip-prone

roads but towards its eastern border with Arunachal Pradesh torrential rain swept away a bridge ahead and subsequently another behind, causing us difficulties. This was the first time I had been in the company of 'leaf-turners' and experienced their intense dedication in pursuit of the genus *Rhododendron* which carried on into the long evenings. I was looking for the autumn-flowering alpine mentioned in Ludlow and Sherriff's accounts – a couple of *Codonopsis*, several *Gentiana* and related *Lomatogonium* species and the orchid *Pleione praecox* were in bloom, but to find *Pleione saxicola*, previously only recorded from SW Yunnan, was truly special.



On the return journey descending the Ura Shelting La we stopped at a thicket of a *Sorbus* about 2.5 metres in height, subsequently identified by Keith as *S. rufopilosa*. I collected a few of the small white berries which produced several very slow-growing seedlings; they proved completely hardy. I retained a couple in our very exposed, wet garden, and gave one to a friend in Kirkmichael, Perthshire which after a few years was moved to a much drier garden in Cupar, Fife. Now, 27 years later, all are mature trees of 2.5 metres, more or less fastigiate in habit, with an attractive delicacy of foliage in spring and prolific in fruit. In autumn last year I was surprised to find that the two *S. rufopilosa* trees at Dawyck gardens, apart from having the same foliage and berries, were quite different to mine having probably twice the height and girth and a spreading habit; and these were recorded as collected on the same 1990 trip by two SRS grandees, Clark and Sinclair!

My friend Keith explained to me that *Sorbus rufopilosa* is usually considered as a variable diploid but what is called the taxon *rufopilosa* may be an aggregate of micro-species, either way showing considerable variation. The taxon was found at various places in the 1990 trip and C&S had almost certainly collected the Dawyck berries at a different site in Bhutan from my collection.

Sorbus rufopilosa is closely related to the *S. microphylla* agg. but has smaller berries and leaflets and is distinguished by its pink petals in a cup-shape while in *S. microphylla* the petals are white and spreading. I quote from Keith's Trees of Britain &



Europe – ‘This makes a delightful species with its fern-like feathery foliage, with the many small leaflets coalescing into an attractive blur.’

Previous page and this page:
***Sorbus rufopilosa* berries**

Photos by Anne Chambers

Reproducing Rhododendron Species from Seed

Alan Anderson

Except possibly for natural layering, seed is nature's way of reproducing rhododendrons and the process is not difficult to replicate under human control. One of the benefits of hand pollination for species of known provenance is the maintenance of the gene pool rather than the restriction of variability due to the vegetative replication of named/selected/award winning clones (the favoured status of which may, in any case, be due to some element of hybridity). So, in the interests of "species conservation", reproduction by seed is the way to go. I shall focus on propagation of species though, of course, the techniques are similar for the creation of hybrids.

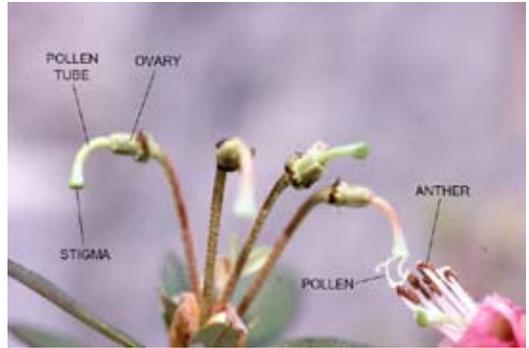
What we need is pollen from a plant that is of a clone **different** from the one that is to produce the seed. Very few species will successfully "self" i.e. produce seed with pollen from a plant genetically identical to the seed parent. Even if apparently viable seed is produced, it may not germinate or the seedlings may die young or produce poor quality plants. A few species will self successfully for some clones e.g *Rhododendron schlippenbachii* "Sid's Royal Pink" works quite well. But notice that the offspring are not entitled to be labelled "Sid's Royal Pink" since they are genetically different from that clone. On the other hand, selfed seed from a particular numbered collection can retain that number since the offspring remain representative of that gene pool.

The hand pollination (HP) technique involves replication of the activities of the bees whilst firmly excluding them from the process. The pictures demonstrate the sequence that needs to be followed. The seed parent (in this case *Rhododendron charitopes*) must have flowers that are not quite open. The petals and anthers must be removed using nimble fingers, scissors or tweezers - whatever works best for you. (Species such as from Section Pogonantha will be particularly challenging for ageing eyes and fingers!) The pollen should come from the anthers of a flower that is also unopened lest a previous bee visit has produced contamination. The pollen will stick readily to the stigma of the seed flower (see photograph). If not, it may be necessary to wait a few days. Occasionally, it is hard to find pollen or the anthers will not release it without some careful squeezing. For beginners, the easiest species are such as the Fortunea subsection which always produce vast amounts of pollen. Repeating pollen application after two or three days is sometimes beneficial. Some people like to wrap

the pollinated stigma in foil or sticky tape to guarantee bee exclusion - this is called “controlled pollination” (CP) - but absence of petals and anthers seems to be all that is required to exclude the bees’ interest in that flower. Only a few flowers need be pollinated and, of course, they must be labelled and a pollination diary kept to ensure correct harvesting.

Now we have to hope that there will not be a frost - a problem for early flowering species - and it may be worth trying to contrive some form of protection or you may even have been able to take the plant indoors temporarily. Assuming all is well, the pollen will grow down the pollen tube, the seed pod (ovary) will begin to swell and the seed can be harvested around October. Some species such as *Rhododendron brachycarpum*, *R. macrophyllum*, *R. pumilum* will readily shed seed earlier than this so they must be carefully monitored lest all your hard work is scattered to the winds! The seed pods will generally open in gentle heat in whatever (carefully labelled) paper packets you have used for harvesting but some may need manual intervention although this will produce more chaff which needs to be sieved out. If you have ended up with more seed than you need, the excess can go to the seed exchange or can be kept viable for a few years in a freezer.

When it comes to sowing the seed, everyone has their own favourite techniques. The usual sowing medium is peat and lime-free sharp sand or vermiculite in some ratio - I use about two thirds finely-sieved peat. In my experience, sowing indoors with bottom heat and overhead lighting can too easily stimulate growth of mould so I always sow outdoors in late May. I use two-inch labelled plastic pots, watered initially from below and covered with fine-mesh plastic shading to protect from both sun and heavy rain. The seed must be sown thinly and evenly and, to assist this, I mix the seed with a small amount of silver sand to help show where the seeds are landing on the medium. A brief gentle spray will help “glue” the seeds to the compost and this can be repeated at intervals as the seeds germinate over the following weeks. If the seedlings show signs of toppling over, a scattering of more silver sand will help anchor them. After a few weeks, you will have an array of riches such as that shown in the final picture; the slats around the decking there allow a good regime of dappled sunlight to reach the young plants and application by spray of very dilute liquid fertiliser will encourage good growth before autumn sets in. The following spring, pricking out into individual pots or into communal trays with some slow release fertiliser will complete the propagation process.



**Pictures by Alan Anderson
Clockwise from above:**

Unopened flowers on the left suitable for seed production. Those on the right are too open even to supply pollen

Applying pollen to stigma

Ripening pods amongst new growth

Seed harvest. Send some to seed exchange.



Seedling growth by late July



Small Problems

Richard Firmin

There are a number of reasons why we are becoming increasingly aware of garden pests and diseases. Perhaps the least depressing of these is that we (or maybe ‘they’) are getting better at both detecting and identifying the various organisms that we would love to do without. So not all ‘new’ diseases are particularly new. For example, *Dothistroma* needle blight may have been present in Scotland since the 1960s. And *Chalara* ash dieback probably existed in Norfolk ten years before being noticed.

Increase in global trade, and in particular the nursery trade, is an important factor in introducing unwanted life forms to our gardens. There have been major changes in sourcing woody plants for use in Europe since 1995 with a greater emphasis on imports from Asia. As gardeners we share some responsibility as we are ever eager to try new plants in our plots, despite the associated risk of their unwanted hangers-on.

What is the nature of this risk? Simply put, that our familiar garden plants, both native and exotic, are brought into contact with pests and pathogens which, during the long ages of their evolution, they have never encountered and to which they have little or no resistance. An analogy would be the disaster inflicted upon the indigenous peoples of the Americas that resulted from the imported maladies that accompanied the European colonists.

Another factor in this flow of horticultural horrors is climate change; and we shouldn’t really be surprised by this. Birdwatchers have noticed the trend in their particular field of expertise over the last thirty or more years. I can remember submitting an article to the local newspaper announcing the arrival of goldfinches in Ellon (Aberdeenshire). This Mediterranean species is now common throughout the country, and has been followed by a number of its much larger cousins. Little egrets are not an uncommon sight now in most parts of the UK. This summer I saw my first ‘British’ great white egret at the Loch of Strathbeg. Common cranes are nesting ten miles from here. And most of the other large marsh birds that not long ago one would have had to travel to Spain or Greece to observe are now setting up camp in GB. Likewise, a number of nesting species that were previously resident here at the southern end of their range have shifted northwards. This ‘canary in the mine’ alert should have had us prepared.

According to the World Meteorological Organisation, the past five years have been the warmest on record. Relatively small temperature increases can make a lot of difference to an organism's survival prospects. This is not to say that climate change is the source of our horticultural nightmares, however; but it can be a contributory factor. For example, in Canada forest fires have devastated large tracts of commercial forestry in recent years. Monocultural blocks of lodgepole pine have been killed by a bark-boring beetle that has transformed the forest to bonfire material. The beetle is not an exotic species there, but it used to be controlled by colder winters.

Of all the plagues and pestilences currently visited upon UK gardeners those labelled *Phytophthora* tend to cause the greatest concern. Perhaps they should – the word translates as 'plant destroyer'. And when the plant concerned is a staple of the nation's food supply then the consequences can be severe, as witnessed by the Irish in the mid-19th century when *Phytophthora infestans* wiped out the potato crop.

Potato blight is still a considerable problem for farmers and gardeners, though it can be managed in various ways, including preventive spraying, the use of resistant cultivars, or the immediate removal of foliage once the disease has manifested itself.

For rhododendron growers, prevention is the best strategy for keeping phytophthoras at bay, though an integrated approach, involving appropriate hygiene and cultural practices, biological controls and host resistance, is likely to prove most effective.

What are phytophthoras? They are microscopic, fungus-like organisms belonging to the phylum *Oomycota*, the water moulds, more closely related to algae than to true fungi from which they differ in several ways: they contain cellulose and beta glucans in their cell walls, whereas true fungi 'use' chitin; they have diploid vegetative hyphae that lack cross walls; and their motile zoospores possess two flagella, as opposed to one. These differences translate into a response to fungicides that differs from the response of true fungi. However, I would suggest that for most SRS members the use of fungicides to control phytophthoras is not an option.

There are now more than 116 formally described species in the genus *Phytophthora*, though probably somewhere between 200-600 awaiting classification. *The Compendium of Rhododendron and Azalea Diseases and Pests*, 2nd edition, published by the American Phytopathological Society, lists six that cause root rot in *Rhododendron* and twenty-one that cause dieback. Some do both and, as the *Quick Guide to Diag-*

nosis Based on Symptoms indicates, root rot and dieback can produce similar effects. UK growers are unlikely to encounter all of these species, which differ in various ways, including host specificity and optimal temperatures and pH for infection.

One important generalisation that applies to them all, whether they invade the host through the roots (e.g. *Phytophthora cinnamomi*) or the foliage (e.g. *P. ramorum*) is that water is an essential vehicle for their transmission.

What do they look like? Under the microscope, an infected host plant can be seen to be invaded by thread-like structures, called hyphae, which bear the sporangia from which the motile zoospores are released. Two other kinds of spore – chlamydospores and oospores - can also be produced, which in turn give rise to sporangia and zoospores when given the chance. They can survive in plant debris and soil for many years, and can be inadvertently transported on footwear, bicycle tyres and the coats of small mammals, including your dog – which is why it is important to use disinfectant foot mats, when provided at public open spaces, and to comply with restricted access notices.

In the case of phytophthoras that cause root rot, the zoospores escape from sporangia in wet soil and swim through surface water to infect the root tips of host plants, to which they are chemically attracted. The pathogen then advances by hyphal growth into major roots. A film of water is also necessary for dieback infections to be initiated – a process in which splashing from rainfall or irrigation brings zoospores or sporangia into contact with foliage.

The most notorious culprit for causing dieback in rhododendrons in the UK is *Phytophthora ramorum*, dubbed Sudden Oak Death in California where it has caused havoc in native *Quercus* species. In this country *P. ramorum* has decimated commercial larch plantations in addition to the grief endured by rhodo-enthusiasts. It is worth pointing out that the hugely-invasive *R. ponticum* serves as a principal reservoir and vector for *P. ramorum*, though it has numerous other hosts, which include *Camellia*, *Pieris* and *Viburnum*; and a wide variety of familiar trees, including *Fagus sylvatica*, *Aesculus hippocastanum*, *Castanea sativa*, *Pseudotsuga menziesii*, *Chamaecyparis lawsoniana*, *Picea sitchensis*, *Quercus rubra*, *Q. cerris* and *Q. ilex*. The main outbreak area in Scotland of this species of *Phytophthora*, which can be transported by rain-laden winds, is the relatively warm and moist south-west and of the eleven most recent statutory plant health notices issued (31/8/17) eight were close to this ‘management zone’ and only one in the drier east of the country.

While there is nothing we can do to influence prevailing weather patterns – apart from supporting all efforts to address climate breakdown – there are some measures that can be employed to reduce the spread of these water-borne organisms, particularly within the small-scale nursery operations with which amateur growers are involved. Many of us, for example, take advantage of the SRS Seed Exchange – a guaranteed method of obtaining rhododendrons free from *Phytophthora* – and will therefore be using pots, soil-less media and other nursery techniques to raise plants that will ultimately be transplanted into gardens. Likewise, propagating from cuttings takes us into a similar area of cultural practice in which good water management can reduce the risk of infection from these pathogens.

What are some of these measures? First, it is paramount that growing media do not become waterlogged. Free drainage is essential, and can be aided by the addition of perlite, vermiculite or coarse bark to the potting mix. The presence of tree bark may help in another way, outlined below.

Secondly, it is important that containers are not sitting in puddles of water that can be splashed on to foliage. Pots therefore should not be placed on a non-absorbent surface such as black polythene; in preference use a ground-cover fabric through which water can drain, or place containers on a layer of gravel or bark to achieve a similar result.

If using mist or overhead irrigation, avoid recycling the water for the same purpose and, if available, use pre-chlorinated mains water in preference to an untreated supply. If you are using a method of watering that involves wetting the foliage, do this during the middle of the day, which will allow the leaves to dry before the evening.

It is also sensible, if space is available, not to cram containerised plants too closely together. Separating them will allow for a freer movement of air, in other words a drier micro-climate; and it will help prevent the spread of infection from a diseased plant to its neighbours.

Similar precautions can be taken in non-containerised situations. For example, using raised beds, or planting on mounds, improves drainage around the root system, as does the addition of coarse bark to heavy soils.

Needless to say, none of these precautions will prove effective if other basic hygiene measures are ignored. Reused pots and trays should be disinfected, as should knives

and secateurs. Plant debris should be removed from propagation areas. Cuttings should always be taken from plants that are free from disease. New plants should be obtained from a reputable nursery that practises appropriate phytosanitary procedures and which is obliged to issue Plant Passports if moving susceptible species between and within EU countries.

The Plant Passport provides documentary evidence that the plants have been grown by a registered producer whose premises are regularly inspected and who is authorised to issue Plant Passports; that the plants are, to the best of the producer's knowledge, free from all quarantine pests and diseases and, where appropriate, grown in an environment which is also free from pests and diseases; and that plants imported from outside the EU have been landed by a registered importer, inspected on arrival in the UK or in another member state and found to be free from quarantine pests and diseases prior to being passported for movement within the EU.

Authorisation to issue passports is granted annually on the basis of an official Plant Health and Seeds Inspectorate inspection of the plants during the growing season and a check on record keeping. *Phytophthora* is a notifiable disease and it is the PHSI who should be contacted if necessary. If the disease is confirmed then the protocol requires not planting susceptible plants within a four metre radius around an infected plant for three years, or removal of the top half metre of soil from within the same radius.

It should be borne in mind that the presence of infection, particularly of root rots, is not always obvious. A recent microscopic investigation of several California nurseries detected phytophthoras at all of them.

As with potatoes, the roguing of infected plants and pruning of shoots that are manifesting dieback can help reduce losses. *Phytophthora* dieback tends to affect young foliage first, before colonisation of older stems, so cutting back to below discoloured wood may well save the plant - though preventing its appearance in the first place is clearly preferable.

The trend from open-ground commercial nursery propagation to container-grown stock has exacerbated the problem of diseases like *Phytophthora*, and one reason may be that the use of soil-less media removes the growing plant from the milieu of soil-borne organisms that help regulate the activities of pathogens. However, it has been noticed that potting media that contain tree bark exhibit a degree of suppression

of *Phytophthora* root rots. It is thought that these tree-derived tissues release certain compounds that inhibit zoospores and sporangia. The use of bark therefore has the potential to limit infection by more than one means.

In our Aberdeenshire garden we use bark – or more precisely wood chips – for a number of purposes. This material is generated in huge quantities by tree surgeons who these days neither burn nor tip the waste products from their operations, but feed them through chippers. Tree material of anything up to four inches of stem diameter – or more if there is no demand for the firewood – is thus converted into a readily transportable and useful material, bark and all. Our primary use of this stuff is as a surface mulch in the woodland garden – usually applied after it has composted for several months in a large heap. Wood chip mulches prevent the germination of weed seeds in the soil below; they help conserve moisture, regulate temperature changes and, over time, break down to produce a friable, free-draining woodland soil. There is some evidence to suggest they deter the movement of slugs and snails that threaten the hostas that grow among our rhododendrons (pine needle mulches are particularly effective in this respect). We also use the same material to mulch container-grown plants, both rhododendrons and hostas, to curb the invasion of mosses and liverworts. The possibility that this woody material might also encourage microbial activity that suppresses phytophthoras is an added bonus.

Is there a risk that importing wood chips could introduce pathogens into the garden? The short answer is yes, though effective composting should minimise that risk. It is up to the individual gardener to decide whether the obvious advantages are outweighed by the possible downside.

Further research into the specific activity of micro-organisms may well provide gardeners with an off-the-shelf remedy. Such biological controls already exist – for example those products containing *Trichoderma harzianum* – but broader-brush approaches have produced positive results: not just the use of composted bark but also composted green waste and compost teas, all of which tend to create a more favourable root zone ecology.

Most of the fungicides used against *Phytophthora spp.* tend to check their development rather than eliminating them, so have the potential to mask the symptoms in a diseased plant. Biocontrols are also unlikely to be 100% effective. It is probably worth emphasising again that prevention is the best approach, employing time-tested methods of good husbandry, not least because the damage created by phytophtho-

ras is often exacerbated by secondary causes. For example, mechanical damage can result in wounds through which infection occurs. Plants already weakened by another pathogen may fall prey to phytophthoras, and vice versa. Rhododendrons growing in less than optimal situations are more likely to succumb. In this context the importance of good drainage has already been emphasised, but the danger of over-feeding should not be ignored. Excessive concentrations of nitrogen in the foliage render a plant more susceptible to attack. Close spacing can lead to overly humid conditions in which phytophthoras and other fungal diseases are more likely to thrive. Heavy weed infestations can have the same effect, but can also deprive a chosen plant of sufficient water and nutrients, weakening it in a different way. Good gardening focuses on providing the optimal micro-environment and, in particular, a healthy soil. As an organic grower I would recommend the use of seaweed-based plant stimulants in preference to synthetic fertilisers.

Recombining genetic variability may prove to be a solution to the problem of phytophthoras in the future. Not all species or hybrids of *Rhododendron* exhibit a similar susceptibility. According to *The Compendium*, of 198 species tested for resistance to *P. cinnamomi* (a major cause of root rot), *R. davidsonianum*, *R. arboreum* ssp. *delavayi* and *R. pseudochrysanthum* are the most resistant. An article in a recent edition of *The Journal of the American Rhododendron Society* (Vol. 71 number three) describes a resistance breeding programme based on *R. hyperythrum*, a species highly resistant to root rot as well as being heat tolerant. Thus there is already scope for the introduction of *Phytophthora*-resistant hybrids. Perhaps it is not too much to hope that in time, the genes responsible for resistance could be isolated and introduced into genetically modified species.

Phytophthoras, of course, are not the only bane of rhododendron enthusiasts. Perhaps the most widely observed pest of our favourite genus is the cushion scale, *Pulvinaria floccifera*. Like aphids, this tiny insect that affects *Camellia*, *Ilex*, *Taxus* and some other evergreens as well as *Rhododendron*, possesses the mouthparts that enable it to suck sap from its host. But it is the other end of the scale that causes the problems. *Pulvinaria* excretes a sugary honeydew that coats the upper surfaces of the leaves on to which it falls, creating an ideal substrate for non-parasitic fungi known as sooty moulds. The resulting black coating of the leaf surface has the potential to limit the photosynthetic activity of the host plant, thus reducing its vitality and in the worst-case scenarios leading to mortality.

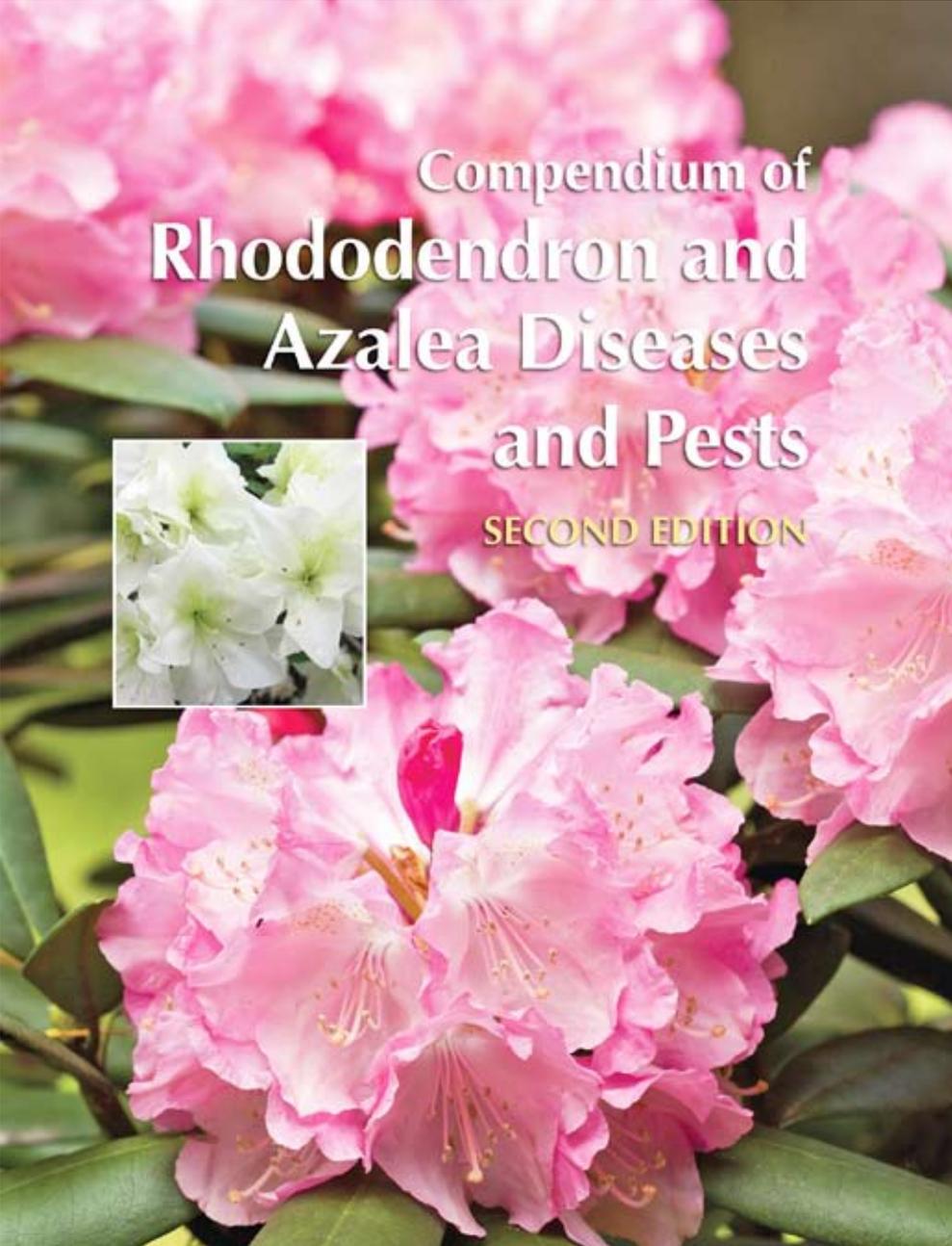
The devil you can see is probably less threatening than the one that you can't, though

if it were not for the secondary effect caused by the mould it would be easy to overlook the cushion scale. This yellowish-brown, oval insect, up to 3mm in length, can be found near the veins on the undersides of leaves, along with the clusters of eggs that are produced in the summer. Unlike plants infected with *Phytophthora*, which are frequently doomed by the time the disease is manifest, the victims of cushion scale are treatable by gardeners provided that they are neither too big nor too numerous.

Sooty mould will of its own accord flake off the leaves during summer and on small plants can be removed by wiping the foliage with a damp cloth. It is also possible to control the insects with pesticides that are available to gardeners. These include organic sprays based on plant oils or extracts, or fatty acids, or on pyrethrins. All are best applied from late June – July, when the more vulnerable newly-hatched scale nymphs are present. These organic contact sprays need to be applied thoroughly to the undersides of leaves, and repeat applications may well be required to deal with successive hatchings of nymphs. The same applies to non-organic contact sprays such as Bayer Sprayday Greenfly Killer and Westland Resolva Bug Killer. Alternatively, growers can use a systemic insecticide containing thiacloprid such as Bayer Provado Ultimate Bug Killer, which is absorbed into the foliage and ingested by the young scales as they feed.

I should point out that I have no personal experience of dealing with cushion scale in my own garden, though have noticed with alarm its disfiguring effect on various rhododendrons growing at Stonefield Castle in Argyll, as well as being informed of its agency in the demise of a notable rhododendron collection at Blackhills, near the Moray coast.

When Ian Hamilton Finlay asserted that ‘certain gardens described as retreats are really attacks’ he might not have been thinking about pests and diseases. However, our growing awareness of undesirable critturs has the potential to undermine the peace and tranquillity of our personal Edens. We would all surely benefit from the shared experience and expertise of fellow SRS members. Please send emails to rsf@airdlin.com



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SECOND EDITION

Quick Guide to Diagnosis Based on Symptoms

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Lost Gardens

Mike Thornley

Robert Adam spent almost his entire working life at the Royal Botanic Garden Edinburgh, first as an assistant gardener, then as a draughtsman preparing lecture material for Isaac Bayley Balfour, the Regius Keeper and professor of botany, before being promoted to assistant in charge of the photographic studio in 1914 and, finally, as botanist, a position he held until he retired in 1950 (Padget M “Photographers of the Western Isles” Edinburgh 2010). However, Adam’s greatest contribution was not to horticulture but in the recording of the landscape of the highlands and islands of Scotland, which he undertook in his spare time, on holidays and at weekends. When Adam retired, and moved to Speyside, the carefully catalogued glass plate negatives that accompanied him are said to have weighed three quarters of a ton. They were bought by DC Thompson and Co of Dundee and used to illustrate numerous articles in the “Scots Magazine” and are now housed in the archive at St. Andrews University.

These extraordinarily evocative black and white photographs capture a landscape and way of life prior to the Second World War that has now vanished. One well known image, ‘Tarscavaig, Isle of Skye September 1931’, was photographed in the late afternoon, and shows long shadows being cast across recently cut croft fields, the hay waiting to be turned and gathered into stooks, a thatched blackhouse in the foreground, and in the distance the fretted skyline of the Cuillins beyond the Elgol peninsula.

The same image appears in Fraser Darling’s ‘Crofting’, published in 1945 to encourage the modernisation of crofting practices. Another of Adam’s photographs in the book is ‘Crofts at Ardtoe, Moidart’, a record of thatched dwellings hunkered down on a bare, sea bound peninsula of outcropping rocks, small fields where every square yard of usable land was as cultivated and tidy as a well looked after garden. This year we made the mistake of going to Ardtoe to find the spot where Adam had stood to take his photograph. The peninsula had all but disappeared under a sea of invading *Rhododendron ponticum*, a dilapidated mobile home was parked in a patch of rank grass, the croft houses lay in ruins and an industrial looking marine research building dominated the site. We turned around and drove back across the flat expanse of Kentra Moss.

On a pin board in my bedroom is a faded postcard of the garden at Jura House. Originally this was the walled kitchen garden, at some distance from the house, which in the 1970s was developed by the then owner and his gardener, Peter Cool, into an exotically beautiful West Coast garden. The postcard illustrates the principle feature, a narrow rill - with interspaced stoop wells - that bisected the steeply sloping site, which was transformed by laying out billowing beds of tender plants that defined small lawns, everything fluid and mobile within the strictly rectangular confines of the high boundary walls.

We had come down from Colonsay on the ferry on a wet day in midsummer when the mist lay across the sea and land, and were dropped off at the garden by the owner of Barnhill who was on his way home to his house at the top of Jura where George Orwell had written his book '1984'. Pitched on a small piece of flat ground below the garden was a large tent, erected for the season so that the few visitors could be offered tea and home baking which Peter's wife and a friend wheeled down from the house in an old-fashioned pram (the same kind of pram that Stanley Spencer used to push his canvasses and paints around Cookham). We bought packets of seeds that Peter had collected, filling envelopes left out for sale in the potting shed, so that we could take a small part of the garden with us, and also bought the postcard.

Subsequently the estate was bought by a fund manager. The walled garden was closed and Peter and his wife departed. The shepherds and other estate workers were given notice and the owner built a private golf course on Jura's intractable land, new people being brought in to manage the facility. Over the years the postcard has faded, the once explosive colours of the exotic plants have nearly disappeared, but I am reluctant to take it down.

A few years ago, at the Early Bulb Show in Dunblane, Betty Ivy thrust a box of 35mm colour slides into my hand, saying that she had been going through her late husband's slide collection and thought that some of them might be of Glenarn. Bill had been here on a day in spring sometime in the early 1970s. One was of the large *Rhododendron campylocarpum* ssp. *caloxanthum* that used to greet visitors at the top of the drive, now long gone. Another was of a prodigious plant of what would have been known then as *R. cinnabarinum* var. *roylei* dripping with flowers to the exclusion of all its foliage, growing on the edge of Granny's Hens. Powdery mildew slowly killed it, as it did the replacement that we bought while on the 1987 SRS tour of the gardens of Berwickshire, at Whitchester, the Landale's garden that itself was beginning to fade away (eventually reaching the status of a re-discovered lost garden).

Also photographed on Granny's Hens, looking a bit out of context and gawky, was *Rhododendron* 'Crest' which succumbed too. Again we found a replacement, this time at our local Ardencapel Nursery, but it went the same way as the original, as did the nursery, which has lain empty these last 20 years awaiting re-development for housing. The only sign of its previous existence is a strip of interesting shrubs and trees that Tony O'Connor, the manager, had planted along the edge of the road to attract the customers, including a large *R.* 'Crest' of robust constitution that still stands, like a film star at a photo shoot, amidst the surrounding dereliction.

However, there was one slide that did not seem to fit, try as I might to rationalise the view and make it conform to some recognisable part of the garden. Captured and condensed within its cardboard mount was a luminous image of beautifully mounded, mainly dwarf rhododendrons humping down a slope, a background of thinned woodland, and what appears to be water, the sea perhaps, beyond. Where was this garden that appeared so natural that it might have been in the wild, were it not for the almost theatrical variety of the plants and their colours? Certainly not Cornwall, but which Scottish west coast garden? Crarae, possibly, before it had grown up, or the hillside at Benmore? Neither seemed right.

A more prosaic looking print of the slide revealed a spreading *Rhododendron williamsianum* in the foreground, a medley of rhododendrons behind, and further away a magnolia in full flower. There was still a dreamlike quality, familiar but somehow warped, and so while I could not place the magnolia (which had gone before our time) it was the lipstick red of the hardy hybrids, edging the unseen main lawn, that gave the



game away and I had to admit to myself, very reluctantly, that the photographer had been standing at the side of the quarry at Glenarn, looking down and across the Rock Garden as it had once existed, idyllic but now as out of reach as the Scottish landscapes of Robert Adam.

The Scottish Rhododendron Society Timeline Highlights

Willie Campbell.

I have been reading through old copies of Society Newsletters and I thought this is a timeline of the Society, the early Committee members, shows, visits, members' garden reports and the occasional controversy.

Some of the gardens no longer exist, some maybe overgrown or turned into flats and many of the contributors have gone to "Rhododendron Heaven". This will give our newer members an insight into where names come from on the Show Cups and in the Autumn Lectures.

I hope you find it interesting, especially new members. Please contact me for any further information and I will endeavour to help.

Newsletter 1: February 1984

President: Dr F Severne Mackenna, Vice President: Peter Cox, Hon Secretary/Treasurer: E T Wright

Directors: Alan Anderson, Gordon Bignall & Iain David Haywood

Please remember that in 1984 the SRS was called "The American Rhododendron Society the Scottish Chapter". The President praised the current committee for forming the Society and especially all the work that Ed Wright of Arduaine (now NTS property) has put in the last couple of years. The Vice President Peter Cox was delighted with the new chapter had been formed and hoped new members would join the fledgling Society but most importantly it was to encourage members from the institutions like RBGE and NTS.

The annual show was integrated with the Scottish Rock Garden Club Show held at Milngavie Town Hall. Show schedules were available but classification was a vexing problem and a controversial subject. Further on in the newsletter, the classification issue comes to the fore: "No one seems to accept the Edinburgh revision without expressing considerable reservations and in some quarters total opposition".

A revived show in Oban was to take place a week later.

A suggestion was to set up a register of Rhododendron and Azaleas gardens in Scotland.

Society Members were encouraged to open their gardens: John Moir, Glen Eden, Cove by Helensburgh issued an invitation to members to visit his Garden.

Newsletter 2: June 1984

Hamish Gunn was now in the chair as president and Mervyn Kessell was elected as our first Research Director.

Glenarn was the Society's first garden visit. Despite the wet weather 28 members enjoyed the tour round the transformed garden, still with much to do. Thanks were recorded to hosts Mike and Sue Thornley for their hospitality. There was a full report on the visit with details of the many interesting rhododendrons described on the garden tour.

Peter Cox reported on the show at Milngavie where cup winners were Kildarden, Glendoick, Arduanie, with other class winners the Thornleys, Dr Mackay, Bill Davidson and H Gunn.

Judges were Dr David Chamberlain and Mavis Paton from Barnhourie Mill, Dumfries.

The Autumn visit was to Glendoick.

Newsletter 3: November 1984

The Secretary indicated subscriptions for the coming year were agreed at £16.00 for chapter membership. (This really was membership of the American Rhododendron Society.)

Proposed garden visits for the next year were to Corroun and Crae.

The seed exchange (ARS seed exchange) was described as a very comprehensive listing. Members were encouraged to send seed to the exchange with (HP) hand pollinated (OP) open pollinated and (WC) for wild collected.

A full report of the Glendoick visit followed, with Peter Cox leading the large group to propagation areas, nursery beds and growing-on areas. Most of the group were

amazed at how the beds were so weed free. The woodland area was then visited and the contrast was there for all to see, this was both a mature and a growing garden with many new species of rhododendron added year on year. Peter and Patricia were thanked for their hospitality.

Next were thoughts on the survey of the Genus Rhododendron in Scottish Gardens. As gardens in Scotland were at the forefront of plant introductions, this seemed extremely important to the new society. (This is an objective of the Rhododendron Species Conservation Group today)

The proposed objectives were:

- A) A listing (with owners permission) of every garden in which are rare and interesting rhododendrons.
- B) To research a brief history of each garden and records if known.
- C) To visit every garden on the list, assess potential, note any records and photographs.
- D) Produce a computer listing similar to the RBGE and its satellite gardens.

Timescale to be completed by 1990.

Mervyn Kessell was to co-ordinate these tasks and set up of register.

Powdery Mildew was an issue with first severe outbreak in 1980.

Drought was another issue that year, “dreadful for garden owners” as they described the hose pipe ban.

Newsletter 4: March 1985

Mike Thornley was editing this Newsletter.

The 1985 AGM would be held at the Black Bull, in Milngavie at the time of the Glasgow show.

The Show Schedule was revamped to encourage smaller gardens to participate thus reducing the dominance of the larger gardens.

Arrangements for Corroul trip were in place: meet at Glen Orchy Station 18th May 1985 to travel to Corroul station. Hosts were to shuttle members in Land Rovers to the garden.

13 New Members joined the society including Donald Maxwell-Macdonald of Corrour.

Ian G Jenkins gave a comprehensive report on the garden “Greenhill”, Largs, Ayrshire.

Ian describes the garden as “A large small garden 100 feet above the Firth of Clyde, that benefits from the Gulf Stream, but is battered by the westerly winds”.

Peter Cox wrote an article saying “It’s fun to show” and goes on to tell how he selects sprays and trusses, keeps them moist and transports them to the shows. (Peter still uses the same bottles today.) Also to remember to take paper and moss to assist in staging along with a few spares in case of accidents.

The drought was further discussed, Joyce Rutherford, Kilarden, Poly and Mike Stone from the West Highlands, Craig and Margaret Buchanan in Argyll and Sir John Horlick all supplied “Heath Robinson” ideas for watering their plants.

Peter Clough at Inverewe said that they had only two weeks in the summer without rain.

Newsletter 5: July 1985

Arrangements were in place for the Autumn visit to Crarae gardens. Sir Ilay & Lady Campbell would arrange to meet and escort the group round the garden. A full range of activities was planned including a slide show talk.

The Glasgow show at Milngavie was a great success with entry numbers up. Trophy winners were Glenarn, Arduaine and Kilarden.

The judges were Mavis Paton and Ian Dougall West of Scotland Agricultural College.

Neil Rutherford reported on the Oban Show, unfortunately the location on the Oban railway station concourse being open to the public left a lot to be desired, with only source of water being in the gents lavatories. Also with some 25 major rhododendron gardens in the area the turnout was poor to say the least. In short, Argyll deserves a better Show venue.

Keith James gave a detailed report on the Quest for Rhododendron Species for Australian Gardens. The earliest plantings were in the Blue Mountains, New South Wales, the Dandenong Range and Mount Macedon near Melbourne. Members were receiving seeds from RBGE and the Botanic Gardens in Darjeeling. Later seed came

from Japan.

Keith then pointed out that due to the proximity to New Guinea and the surrounding islands, Australia was well suited to acquire many examples of section *Vireya*. The *Vireya* species were well suited to growing in the humid climates like Sydney.

Neil Rutherford reported on the Spring Meet at Corroul, a party of 27 members visited this unique planting on the side of Loch Ossian. It was here that Sir John Stirling Maxwell decided to plant species rhododendrons that were being introduced by Forrest, Kingdon Ward, Rock and E H Wilson. Neil then describes how shelter belts of Sitka Spruce were planted and the rhododendrons were planted at 1300 to 1630 ft. Drought was never a problem as moisture percolated from the hillsides above. A long list of the plants viewed was reported.

Returning to the lodge Mrs Maxwell-Macdonald offered the members mugs of hot soup laced with sherry or a “wee drop of the cratur” to go along with the packed lunches.

Ed Wright reviewed the book “The Smaller Rhododendrons” by Peter Cox.

More controversy surrounding the Edinburgh Revision, John Weyers writes an article “Rival of the Rose”. He writes “It is a major disaster in the rhododendron world that Davidian has not co-operated with his fellow workers ... to produce a classification that would be acceptable to all” and later “Once Davidian’s books are all published the controversy could reach boiling point if something is not done to alleviate the problem now. I feel sure this is a story that will rumble on.”

Newsletter 6: November 1985

Bill Davidson gives an insight into gardening in the borders near Jedburgh, Bill was the original SRS newsletter Editor and was an avid show exhibitor.

Sir Peter Hutchison reports on his plant hunting trip to East Nepal and Milka Danda. Along with Peter Cox and Donald Maxwell-Macdonald (Corroul). The group’s target was the Jaljale Himal and southern section of Milka Danda. Peter Cox would describe the rhododendrons in a later newsletter.

Peter says “we accumulated quite a collection of young plants, stitched into basket-work trays”.

Sue Thornley reported on the spring trip to Crarae on a beautiful bright autumn day. Sue talks about the Autumn colour in Scotland’s own Himalayan garden. The wide variety of trees and shrubs plus the rhododendrons gave plenty to see and discuss.

Peter Cox provided an entertaining lecture on the recent visit to Milka Danda on the Nepal/Sikkim border. Peter's excellent slides of rhododendrons, primulas and meconopsis were much admired.

Roderick White gives an insight into *Rhododendron aperantum* at Valley Gardens and Nymans in Sussex. Having seen them over the years, *R. aperantum* is very variable, very beautiful and very desirable.

Research Director Mervyn Kessell reports on Powdery Mildew causing defoliation as seen at Crarae Gardens, affecting *Rhododendron thomsonii*, *R. cinnabarinum*, *R. griersonianum* and hybrids such as *R. 'Elizabeth'*. Mervyn has a map with pins to report outbreaks of powdery mildew.

Spring visits were to the gardens of South of Scotland, a two day trip to Castle Douglas to visit Barnhourie, Corsock and Threave.

The Society's research committee received a \$500 cheque towards the Garden Survey of Scottish Rhododendron Gardens.

Newsletter 7: April 1986

Mavis Paton details the making of the garden at Barnhourie Mill. In the early sixties the ground was a patch of uncultivated land covered with hazel, sloe, broom and bracken.

Mavis tells "The whole plan and planting was designed by Esther Horwood King and has taken many years to complete or will it ever be finished".

Sam Macdonald gives an insight into rhododendron production at Barguillean in Argyll. Purchasing 1500 plants to raise in the nursery which grew well but did not bud up so were no good for garden centre outlets. He then carefully studied other nurseries in the UK, Holland, Belgium and Germany production methods and tried again. The nursery now handles around 300 varieties and some 30,000 plants many from micro propagated plants from Canada and United States.

Sam talks about the expansion of Angus Garden at Barguillean, and plans for a visitor centre and café to enhance the rhododendron nursery operation.

Classification issues rumble on, 27 members attended a meeting at the RBGE where guests and speakers discussed classification of rhododendrons. Hamish Gunn was in the chair.

It is an in depth report on classification by the Scientists, Professional and Amateur gardeners who all had their say at the meeting.

Would any of us be interested enough today to be involved in such a discussion?

More on Powdery mildew: an update. Most of the Argyll gardens have it with the exception of Arduaine. The report looks at the symptoms and control.

Peter Cox has tried a chemical spray Bayleton (an agricultural fungicide) and Karathane. Reports will be in future issues of the newsletter.

Proposed Argyll garden visit to garden on Colonsay. Leaving from Craobh Haven for the sailing to Colonsay.

The Schedule, attached for the Glasgow Show, had 39 classes for both species and hybrids. Entries to Hon. Show secretary R J Bezzant.

Newsletter 8: July 1986

Mike Thornley, editor with David Stuart, Pollock House Garden Manager join the committee.

David Chamberlain explains in an interesting article about how the rhododendron collection at RBGE was being renovated over a period of 10 years. The new scheme is based on the subgenera and sub sections. It will take careful planning to match the needs of the different groups and the sites set aside for them. Some large leaved subsect. Falconera and Grandia will be transferred to Benmore to benefit from the higher rainfall.

The Vireya collection would remain in Edinburgh under glass but the Maddenia collection would be dispersed to Logan Botanic Garden near Stranraer.

Jean M Scott reports on the visit to South of Scotland Gardens. First visit was to Barnhourie Mill, the garden of Mavis Paton and many of the visiting experts thought the garden was one of the best small gardens in the country.

In the afternoon they visited Corssock House Garden owned by Michael Ingall. The garden stands at 500ft above sea level but *Rhododendron lacteum* was growing well (as it is today), along with many other species. The garden also has extensive water features, lakes and bridges. Along with the rhododendrons many trees and shrubs were planted for autumn colour.

The party retired to the Murray Arms in Gatehouse of fleet where as a party dined and socialised in excellent style.

Next morning a visit to Castle Kennedy and the group were meet by Lord and Lady Stair and David Knott the Head Gardener (now RBGE Curator). David was most helpful showing the group the notable plants in the garden, which extends to 70 acres. It was a lot to take in with not only rhododendrons, but most impressive was the fine avenue of monkey puzzle trees.

Hamish Gunn reported on the Glasgow Show, it had been a queer season, much delayed with a host of different plants exhibited with little frost damage reported. Again the big guns Glendoick, Arduaine and Glenarn fought it out with excellent exhibits. However Peter Cox's exhibit of *Rhododendron vernicosum*, *R. sphaeroblastum*, *R. haematodes*, *R. thomsonii*, *R. irroratum* and *R. spilotum* scooped the Kilardeen Trophy for Glendoick. Other class winners were Dr F S Mackenna, Bill Davidson, Ian Jenkins and Hamish Gunn.

Sam Macdonald reviewed "Rhododendron Hybrids, a Guide to their Origins" by Homer E Salley and Harold Greer. Sam explains the book is a massive effort with over 600 colour pages and 4800 hybrid entries which is a true revelation for these interested in hybrids. "I am sure that most readers will gladly come to terms with some of its shortcomings, but in a book costing £45 it is a serious criticism."

Dare we say there are more comments on the Classification meeting. Peter Bland had made a 360 mile round trip to attend. Peter was convinced that we should effect a compromise and move towards a classification which meets the needs of the botanist and the gardener. Peter ends by saying "It was a most stimulating day".

Powdery Mildew update: Neil Rutherford suggests a correlation between the incidence of outbreaks and the proximity of *Rhododendron ponticum* which might harbour the mildew.

Newsletter 9: November 1986

W A Saunders: Dalnashean Garden "The Field of the Faries" is close to the village of Port Appin and overlooks the Firth of Lorn. The House was built in 1870 and a great many trees were planted at that time, with more conifers, shrubs and rhododendrons planted in the 1950s after clearing away a *R. ponticum* jungle (nothing new then) and hundreds of ash saplings.

With early bulbs, rhododendrons, azaleas, *Embothrium* and *Crinodendron* it was clearly going to be a spring early summer garden. But with *Eucryphia*, *Stewartia*, *Acer* and *Sorbus* added along with hydrangeas for late summer and autumn colour,

the garden takes on an all year round feel.

The Garden was open April to September every Sunday and Monday for Scotlands Garden Scheme.

China 1986, Peter Cox:

Peter describes his search for plants in China on a trip run by Raoul Moxley to North Sichuan and Yunnan. It was a three week trip but most of the time was spent on planes, trains and on especially buses. "We only spent 4 actual full and 2 half days walking in the mountains."

Peter recalls "the most opportunities to see plants were rushing madly around on the 10 minute stops which were really for relieving ourselves after hours of travelling.

"In Wolong Panda reserve we had 2½ hours where really should have had 2 to 3 days but found *Rhododendron augustinii*, *R. lutescens*, *R. polylepis*, *R. calophytum*, *R. watsonii*, *R. wiltonii* and *R. argyrophyllum*. In a gorge we found a splendid specimen of the rare *R. galactinum*.

"At Huanglong and Jiuzhaigou more time was spent plant hunting finding *R. concinnum*, *R. yunnanense*, *R. oreodoxa*, *R. watsonii* and *R. rufum*.

"Then from Sichuan by train and bus to Dali (Tali) but the Cangshan range was closed to visitors so a day was wasted.

"However we spent 2 glorious day at Lijiang with perfect freedom to roam as we liked. We reached 10,000 feet one day and 12,000 the next seeing *R. racemosum*, *R. decorum*, *R. yunnanense* and *R. rigidum*. Then through the conifer forest *R. rubiginosum* and *R. vernicosum*. On rocky outcrops *R. primuliflorum* and a Lapponica SS near *R. websterianum* along with *R. adenogynum* and *R. traillianum*. On the second day 3 new species *R. uvariifolium*, *R. beesianum* and *R. tatsienense*.

"All in All on the trip we found 36 rhododendron species."

Autumn Visit to Blackhills: Alan Anderson.

"The day dawned sunny in the North East of Scotland when 16 members of the Society meet on the front lawn at Blackhills House. Our host John Christie was to be our guide on the day.

"Blackhills is a garden that is not open to the public often and the members were keen to get going and passing many interesting trees and shrubs the cameras are clicking.

"Of course the rhododendron collection was why we had come, essentially a species garden and from 1922 onwards seeds from the major collectors were sown or young plants received and the resulting mature collection is what is seen today.

"Good labelling and records of the garden make this large collection of Forrest (F), Rock (R) Kingdon Ward (KW) extremely important.

By 3.00 in the afternoon rain was threatening and the group were welcomed into the house for refreshments and a slide show of the development of house and garden.”

David Stuart, Garden Manager Pollock House gives a detailed account on moving rhododendrons and azaleas in the garden at Pollock. David explained some of the treatment he was using to reduce the stress of the moves using Broadleaf P4 mix.

Peter Cox replies on comments after the classification meeting, saying he was delighted by the level of discussion.

Keith James the Scottish Chapter's correspondent in Australia sends pictures of Vireya hybrids.

The Research Director sends out a further batch of garden survey questionnaires.

Newsletter 10: April 1987

Farlie House: Dr Chalmers Davidson. The garden is situated about a mile north of Beaulieu and is at least 6 acres of woodlands and is home to interesting trees and some 50 species of rhododendron. “About ten years ago I caught the rhodo bug and began searching for treasures at Glendoick and elsewhere. With encouragement of Mr Davidson a few years back I started taking cuttings using pure sand as a rooting medium and I can report a high degree of success. Liliaceae are also a recorded interest in the garden.”

Visit to Alaska: Martin Rippmann tells of botanical travels and the plants found on a visit to Kamishak Bay on the Alaskan Peninsula. (Martin is one of our Swiss Members.)

Edrom Nurseries: Jim Jermyn. It was in 1931 that the Misses Logan Home followed the advice of Dr McWatt (yes the primula grower). The family moved from Edrom near Duns to Silverwells near Coldingham. It was here the two ladies with Alex Duguid set up one of the finest collections of hardy plants in Britain. With a wide range of Alpine and Himalaya plants from collections of Ludlow and Sherriff and Kingdom Ward.

Jim and Alison took over the running of Edrom garden/nursery in 1979 and continue to grow hardy alpinists, primulas and rhododendrons.

Report: Effects of various solutions to transport rhododendron sprays and trusses to shows. Tap water, Dettol and Phostrogen were used as the solutions. The cuttings

were kept in water for 14 days, tap water was most successful, followed by Phostrogen and Dettol.

The Show: Ed Wright indicated that this year more vases would be available and gave advice to members how to arrange their exhibits at the show to help the organisers. Ed hoped more members would exhibit, in particular collections from smaller gardens.

The AGM would be held on Show Day at 10.30 am and the positions of Vice President, Secretary, Treasurer and Director were due to be re elected.

Spring Meet 16/17 May: Sue Thornley. Scottish Borders, details on the attached sheet.

Mike Thornley edited the Newsletter, which was typed up by Amanda Clark.



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***Rhododendron lindleyi* RF036**

Dick Fulcher

Since I first became interested in Rhododendrons some 50 years ago, I had often thought how wonderful it would be to see them growing in the wilds of West China or the Himalayas but the opportunity had not presented itself, work commitments and family always seemed to preclude. However when I was invited to join Keith Rushforth for a 3 week plant hunting trek in Arunachal Pradesh in October 2010, I was more than ready to go as arthritis was creeping up on me, so it was now or never.

The month of October should see the end of the monsoon season but it was very wet for a few days making seed collecting difficult. Trekking up through the forests and over the Hoot La pass near the borders of Burma was an unforgettable experience, reminding me of my hill climbing days in Wester Ross, but on this occasion grabbing handfuls of dwarf *Rhododendron* instead of *Calluna vulgaris* in order to gain height on tricky, steep slopes over rocky outcrops.

The photos are of one particular species which I had collected at somewhere around 2500 metres in quite shaded forest conditions. I labelled it *Rhododendron lindleyi*. Subsequently seed was sown but germination was poor and I managed to raise only 4 plants. These I nurtured and observed with great interest, *R. lindleyi* being one of my favourite species. However as time went on I thought the leaves didn't look quite right being more broadly oblong, lanceolate and somewhat larger than I had been used to. The first flower bud appeared in 2016 after six years and my hopes at seeing flowers were dashed when by late spring it was obvious the one flower bud had aborted. In the autumn of the same year a second plant had produced 3 flower buds, these came to fruition towards the end of April 2017 in time for the Rosemoor show, and proved to be *R. lindleyi* and very beautiful but alas lacking the wonderful scent of other fine *R. lindleyi* plants in my collection. I have now taken some cuttings of this plant and hand pollinated seed has been set. I shall risk planting one out and see if it survives in the middle of Devon. The others will be kept under cover.

Pictures by Dick Fulcher: Opposite page clockwise from top left:

Normal foliage of *Rhododendron lindleyi*.

Foliage of RF036.

Flowering truss of RF036.

Ditto



Plant exploration in North West Yunnan

John Roy



Nu Jiang “First Bend”

All photos by John Roy except where stated

Social media has its uses. November 2016, and I noticed a post with information about a ground breaking trek to Yunnan run by a company called Whistling Arrow. Following up the information on their website, I discovered that they were an established trekking company specialising in trips that were different to the “run of the mill”. In late spring 2015, they had run a trip to the Nujiang/Dulong divide, further north than had been done before. In 2017 they intended to attempt a full crossing of the divide, but going in August. Why August? Because the porters had reported carpets of flowers at that time of year, and the snow would be melted. I sent an “interest” form by email, but with the misgivings that the time of year was wrong with regard to seeing flowers of rhododendrons, primulas and other genus of particular interest to myself. Also August is the peak of the monsoon rains in that area.

A couple of weeks later, CEO Adrian Bottomley advertised a change of timing to

June. Now that really floated my boat! I immediately signed up for it, also contacting fellow SRS member Grant Moir, who had expressed an interest in such a venture.

To give you a bit of geography of the area, the Nu Jiang (Salween) is the most westerly of the three great rivers of Yunnan, the Chang Jiang (Yangtze) being the most easterly, and the Lancan Jiang (Mekong) in the middle. The three rivers rise in the Tibetan Plateau and cut deep gorges through the relatively soft rock, flowing from north to south. In Yunnan however, they take very different routes to the sea. The Chang turns east, the Lancan flows south eventually to Viet-Nam and the Nu flows south west into Myanmar (Burma). Our destination, the Dulong Jiang also turns into Myanmar to become the Irrawaddy. The Dulong Valley is the most westerly in Yunnan and until recently, was relatively inaccessible from the rest of China.

Fast forward to 11th June 2017. Grant and I met at Edinburgh Airport to begin our adventure with four flights via Amsterdam, Beijing, Kunming and our destination Baoshan. There we were met by Edward He, our Chief Guide. In a former life, Edward had been an English teacher, a skill that made him ideal for the job. Our flight into Kunming had been delayed, meaning a very tight time to catch the flight to Baoshan. The very helpful staff showed us a short cut, but our baggage would be delayed till the next flight. Also, Adrian, unaware of our short cut was waiting at departures, and missed the flight. Later that evening we were united.

There were four of us embarking on this adventure. Grant is head gardener for Mary Buckley at Westerhall near Langholm. Chris Parsons gardens for Lord Heseltine at his arboretum at Thenford. Jack Williams from Australia loves adventure and has trekked before though not with plants in mind. And myself, retired dentist and veteran of many a Himalayan trek.

The first two days were spent on a road trip to Bingzhongluo, a journey of approximately 430km. My previous visit to Yunnan had been in 1994 and I was amazed at the improvement in the road infrastructure. Well surfaced two lane carriageways took us all the way up the Nu Jiang valley. An overnight stop at the market town of Fugong, some shopping for supplies and we arrived in Bingzhongluo in the afternoon. Gradually the scenery became more spectacular as we travelled north, with the river taking a huge horseshoe bend just to the south of the town. At around 1900 metres, Bingzhongluo is too low for much botanising, but to acclimatise ourselves to walking, the next day we took a bus back downstream a few kilometres, crossed the river on a bridge and walked back up the other side. There were small villages and



fields with crops and animals, but we spotted our first rhododendrons, *R. yunnanense* and *R. decorum* both long finished flowering. There were some super *Cornus capitata* in full flower. Crossing the bridge below Bingzhongluo, it was a steep, hot ascent back to the town, and we were all ready for a beer.

That evening we met the local Lisu man who would be our head porter. The Lisu tribe is an ethnic minority indigenous to Yunnan, Sichuan, Myanmar and Thailand. They are mountain people used to the remote hunting trails we were going to navigate. There was some discussion about our chosen route with the head man making suggestions.

So next morning after a short road trip, the trekking proper began. On the first two days we were assisted by three ponies, taking some of the load. Heading west up a side valley, almost immediately we were seeing interesting plants with *Lyonia*, *Iris*, *Viburnum*, *Cardiocrinum* and *Arisaema*. The *Cardiocrinum giganteum* were especially good. Some of the flowering stems must have been three metres in height, towering above other herbaceous plants. At

this lower altitude, *Arisaema con-sanguineum*, *A. concinnum* and *A. wattii* were abundant. *A. wattii* had mostly finished flowering and were producing green fruits. Large leaved rhododendrons in the form of *R. sinogrande* and *R. protistum* were also finished flowering, but pausing under a large boulder we found

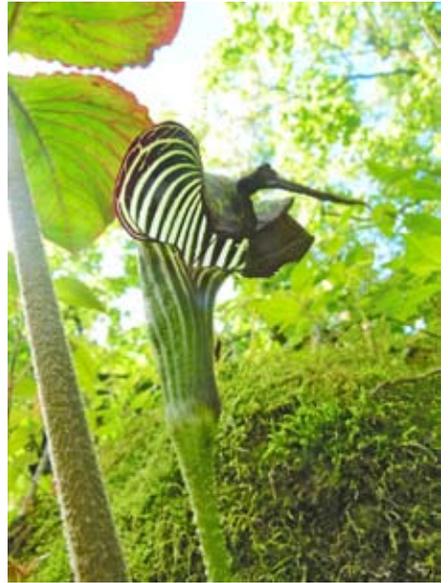
Top: *Cardiocrinum giganteum*

Left: *P. vaginata* ssp. *eucyclia*



the spent flowers of a *R. megacalyx* growing above. Young specimens of *Magnolia rostrata* had huge leaves, but we were unable to spot the mother tree.

The weather was mostly fine on the first day, with the occasional shower, but as we gained altitude the tops disappeared in mist. *Rhododendron arizelum* became common, but flowering finished. *R. rubiginosum* held on to some flowers, but the main interest was on the forest floor. Different primulas and arisaemas were appearing, with fine patches of *P. brachystoma*, *P. geranifolia* and a primula that looked a lot like *P. normaniana* as seen in Arunachal Pradesh, with very dissected leaves and pretty pink flowers. These were held on a much shorter scape than *P. normaniana* and were later identified as *P. vaginata* ssp. *eucyclia*. I wasn't that far out though, as these closely related primulas have both been sunk into *P. vaginata*. Interesting arisaemas included *A. speciosum* var. *mirabile* with a pale midrib to the leaf and a dark purple swollen spadix appendage. *A. consanguineum*, *A. concinnum*, and *A. wattii* were everywhere but as the altitude increased, so did the flowers. What I thought was *A. auriculatum* was later identified as the local variation that the Chinese have named as *A. lushuiense*. An arisaema that had me totally foxed was a large, vigorous trifoliolate species, often with lovely red marbling on the leaves, very rough "asperate" petioles and green and purple veined hooded spathes with thread like appendages. I called it *A. asperatum* aff. because of the rough petioles but it was later identified as *A. tengtsungense*, a rare species described from these mountains.



Arisaema tengtsungense

As we approached our first campsite, about two hours behind schedule because of the feast of plants, the forest started to give way to more open meadows. On the tops of



on mossy boulders we found the beautiful pink flowered terrestrial orchid *Pleione scopulorum*. Dangling from the edges were specimens of *Streptopus*, a choice member of the lily family with pink flowers drooping from leaf axils. The dominant arisaema became *A. elephas*, so named because of its “elephant’s trunk” like spadix appendage. *A. elephas* is fairly common, usually with a purple spathe, but I had never seen a variety with a green spathe and spadix appendage. Here they consisted about half the population. As the valley opened out more, yellow carpets of *Primula biserrata* (formerly *serratifolia*) extended across the meadows.



Our first camp was in a broad meadow. On mossy boulders grew purple flowering *Rhododendron saluenense* and individual bushes of *R. mekongense* displayed their

**Top left: Green spathe of
*Arisaema elephas***

**Top right: Purple spathe of
Arisaema elaphas with
*Primula biserrata***

Left: *Primula biserrata*

neat yellow flowers on bare stems. The pretty yellow and white flowers of *Primula biserrata* and the green and purple spathes of *Arisaema elephas* were all around. What a first day!

The aim on day two was to reach the top of the valley. Camp one was at 3250 metres, and camp two 3500 metres, so the walking was fairly easy, but as we ascended the rain became more frequent and the mist closed in around the peaks. We negotiated a deep melting snow avalanche that partially blocked our way. The flora changed subtly. There was much more of what we had seen the day before, but gradually the only arisaema visible was *A. elephas*, gradually getting more dwarf



Top: *Rhododendron rupicola* var. *chryseum*

Above *Plieone scopulorum*

Left: *Primula agleniana* var. *alba* growing with *Caltha palustris*

with the altitude. There were more rhododendrons in flower, with *R. oreotrephes*, *R. sanguineum* ssp. *sanguineum* var. *haemaleum* and *R. campylocarpum* ssp. *caloxanthum* all putting on a good display. The latter had exquisite white flowers with a red blotch, something I had never seen in *R. campylocarpum*. Although finished



flowering, a *R. crinigerum* hung with beautiful lichen, some of the strands half a metre long. *Primula biserrata* was replaced by carpets of *P. agleniana* var. *alba*. This is a relative of the yellow *P. falcifolia* and *P. elizabethae* I had seen previously in Tibet and Arunachal Pradesh respectively.

Once again, mossy boulders were worth a look, with the same *Pleione* seen further down, but also *Rhododendron calostrotum* ssp. *calostrotum*

with purple flowers contrasted by yellow flowers of *R. rupicola* var. *chryseum* and *Cassiope*. Tiny *Primula bella* and *P. monroi* (formerly *involucrata*) were spotted on grassy banks along with beautiful blue flowers of *Omphalogramma delavayi*. We made camp in good time in the afternoon, allowing further exploration of the area.



Top and above: Orange spathed *Arisaema* some with attractive red patterned leaves



Right: *Rhododendron campylocarpum* ssp. *caloxanthum* with red blotch

This meadow was turned yellow and white with *Caltha palustris* and *Primula agleniana*. There were some *Rhododendron arizelum* hanging on to their pink flowers. I have often seen this rhododendron in the wild, always covering a huge altitude range, where most rhododendrons have a much narrower range. A curious plant growing in the gravelly stream bed was *Pegaeophyton*. A member of the Brassica family it forms small round clumps with narrow leaves and white flowers with a green centre. But total admiration was reserved for an arisaema. A trifoliolate species with light green leaves, some spectacularly patterned red, and an orangey coloured spathe with a long curly spadix appendage. It reminded me somewhat of the orange spathed arisaema I have seen in Arunachal Pradesh on three different mountains. This is being studied to see if it is a new species. Is it possible that there is a population from Arunachal, through Myanmar and into Yunnan?

Next morning we planned to climb out of the valley, over the first pass, into the next valley, then ascend to a lake at 3800 metres. The drizzle became heavier as we ascended, but looking around there were lots more *Primula agleniana* var. *alba*. As we ascended the flowers were not so far out, until near the top of the pass all we could find were the huge red resting buds, exactly as *P. elizabethae* in Arunachal Pradesh. We had left the arisaemas



Above: *Rhododendron sanguineum* ssp. *sanguineum* var. *haemaleum*

**Below: *Rhododendron campylogynum*
Myrtilloides Group growing with
*Primula agleniana***





behind, but rhododendrons were plentiful, with lots more *R. campylocarpum* ssp. *caloxanthum* and *R. sanguineum* ssp. *sanguineum*. The trail was steep with loose boulders and running with water. We made the top by 11.00am having climbed to 3950 metres. Here *R. forrestii* ssp. *forrestii* grew alongside the tiny creeping *Diapensia himalaica*. It was cold and wet, with snow-

fields around, but we paused for a snack before heading down the other side. Here we had our first sight of *R. temenium* with pink flowers.

On the long descent the rain continued and we came to a deep gulley filled with snow. Adrian said that in 2015 there had been no snow, but above the melt, plants were in flower. The tiny white flowered *Primula hookeri* along with pink flowered *P. silaensis* and the deepest dark red of *Rhododendron sanguineum* ssp. *sanguineum* var. *haemaleum* grabbed our attention. Looking up, a rounded slope had small thimble shaped dusky, dark red flowers. This was *R. campylogynum* Myrtilloides Group.

Slipping and sliding our way down, we came to a small open area where the melt water was forming a gushing river. The ground was boggy with a small lake. We were exhausted, cold and wet, having descended to 3350 metres. All around were *Primula*, *Omphalogramma* and *Caltha*. It was early evening, and impossible to reach the planned camp in daylight, so



Top: View from the campsite

Left: *Primula firmipes*

we camped there. The porters tried to level the ground with their machetes. *P. agleniana* was flying everywhere!

It was dry next morning so we took the opportunity to go back up the snow gully and have another look before setting out for the day's trek. Little plants like *Cassiope* and *Lloydia* clung to the steep sides. *Primula agleniana*, *P. calliantha*, *P. silaensis* competed with *Bergenia*, *Anemone*, and of course the rhododendrons: *R. mekongense*, *R. sanguineum*, *R. forrestii*, *R. calostrotum* and the choice *R. campylogynum*, which held tiny droplets of the previous day's rain. It was a fantastic, botanically rich place.



Dragging ourselves away, we had to make progress. The day's trek started alongside a river whose origin was the lake we had to get to. It was swollen with melt water, and the crossing point was impossible to navigate, so we had to keep walking upstream until the river was small enough to leap across slippery boulders. This was followed by a near vertical ascent. As the slope levelled out, a wet area had a small primula with scented nodding yellow flowers resembling *P. sikkimensis*. This was the close relative



P. firmipes. Growing nearby were *Fritillaria* which the porters dug up greedily before we could look at them properly. The bulbs are used in local medicine and have a value, but this must take its toll on the wild population. Also growing in the wet were

Above: A sea of flowers

Left: *Rhododendron forrestii* Repens Group on mounds



fine pink flowered *Pedicularis*. The *Rhododendron campylocarpum* ssp. *caloxanthum* had lost its red blotch.

The terrain became steeper with slippery footing. A waterfall on our right, came from the lake. We crested a ridge expecting to see the lake, but all we saw was another ridge. Lovely pink flowers of *Rhododendron eclecticum* beckoned us on. Over the next ridge and we finally saw our destination, but the outflow blocked our way, about five metres wide fast flowing cold water. There was no alternative but to take socks and boots off and wade.



The main inflow to the lake was on our left. This flowed across a wide boggy area that was yellow with the flowers of *Caltha palustris*. Growing in the shallow water was more *Pegaeophyton*. After pitching tents on a knoll overlooking the lake, we had a chance to look around. It was like a primordial soup of Neriiflora subsection rhododendrons. The slope below was orange with the flowers of *R. citriniflorum* var. *horaеum*. Over to the right the hill was



Top: Meadow of *Caltha palustris*

Above: *Pegaeophyton*

Left: *Diapensia himalaica*

**Right: Negotiating the pass
above the lake**

Below: *Primula hookeri*

turned red and pink with *R. sanguineum* ssp. *sanguineum*, *R. haematodes* ssp. *chaetomallum* and *R. temenium* ssp. *temenium*. Taller specimens of *R. campylocarpum* ssp. *caloxanthum* were behind. Boulders and mossy mounds were clothed by *R. forrestii* ssp. *forrestii* and *Diapensia himalaica*.

R. cephalanthum Crebreflorum Group carpeted the area around camp, but not yet in flower. That evening we struggled to get a fire going as it was cold at that altitude and some were grumbling about midges biting. At least we were above leech and dim-dam fly level!



In the morning we had another look around, catching sight of nice *Rhododendron eclecticum* in pink and white, before setting off back across the lake outflow, over the *Caltha* meadow. On the hillside beyond was riotous *R. citriniflorum* var. *horaeum*, interspersed with *R. temenium* and *R. forrestii*. Our next goal, the pass at 4160 metres lay ahead. There was a small snow cornice at the top but not enough to cause a problem. Beside the trail was a bank of the tiny white flowered *Primula hookeri*. The rain became heavy as we tramped on, staying on approximately the same con-



tour as the top of the pass. Here the snow fields were extensive and I was glad I had taken a set of “mini spikes” to go round my boots giving extra traction. Arriving at a meadow, it was deemed too boggy for camping, so on we pressed for another hour till suitable camping was found. That evening our tents were pitched on *R. forrestii* and *R. cephalanthum*. The head man of our Lisu companions told us that with the amount of snow



Left: Traversing snowfields

Below: Kawa Gebo

Photos by Adrian Bottomley

seen today, there was going to be too much for negotiating the final pass.

The following day dawned dry, with the cloud level high and breaking up. We could see the awe inspiring beauty of the peaks around. The highest was Kawa Gebo, the highest peak in Yunnan at 6740 metres, and considered to be one of the holiest sites by Tibetans. A curious mist drifted from the main peak, and a bit of imagination could envisage the spirits therein.

We had to make a decision on what to do next. The adventurer and explorer in Adrian wanted to press on to see if it was possible to cross into the Dulong valley. I sug-



gested, since we had not seen anything much new in the botanical department the previous day, we were unlikely to until descending into the Dulong. If we turned back now we would have time to explore the Dulong by road. The porters were certain crossing the next pass would be too dangerous and taking their advice was sensible. So that is what we did. Back to the lake then trekking one valley to the north of the one we had come up. This is what the 2015 trip had done and although tough, was doable.

The better weather allowed us to dry some kit at the lake. We had picked some shoots of *Smilacina* that is used as asparagus locally and had that cooked for dinner. This had an unfortunate effect on my bowel next day. But we pressed on down the valley where we were to see metre tall *Arisaema wilsonii* right beside the trail, and choice pink flowered *Nomocharis saluenensis*.



Though not in flower we also spotted some new rhododendrons in the form of *R. uvariifolium*, *R. vernicosum* and on wet mossy rocks and in trees *R. megeratum*. Near the camp *Smilacina henryi*, some as tall as us, had racemes of scented white flowers.



Jungle camp, where the undergrowth is cut down to enable tent pitching, was the order of the night. The day had been hard work, and we had descended eight hundred metres of tough terrain. Across the valley meltwater streamed down the

Above: *Arisaema wilsonii*

Left: *Nomocharis saluenensis*

cliff in a curtain of waterfalls. The last day was to be the worst. The jungle was chest high, wet and slippery. I was toiling severely with wet logs over streams, slippery narrow ledges and logs tied to cliffs with bamboo as the trail deteriorated to an obstacle course. The head man took my rucksack, and with him behind and Adrian in front to help we gradually negotiated the “danger points”. This is a term invented in Arunachal Pradesh in 2002 on the Subansiri Siyom divide. After that trek I vowed not to do that sort of thing again, but it seems age has not provided me with sense, so fifteen years later I was doing it again.

There were botanical highlights. One was a *Nomocharis pardanthina* beside a stream tumbling with meltwater, its white face spotted with pink. The other was a stand of *Taiwania cryptomerioides*, huge trees that are endangered because they have been exploited for their timber. Now they have legal protection in China and Taiwan. By late afternoon we came to a small hydro electric dam, the first signs of civilization. The trail was easy from here, as it had been used by workers hauling up concrete and machinery for the dam. By early evening we were at a roadhead and Edward was phoning for taxis to take us back to Bingzhongluo. We had descended about twelve hundred metres of really tough trekking. When the cars arrived, they carried two crates of beer to be shared out.



Shower, dinner, more beer, say goodbye to our Lisu friends, bed. Next day we hired a minibus to drive round to the Dulong. This is an easy journey now, with a seven kilometre tunnel at the top of the Gaoligong mountain range to bypass the stretch that was impassable for a lot of the year previously. The Dulong is home to the Derung people, another minority Chinese ethnic group. The Dulong leads down into Myanmar to become part of the Irrawaddy, and it is said these wiry little people kept the British at bay during colonial rule. It is Chinese policy to rehome the Derung in new villages with better sani-

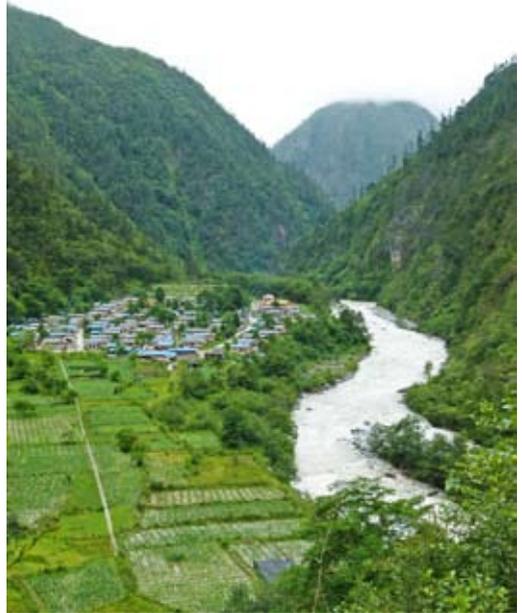
Myself with the head porter standing between trunks of *Taiwania cryptomerioides*

Picture by Adrian Bottomley

New villages in the lush Dulong Valley

tation and facilities, a policy that seems popular.

The Dulong Jiang is a smaller river than the Nu Jiang, but no less spectacular, running in a narrow steep sided valley. Where the Nu was very brown with silt the Dulong was clear. The valley sides were green with impenetrable forest. We drove up the excellent road past a new village to a small level area where some wooden huts were to be our accommodation for two nights. Our altitude here was 1750 metres and we had seen little of botanical interest. A short walk across the river did not reveal much except some small snakes that scuttled away from us. So we returned to the huts for some rest and dinner.



The following morning I opted out of a longer walk up a side valley on the opposite side of the river. Instead I took a walk up the road to the next village, where children were fascinated to see a tall white bearded man. In this very remote valley I was surprised to find Christian churches, but Catholic missionaries had done their work here at the end of the nineteenth and beginning of the twentieth centuries and some of their teachings had obviously stuck. It was Sunday morning and a church service was starting, so I sat in at the back for a while, not understanding a word, but fascinated. The congregation turned and stared at me, but I smiled back and put a donation in their collection. The old lady sitting in front of me had the traditional tattooed face. This was supposed to make the ladies unattractive to invading tribes who might steal them away.

In the afternoon we took the vehicle up the road as far as possible. Beyond the top village the road was still being made up and will eventually be another highway to Tibet. There were some magnificent tall trees, and we looked out for any *Davidia involucrata*. When Michael Wickenden and Michael Lear explored the Upper Dulong in autumn 2008 they reported finding the most westerly stand of *D. involu-*



crata. We came to a fork in the river, where the report stated they had found them on the right or easterly fork, but the road continued up the left fork. There was a suspension footbridge to the other side, and we explored finding some good *Arisaema franchetianum*, but a local family told us through Edward's interpretation that the point shown on the map was three days' trek. So we returned to our accommodation.

On our return over the pass to the Nu Jiang, above the road we spotted some fine *Nomocharis pardanithina* growing with lovely deep pink *Roscoea*. We arrived at the large town of Gongshan at lunchtime. Here we parted with the minibus as it would be our original more

comfortable bus that would take us the rest of the way to Baoshan. It is traditional on these trips to have a vote on best plant. The votes were cast, and the winner was *Rhododendron citriniflorum* var. *horeaum*.

It would take two days' drive to get back to Baoshan, but on the first day we were fortunate to stop at a viewpoint and look across to the "stone moon" a famous landmark. As we watched, the cloud cleared and we could clearly see this phenomenon, where erosion has carved a circular hole into the top of the mountain. It was a fitting end to a wonderful trip, and I thank Whistling Arrow, Adrian, Edward, the porters and my trekking companions for making it one of the most memorable I have done. Even though we did not achieve our goal of crossing the whole divide, we had got further over than the previous expedition and botanically it had been a huge success.



Top: *Arisaema franchetianum*

Right: The Stone Moon

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**Interesting new foliage
from rhododendrons in
the wild**



**Top: *R. megeratum*
Above: *R. argipeplum*
Left: *R. camelliiflorum***

Photos by Jacqueline Petton

See page 3

