NORTH AMERICAN ROCK GARDEN SOCIETY

The Rock Garden

QUARTERLY

SUMMER 2020

CONTRIBUTORS

All illustrations are by the authors of articles unless otherwise stated.

Cyndy Cromwell relocated from Connecticut to the gentler climate of Raleigh, North Carolina, in 2011. She is an active volunteer in several horticultural organizations, including the JC Raulston Arboretum, Juniper Level Botanic Garden, and the Piedmont Chapter of NARGS.

Ger van den Beuken lives in Horst in the Netherlands. He has served as Chairman of the Nederlandse Rotsplanten Vereniging (Dutch Rock Garden Club) and is a vice president of the Saxifrage Society. He is well-known as an international speaker and has traveled widely with his wife Mariet. Since retiring from full-time work, Ger has more time to dedicate to his specialist nursery for rare alpine plants.

Michael Wharton is a law enforcement officer and native Midwesterner, at home now in western Montana. He is in love with alpines and the terrain they naturally grow in. He is very honored to have been asked to write an article for this issue.

Panayoti Kelaidis is senior curator at Denver Botanic Gardens where he's worked for 39 years. He's been active in NARGS much longer than that, helping cofound the Rocky Mountain Chapter of NARGS in 1976. Panayoti is a keen plant and seed collector with special pride in donating to the NARGS seed exchange. He is serving his third term on the NARGS Board of directors.

Mike Smedley is the deposit officer of Bank of the San Juans, based in Durango, Colorado. He's obsessed with bulbs, growing 12,000 of them in an urban yard. He speaks frequently at bulb sales and garden shindigs. A former newspaperman, Mike has been grubbing in the dirt for much longer than necessary and really doesn't understand why people are into roses. Or daylilies.

Carol Eichler is a long-time member of NARGS and the Adirondack Chapter, where she's held just about every officer position. After years of growing rock garden plants in troughs, she finally decided in 2015 that it was time to build a rock garden, with stonework by husband Steve. It has given them such pleasure that they have now built rock garden number two.

Front cover: *Dionysia* 'Eric Watson', Ger van den Beuken.

Printed by Sutherland Printing, 525 N. Front St, Montezuma, IA 50171

The Rock Garden

QUARTERLY

(ISSN 1081-0765; USPS no. 0072-960)

is published quarterly in January, April, July, and October by the
North American Rock Garden Society, c/o Bobby Ward, Exec. Sec.,
214 Ashton Hall Lane, Raleigh, NC 27609-3925
a tax-exempt, non-profit organization incorporated
under the laws of the State of New Jersey.
Periodicals postage is paid in Raleigh, North Carolina, and additional offices.

POSTMASTER: Send address changes to
Rock Garden Quarterly, Executive Secretary NARGS, PO Box 18604,
Raleigh, NC 27619-8604

EDITOR
Joseph Tychonievich
115 Nina Circle
Williamsburg, VA 23188
USA
<gsparrowgardens@gmail.com>

Submission deadlines are
February 1st for SPRING issue
May 1st for SUMMER issue
August 1st for FALL issue
November 1st for WINTER issue

Membership includes a subscription to *Rock Garden Quarterly* and participation in the seed exchange, as well as other benefits.

Annual dues: US/Canada regular membership $40; all other countries membership $45. US/Canada Household membership $70; Overseas household membership $75; Patron US/Canada/Overseas $100; Patron household US/Canada/Overseas $150. Student $15; Institutional memberships (defined as herbaria, botanical gardens, and institutions of higher learning) $125.

Membership can also be paid online with PayPal at
<www.nargs.org>

Membership inquiries, dues,
and inquiries regarding missing or damaged issues should be sent to

Executive Secretary, NARGS, PO Box 18604, Raleigh, NC 27619-8604.
<nargs@nc.rr.com>

Send inquiries about advertising to

Joseph Tychonievich
<gsparrowgardens@gmail.com>

NORTH AMERICAN ROCK GARDEN SOCIETY

The Rock Garden

QUARTERLY

volume 78 | 3

summer
2020

From the Editor

THANKS GOODNESS FOR gardens. With stay-at-home orders and scary news every day, my garden is about the only thing keeping me sane. It is deeply comforting to be reminded that, whatever else happens in the world, spring still arrives every year followed by summer, our seeds still germinate, our flowers still bloom, and we can still find great joy and peace in our gardens.

And of course, pandemic or no, reading about plants and gardens is never canceled, so I am deeply grateful that Sutherland Printing has kept working hard through this pandemic to safely get the *Quarterly* printed and mailed out right on schedule so that we all can sit back and enjoy these articles from the safety of our homes.

I'm thrilled with the articles in this issue. We have three stories, from different parts of the country, about creating rock gardens. I love it when members are willing to share their garden-making adventures. It is great to see how different gardeners solve the challenges of growing rock garden plants in wildly different climates, and how the concepts of rock garden construction play out in the real world.

For a little arm-chair travel, Panayoti Kelaidis is taking us to Tibet with the help of Norman Thompson's drool-inducing photos of incredible plants. Ger van den Beuken has written up a nearly definitive guide to the genus *Dionysia*. One of the elusive queens of the alpine plant world, dionysias are notoriously finicky and heart-stoppingly beautiful. Ger gives detailed instructions on how he successfully cultivates these beauties, ideas about the easiest species to start with, and gorgeous photos, like the one gracing the front cover.

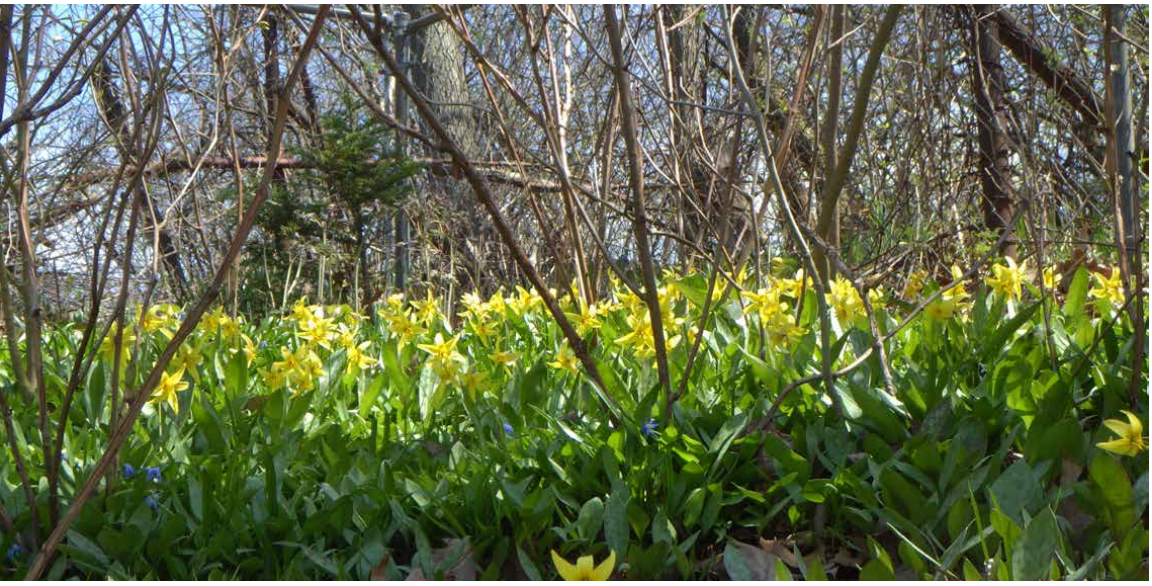
This issue winds up with some virtual garden tours provided by the Adirondack and Great Lakes chapters of NARGS.

But before we get started, members The Great Lakes Chapter of NARGS have been sharing photos of their gardens via email as a way to stay connected during the pandemic. I think it is a great idea, so I wanted to share it, and some of their gorgeous photos, on the pages that follow before we dive into the articles.

Great Lakes Chapter Virtual Garden Tour

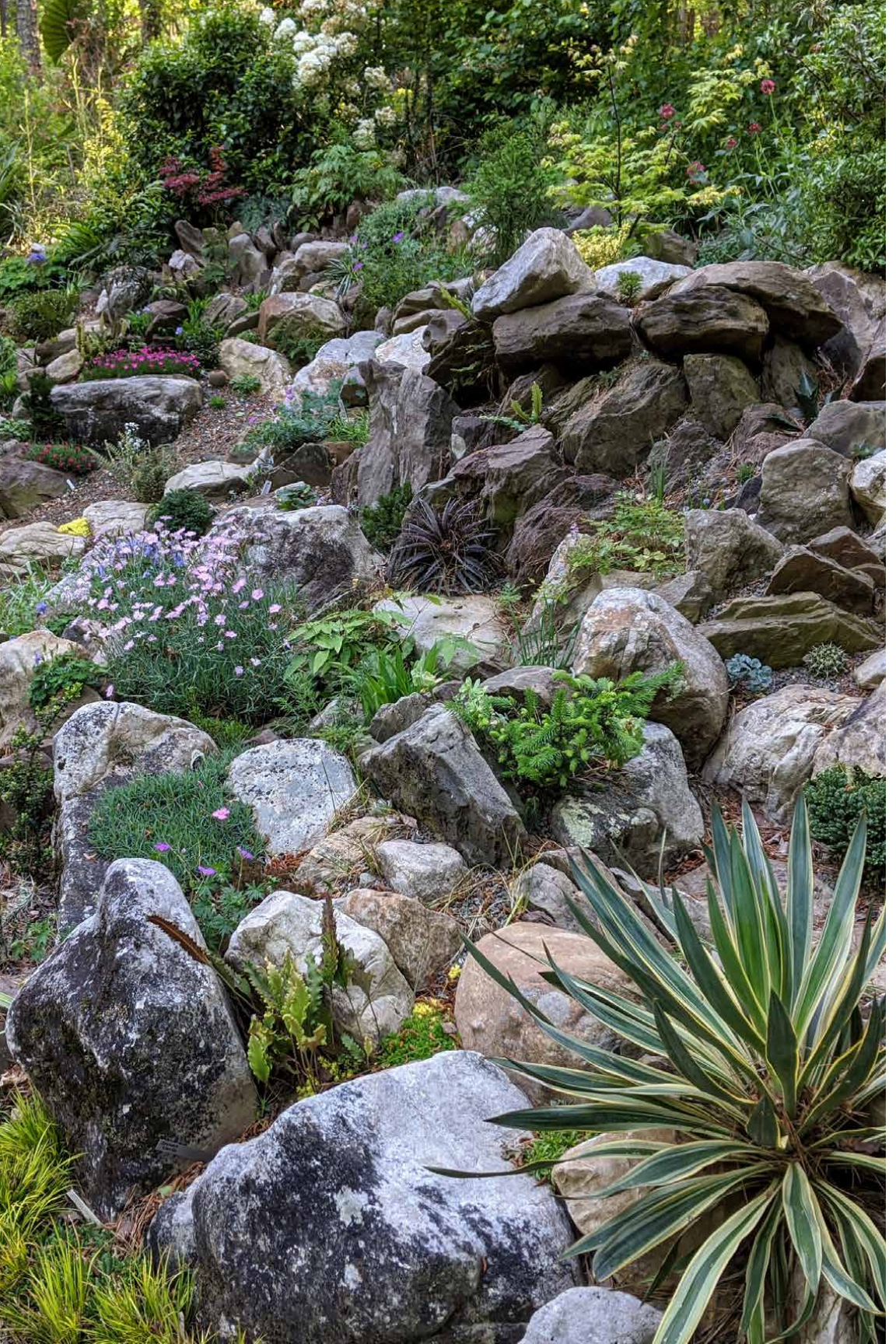
Top: A pale yellow auricula primrose hybrid, Barbara Haman.
Bottom: *Viola pedata* (left) and a delosperma (right), Joan Bolt.

Hepaticas from Esther Benedict: H. 'Cremar' (top left), unnamed blue hepatica (top right), a mix of *Hepatica nobilis* (bottom left), and newly germinated seed from fellow Great Lakes Chapter member Koko Koreeda.



Erythroniums from Tony Reznicek: native stand of *Erythronium americanum* (top), *E. dens-canis* 'Lilac Wonder' (bottom left), and *E. oregonum* (bottom right).

Daphne 'Leila Haines' (left), *Gentiana verna* (top right), and *Draba bryoides* (bottom right) from Esther Benedict.



A Crevice Garden in Raleigh, North Carolina

Cyndy Cromwell

A Rock Garden in the South?

I've been a gardener my whole life, but only became interested in rock gardening after relocating from Connecticut, where it's possible to grow a wide variety of alpines, to the challenging conditions of Raleigh, North Carolina. Here, summers are hot and humid and winters are mild, with little snow. In Raleigh, I began attending NARGS Piedmont Chapter meetings at the JC Raulston Arboretum. Then as now, Bobby Ward, our chapter's Program Chair as well as NARGS Executive Secretary, was bringing the very best speakers on horticulture to our area. Hearing talks by Panayoti Kelaidis, Ian Young, Mike Kintgen, and others, I became more and more interested in rock gardening.

In 2016, I enjoyed attending the NARGS AGM in Denver and Steamboat Springs, Colorado. The following year, I got to know some wonderful alpines in Wyoming and Montana on a NARGS study week with Mike Bone and crevice garden guru Kenton Seth, whose stunning creation in Arvada, Colorado, I had visited earlier. Seeing my first *Saxifraga oppositifolia* with Mike Bone remains one of my lifetime horticultural moments. I began to understand the mania for growing mountain plants at home, though I wasn't sure that was possible in the North Carolina Piedmont region.

Above: The space before constructing the crevice garden.
Opposite: The finished, planted, garden.

The completed garden as seen from above.

Around the same time, Tony Avent, of nearby Plant Delights Nursery and Juniper Level Botanic Garden in Raleigh, began construction on what was to become an enormous crevice rock garden using "urbanite" or recycled concrete. The early stages were built by others, but most of the construction was done starting in 2017 by Jeremy Schmidt, Grounds and Research Supervisor for Juniper Level. Tony seemed to be trying all the alpines, and a lot of other plants thought to be ungrowable in Raleigh. I was surprised and excited to see that many grew very well indeed in the new crevice garden. Given the drainage and growing medium they needed, these plants were unaffected by the summer heat and humidity.

I began volunteering in the crevice garden at Juniper Level while construction was still in progress, at first working on "crevice dentistry," that is, filling the gaps in the crevices with Jeremy's customized PermaTill (heat-expanded shale-gravel) mix. Now that construction is complete, my main job is removing weeds, especially the horrific *Euphorbia maculata*. Volunteering at Juniper Level has been a wonderful experience for me and I'm grateful to be allowed to work in this superb garden. I have learned so much, but the most important lesson was that it is possible to make a wonderful rock garden in steamy Raleigh. It was only a matter of time before I asked Jeremy to build a crevice garden for me.

Jeremy Schmidt working on building the garden.

The Build

The consultation process with Jeremy was unusual. He visited the site, and we talked over Diet Cokes about ideas for installing a crevice garden in an existing car pullout space dug into the hill above my driveway. Jeremy didn't do drawings or estimates. Instead, the project developed organically as construction progressed. I had never undertaken a major landscape project in this way but trusted Jeremy's design and engineering capabilities after getting to know him at Juniper Level.

The wish list for the project was short. I wanted the crevice garden to look as natural as possible in the space as if underlying ledge rock had been exposed. A seep for growing plants that required moist, well-drained conditions was the only other request. The overall design concept was summarized by Jeremy: "I was simply creating movement by recreating a glacial boulder flow that was perpendicularly cleaving off a stratified uplift." Easy for him to say, and to do!

We began with materials selected at a local stone yard. Jeremy preferred to use stone of varying dimensions and from different quarries; a total of thirteen pallets of three types of flagstone and three size classes of boulders were used. In his skillful hands, the result is a

Midway through construction of the crevice garden (top), and the build completed and ready for planting (bottom).

Mossy boulders ready for placement.

dynamic, vibrant look for the garden. Three large boulders, each weighing between 800 and 1200 pounds (360 to 540 kg), were selected. Once positioned, the other elements of the garden played off these three anchors. The planting medium used here was somewhat richer than at Juniper Level: 75% PermaTill and 25% topsoil/compost mix.

With the aid of a skid steer rented for one weekend, Jeremy was able to accomplish the project very quickly. He worked in several stints fitted around his full-time job.. Jeremy confirms my impression that fully one-third of that time was spent in contemplation, mentally putting together the complicated stonework jigsaw that became the garden.

Features

Transitions

In order to make the garden an integral part of the existing landscape, it was important to consider transitions – both from an adjacent formal raised bed and from the existing woodland behind the crevice garden.

I'm particularly happy with the transition between the existing formal stone retaining walls and the crevices; it appears as if the wall just tumbled over itself and into the crevice area. The other transition, between the crevice and the woodland garden, has evolved over time

Careful rock placement makes the transition from the retaining wall on the left to the new crevice garden on the right look smooth and natural.

and has been achieved mostly through plantings. With leftover boulders and flagstones, I've tried to work in features that give the impression that there is underlying rock continuing into the hillside, eventually dwindling to just a few outcroppings. Plantings help to soften and naturalize the effect, I hope.

Seep

The seep is simply engineered, with PVC pipe run down from an uphill well and skillfully concealed by rocks above the main seep boulder. Gravity carries the water downhill, so no pump is needed. I dislike the sound of splashing water in the garden, so the flow is set at a low volume. The water cascades silently over the boulder, now almost covered in bright green moss.

Top: Bright moss covers the boulder under the seep
Bottom: Stepping stones built into the garden create ease of access.

Stepping stones for access

Jeremy's design was thoughtful. He installed a set of stepping stones in such a naturalistic way, that I didn't realize they were there until I began climbing up and down the slope installing plants. I appreciate this feature every time I work in the garden.

Shady crevice garden

Another successful feature, which I hadn't requested, is a small pocket of shady crevice garden off the northeast corner of the house. It's located across from the main crevice garden, separated by the pathway leading to the back garden. There was an existing downspout feeding into the driveway, but stones and planting medium piled around the drainpipe conceal most of it. The area is now planted with *Acer palmatum* 'Twombly's Red Sentinel' and *Kalmia latifolia* 'Pristine'. They've done nicely for a couple of years now, their growth restricted by the tight location.

A variety of plants thrive in the shady crevice garden, including Japanese painted fern (*Athyrium niponicum* var. *picturm*) and *Viola labradorica*.

Iris cristata 'Eco Bluebird'

Plants

So which plants perform well in a North Carolina crevice garden? Eventually, I hope to grow some of the more esoteric alpines, but the aesthetics of the garden were important to me, so I began the garden with some easy and reliable components. *Epimedium* 'Amber Queen', *Dianthus* 'Bath's Pink' and *Iris cristata* 'Eco Bluebird' remain reliably cheerful in the first planting area.

Experimentation, with its disappointments and surprising successes, happens everywhere else. There is a long list of failures, including plants from genera I would like to try again in different areas of the crevice or using different species or cultivars.

Since the garden is new, I'm still trialing many of the plants, especially those started from NARGS Seedex seed. That said, I'm fairly confident the plants listed below would work for other southern rock gardeners, having performed well for me over the last two years.

Woodies

Many of the conifer genera suited to the south, like *Podocarpus*, *Cryptomeria*, and *Chamaecyparis*, are available in dwarf sizes and have been doing well so far. They are wonderful for punctuation in the garden and year-round plant interest. Some of my favorites are *Cryptomeria japonica* 'Vilmoriniana', *Chamaecyparis obtusa* 'Bess', and *Chamaecyparis pisifera* 'Cumulus'. A few conifers that don't usually do well here have worked in the crevice garden, like *Pinus sylvestris* 'Watereri'.

Holly species are quite happy in the North Carolina Piedmont; I especially enjoy the dwarf *Ilex* 'Rock Garden' and *Ilex crenata* 'Brass Buckle'.

A thread leaf *Nandina domestica* 'Aka Chirimen' struggled in garden soil for years, then perked up and grew beautifully in the shady crevice. Also in the shady crevice, a tiny *Rhododendron keiskei* 'Yaku Fairy' is a sweet accent.

Mahonias aren't known as crevice plants, but there is a noticeable difference in the vigor and appearance of two silver seedlings of *Mahonia confusa* planted at the same time, one in the formal raised bed, the other nearby in the crevice garden.

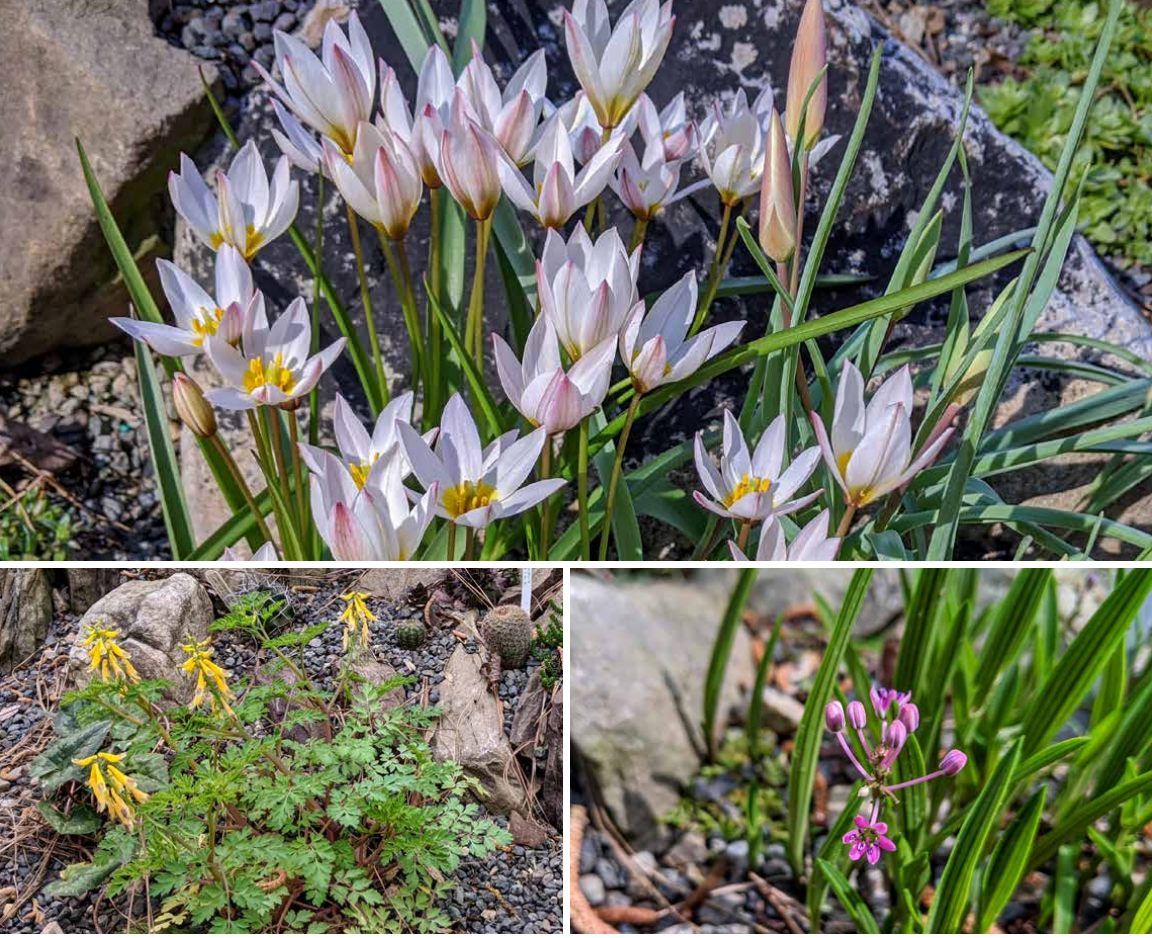
Having had some success with *Daphne odora* in the garden, I added five alpine hybrids and *Daphne tangutica* to the crevice. Two of the alpines have died; the others look healthy but haven't yet bloomed. I remain hopeful, for now.

Succulents

Raleigh's zone 7b climate accommodates a nice variety of succulents, which appreciate the excellent drainage in the crevice garden. Most of these plants would not do well in my heavy red clay soil but are happy in the well-draining PermaTill mix.

The curly starburst shape of *Agave bracteosa* 'Squidget' tucks into nooks and crannies nicely, as does my favorite *Mangave* 'Man of Steel'. Two dyckias, 'Pale Rider' and 'Grape Jelly' echo the starry fireworks. Silvery *Graptopetalum paraguayense* never survived a winter before planting in the rock garden, and now makes little rows of shimmering buns along the crevices.

Dyckia 'Pale Rider' (left) and *Dyckia* 'Grape Jelly' (right)



Tulipa cretica (top), *Corydalis heterocarpa* (bottom left), and *Ledebouria cooperi* (bottom right)

A variegated yucca, larger in scale, punctuates one end of the main crevice. *Opuntia humifusa* was much too happy in the crevice and had to be removed; but I appreciate how well other opuntias, like *O. wrightii* (syn. of *Cylindropuntia kleiniae*) and *Opuntia fragilis* 'Potato' perform in the loose medium. Notocactus species and hybrids, prickly little buns perching among the rocks, are budding up now in April, and promise to bloom later this spring.

Delosperma cooperi and *D. dyeri* have done well, the lone survivors of a massive ice plant experiment, prompted by my favorite nursery offering an amazing selection of cultivars at rock bottom prices. It was interesting to note how quickly most varieties melted in the heat of summer, but I'm grateful for the two growable species.

Sedum species have been excellent for adding interest and texture to nooks and crannies. I'm especially fond of low growers *S. confusum*, *S. japonicum* 'Tokyo Sun' as well as larger *S. palmeri*, with red-tinged foliage and yellow blooms in early spring. *Orostachys* species are also easy and happy here.

Bulbs, Corms, and Tubers

Many bulbous plants prefer the crevice garden. In Raleigh, it's all too easy for them to rot in heavy clay soil. I'm finally able to keep *Cyclamen graecum* alive, along with the easier *C. hederifolum* and *C. coum*. Species tulips, like *Tulipa cretica* have also performed well. *Galanthus elwesii* var. *monostictus* is happy so far, toward the bottom of a slope, where the bulbs get some extra moisture.

Corydalis don't love the south, but a couple do well here. *Corydalis leucanthemum* 'Silver Spectre' has variegated foliage and purple blossoms, going dormant in the summer heat. *Corydalis heterocarpa* is more of a beast, blooming all summer and seeding about, but who could resist those brown-throated blooms?

Ledebouria cooperi corpses have littered the landscape here in years past, but there is life for this plant in the crevice garden. Similarly, *Barnardia japonica* (syn. *Scilla scilloides*) is now a reliable performer here.

Ferns

Ferns adapted to sunny conditions are handsome in the crevice garden. *Astrolepis sinuata* 'Jo Levy' and *Cheilanthes lanosa* do well here, along with *Pyrrosia lingua* and its crested cousin, *P. lingua* 'Cristata'. *Asplenium scolopendrium* and *Athyrium niponicum* 'Picta' are good performers in the shady crevices. *Selaginella braunii* and *S. uncinata* soften the rocks in and around the seep.

Astrolepis sinuata 'Jo Levy'

Ajuga incisa 'Bikun'

Other Flowering Plants

Surprisingly, *Dicentra eximia* loves living in a sunny crevice garden in steamy Raleigh. As Tony Avent has demonstrated, this plant is not really an ephemeral shade lover, though many of us have grown it that way. Mine blooms from March until November with just a few welcome seedlings. In the shady crevice, *Viola labradorica* spreads slowly but surely.

Aethionema species seed around just enough, blooming reliably, and their glaucous foliage playing well with other plants, especially the silvery leaved dianthus cultivars.

All the dianthus trialed so far have performed well. I've been especially enjoying *Dianthus henteri* and hybrids *Dianthus* 'Cherry Charm', 'Kahori', and 'Mountain Frost Pink Twinkle'. In the near future, I hope to try some of the very tight forms, like *D.* 'Minimounds', which grows so successfully in the Juniper Level crevice.

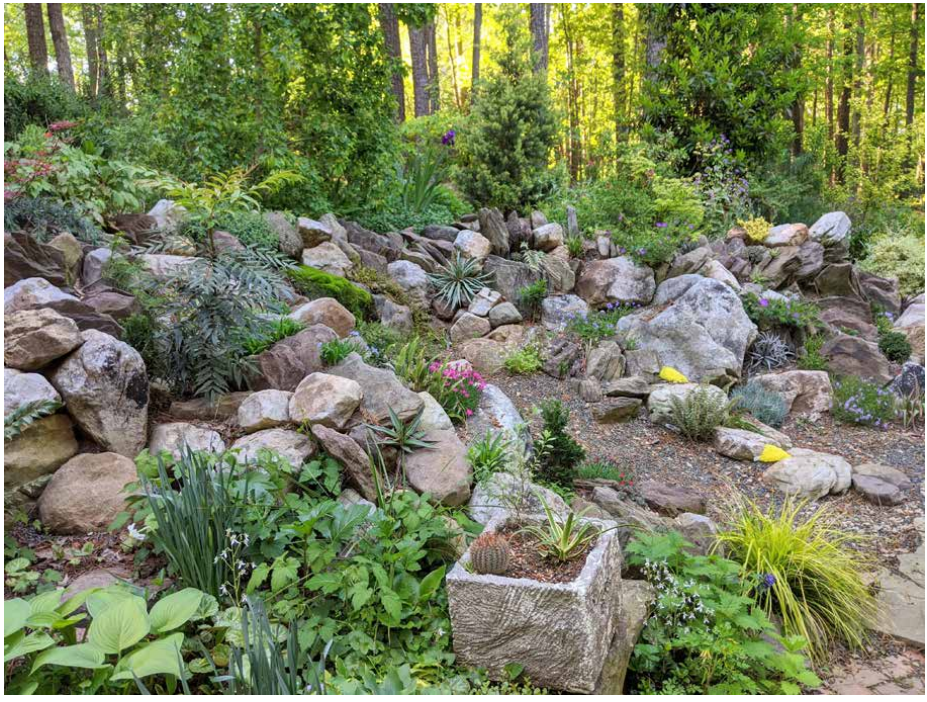
Hybrid phlox from the Paparazzi and Bedazzled series do nicely, with handsome foliage and a long blooming period. *Globularia* species also do well here – so far, I have *Globularia cordifolia* and *G. valentina*, both grown from NARGS Seedex seed, the latter in bloom now in the first week of April. *Ipomopsis aggregata* subsp. *candida*, a white form of scarlet gilia is neat and fresh, with long-lasting flowers. *Geranium* species are easy and flower on and off throughout the summer in the crevice, as does *Campanula portenschlagiana*. Variegated *Ajuga incisa* 'Bikun' blooms well in the shady crevice, unlike its counterparts in the garden beds.

Lessons learned

On the whole, my North Carolina crevice garden has been an absolute joy: it's a place to play and experiment with all kinds of plants that had previously failed for me in the garden and even in troughs. I have made some big mistakes, like not removing every single pine tree in the vicinity, resulting in pine debris in the crevice garden pretty much year-round. Plant choices in the seep, particularly *Sarracenia* species and *Dionaea muscipula*, didn't work with the limited sunlight. I've started replacing those plantings with gentiana and primula cultivars, like *Primula* x *kewensis*.

After realizing that rock gardening in Raleigh was possible, finding the right person to build the garden was the most important next step. I'm grateful to Tony Avent for the inspiration, the plant knowledge he shared, and for the opportunity to volunteer. I am in awe of Jeremy Schmidt's skill and his beautiful, thoughtful design and build.

I look forward to many happy years of horticultural adventure here, at the top of my driveway. Plant labels may become tombstones, but there are also thrilling successes along the way. That is especially wonderful and precious to me now, in the spring of 2020, at a time when we are all confined to home.



The Genus Dionysia

Ger van den Beuken

DIONYSIA IS A genus containing 50-plus species of perennial plants from the primrose family (Primulaceae), closely related to the genus *Primula* and native to southwest Asia, particularly in Afghanistan, southeast Turkey, and Iran. Two different mountain ranges are important for dionysias in Iran. The Elburz in the north and the Zagros Mountains running from northwest to southeast. The Zagros range, in particular, has a diversity of locations with different species. Iran is a huge country and to visit all those interesting locations you need to travel more than 1,200 miles (2000 km). The main roads are of good quality but getting into the mountains you definitely need a four-wheel drive car.

Dionysias mainly grow on vertical or curved limestone rocks, almost always protected from rain or snow. However, there are exceptions. Michael Mauser and Brigitte Fiebig from the botanical garden in Tübingen, Germany, were exploring the mountains in 2015 with a small group. In his account, he wrote about the habitat of a new species, *D. robusta*. This species was not only growing in vertical crevices but also on horizontal places. When they visited this spot it was raining and the plants were completely overwatered and wet. This is a complete surprise, as it means there are still questions about how much wet these plants can endure in nature. This reminds me of a visit to a private garden with a good dionysia collection in the United Kingdom many years ago. It was a very warm summer day and the owner was watering his plants all over with a sprinkler hose. The plants were looking perfect and healthy. I have never risked watering my plants so liberally.

Above: The author's alpine house.
Previous pages: *Dionysia* 'Monika'

Alpine House Design

In general, dionysias are difficult plants to grow, but there are some exceptions like *D. aretioides* and *D. involucrata*. It is important to provide these plants with the right conditions and an alpine house is indispensable to keep these gems going through the year.

My alpine house is about 23 feet (7 m) in length and nine feet (2.7 m) wide, built from stainless steel, hard plastic, and acrylic glass. Six big roof windows, louvers all around, together with two additional vents provide the plants with sufficient air movement. The most important detail is the use of acrylic glass. This material lets more light through than normal glass and is essential for the plants. Many people make the mistake of using polycarbonate. This is much cheaper initially but pretty expensive in the long run as this material turns yellow after a few years. That means a lack of good light and problems with the plants.

The beds in my alpine house are about a foot (30 cm) deep and are level with the ground, so you enter the alpine house by going down a few steps. In this way, I can keep the raised beds cooler during summer. The beds are made waterproof with a thick plastic film and have an irrigation system on the bottom. Over this is a two-inch (5 cm) layer of coarse pebble covered with a water-permeable film. Over that, the beds are filled up with a ten-inch (25 cm) layer of good quality coarse sand. The coarse sand absorbs the water. This is the most important part concerning water management as all my plants are grown in clay pots and sunk into the moist sand. In the front and end of the beds are four-inch (10 cm) wide vertical tubes to check the water level in the beds.

Cultivation and propagation

All my plants are grown in clay pots in a soil-free mineral substrate without any fertilizer. My substrate is a mix of perlite, coarse sand, pumice, seramis (fired clay granules), grit, and a small amount of tufa grit.

This mix provides the plants with a fantastic root system which is essential for a lifespan of at least four or five years. The young plants are potted in four- to eight-inch (10- to 20-cm) pots depending on the species. *D. aretioides*, for instance, is a fast grower and fills up an eight-inch (20-cm) pot in a few years. Many other species are slow, compact growers and are satisfied with a four-inch (10-cm) pot for the first four to five years. It is highly recommended to read about the different species. You will need to repot the plants every four to five years to provide them with fresh substrate. This is not a job without risk as older plants become potbound. The only acceptable method is to sink the pots in water until they have absorbed the water. Do not try to get the plants out of the pot but destroy the pot with a hammer or other tool. In this way, the root system remains intact. Repot and water the

plant. Watering should always be done along the rim of the pot to avoid any wetness on the plant. If necessary, I give the plants a spray against fungus. I never fertilize the plants. This is the best way to keep your plants compact. During warm periods with bright sun, you need to shade the plants.

Propagation is possible from seeds or cuttings. To get seeds, however, you need the right pollinator or you need to be a pollinator yourself. We do not have the right bumblebee in my garden, therefore I propagate all the plants from cuttings. For this work, you must be precise and patient. The best time is right after blooming when growth is active. I stick my cuttings in very fine pumice and put them away from direct sunlight. Check the cuttings every few days and set the container in water to absorb moisture if necessary. Depending on the species you will have to be satisfied with a maximum of a 50% success rate. I pot the newly rooted plants in small, two-inch (5-cm) clay pots and let them grow for another year.

The Plants

Dionysias are perennial, herbaceous plants forming a woody base. They grow into dense or loose cushions or dwarf shrubs. The leaves are usually in terminal rosettes.

In early spring, during mild winters sometimes starting in January, yellow, purple, violet, or pink flowers bloom. The flowers can be borne in an inflorescence with several whorls or in a simple umbel, but most are solitary, borne directly on the leaf-rosette. The calyx and corolla are usually fused at the bottom into a long flower tube. The flowers can be either thrum- or pin-eyed.

D. afghanica GW/H1308 is one of the most beautiful and impressive species. The original plant, collected as three cuttings by Christopher Grey-Wilson and Tom Hewer in Afghanistan, is rare in cultivation. The plant grows mainly in the Darrah Zang Range at 4,600 feet (1,400 m) on steep limestone cliffs. The plants form sticky grey-green cushions. The flowers are solitary and sessile, the corollas pale to mid-violet with a darker throat. Michael Kammerlander has introduced a wonderful number of hybrids of this species with dark or pale purple, white, and even yellow flowers. Most spectacular are *D.* 'Zdeněk Zvolánek', 'Mike Bramley', and 'Perlmut'.

D. archibaldii forms greyish, rather lax cushions, up to 12 inches (30 cm) across. Flowers are solitary and sessile; the corolla is pale pinkish-violet to purple. This species is only known from the area between the Koohrang and Bazoft valleys in Bakhtiari Province, Western Iran, on shaded and semi-shaded limestone cliffs, at 7,380 to 14,100 feet (2,250-4,300 m). There are numerous hybrids of this species in cultivation.

Dionysia afghanica GW/H1308 (top), 'Zdeněk Zvolánek' (middle) and *D. archibaldii* (bottom).

D. aretioides from Elburz Mountain in north Iran grows on shady limestone rocks up to 9800 feet (3000 m). It forms lax to fairly dense cushions up to 20 inches (50 cm) wide in the wild and over 15 inches (40 cm) in cultivation. The sessile, yellow flowers are solitary or occasionally produced two per rosette. Several forms are in cultivation like 'Gravetye', 'Paul Furse', and 'Phyllis Carter'. The most spectacular is 'Bevere', a selected form by Ron Beeston with big deep-yellow flowers.

D. bryoides is relatively widespread in Iran, on the Zagros Mountains in Fars and Esfahan provinces, growing on sunny or shaded limestone cliffs at 5,900 to 9,200 feet (1,800 - 2,800 m). The flowers are pale to deep pink and violet, with a white center. Several different forms have been introduced from different expeditions. 'Eric Watson', 'Henrik Zetterlund', and 'Bolero' are the most impressive.

Dionysia aretioides 'Bevere' (top), *D. bryoides* (bottom left), *D. curviflora* JCA 2800 (bottom right),

Dionysia esfandiarii (top left), *D. freitagii* (top right), *D. gaubae* (bottom).

D. curviflora comes from central Iran, Yazd province, Shir Kuh and Kuh-e Barfkhane growing on shaded or partially shaded basalt or volcanic cliffs at 8,200 to 13,100 feet (2,500 – 4,000 m). It forms dense cushions with pink to lilac solitary, sessile flowers. This is one of the easiest species to grow. The form JCA 2800 is, for me, the best one. There are numerous hybrids in cultivation.

D. esfandiarii grows in Kuh-e Kataban near Abadeh in Fars province, western Iran, at 8,500 feet (2,600 m). It forms dense grey-green cushions. The flowers are sessile and solitary with a violet corolla about a third of an inch (8-9 mm) in diameter. It can be shy-flowering in cultivation. Propagation from cuttings is difficult, often succumbing to rot before rooting.

D. freitagii comes from shaded limestone cliffs in northern Afghanistan at an elevation of 6,300 feet (1,900 m). This is one of the most beautiful and extremely floriferous species and is relatively easy to cultivate. It forms dense, deep-green, rather sticky, cushions, up to six inches (15 cm) in diameter in cultivation, occasionally larger. Flowers are solitary, sessile, with a violet to violet-purple corolla with a darker zone surrounding a white eye. It is a rare species because of the poor rooting results from cuttings.

D. gaubae is a species forming rather lax cushions up to ten inches (25 cm) in diameter. The bright yellow flowers are sessile. It is endemic in Khorramabad in Lorestan province, Iran, growing on steep limestone cliffs between 3,300 and 7,874 feet (1,000 – 2,400 m).

Dionysia iransharii (top left), *D. involucrata* 'Alba' (bottom left), and *D. haussknechtii* (right).

D. haussknechtii forms dense, farinose cushions. The yellow flowers are solitary and sessile. Plants in cultivation come from several collections, all from 7,410 to 8,200 feet (2,260 – 2,500 m) on Ghadee Kuh near Shoul Abad, Lorestan province, western Iran.

D. involucrata is a species from the Pamir range in Pakistan growing on shaded cliffs at about 6,560 feet (2,000 m). It forms rather dense, deep-green cushions, up to 12 inches (30 cm) in diameter in cultivation. It flowers on a stalked umbel with bracts like the leaves, but larger and often lobed. The corolla is violet or violet-purple with a white eye. There is even a white form in cultivation. This is the only species I can propagate from seeds.

D. iransharii forming dense, very hairy cushions which are usually greyish-green although some clones are bright and almost green. The flowers have a violet corolla, 0.2 inches (5-6 mm) in diameter on a 0.43 inch (11 mm) tube. This is absolutely one of my favorite species. It was first discovered in 1974 by M. Iranshahr but only introduced into cultivation in 1998. All collections in cultivation are from Kuh-e Pashmaku in Bakhtiari province, Iran where it grows between 8,200 and 10,200 feet (2,500 – 3,100 m) on limestone cliffs. It is one of the more difficult species to cultivate.

D. khatamii forms open cushions of small rosettes to 0.4 inches (10 mm) in diameter, but usually less. This species is related to *D. curviflora*, and like it, grows on igneous rocks as well as limestone. It was discovered in Iran in 2002, in Darreh Damghan south of Mehriz, Yazd province, Iran, at 8,200 to 8,900 feet (2,500-2,700 m). The corolla is violet, occasionally pinkish, and 0.2 to 0.3 inches (5-8 mm) in diameter. This is one of the more susceptible species to botrytis.

D. khuzestanica is found on the border of Bakhtiari and Khuzestan provinces in western Iran. It forms dense green cushions with sessile, yellow flowers. It is closely related to *D. zagrica*.

D. lamingtonii forms small, slow-growing, neat, grey-green cushions. The flowers are solitary and sessile with a yellow corolla on a tube 0.4 to 0.55 inches (10-14 mm) long. This is one of the finest species from western Iran, found in various locations in Bakhtiari province, on sunny or partially shaded limestone cliffs, at 5,600 to 9,700 feet (1,700-2,950 m). The cushions are prone to botrytis and can die rapidly and without warning. They can look very dead during the winter, but may well be still alive, so it is prudent to wait until spring before discarding.

Dionysia khuzestanica (top), *D. khatamii* (bottom left), and *D. lamingtonii* (bottom right).

Dionysia microphylla.

D. microphylla GW/H 1302. This clone forms hard, very neat, grey-green cushions, up to 8 inches (20 cm) in diameter in cultivation. The flowers are solitary or up to four in an umbel, occasionally with an extra whorl above. The bracts are small, similar to the leaves. The corolla is pale to deep violet. This species is endemic to northwestern Afghanistan, Maymana province, near Belcheragh in the Darrah Zang gorge, on sunny or semi-shaded slopes or vertical limestone rocks, at 3,900 to 4,600 feet (1,200-1,400 m). This is one of the most desirable species, but extremely slow-growing and very difficult to propagate.

D. robusta. This is a relatively recently discovered species, found in 2015 in the unexplored Ilam province in western Iran, specifically in the Dinar-Kuh region, southwest of Abdanan at the relatively low elevation of 5,640 feet (1,720 m). It forms large, bluish, grey-green cushions up to 27 inches (70 cm) in diameter in the wild. The flowers are yellow, with the corolla lobes only slightly overlapping. This species is still new for me but the first rooting results from cuttings are promising.

D. sarvestanica forms dense, caespitose grey-green cushions up to 6.7 inches (17 cm) in diameter in cultivation. The flowers are solitary and sessile with bright-yellow, 0.2- to 0.3-inch (6-8 mm) corollas on tubes 0.3 to 0.4 inches (8-10 mm) long. It comes from Shiraz and Fars provinces in Iran.

Dionysia robusta (top) and *D. sarvestanica* (bottom).

Dionysia tapetodes 'Hewer' (top), *D. viscidula* (bottom left), and *D. zetterlundii* (bottom right).

D. tapetodes is widely distributed from Turkmenistan and north-eastern Iran, throughout the mountains of Afghanistan to the border of Pakistan, on shaded or semi-shaded limestone cliffs and outcrops at 3,300 to 10,500 feet (1,000-3,200 m). It forms large cushions, up to 14 inches (36 cm) in diameter in cultivation. The yellow flowers are solitary and sessile. The species is considered one of the easiest to cultivate and most forms are very floriferous. Cuttings are also relatively easy to root.

D. viscidula has been only found once in northwestern Afghanistan, Maymana province, near Belcheragh, on shaded or semi-shaded limestone cliffs in the Darrah Zang gorge at 4,600 feet (1,400 m). It is still very rare in cultivation, and far more difficult than its closest ally *D. freitagii*. It forms cushions 12 inches (30 cm) in diameter once established. The flowers are pale violet-pink, without a darker zone but with a clear white eye, and 0.27 to 0.4 inches (7-10 mm) in diameter.

D. zetterlundii forms dense, farinose cushions. The flowers are yellow and 0.4 inches (10 mm) in diameter. Plants in cultivation were introduced from limestone cliffs at 8,860 to 9,200 feet (2,700-2,800 m) on the Charee Pass between the Kuhrang and Bazoft Valleys in Bakhtiari province, Iran.

This list of species is by no means complete, but they are the species that I have experience propagating and cultivating in my collection. *D. crista-gallii, D. iranica, D. janthina, D. michauxii*, and *D. tacamahaca* are some of the species new in the collection.

A number of selected forms or hybrids are also definitely worth adding to any dionysia collection. A few of the most attractive include D. 'Bolero', D. 'Maria', D.'Eric Watson', D. 'Göteborg', D 'Lycaena', D. 'Yellow Stone', D. 'Monika', D. 'Annielle', and D. 'Butterfly'.

Dionysia 'Maria' (top left), *D.* 'Göteborg' (top right), *D.* 'Lycaena' (middle left), *D.* 'Yellow Stone' (middle right), *D.* 'Annielle' (bottom left), and *D.* 'Butterfly' (bottom right).

Gardening The Rock

Michael Wharton

I AM AN AMATEUR plant enthusiast and Midwest native that is absolutely in love with mountains. This love took off with our family's many camping trips over the years to Yellowstone (Wyoming) and Glacier (Montana) national parks, much of Colorado, northern New Mexico, the Canadian Rockies, etc. I also worked summer jobs in the mountains, including Yellowstone, as well as Glacier, one of my all-time favorite places in the world. Working at these places, my downtime was filled with hikes, my first choice often being to go climb a peak, taking in the beautiful plants I would see along the way. My love for alpines grew off of this love of the mountains, even though back then I often only knew the common name (if that) of what I was looking at.

I have zero formal training in botany but have loved plants ever since I first helped my parents plant a veggie garden, along with the many houseplants we kept. I have especially loved wildflowers/natives ever since my grandma first showed me large clumps of Jack-in-the-pulpit (*Arisaema triphyllum*) in her woods in Minnesota. The image of a little man inside the "pulpit" fascinated me as a kid to the point of not even noticing the swarms of mosquitoes eating us alive. My other grandmother had a more kept garden in the city, but she would teach me how to, and let me help, divide some of her many bearded iris and daylilies. She also taught me how to root cuttings from African violets and how to cross them to get seed.

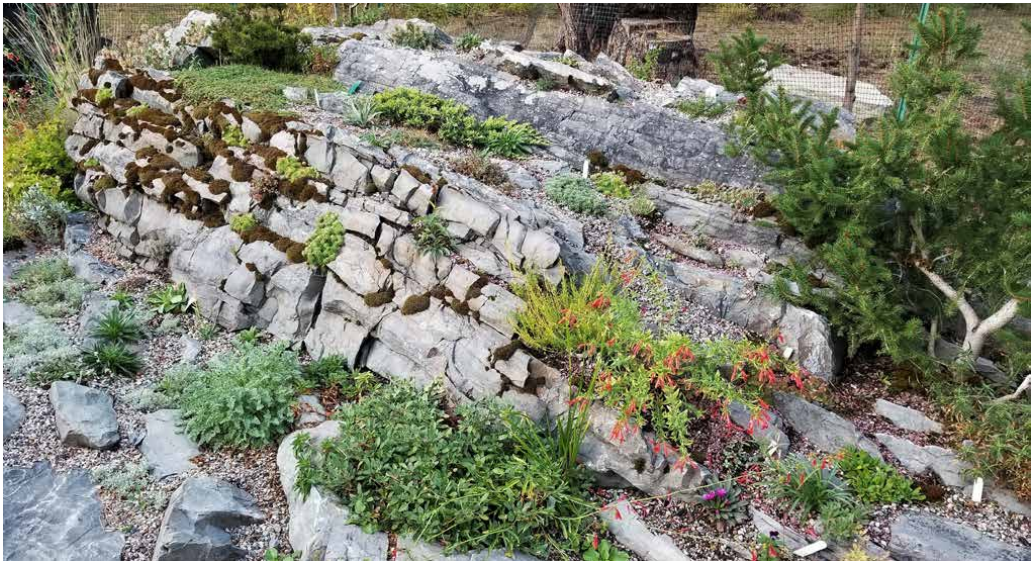
Boy Scouts was also a big part of this love of mountains and native plants. I took multiple trips to high adventure camps in the mountains and later worked at camps in several places in the mountains, all the while hiking and not realizing I was beginning to botanize.

Since college, I have lived in several of the following states more than once: among the mountains in Montana, New Mexico, Utah, and Wyoming, as well as between the Coast and Cascade ranges in southwest Washington, and am now here to stay in western Montana. I am in love with the plants from all of these mountainous or rocky regions and wish I could have them all in my garden. In fact, I just ordered *Olsynium douglasia* to try.

I have had the opportunities to be mentored in this hobby by wonderful people like Diana Reeck formerly of Collector's Nursery in Washington, and Maria Galletti formerly of Mont Echo Nursery in Quebec, when I lived nearby in the Green Mountains of Vermont, and have been fortunate enough to have met many more plantspersons of note along the way. I still remember Diana pushing me to learn the botanical names of each of the plants, and teaching me how to pronounce campanula when I had always thought it was pronounced "camp-a-nella".

I am also a law enforcement officer of 17 years. I am well aware of the juxtaposition, this career not typically associated with "flower gardening." I receive plenty of good-natured ribbing and eye rolls from my co-workers for my quick and cheerful enthusiasm in talking plants, though they are also quick to say they want me to take a look at their yard and "tell them what to do with it," or identify some plant. Gardening is definitely my escape from the stresses of the job. However, when I thought about it, my guess was that I like alpine plants in particular because of their fine details, details obviously being an important part of my job.

Iris 'Katharine Hodgkin' blooming on The Rock.



The large natural ledge forming the garden.

My current garden sits just west of the Mission Mountains at an elevation of just over 3,600 feet (1,000 m) in western Montana on my in-laws' property in an opening among their many Ponderosa pine, Douglas fir, and western larch. The wife and I still live in a rental apartment in town where I've snuck a few super low maintenance plants and bulbs into our typical landscaping. Their property is just near enough to Flathead Lake, the largest freshwater lake west of the Mississippi, that we do get some lake effect from it, often resulting in wetter winters.

The garden itself is not what I would consider big compared to many, at approximately 25 feet by eight feet (7.6 by 2.4 m). The Rock, as I call my garden (or my wife says "go out to your playpen," partially because of the waist-high deer fence we had to have put up around it), is a large natural ledge. It must have had a tree rooted into it at some point, as much of the granite ledge is split and even hollow inside it in some places. I have had to fill loads of grit and soil into some of these hollows. The Rock runs approximately east and west, with one face of it due south and the other side facing almost north.

The former property owners must have battled with and lost to the deer and so The Rock (and the rest of the garden in general) was covered with hundreds of faded but never decaying silk flowers which I still dig up once in a while. The ledge was also covered in an interwoven mat of the dreaded *Sedum album*. It took me several full days to peel all the sedum off, to the point of even removing seedlings with tweezers. Most of the mat got relegated to hardy ground cover around the bottom part of The Rock.

A townsendsia that has avoided burial by carpenter ants.

The first year I planted a number of dry-loving plants, including several yuccas and the native *Opuntia fragilis*. My *Yucca harrimaniae* was immediately reduced to one leaf, while the very spiny opuntia had several large bites missing out of its pads, spines and all. Other deer-resistant plants were mostly completely yanked out by their roots and then discarded nearby. This is what led to my having to pen in this garden.

The other pest I have had to battle are the carpenter ants, presumably trying to finish off whatever tree roots are still inside The Rock. They have also attempted to bury several of my townsendias along the way, as well as other choice-but-small plants. I did resort to the granular ant killer, which stands out against the gravel mulch but does eventually disappear. I am winning, but the battle does continue.

There are several sections of The Rock where I added on to the natural ledge, trying to match the new rock as best as possible with the natural. This was particularly hard because there actually wasn't that much rock just lying around so I had to scavenge from the few piles of it there were, or utilize rocks that were dug up during other projects/plantings. Patting myself on the back though, I will say that people often do not notice where I added on to the ledge on the one end.

As far as plant material, I am a plant collector and have little sense of gardening style, though I try my best in the parts of the yard that are more for my in-laws. Like I said before, I want plants from all over.

I will often ignore (within reason) planting zones listed on plants, and/or take my cues from others that have experimented before me. We are in an odd zone anyway, with enough warmth to reliably grow

sweet cherries, peaches, and other tree fruits here around Flathead Lake; but then also get down into some brutal subzero Fahrenheit (below -18°C) temperatures, not to mention very dry summers. Then there are years (including this one) when we have minimal snow cover, as well. However, like many gardeners, I have a bit of a competitive streak. (I also just started powerlifting in my late 40s.) Many of us want to try to grow something that others can't grow, or grow it places others haven't yet.

Monardella macrantha 'Marian Sampson' was one that I saw people already growing in colder climates then it was listed for and so decided to try it here. It has done well, flowering several years in a row now. I stuck cuttings in several cracks this past fall to see if they will take this year. *Hesperaloe parviflora* is fairly common over in nearby eastern Washington but I hadn't seen it here so I had to try. No flowers yet, but it is still growing. Penstemons native to many parts of the West have done well here. I have Washington native *Penstemon rupicola* blooming feet away from the Southwest's *P. rostriflorus*. I probably have several dozen species of penstemons. I have also been selecting out the white-flowered (versus cream-flowered) plants of the local *P. confertus*.

Monardella macrantha 'Marian Sampson'

Penstemon rupicola (top) and *P. confertus* (bottom).

My experiment with *Crocus sativus* has resulted in nothing but leaves with no fall bloom, so they will probably be edited from the garden; but as I write this in late March, *Narcissus romieuxii* 'Julia Jane' is getting ready to bloom with many flower buds. *Orostachys* sp. cuttings that were sent to me last summer appear to be a mixed bag right now over which survived, though it appears to be better odds if the whole rosette was slightly below the grit dressing level or down between the cracks of rocks.

Seeds are the easiest way to establish plants in the narrow cracks of The Rock.

Seeds are my friends, especially with as narrow as some of the natural cracks in The Rock are. I collect seed from the wild, buy from as many reliable sources as I can find, and have very generous friends that have given me some great stuff. I direct sow most things since I do not have the time or facility to grow seedlings on in pots, with the knowledge that nature will pick and choose which ones will germinate where. With the cracks, I use something to funnel or scoop the seeds into them and then wait and see.

I am very excited about the local, but rare, *Douglasia conservatorum*, whose cushions, sown from seed collected from its only known location, have steadily increased in the garden for the past several years now and are also ready to bloom soon with its bright, hot-pink flowers. I also have a nice clump of *Silene acaulis* growing on the north side of The Rock that bloomed for the first time last year and I observed was greening back up the other day. It was so brown I thought I had lost it over the winter. Meanwhile, several *Aloinopsis* x *nananthus* hybrid seedlings are slowly but surely increasing in size near the top, out in what is usually the hottest part of The Rock. Castillejas excite me and several have been moderately successful from seed, sown with one of the very dwarf eriogonums as a host.

Lewisia is one of my favorite genera, a few of them getting almost weedy with their seedlings. Our native *Lewisia rediviva* is one of my favorites when it blooms, though the early green leaves it has up right now are a nice sign of spring. *Lewisiopsis tweedyi* is another experiment that so far has made it through the winter with little snow cover. Several native creeping phlox, including the local *Phlox kelseyi* var. *missoulensis*, are slowly increasing in size though I sometimes wish they grew as fast as the usual garden cultivars. *Phlox longifolia* is growing at a steady rate, however.

One of the problems I have is that the wonderful burst of spring color is followed by a gap in the summer when fewer things are blooming in my garden. I am still working on being better about thinking about bloom time when I consider plants, as well as making sure these plants are scattered around the garden, and at different levels if possible, instead of all clumped in one area. So far, late summer/ fall brings things like zauschneria (epilobium), colchicum, autumn blooming crocus, and some plants repeat blooming. Many of the plants also get good fall foliage color.

Speaking of colchicum and crocus, another issue I learned the hard way is that even though it is awesome to have small bulbs pop up through a cushion plant, consideration must be made for the bulb's foliage covering parts of the much smaller plants. I have had to edit a few bulbs, moving them from one location to another. Digging around and under the cushion plant to get the bulb out while attempting not to kill your plant is nerve-wracking.

The Rock is no stunner by rock/alpine garden standards, but when I need to get away I just go out to my playpen and edit, plant, trim, or even sit and just disappear up into the mountains.

Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul. - John Muir

Lewisia cotyledon in full spring bloom.

Return to Tibet

Panayoti Kelaidis with photos by Norman Thomas

INEVITABLY, ALL ROCK gardeners have to reckon with the Himalaya. Not only are they the loftiest and vastest mountain range on the planet, the Himalaya also harbor the lion's share of practically every major group of rock garden plants—particularly androsace, gentiana, meconopsis, primula, and let's not even think about rhododendron. Although many of us grumble that the highest alpines are hard to grow in our lowland gardens, there are steamy, nearly subtropical valleys and steppe-like plateaus throughout this region that have plants that can adapt to any kind of temperate climate regime. And of course, gardeners who live in cool summer climates – the Pacific Northwest, northern Atlantic seaboard and of course much of northern Europe – find a vast number of plants from China or Tibet that thrive in their gardens.

In my case, I made the mistake as a child of coming across a volume by Frank Kingdon-Ward about his early Burmese expedition. I checked it out of the library again and again and was smitten. My shelf of books dedicated to Himalayan plant exploration has since grown into a bookcase, and I knew I'd have to go there. The decades passed, and thanks to Harry Jans' encouragement I finally undertook a dream trip to Yunnan, in 2018 under the aegis of NARGS with 12 wonderful companions, which we documented in the *Quarterly* last year. Harry followed up by inviting me to join nearly 20 gardeners from all over Europe on a bus trip from Lijiang, Yunnan to Lhasa in Tibet: 1,730 kilometers (over 1000 miles) in extent. How could I resist? During the first week we retraced some of the highlights I saw on the trip a year before. That turned out to be amazing. The differences in the two years were profound, as 2018 had been a very early and wet monsoon year, and the flowers were fantastic at lower elevations. The difference was not so pronounced at elevation but we found dozens of plants the second trip we missed the first. Oh, to have a chance to go yet another time…and another!

It's a good idea when taking a trip like this to spend a few days adjusting to the altitude. We did this in Lijiang, with a leisurely day which included a stroll around the Black Dragon Pool, a city park surrounded by hills with wildflowers growing right down to the margins of the trails, attractive containers filled with showy annuals, and a surprisingly large collection of ancient bonsai. In 2018 there was light rain and low clouds, but in 2019 we had a sunny, glowing day and the Jade Dragon Mountains showed up spectacularly in the background

Black Dragon Pool in Lijiang, China, with the Jade Dragon Mountains behind.

From Lijiang we took a day's foray at Ganghoba pass where we were plagued with leeches the year before. This year, no leeches were anywhere in evidence. It was parched, with a fraction of the wildflowers blooming we saw the year before. The same drought extended to Tiger Leaping Gorge where the season was much advanced over last year, and again far fewer flowers. The little resurrection club moss (*Selaginella tamariscina*) we'd admired spreading lushly the year before was curled up this year in little brown balls, as was *Coralodiscus kingii*.

From there we followed the Golden Sand River (Jinsha, the name given to the upper reaches of the Yangtze) and descended the staircase at the vantage point where the big bend can be viewed panoramically. The vegetation was as sere this year as last and I was frustrated not to have the chance to hop the fence and take a closer look, since it had steppe affinities.

Finally we reached Shangri-La, which sounds a bit grander than it really is. The provincial center Zhongdian has grown enormously in recent decades with a forest of large luxury hotels that have a distinct Tibetan feel since we are in a part of Yunnan where Tibetans are the vast majority of the population.

Our first foray was to the subalpine Lake Tianchi, which we'd visited before. I was thrilled to do this since several of the plants I'd

Nomocharis aperta, Tianchi Lake, Yunnan

photographed there last year didn't turn out well. I was surprised to find a number of plants this time around I'd missed the previous visit, including an extremely handsome iris which approximates *Iris cuniculiformis* but is definitely distinct, and possibly novel. The narrowly endemic *Lilium souliei* was just as abundant and very appealing in its chocolate brown coloring. There were abundant brooding *Arisaema elephas*, the highest growing of the Jack-in-the-pulpits. Both going and coming we spied many more *Nomocharis aperta* than we did the year before and took even more pictures. We'd completely missed seeing a swale filled with *Adonis davidii* on our previous visit. This year we found it growing with all manner of gems including a vivid form of *Salvia flava* (*S. bulleyana* of commerce) with golden flowers with a chocolate lip.

Lilium souliei (top left), *Iris* cf. *cuniculiformis* (top right) and the tour group getting out to explore and photograph the roadside wildflowers (bottom).

Primula secundiflora (magenta), *P. sikkimensis* (yellow) and *Rheum alexandrae*.

The floral *pièce-de-résistance* at Lake Tianchi are the masses of magenta and yellow primroses (*Primula secundiflora* and *P. sikkimensis*) growing in unbelievable masses. Where these were interspersed with dozens of columns of *Rheum alexandrae* in full bloom the spectacle was breathtaking.

In 2018 the highlight of our trip was spending three days on the summit of Baimashan pass. I never dreamed we'd be back a year later, and once again we found not only familiar flower faces but quite a few which we hadn't seen the year before. Both times we seemed to hit peak flowering, with startling masses of color dotting the tundra. The eerie blue-lavender color of *Primula zambalensis* doesn't seem to have a match in any other flower. Seeing these forming a cloud of lavender color stretching up a steep scree was inspiring. When I found one growing out of a crack in the asphalt road I had to laugh – not exactly the compost you'd expect for a choice primula.

Primula zambalensis

Meconopsis rudis

This was our first encounter with blue poppies on this trip: at first we keyed them as *Meconopsis racemosa*, but it has since been determined to be *M. rudis*. It grew on screes in full sun facing south, but at 15,000 feet (4,500 m) the temperatures wouldn't ever get too hot. The sapphire of the flowers was startling and fortunately translated well onto our cameras. Some had reflexed petals making them appear almost like little animals.

We found a surprising number of crucifers growing on the screes, many of which we have yet to determine. *Pegaephyton scapiforum* was representative with glowing masses of the flowers almost obscuring the foliage. Brassicaceae tend to be relatively easy to grow in rock gardens. I hope this will be true of some of these alpine tuffets.

As you'd expect in China, rhododendrons were abundant and spectacular. I was surprised to see a yellow member of the Lapponicum series predominating the parts of the mountain which were underlain with limestone. It's hard to describe the wonderful shade of primrose yellow these had—or the way they glowed in different lights—but I think Norman Thomas' pictures come close to capturing the effect. I have a hunch it was growing on dolomite rather than calcium carbonate, since some were growing in crevices where the roots had to be in contact with the nearly white stone with no sign of chlorosis. Just as this yellow mound covered the limestone, bright rose, even dwarfer mats of *Rhododendron calostrotum* ssp. *keleticum* painted whole hillsides on the granite slopes to the West side of the pass. Oh, to be able to recreate these at home!

Rhododendron rupicola ssp. *chryseum,* Baimashan Pass, Yunnan

We climbed quite high on the bright limestone screes on the east side of the pass where the diversity of flowers seemed especially rich. We wondered what the bright pink clumps of enormous flowers high above us could be. Closer up, *Incarvillea compacta* did not disappoint. Wondering how a cousin to catalpa could adapt to such a startling steep alpine slope at so high an altitude truly made me marvel at Nature's high jinks.

Seeing the masses of *Paraquilegia microphylla* filling every nook and cranny on the lower cliffs two years in a row really made me feel like a lucky mortal. This time I was even more struck by the fantastic variability in color, from nearly rose-pink through every shade of lavender and purple to nearly pure blue. We were to find this again and again on the trip through Tibet, but never as abundantly or gloriously as here on Baimashan.

Paraquilegia microphylla

Paraquilegia microphylla (top) and *Incarvillea compacta* (bottom).


Corydalis melanochora (left) and *C. hemidicentra* (right)

For me, almost eclipsing the glory of the paraquilegia were the variety and number of corydalis, some of which had flowers of piercing aquamarine color, like *Corydalis melanochora*. It was interesting to me, having been in the same spot two years running that we seemed to see far fewer plants of these, although what we did see looked impressive.

The most surprising of the corydalis was *Corydalis hemidicentra*, which had foliage that had an absurd resemblance to a dark-brown-leaved hepatica. Of course, what hepatica would be growing on a steep, sunny scree at 15,000 feet (4,500 m)? The gorgeous bright-blue flowers made quite a contrast to the foliage. It is surely one of the supreme alpine plants and one that I'd not heard of before first seeing these.

After our last climb on Baimashan we returned to Deqin (known to the explorers in the last century as Atuntse) for our last night's feast in Yunnan proper before beginning the long trek through Tibet. I'm afraid I have squandered far too much time on the glories of Yunnan, and will not be fair to the fantastic flora we found over the next two weeks. How to pick among the hundreds of pictures of over a dozen meconopsis, countless primula, and androsace? Almost as surprising to me was the startling smoothness of the new highways that wound between the many towns we stayed in along the way. Even more shocking was the elegance and luxuriousness of the brand-new hotels we saw everywhere. In many cities in America rooms we stayed in would fetch $300 a night or more.

A few highlights on the many passes we crossed would have to include the astonishing alpine gentian on Dongda La, possibly the highest point we reached during this trip, measured by Harry Jans at 17,000 feet (5,200 m). What amazed me most about the many high passes we crossed was that practically none of us on the bus (20 people with a mean age well above 60) experienced much in the way of altitude sickness. I can only think of one or two who took a day off, and it was as much to catch up on writing in journals and recharging batteries, so to speak, as a reaction to these amazing altitudes.

The numbers of both blue and yellow meconopsis on Dongda La was inspiring. The enormous yellow lampshades on *Meconopsis sulfurea* were everywhere—from the saddle of the pass (festooned with masses of prayer flags) well up onto the high slopes. What a contrast to the icy blue *Meconopsis racemosa*, which was much taller with far more flowers than the *M. rudis* we'd seen in Yunnan. Of course, both are closely allied to *M. horridula* which we were to find towards the end of our trip and is much better known in cultivation.

Meconopsis sulfurea (left) and *M. speciosa* (right)

Primula russeola

It is hard to limit the hundreds of fantastic plants we found on the top of Galong La, another very high pass between Markham and Rawu. The spectacle of *Primula russeola*, which at first we mistook for the closely related *Primula moorcroftiana*, made a mass of bloom just below the highway near the summit. The glowing lavender-blue flowers contrasted with the silvery foliage of this rarely seen Nivalid primula, which I doubt has persisted in cultivation.

The only day when we encountered a persistent drizzly rain was on the stark slopes of Guza La, where two enormous glaciated cirques carved down in opposite directions into a broad alpine valley full of color. We hiked up the road we might have driven up a few weeks later but snowbanks eventually turned us back. The snowbanks covered the vivid purple-blue caltha we were hoping to crown our hike with. But several rare miniature lilies, many choice meconopsis, and countless ericaceae and flowers of all sorts crowded the road on both sides. It is a place I dream of visiting again one day. The hundreds of *Omphalogramma tibeticum* and *Primula agleniana* were unspeakably exciting treasures along the road.

How to sum up three days on Serkyem La? It is a remarkably rich pass with acres of cassiope in bloom, as well as the largest variety of meconopsis in yellow and blue and purple, including *Meconopsis baileyi* in the woodlands, and several species of cypripedium to boot. Here we added many dozens of new plants to our life lists (and cameras), but despite a slight drizzle, the opportunity to climb to 15,000 feet

(4500 m) and wander among the giant sentinels of *Rheum nobile* (one of the few places in the Himalaya where these are near a road) had to be the culminating moment of the most extraordinary trip I've been privileged to join. All of us on this trip owe an enormous debt to Harry and Hannie Jans for managing the complex logistics and assembling an extraordinary group of people, and especially to Carolyn Gao, who handled the myriad trip details and on-site planning, and to Norman Thomas, for allowing the use of his pictures.

The author with *Rheum nobile*

Battling Clay on Garage Hill

Mike Smedley

TO CALL IT a "garage" would be an insult to outbuildings everywhere.

Constructed in the 1950s with two salvaged mismatched bay doors, this detached "garage" had dirt floors, no insulation, and a hole in the roof where someone obviously fell through. Inside, a lone light bulb offered all the charm of a Third World prison cell.

And those were the good points. Demolition consisted of one slight nudge from a backhoe.

A rock garden was born. Sort of.

The problem was soil. You see, the old atrocious garage, for reasons beyond comprehension, was built below grade. The sill plates had rotted from years of snow contact and pooling rainwater. The solution: bring in earth to elevate the site and create drainage away from the new structure.

Contractors are great folks. But most are not gardeners. To them, soil is what you build things on.

Thus, on a spring morning nine years ago, two dump trucks showed up and deposited the nastiest, stickiest, orange clay subsoil. By afternoon, heavy equipment busily compacted this pottery-grade fill.

The new garage, with the pile of orange clay subsoil in front that would become Garage Hill.

The soil was so bad that nothing grew there in the first year except for some miserable strands of bindweed. Not only did the site lack tilth, it also lacked life, be it microbial or invertebrate.

This was a blessing in disguise because there were a few other pending gardening projects, namely flagstone paths, waterwise borders, woodland plantings, fences, a street-facing hellstrip, a southern-exposure crevice garden, a fish pond, two decks and the planting of 10,000 bulbs amongst buffalo grass lawn plugs.

But the clay barrens of Garage Hill were not completely ignored. In year two, my wife Amy and I hired a forklift to kerplunk a massive lichen boulder on the hillside. We softened its edges with a bristlecone pine (*Pinus aristata*), a mounding blue spruce (*Picea pungens* 'Globosa'), and a New Mexico privet (*Foresteria neomexicana*). At the boulder's feet, firewitch dianthus (*Dianthus* 'Feuerhexe') and variegated iris (*Iris pallida* 'Variegata Gold') put on a gaudy show. A formidable amount of cotton burr compost was dug in to give these plants a fighting chance.

It was a garden. There was a rock. Not quite a rock garden, though. What was the answer? More rock! Another big one!

By now, there was no room for a forklift. So Amy and I went all Egyptian on that half-ton stone. We cut lengths of PVC pipe for rollers and used an iron digging bar as a lever to slide the beast across the driveway and yard and into place. A cheap hydraulic jack was deployed to raise the stone inch by inch, then blocked with scrap lumber. With enough height, the boulder slid down a dangerously janky ramp to its eventual resting spot. It was a miracle that OSHA inspectors were not called in.

So now there were two big nice-looking rocks, but neither of which solved the problem of poor soil.

In the War on Clay, leaves became my weapons of mass distraction, buying time for when something good could be done on a site with little going for it.

Where does one get enough leaves to smother 300 square feet (28 m^2) of clay hillside? You steal them from the neighbors, of course.

Yes, I am the one who skulks the darkened streets of Durango, Colorado, during October's chilled nights, snatching curbside bags of autumnal bounty. I spirited away deciduous detritus in a baby-blue getaway car, then dumped the goods on the clay.

Over the years, the leaves on Garage Hill broke down sufficiently to provide some structure and biological progress. Worms set up shop. The bindweed seemed happier. Some additional interlopers made a cameo, including a surge of jointed goat grass. But a few inches down, the soil was still heavy, nasty, orange, non-draining clay.

Then, on a partly cloudy May morning last year, the liberation of Garage Hill began in earnest, inspired by a present from Amy: she gave me a beefy dolly for moving heavy stuff.

She's a terrific enabler.

The first order of business with any rock garden is, well, rocks. Here in Durango, we have lots of them, especially the tawny Cretaceous sandstone outcroppings that rim of the Animas River valley.

Along a former state highway south of town, flaked-off chunks are easy roadside pickings. Just like bags of leaves in fall, only a heck of a lot heavier.

A co-worker with a pickup and a strong back helped in a "strategic relocation project." Three trips provided ample material.

Meanwhile, a friendly neighbor-landowner generously offered permission for us to scrounge his nearby abandoned quarry. It's where masons cleaved stones used to construct many of the town's frontier buildings.

But having a driveway filled with rocks doesn't improve soil drainage. That's where bags of expanded shale came in.

I hadn't used expanded shale before. But seeing expanded shale used so successfully on Denver Botanic Gardens' xeric demonstration green roof won me over. There, expanded shale comprises 80 percent of the roof's growing medium, mixed with 10 percent compost and 10 percent mulch.

Expanded shale resembles rounded greyish gravel. It's made by grinding natural shale and heating it to 2,000°F (1,093°C). The process creates tiny porous cavities in each piece. Not only does expanded shale aerate the soil, particularly clay, but each particle can also hold 40 percent of its weight in water to be released slowly over time. Also, expanded shale doesn't break down.

Ten 40-pound (18 kg) bags of shale were spread five inches (13 cm) deep over the clay, then topped by a dusting of cotton burr compost and an inch-deep layer of Yum-Yum Mix 2-1-1 fertilizer. The amendments and shale were dug in a foot (30 cm) deep.

Then began the fun: rock placement, otherwise known as fingertip crushing.

Top: A handful of expanded shale.
Bottom: The author prepares to have his fingertips smashed.

Brave plants acquired late in the season await an uncertain future.

The field-gathered tan and khaki rock chunks feature sharp edges and brown varnishing. Look closely, and you might even see some fossils. Other than being sandstone, these rocks had little in common with the two rounded and weather-worn lichen boulders. But, as they say, you dance with the one who brung ya.

After nine weekends of placing, tweaking, rebuilding, and cursing, it was far past time for planting something. Anything.

But which plants? It's complicated. In addition to dubious dirt, half of Garage Hill is fronted by a sickly old cherry tree that casts late afternoon shadows all summer.

So here I had ideal conditions for planting a quality rock garden: crummy clay soil, rocks that don't really match, and some shade. And it was late September at 6,512 feet (1985 m) in the southern Rocky Mountains.

Fortunately, Denver Botanic Gardens' annual bulb and plant sale beckoned, and the 14-hour round-trip drive offered ample time to concoct delusional garden fantasies.

Recklessly and desperately, I snatched up any plant whose tag read "part shade," along with the usual suspects for diminished sunlight: five varieties of miniature hostas, dwarf heuchera, and some mix-and-match lewisia hybrids. They survived the winter remarkably well despite the late installation and the fact that all plants were bare-rooted when put in the ground.

Progression of the garden from old garage (top left) to new garage (top right) to the completed garden (bottom).

Argentinian "plastic plant" *Bolax gummifera* and European dwarf lady's mantle seem thrilled with their ex-pat high-desert digs.

Draba aizoides and *D. rigida* var. *bryoides* bloomed then promptly died. However, the *Achillea* x *kellereri* appears unfazed, as does dark *Jovibarba heuffelii* 'Gold Bug' and the Plant Select petite *Geranium dalmaticum*.

Acantholimon litvinovii seems happy so far. Not so for *Andryala agardhii* and some other drylanders, even with vastly improved drainage and a location in a sunnier spot.

Native and rare *Packera mancosana*, meanwhile, thrives in a special bed with extra shale. In the wild, this Asteraceae grows in cracks of gray

Survivors reawaken in early May from the expanded-shale-amended rock garden.

Mancos shale barrens. Discovered in 2008 and endemic only to one spot in neighboring Dolores County, seed-grown specimens were offered at the Denver Botanic Gardens' sale. I was smitten. It's a thrill and honor to repatriate a dozen back to Southwest Colorado.

On the other hand, don't get me started on daphnes. This has got to be the tenth one I've killed, despite having a flawless shady nook, perfectly drained soil and a mild winter. Short of a goat sacrifice, I don't know what else to do to successfully grow these expensive fussbudgets.

Not all the crevices and crannies are filled with perennials. A couple of slow-growing western native shrubs were installed. Transplanted from four-inch (10 cm) pots, waxflower (*Jamesia americana*) and littleleaf mountain mahogany (*Cercocarpus intricatus*) will take years to outgrow the space.

The exact opposite is hoped for with a bluestem joint fir (*Ephedra equisetina*). Planted under the parched rain-shadowed eaves, this sprawling Mongolian gymnosperm will provide an easily pruned turquoise backdrop for tan blocks of Southwestern sandstone. In ten years, someone will say, "See, I told you not to plant a xeric shrub that suckers." But that's a decade out.

Being a bulb aficionado, I couldn't resist rock-pocket showcases for some favorite small bulbs: white-capped *Muscari aucheri*, impossibly deep-red *Tulipa wilsoniana*, the beguiling dagger-petaled *Tulipa acuminata* and a clump of bi-colored *Tulipa clusiana*.

So, is expanded shale the miracle medium? It's too early to say for sure. But there's no way the existing clay subsoil would have accommodated much of anything. Garage Hill was nine years in the making. No doubt it will take another nine years to see if it works. Until then, it's going to be a project governed by trowel and error.

Two large lichen boulders provide the structural backbone of Garage Hill, now bisected by a dry stream bed. Pairing rounded granite cobble with weathered sandstone is generally a rock-garden no-no, but it's a common geological feature seen around Durango, Colorado.

Preview of the Unconference

Carol Eichler

THERE IS NO one more disappointed in the cancellation of the June annual general meeting of NARGS than the members of the Adirondack Chapter. We have poured our hearts into planning this meeting over the last year and we were looking forward to hosting members from across the country and highlighting our beautiful area of the Finger Lakes in New York State.

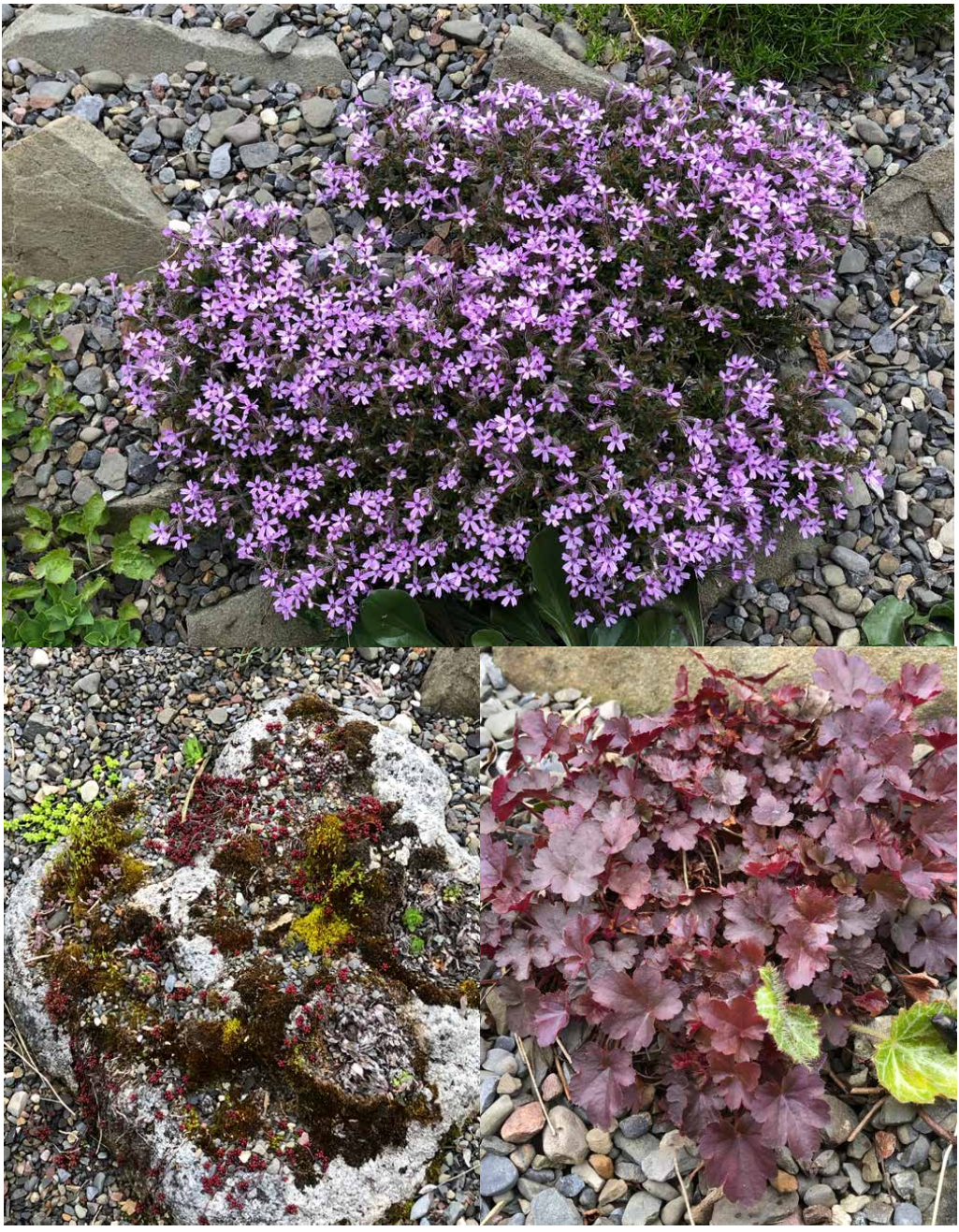
Since we have no plans to reschedule at this time, we instead plan to share photos, and maybe even some videos, of the gardens that were on the itinerary. They will be posted from time to time to the NARGS Facebook and Instagram pages with links provided from the NARGS website. This will allow us to present these gardens when they are at peak bloom.

Just to preview what to expect, here are a few photos taken from two gardens that were lined up for the post-conference on-your-own garden tours. With our prolonged cool weather, not much is happening yet, so consider these photos to be a preview of what's to come in the gardens.

And see the ad at the end of this issue for your chance to buy an Unconference T-shirt!

The Eichler Garden

A vigorous *Carlina alpina* exposing its thistly self .



Top: This phlox is blooming even with the frosty nights of early May.
Bottom left: This well-aged shallow trough is often mistaken for tufa.
Bottom right: Dwarf *Heuchera* 'Christa' is not a traditional rock garden plant but fits in scale with the rest of the rock garden.

Top: *Globularia cordifolia* is a welcome spreader.
Bottom left: *Geum triflorum* grown from seed.
Bottom right: A new section of the rock garden.

The Filios Garden

Top: The potting shed, just one example of Achilles Filios's stonework, overlooks the promise of a flourishing vegetable and flower bed.
Bottom: A spring garden tucked into a corner of an entryway courtyard.

NORTH AMERICAN ROCK GARDEN SOCIETY

Bulletin Board

summer
2020

volume 78 | 3

President's Message: Summer 2020

Yes, today in early May we have an inch of snow, howling winds, and freezing temperatures here in Goshen, Connecticut. Tulip heads are bowed, rhododendron blossoms flopping, and *Magnolia stellata* blossoms browned. This seems to go along with the current general state of affairs with the COVID-19 virus. But the good news is we are adapting. So, too, with our gardening. This spring I finally built a couple of tufa crevice gardens from a lifelong collection of the rock. Sure, I moved wheelbarrows full of sand and grit and, of course, rocks. I had the time. When I started planting I wondered if I would ever have enough plants to fill the crevices. So, I tore into my most reliable *Saxifraga* 'Peach Melba' and made a few dozen cuttings set to root in vermiculite and sand. *Saxifraga* 'Karel Čapek' bloomed too heavily to do so now, but its turn (and other's) for a shear will come. It has also been a good time to move plants. Several daphne (with roots down to China) and miniature tsuga (they just popped out) have new homes as do the various color forms of *Phlox douglasii* hybrids.

Looking out the window several times a day, sure I had time to notice. Many hellebores, both *H. niger* and x *hybridus* (species and hybrids), were woody and needed dividing . . . with an axe. Plus, I tackled several weed infestations, though there are several of those left to harness: rampaging epimediums and anemone to name but two. Surely there is enough to keep me busy in the garden for the next year! How lucky we are to all be gardeners during this catastrophic time.

By the time you read this we will have presented, on June 26 and 27th, our first live Zoom conference: TAPROOT 2020! Since our spring tours were canceled and miss the revenue, we are hoping to garner a few more donations with this gala event.

If you did not see the live meeting, you may watch a recording that will be available for several months on our nargs.org for a fee. Keep in mind this is a fundraiser event. Donations are readily accepted. What a lineup. Virtual tours of the new crevice

gardens at the Betty Ford Alpine Gardens (Kenton Seth and Nick Courtens) in Vail, Colorado; and the concrete crevice garden at Juniper Level Botanic Garden (Tony Avent and Jeremy Schmidt) in Raleigh, North Carolina. Lectures on their gardens by the first two recipients of the Linc & Timmy Foster Millstream Garden Award, Anne Spiegel and David Sellars. June highlights of the Memorial University of Newfoundland's Botanical Garden in Newfoundland (Todd Boland); the rock garden renovation at the Missouri Botanical Garden (Mariel Tribby). Plus, there is a workshop on daphne cuttings by the master, Don LaFond, of Michigan. And we will even have something from our canceled Ithaca meeting at Cornell. (Yes, it was sold out early, but there's a glimpse of what we missed). Naturally this is just a digital diversion, but thankfully we get to see what our gardening friends are doing. And maybe, be inspired.

Speaking of our NARGS Tours, we are working to build a better format for website online display. Our website will feature "Tours" as a menu header, possibly by the time you read this or soon after. In one place, you will be able to see current and past tours. Each individual tour will have its own page. And a carousel of photos from the group on previous tours! Registration should also be a little easier as well as payment. We try to keep our internet expenses low, but "Tours" warrants a better way to find out and register.

And finally, do note the change to the bylaws (noted elsewhere in the Bulletin Board). This enables us to have a virtual annual meeting where we present the state of the organization, awards ceremony, and other announcements. The meeting is scheduled for July 15, via Zoom, a teleconferencing software that you can download as a free version to your smart phone, desktop, laptop, or tablet device. Check the NARGS website for the time. However, if you missed the meeting, you can watch a recording of the meeting free on our website.

Elisabeth Zander, President, NARGS

New and Rejoining Members

Welcome to all those who joined or rejoined between February 20 and April 30, 2020.

Allison, Kristopher, Hummelstown, PA
Andrews, Konnie, Chama, NM
Bonelle, Jessica, Albany, NY
Brannon, Robert, Brooklyn, NY
Brummet, Delaney, Elisabeth Miller Bot. Gdn., Shoreline, WA
Clarkson, Melody, Eugene, OR
Cohen, Jacki, Royal Oak, MI
Cooper, Ann, Golden Valley, CA
Cortay, Shawn, McKinleyville, CA
Engles, Diane, Colorado Springs, CO
Gallegos, Gaya, Peyton, CO
Gerlock, Rheda, Aurora, CO
Horvath, Catherine, Groton, NY
Javitch, Ronald A., Montreal, QC
Jordon-Thaden, Ingrid, Madison, WI
Kennedy, Maureen, Oakland, CA
Kerr, Julia Campbell, Bethesda, MD
Lamberg, Claire, Madison, WI
Lauer, David, Churchville, PA
Poehnelt, Daniel, Marshfield, WI
Reade, Gail, Blithewold Mansion Grdns & Arb, Barrington, RI
Rounds, Sharon, Madison, WI
Slatalla, Michelle, Mill Valley, CA
Smith, Curtis, Oregon City, OR
Soderstron, Margaret, Bellevue, WA
Sohn, Sicely, Clayton, NC
Squyres, Mary, Ithaca, NY
Stump, Teresa Geyer, Kalispell, MT
Thompson, Patricia, Canby, OR
Wharton, Michael, Polson, MT

Note: In the interest of privacy, we are no longer publishing the addresses of new members in the Quarterly. You can securely message fellow members on our website: nargs.org/member-lookup

Planning for NARGS tours has been disrupted by the health and travel uncertainties associated with the global COVID-19 pandemic. We hope to have a clearer picture of the next 6-18 months by mid-July, but realize that conditions can change rapidly. Please check the NARGS website for the status of planned tours to Patagonia in 2020 and 2021 and Ireland in 2021 and other tours being planned for 2022. If you have questions or need additional information, send an email to nargstours@gmail.com.

David White, chair NARGS Tours and Adventures

Patrons

The following recently became NARGS Patrons:

Minnesota Chapter of NARGS (Minnesota)
Bell, Lynne Adams (Oregon)
Browne, Gioia T. (Rhode Island)
Du Pont, Elise (Delaware)
Fisher, Marty (Rhode Island)
Forbes, Holly (California)
Javitch, Ronald A. (Quebec)
Mauney, Katherine (North Carolina)
Smedley, Mike (Colorado)

Book of the Month

Do you like to read about rock gardening and horticultural subjects? Please share your useful insights with other members and get a free review copy of the book for your efforts. Reviewers are always sought for the NARGS website Book-of-the-Month feature. In return for submitting a 300-400-word review of the book of your choice, the book will be sent to you free of charge. Select your own title for review or suggestions can be provided. Please contact Steve Whitesell at elysium214@aol.com for more information.

We have learned of the death of the following NARGS members:

Jerry John Flintoff, Lake Forest Park, Washington
Richard "Dick" Van Reyper, Tumacácori, Arizona
Alan Galloway, Raleigh, North Carolina
Betty E. Bahn, Yachats, Oregon
Marguerite M. Bennett, Friday Harbor, Washington

Help NARGS and new rock gardeners grow.

Give a gift membership to the North American Rock Garden Society and introduce someone to a world of passionate gardeners.
Give access to the seed exchange, *Rock Garden Quarterly*, tours and adventures, meetings and study weekends.

Recipient information:

First Name: _____
Last Name: _____
Email: _____
Phone: _____
Address: _____
_____

Membership (Circle one):	US/Canada	International
Household	$70	$75
Individual	$40	$45
Student	$15	$15

Mail with check payable to the North American Rock Garden Society to P.O. Box 18604, Raleigh, NC 27619-8604

Or visit nargs.org/join

NARGS Donations

Donations to NARGS between February 1 and April 30, 2020.

To support the seed exchange, *Rock Garden Quarterly*, the general fund, traveling speaker's program, educational trips, and in memory of Joseph Gerrath.

Alaska Chapter of NARGS (Alaska)
Allegheny Chapter of NARGS (Pennsylvania)
Sierra Chapter of NARGS (California)
Adler, Lee Howard (New York)
Bouffard, Vivien (Massachusetts)
Brown, Alison (Maine)
Bush, Allen (Kentucky)
Carpenter, Meighan (North Carolina)
Castro, Elisabeth (Texas)
Chamberlain, Jeron (California)
Chatfield, Jane (Maine)
Clarke, Louise (Pennsylvania)
Conway, Gregory (Quebec)
Cortay, Shawn (California)
Curtis, Margaret (Colorado)
Derkach, Linda (British Columbia)
Dombrowskyj, Andreas (New York)
Donahue, Maura (Massachusetts)
Eichler, Carol (New York)
Enns, Caroline (Oregon)
Evanetz, Susanne (British Columbia)
Ferris, Terry (Minnesota)
Fowler, Mary (Colorado)
Franklin, Catherine W. (Alaska)
Gentling, Peter (North Carolina)
Gerrath, Jean (Ontario)
Glavich, Thomas (California)
Goldsworthy, James (Washington)
Gray, Gail K. (Colorado)
Green, Ellen (New York)
Gregg, John (Maryland)
Grossmann, Melissa (New Jersey)
Haas, Joan T. (Pennsylvania)
Hall, Steve (Oregon)
Hampton, Sandra Kay (Illinois)
Hendrickson, Daniel (Michigan)
Hoeffel, Joan Z. (New York)
Houdek, G. Robert (Ohio)
Huggler, Carol (Alberta)
Humphries, Terry (New York)
Javitch, Ronald A. (Quebec)
Krohn, Karen (Connecticut)
LaVallee, Steven (Wisconsin)
Leggatt, Anna (Ontario)
Lehmann, Michael R. (North Carolina)
Lewis, Mary (New Hampshire)
Lindsey, Trina (Colorado)
Macartney, Kathy (Ontario)
Magowan, Robin (New Mexico)
Maksymowicz, Alex & Lillian (Oregon)
McGough, Lynn (Australia)
McKanna, Jane (Australia)
Mitchell, Colleen (Michigan)
Mizin, Michael (Pennsylvania)
Moscetti, Paula J. (New Jersey)
Mulac, Kathleen (Ohio)
Newman, George (New Hampshire)
Norris, Peter (Massachusetts)
Pacholko, Helen (Alberta)
Poehnelt, Daniel (Wisconsin)
Pounds, David (Ontario)

NARGS Donations (continued)

Rembetski, John (New Mexico)
Remphrey, Steven (Pennsylvania)
Robertson, John (Illinois)
Sanderson, Amy (British Columbia)
Scarf, Barb (British Columbia)
Scott, Caroline (Alberta)
Seligman, Bret (Colorado)
Smith, Jeaniene (Saskatchewan)
Stafford, Russell (Rhode Island)
Swick, Kathleen (Alaska)
Tarrant, Georgina (Nova Scotia)
Thompson, Jennifer (Wyoming)
Thrasher, Allen W. (Virginia)
Tou, Vello (Ontario)
Townsend, Sara (Massachusetts)
Van Noort, Marco (Netherlands)
Vanspronsen, Arie (Ontario)
Vergara, Scott (Washington)
Walker, Sally (Arizona)
Whitehead, Diane (British Columbia)
Whyman, Steven (North Carolina)
Wysocki, Raymond (New Jersey)
Young, Michael (District of Columbia)

By-Laws Change

The COVID-19 pandemic triggered the cancellation of the NARGS Annual General Meeting (AGM) that was being sponsored by the Adirondack Chapter and was to be held at Cornell in June 2020. Since a large meeting of members in person is not possible this year, the following changes to the NARGS by-laws will allow virtual annual meetings to take place if needed.

Changes to the NARGS By-laws are as follows:

[Amended Section 4 of Article V]

SECTION 4. Written notice, by mail or delivered by digital means, of the Annual Meeting and of the special meetings for the conduct of business shall be issued to all members at least thirty days in advance of said meeting, or at least ten days in advance of any said meeting to be held by digital means.

[New Section 9 of Article V]

Section 9. At the determination of the Board of Directors, any Annual Meeting or special meeting referred to in Sections 2 and 3 of this Article V shall be held by digital means.

Seed Exchange

The 2019-2020 Seed Exchange has been completed – but not without extra challenges. Both distribution chapters had extraordinary issues to deal with this year.

Watnong Chapter handled the Main Distribution, with all the new requirements for phytosanitary certificates, and initiated the new procedures that will be followed in the coming years. Wisconsin-Illinois Chapter had to complete the Surplus Round order fulfillment, as well as the distribution of leftover seeds, while operating under the COVID-19 lockdown.

Our sincere thanks go to the chapter coordinators, Hilary Clinton (Watnong) and Ed Glover (WIscoinsin-Illinois) and their supporting members and volunteers for their excellent work under difficult conditions.

With the newly required phytos for seeds entering Japan and the countries of the European Union, we also owe thanks to the members in those countries who acted as consignees for the seed orders. They received the seed shipments – often dealing with their own customs officials and red tape – and re-mailed all the orders to the other NARGS members in their countries, often generously donating their mailing costs to NARGS.

The great news is that we have two wonderful chapters that have volunteered to handle the seed distributions for the next two years! Siskiyou Chapter (southern Oregon) will fulfill the Main Round orders, and Great Lakes Chapter (southern Michigan) will handle the Surplus Round. We are grateful to the members of those chapters for stepping up and offering to take on the responsibility and tasks of sharing the seeds with our NARGS community.

As these chapters have offered their help to keep the Seed Exchange flourishing, we hope that all our members will collect, clean, and donate seeds this spring and summer. We received, overall, 771 requests for seeds this year, and if all those who are interested enough to place an order would donate at least 5 packets of different kinds of rock garden seeds, we would have a most amazing Seed List this December. And the donors would be rewarded with a more exciting array from which to choose, an additional 10 packets of seed from that exciting list, and priority in having their orders filled, for a better chance of receiving the best of that best.

Included with this issue of the *Rock Garden Quarterly*, you will find the instructions and the form for seed donations. Members living in Canada and overseas countries will also receive the import permit and green and yellow mailing label to send seeds to Laura Serowicz, our Seed Intake Manager. The deadline for her to receive your seeds is November 1; so U.S. residents should mail their seeds by October 25, and members living outside the US should have their seeds in the mail no later than October 15 (to allow for inspections).

You can also find the instructions and the form for donating online at https://www.nargs.org/seed-donation-instructions.

If you plan to donate seeds of late-ripening plants (rhododendrons, fall-blooming gentians, arisaema, and other plants), please list them when you send your main donation before November 1; do not wait to send your seeds that have already ripened. Be sure to mail the late seeds so that they arrive before December 1:

Laura Serowicz
15411 Woodring Street
Livonia, MI 48154-3029
U.S.A.
seedintake@gmail.com
734-522-2294

The fall issue of the *Quarterly* will contain all the necessary information about how to order from the 2020-2021 Seed List, which will open for ordering on December 15. This year, the Seed List will be available for online browsing a few days before you may place your orders – giving you extra time to dream and plan.

We regret that members living in Japan, the UK, or any of the EU countries will not be able to order seeds from our Surplus Round, because of the extra costs and work involved in providing a phytosanitary certificate.

If you wish to receive a print copy of the Seed List and order form, you must send a request by December 1 to:

Joyce Fingerut
537 Taugwonk Road
Stonington, CT 06378-1805
U.S.A.
alpinegarden@comcast.net
860-535-3067

In the meantime, I hope you find peace and respite and good health in your gardens.

Joyce Fingerut, Director
NARGS Seed Exchange

NARGS Traveling Speakers Program

Along with everything else in our lives, the coronavirus pandemic wreaked havoc with the spring speakers' tours. The talks that were to be given by Todd Boland and Cliff Booker had to be cancelled, and Chris Gardner was only able to give one talk in San Francisco before he had to return home to Turkey. We list below the talks that are TENTATIVELY scheduled for this fall. It's impossible to know at this time whether these talks will be able to take place, so please check the NARGS website and with the leadership of the chapters listed as the dates get closer.

Fall Eastern Canada Chapters Tour: Jiří Papoušek, Czech Rock Garden Club

Sunday, September 13, 2020. Ontario Chapter, NARGS. Toronto, Ontario

Sunday, September 20, 2020. Montréal, Québec. Société de plantes alpines et de rocaille du Québec (SPARQ)

Monday-Wednesday, September 21-23. Nova Scotia Chapter, NARGS. Halifax, Nova Scotia.

Thursday, September 24. Newfoundland Chapter, NARGS. St John's Newfoundland.

Fall 2020 Northeast Chapters Tour: Gerard van Buiten, Utrecht Botanical Gardens.

Saturday, October 3, 2020. Berkshire Chapter, NARGS. West Stockbridge, Massachusetts. *Urbanite: Rock Gardening in a Country Without Natural Rock* and *The Rock Garden of Utrecht Botanic Gardens in the Netherlands*.

Sunday, October 4, 2020. Adirondack Chapter, NARGS, Ithaca, New York. *The Rock Garden of Utrecht Botanic Gardens in the Netherlands* and *Peatbeds: a Perfect Place to Grow Woodlanders and Plants of Alpine Meadows*.

Thursday, October 8, 2020. Fells Chapter, NARGS. Newbury, New Hampshire. *Peatbeds: a Perfect Place to Grow Woodlanders* and *Plants of Alpine Meadows*.

Saturday, October 10, 2020. New England Chapter, NARGS. Boston area, Massachusetts. *Urbanite: Rock Gardening in a Country Without Natural Rock* and *The Rock Garden of Utrecht Botanic Gardens in the Netherlands*.

Sunday, October 11, 2020. Manhattan Chapter, NARGS and Tri-State Meeting. New York, NY. *The Rock Garden of Utrecht Botanic Gardens in the Netherlands* and *Urbanite: Rock Gardening in a Country Without Natural Rock*.

Fall 2020 Southeast and Mid-Atlantic Tour: Derry Watkins, Special Plants Nursery, United Kingdom

Saturday, October 24, 2020. Piedmont Chapter, NARGS. Raleigh, North Carolina.

Saturday, October 31, 2020. 10:00 am. Potomac Valley Chapter, NARGS. Washington, DC, area.

Sunday, November 1, 2020. Allegheny Chapter, NARGS. Pittsburgh, Pennsylvania area.

Saturday, November 14, 2020. Delaware Valley Chapter, NARGS. Philadelphia, Pennsylvania area.

Rosemary Monahan,
Chair, Traveling Speakers Program

Upcoming NARGS Meetings

Durango, Colorado, 2021

Location to be determined, 2022

Nova Scotia, Canada, 2023

Treasurer's Report – 2019 Five-Year Summary

Introduction and Summary

Thanks to the generosity of our members and to the success of our Tours and Expeditions Committee, the activities of NARGS have resulted in our growing financial stability. We have had a positive Net Income over Expense for each of the past five years. Our assets (cash and investments) have grown from $249,304 to $476 547. The Norman Singer Endowment makes up $150,000 and $161,903.26 respectively of those totals. So, our cash reserves have strengthened.

Our member donations and tours program have clearly been the source of our financial success. We began our current tours program in 2016 and it has grown significantly since then due to the hard work and commitment of our Tours Committee and we are grateful. However, without our member donations we would have lost money each of the past five years. We are indeed grateful to our members for their continued financial rescue of our Society.

Our membership continues to decline year after year. Our dues increase in 2017 resulted in an increase in membership revenue in 2018, but that revenue again declined in 2019 as our membership continued to decline.

Our big question for 2020 is the impact of Covid-19 on our AGM and tours revenue. Only time will tell.

Below, I have listed those areas of Net Income and Net Expense that have a significant impact on our operations. Net Income in this table is the net of total income minus total expense for each program to more clearly show each program's impact on our finances. Membership and Donations show a declining trend.

Respectfully submitted April 26, 2020

Richard Lane, Treasurer

Net Income	**2015**	**2016**	**2017**	**2018**	**2019**	**2018-19 change**
Memberships	64,653	55,007	48,848	61,672	51,493	-10,179
Donations	29,714	39,866	48,394	36,144	33,909	-2,235
Interest & Dividends	4,965	7,718	7,386	8,910	8,889	-21
Advertising	1,950	1,491	1,011	1,656	683	-973
Book Service	826	462	23	1,118	527	-591
Amazon Payments	1,114	945	754	631	637	6.18
Seed Exchange	1,195	-4,187	1,753	1,625	-3,389	-5,014
AGM and Tours	0	11,983	21,606	44,911	41,434	-3,477
Total Net Income	104,417	115,301	129,775	156,665	134,183	-22,482
Net Expenses:						
Grants and Awards	1,100	198	5,100	10,984	13,030	2,046
Bank Fees	3,868	1,903	80	157	362	205
Speakers Tour	1,595	0	0	0	7,391	7,391
Internet Service	14,810	5,803	7,627	13,717	12,189	-1,528
Quarterly	63,168	58,073	51,969	50,188	52,162	1,974
Administration:						
Exec. Sec.	14,689	14,515	15,333	15,334	15,725	391
Insurance	1,691	1,633	3,283	1,477	0	-1,477
Other	768	2,373	733	854	5,330	4,476
Total Net Expense	101,690	84,498	84,125	92,712	106,189	13,477
Net Profit & Loss	2,727	30,803	45,650	63,954	27,994	-35,960

Profit & Loss

January through December 2019

Income

Contributed Support
- Memberships 51,492.80
- Donations & Special Requests 33,613.12
- Total Contributed Support: 85,105.92

Earned Revenues
- Interest 611.00
- Credit Card Rewards 472.31
- Dividends 7,806.07
- Advertising revenues 682.56
- **Program Revenue**
  - Book Services 526.72
  - Amazon Payments 636.97
  - Seed Exchange 15,634.99
  - Speakers Tour 189.87
  - Delaware Valley Study Weekend 2019 6,101.58
  - Total Program Revenue 23,090.13
- **Tour Income**
  - Scotland Tour 2019 8,763.95
  - Greece Tour 2019 71,187.18
  - Total Tour Income 79,951.13
- Total Earned Revenues 112,613.20

Total Income 197,719.12

Expense

Grants & Awards 13,029.64
Fund Raising Expense 425.00
Bank Fees 362.25

Administrative Expenses
- Executive Secretary 15,724.62
- Accounting 8.70
- Legal & Filing Fees 27.50
- Insurance – non-employee 0.00
- Supplies 311.30
- Postage, shipping, delivery 25.02
- Printing & copying 61.69
- PayPal Virtual Terminal 360.00
- Advertising expenses 3,610.98
- Annual Elections 399.00
- Total Administrative Expenses 20,528.81

Program Services Expenses
Seed Exchange 19,024.51
Speakers Tour 7,391.30
Internet Services 12,189.21
Committees 99.65
Quarterly 52,162.03
Total Program Services Expenses 90,866.70
Tour Expense
Scotland Tour 1,350.66
Greece Tour 2019 41,182.99
2020 Adirondack Pre AGM Tour 250.00
2020 Hudson Valley Pst AGM Tour 325.00
Patagonia 2020 Tour 1,700.00
Tour Expense Total 44,808.65
Total Expenses 170,021.05
Net Income 27,698.07

Balance Sheet

As of December 31, 2019

Assets

Checking/Savings
Wells Fargo-Membership 20,881.57
Wells Fargo - Main Account
Speaker Tour Funds 1,404.35
Other 17,244.72
Total Wells Fargo - Main Account 18,649.07
Wells Fargo - Savings 234,544.72
Wells Fargo – CDs 20,264.55
Total Checking/Savings 294,339.91
Investments
Investments - Unrestricted
Fidelity - Cash – Unrestricted 24.30
Invstmnt Accnt – Unrestricted
Investment Bal - Unrestricted 15,000
Unearned Capital Gain/Loss -UNR 2.15
Total Invstmnt Accnt - Unrestricted 15,002.15
Total Investments – Unrestricted 15,026.45
Norman Singer Endowment
Fidelity - Cash – NSE 12,207.16
Investment Account - NSE (MKT)
Investment Bal - NSE (Cost) 151,730.36
Unearned Capitl Gain/Loss – NSE (2,034.26)

Total Investment Account - NSE (MKT) 149,696.10
Total Norman Singer Endowment 161,903.26
Adjustment – Unearned Capital Total 2,032.11
Total Investments 178,961.82
Other Assets 2,950.00
Total Assets 476,251.73

Liabilities and Equity

Liabilities
Credit Cards 2,347.08
Tour Deposits
Patagonia Tour
Patagonia Tour PayPal (1,112.86)
Patagonia Tour - Other 50,125.00
Total Patagonia Tour 49,012.14
2020 Adironack Pre AGM Tour
2020 Adironack Pre Tour Deposit 3,150.00
2020 Adirondack Pre Tour PayPal (58.20)
Total 2020 Adironack Pre AGM Tour 3,091.80
2020 Hudson Valley Post AGM Tour
2020 Hudson Valley Deposit 1,800.00
2020 Hudosn Valley PayPal (43.95)
Total 2020 Hudson Valley Tour 1,756.05
Total Tour Deposits 53,859.99
Total Liabilities 56,207.07

Equity
Unrestricted (ret. Earnings) 236,182.73
Restricted Funds
Norman Singer Endowment Fund 151,730.36
Robert Senior Award Fund 1,275.72
Carleton Worth Award Fund 3,157.78
Total Restricted Funds 156,163.86
Net Income 27,698.07
Total Equity 420,044.66
Total Liabilities and Equity 476,251.73

NORTH AMERICAN ROCK GARDEN SOCIETY
2019 Financial Review Report

Elisabeth Zander, President
May 3, 2020
Dear Ms. Zander:

I have examined the NARGS financial records for calendar year 2019 maintained by the Treasurer, Richard Lane. The records include the following:

- Balance Sheet and Profit and Loss Statements as of 6/30 2019 and12/31/2019
- Account Statements and Reconciliations for each of the NARGS bank accounts for the periods ending 6/30/2019 and 12/31/19
- Account Statements and Reconciliations for each of the NARGS Certificate of Deposit Accounts for the periods ending 6/30/2019 and 12/31/2019
- Account Statements and Reconciliations of the Fidelity Investment Money Market Fund and Exchange Traded Products as of 6/30/2019 and 12/31/2019
- Account Statements and Reconciliations of the Spark Business Credit Card as of 6/30/2019 and 12/3/2018
- Samples of several disbursement records and supporting documentation from the Wells Fargo Main Checking Account
- Samples of several transactions and supporting documentation for the Spark Business Credit Card

After reviewing these financial records, I find that the year-end Balance Sheet and Profit and Loss Statement accurately represent the financial status of the North American Rock Garden Society as of December 31, 2019. All bank accounts, Certificates of Deposit, Fidelity Investment Cash Account and Exchange Traded Products, and the Spark Business Credit Card have been consistently and correctly reconciled and are accurately recorded in the financial statements. The examination of several sample of disbursements records from the Wells Fargo Main Checking Account found that the appropriate documentation and/or authorization was obtained to support the disbursement. The policy and practice regarding the issue and authorization of the individuals using Spark Business Credit Cards is well designed to mitigate fraud and unauthorized use.

In conclusion, the review found no significant issues of concern.

Sincerely Yours,
William Adams
330 Carlile Ave. Pueblo, CO 81004

Are you interested in purchasing an un-Conference t-shirt? We at the Adirondack Chapter love our logo and decided we want to offer them for sale.

Beefy Fruit-of-the Loom sage green background with full color logo depicting Taughannock Falls and botanically-accurate *Asplenium trichomanes* in the foreground, found in our local gorges. Pre-orders will be taken until July 31st with mail delivery date approximately August 31st. Simply complete the order form below.

Name _____

Address_____

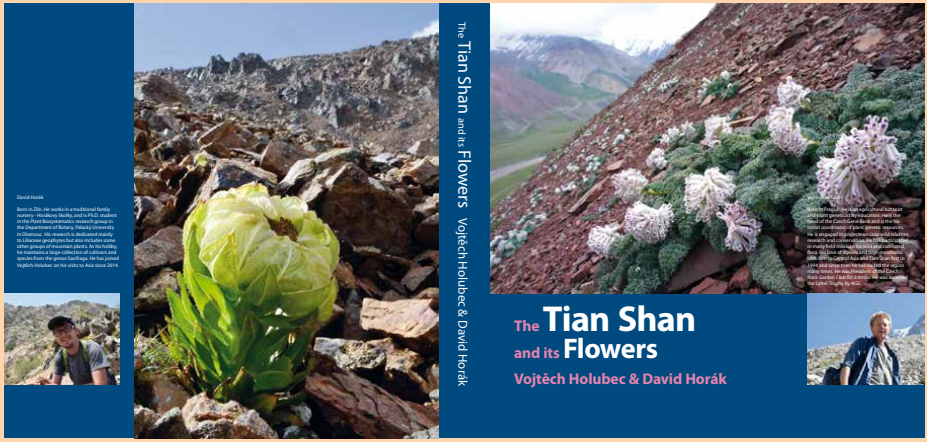
_____

Contact (phone or email) _____

Quantity_____ Unisex Size(s)_____ Amount enclosed_____

Cost $20 plus $8 for shipping per t-shirt, US dollars please; international shipping to be determined at cost. Send inquiry and we can check shipping rate to your address. Pay by check to: ACNARGS T-shirt, c/o Carol Eichler, 1562 Taughannock Blvd., Ithaca, NY 14850. Questions: carolithaca@gmail.com or 607-269-7070

Size Chart	**S**	**M**	**L**	**XL**	**XXL**
Body Length (inches)	28	29	30	31	32
Body Width (inches)	36	40	44	48	52



Includes a description of 500 plants, photo gallery, and chapters on the geology, climate, and vegetation of the Tian Shan mountain range in the borders region of China, Kazakhstan, Kyrgyzstan, and Uzbekistan.

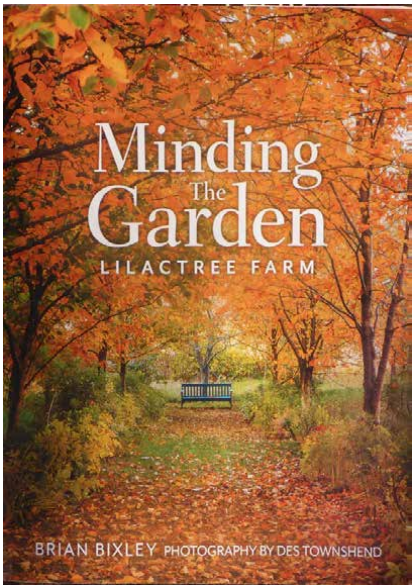
Copies now available from NARGS to US members only.

Special negotiated price $69.00 (includes mailing by media mail).

By check to: NARGS, POB 18604, Raleigh, NC 27619-8604.

Or inquire for NARGS Web site payment: nargs@nc.rr.com

The Book For The Cultivated Gardener



Minding: caring for, imposing on, drawing from, reacting to. '*The art of garden design is at least partially the process of undoing earlier errors, and we were not short of those. It was the process of trying and failing, of not getting things quite right,* ***that slowly alerted us to the similarities with other creative endeavours****, and it was from those frustrations and jubilations that* Minding The Garden *began to emerge.*'

friesenpress.com/bookstore

1-888-378-6793

Amazon, Barnes and Noble.

NARGS Chapters (meeting place/area) and Chairpersons or Co-Chairs

Adirondack (Ithaca, NY)	John Gilrein <basecamp@alum.syracuse.edu>
Alaska (Anchorage & Mat-Su Valley)	Florene Carney <snowfire@mtaonline.net>
Allegheny (Pittsburgh, PA)	Pinky Fredricks <plfred100@gmail.com>
Berkshire (Stockbridge, MA)	Joyce Hemingson <jhem1022@gmail.com>
Calgary Rock & Alpine Garden Society (Calgary, AB)	Patti O'Keefe <president@crags.ca>
Columbia-Willamette (Portland, OR)	Terry Laskiewicz <fritillaria_3@hotmail.com>
Delaware Valley (Philadelphia, PA)	Janet Novak <janet@indri.org>
Fells (Newbury, NH)	Thelma Hewitt <thelmakh@gmail.com>
Gateway (St. Louis, MO)	Sandy Evertowski <evertowski@centurytel.net>
Great Lakes (Southern MI)	Holly Pilon <plantscape_design@yahoo.com>
Hudson Valley (Westchester Co, NY)	Don Dembowski <dondembowski@optonline.net>
Long Island (Oyster Bay, NY)	Donald Ohl <donohl@yahoo.com>
Manhattan (New York, NY)	Brendan Kenney <ny10014@aol.com>
Mason-Dixon (Norrisville, MD)	Marika Sniscak <marika123@verizon.net>
Minnesota (Minneapolis/St. Paul, MN)	Rick Rodich <rrodich@juno.com>
New England (Waltham/Boylston, MA)	Vivien Bouffard <vbouffard55@msn.com>
Newfoundland (St. John's, NL)	Todd Boland <todd.boland@warp.nfld.net>
New Mexico (Santa Fe/Albuquerque, NM)	Robin Magowan <magowanrobin@gmail.com>
Northwestern (Seattle, WA)	Kendall McLean <kendallforest8@outlook.com>
Nova Scotia (Halifax & Truro, NS)	Roslyn Duffus <roz.lakeside@gmail.com>
Ohio Valley (OH & surrounding states)	Joan Day <jdayham@earthlink.net>
Ontario (Don Mills, ON)	Arie Vanspronsen <arie.v@sympatico.ca>
Ottawa Valley (Ottawa, ON)	Rob Stuart and Jane Lund <president@ovrghs.ca>
Piedmont (Raleigh, NC)	Cyndy Cromwell <cacromwell2000@yahoo.com>
Potomac Valley (Alexandria, VA)	Barbara Rose <roserose@verizon.net>
Québec (Montreal, QC)	Réné Giguère <apulsatilla@netscape.net>
Rocky Mountain (Denver, CO)	Kathleen Stewart <kcstewart1568@yahoo.com>
Sierra (Sonora, CA)	Nancy Piekarczyk <NanPiekarczyk@gmail.com>
Siskiyou (Medford, OR)	Jean Buck <buckjean11@yahoo.com>
Wasatch (Salt Lake City, UT)	Tony Stireman <tstireman@gmail.com>
Watnong (Far Hills, NJ)	Roxanne Hiltz <hiltz@njit.edu>
Western (San Francisco Bay area, CA)	John Tsutakawa <jtsutakawa@sbcglobal.net>
Wisconsin-Illinois (Madison-Chicago)	Damon Smith <damonsmith@hotmail.com>

NARGS Structure

The officers of the North American Rock Garden Society consist of a president, a vice-president, a recording secretary, and a treasurer. The officers are elected by the membership.

The Board of Directors of NARGS consists of the four above-named officers, the immediate past president of NARGS, and nine elected directors.

The affairs of NARGS are administered by an Administrative Committee (called AdCom) consisting of the president, vice-president, recording secretary, treasurer, and one director-at-large, selected annually by the NARGS officers from among the nine elected directors.

Officers

President	Elisabeth Zander nargspres@gmail.com 127 North St., Goshen, CT 06756-1202
Vice President	Vice President: Panayoti Kelaidis telesonix@outlook.com 1244 S Quince St., Denver, CO 80231-2513
Recording Secretary	Joyce Hemingson <jhem1022@gmail.com> 44 Rock Hall Rd., Colebrook CT 06021-7072
Treasurer	Richard Lane <rhlane01@gmail.com 4904 Hermitage Dr., Raleigh, NC 27612-2762
Director-at-Large	Brendan Kenney, nycbeard@gmail.com 5 1/2 Jane St, Apt. 4R, New York, New York 10014-6017

Immediate Past President	Betty Anne Spar <bettyannespar@gmail.com> 5051 N Grey Mountain Trl, Tucson, AZ 85750-5942

Directors of the Board

2018-2021	Mariel Tribby, Saint Louis, MO Michael Guidi, Denver, CO Judy Zatsick, Fairfax Station, VA
2019-2022	Cyndy Cromwell, Cary, NC Brendan Kenney, New York, NY Jerry Rifkin, Merion, PA
2020–2023	Ed Glover, Mount Horeb, WI Susan E. Schnare, Andover, NH John Willis, Frederick, MD

Managers

Executive Secretary	Bobby J. Ward (919) 847-6374 P.O. Box 18604, Raleigh, NC 27619-8604 <nargs@nc.rr.com>

Back cover: *Meconopsis racemosa,* Panayoti Keladis.

NORTH AMERICAN ROCK GARDEN SOCIETY
ISSN 1081-0765
USPS NO. 0072-960