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Piedmont Chapter North American Rock Garden Society Chapel Hill, Durham, Raleigh, NC

# From the Wine-dark Sea to the Olympian Heights: Plant-hunting in Greece

by Nicholas Turland

We start our journey by the Mediterranean Sea, on the island of Crete, the largest of the Greek islands and close to the most southerly point in Europe. Here the coastal areas harbor many bulbous, cormous, and tuberous plants (geophytes) to entice the rock gardener. Common spring-flowering plants include Fritillaria messanensis, Tulipa cretica, various species of Allium, Gagea, Muscari, and Ornithogalum, as well as numerous orchids. Much more localized are Arum purpureospathum, Tulipa goulimyi, and at least four species of Bellevalia. Because this is a typically Mediterranean climate, with almost total drought from June through September, all these geophytes die back to their underground storage organs in the summer. The start of the rainy season is heralded by autumn-flowering geophytes such as Colchicum pusillum, Crocus laevigatus, Narcissus serotinus, and Prospero autumnale (Scilla autumnalis). Plant growth continues throughout the winter, with a few species flowering only in December and January, e.g., Androcymbium rechingeri, a white-flowered relative of Colchicum.

At medium elevations, in the hill country of Crete below about 2000 feet, we find more geophytes, such as the yellow-flowered *Arum creticum*, the sinister dark purple *Dracunculus vulgaris*, or its rare white-spathed form, and, in autumn, the truly bizarre *Biarum davisii*. Here in the hill country, wet meadows in poorly



Biarum davisii

drained plains can support drifts of sweetly scented *Narcissus* tazetta, while the now very rare traditionally cultivated fields have a rich weed flora of annuals and geophytes, the latter including white *Ornithogalum nutans*, red *Tulipa doerfleri*, pink *T. saxatilis*, and the pyramidal masses of yellow flowers of

Leontice leontopetalum, a tuberous member of the Berberis family. In woodlands, you might be lucky enough to encounter *Paeonia clusii*, the voluptuous white peony endemic to Crete and nearby Karpathos (i.e., it occurs nowhere else).

The high mountains of Crete are unique in the Greek islands in rising to over 8000 feet. There are three massifs: the Lefka Ori or White Mountains in the west, Psiloritis or Ida in the center, and Dikti in the east. These mountains retain



Leonice leontopetalum



Paeonia clusii

large tracts of rather open forest composed mainly of kermes oak (Quercus coccifera), maple (Acer sempervirens), cypress (Cupressus sempervirens), and Calabrian pine (Pinus halepensis subsp. brutia). The timberline is at about 5500

feet, above which we find no verdant alpine pastures but rather a harsh wilderness of pale limestone rocks with no surface water. At first sight it appears completely devoid of life, like a moonscape, but closer inspection reveals a wealth of plants hugging the ground, tucked in among rocks or inside spiny dwarf shrubs, or on vertical cliff faces. There are many Cretan endemic species in these high mountains, some even endemic to a single massif, especially in the Lefka Ori. The whole area is heavily grazed by sheep and goats, which has a profound effect on the plant life and probably partly explains the moonscape effect. The plants have to keep a very low profile in order to escape terminal damage from grazing, or they have to grow out of reach on cliffs.

The high mountains are covered in snow in winter. As temperatures rise in spring, there appear vast numbers of the endemic *Crocus sieberi* subsp. *sieberi* and *Scilla nana* (*Chionodoxa nana*), the two commonest snow-melt bulbs. In smaller numbers you might find the tiny endemic *Corydalis uniflora*, and, after all the snow has melted, *Arum idaeum*, with its white spathe and black-purple spadix. There are also a few autumn-flowering geophytes, such as *Crocus* 

oreocreticus, a mountain relative of the lowland *C. cartwrightianus*, itself probably an ancestor of the cultivated saffron crocus (*C. sativus*).

On high-mountain slopes and screes in the Lefka Ori the following species are endemic, i.e., unique to this single massif: Alyssum fragillimum, A. sphacioticum, Anchusa cespitosa, Centranthus sieberi, Clematis elisabethae-carolae, Cyanus (Centaurea) baldaccii, Cynoglossum sphacioticum, Euphorbia rechingeri, Hypericum kelleri, Myosotis solange, Nepeta sphaciotica, and Noccaea zaffranii. Among these, Anchusa cespitosa is the most conspicuous, with its hard flat mats of leaf rosettes studded with brilliant blue flowers.



Clematis elisabethae-carolae



Anchusa cespitosa

On shady cliffs in one very remote place in the heart of the Lefka Ori grows *Anthemis samariensis*, discovered in 2007 and described as a species new to science in 2008. It forms grey-green shrublets up to

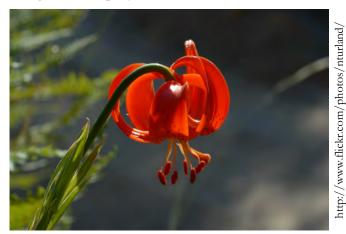


Anthemis samariensis

about 18 inches across with profuse typical chamomile flower heads in summer, with central yellow disk -florets surrounded by petal-like white ray-florets. In the same habitat nearby grows another Lefka Ori endemic, *Onobrychis sphaciotica*, with showy bright purple flowers.

If we now continue our journey northward, across some 60 miles of sea, we come to the Peloponnese. This is the southern part of mainland Greece and technically an island, about 150 miles long by 100 miles wide, separated from the rest of mainland Greece by the man-made Corinth Canal. The high mountains here are nearly as tall as those in Crete, reaching almost 7900 feet on Mt. Taigetos in the south. These mountains have a higher rainfall than those in Crete, and often a different geology, with water-impermeable schist as well as limestone, which

results in more surface water. The forest on the lower slopes is much denser than that in Crete and dominated by Greek fir (*Abies cephalonica*) and black pine (*Pinus nigra*). Superb forest species include the vivid purple-flowered *Cyclamen rhodium* subsp. *vividum*, the white-flowered *Paeonia mascula* subsp. *hellenica* (on Mt. Taigetos), and a deep orange Turk's-cap lily, *Lilium chalcedonicum*.



Lilium chalcedonicum

Above the forest, the landscape is a mass of rocks, but there are grassy areas too. There are snow-melt geophytes in spring, including two races of *Crocus sieberi*: subsp. *nivalis* on Mt. Taigetos and subsp. *sublimis* in the northern Peloponnese. The highest grassy slopes of Mt. Taigetos are scattered with the bright yellow flowers of *Viola sfikasiana* in early summer. Where snow patches persist late, you might find the yellow-flowered flat rosettes of *Verbascum acaule*. On one high pass, where the



Verbascum acaule

rock is schistose, there are hundreds of cushions of *Dianthus androsaceus*, with nearby springs supporting neat "lawns" of cow-grazed grass studded with the tiny violetblue flowers of *Campanula radicosa*. Also on Taigetos is the extremely rare *Campanula papillosa*, which was discovered in 1906, described as a new species in 1908, but apparently not seen again until exactly a century later, when



Campanula radicosa

a friend and I found it in a single rocky corrie on the east side of the main ridge.

Our journey will end on Mt. Olympus, 130 miles north of the Peloponnese,

near the Aegean coast of northern Greece. Olympus, the mythical home of the gods, is the highest mountain in



Mt. Olympus, Greece

Greece, at 9571 feet. The lower slopes have different zones of forest, showing a gradual elevational change from Mediterranean sclerophyll forest dominated by kermes oak (*Quercus coccifera*), to mixed forests of black pine (*Pinus nigra*), Macedonian fir (*Abies borisii-regis*), and beech (*Fagus sylvatica*), finally to a mountain conifer forest dominated by Bosnian pine (*Pinus heldreichii*). Above the trees, which extend up the eastern slopes to about 6500 feet, are grassy pastures, patches of low juniper scrub, rocky slopes, screes, steep cliffs, and a remarkable flat plain at 8500 feet called the Plateau of the Muses. There are about 50 species endemic to Olympus, more local endemics than any other mountain in Greece.

Rock faces in the forest zone of Olympus are home to one of the mountain's most famous endemics: *Jankaea heldreichii*, a member of the largely tropical African violet family (Gesneriaceae). In the whole of Europe there are only four other members of this family: *Ramonda myconi* in the Pyrenees (France and Spain), and R. *serbica*, R. *nathaliae*, and *Haberlea rhodopensis* in the Balkan peninsula, including

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northern Greece. *Jankaea heldreichii* is a really beautiful plant with neat rosettes of dark green leaves, covered with silky white hairs above and dense rusty brown hairs beneath, and clusters of trumpet-shaped lilac flowers.



Jankaea heldreichii

Above the forest zone rocky gullies shelter drifts of yellow *Doronicum columnae* and purple *Geranium macrorrhizum*, the latter with its characteristically musky-scented leaves. Here you might be lucky and find the odd plant of *Aquilegia ottonis* subsp. *amaliae*. On rocky slopes the endemic, silver-leaved *Potentilla deorum* is frequent, while on rock faces the endemic *Campanula oreadum* forms conspicuous blue patches. On the Plateau of the Muses, the ground is subject to solifluction, the sorting of stones and soil particles into stripes and polygonal



Campanula oreadum endemic to Mt Olympia

patterns by the action of freezing and thawing. The vegetation is mainly grasses, with abundant *Lotus alpinus* in places and a few plants of the brilliant blue *Gentiana verna* subsp. *balcanica*. The final approach to the summits of Olympus involves climbing vertical cliffs or steep gullies. The easiest route requires no climbing equipment, but you need a head for heights. It is a broad gully with 6-inch-wide rock-ledge steps



Gentiana verna subsp. balcanica

scattered with loose gravel. If you were to fall, you might tumble down several hundred feet. Beyond the highest summit, Mitikas, is a slightly lower summit, Stefani, the Throne of Zeus, separated by a knife-edge ridge with an almost vertical drop of several hundred feet on both sides. Among these high summits grows the endemic *Cerastium theophrasti*, a small rock-crevice alpine with rather showy (for a *Cerastium*) white flowers.

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Editor's Note: Photographs are from the website: flicker.com/photos/nturland and are printed with permission.

#### About Nick Turland

Nick Turland is an Associate Curator in the Division of Science and Conservation at the Missouri Botanical Garden in St. Louis, Missouri. He joined the staff there in 1997 to work on the Flora of China Project, moving from his native England where he had worked since 1993 in the Botany Department of the Natural History Museum, London. Nick is now Co-Director of the Flora of China Project, which is coordinated from St. Louis and involves 11 partner institutions in China, the United States, the United Kingdom, and France.

This 50-volume flora is now more than two-thirds complete, with all the information freely available online. Nick has traveled to China seven times for field work, workshops, and Flora of China editorial meetings. Since 1984, Nick has also had a deep interest in the flora of the eastern Mediterranean region, especially Greece, where he has made over 30 visits, mainly for field work. He has published several books and articles on the region, including *Flowers of Crete* (with John Fielding, Royal Botanic Gardens, Kew, 2005). Nick is also a specialist in botanical nomenclature, and is an editor of the International Code of Botanical Nomenclature—the rules for the formal scientific naming of plants.

## My Introduction to University of Naples' Botanical Garden

by James Mickle

They say that the most important part of a scientific meeting is not the formal talks, but the exchanges that happen in the hallway. I am a perfect example of that. In the summer of 1985, I attended the Botanical Society of America meetings at the University of Florida, where, literally in the hallway, I was recruited by a colleague for the adventure of a lifetime - literally. He had been asked to recommend an adventurous, newly-minted Ph. D. paleobotanist (studies fossil plants) to come to Naples, Italy the following summer, and asked if I might be interested. I said yes. I had little idea at the time of just what I was getting my self into. What this lead to was a collaboration with him and my Italian colleagues in designing and building the paleobotany section of a Museum of Paleobotany and Ethnobotany at the Botanical Garden of the University of Naples. This rewarding collaboration has lasted to the present day.

The Botanical Garden of the University of Naples is in the middle of the very crowded, yet vivacious city of Naples. Naples is on the west coast of the Italian peninsula, between Rome and the southernmost tip. The metropolitan area surrounds the Bay of Naples. Mt. Vesuvius, the same volcano that buried the lost cities of Pompeii and Herculaneum in 79 CE, still dominates the landscape as well as the mentality of the Neapolitans today. The Botanical Garden is deep in the heart of Naples, so it is a refreshing island of green in the sea of cement and tuffo building blocks that is this wonderful and sometimes troubling city. The original grant in 1986 under which I was brought to Italy was for the cultural improvement of southern Italy, and this museum was to be a small part of this. Poverty was still a major part of the life of the city, and life was very different in Naples than in America.

The Botanical Garden is eleven hectares in size and open to the public. The University of Naples' Department of Plant Biology is also housed on the grounds. The plant displays are varied and well tended. There is an arboretum and several specialty collections, as well as research collections in medicinal, horticultural, and some agricultural plants. Highlights of the plant collection include a stupendous cactus garden with over 400 species of cacti and succulents on display, a palm garden that includes several specimens of *Washingtonia* and *Phoenix*, a cycad (sago palm) collection that is world-renowned, including

one *Cycas revoluta* that is documented to have been planted in the Garden in 1805, a gymnosperm collection that includes *Agathis*, *Metasequoia* (Dawn Redwood), and *Araucaria* (Monkey-puzzle), and a fern grotto that has *Cyathea* tree ferns. A primary mission of the Garden is teaching, and all plants are labeled with numerous signs explaining the groups of plants for visitors.

My wife, Karen, and I spent that entire first summer of 1986 in Naples. It was a bit of a culture shock at first, but we quickly adjusted. Before going, I studied some Italian, which helped. During that summer I drafted my first designs for the museum. Originally, there were five fossil plants in the collections. Among these fossils was a magnificent seven-foot-tall palm tree of Eocene age from the Veneto region in northeastern Italy. This was a good start but not much to place in display cases. In the 23 years since then I have returned often. The Garden has gone through tremendous improvements. My designs have come to fruition, the museum is open to the public, and there is a full-time curator for paleobotany. The plant fossil collections have grown to over 300 specimens now on display.

The museum is located on the third floor of a small castle located on the grounds of the Botanical Garden. The castle is also home to the Garden offices, a classroom, a library, laboratories, equipment and locker rooms for the gardeners, a studio for the staff artist, and an apartment for visiting botanists, but the museum is the top attraction for Garden visitors to the castle.

The paleobotanical section of the museum is in the entryway and the first two rooms of the museum. The ethnobotanical section occupies the remaining three rooms. The paleobotanical museum displays show the major groups of fossil plants, ranging from algae to flowering plants. Displays include fossils, drawings of reconstructions of the plants, models, and explanations in Italian and English. In addition, a number of important concepts are illustrated by three dimensional models rendered accurately and beautifully in painted terra cotta, done by a local artist. These include such evolutionary concepts as the evolution of the seed, vascular tissue, and the flower. The centerpiece of the museum is a unique ten-foot-tall, three-dimensional phylogenetic tree that illustrates the evolution of the plant kingdom.

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The phylogenetic tree shows the major branches of plant evolution. Each branch is color-coded to the display labels of the major groups of plants on display so that visitors can correlate the tree to the fossils. Recently, beautifully rendered dioramas of Devonian and Cretaceous landscapes have been added to the displays, also done by a local artist. The museum is continuing to grow and we are planning several new exhibits, including a diorama of Triassic age plants and a new exhibit on palynology, the study of pollen and spores. As a teaching facility, the museum is well integrated into the Garden, and shows the public and botany students in particular, the history of the plant kingdom in a way that no other facility can.

## Piedmont Chapter NARGS Program 2009/2010

October 17, 2009
James Mickle
"Adventures of a Botanist in Italy: Development of a
New Museum of Paleobotany in Naples"
N.C. State University
Raleigh, N.C.

November 21, 2009 Nick Turland "Wild Flowers of the Eastern Mediterranean" Missouri Botanical Garden St. Louis, Mo.

January 16, 2010 Robert Pries "Irises for Rock Gardens" Roxboro, N.C.

February 20, 2010 Joann Currier "The World of Japanese Maples" Chapel Hill, N.C.

March 27, 2010

Note: it's fourth Sat. in the month

Anne Raver

Topic to be announced

Garden writer, New York Times

Reisterstown, Md. April 17, 2010

Martha and Charles Oliver "Flora of the Shale Barrens of the Mid-Atlantic States" The Primrose Path Nursery Scottdale, Pa.

Special Activity: Free tours of Montrose during blooming of masses of snowdrops, Galanthus elwesii var. monostictus (probably in November), and hellebores (probably in February). Dates and times to be announced on short notice by email through chapter membership list. If you don't have email, ask a friend to contact you when the invitations are issued. Please update your email address now with chapter treasurer, Bobby Wilder <widther@nc.rr.com>.

## Quest for Fall Blooming Colchicum and Crocus

by Elizabeth Lawrence

It is unfortunate that I have chosen this time out of a lifetime of gardening to collect the fall-flowering species of colchicum and crocus for they have become increasingly difficult to obtain since I have been in search of them, and this year I could not add a single one to my collection. I have loved colchicums ever since, as a little girl, we used to bring the bulbs home from the "five-and-ten" and let them bloom on the parlor table. Afterward we planted them in a dank spot under the refrigerator drip, and they continued to bloom season after season. But it was much later in life that I learned that there are also crocuses that bloom in the fall. I acquired several kinds and planted them in the edges of the borders, where after a few years the tiny bulbs disappeared. I think they were pulled up along with the heavy roots of annuals. Anyway, the borders are no place for small bulbs, and now they are all in the rock garden along with the colchicums. The latter are practically indestructible, but they did not amount to anything in the borders either, so they are all in the rock garden with the crocuses, where they are grown under oak trees with plenty of leaf mold mixed into the stiff red clay and are fertilized only by an occasional dressing of sheep manure and bone meal. Once established, they bloom faithfully and increase slowly, and it seemed to me this year that they have been lovelier than ever.

Here in North Carolina the colchicums begin to bloom in the middle or at the end of August and continue—almost without a break—until the first fall crocuses thrust up their buds late in September. They do not always appear in the same order, so I shall describe them as they appeared in 1944, the year this article is being written.

Colchicum parkinsonii [now C. variegatum] was the first. It bloomed on August fifteenth, five days earlier than last year. This is an odd little flower and not nearly so striking as some of the other species, but it was the favorite of Parkinson himself; and I like it because it blooms so freely and so brightly. The small, tessellated flowers are a glowing lilac and of a very individual form, being more open than the other species and with narrow twisted segments. This one is from southern Europe, and I imagine that it does best in a mild climate.

C. bornmuelleri, usually described as the earliest, came next. A

Drentandbeckysbulbs.com

single bulb planted years ago sends up a succession of pale buds that deepen to lilac as they open. When these have at last disappeared, the ground is bare again until the wide leaves appear in early spring. This Asiatic species is

(Continued on page 7)

C. bornmuelleri

very tough. It blooms yearly in a poor, dry soil in deep shade. The flowers are comparatively large and very delicately colored. I expect they would be brighter in the sun, but in these parts colchicums do not thrive in the sun.

'Premier' bloomed two days after *C. bornmuelleri*. It looks like a hybrid between that species and *C. parkinsonii*, having the form of the first and the checkered pattern of the latter. The checks are faint at first, but grow more intense as the flower matures until they are almost a Chinese lilac. The flowers are the largest I have had, three inches long. The only other horticultural form that I have tried is *C. giganteum*, which has not bloomed so far. It is supposed to be a late variety, and I am eager to see what it will do here.

Last year Colchicum speciosum bloomed the first of all, coming on the tenth of August, but this year it did not open until



Cochicum speciosum

the thirty-first. *C. speciosum* 'Album,' which Mr. Craig says is the best white form, has not yet bloomed for me.

So far *C.* autumnale is the latest of the Colchicums. This year it bloomed on the fifteenth of September. It is a small,

delicately colored, crocus-like species, not spectacular but very desirable for winding up the season. The white form bloomed on September twenty-fifth and lasted into October. Last year it did not begin to bloom until early in October.

This fall the first crocus bloomed on the twenty-seventh of September. It was *Crocus speciosus*, which is usually later, seldom coming before the first week in October. This spe-

cies is usually described as "blue," but I have never had one that was not redviolet. The type, as I have it, is a sort of wisteriaviolet with dark feathering and red gold stigmas. Then I have *C. speciosus* 'Globosus', which is similar but a little later to bloom. Both of these are good and permanent.



Crocus speciosus

The lovely, pure white

C. niveus bloomed on September twenty-eight. I could not see that it was any different from what had come to me under the name C. chrysanthus 'Snow Bunting,' which was in bloom at the same time but began a few days later. These white cro-

cuses are large and free flowering, and so far have been more attractive than the white colchicums.

This season *Crocus zonatus* flowered on October first, but usually it is a week earlier and the first to appear. It is typically of a rosy color, but the form I have comes out almost white with a grayish tinge and becomes a delicate lavender with age. In the pale autumn sunshine it looks too ethereal to be true. I keep thinking up excuses to go back in the garden when it is in bloom. The yellow zone in the throat and the delicate veining make such an intricate and lovely design that I can never look at it enough. But in spite of seeming so fragile, it is a robust sort, increasing rapidly and blooming over a long period—at least three weeks.

I used to have *C. sativus*, the saffron crocus, with its bright violet flowers blooming the second week in October. It bloomed for several years and increased, but it disappeared at last—lost, I am sure, in

the roots of the weedy annual ageratum—and, of course, it cannot be replaced at this time.

The last and the least is *C. longiflorus*, with small mauve flowers darkly feathered and smelling of vio-



Crocus sativus

lets. These come with the leaves. The first one bloomed on the fourth of October, and now at the end of the month they are still coming.

Some day I hope to find still later kinds to extend the season into the late fall and perhaps even to stretch it out into the winter and until the early blossoms of *C. sieberi*, which in mild winters appear soon after the new year. It would be delightful to have colchicums and then crocuses from the middle of August until March, and the idea does not seem too fantastic.

[The late Miss Lawrence wrote this article in 1944 for the Bulletin of the American Rock Garden Society. It was originally titled "In Quest of Autumn-Blooming Bulbs" and appeared in the September/October 1945 issue and reprinted in The Trillium in 1999. Although Miss Lawrence writes in this article of having spent a life time of gardening, she was 40 years old at the time. She lived another 41 years after this article was written and died in 1985. Used by permission of the ARGS (now NARGS).]

brentandbeckysbulbs.com

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### Piedmont Chapter Meeting

October 17, 9:30 am Note Permanent Location Change: N C Botanical.Garden Education Bldg

#### James Mickle

NCSU Paleobotany, NCSU, Raleigh
"Adventures of a Botanist in Italy: Development
of a New Museum on Paleobotany in Naples"

#### Nov. 21, 2009, 9:30 am Nick Turland

"Wild Flowers of the Eastern Mediterranean" Co-Director Flora of China Project"

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#### **OTHER SIGNIFICANT POSITIONS:**

Sept. Plant Sale Manager: Kirtley Cox Refreshments: Gwen and Maurice Farrier The Trillium, Newsletter of the Piedmont Chapter The North American Rock Garden Society 1422 Lake Pine Drive, Cary, NC 27511 Place Stamp Here

#### First Class Mail

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#### Refreshments at the Meetings

You are encouraged to bring goodies to share as indicated below by the letter of your first name. However, please feel free to bring food for sharing anytime.

Oct D-G Jan L-N March Sp-Z Nov H-K Feb O-So April Anyone/All



#### I'LL EARN YOUR TRUST

Whether you're downsizing and hoping to find a buyer who will love your home and garden almost as much as you have, or are looking for that perfect spot to finally start the garden of your dreams - I can help! I have now worked with

four members of our group to do those very things and I would love the opportunity to work with you.

I have over 30 years of experience selling homes and running plant businesses - I feel I am qualified to work with serious plant lovers who are selling their beloved gardens or finding the perfect new one. It's always stressful buying or selling, but I can handle many of the details that will make the whole process smoother.

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