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American Rhododendron Society
A GUIDE TO THE SOCIETY

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2016: Ken Webb, Richard Fairfield, Marvin Fisher
2017: Ann Whitney, John Golab, Lynne Melnyk

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ARS Home Page: http://www.rhododendron.org
ARS Office:http://www.arsoffice.org
ARS On-line Journals: http://scholar.lib.vt.edu/ejournals/JARS/
ARS Archives: http://www.lib.virginia.edu/small/

Society's Purpose

To encourage interest in and to disseminate knowledge about rhododendrons and azaleas. To provide a medium through which all persons interested in rhododendrons and azaleas may communicate and cooperate with others through education, meetings, publications, scientific studies, research, conservation and other similar activities.

Membership Benefits

- Chapter affiliation with scheduled meetings
- *Journal American Rhododendron Society* published quarterly
- Annual convention and regional conferences
- Seed exchange
- Listing of registration of names and descriptions of new rhododendron hybrids published in the Journal

To Join the Society

Membership categories:
(January 1 – December 31)

Student (include proof if over 18)	$10.00
Regular	$40.00
Commercial	$90.00
Sustaining	$75.00
Sponsoring	$150.00
Life single	$1,000.00
Life family	$1,500.00

You can join the ARS through your local ARS chapter (check the website www.rhododendron.org for chapter contact info) or by sending a check or money order directly to the Executive Director of the American Rhododendron Society at the above address. Checks must be in US funds. Make checks payable to the "American Rhododendron Society." Membership includes one year (4 issues) of the *Journal American Rhododendron Society* and affiliation with the chapter of your choice.**To receive the winter issue of the Journal, renewals must be postmarked no later than Dec. 1.**



CONTENTS SUMMER 2014 & ARS DIGITAL RESOURCES

Features

CONTENTS SUMMER 2014 & ARS DIGITAL RESOURCES continued

Cover Photo
Ashridge
by Mick Thompson

Society News

ARS Digital

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Plant Name Registration: http://www.rhododendron.org/plantregistry.htm

Rhododendron & Azalea News: http://www.rhododendron.org/news/newsindex.htm

From the President

Bruce Feller
Old Field,
New York

As you are aware, donations and bequests continue to help close the gap between Society expenses and other income sources. As we move forward, the viability of the ARS will likely depend on this revenue stream. First and foremost, I would personally like to thank every donor for their kind generosity and ask for your ongoing financial support. To better recognize the importance of donation activity, subsequent issues of *JARS* will continue to reflect a number of changes in the timing, content and format in which this information is published.

Of the many ways in which members can help the Society financially, I would like to describe one with which you may not be familiar. It involves a donation of stock. The donor receives the full tax benefit of the value of the stock when donated, but avoids paying the capital gains tax on the amount by which the stock has appreciated since its acquisition. By simply donating the stock rather than selling it and donating the after-tax proceeds, you are contributing the full value of the stock. This can have a substantial positive effect, particularly in light of recent market trends and appreciated gains. Your tax advisor should be consulted to confirm the applicability of this method of giving to your specific situation.

I know many of us also provide financial assistance to our local Chapters. Taking many forms, these efforts are an important income source to help meet Chapter expenses. Plant Sales come to mind as one of the most widely used fund raising opportunities at the local level. In some Chapters, however, members are well past wanting to add new material to extensive and/or mature landscapes, but nonetheless want to support the Plant Sale initiative. Many of us in the New York Chapter fit this description. Our Plant Sale Chairman came up with an innovative program that might be of interest to your Chapter. Members are encouraged to purchase plants for donation to any of the three major arboreta on Long Island. Representatives of these organizations are given lists of the varieties included in the Plant Sale inventory, and they are invited to identify those in which they have interest. The purchase and subsequent donation of these plants provide: (1) the buyer with a tax deduction for the amount of the purchase; (2) income to the Chapter from the sale of the plants; and (3) choice plants for the arboreta receiving the donated material. The program was well received and supported.

Auctions are yet another source of income for the Chapter and Society. Those attending the Annual Convention Banquet in Painesville, OH, were treated to an unusual twist on this traditional fund raising technique. A gourmet cake, donated to the Society, was auctioned off in succession to several bidders one after the other, each donating the cake back to the Society to be auctioned yet again (see photo on p. 140). The cumulative bids provided a substantial donation to the Society, a tax deduction for each of the successful bidders/donors, and lively entertainment for the rest of us. Often recited in fund raising context is the saying “Give until it hurts.” I would suggest we “Give until it feels good.” Again, thanks to all of you who are able and willing to help support the ARS.

From the Executive Director

Laura Grant
Toronto, Ontario
Canada

Record low temperatures for extended periods this past winter in my Niagara Peninsula and Mid-west US took such a toll on plants. The setback for rhododendrons and azaleas is understandable, but most remarkable was the loss of so many junipers, cedars, mugo pines and boxwood; mature plants were not spared. Also remarkable is that insects were not set back by the winter—they appear even more abundant and active. Many rhododendrons had yet to bloom in Painesville, Ohio, due to the cold spring, but despite this, the Convention was lots of fun. Meeting with old friends and making new friendships has to be one of the big draws to conventions.

At the Board meeting, despite the budget deficit, the Board once again refrained from increasing membership dues.

We welcomed new Directors, John Golab for District 9 and Lynne Melnyk for District 12, as well as her Alternate, Robert Ramik.

A post convention trip to Germany, Denmark and Sweden gave me the opportunity to meet many of our offshore members. It was interesting to learn how much they value our seed exchange, and how much emphasis they place on interesting foliage. Their comments and suggestions will be shared with the Society executive, the goal being improving both quality of membership benefits and membership growth.

Our webmaster, Bob Weissman, has worked hard to redesign the website www.arsoffice.org. I invite you to check it out. The Policies of the Board can answer many questions that come to our office. One of them is a procedure for nominating members for a Gold or Silver Medal (POB 9.5).

Very shortly, the renewal packages will be in the mail to US Chapters and we need to remind our members to send their renewals early to their Chapter treasurers. A bonus 15-month membership is available to new members joining after July 8th and before October 8th for the price of one year.

The membership in ARS offers such a wonderful opportunity to meet friends, with same love of plants, from all over the world. Why not give a gift membership to a gardening friend. Please consider giving a gift membership to students of horticulture. Only $10 per year.

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The group at Cika Pass. Names from left to right: Ole Jonny Larsen, Egil Valderhaug, Bent Ernebjerg, Esther Pedersen, He Zhi Jian (Dennis, our guide), Ruddi Perriard, and Sture Bengtsson. Photo by Mr. Tom, the expedition cook.

Beimashan and Biluoshan, Yunnan, China Revisited

Bent Ernebjerg[1] and Ole Jonny Larsen[2]

[1]Vaerloese, Denmark
[2]Aalesund, Norway

Bent Ernebjerg

Ole Jonny Larsen

In 2010 we arranged an expedition of six people to Biluoshan and Beimashan (Ernebjerg and Larsen 2011) where we saw some interesting places that were new to western rhododendron explorations. The most interesting findings were in an area on Biluoshan that had a pink flowered *R. roxieanum/cucullatum* and a mountainside on Beimashan with thousands of *R. roxieanum*.

There was a lot of snow then on Biluoshan, so much was hidden under the snow, and we did not have as much time as desired for exploring. For these reasons, we decided to go back again with more time and later in the year, so that the snow should have melted. This next expedition—the "Scandinavian Beimashan and Biluoshan expedition 2013" was thus planned to start when the other had ended, on June 12, and to go until July 4. We found four more keen rhododendron enthusiasts to go with us, so our group consisted of Egil Valderhaug and Ole Jonny Larsen (Norway), Sture Bengtsson (Sweden), Esther and Ruddi Perriard (Denmark) and Bent Ernebjerg (Expedition leader, Denmark). The objectives for this expedition were to go back to the above-mentioned areas and explore

Our Chinese tour operator and guide He Zhi Jian (Dennis). Photo by Bent Ernebjerg.

them more thoroughly to see what rhododendron species might have been hidden under the snow in 2010, such as *R. pronum,* which is known to grow on Biluoshan.

The leader of the mule men with inserted red treads to decorate his long black hair. Photo by Ole Jonny Larsen.

Going to China

We left from Copenhagen on June 12, 2013, and flew to Lijiang, China, via Bangkok and Kunming. In Lijiang, our Chinese expedition operator and guide, He Zhe Jian, was waiting for us. We passed the night in a small town on the Yangtze River and the next morning, we drove on and soon reached the Mekong River, where we continued north along the river on a new road. It was a long drive to Yanmen, where we boarded two small buses and went high up the steep valley side to the little village of Upper Nonglong at 2850 m (9350 ft), where we spent the night in a local house. Our first trek to the Cika Pass in the southern part of Beimashan started from there.

Trek to Cika Pass

The next morning, the mules to carry our luggage and equipment arrived and we started walking uphill. First through cultivated land, but soon we entered a broad-leaved forest with scattered pine trees. It was very dry, and the weather was sunny and quite hot, so it was nice to walk in the shadow of the trees. We had beautiful views back onto the Biluoshan Mountains on the other side of the Mekong River. As we went higher up, the first rhododendron appeared, and as in 2010, *R. decorum* was the first species to greet us.

R. yunnanense were plentiful, but their flowering was finished, as was the flowering of *R. rubiginosum, uvariifolium* and *anthosphaerum.* Large shrubs of *R. oreotrephes* were in full flower and made a pinkish canopy over the path. A few *R. heliolepis* were just about to open their buds, which were easily recognised by the scent of their leaves, and we found some late flowers on *R. floccigerum*. A good red form of this species grew at 3700 m (12,139 ft). Maybe this form will be more hardy than the tender forms grown today in some of the milder gardens in Scandinavia!

A good dark pink form of *R. heliolepis*. The flower colour varied between dark pink and a very soft pink, almost whitish. Photo by Bent Ernebjerg.

A single plant of *R. wardii* had white flowers, so it should be var. *puralbum*. We also found white flowering *R. selense* and *R. oreotrephes,* but these do not have variety names. The white *R. selense* were nice and absolutely of garden value.

Getting closer to our first camp, we encountered one of the most common plants seen on this expedition, *R. rupicola* var. *chryseum.* Altogether we must have seen thousands of them, and virtually all in flower. This is a very fine yellow dwarf species, useful for any temperate garden. They were all very uniform, except some 1.5 m (five feet) high plants in protected habitats and one single plant that had unusual red-edged petals.

R. aganniphum with good pink flowers. Photo by Bent Ernebjerg.

At mid afternoon, we entered a north-going valley and after an hours walk arrived at our camp-site (Camp 1) at a small

stream at 3975 m (13,041 ft). One of the most wide spread species in this part of the valley was a good, dark pink *R. aganniphum*. Even the leaves were fine, shiny and with good indumentum. In guide books on rhododendrons, most photos show less desirable flowers. *R. saluenense* ssp. *chameunum* with its beautiful deep pink flowers was also common in all the valleys we visited. Some of them had a nice contrasting red calyx to their pink flowers. Other species observed were *R. cephalanthum* and *R. wardii.* The latter were in flower, all good yellows without a red blotch, and with reddish coloured petals when the flowers were opening.

R. saluenense ssp. *chameunum*, the high alpine form 'Prostratum'. Photo by Bent Ernebjerg.

The next morning we explored the inner parts of the valley. The weather was cloudy but it stayed dry. There were a lot of rhodendrons on the west facing side of the valley and almost none on the opposite side. Of greatest interest was *R. proteoides* in full flower. In the lower parts of the valley, these plants could be quite tall, at least 0.8 m (2.6 ft), and higher up on more exposed rocks they were almost creeping. When we visited Yunnan in 2010, we saw lots of *R. proteoides,* but no flowers. Thanks to our decision to travel later in the season (and closer to the monsoon!) this time, we were rewarded with seeing hundreds of flowering *R. proteoides.* Further up the valley there was a group of *R. sanguineum*. We noted that calyx characteristics varied, some being small and others large and deflexed, with all different forms growing closely together. We also found some areas with a beautiful dark *R. campylogynum*.

These species were growing on the west-facing mountainside with *R. saluenense*, *primuliflorum/cephalanthum, proteoides* and *aganniphum*.

Subsection *Lapponica* plants were flowering in great numbers. Their flower colour varied quite a lot, and at first it looked like several species were present, but with closer examination, we decided most of them belonged to the same species. After much discussion and studying, we ended up calling these plants *R. tapetiforme* aff. Others have called them *R. tapetiforme* or *telmateium*. (See below for discussion on identifying species in nature.)

After lunch we crossed a pass at 4150 m (13,615 ft) to another valley that paralleled

Colour variation within *R. tapetiforme* aff. Photo by Ole Jonny Larsen.

the first one. Just after the pass there were great stands of *R. phaeochrysum* with both narrow and wide leaves, all mixed together. Some flowers had red blotches. One particular plant was outstanding with both orange and red markings on the white flowers. We arrived in late afternoon and camped in the valley at 4000 m (13,123 ft; Camp 2). The next day was reserved for exploration of this valley. We walked to the bottom and sides of the valley and found many rhodo species. The mountainsides were covered with *R. proteoides* but also more beautiful, dark pink *R. aganniphum* and *R. saluenense* ssp. *chameunum*.

After lunch, two of us decided to climb up higher to where a smaller valley joined the main valley. That was a good choice! The place was beautiful, the weather was perfect and we wondered how many westerners have actually seen what we saw? *R. proteoides*

R. proteoides with pink-toned flowers. Photo by Bent Ernebjerg.

R. proteoides with yellow/creamy flowers. Photo by Bent Ernebjerg.

in flower, in three different colours! The usual white one, of course, some pink, and surprisingly, many yellow flowered plants! Well, "yellow" is maybe going too far, and "yellowish" may be a better word, but still very different from the white form, and the opening buds were really yellow. We found later that "yellow" *R. proteoides* are grown in some collector's gardens, but it is definitely not well known and absolutely not offered for sale through the ordinary plant trade. It was strange that we did not find any *R. sanguineum* or other *Neriiflora* in this valley, which was just 1.6 km (one mile) from Camp 1 in the main valley.

The next day we crossed three passes and came to the Yangtze River side of Beimashan. The weather was fine and stayed fine during the day. It was a steep ascent to the first pass at 4450 m (14,600 ft). The mountainside was covered with rhododendrons, mostly *R. aganniphum* and *R. beesianum* with some *R. proteoides*, but one plant puzzled us a lot! It was obviously a *Taliensia* species with lanceolate leaves and small rounded trusses of white flowers. We understood that this could be something near the very confusing group of plants called *R. alutaceum*. Names like *R. globigerum, russotinctum, triplonaevium, tritifolium* and *iodes* have been used for different plants in this group. "Our" plants suited best the descriptions of *R. tritifolium* or *R. iodes.* Rhododendron authorities have debated names in this group. Some consider most as separate species (Davidian 1992) while others call them a mix of hybrids (Cox and Cox 1997). Chamberlain (1982) recognised them as varieties. What was clear was that these plants were found over quite a large area and in several valleys, and that they seemed quite uniform. If there are some of hybrid origin, it must be quite stable in this part of Beimashan.

Higher up there were big areas of *R. proteoides* in flower, with different colours: white, pink tinged and yellow. A little below the pass at 4400 m (14,436 ft), we suddenly came across lots of *R. campylogynum*, no flowering specimens but some with opening buds that looked like the so-called Black Form. Maybe the black colour will turn deep plum red when they are fully open?

At the pass we entered a high alpine area with bare rocks and low, creeping rhododendrons. There was no snow, and as the rhododendrons were blooming, the timing was just perfect. No new species were found on the plateau, but those plants present were generally of a lower growing or creeping habit than those in the valley we had left.

R. campylogynum on the lower pass below Paidi Pass. Photo by Ole Jonny Larsen.

We continued to the second pass at 4475 m (14,682 ft), which is the actual divide between the Mekong and Yangtze River watersheds. Near the highest points of two of the passes we found a very dwarf *Lapponica* species. To our satisfaction this was easier to identify than those described above. Scales of two colours, pale gold and dark brown, and one- or two-flowered inflorescence made it clear that this was *R. nivale.*

A very compact *R. nivale* ssp. *boreale* at high elevation (4450 m; 14,600 ft). Photo by Ole Jonny Larsen.

Growing in NW Yunnan, this must be ssp. *boreale,* but the creeping habit looked more like ssp. *nivale,* which grows much further west. It was a beautiful species that every rock garden enthusiast would like to grow in his or her garden—if it is possible! Maybe this would be better in Scandinavia than further south due to its cooler summers?

The last pass was at 4410m (14,469 ft), and from here we descended to our campsite on the Yangtze River side at 4180 m (13,714 m; Camp 3). *R. primuliflorum* grew from the sharp ridge at the pass and all the way down to the camp. At the pass, these were creeping, but they became taller and more erect as we descended. Their flowers were mostly white, but some soft pink ones were also seen.

Being at Camp 3 was our main goal on Beimashan, as we had found a mountainside filled with *R. roxieanum* of all varieties there in 2010. We gave ourselves two full days for exploration of this area. Our Chinese tour operator said that local people had told him that there was a hidden valley with several small lakes behind a steep mountainside north of our camp, so we decided to explore this valley the next day and leave exploration of the *R. roxieanum*-mountainside to the day after.

The next morning we thus ascended the steep south-facing mountainside to a pass at 4300 m (14,108 ft). No interesting rhododendrons were seen going up, but the weather was glorious. The pass was on a sharp ridge with *R. primuliflorum*. We had a view to the bottom of the valley and a lake there, but had no further view of the valley from the pass. The descent was even steeper than the ascent. The vegetation on this side of the mountain was much richer than on the south side. Here at 4270 m (14,009 ft), we found a large stand of *R. sanguineum,* all in full flower. This elevation is quite high for this species, so again we hope for new and better clones for colder areas.

As we descended, the view of the valley opened up and we saw a beautiful valley with more small lakes and rhododendrons all over. In the valley bottom, we walked on the

south side of the first lake along the north-facing mountainside. Then we divided and explored the small lakes area further down the valley. It was a gem! We saw steep south-facing mountainsides with lots of *R. wardii* and we found *R. roxieanum, phaeochrysum, tapetiforme* aff., *saluenense* ssp. *chameunum* with its beautiful calyx and more of the species we had seen before. The *R. roxieanum* in this valley had various degrees of "bloom" on the upper leaf surfaces. This is a kind of indumentum that looks like a whitish layer, almost like metallic varnish sprayed on the leaf, and some leaves looked almost silvery. When these plants grew together with their different looks, it presented a stunning effect. Leaf size and form also varied a lot, the most common form being long and narrow (var. *oreonastes*), but one single plant with broad leaves and very thick indumentum was found (var. *cucullatum*). Some obvious hybrids between *R. proteoides* and *R. agganiphum* also occurred where these two species grew together.

After lunch we went down to the last lake, and from there we could see where this valley met the valley with our camp in it. We returned to our camp valley by a much lower wooded pass. This valley was a very exciting find and quite unexpected (it was hidden by clouds on Google Earth at the time of our trip planning, but is visible now!). We decided to name this beautiful valley: "79 Ponds Valley," as seven and nine are happy numbers for Tibetans.

The next day was reserved for exploration of the *R. roxieanum*-mountainside, and again we had splendid weather. The day before we had been able to see this mountainside

Ole Jonny Larsen on top of the *R. roxieanum* ridge. Photo by Bent Ernebjerg.

Leaf variation among *R. roxieanum* growing close together. Photo by Ole Jonny Larsen.

from afar. It turned out to be much bigger than we thought in 2010. Roughly estimated, it must be more than a kilometre (0.62 mi) long and up to 300 metres (985 ft) from the valley floor to the ridge. And almost all of this was covered with *R. roxieanum*, mixed with some *R. aganniphum*, *proteoides, alutaceum* aff. and *primuliflorum*! One wonders if this might be the greatest single *R. roxieanum* population in the world, and again, we were there at the right time since most of the plants were in flower.

We next split up and searched the mountainside. It was very dry, especially near the ridge. We studied the different forms of *R. roxieanum* leaves, and these varied between 3-18 mm (0.1-0.7 in) wide. That meant that these plants belonged to both var. *oreonastes* and var. *roxieanum*. Both Davidian (1992) and Cox and Cox (1997) describe var. *cucullatum* leaves to be broader (2-4 cm (0.8-1.6 in) and 2-6 cm (0.8-2.4 in) respectively). It is interesting that one can have such an enormous stand of *R. roxieanum,* and not one single plant of typical var. *cucullatum,* or did we just not find them? Just over the low end of the ridge we found a uniform stand of *R. phaeochrysum* var. *levistratum* with narrow leaves and small flowers and trusses.

The other side of the ridge was dry and arid without rhododendrons. Some *R. roxieanum* on the ridge were big with massive trunks, and some plants were up to four metres (13.1 ft) long. How old they were is unknown. At 4300 m (14,108 ft), the ridge met a higher mountain and from there was a shortcut trail to our camp below. This path was wetter because of water seeping down from the mountain and here we found

bigger plants of *R. proteoides.* This day concluded our exploration of the Yangtze River side of the Cika pass, and so we now turned back towards the Mekong River valley.

The next day it rained for the first time, which was not too bad as we were essentially going back through the area we had explored going up. Coming to the last pass before Camp 2, we went up a ridge and saw the valley that some of us had explored earlier from the Camp 2 valley. Going down we took a shortcut to avoid going to the valley of Camp 1, and so we went a long way down and camped at 3780 m (12,402 ft). When going back, the *R. heliolepis* that were in bud when we walked up were now in flower. We also found *R. mekongense*, but out of flower.

Back to Civilization.

The next day, we needed only a couple of hours to walk back to the Upper Nonglong village. As soon as our luggage had been loaded on our minibuses, we set off and drove down to the Mekong River and then south along the river. After a week in the mountains, we all longed for a good hotel, so we left the river and went to Weixi where we had a long awaited shower at a good hotel. Weixi was a well known town by the older plant hunters, as they had passed it on their way from Dali to the Mekong River. Since it was only a half day's drive to Zhongpai Village, which was the starting point for our trek to Paidi pass on Biluoshan Mountains, we thus had the morning to look at Weixi and relax in the hot, sunny weather. After lunch, we set off again to the Mekong River, a slow and hot drive down on a road that was being destroyed by a never-ending stream of trucks carrying heavy loads of iron ore. We reached Zhongpai late in the afternoon, where we enjoyed a nice meal and a pleasant warm evening.

Trek to the Paidi Pass - BiluoShan

The next morning, we loaded all our stuff and drove over to the other side of the Mekong River to the village of Deqin at 2000 m (6562 ft). Here was the end of the road and we started walking up to our first goal, the small Lisu village of Laowo. Our bags and equipment were loaded on mules that would follow us for the next two days. It was hot and sunny so it was a hard climb. The trail passed by three side valleys, meaning walking down and up three times, so we were done when we reached Laowo at 2450 m (8038 ft). Among the plants we saw on the way up were *R. arboreum* ssp. *delavayi* and a mysterious subsection *Neriiflora* plant which we could not identify, which only grew at 2500 m (8202 ft), a low elevation for a *Neriiflora* plant. Photos of it were shared with others afterwards, and it seems that it is most likely *R. sperabile* ssp. *weihsiense.*

Laowo, where we also stayed in 2010, had changed: there was now electric light from big solar panels and there were two new toilet sheds at the end of the village. However, the schoolroom where we passed the night was unchanged, as it still had neither windows nor electric light.

The next morning we continued up the valley, but the weather had changed and it

Egil Valderhaug with *R. rothschildii* leaves. Note the red perulae (scales of a leaf bud). Photo by Ole Jonny Larsen.

started raining. It became quite wet, with a lush vegetation and beautiful unidentified *Hypericum.* One rhododendron caused us some trouble until we thought of the *Azaleastrum* section, which is not of great interest in Scandinavian gardens and thus unknown to most of us. It was *R. leptothrium*, unfortunately not in flower. One single plant of the late flowering *R. kyawii* was also spotted, still with flower buds in late June.

We soon reached the altitude for big leaved rhododendrons and found both *R. sinogrande* and *R. rex.* Seeing *R. sinogrande* in nature for the first time is always a great moment. A plant that puzzled us for a long time was *R. fulvum* ssp. *fulvoides,* which we first considered to be a big leaved *Falconera* or *Grandia* species and therefore had problems fitting it into a species description.

The rain got heavier and continued through the day until we arrived to a wet camp site near the lower Nianyobi Lake at 3330 m altitude (10,827 ft). Our mules then returned to Deqin as they could go no further. Around camp we found different colour forms of *R. heliolepis* growing near a magnificent *Nomocharis* species with several flowers. When I pointed it out for one of the porters to let him understand that I liked it very much, he immediately picked all the flowers to give to me!

The next morning it was still raining, and after our porters arrived from Laowo Village, we continued up to Upper Nianyobi Lake—the habitat of the deep pink flowered *R. roxieanum* that we had found in 2010. Its taxonomic status was still not fully defined due to a lack of material, until now. When we arrived it was a pity to see that more of the very old *R. roxieanum* plants had been cut down for firewood by local people travelling on the trail to Fugong. In the afternoon we went down through the woods and a horrible bamboo thicket to the lake in very heavy rain, where we found more pink *R. roxieanum* at the lake shore. In the camp area and along the path down to the lake, we also found flowering *R. heliolepis* and *dichroanthum*, *selense, rothschildii,*

stewartianum and *campylocarpum* ssp. *caloxanthum* with unusual narrowly elliptic leaves, typical to this area. Some have called this variety the Bilouxueshan form.

The camp site was very wet, and the heavy rain continued, but with difficulty we kept on looking for more plants. *R. calostrotum* grew in numbers in surprisingly wet situations around our camp site. Some of them had good red flowers like the famous 'Gigha' form while others were more violet. *R. rupicola* var. *rupicola,* with five stamens and lovely purple flowers, different from all the other more or less blue flowering *Lapponica* species, grew on top of rocks. Obviously this species likes good drainage and dryer growing conditions than does *R. calostrotum.*

Our plan was to move up to a "Paidi Pass Base Camp" the next day and explore around the camp, and then have two full days for exploring Paidi Pass and the slopes of Laowo Mountain (4400 m; 14,436 ft) from the base camp. Considering the heavy rain, we decided instead to go to the base camp and then straight on to Paidi Pass the next day. The porters could then move our camp up to the base camp site later in the day. The rain continued through the night, and it was still raining the next morning. We started ascending through bamboo and rhododendron and when we arrived at the base camp site, we found it too wet to camp, and another place further on was also too wet. Water was now coming down the mountainside all around us, and so we split up, with some going back down to the lower camp to tell the porters to stay there and the rest of us going on to Paidi Pass.

It was a tough walk in mountain streams and on very slippery rocks. We first came to a lower pass to a valley running parallel to the valley from the Paidi Pass at 4100 m (13,451 ft). Going on the Mekong side of the mountain and up to this pass, we found

A good colour form of *R. calostrotum* growing in debris on top of a rock. Photo by Ole Jonny Larsen.

lots of flowering *R. taliense* with a very thick indumentum, and *R. aperantum,* nearly all of them with yellow flowers but a few with an orange-yellow colour.

On this lower pass we found beautiful plum coloured *R. campylogynum,* and were uncertain if plants with this flower colour are in cultivation today. After this pass, we continued on the Salween side up to the higher Paidi Pass. There was no snow left and most of the path was on flat rock with a 30° ascent, excellent when dry but difficult when slippery! There were a lot of yellow *R. aperantum* on the mountainside, and more *R. campylogynum*. It was colder on this side, as we had heavy rain and a strong wind coming up from the valley. We continued up to Paidi Pass, and on the Pass there was lots of creeping *R. taliense,* some only a few centimetres (inches) tall. At the Pass, they may have to spend up to seven or eight months of the year under heavy snow. There was also *R. primuliflorum*.

It was getting late, and we had a long and difficult walk back to camp, so we did not have time to go down on the Salween River side, nor did we have time to search for *R. pronum*. This had been a main goal for our trip, and we had great expectations for the chosen area, but when we finally were there, the conditions made further search impossible. Maybe this is plant hunting in a nutshell—your greatest finds come by luck, and what you plan for over years, you often end up with nothing! So to date, no one knows if *R. pronum* actually exists near the Paidi Pass!

The hike back to camp was much worse than going up because of more water and in many places the trail had turned into a mountain stream. Back at the camp, we learned that it had been necessary to move the tents because of too much water, but at least we could sleep dry for one more night. Over dinner that night we decided to turn back the next morning. It was too dangerous to explore on the mountain, and our campsite could be flooded with the continuing rain. Everybody wanted to get away from the rain, so we decided to walk straight down to Laowo Village in one go.

Back to Civilization Again

It was again still raining the next morning and the trail was so wet and slippery that our focus was more on the trail than on rhododendrons. The rain continued until a bit above Laowo Village, but in the village it was dry and warm. After the wet and cold days on the mountain, it was nice to be back to warm and dry weather where we could dry our wet clothes and relax in the sun.

The next day was fine and sunny, and we set off for our last hike down to Deqin and the road. It was a beautiful walk with views down the valley to the Mekong River valley, and in contrast, it was very hot because of a strong warm wind coming up the valley. We reached Deqin Village at mid-afternoon and had a long-awaited cold beer before we entered our bus for Zhongpai. In Zhongpai, we had our first hot bath in a week, and a good meal to celebrate a well accomplished expedition. The two lost days on the Paidi Pass area were spent sightseeing in two beautiful towns, Shaxi and Lijiang, before

we returned to Copenhagen via Kunming and Bangkok.

Discussion/Conclusion

The most important lesson from this expedition is that if you want to see high altitude rhododendrons in flower at this location, you have to be there in the last half of June—monsoon or not!

This tour showed us that it can be very useful to visit the same area twice at different times of the year. You know the paths and what the conditions for trekking and camping are, and you know what to look for and where. You will see different plants in flower which makes it easier to spot new species. And finally we have learnt how easy it is to overlook things...!

One problem many collectors have faced on Beimashan is to identify the *Lapponica* species. There are lots of plants around, and at the time we were there, most were in flower. At first it seemed like there were many species due to different flower colours, but when you sit down with key and magnifying glass, you realise that they are mostly all the same. But what are they? Better people than us have had trouble identifying Lapponicas at Beimashan. The thing is, they do not fit perfectly to anything! You may think you have the answer, and take a last look at some diagnostic feature, and then you are back to where you started.

This taught us something. When you go plant hunting in China and other places, you have to be very open-minded. Remembering the plants back in your garden can be a real trap. Who says they are correctly labelled? At least when it comes to Lapponicas, one has to be careful. They vary a lot in nature, species hybridise where they grow together, wrongly labelled plants are often offered for sale, and selected clones for sale are just that—a selection from what can be a species with variable characteristics. Plants within the same species can look quite different from those that you grow at home. Even the world's leading authorities on rhododendrons have trouble identifying Lapponicas in the wild, so keep calm, as you can still be a good taxonomist even if some Lapponicas on a Chinese mountain cause you trouble!

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Propagation of Rhododendrons by Grafting

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Grafting is the triumph of Art over Nature.
Louis Liger, 1762.

Rhododendrons can be propagated by sowing seeds, grafting a scion on to an already rooted plant (root stock), by wounding a branch and layering it so that roots are produced in the wounded area, and by "in vitro" culture of meristem somatic tissue. All techniques will be briefly described, but the focus of this note is on grafting.

Sowing is a simple technique and anybody can do it with minimal supplies and experience. It can produce plants in large quantities at a modest price. One can use this propagation method to acquire species not otherwise readily available, but sowing is most often used to produce hybrids. One can buy labeled seeds from rhododendron societies or more rarely, from private individuals.

Propagation from cuttings is typically done by more well-informed amateurs who have some basic propagation equipment because temperate rhododendrons in particular root best with bottom heat. This way of vegetative propagation allows the production of plants genetically identical to their source plant, i.e., clones. This is important when trying to maintain a particular rare or unusual cultivar or species.

Propagation by grafting is also relatively easy, despite the required preparation of the root stock and scion, which may seem intimidating to some. However, this propagation method is typically the best one to choose when a species or a hybrid is hard to root from a cutting.

Layering is perhaps the simplest method of propagation. However, it is often more time-consuming, and can take as long as one to two years. It is also limited as a production method since you can only layer a plant which grows in your own garden [or a friend's] and only a few new plants can usually be produced at any one time.

Propagation by "in vitro" methods [meristem cell culture], on the other hand, allows the production of species or hybrids on a large scale. The required equipment, though, means that this method is typically practiced only on a commercial scale and is seldom practiced, at the moment at least, by amateurs.

Grafting

There are two objectives in grafting:

1. propagation of plants that are difficult to root, and
2. to change the root portion of a plant for one either more suitable to the plant's habitat or for a stronger one than was the plant's original natural root ball.

You can root cuttings of 'Cunningham's White' in order to get root stocks. It is THE universal root stock but for a strong plant, I prefer to use 'White Pearl', called 'Halopeanum' in France.

As indicated above, sowing seeds can produce a large quantity of plants, but it would be absurd to keep them all when some of them may not be of the quality desired. The argument often made is that "I keep them all because I may otherwise throw away a nice truss," but this is not a good decision. There is little value to have a rhododendron that looks good only when it is in flower (about 15 days) and for the rest of the year have a plant that is unattractive.

In selecting to keep only the finest plants, you can still however have a benefit if you use the plants eliminated by your selection to build up a collection of root stocks of variable stem diameters.

It seems that only imagination limits the methods of grafting and my intention is not to catalogue all the options. After having tested a lot of them, I finally adopted one which in my opinion has a tremendous advantage: it is easy to implement by an amateur, and is thus the one I recommend to all beginners.

Success is practically 100% if you take your time. The scion has to have finished its growth and begun to become hard. Too soft or too hard (too early or too late if you prefer) causes the rate of success to fall. This time is of course to be determined according to your area's climate and weather that year, according to the cultivar you want to multiply. Notice that the appropriate time for the same plant can change from year to year according to the weather in any given year. In my area of France, the time is generally about July 14th, plus or minus a week.

First, water to saturation the container in which the root stock is growing. Cut the root stock at a height where its diameter is exactly the same as that of the scion (do not hesitate to measure with a caliper). The ideal is about 10 cm (four inches) above the soil to be able to work without being restricted, with a few leaves lower down (this is not essential). Cut the wood obliquely for about 2-3 cm (1 inch) (Fig. 1).

Figure 1. The rootstock and scion cuts.

Top. Figure 2a. Clothes pegs holding the scion to the root-stock.

Bottom. Figure 2b. A fully formed callus.

Prepare the scion by reducing its combined leave area by about 50% and then make the same oblique cut as on the root stock. What we will notice is that the root stock has harder wood of a darker color, while the softer scion shows lighter colors.

To maintain the maximum contact between the scion and rootstock, I pinch them together with clothes pegs. For a cut of about 3 cm (1 inch), you will need three clothes pegs: two on one side, and the one in the middle on the opposite side (Fig. 2a). The clothes pegs have the advantage of allowing the exact positioning of the scion and to be able to position it again easily if necessary. That is not the case if you use a rubber strap. Moreover, if you are curious as to how the graft is healing later on, you can take off the central clothes peg for a moment to see if callusing has begun. However, the main advantage of clothes pegs is that they exercise a constant pressure on both parts during the whole operation: the soft wood of the scion is gently pressed against the hard wood of the root stock, smoothing out any little imperfections in the straightness of the oblique cuttings since the hand of a grafting man is never absolutely precise.

A rubber strap, even well tightened at first, often loosens over time. If the wood of the scion retracts even slightly, the strap slackens. That can not happen with clothes pegs, which will follow any movement and maintain a constant pressure.

There is, however, a restriction for using clothes pegs: the diameter of the root stock and of the scion. The opening of clothes pegs is limited in size, but I have found this limitation seldom even concerns big leave rhodos.

Finally, I put an opaque plastic bag over the whole scion. The top of this bag rests on the leaves of the scion and supports it, and if you put one of its corners just above the leaves of the scion, this makes a kind of umbrella and water falling on it should run off. Inserting a chop stick or similar item that extends above the top of the scion can also address this problem.

I close hermetically the bottom of the bag below the graft with a string and I place

my container to receive light, but not the sun's rays directly. Monitoring consists of checking for the presence of condensed water drops on the inside of the plastic bag, which indicates proper moisture inside, and watering the pot as needed. About three weeks later, the grafting should be finished (Fig. 2b), and I take off the plastic bag but leave the clothes pegs on just in case a bird perches on the top of the scion and breaks it off. I now move the container to a more sunny place (Fig. 3).

Figure 3. New growth on a successfully grafted scion

Reasons for Grafting

Grafting may be necessary if the rhododendron to be propagated is naturally hard to root. An example is with 'Pink Petticoats', which is difficult to root. Kathy Van Veen of Van Veen Nursery in Oregon stated: "We had a terrible time rooting it and finally just used grafts [for this cultivar].

So the choice of an appropriate root stock is of great importance. The Germans have developed and selected a preferred root stock with the goal of having a strong root ball to ensure vigorous growth in relatively heavy soils that have a ph more or less about 7. They named it INKARHO, from **IN**teressengemeinschaft **KA**lktoleranter **RHO**-dodendronnunterlagen. They created it by crossing *R. fortunei* with 'Cunningham's White'. However, this root stock is proprietary and it is forbidden to multiply it, but it is not forbidden to make the same crossing that created it with your own plants**.** The resultant plants may not be quite as efficient as the famous INKARHO, but it should be good enough for your own needs.

There can be benefits in combining propagation methods.

If it is a general custom to sow seeds for species that are difficult to root, but as indicated, by doing so we are not assured of getting the handsome clone that we hope to have. Only by grafting a scion from a high quality plant can we realize this. However, purists such as many species lovers may be concerned if a beautiful, desired clone such as *R. macabeanum* KW 7724 is growing in his garden grafted on to INKARHO, *R. calophytum* or another suitable root stock. The way to overcome this concern in this case is first to sow *R. macabeanum* hand-pollinated seeds, and then use some as root stock for scions of KW 7724. This way you know that the whole plant is the true species you want, in this case *R. macabeanum.*

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The Word: Polyploid

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Photos by the author

This is the season when hybridizers are beginning to take the little caps off the pistils of their hand-pollinated flowers to harvest the seeds of their labors. Some of the results will be **polyploid**, so this seems like a great time to demystify the word. We've all heard the term many times and multiple articles have appeared in *JARS*. Some examples just in this decade are Barlup 2002, Jones et al. 2007, Jones et al. 2008, Konrad 2009 and Jones and Ranney 2009. Hybridizers and many others in the American Rhododendron Society understand polyploidy but a large number of our members might not, so here's an attempt to explain the term in lay language. Polyploid comes from the Greek *poly*, meaning "many" and *ploos*, meaning "fold." In this context, "many fold" means multiple sets of chromosomes.

The variety of forms in multi-celled organisms is typically controlled by sexual reproduction. Single cells called gametes (Greek *gamete* = "wife"), one from each of two organisms, combine to form a new organism with some of the characteristics of each parent. Each characteristic (flower color, shape and patterning for example) is controlled by genes. The term gene derives from a nineteenth century term pangene (Greek *pan* = "universal" and *genes* = "something that produces"). Before we knew about DNA, scientists assumed that characteristics of cells were shed into the blood and absorbed by sex cells (eggs and sperm), thus the term "bad blood." We now know that a gene is a section of DNA that works to control a specific characteristic. In a large majority of cases, a characteristic is controlled by two genes, one inherited from each of two parents. Each of these genes is on a separate long strand of DNA called a chromosome (Greek *chromos* = "color" and *soma* = "body"). Fig. 1 is an old photo I took about fifty years ago showing chromosomes from the root of a native buttercup, *Ranunculus occidentalis,* just before cell division.

There are many exceptions, but for our basic explanation (purposely ignoring alternation of generations in plants) we can say that most cells in multi-celled organisms have chromosomes in pairs, with each member of a pair having genes for the same characteristics. We call this condition diploid (= "two fold") and the cells are called somatic (Greek *soma* = "body") cells. These cells proliferate and form multi-celled

Fig. 1. Chromosomes from the root of a native buttercup, *Ranunculus occidentalis,* just before cell division.

organisms by duplicating themselves in the process we call mitosis (Greek *mitos* = "thread"). Each cell resulting from mitosis typically has DNA, genes and chromosomes identical to its parent cell. For sexual reproduction to take place, cell division is similar but has extra steps to produce cells that have only a single copy of each chromosome. We call this process meiosis (Greek *meioun* = "to make smaller") and the resulting cells are called haploid (= "half fold"). Two haploid cells (gametes), usually each from a different parent organism, can now combine to produce a new offspring having characteristics of both parents. This process allows variety within a species and is the primary objective of sexual reproduction.

The process sounds straight-forward. Diploid cells should result from mitosis and haploid cells from meiosis, but multiple things can go wrong during cell division, among them polyploidy. In either type of cell division, the chromosomes may fail to separate correctly and daughter cells might have more complete sets of chromosomes than they should have. We call such cells polyploid. Polyploidy is uncommon among animals, though there are numerous examples of whole animals and tissues (Leslie 2014). Polyploid embryos in humans, for example, are thought to be responsible for a large percentage of spontaneous abortions. It's a totally different story among flowering plants. Polyploidy occurs regularly among flowering plants in the wild. In a seminar years ago I learned that polyploid plants of a given species tend to do better at the edges of a natural species distribution range than do diploids of the same species. This finding has been supported more recently by research showing that polyploid plants do better than diploids of the same species in establishing themselves on newly exposed lands at the edges of retreating arctic glaciers (Comai 2005). Part of the reason flowering plants have come to dominate the modern world appears to be their ability sometimes to use redundant sets of chromosomes to their advantage. One example is a process called diploidization, where the extra gene pairs resulting from polyploidy are altered and used in the development of novel characteristics. A major polyploidy event that appears to have taken advantage of diploidization is thought to have occurred about 130 million years ago, leading ultimately to the flowering plant diversity we find today (Adams 2013).

Fig. 2. Top: *R. decorum*, the normal diploid size for the species. Bottom: a leaf from *R. decorum* ssp. *diaprepes* 'Gargantua', a polyploid.

In agriculture and horticulture we take advantage of polyploidy. Polyploid plants often have larger leaves, flowers and fruits than diploids. Fig. 2 shows a diploid leaf at the top from *Rhododendron decorum*, the normal diploid size for the species, while the larger lower leaf is from *R. decorum* ssp. *diaprepes* 'Gargantua', a polyploid. In agriculture, wheat and corn are examples of ancient polyploids, while watermelons and tomatoes are more recent ones. For the last 50 years or so, polyploidy has been induced artificially using substances such as the old gout and cancer treatment drug colchicine, extracted from crocus-like plants in the genus *Colchicum*. Jones *et al.* (2008) reported recently on a method for increasing polyploidy in rhododendrons by applying the herbicide oryzalin in semi-liquid agar to the tips of new seedlings, a process that should interest our hybridizers.

Fig. 3. The triploid 'Taurus'.

Fig. 3 is a picture of 'Taurus', often a winner at our flower shows. Taurus is a triploid, the result of a union of a diploid and a haploid sex cells. 'Taurus' has been described as "the red by which all other reds are judged," but plants such as this with odd numbers of chromosome sets tend to have problems when they produce sex cells, have low fertility and are notoriously difficult to use for hybridization. On balance, though, polyploidy produces great ornamental rhododendrons that we can enjoy for their large leaves and big, showy flowers. Let's hear it for, among others, 'Horizon Monarch', 'Grand Slam', 'Taurus', 'Lem's Monarch', 'Point Defiance', and the great *R. maddenii* polyploids.

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Enterprise Based Conservation Programs: A Sustainable Development Case Study for the Eastern Himalayan Region

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The world is presently experiencing an era of species loss due to many anthropological and other reasons. Studies show that unsustainable development activities by human societies are one of the major drivers of ecosystem degradation. In the Eastern Himalayas of India, and particularly in Arunachal Pradesh, one of the biodiversity hotspots in India, the level of biodiversity degradation has become alarming. Development projects ranging from infrastructure development to construction of large hydroelectric projects are livelihood sources for communities, but these can also lead to biodiversity loss. An increasing human population density in the area and their high reliance on natural resources is another reason for biodiversity degradation. Due to this dependency on living resources available, an integrated approach in the region is needed to address conservation.

Rhododendron arboreum is a widely present tree species all over this Himalayan area at an altitude of 1100–2500 m (3609–8282 ft). The species is well appreciated for its root system, which helps minimise landslides, and also for its high calorific value as firewood due to the presence of flammable alkaloids in its wood. Large tracts of *R. arboreum* have been lost from the eastern Himalayan region because of a high level of exploitation by local communities. Since most of the forest areas in the region are classified as "Unclassed State Forest (USF)," local communities have *de facto* control over natural resources, and so these impacts were expected.

The InsPIRE Network has developed a tailor-made program to minimise biodiversity degradation in the region, using *R. arboreum* as a case study.

An enterprise-based conservation model was initially developed in which communities were shown how to generate additional livelihood from *R. arboreum* forest patches from their USF community forest. As part of the adoption of sustainable resource extraction methods, this species is being protected through the establishment of *R. arboreum* conservation areas.

As a first step, a small-scale rhodo-dendron squash factory [see editor's note below] was established in Tawang District of Arunachal Pradesh as a livelihood program, with a conservation requirement that the local community protect eight hectares (19.8 acres) of rhododendron forest from all sorts of anthropogenic disturbance. Later the community was shown how to develop a rhododendron nursery for propagation, both to allow reforestation in the degraded areas of their community forest and to sell rhododendron saplings to other agencies for income. Saplings from the community nursery have also been used to establish rhododendron plantations in specific denuded areas to control landslides, which were threatening the safety of Tawang Monastery, an historical monument in the country.

Finally, the Buddhist Monpa tribe of the area has had a long tradition of establishing and maintaining sacred rhododendron groves, locally called "nge." The traditional system of establishing sacred grooves has been revived in the project. About two ha (five acres) of degraded forest area were reforested using the saplings from the community nursery, and this areas was declared as a sacred groove by the local village counsel, allowing this patch to be protected forever.

Monalisa Sen and K.M. Jayahari work for the Inspire Network for Environment in New Delhi, India, and Monalisa can be contacted at monalisa@inspirenetwork.org.

[Editor's note: The deep red flowers of *R. arboreum* (note: not all rhododendrons are edible and some are even very toxic) are collected by villagers to make rhododendron squash (juice). Here is a recipe (http://hillsjester.com/2013/04/29/juicesquash-of-rhododendron-flowers/):

Collect 2 kg (4.4 lb) of flowers, and remove their internal parts (stigma, pistil). Wash them with fresh water. Put 3 liters (3.2 qt) of water in a large pan, add the cleaned flowers, bring to a boil and simmer. Add 1 tsp (5 cc) of sodium bicarbonate. After about 15 minutes, the flowers give up most of their juice, colour and aroma in the water, and this is a good time to sieve the "flower soup." When the flowers have cooled down, more of the juice can be extracted by pressing them in your hands. Four liters (4.2 qt) of very dark red liquid is produced. Add 2.5 kg (5.5 lb) of sugar and simmer again for 15 minutes, then add 40 g (1.4 oz) of citric acid as a preservative and to enhance the taste. To drink it, just mix a dose of the squash with a double or triple dose of water.]

Figure 1. Ashridge House.

The Gardens at Ashridge, England

Mick Thompson
Newcastle upon Tyne,
England

Ashridge in Hertfordshire is one of the most beautiful and historically significant gardens of England. Within its 76.9 ha (190 acres) are the finest examples of early 19th century high horticulture and the monumental mid and late 19th century extravaganzas of a 20 ha (49.4 acres) arboretum with long wooded avenues and exotic planting of rhododendrons and azaleas. They survive intact, little altered and are of great rarity. Today they are designated Grade II* by English Heritage.

Their preservation is of great national importance and currently a programme of garden restoration is underway, including the restoration of the 390 m (1280 ft) Rhododendron Walk lying within a 400 m (1312 ft) Wellingtonia Avenue where *R. ponticum* rootstocks have taken hold.

A Brief History of Ashridge

There are seven centuries of history at Ashridge dating from monastic beginnings in 1283 when Edmund of Cornwall, nephew of King Henry III, founded and endowed the College of Bonhommes. Between 1536 and 1541 it survived the Dissolution of the Monasteries by Henry VIII when it became a royal home for his children Mary,

Elizabeth and Edward, eventually passing to Princess Elizabeth who lived there for eight years before becoming Queen Elizabeth I.

After her death it was bought in 1604 by Sir Thomas Egerton, her Lord Keeper and over the next three hundred years the Egertons, as Earls and Dukes of Bridgewater and their descendants, the Brownlows, greatly enlarged the estate and developed the gardens until in the 1920s, on the death of the 3rd Earl Brownlow, it was broken up and sold. Ashridge House with its magnificent gardens and grounds became an educational foundation and the Parkland was purchased by the National Trust.

Today, the Ashridge (Bonar Law Memorial) Trust is one of the world's leading business schools. It is a registered charity with a duty of care to preserve the House and its gardens for the benefit of the nation and works in partnership with the National Trust to maintain and protect the heritage of the entire Ashridge estate.

The Gardens

The gardens as we know them today began when the 7th Earl of Bridgewater replaced the crumbling monastic buildings between 1804 and 1814 with the present 1000 ft (304 m) long white Gothic mansion (Figures 1 and 2: Ashridge House) and commissioned Humphry Repton, the greatest landscape gardener of the time, to design the gardens. Repton presented designs for his "Pleasure Grounds" in a trademark leather "Red Book for Ashridge" in 1813. The gardens, including a rosary, Monks' garden, souterrein and grotto were completed in 1823 and are the finest remaining example of Repton's work. His original Red Book is now in the ownership of the Getty Research Institute in Los Angeles.

Grand Extensions and the Introduction of Rhododendrons

In 1849 the estate was inherited by the Brownlow family who introduced greater splendour to the gardens on an heroic scale, especially Lady Marian Alford, mother of the minor 2nd Earl, who ran the estate for twenty years. She created the Italianate garden and skating lake, built a Fernery and planted a 20 ha (49.4 acres) arboretum and evergreen avenues of Holm Oak and Cypress in the south of the garden. In 1858, only five years after the species had been

Figure 2. Ashridge House.

introduced into the country, she planted a 400 m (1312 ft) avenue of *Sequoiadendron giganteum*, known as Wellingtonia or Giant Sequoia, native to the western slopes of the Sierra Nevada in California. The avenue was aligned directly with views from the house and was later flanked with *Aesculus hippocastanum*, the common horse chestnut. In the 1860s, a flint-lined moat 215 m (705 ft) long with a bridge over it was added to separate the high horticulture of Repton's Pleasure Grounds from the newly developed south garden. The canvas was now ready to receive its colour.

It was the 3rd Earl Brownlow who introduced rhododendrons and azaleas into the gardens in the late 1870s and early 1880s in beds on either side of the moat and with rhododendrons planted in three rows on both inner sides of the avenue of Sequoia to provide a colourful foil to the trees in the views from and to the mansion during spring and early summer. By the beginning of the 20th century, the gardens at Ashridge were now at their most extensive as the flamboyant and wildly colourful setting for one of the grandest of aristocratic country mansions.

Illustrations

Early 20th century illustrations (Figs. 3, 4 and 5) show the moat and its bridge with the abundance of rhododendrons and azaleas, and the 1926 watercolour by Theresa Stannard (Fig. 6) shows the crisp gravel walk, the bridge and water-filled moat with planting again in full bloom. Figs. 7 and 8 show the Rhododendron Walk with views to and from the house and Figs. 9 and 10 show the same views today. The scale of the avenue and the rhododendrons and the adjacent moat are seen in the context of the whole garden on the OS 25" map of 1924 and in the 1928 aerial photograph (Figs. 13 and 14).

Figure 3. Early 20th century photo of the garden.

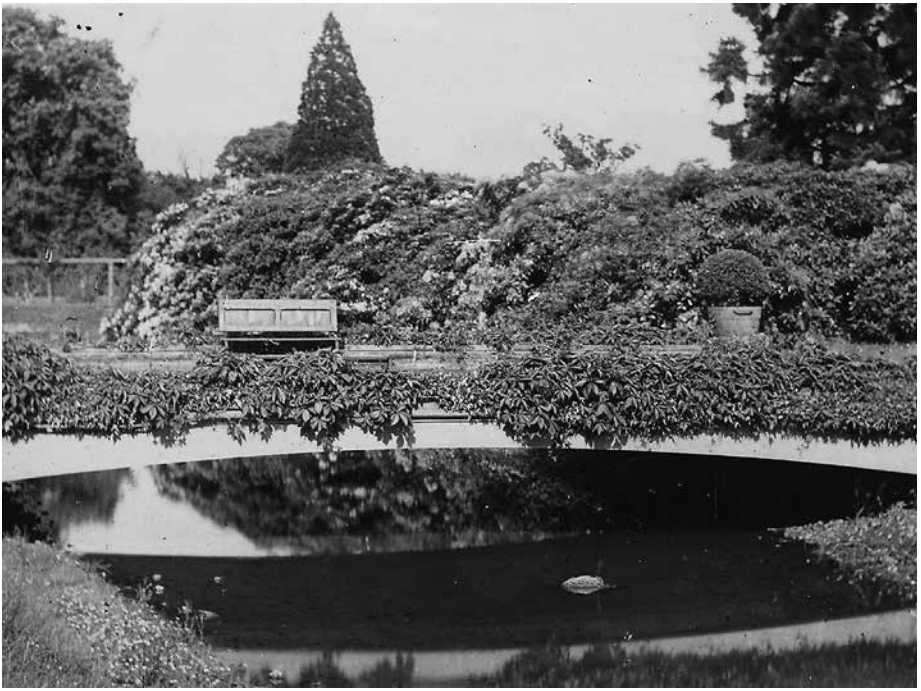

Figure 4. Early 20th century photo of the garden.

Figure 5. Early 20th century photo of the garden.

Figure 6. A 1926 watercolour of the garden by Theresa Stannard.

The Rhododendrons

Based on a box of inherited Victorian lead plant labels, a list of the hardy hybrids, planted in the late 19th century, was put together a few years ago, but enquiries showed that most cultivars were no longer in cultivation. A list of these identified Waterers at Knaphill and Bagshot and Standish and Noble as the major nursery suppliers.

The selection of early hybrids made by the 3rd Earl for wide-ranging colour flowering in April, May and June was not entirely good for a garden in middle England some distance from the milder climes of the south west, though plants such as R. 'Lady Eleanor Cathcart' (*R. maximum* × *R. arboreum*) improved the less hardy *R. arboreum* with the hardiness, good foliage and late flowering period of *R. maximum*. Some of his choices however would rather quickly have been superseded by a wider palatte of plants in the late Victorian period and early 20th century (e.g., 'Cynthia', 'Pink Pearl' and 'Jean Marie de Montague').

A good number of these early plants unfortunately were grafted on *R. ponticum* stocks by the nurseries long before it was realised how vigorous the species is, and this of course accounts for clumps of *R. ponticum* in many old gardens today, including Ashridge.

The Restoration of the Rhododendron Walk

The rhododendrons were heavily pruned in the mid-1950s after neglect during World

Figure 7. Early 20th century photo of the Rhododendron Walk.

Figure 8. Early 20th century photo of the Rhododendron Walk.

Figure 9. The Rhododendron Walk today.

Figure 10. The Rhododendron Walk today.

War II and, most recently, 12 years ago. The horse chestnuts were removed for overcrowding the sequoias in 2004. Over time, some of the hybrids have died out and in large areas, *R. ponticum* has dominated. We are currently working with Ken Cox of Glendoick Nurseries in Perth, Scotland, on planting suggestions and identifying the remaining hybrids—if these cannot be replanted, it may be possible to propagate and graft them from collections of Victorian hybrids held in other gardens in England and Germany.

Recommendations for planting have taken into account the many improvements in hybridization over the years in order to add a range of spectacular colours and flowers for a longer flowering period. The restoration will ultimately include some of the initial larger-leaved hybrids, bringing added interest of leaf shape, form and colour from both Victorian

Table 1. Rhododendrons planted in November 2013.

Cultivars		
'Captain Jack'	L	7
'Christmas Cheer'	E	7
'Cynthia'	L	7
'Fastuosum Flore Pleno'	L	7
'Glendoick Petticoats'	ML	7
'Glendoick'	ML	7
'Glenna'	ML	7
'Gomer Waterer'	ML	7
'Horizon Monarch'	ML	7
'Jean Marie de Montague'	ML	5
'Lem's Cameo'	M	7
'Lem's Monarch'	ML	7
'Loderi King George'	ML	7
'Mrs T.H. Lowinsky'	L	7
'Nancy Evans'	ML	7
Nobleanum Group	VE	7
'Polarnacht'	ML	7
'Rabatz'	ML	7
'Rasputin'	L	7
'September Song'	ML	7
		138
Large species		
R. arboreum ssp. *cinnamomeum*	M	5
R. falconeri	M	5
R. hodgsonii	EM-M	5
R. praestans	EM-M	5
R. rex	EM	7
R. sinofalconeri	M	5
R. sutchuenense	E	5
		37
Total		175

hybrids and modern cultivars to hopefully satisfy everyone. Ken Cox believes the Rhododendron Walk at Ashridge could ultimately be one of the greatest plantings in the UK.

The Planting

The sequoias, some now rising to 43 m (140 ft), currently stand at over 22 m (72 ft) apart in a line along an avenue 38 m (125 ft) wide. A grass strip just over 6 m (20 ft) is down the centre of the avenue.

From the original planting, the nearest rhododendron was six to seven metres (20-23 ft) from the sequoias, allowing for a planting strip about eight metres (26 ft) wide along both sides of the avenue. Allowing for planting distances of two to three metres (six to ten feet) in the groups, this will allow for three rows of larger hybrids. Within this planting it is possible to include groups of three species rhododendrons to be planted at the rear mid-point between the sequoias. In terms of numbers of rhododendron, there is a requirement for a minimum of 390 plants on each side, giving a minimum total of 780 plants.

Grant funding from charitable trusts and foundations together with individual donations have enabled us to purchase the first batch of hybrids, thereby allowing Ashridge's own team of professional and young trainee gardeners to begin restoration work last year. Grubbing out the *R. ponticum* and soil preparation along the

Fig. 11. 2013 plantings of new hybrids.

Fig. 12. 2013 plantings of new hybrids.

southernmost end of the Walk began in early 2013 and in November, 180 hybrids were planted (Figs. 11 and 12). Details of the plants are given in the table on page 37. On this basis, we anticipate the restoration will take three or four seasons.

Summary

This is an exciting restoration project for our Gardens Team who year round conserve and maintain Ashridge's magnificent 77 ha (190 acres). Also important to the restoration is the invaluable experience in the management of an historically significant site for our three young trainees, two of whom are Ashridge's own young gardeners and the third an annual placement from the UK

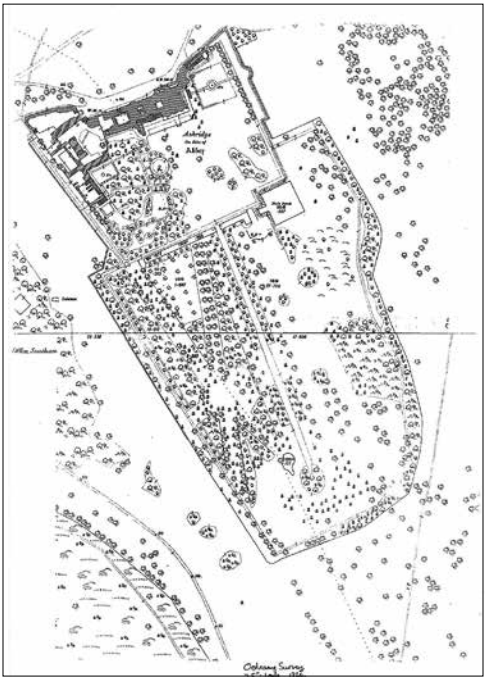

Fig. 13. 1924 OS 25" map of the garden.

Fig. 14. 1928 aerial photograph of the garden.

Professional Gardeners' Guild. Ashridge is one of only six UK "top gardens" selected by the Guild to host its trainees—the others being Osborne House, Chatsworth, Waddesdon Manor, The Garden House (Devon) and The National Botanic Garden of Wales.

We would be delighted to see members of the American Rhododendron Society at any time of year should they wish to come and visit us, especially during the rhododendron flowering season, to see what we are trying to achieve here. Please do get in touch if you would like more information or if you feel you can help with the restoration in any way. My email is: mick.thompson@ashridge.org.uk and phone +44 (0)1442 841042 or visit www.ashridge.org.uk/gardenrestoration for more information about the gardens.

Mick Thompson is Garden Manager at Ashridge.

Authorship of *Rhododendron minus* var. *chapmanii*

Donald H. Voss
Vienna, Virginia

Chapman was the first to recognize the lepidote rhododendrons of West Florida as a variety of *Rhododendron punctatum.* The entry in his *Flora* (Chapman 1860) stated: "**R. punctatum**, Andr. Leaves elliptical . . . capsule elongated.---Varies with smaller . . . leaves, minute calyx-lobes, and shorter capsule . . . ---Mountains of Georgia and North Carolina; the variety is in the sandy pine barrens of West Florida." Chapman did not provide a name for the variety. Subsequently, the Florida lepidotes were given various names: *R. punctatum* var. *chapmanii* Alph. Wood (1870), *R. chapmanii* A. Gray (1876), *R. minus* var. *chapmanii* (A. Gray) Duncan & Pullen (1962) and (Alph. Wood) Gandhi & Zarucchi (2009).

Gandhi and Zarucchi (2009) asserted that the 1962 publication of *R. minus* var. *chapmanii* (A. Gray) W. H. Duncan & Pullen was not valid. They based this on the further assertion that "Gray provided an explicit reference to Wood's varietal name," *R. punctatum* Andrews var. *chapmanii* Alph. Wood (1870). This is a misinterpretation of Gray's protologue: "**Rhododendron Chapmanii**. *R. punctato* perquam similis . . . seminibus anguste oblongis.---*R. punctatum* var. Chapm. Fl. 266.---Sandy pine barrens of W. Florida, Dr. Chapman." (Gray 1876). Gandhi and Zarucchci (2009) erred in stating that Gray's (1876) name for the species was a new combination based on "'*R. punctatum* var. *chapm.'* [var. *chapm.* = var. *chapmanii*], which was validly published by Alph. Wood in 1870". Gray did not cite "var. *chapm."* Gray's protologue stated "*R. punctatum* var. Chapm. Fl. 266," not "*R. punctatum* var. *chapm.* Fl. 266.*"* Chapm. in roman type is obviously part of the bibliographical reference to Chapman's (1860) *Flora,* not an abbreviated epithet. Gray (1876) did not provide an explicit—or any other—reference to Wood's (1870) varietal name.

If "Chapm." is interpreted as an epithet, then "Fl. 266" is not a clear and full identification of the source of Gray's (1876) reference to Chapman's 1860 brief diagnosis of the unnamed "variety" in his description of *R. punctatum.* Nothing in Gray's protologue provides evidence for either explicit or presumed intent by Gray to

create a new combination or name at a new rank. His apparent intent was to provide an eponymous name for Chapman's "variety" as a new taxon at the rank of species. *R. chapmanii* A. Gray is the earliest legitimate name for the lepidote rhododendrons of West Florida in the rank of species.

In publishing "**Rhododendron minus** Michx. var. **chapmanii** (A. Gray) Duncan and Pullen, comb. nov.," Duncan and Pullen (1962) met one of the requirements for valid publication (full and direct reference to the author and place of publication of the basionym (*International Code of Nomenclature for algae, fungi, and plants* [ICN] Art. 41.5; McNeill et al. 2012)) by including "*Rhododendron chapmanii* A. Gray, *Proc. Acad. Phila*. II. 4. 61. 1877." in the synonymy. Duncan and Pullen cited the wrong journal, but the references to volume number, page, and date were those for Gray's 1876 [1877] protologue in *Proc. Amer. Acad. Arts*; 12: 61, (1877 on title page, 1876 for pp. 51-84 per Stafleu and Cowan (1976); vol. 12 in the full series is vol. 4 in the new series). This error in citation did not preclude valid publication of the new combination, because ICN Art. 41.6 provides for correction of errors in citation of the basionym or replaced synonym.

The ICN also provides for correction of a reference that cites a work other than that in which the basionym or replaced synonym was validly published (ICN Art. 41.8). With respect to the Florida lepidote rhododendrons, Alfonso Wood's (1870) *R. punctatum* var. *chapmanii* was the earliest validly published name at the rank of variety, hence the correct basionym for *R. minus* var. *chapmanii*. Asa Gray (1876) did not cite Wood's name when he published *R. chapmanii*, and Duncan and Pullen (1962) published *R. minus* var. *chapmanii* (A. Gray) W. H. Duncan & Pullen with no reference to Wood's name. However, ICN Art. 41.8(a) provides for correcting the wrong citation of a basionym to a correct one "when the *name* [emphasis added] cited as the basionym . . . was validly published earlier than in the cited publication"—but (literally) not when the situation involves the final epithet of the name rather than the full name.

The difficulty is semantic. For ranks below genus, the ICN defines a "name" as a combination comprising the genus name *plus* an epithet. ICN Art. 6.10 recognizes the distinction between name and epithet, stating that "the basionym provides the final epithet, name, or stem of the new combination or name at new rank." The distinction between name and epithet is also recognized explicitly in ICN Art. 49.1, which deals with citation of the author of a basionym: "When a genus or a taxon of lower rank is altered in rank but retains its name *or the final epithet of its name* [emphasis added] . . . " This clearly suggests that the omission of the emphasized words from ICN Art. 41.8 was an editorial lapse.

Wiersema (2013) has addressed this issue in GRIN (http://www.ars-grin.gov; taxon: *Rhododendron minus* Michx. var. *chapmanii* (Alph. Wood) W. H. Duncan & Pullen). In the Comment dated 3 Sep 2013, he stated that the matter requires "some interpretation of the intent of 41.8(a), since it was not 'the name cited as the basionym' but rather

'the final epithet of the name cited as the basionym' that was validly published earlier in this case. The wording of Ex. 20 suggests that reference to an epithet validly published earlier than what was cited would have been correctable as long as there was no reference to the place of valid publication of this epithet in the place that was cited." Under this interpretation, Duncan and Pullen's (1962) error in citation of the basionym is correctible, and their new combination remains validly published (with citation of the basionym author corrected) as ***Rhododendron minus*** Michx. var. ***chapmanii*** (Alph. Wood) W. H. Duncan & Pullen, *Brittonia* 14: 297. 1962.

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Acknowledgements

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Don Voss is a member of the Potomac Valley ARS Society and a frequent contributor to JARS.

The RSBG's 50th Anniversary Celebration

Steve Hootman
Executive Director & Curator
Rhododendron Species Botanical Garden

What an incredible spring we have had to celebrate the 50th Anniversary of our fine organization. After a very dry winter (great for getting things done in the garden), we had possibly the wettest March and April on record for our region. Ironic weather notwithstanding, it was a fantastic spring with no late spring frosts and the aforementioned relatively cool and moist conditions prevailing. This particular combination resulted in a very unusual overlapping of species blooming together. The early flowering species, such as *R. calophytum, sutchuenense* and *lutescens*, were able to keep their flowers on for an extended length of time, sometimes up to six weeks, due to the lack of any hard frosts combined with the cool temperatures. These early species overlapped with the mid and even later flowering species for some rarely seen color combinations and floral displays. This created a fantastic, although highly unusual, season of flowering.

Then, in late April, guests came to celebrate the 50th Anniversary of the Rhododendron Species Foundation from as far away as Norway and Australia. The entire event went very smoothly and all seemed to thoroughly enjoy themselves. Finally, through a combination of a last minute fund-raiser at the Anniversary, our annual Spring Garden Campaign and our participation in the Seattle Foundation's GiveBig event, we raised over $71,000 for the endowment and operations. With this continued support for the future of our organization we can be assured that the next fifty years will be even greater than the first.

Society News

Awards

Gold Medal Award: John Hammond

John Hammond receives the Gold Medal certificate from Peter Cox. Photo by John Roy.

You joined the Scottish Chapter of the American Rhododendron Society in 1994 and attended your first ARS Convention at Oban in 1996 where you acted as conference manager, organising the tours, accommodations, and venues.

Since then you have been instrumental in the organisation of Conferences at the Royal Botanic Garden Edinburgh in 2002, 20008, and most recently 2013. These conferences have attracted speakers and delegates from all over the world.

Your Journal Articles on Historic Gardens are wonderfully researched and give the readers an in depth account of the relationships between garden owners, plant hybridisers and the rhododendron gardens. These articles are frequently featured in the ARS Journal for all to enjoy and be educated.

You have lectured extensively on rhododendron garden history and "Air Layering" as a propagation technique at many ARS Conventions.

You have also acted as Director at Large for the ARS and been an inspirational voice in the Scottish Chapter for many years.

For these outstanding contributions, the American Rhododendron Society is pleased to award the Gold Medal to John Hammond, May 3, 2014.

MIDDLE ATLANTIC CHAPTER

Bronze Medal: Jay Y. Gillenwater, M.D.

The Middle Atlantic Chapter of the American Rhododendron Society presents to Jay Y. Gillenwater, M.D. this Bronze Medal Award.

You volunteered at a crucial time years ago and rescued our Chapter's Plants for Members program from probable extinction. You have selected and purchased special new varieties. You obtained selected cuttings of new and time-tested varieties and propagated them. You grew the plants, labeled them, and transported them to meetings, while personally absorbing all costs. Additionally, you have donated plants to our auctions. Proceeds from both the sales and auctions have raised significant funds for worthwhile Chapter Projects and Contributions to public gardens every year. You have opened your beautiful garden for tours during Chapter meetings, and you have organized our tours of other great gardens in the Charlottesville area. You have

contributed wisdom to Chapter Board Meetings and you are now serving as our Vice President. For these exceptional contributions we gratefully present to you the ARS Bronze Medal, our Chapter's highest honor.

Bronze Medal: Lloyd Willis

The Middle Atlantic Chapter of the American Rhododendron Society presents to Lloyd Willis this Bronze Medal Award

You have served our Chapter in many ways over the years, volunteering to help with various chores, serving on the Board of Directors, then as Vice President, and then President when you conducted the Chapter meetings with humor and grace. Perhaps most importantly you ran our Board of Directors meetings with a new level of efficiency and effectiveness, with Margaret Willis quietly assisting in the background. You have continued to delight us with your special humor by writing regular articles for our Chapter newsletter and your participation in Chapter field trips to the mountains. For these and other exceptional contributions we gratefully present to you the ARS Bronze Medal, our Chapter's highest honor.

Certificate of Appreciation: J. Jackson and Lindy Johnson

The Middle Atlantic Chapter of the American Rhododendron Society presents to J. Jackson and Lindy Johnson this Certificate of Appreciation

We are grateful for the generous support of our Chapter's projects with native azaleas through your Appalachian Native Plants Nursery. You grew plants from seeds collected on superior forms of Rhododendron *calendulaceum* found on Hooper Bald. Then you donated both the plants and mulch to establish a new area on Hooper Bald and nearby Huckleberry Knob. Both locations have public access from the Cherohala Skyway in North Carolina for future enjoyment and study. Thank you.

NEW YORK CHAPTER

Bronze Medal: Marvin Fisher

The New York Chapter Is pleased to award the Bronze Medal of the American Rhododendron Society to Marvin Fisher In recognition of his many years of service to the NY Chapter and to the American Rhododendron Society. He served as a member of the Board of Directors of the Chapter, as Vice-president and as President for a term of three years. He has been Alternate Director of the ARS and is presently Director of District 7. Marvin is co-chairman of the Program Committee of the ARS which distributes DVD's generated by the Society to the Chapters for programs for their members. Marvin has always participated in the activities of the Chapter assisting at Plant Sales, Flower Shows and Social events. We honor him today with the Bronze Medal for his years of service.

Bronze Medal: Linda Fisher

The New York Chapter Is pleased to award the Bronze Medal of the American Rhododendron Society to Linda Fisher In recognition of her years of service to the NY Chapter and to the American Rhododendron Society. She has served as Chairwoman

of the Chapter Hospitality Committee not only for the Chapter Meetings but also for the Flower Shows and Chapter Social Events. She has been a willing volunteer for Plant Sales and has served as Clerk for the Chapter Flower Shows. Linda is co-chairwoman of the Program Committee of the ARS which distributes DVD's generated by the Society to the Chapters for programs for their members. We honor her today for her years of service.

NORTH ISLAND CHAPTER

Bronze Medal: Nadine Boudreau

It was with great pleasure that President Paul Wurz presented the American Rhododendron Society Bronze Medal to Nadine Boudreau on December 10th, 2013. The ARS Bronze Medal is awarded for outstanding contributions to a Chapter and is the highest commendation awarded by a local Chapter in the Society.

Nadine has served on the Executive since 2009, as a Director and Fundraising Chairperson. Nadine's interest in rhodo-dendrons has augmented her extensive knowledge of plants and experience in garden design. Nadine has written articles for our newsletter on rhododendrons, companion plants and club outings. In addition to organizing our prize draws at meetings and bus tours, Nadine has played a significant role as Chair of our annual Rhododendron Sale, as well as both organized and assisted with the fundraising Garden Tours. An active participant at both social and work events, Nadine has been a tremendous asset to our club.

For her many efforts on behalf our Chapter, we congratulate Nadine on being awarded the ARS Bronze Medal. The Bronze Medal was presented as part of a framed certificate stating: „NIRS recognizes Nadine Boudreau for the ARS Bronze Award for her many years of service and continued dedication to the Society."

PILCHUCK CHAPTER

Bronze Medal: Cheryl Arney

People join clubs for a variety of reasons, and some of those individuals are exceptional and have a positive impact on the club and the membership. Cheryl Arney is one of those members. She has an impressive knowledge and love of plants. Cheryl and her husband, Bob, own Arney Farms Nursery in Oso, WA, and the plants she donates to our club raffles are healthy and oftentimes unique. In addition to donating raffle plants, Cheryl brings hugs for just about everyone. Cheryl has introduced a number of fellow rhododendron enthusiasts to the ARS, and many are now part of our chapter membership.

For a number of years, Cheryl held the office of Pilchuck Chapter Vice President, during which she arranged all of the speakers and hands-on workshops for our meetings—including her holiday wreath-making workshop. She co-chairs all of the chapter's fund-raising plant sales and helps procure good plants at a good price. She has also worked on the sales at our District 2-hosted conventions.

Cheryl is always willing to help out, always kind and encouraging, and always dependable. She is a deserving Bronze Medal recipient. We are fortunate to have her in the Pilchuck chapter and pleased to honor her many contributions. Congratulations.

Society News

Cake auction winners at the 2014 ARS Convention: Ken Webb, Blossom McBrier and Bob Ramik. Photo by Glen Jamieson.

At the convention, Bruce Feller presenting Bill Mangels with a crystal paperweight with the inscription: "Presented to Bill Mangels in recognition of his long and exemplary service to the ARS as Society Treasurer 2005 – 2014." Photo by Glen Jamieson.

Rhododendron Calendar

2014	ARS Western Regional Conference, District 2, Everett, WA, Sept. 26-28, Board Meeting
2014	New Zealand Rhododendron Association International Conference, Dunedin, NZ, Oct 20-25. http:www.rhododendron.org.nz
2015	ARS Annual Convention, 70th Anniversary, Sidney, BC, May 6-10, Board Meeting
2016	ARS/ASA Annual Convention, Williamsburg, VA, April 20-24, Board Meeting

Society News

In Memoriam

Dr. Hal Braafladt

I first met Dr. Hal Braafladt of Eureka in 1976 when I moved from Bellevue, WA, to Eureka. I found Hal to be an excellent plants person with an expert knowledge of the genus *Rhododendron*. He had interest in growing rhododendrons species from seed and patiently waited for the large leafed rhododendrons to flower. He also had a spacious garden, greenhouse, and lath house and was very generous in offering tours and providing plants for people showing interest.

Dr. Braafladt was an excellent mentor to become familiar with the tender rhododendron species, of which he was particularly knowledgeable and enjoyed hybridizing. Some of the plants he hybridized, named, and registered were 'Hope Braafladt', 'Humboldt Sunrise', 'Patricia Marie', and 'Super Jay'. He started the first Rhodie Show as part of Eureka's Rhododendron Festival in 1974, and organized it and provided many plants over the years.

Hal became a life member of the ARS in 1976 as a member of the California Chapter, and when the Richard Anderson Rhododendron Club formed the Eureka Chapter of the American Rhododendron Society in 1985, he became an associate member of that chapter. Hal also enjoyed displaying blooms at rhododendron flower shows held by other chapters, and several times entered blooms in the Portland and Eugene Chapter shows. Fortunately the climate in Eureka always had an earlier bloom and his entered trusses usually placed well, which added to the educational content of the other chapter's shows.

One of the highlights of having Hal and his wife host the rhododendron meetings at their home was the opportunity to tour their beautiful garden. One year they invited a touring group from New Zealand led by Graham Smith of Pukeiti to have a dinner hosted by the Eureka group at their home, and it was a delightful evening.

We are greatly indebted to Hal for his interest and knowledge in promoting the genus *Rhododendron* so expertly in the Eureka area, and we will greatly miss his kindly, friendly, companionship in our quest in growing beautiful plants.

Paul Anderson

Stuart Thomas MacQueen Imre

Stuart Thomas MacQueen Imre passed away on February 27, 2014, in Enumclaw, WA. Stu owned and operated Lake Tapps Rhododendron Garden and Nursery, one of a diminishing number of independent nurseries in the Puget Sound area. Stu was born April 13, 1933, in Montreal, Canada, where his love of gardening was nurtured by his Scottish immigrant parents.

Following a brief stint in the US Army, Stu met and married Jeanette with whom he celebrated their 53rd wedding anniversary shortly before his passing. In 1945, Stu and his family moved to the Santa Clara Valley of California where he had his "first career" as a tile setter with many neighbors' homes benefitting from his handiwork. These same neighbors benefitted from Stu's bountiful gardening success with kids distributing the

produce from his garden with their wagons. In 1977, Stu, Jeanette, their four children and his parents moved to Bonney Lake, WA, where he resided for 37 years. Stu's "second career" centered on his love for fishing and he pursued his commercial fishing passion for several years with his son, Neil, as his fishing companion.

Stu "returned to the soil" and his 'third career" by establishing his nursery, specializing in rhododendrons, evergreens and trees, with rhododendrons becoming his greatest success as a grower, nurseryman, hybridizer and ARS member. Stu was passionate about helping customers to be successful with rhododendrons. He enthusiastically en-tered trusses and brought glorious plants in full bloom to the annual show at the Puyallup Fair which exposed about 100,000 annual attendees to the beauty of this genus.

Fortunately, son Neil and wife Sherry are continuing with Jeanette the Lake Tapps Garden, allowing this treasure-trove of established plants and a source of many of the newest varieties to continue to be available to the public.

The Tacoma ARS Chapter will significantly miss Stu's contributions both of plants and knowledge, but, in comparison, we will feel less pain than his children, eight grandchildren and five great-grandchildren.

Stu, rest in peace and enjoy the fellowship of the many rhododendron growers and hybridizers who have gone before you and who you now join.

Fred Whitney, Tacoma ARS

Research Foundation Update

The Research Foundation of the American Rhododendron Society (ARS) announces changes in its Board of Trustees.

At its meeting on May 15, 2014, in Painesville, Ohio, the Board of Directors of the ARS approved the reappointment of Mike Stewart and Karel Bernady as Trustees for new three year terms.

With these appointments the Board of Trustees will be constituted as follows:

Perc (Percival) Moser, Treasurer of the Research Foundation, for the term ending May 2015

1. Harold Greer, for term ending May 2015
2. Harold Sweetman, Chairman of the Research Committee, for term ending May 2016

H.C. (Bud) Gehnrich, for term ending May 2016

3. Mike Stewart, for term ending May 2017
4. Karel F. Bernady, Chairman, for term ending May 2017
5. Bruce Feller, President of ARS, *ex officio*, for term ending 2015

We welcome to the Board our two returning members.

Karel F. Bernady, Chairman
June 1, 2014

Society News

Summary of Actions, Decisions, and Assignments from the May 15, 2014, ARS Board Meeting

A more detailed report of the meeting will be posted on the ARS website and is available for your review upon request. President Bruce Feller kicked the meeting off at 9 pm with introductions and clarification on voting processes.

MOTION for certification of the meeting notes: Vote: Unanimous

MOTION: Approve District 4's request to host the 2020 Conference. Motion to approve location. Vote: Unanimous

MOTION: Join forces with the Conifer Society for the 2015 Fall Regional Conference. Vote: Unanimous.

ASSIGNMENTS: Bruce to carry forth the idea to the Conifer Society. Ann Mangels will chair an ad hoc committee to help work on the details for how the 1015 and 2020 conferences will impact the long standing alternating coast schedule for the meetings.

REMINDER: EXECUTIVE DIRECTOR - Reminders: District Actions: Districts 3, 6, 11 and 12 have elections as noted in the journal. Result should be reported by November 15 deadline. Web access: Directors should make sure all new Membership Chairs and Treasurers have user name and a password for the www.arsoffice.org and follow the rules of the membership renewal deadline of December 1. ARS Brochures: We are out of "Rhododendrons & Azaleas, A Guide To Planting & Care."

SECRETARY - -Brought up the idea of clarifying how the Society needs to protect private information from being distributed publically. Potential areas of distribution include the Journal, the website, news-letters, and Chapter websites. "The more personal information that is out there, the more personally we are exposed," said Fred Whitney. There was a discussion of where addresses are presently shared, and how the personal contact information has been removed from the old journals. The combination of names, addresses, and meeting dates creates risk [of potential break-ins] and there is no control over how this information might be used by a third party see ORS 65.782 for additional information).

ASSIGNMENT: Laura Grant was asked to remind members about the box on the membership envelope that authorizes the removal of address information from the ARS Roster. She was asked to put this reminder in the next Journal issue.

BUDGET & FINANCE COMMITTEE (B&FC). Dave Collier, committee lead, reviewed the preliminary budget draft (income, expenses, and summary) beginning September 1, 2014, and ending August 31, 2015. The preliminary budget included submitted increases, decreases, and recommendations. A draft of the preliminary budget was provided during the Board meeting and an electronic version was displayed showing changes and updates to the spreadsheet as they were made by the Board. A proposed budget was created and subsequently approved with the assignment to provide as much up-to-date information as possible in the meeting notes (attached). It should

be noted that the actual figures for 2013/2014—our current budget year— will not be available until after August 31, 2014 when the budget year ends. No changes in renumeration were suggested prior to or during the meeting. Notably, the Board discussed the one-year suspension of the Endowment grant program. There is a lot of support for continuing this program if possible.

MOTION: Accept the budget as submitted. Vote: 2 opposed; 14 agreed.

ASSIGNMENT: The B&FC suggested that some of the account numbers in use were incorrect and some additional numbers were needed. Other chart of account numbers were also suggested (carryover funds, Test & Display Gardens, Online Store, Board travel costs, etc.). A memorandum from the committee will be sent to Laura Grant requesting these changes.

MOTION: To have District Directors poll Chapters regarding sending all future mail to Canada rather than to the Niagara Falls postbox. This may reduce travel costs for the Executive Director to collect mail. The motion was revised to clarify that the District Directors apprize members of the reason for the post office consideration (to reduce substantially cost for the Society, while slightly increasing some Chapter postage costs) and get their responses. Vote: 15 agreed; 1 no. Passed. Don Hyatt suggested that the membership chairs and Chapters presidents also be contacted.

ASSIGNMENT: The B&FC was asked to help describe the proposal for reducing routine mail mileage costs. There were several ideas shared. A draft description might look like.

The Society is required to maintain a U.S. Postal box. Unfortunately, the nearest Post Office to the Executive Director's residence requires many miles and hours of travel. We are exploring ways to reduce this cost. One idea discussed at the Board was to have Chapters send mail directly to the ED's residence in Canada. This would increase Chapter mailing costs slightly, but could substantially reduce the travel costs by the ED. How do you feel about this idea?

IDEAS: The POB indicates that the B&FC is to advise the Board if changes to membership fees are needed. The Board was in agreement that increasing membership dues was not an acceptable alternative at this time. Several ideas for reducing costs were briefly discussed during the meeting in an attempt to start the discussion on how to balance the budget. Some of those included reducing routine administrative costs (such as reducing mileage for mail pickup and reducing banking fees), encouraging the use of the electronic journal (potentially reducing printing and postage fees), attracting new members, expanding the donation program, etc. No additional motions regarding these ideas were offered.

DISCUSSION: Auction donation. It was suggested that a cake be auctioned off to earn monies for the general fund at the Annual Meeting. This idea was tried out at the annual meeting banquet and $760 was raised. This may be a future topic for discussion.

BYLAWS & POLICIES. Fred Whitney helped the group through several issues outlined below. Fred will be resigning from the Board and this committee lead position will be vacant. Fred has served on the Board in many capacities over many years and his support of the ARS is greatly appreciated.

Discussion (FUTURE POTENTIAL TOPIC): Article II, Section B, Classes and Dues to have NINE classes including STUDENT and ELECTRONIC AFFILIATE. Additional work appears to be needed related to further clarifying who the desired members might be in the electronic affiliate category [e.g., members from other rhododendron societies, other local garden societies, etc.]. The Board was not yet ready to address the issue of potential electronic affiliate members.

POB 9.17.2 Executive Committee responsibilities related to personnel proposed POB:

9.17.2 The EC shall perform the function of the Personnel Subcommittee in determining the criteria for consistent and regular evaluation of compensated staff. Such evaluations shall result in compensation recommendations for inclusion in the budget.

MOTION to accept. Vote: Unanimous

POB 2.2.4.5 LIFE Membership - LIFE Membership dues shall be placed in a separate fund and invested to provide income for supporting cost of life memberships; the following spending formula will be used: After reimbursing Chapters for the $10 share, 3 percent X the three year final market value of the Life Fund account (as of August 31 of each year). This amount shall annually be transferred to the General Fund. MOTION: Motion to approve. Vote: Unanimous.

ASSIGNMENT: Since the ARS has moved away from salaried employees (Executive Director, Editor, and Assistant Editor), the continued use of EMPLOYEE verbiage connotes a relationship (as well as financial obligations) which we no longer perform. A suggested “correction” would be “remunerated members who are compensated.”

MOTION to accept. Vote: Unanimous. NOTE: This language appears in other documents and it would be prudent to changes those as well.

CONVENTION ADVERTISING GUIDE-LINES - This topic focuses on the amount of Journal pages that might be available to conferences/conventions for things like registration forms. There was a motion to allow four black and white pages free of charge for a conference/convention. The location of these pages is typically at the centerfold of the Journal. Some conference/ convention committees may want additional space, which may, at the discretion of the Editor, be available at the ARS advertising rate. Committees may also want to include a special insert in the journal as well. The cost for printing and insertion is paid by the conference/convention.

MOTION: Allow four pages in the journal at no charge; additional pages would be available at the existing advertising rate.

. Vote: Unanimous. NOTE: Additional information related to planned tours, gardens, or topics can be included in the journal as part of the normal suite of articles submitted to the JARS Editor.

ENDOWMENT FUND - QUESTION: The ARS will be celebrating its 70th anniversary next year. Would the Board be interested in having an effort to increase the endowment with a goal of reaching $1 million? ASSIGNMENT: Bill Mangels may have the Endowment Fund Committee work on the proposal with the support of the Board. Vote: Unanimous.

SEED EXCHANGE BUDGET - MOTION to accept the budget as presented. Vote: Unanimous.

NOMINATIONS--MOTION to suspend the requirements in the Bylaws/POB and allowing continued service by the sitting Secretary for an additional term. Vote: Unanimous. MOTION: to accept Kath Collier for the nomination of secretary. Vote: Unanimous.

ONLINE STORE: Steve Henning provided additional details and a demonstration of how easy it is to use the online store, and projected income. Note: Donations to the ARS may be made through the store menus.
ASSIGNMENT: Steve and Kath Collier were asked to create a basic statement (like one would find describing the Seed Exchange) regarding the online store for the POB.
ASSIGNMENT: Steve will do some more work on the CD-DVD confusion and will be updating the original registration form.

RHODODENDRON DATABASE: Issues related to making this data available to off shore members created insurmountable barriers. It appears that the project would be of interest and use for the Society for checking the genealogy of hybrids. ASSIGNMENT: Dave Collier will contact Jeff Cheyne.
FOLLOWUP: If this project is dropped, the POB will need updating.

WEBSITE UPDATES: Bob Weissman talked about and demonstrated some of the recent updates to the OARS website navigational strategy.

MARKETING MOMENT: Kath Collier brought up the idea that we, as a Society, need to address some of our marketing needs even though we do not have a committee chair. One suggestion received from the group was that the public website needed updating/ redesigning. Bob Weissman indicated a need for content assistance. It was suggested that a support team for the web could be established with the primary purpose of helping to generate or select content. The Board also discussed the use of blogs, and how a moderated blog might provide a process for handling questions that come in. No motions were made.

RESEARCH FOUNDATION: Trustee nominations. The Research Foundation of the ARS requests Board appointment of two Trustees of the Research Foundation for the terms indicated: Karel F. Bernady, Chairman, for term ending May 2017, and Mike Stewart, Past President of ARS, for term ending May 2017.
MOTION to accept. Vote: Unanimous

Meeting Adjourned at 4:56 PM.

Kath Collier, ARS Secretary

Society News

Board of Directors meeting, ARS Annual Convention 2014: From left to right top row: Bob Weissman, Paul Anderson, Larry Coleman, Fred Whitney, Jackson McCarter, Laura Grant, Glen Jamieson, Dave Collier, Hale Booth, Marvin Fisher, Don Hyatt, Ken Webb, Sam Burd, Bill Mangels, Susan Garland, Dave Banks; Front row: Lynne Melnyk, Marty Anderson, Bruce Feller, Ann Mangels, Kath Collier. Photo by Marvin Fisher (with an automatic timer).

Newly Elected District Directors

District 9
John Golab - District Director

District 12 Lynne Melnyk – District Director

Lynne has been a gardener since she was a child but fell in love with rhododendrons on a May trip to New Jersey many years ago. President of the Toronto Chapter of District 12, she has also served as membership chair and newsletter editor. She is active in her local horticultural society, editing and publishing their newsletter and serving on the board and floral design committee and will complete a judging course in horticulture and floral design in 2014. She is currently creating her third garden in the countryside north of Toronto.

Bob Ramik - Alternate

Bob Ramik lives and gardens in Toronto and Niagara-on-the-Lake, Ontario, with his partner, Laura Grant; they are both gardeners in zone-denial. A retired mineralogist with the Royal Ontario Museum, he is particularly fond of rocky landscapes and gardens in geologically interesting places. With a background in natural inorganic chemistry, he cannot avoid interest in the likes of soils and fertilizers. Bob has volunteered as consulting editor and reviewer. He bought his first rhododendron in 1986 and joined the ARS soon thereafter. He enjoys travel, photography - and ARS garden tours!

Kristian Theqvist presenting a book *Arboretum Mustila* to Laura Grant in appreciation for help received in forming the new Finnish Chapter. Photo by Robert Ramik.

AMERICAN RHODODENDRON SOCIETY 3
STATEMENT of FINANCIAL POSITION
AUGUST 31, 2013 and 2012
SEE ACCOUNTANT'S REVIEW REPORT

ASSETS

	2013	2012
Current assets:		
Cash and cash equivalents	$ 22,871	$ 23,008
Money markets accounts	64,119	86,373
Accounts receivable- Chapters	10,567	2,000
Inventories	755	1,302
Prepaid expenses	-	-
Investments in Mutual Funds	860,034	780,010
Total Current Assets	958,346	892,693
Property and equipment:		
Office equipment	15,240	15,240
Less: Accumulated depreciation	15,188	15,134
Net Property and Equipment	52	106
Total Assets	$ 958,398	$ 892,799

LIABILITIES and NET ASSETS

Current liabilities:		
Accounts payable	$ 2,219	$ 1,159
Accounts payable - Chapters	3,309	7,065
Deferred dues 2011 - 2020	36,807	37,038
Total Current Liabilities	42,335	45,262
Net Assets:		
Unrestricted - General Fund	(27,713)	(28,173)
Unrestricted - Designated Life Member Fund	113,190	113,010
Unrestricted - Designated Endowment Fund	587,323	528,335
Unrestricted - Designated Seed Exchange Fund	26,821	25,611
Total Unrestricted Net Assets	699,621	638,783
Temporarily Restricted - RDC Start-Up Fund	7,117	7,117
Total Temporarily restricted Net Assets	7,117	7,117
Permanently Restricted - Endowment Publications	102,417	102,417
Permanently Restricted - Endowment Other	106,908	99,220
Total Permanently Restricted Net Assets	209,325	201,637
Total Net Assets	916,063	847,537
Total Liabilities and Net Assets	$ 958,398	$ 892,799

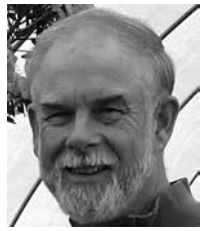
See Accompanying Notes and Accountant's Review Report

Understanding Fertilizers that Help Our Plants Thrive

Don Wallace
McKinleyville,
California

Mike Stewart
Sandy,
Oregon

Don Wallace



Mike Stewart

We all know that plants need fertilizer, but what kind do they need? When do they need them? Do plants need more than one feeding per year? How much per plant? Organic or chemical? Can I hurt my plants with too much fertilizer? Will it hurt the environment? What influences the production of flower buds? What is N-P-K? Should I use a dry granular or liquid fertilizer? If I use a dry granular, do I have to scratch it in, or just sprinkle it about, and where should the fertilizer be applied? I have heard that I should use a slow release type…should I use temperature release or moisture release? Will any fertilizers be a health risk to children or pets? Of the controlled release fertilizers on the market, what is the difference and which is better… Osmocote®, Nutricote® or Apex®? What are some symptoms of fertilizer deficiency in plants? What about using compost as fertilizer?

In this article we will try to answer the many questions that we each get at our respective nurseries, which represent the full gamut of inquiries about fertilizer. In order to answer these questions, we need to start by discussing how plants grow.

It is often believed that most all plants do not need to be given fertilizer, as it is supplied to them by the soil they are growing in. This can be true for plants growing out in nature, but for our garden plants to perform the way we would like every year, adding nutrients yearly is often necessary. It might be good at this time to discuss soil and how it works.

Plants are living organisms that need soil, water, air, light, and room to grow and thrive. Of these requirements, understanding soil and how it supports the needs of plants is the most complex. If we can understand some basic processes, then we may be able to understand fertilizer better, and how it works.

The Makeup of Soil

What we walk on and what plants grow in is 50% soil, and 50% empty space. This may be hard to imagine, but if we look at soil magnified, we would see that the soil part

is 90-95% rock, broken up into tiny particles over time, and 5-10% organic material. The empty space is filled with water and air, both important for plant life. Long ago, it was believed that plant roots had little "mouths" and they ate what they needed in the soil to grow and thrive. This was proved false…plants actually drink the nutrients they need!

Nutrient molecules start out too big to dissolve, but through physical, chemical, or biological processes, are made small enough to dissolve into water and be absorbed by the plant roots. The 14 elements plants typically get from the soil, together with the symbols chemists use for them include: nitrogen (N), potassium (K), calcium (Ca), magnesium (Mg), phosphorus (P), sulfur (S), chlorine (Cl), iron (Fe), boron (B), manganese (Mn), zinc (Zn), copper (Cu), molybdenum (Mo), and nickel (Ni).

Plant Symptoms Tell the Tale

Some elements are found in abundance, while others may be scarce. Plant growth or leaf and stem colors can be indicators of elements missing and needed for good plant health.

If your rhododendron has chlorotic foliage [chlorosis is a condition in which leaves produce insufficient chlorophyll. As chlorophyll is responsible for the green color of leaves, chlorotic leaves are pale, yellow, or yellow-white.], this may be due to a lack of nitrogen availability. This could be rectified by fertilizing the plant, but this may also be due to the pH being too high or too low, thus preventing access to nitrogen. For rhododendrons, soil and water pH need to be in a range of 5.0 to 6.0. If your soil pH is higher than 7.0, or lower than 4.5, your plants are literally "starving" since they are unable to absorb nutrients. If you suspect your pH to be a problem, you can test it with a home soil ph test, available at your local nursery.

Leaf symptoms indicating specific nutrient deficiencies are too numerous to list or talk about in this article. Some can be found online, or check with your local nursery to see if they can diagnose your problem.

In general, for the best results, garden soils must be replenished with necessary elements yearly to insure that plants thrive. A yearly application of a well-balanced fertilizer will generally do the trick.

Types of Fertilizers

What is the definition of fertilizer? Fertilizer is defined as anything that is added to soil to help plants grow.

Natural or organic fertilizers come from animal or plant parts. These may include blood meal, bone meal, manure or urea, alfalfa meal, dried seaweed, or cottonseed meal, to name a few. They also are derived from rocks and minerals like rock phosphate, dolomite, greensand, or sulfur. These natural or organic fertilizers tend to be much lower in concentration, and may protect plants from some diseases. These organic elements may also feed soil organisms such as bacteria and fungi that assist in the transfer of

nutrients into plants. These fertilizer types are considered to be "slow release".

Chemical fertilizers are more con-centrated in nutrients and some may feed over a longer period of time, and may provide a wider range of elements that plants need. Chemical fertilizers usually come in both dry granular and polymer forms. It is important when using granular forms to insist on slow release nitrogen. Not all granular fertilizers come in slow release forms, so be aware of this. The nutrients in fast release fertilizers are immediately available to plants, which thus show an immediate response. Fast release fertilizers, however, are subject to rapid depletion from the soil due to leaching. If fast release fertilizers are applied too heavily, plants can be damaged by burning and these fertilizers also don't provide the longer, slower feeding that is most desirable. Always feed a little less initially and see what the results are before increasing the application amounts. Synthetic fertilizers come from chemicals like petroleum, acids, or other chemicals.

Control release chemical fertilizers are polymer-coated prills that cause an even controlled release of the nutrients, thus reducing any chance of "burning." The most commonly used of these types are Apex® Polyon®, Osmocote®, and Nutricote®. It has been documented that Osmocote releases the fastest and is more temperature influenced. Our experience is that eight to nine month-release Osmocote may release in half that time depending on the temperature in a greenhouse situation. We have seen eight to nine month Osmocote completely used up in three months during the summer in our greenhouses. You should be very cautious when using this product during the warmest temperatures. Occasional water drenching is also necessary to help remove the built up of salts in the growing medium during these extreme warm weather conditions, especially in container grown rhododendrons. In greenhouses, Nutricote releases very evenly over the release period, and Apex Polyon releases the slowest with the most uniform results. Apex Polyon performs well in both cooler maritime climates and in warmer climates. However, being chemically derived, these fertilizer types do not feed the soil or the soil organisms, so they may not be the best choice for soil building over the long term.

Liquid Feed. Water soluble fertilizers are absorbed through the leaves or roots, which make them faster acting than conventional applications of granular fertilizers. A plant can be greened up quickly by spraying the leaves with a water soluble fertilizer but the process usually has to be repeated every few weeks through the growing season as plants use up the nutrients in this type of feeding rapidly.

We generally do not recommend liquid feeding rhododendrons. The down side of liquid feeding is that it is a quick attempt to solve a more involved problem. But, never say never! Liquid feeding does have the advantage of supplying nutrients immediately to a plant in need. This need may be due to poor soil quality or problems that have been caused by lack of water or too much water. Generally we would only consider liquid feeding when an extreme condition demands that the plant gets immediate attention. If

you do consider liquid feeding, and soil conditions are good, we recommend drenching the root zone. Rhododendrons, as well as most plants, take up nutrients through the roots very quickly and this method is far more efficient than foliar applications. Liquid fertilizers generally come in concentrated forms, either granular or liquid, and require much dissolving and/or diluting. Remember to always read the label on these concentrated liquid fertilizers before using them, and dilute the fertilizer to the proper recommended rate on the label.

Natural or synthetic fertilizers, which is better? Often this is a matter of opinion. Many people do not have strong preferences for natural over synthetic fertilizers. If used properly, both can yield healthy, productive plants without damage to the environment. There do appear to be compounds in some natural fertilizers that are not actually nutrients but still perform some important function, like controlling fungal diseases that would otherwise infect your plants. Scientists are just beginning to do research on this, and it could be a reason to use natural rather than synthetic fertilizers in some situations.

Understanding Fertilizer Bag Numbers

On every bag of fertilizer you should see three numbers, for example 18-10-6. These numbers represent the percentages in this bag's fertilizer of the three nutrients that plants need in the largest amounts (in order, these are nitrogen, or N; phosphorus, or P; and potassium, or K). If, for example, the bag weighs 100 pounds, and has the numbers 18-10-6, there would be 18 lbs of nitrogen, ten lbs of phosphorus, and six lbs of potassium. The remainder of the weight is made up of elements in lower concentrations, inert ingredients and coatings.

How Does Adding Sawdust and Bark Dust Affect Our Soils and Fertilizer Needs?

Many commercial nurseries in the Pacific Northwest use sawdust to amend and replace their soil after their crops are harvested. Organic materials like sawdust are used to break up the heavier clay soils that are brought up when fields are plowed and tilled. Using sawdust or bark dust is essential in lightening these clay soils, but it does cause the pH to lower as the organic materials decompose. Additionally, a common practice is to add ammonium sulfate (21-0-0) at a rate of twelve pounds per inch (2.1 kg per centimeter) of sawdust per 1,000 square feet (93 m^2) to help break down this sawdust. We add dolomite lime to our granular fertilizer to help raise the ph to an optimum pH range of 5.0 to 6.0, thereby helping to mitigate the decomposition process that lowers ph.

How Much Fertilizer per Plant?

(Don't dump a pile of fertilizer by your plant!)

Some plants are heavier feeders than others, and some plants require very little to no

fertilizer to thrive. So, you will have to do a little research as to how much your plants need. For rhododendrons, we use a formula of 1 cup (1/4 l) of dry slow release granular fertilizer scattered around the drip line for a plant 3 feet (0.9 m) tall or smaller and 1.5 to 2 cups (1/3-1/2 l) for plants larger than 3 feet tall. This is a very general guideline, and if you rhododendron is huge, obviously it will take more fertilizer. Some might say "I see these huge old rhododendrons around that bloom profusely every year, and no one is feeding them. What's up with that?" This is very true with older rhododendrons, but feeding them might offer some desirable benefits like generating new shoots and branches, thus filling in an old straggly plant. One should note here that, in general, rhododendron species require less fertilizer than hybrids so try less fertilizer on your species rhododendrons.

How Often Do We Need to Fertilize?

The following is for slow release dry, natural or organic granular types. For rhododendrons in a maritime, mild winter climate, we recommend a late winter feeding, around Valentine's Day, and then a mid spring feeding, around Father's Day. For colder winter climates that have snow or frost, we recommend an early spring feeding about the fourth week in March (i.e., after the snow goes and the ground thaws, which is hopefully by then in most ARS chapter areas!), but do not recommend feeding any later than July. Using dry granular slow release fertilizers is easy, because you do not have to scratch it in, just sprinkle it around the drip line and let your watering or the rain dissolve it into the ground around the plant.

Timing is important! Rhododendrons use a tremendous amount of energy as they bloom and as they are putting on their yearly new growth. Feeding at the proper time will help the plant through these stress related times. We recommend fertilizing just prior to blooming, or just after blooming. We don't fertilize during blooming because of the damage to the blossoms that fertilizer dust can cause.

In climates that can experience occasional early frosts in the fall, do not fertilize in the late summer. It is important during that time of year to discourage new growth on the plant because there needs to be time for the plant to harden off before winter arrives. Encouraging growth in late summer and fall also hinders the plant's ability to create the next year's flower buds in time before winter arrives. Even in the month of August, we are trying to cut back on watering to discourage new growth from happening, thus letting the flower buds form.

What Proportions of Elements Most Affect the Production of Flower Buds?

For many years it was thought that phosphorus was the main ingredient that influenced the production of flower buds, and this is true on many levels. However, it was found that nitrogen was a bigger part of flower bud creation. Harold Greer of Greer Gardens in Eugene, Oregon, has this to say in regards to rhododendrons:

I am glad to see you emphasize the need for nitrogen to promote flower buds. I have long said that and the "proof is in the pudding" as the old saying goes. Over the many years I have grown and have seen others grow rhododendrons. Plants with high nitrogen levels flower best. Oregon State University proved that years ago in developing the 10-6-4 fertilizer that I modified in structure, some to 20-12-8. After some 25 years of using this, it works. Most gardeners do not feed enough and while there is nothing wrong with "organic," there usually is not enough nitrogen there for best results. But I still say if what you do works for you, that is fine.

What About Using Compost as Fertilizer?

The addition of compost to our gardens is excellent. Compost adds the necessary humus that plants need for soil biological activity. This biological activity results in more nutrients in soil being able to be pulled into the plant's roots. However, composts are not often high enough in nitrogen or phosphorus to promote flower bud development, and that is where the application of a stronger, granular fertilizer will do the trick. The combination of using composts and granular fertilizers will be the best possible option. Now, many communities have green waste composting services where one can buy or even get free pure humus. This is another excellent source of organic material that has lots of goodies to add to your garden. Then again, it is often not strong enough to really make plants bloom well unless it is combined with a granular fertilizer with the higher numbers.

Conclusion

The general consensus among plant experts is that you MUST fertilize to get the most out of your plants. If you go year after year without fertilizing, your soils will become depleted of nutrients and your plants may show symptoms of either nutrient deficiency or disease. Fertilizers can be purchased at many stores, and if you use them properly you will certainly get your money back in many ways. For some people, having an abundance of flowers is worth the cost and effort, but for many more, having the satisfaction of seeing their plants look their very best throughout the year is the biggest reward.

Don Wallace is a member of the Eureka Chapter and owner of the Singing Tree Gardens Nursery in McKinleyville, CA. Mike Stewart is a member of the Portland Chapter and owner of Dover Nursery in Sandy, OR.

Dunedin and New Zealand's 70th Jubilee Rhododendron Conference

A.E.J. (Tony) Fitchett
Dunedin,
New Zealand

Dunedin is a city of about 120,000 on the southeast coast of New Zealand's South Island. Its first organised European settlement was by "Free Kirk" Presbyterian Scots, and after Mark Twain visited it in 1895, he wrote "They stopped here on the way to heaven, thinking they had arrived." Dunedin has a temperate climate devoid of extremes of hot or cold, and an acid soil on a clay base that allows culture of a wide variety of rhododendrons, from large-leaved *Grandia* and *Falconera* to alpine dwarfs.

R. 'Marquis of Lothian'. Photo by Tony Fitchett

Its main disadvantage is that it has is a rather low average annual rainfall (about 30 in).

New Zealand has no endemic rhododendrons, but a large number have been introduced. William Martin, who arrived in 1848, established the first nursery at Fairfield, now part of Dunedin, and was importing rhododendrons in the 1850s. He created what is thought to be New Zealand's first commercially available rhododendron hybrid, 'Mar-quis of Lothian', from *R. thomsonii* × *R. griffithianum* (the reverse cross of 'Cornish Cross'). It was listed in his 1880s catalogue along with *R. campanulatum, ciliatum, dalhousiae, edgeworthii, gibsonii (formosum), glaucum (glaucophyllum), jenkinsii (maddenii), veitchianum* and *javanicum*.

My wife Bron and I, beginning 40 years ago as completely amateur gardeners but profiting from both advice and plant gifts from Bron's parents and members of the Dunedin Rhododendron Group, have established a woodland garden on part of our 8.5 acre sloping property at an altitude of about 500 feet near the top of one of Dunedin's small valleys. We have evolved from largely indiscriminate plant acquisition to more selective purchase of rhododendron species (in particular those from the *Grandia, Falconera* and *Maddenia* subsections) and good New Zealand cultivars. We have had little trouble growing rhododendrons from *R. sinogrande* to *trichostomum*, using no additives apart from *Pinus radiata* sawdust (plus dried blood for nitrogen) to lighten the clay, compost, leaf mould, and woodchip mulch. Watering is confined to the time of bud set, and no protection is needed from the mild frosts or occasional snow we experience.

The Rhododendron Dell of the Dunedin Botanic Garden and the Rhododendron Group's nearby garden at Tannoch Glen both hold impressive collections of rhododendrons, and visiting them is an inspiration. The Botanic Garden is classified by the New Zealand Garden Trust as a Garden of International Significance, as is the garden of the privately owned Larnach Castle on Otago Peninsula in the city.

This year is the 70th anniversary of the founding of the New Zealand Rhododendron Association (NZRA), and to mark the occasion the NZRA has extended its annual Conference to four days rather than the usual three, invited international and local speakers, and has arranged visits to a variety of private gardens and to both the Botanic Garden and to Larnach Castle. These events will be held in Dunedin from the evening of Monday October 20th to lunch on Friday October 24th. Pre-Conference and Post-Conference Tours will visit gardens in other parts of the North and South Islands. Details of the Conference and its tours are available on the NZRA website www.rhododendron.org.nz, and it is possible to register online through that website. We are glad to be already welcoming a number of Americans and Canadians to Dunedin in October, and invite more to come.

Tony Fitchett is a Vice-President of the New Zealand Rhododendron Association (there are two Vice-Presidents) and represents the Otago area on its Council.

Tips for Beginners: Mulching

Editor's note: I have had a number of requests to include more "Tips for Beginners" in *JARS*, and with the current ARS effort to bring in new members, it is timely to ensure that relevant information is made available to them. Over the past decades, a great amount of basic culture information has been published in JARS, and so I will be drawing on this wealth of knowledge and reprinting articles I feel may be most appropriate to different seasons and plant types.

(Modified from JARS 46(4), Fall 1992: 207-208.)

Terry Richmond
Port Alberni, BC,
Canada

Some of the best gardening ideas come from nature. Mulching—one of the very best gardening ideas when it comes to rhododendrons—is one of these. In their wild homelands rhododendron roots are covered with nature's own debris of leaves, twigs and whatever else finds a resting place about the plant. This cover, gardeners have discovered, is beneficial, if not downright essential, for the shallow rooted rhododendron. When gardeners take matters into their own hands and do the spreading themselves they call it "mulching", and the material they cast about is, of course, called "mulch".

Benefits of Mulching. The benefits of mulching are many, some of which are obvious to any gardener with a little common sense and others of which need explanation by trained scientists. The first of these benefits is that mulching conserves moisture by physically holding it and releasing it slowly to the soil beneath. Since rhododendrons like a damp soil, this is an obvious plus. Mulch also conserves moisture by reducing evaporation by up to 90%. The results of this conservation is that the need for external water is reduced by one third to one half of that needed for un-mulched soil.

Mulches also moderate soil temperature. Mulched soil is up to 10° C (18° F) cooler on hot summer days and up to 10° C warmer during chilly spring and fall nights, extending the growing season at both ends. Most plants, in fact, virtually cease taking up food and water when the soil temperature is below 6° C (43° F) or above 30° C (86° F).

Nature can at times be excessive, and mulches can protect the rhododendron from nature's intemperance. Erosion from heavy rain and winds can be moderated by mulch. Soil compaction from heavy rain and hail can be prevented. The heaving of roots by frost can be prevented as can the drying of roots by high temperatures and winds. Mulch can even prevent the uprooting of the whole plant by winds. The shock from sudden changes in temperature can also be moderated by mulching.

Humans, however, can be even more excessive than nature, and mulching protects the rhododendron from their lack of restraint. Mulching can protect the plants from soil compaction due to foot and cart traffic, cold water on hot days and overdoses of water, fertilizers, pesticides, fungicides and salt deicers on sidewalks and roads. Salt is very destructive of the biological life of the earth and of the tiny feeder roots through which plants take up their nourishment. An organic mulch locks up and hastens the degradation of these soil and plant poisons.

Much to the gardener's liking, a mulch can help eliminate weeds under the rhododendron. Not only does it lessen the workload but it reduces the competition for moisture, nutrients and sunlight. Besides, removing the weeds can cause damage to shallow rooted plants. Mulching can minimize damage caused by insects and disease by curbing "back-splash inoculation", slowing their growth cycles. It helps prevent the spreading of disease spores by foot traffic, and some mulches even repel insects and combat diseases.

Plants that are undernourished and in distress will produce more carbohydrates than proteins. Insects will zero in on these plants since they are attracted to plants high in carbohydrates. Mulching also helps protect the lower leaves of sprawling rhododendrons from dirt contamination and loss from insects and fungus. By maintaining a dry, sanitary work environment, gardening is made more pleasant. Moreover, mulch creates an attractive background accent for your plants. Pleasing visual effects can result through the use of different mulch textures and colors in combination with plants of various structures and colors.

One of the most beneficial aspects of mulching, however, is the improvement it brings to structure and fertility of the soil. Mulching establishes a cool, moist environment where bacteria and other microorganisms (e.g., worms) can aid in the decomposition process. This process, among many other things, produces humic acid, which helps release bound-up materials such as phosphorus and iron to the soil, carbon dioxide to the plant for use in food production and ammonia, a form of nitrogen plant food, to the plant. As a general rule, the more organic material there is in a soil, the less important the pH level will be and the more flexible your rhododendrons will be in their ability to grow in a range of pH levels.

Mulching Materials. The wide range of potential mulching materials gives gardeners a chance to let their imaginations soar. Among the organic, inorganic and living mulches is an almost infinite number of possibilities. Following is a sampling of possible organic mulches: seaweed, kelp or eel grass; shredded bark, wood chips or sawdust; straw, hay or grass clippings; compost, mushroom compost or various rotted manures; hulls, shells or cones; conifer needles and twigs; coffee grounds and tea leaves; ground oyster shells or egg shells; ground corn cobs or shredded sugar cane; shredded cardboard or whole or shredded newspaper; peat or sphagnum moss; rotted wood; leaves; burlap sacks; and bracken fern.

Most of these mulches are acidic, but some such as crushed oyster and egg shells are alkaline. Determine the correct pH for your particular application. Rhododendrons, of course, like acidic conditions.

Some carbon-rich materials such as fresh sawdust, newspapers and straw temporarily take nitrogen from the surrounding soil, causing plants to become yellow. Neutralize this situation by applying a nitrogen-rich material in combination with one high in carbon, or spread a nitrogen fertilizer on most soils before applying carbon-rich mulches. Examples of carbon-rich mulches are: straw, sawdust, bark, ground corncobs and leaves. Nitrogen-rich mulches include cottonseed meal, manure, blood meal, grass clippings and compost.

Inorganic mulches provide a permanent mulch which will not break down. Among the possibilities in this category are: rocks, bricks, boards, gravel, solid plastic sheeting (black or clear), perforated clear plastics, fiberglass wool, kitty litter, aluminum foil and expanded vermiculite. Most of these materials are designed to be used in a special situation.

Living mulches include ground covers such as grasses, *Veronica whitleyi* (Whitley's Speedwell), *Lithodora diffusa* (Lithospermum), dwarf anemones and other dwarf, non-invasive plants that can be used to satisfy certain landscaping requirements.

When a mulch should be applied depends upon your climate. In the moderate Pacific Northwest, mulches should be applied in spring after the soil has warmed up. Be sure the soil is moist before the mulch is applied. Top up mulch in the fall before the temperature drops off. In warm climates such as Florida or California, maintain full mulch all year round. But remember, never mulch a heavy, waterlogged soil.

How much mulch to apply will vary according to the density and texture of the chosen mulching materials. Apply the amount necessary to maintain a cool, moist soil. Following are some examples: Coffee grounds: one cm (one-half inch); Sawdust: five cm (two inches); Bark mulch: eight cm (three inches); Needles and small twigs: ten cm (four inches); Seaweed or straw: 13 cm (five inches).

My current mulching program consists of mulching and fertilizing in a single action. To shredded fir bark I add a balanced NPK organic fertilizer containing fish meal, alfalfa, canola meal, blood and bone meal, powdered rock phosphate, dolomite, langbeinite (a potassium magnesium sulphate mineral), greensand (0-0-3; about 3% total potash, along with iron, magnesium, silica and as many as 30 other trace minerals), kelp and most importantly, worm castings. This mixture combines the benefits of mulching and organic fertilizing supplying protection and slow release nutrition throughout the year. I just love spreading mulch, but deadheading not so much!

Once you begin using mulches on your rhododendrons you will see the benefits of imitating nature in this rewarding garden activity.

Terry Richmond is still an active member of the Mount Arrowsmith Chapter and a wealth of information about rhododendron culture and cultivars.

A Private Garden

'Ramapo' (right) and 'Windbeam' (left) in the foreground, with *R. augustinii, concinnum, calostrotum* and *albrechtii* in the background.

Virginia Griswold Fearing
Abbotsford, BC, Canada

Photos by Harold Fearing

[Editor's note: The 2015 ARS spring convention will be in District 1 (British Columbia, Canada). To inform potential visitors as a lead up to this meeting about some of the region's attractions, this article introduces Fearing Farm Rhododendrons near Vancouver, one of the District's fine rhododendron gardens and one of the District's devoted and hard working rhododendron experts.]

Have you discovered the private rhododendron garden in British Columbia that specializes in species? In this garden are some 1500 rhododendron plants, 1100 of which are species, representing nearly 400 unique species or subspecies. There you will find a veritable A-Z of exotic and unusual varieties. For example there is *Rhododendron amundsenianum*, a dwarf Lapponica newly introduced from a seed collection of Jens Nielsen, and *R. qiaojiaense* and *R. yaoshanense*, apparently endemic to a mountain in Yunnan, both newly discovered and described by a Chinese botanist and his students.

Rhododendron amundsenianum.

Rhododendron qiaojiaense.

You might also see *R. yuefengense*, with stiff leaves almost large enough to serve as dinner plates, or *R. zaleucum*, a rarely grown member of the Triflora section.

As you wander the paths of this garden you may find tiny rhodos like *R. forrestii*, four years old and only five cm (two in) high, or large ones like the five metre (15 ft) *R. rex* ssp. *fictolacteum*. If you are lucky you may be dazzled by the spectacular shades of blue and purple of some 20 varieties of *R. augustinii*. You can study the beautiful rust colored indumentum under the leaves of *R. bureavii*, or the metallic sheen of *R. insigne*, or the purple of *R. neriiflorum* 'Rosevallon'. You can ponder how long it will be before big leaved *R. hodgsonii, rothschildii*, or *sinofalconeri* bloom or you may be lucky enough to see a ten-year-old *R. calophytum* show off its seven to eight blossoms. Or, you can just sit and enjoy the many colors and shapes and textures of the garden overall!

Rhododendron bureavii.

Fearing's Farm Rhododendrons, located in the Fraser Valley in British Columbia, is the result of one man's passion for rhododendrons. Harold Fearing, a physicist by training, and a botanist at heart, found his niche in 1977, motivated by some funny plants in the yard of their first house in

Leftmost blue, Rustic Maid Group; taller blue on right, *R. augustinii* 'Electra'; and shorter blue on right, *R. yungningense*.

Vancouver, which he was told were rhododendrons. He then began attending the Vancouver Rhododendron Society (VRS) meetings to learn more about these plants. This was the beginning of not only immersion in all things rhododendron but of meeting and learning from remarkable and generous people.

Many people fed Harold's interest in rhodos and thus contributed in important ways to the garden as it now stands. In those days when the VRS had a plant sale, Harold and many others rushed to Frank Dorsey's sale table. He grew SPECIES! A generous and knowledgeable man, Frank always encouraged Harold.

Doc and Vern Finley, whose recipe for potting mix Harold still uses, were also wonderful inspirations. On show day, they would pull a truck up to the show area and their kids would quickly create a garden, complete with soil and mature plants. While Doc and Frank are missed, both Vern Finley and Sue Klapwijk, one of Doc and Vern's children, remain among Harold's valued co-conspirators in all things rhododendron.

Les Clay, who used to operate a large rhododendron nursery and for many years held a very popular sale on the Clay property, has always been willing to share information. These days Sue, Les and Harold can often be found at rhododendron sales as they sell their own plants and look out for each other.

Mike Bale, who organized the successful ARS Convention at Harrison Hot Springs in 1996, also organized a series of Species Study Days at the Rhododendron Species Botanical Garden in Seattle. Day-long sessions started with classroom discussion about particular groups of species and were followed by a tour of the garden to look at these

species and others in bloom. These study days were the perfect challenge for Harold, who loves to key out plants; to record parentage, pot number, bloom dates; to map locations; and just generally keep big databases.

The Species Foundation remains important to the Fearing garden not only because some of the plants and many seeds came from there but also because its Executive Director and Curator, Steve Hootman, freely shares his considerable knowledge.

The Making of a Garden

Around 1984, after moving to a home with a larger yard located on the edge of the UBC campus, Harold began to convert the lawn piece by piece into rhododendron beds. Before long, busloads of people began to drive slowly by to see vibrant rhododendron colors. By 1999 when Harold had run out of lawn to turn into garden, he grew restless, and so the search began for a home with space for a larger garden.

In 2001, at an age when most people downsize, the Fearings upsized to a 16 ha (40 acre) farm near Abbotsford, BC, in lovely Mt. Lehman. Fortunately, there is a very active and vibrant Fraser South Rhododendron Society (FSRS) in the Valley. This friendly, symbiotic group of people freely shares rhododendron lore while also managing to have a lot of fun (and really good food).

Loathe to leave his beloved rhodos behind, Harold single handedly dug up more than 400 rhodos in Vancouver, transported them to the farm via half a dozen big dumpster

An assortment of mainly hybrids: right foreground, 'Abendsonne'*; next one back, 'Dreamland'*; left foreground, 'Disca' X (complicated cross); and next one back, 'Red Walloper'. * Name is unregistered.

Paulownia tomentosa.

containers and one rental truck load, and planted them, many well over his head in height. Most of them still survive.

But this was not enough. Needing a constant supply of new rhodo species, Harold began to propagate them in earnest, buying seeds from the Species Foundation, the American Rhododendron Society Seed Exchange, and the Royal Horticultural Society. In recent years Harold's emphasis has been on newly discovered and unusual species grown from seeds brought back by collectors like Jens Nielsen, Keith Rushforth, and Steve Hootman who are willing to brave the hardships necessary to collect seeds. They too, among so many others, have contributed to this garden. This led to first one, then two, three, and ultimately four large greenhouses to hold the baby plants and the larger ones waiting to be planted.

The plants, scattered around a mature woods, cover 0.8-1.2 ha (two to three acres) of rolling terrain, with grass covered paths to wander. Contributing to the overall effect are the magnolias, sequoias and other trees planted since 2000. The beautiful *Paulownia tomentosa* (Empress Tree) contributed by Cliff and Phyllis Anderson provides shade and color. Perhaps the best description of this garden during bloom time would be "a riot of color." Reds, pinks, whites, yellows, oranges, mauves, and blues are mixed together in a joyful celebration. The variety and color in the garden can be seen on Harold's website at www.fearing.ca

His wife would say that Harold loves to create gardens with texture, color and balance. Harold says his style is to plant as many different kinds of rhodos as is possible in one area so they may be studied and compared. Each year he prepares the ground in a new section of the garden and plants 100–200 new rhododendrons in that section.

Red is 'Girard's Hot Shot'; pink is [azalea] 'Amoenum'; white is [azalea] 'Sugared Almond' and tree is *Paulownia tomentosa*.

How much help does this one man have? None! And weeding? Maybe tomorrow.

Behind the colorful and scientifically documented garden is a great deal of work. This starts in the family kitchen, where Harold boils huge pots of soil, a business so smelly and messy that it requires painter's tape for protection around the stove and counters, and a wife who goes elsewhere for the day (and, it must be said, returns to a kitchen cleaner than when she left!). This sterilized soil is potted, cooled, and transported to the potting tables where tiny seeds are carefully planted, labeled and put under lights. Several months later the seedlings are separated and put into individual cells in trays.

Eventually seedlings, still carefully labeled and recorded, are transplanted to a larger pot containing a special soil mixture that has been mixed by hand. Then they are moved to the greenhouses, where, barring rabbit damage, the plants begin to grow rapidly and become hardier.

Fearing's Farm Rhododendrons is usually formally open to the public once a year, although visitors are welcome at other times. One of the joys of having so many species in one place is the ability to wander the garden paths with other rhododendron enthusiasts, discussing and comparing plants, examining their properties, confirming identifications, and generally learning with others about this remarkable genus.

Discover this garden and see for yourself what one person, with a passion and an active rhodo support system, can create. This Canadian Rhododendron Garden, a treasure trove of rhododendron species, is truly a feast for the eyes.

Ginny and Harold Fearing are members of the Fraser South Rhododendron Society.

Preview of the 2015 Spring ARS Convention, Vancouver Island, BC, Canada

The world is coming to Sidney, BC, Canada for the 70th anniversary ARS 2015 Convention, May 6-10. With world renown keynotes speakers like Ken Cox, Guan Kaiyun, Marc Colombel, Hartwig Schepker and Lionel de Rothschild and Pacific coast expertise in Jim Barlup and Harold Greer, this will be a convention not be missed!

The impressive Mary Winspear Community Centre in Sidney, just 20 minutes from downtown Victoria, BC, will be the centre of rhodo activities for the month of May. With the city of Sidney declaring May as "Rhododendron Month" and providing support to produce street banners designed by a local fabric artist, Sidney and the Victoria International Airport will be exceptionally colourful.

Northwest America hybridizer Jim Barlup has generously donated R. 'Champagne Lace' as the convention rhodo. Only a limited number of this rhodo will be available to members. Jim has also donated a presently unnamed rhodo for auction—the highest bidder will be awarded the naming rights for this spectacular rhodo.

In addition, there will be impressive garden tours of local member's rhodo gardens as well as tours further up Vancouver Island.

The five Vancouver Island Rhododendron Societies in District 1 invite you to join us for an amazing convention. See www.2015rhodo.ca for more info!

Expedition Medical Peccadillos

Dr. Keith White
Salem, Oregon

Photos by the author

As background, I am a family physician who has worked a lot in the ER and the ICU in the past and still delivers babies. Though I have not had the good fortune to deliver babies on rhodie expeditions, I have had the good fortune to deliver a few seed pods loaded with potential life. I had not thought of it before now, but perhaps this is one of the connections that make doctors (I know several) so often interested in botany and horticulture.

In any case, my goal here, despite digressions, is to talk about the medical issues that have come up on expeditions. It is a universal truth that "illness hap-pens." And despite our best efforts at being careful, accidents happen. However, the exotic rhododendrons do not happen unless we go far afield to find them in their native, ever shrinking, habitats. So we go. And we encounter some illnesses and injuries during our treks. I go on botanical expeditions for the adventure and discovery and to learn about the rhododendrons and other wonderful plants and people in their natural environments. However, being a doctor, I bring some medical supplies so that when problems arise in the field that I easily treat every day at home, I do not feel helpless and frustrated and can fulfill my role as a helper.

Common Colds

"Common things are common." And most common on expeditions is the common cold with its variations. Many expedition members bring meds for this malady. It definitely slows people down and puts them at risk for secondary infections such as sinusitis and pneumonia. The secondary infections are more a problem in the field because of the effects of altitude and cold. The primary symptoms are easily treated but the secondary infections can be disabling in the field. So the big trick is learning how to avoid colds. The most important education is that most colds are acquired by hand to mouth transmission. That is, you put your hand on a doorknob that was recently touched by someone who sneezed into their hand. Then you pick up a piece of food with your unwashed hand and by eating it, you have given yourself a dose of cold virus. Another mode of transmission is through poorly washed cutlery. That is why Warren

Berg always insisted on trekkers carrying their own set. The main rule is: Do not touch anything that you are going to put into your mouth without first washing your hands (or eating utensils, if they are suspect.).

Traveler's Diarrhea

The second most common travel illness is traveler's diarrhea. In Kathmandu we stayed in one of the better hotels—the same one both times on our way through to Tibet. One would think that this good hotel would have a reliable restaurant. But they forgot to tell the flies that were visiting the human excrement in the open toilets behind the kitchen not to fly in and step all over the food, thus transmitting common "enteric pathogens" . . . stool bacteria that cause toxic diarrhea (as opposed to nontoxic diarrhea). The former is usually accompanied by sweats and chills and weakness and maybe fever and some cramps. The loose stools may be small volumes or large volumes leading to dehydration, especially in the presence of nausea and vomiting, which are also common. This type of diarrhea will pass spontaneously usually with a few days of disability. But that can slow down a whole expedition and may result in the afflicted having to abandon their trip. I have seen many episodes of this. As Garratt Richardson said (*JARS* Fall 2013), most trekkers are hardy individuals, not willing to admit illness or take pills unless necessary. One colleague on a trek in Sikkim in 1992 admitted to me that he had been having loose stools for the past day and was feeling poorly. I offered him treatment but he deferred until the next morning when he confided that last night he had soiled his sleeping bag due to an urgent call from Montezuma that he failed to answer in time. As Garratt said, one or two doses of Cipro or a similarly effective antibiotic can quickly end a toxic episode. Stopping over in Bangkok on our way home from Tibet in 1997 my friend decided to try as much of the very tasty street food as he could. A few hours after stuffing himself he had a fever and was on the porcelain throne with the wastebasket in his hands—a thousand pounds of thrust coming out of both ends. When the vomiting slowed down enough for him to swallow something I gave him one antiemetic (antivomiting) pill called metochlorpamide and a

Snack stop for the flies that travelers find in the facilities in Yunnan and Sichuan.

single Cipro pill. By the next morning all it took was a little rehydration in the swank, beautiful and clean hotel café to make him as good as new.

The old rule for eating in suspect places is "boil it, peel it or throw it out.". However, one does develop a craving for fresh foods. In my China expeditions I have seen fewer cases of traveler's diarrhea, I think, because although the Chinese serve all fresh foods, all are well cooked, even the lettuce and celery.

No matter how careful one is, though, one can still end up with traveler's diarrhea. In Nepal in '97 a Canadian nurse working in Kathmandu for the United Nations World Health Organization advised me that her organization had found that 16% of the bottled water sold there was contaminated with coliform bacteria. Presumably these unscrupulous local water sellers were filling their very pristine looking bottles with contaminated untreated water.

I always make sure that my patients who are traveling to hygiene suspect areas have a supply of antibiotics for

Funeral Pyre adjacent to the Bagmati River in Kathmandu. The ashes will be dumped in when fully burned and maybe your bottled water may be collected here as well.

toxic bacterially caused diarrhea and some metronidazole to treat usually nontoxic parasitic diarrheas with my instructions to distinguish the toxic diarrhea that I refer to above from what I call "nontoxic diarrheas." The most common of these is giardiasis. Giardia is world wide, including my home town. The contamination route is usually through water. The symptoms are bloating and sour belching and loose stools and a somewhat diminished appetite. However, the range of symptoms is broad, extending from severe (though no fever and less malaise) to no symptoms at all. For this I usually use a single dose of two grams of metronidazole or the same dose of tinidizole, a superior drug available for pennies in India and associated states but not available in China, available in the US in the past few years at an outrageous price.

I must admit that when I start feeling

queasy and my stomach is roiling I do not wait to find out what type of diarrhea it is going to be. I take two grams of metro or tinidazole and a single Cipro and by morning I am usually fine. My philosophy is that I have gone to a lot of work and expense to get here so I am willing to do whatever necessary to prevent losing some of that experience to illness.

My trekking medical kit . . . in my backpack at all times.

I must admit that my scheme is an oversimplification. There are viruses causing diarrhea that do not respond to any antibiotic. They may be either toxic or nontoxic. But most people develop immunity to most of these by adulthood. One type of nontoxic diarrhea that responded to no medicine that I tried was that of a travel colleague in Sichuan in 2010. It turned out that although his tongue was tough enough to withstand the fire from all the hot peppers he was eating, his lower GI tract was not. It was he who figured this out, thus giving me a lesson. As an aside, perhaps you have heard of hereditary diarrhea. It is more common than most realize. It is the kind that runs in your jeans.

Injuries

Now off the potty and on to injuries. The most common are cuts and bruises and sprained ankles. Also back strains. I always carry a suture kit and anesthetic and gear to cleanse and dress wounds. I also carry injectable morphine and ketoralac. The latter is a wonderful new drug related to ibuprofen that has the pain killing power of morphine but has none of the sedative or nausea/constipation effects and lasts six to eight hours as opposed to the two or three hours of morphine. They can also be used together for additive relief. One traveler to Sichuan in '09 tore her rotator cuff of her shoulder getting out of a cable car going up Wa Wu Shan. It was a nasty injury that would ultimately require a surgical repair. But she was able to get through the trip with full participation by letting me give her a ketoralac shot every morning.

In Yunnan in '06 we got lost in the back country roads and had to spend an unplanned night in a dark little town. The open sewers are usually covered by concrete slabs. But our leader stepped in one that was not. He punched a deep hole in his leg on an exposed stub of steel rebar. The nurse with us and I flushed the wound out with a hypodermic syringe and I debrided the devitalized tissue with surgical scissors and forceps. Then we used some antiseptic soap and applied antibiotic ointment and a good dressing. Our nurse checked the wound and changed the dressing twice a day. The patient did not develop an infection and continued all his climbing and hiking throughout the trip without a hitch, despite not taking any antibiotics. This illustrates the basic principle

of wound care: the most important wound therapy (aside from first stopping heavy bleeding) is to first cleanse the wound of all dirt and debris and dead tissue. This is the most important step in preventing infection . . . It is far more important than all the modern antibiotics and antiseptics and dressings.

I carry and use a telescoping light aluminum cane to improve my balance in areas of dodgy footing. This is to prevent falls and sprained ankles. On expedition one is walking on unfamiliar uneven ground and trails as well as hurrying through busy airports and the like. Ankle sprains can ruin your trip and slow down the expedition if camping in the back country. And twice I have seen what the trekker thought was just a sprain be a fracture of the distal fibula (the prominent bone that pokes out on the lateral side of the ankle and runs up almost to the knee on the lateral leg). Once in Chengdu I made the mistake of passing up the plaster cast offered by the local hospital to use the army aluminum splints and ace wraps that I always carry. Plaster melts in wet conditions. I am used to using fiberglass in casts or fitted walking boots for immobilization. But old fashioned plaster would have been better if covered by plastic bags than the poor immobilization by my splints (meant for resting stability but not for walking), given that my trekker was determined to keep walking despite the pain. Now I keep a couple rolls of fiberglass and some padding with me.

Malaria

In '92 on our way out of Sikkim we had to catch an afternoon flight from Bagdogra Airport to Delhi. But when our 737 landed the crew decided that they had had enough flying for the day and delayed the takeoff until morning. We were forced to spend the night in a giant-roach infested hotel in nearby Siliguri—the malaria capital of India. By morning we were all covered with mosquito bites, despite the insect repellant. I was so happy that I had been taking prophylactic meds for malaria as were most of our group. There are several prophylactic drugs for malaria. As Garratt said in his piece, check with your doctor or travel clinic regarding malaria recommendations for drugs for the specific type of malaria in the areas where you will be traveling. Or you can do what I do: search for CDC traveler's health on the web. This will take you to the Centers for Disease Control website in Atlanta. There they have good general information for travelers including immunization advice. On a link to a separate page you can look up malaria treatment recommendations for the areas you will be traveling in. It is always also a good idea to ask your guide who knows the area if there is malaria. In '05 the CDC malaria advice for Yunnan advised travelers to take mefloquin. So I advised everyone else on the expedition to do so as well. I had already taken my first dose before arriving and was loaded for bear with extra pills for those who were not prepared. It turns out that the only malaria in Yunnan is in the south, near Vietnam and Laos. Our Kunming hosts could have told me that in advance, had I asked. Malaria does not tend to occur in the major cities and at the higher elevations where we were traveling.

Altitude Sickness

And speaking of higher elevations, one seldom

spends enough time at intermediate elevations to acclimate to the higher ones. In '95 the British group of our expedition to Tibet flew into Kathmandu in Nepal at 5000 or so feet (1525 m) in the afternoon of one day and we all flew on to Lhasa at near 12,000 feet (3658 m) the next day. Chip Muller and I and Scott Vergara and Bill Ehret had spent a few days in Kathmandu before the British arrived. Even then we took Diamox (generic name is acetozolamide). We Americans were all fine. But a few of the Brits got pretty sick. Unlike we pampered Americans, the Brits are more used to "toughing out" their medical problems. Some took the acetozolamide, but one poor fellow flatly refused. After three or four days of feeling miserable with the usual nausea and headache he gave up and asked to be taken back to Lhasa. This was a hardship for our expedition because of the expense and danger of the two day drive to Lhasa and back to camp. This expedition member could have just taken the meds, laid low for a few days and gone on.

It is hard to predict who will suffer from altitude sickness. People have died at elevations as low as 9000 ft. (2743 m). Experienced trekkers who have never had a problem off acetozolamide are not likely to have problems at the altitudes that they have already slept at. But the newbies to high elevation are risking more than a headache and nausea by sleeping high without the drug. I have treated one person at 12,700 ft. (3871 m) in Sikkim and another at similar elevation in Yunnan for pulmonary edema. Fluid seeps out of the lung capillaries and fills the alveolar air sacs and makes it hard to exchange the already low atmospheric oxygen for our metabolically produced carbon dioxide and water, which we exhale 24 hours a day. The same process can occur in the

brain, causing brain swelling referred to as cerebral edema. This and/or pulmonary edema can result in death. The best treatment for all altitude sickness is oxygen, which can be obtained by just going to a lower altitude. Short of that, one can take vasodilator medication to improve gas exchange by dilating lung capillaries and steroids to reduce edema by other mechanisms. These are also prophylactic treatments, but in the face of acute severe altitude caused pulmonary or cerebral edema are only short term fixes. If the patient does not respond immediately then one has to go to lower altitude. For those interested in the pathophysiology of altitude sickness, see the boxed explanation on page 162.

Eye Problems

The last really common injury that I have treated on expedition is eye problems. Being out in the brush, one is more likely to scratch a cornea (the clear part covering the pupil and iris), get a foreign body in the eye or develop an eye infection. As prevention, one should be wearing glasses or safety glasses if crawling around in the brush or climbing trees. One should not rub one's eyes without first making sure hands are clean. A little history taking and simple magnified inspection can detect most corneal injuries and foreign bodies. Local eye anesthetic and good light and magnification are usually enough to detect a corneal abrasion and with a Q-tip type applicator remove a piece of dirt, etc., from an eye. Eye rest for up to 24 hours and some antibiotic ointment are all that is usually needed. In Sikkim in '92 I awakened at 15,000 ft. (4572 m) to find my right eye hurting badly. Rollo Adams told me the eye was red and swollen. I had

Pathophysiology of Altitude Sickness

When we sleep our breathing is regulated by the acid-base balance in our blood. Assuming normal kidney function, our brains tell our lungs how fast and deeply to breath in order to keep our blood steady at a pH of about 7.4. This is done by regulating the amount of carbon dioxide (CO_2) we exhale. In our blood CO_2 combines with H_2O to form carbonic acid H_2CO_3, which dissociates as H+ and HCO_3, a weak acid that affects the acid-base balance of our blood. At altitude the atmospheric CO_2 level is about the same as it is at sea level. But due to the lower atmospheric pressure the availability of oxygen is much lower. While we are awake and exerting ourselves even lightly we can sense that the oxygen levels are too low and we take more and deeper breaths. But at night our breathing is controlled automatically by a part of the brain that bases respiratory function on acid-base balance in the blood by regulation of CO_2 and thus does not take into account adequate respiration to recover enough oxygen from the atmosphere. Normally if the blood is too acid we breathe deeper and faster to blow off more of the dissolved carbon dioxide (CO_2) in our blood. If the blood is too basic, i.e., alkaline, we breathe shallower to retain more CO_2 and thus with water (H_20) make more of the carbonic acid (H_2CO_3) to bring the pH back to the normal range. Because we do not use oxygen levels to regulate breathing during sleep until we arouse at a critically low level, we can go many hours with insufficient oxygen for our needs. So we get some degree of brain irritation and swelling, which causes headache and nausea. Or worse, as described above.

The drug acetozolamide works by inhibiting an enzyme in the kidney called carbonic anhydrase, which breaks the bonds between carbon dioxide and water in carbonic acid to release separate water (H_2O) and carbon dioxide (CO_2) molecules. The effect is to raise the level of acid in the blood and thus fool the primitive medullary auto regulatory centers in the brain to make us breath deeper and faster. And thus we breath more and take up more oxygen and avoid the effects of hypoxia (low oxygen level) that cause altitude sickness.

Usually it is recommended that we take the acetozolamide for about five days. This is usually time for our bodies to make more of another enzyme called 2-3 DPG that allows our hemoglobin in the red blood cells to carry more oxygen. During that period our respiratory centers in our brains also adapt by causing us to breath deeper and faster during sleep. A concurrent but slower process is that our kidneys secrete more of a hormone called erythropoietin that tells our bone marrow to make more red blood cells, thus increasing our oxygen carrying capacity.

an infection and a long day's hike ahead of me to 7000 ft. (2134 m) at the trail head. I looked in my medical kit, which was two plastic boxes, one surgical and one medical, much the same size as Garratt described. My eye antibiotic solution had all leaked out of the still factory sealed bottle due to the air in it being at sea level pressure—much higher pressure than the high altitude we slept at. Luckily I had a tube of petrolatum-based antibiotic ointment. I had Rollo put this in my bad eye every two hours just for its soothing effect while he led the one-eyed me down the trail. At one point I picked up a large staff of a *R. hodgsonii* seedling that our porters had cut out of the trail with their machetes. The rhodies here were prolific. Any bare spot was quickly colonized by seedlings. We were on a back trail that had not been used for a few years. Thus the need for the porters to go ahead of us to clear the "rhododendron brush" from the trail. That *R. hodgsonii* saved me several missteps and falls that day. So I took it home on the plane and still have it to this day.

Leeches

Leeches! A mid elevation pest of wet tropical and subtropical forests. These are land leeches. They climb up trees and bushes in order to fall on to and attach to animals passing by the trail. Before my trip I learned about leeches when I read J.D. Hooker's account of his trip on this same trail from Yaksum to Dzongri in Sikkim in 1850. Hooker said that the leeches rained out of the trees as they passed under. This had me worried. They painlessly attach to your skin and you don't notice them until you discover a trail of your blood running down. They drop on as skinny as a shoelace and drop off as fat as your thumb—full of your blood. They leave a wound that wants to keep bleeding because of the anticoagulant that they secrete. The wound takes longer than normal to heal and is prone to infection. Then I lucked out by hearing a story on NPR of French cinematographers shooting wildlife footage in Central American jungles protecting themselves from the leeches by wearing panty hose on their legs and their arms with their heads poked through the crotch, a hat with netting on top. So I wore panty hose in Sikkim. It worked like a charm and did not make me sweat any more than if without. And as predicted, many of my fellow trekkers who thought I was daffy were asking the next day for the extra pairs of ladies XXX that I had offered before. The leeches are pretty sneaky and resourceful buggers. As we hiked out in a torrent of the

Painless but bloody feet after leeches fed on legs They crawl up and feed painlessly.

Keith White on Kongbo Pa La. OK to visit but don't sleep here.

beginning of the summer monsoon, I caught up with Herb Spady, who was holding a bloody handkerchief to his eye. He said that his vision had gone partly dark in that eye. When he investigated, there was a fat leech hanging from his upper lid, blocking his vision. That was the ultimate.

I suggest that before you go you check in at CDC traveler's health and obey their recommendations. Your doctor should be able to give you hepatitis A vaccinations and prescribe oral typhoid vaccine and update you on your regular immunizations. The doc can also give you some antibiotic for toxic diarrhea and giardiasis and if needed, prescribe malaria prophylaxis. In many areas Japanese encephalitis and rabies are endemic but the risk is small. Your doctor or travel clinic can review the CDC or their own recommendations with you. And don't forget the sun screen and bug repellant and pyrethrum or permethrin soaked bed netting and clothes for malaria areas. I make it a practice to stay away

from dogs. And that includes the dog meat restaurants that are common in China. I doubt if one could get rabies from this. But I don't fancy eating Fido.

For those interested in the list of things that I bring on trail treks or the things that I bring on the more common (these days) jeep treks, feel free to e-mail me at rhodoc@msn.com.

Dr. Keith White is a member of the Willamette Chapter and has participated in a number of rhodo hunting trips to southeast Asia over the past two decades. He is on the Board of Directors and chairman of the photography committee at the Rhododendron Species Botanical Garden.

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Thomas, Cookie

Errata: *JARS* 68 (2): P. 89. The heading *Rhododendron multicolor* MIQ. should be *Rhododendron multicolor* Miq.; P. 92. In the top photo, left column, the truss described in the caption is the yellow one to the left; and on P.105. The family name Melastomaceae should have been Melastomataceae.

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