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SHORTIA

A NEWSLETTER

OF THE

WESTERN CAROLINA BOTANICAL CLUB

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LITERARY CRITIC AND SECRETARY - VERNA KROUSE

AN EDITORIAL

--BOTANICAL WALKS OR HIKES--

By our club's name, the intent of our organization is to engage in the enjoyment, appreciation, and knowledge of the flora that is readily and generously available to us in our mountain area.

To engage in this pursuit we must, to be sure, go looking for the flora when and where it is in flower. Our field trip schedules are planned to provide for the optimum opportunities to observe as many and varied plants as the seasons progress.

Some of these delights can be seen nearby and almost along the roadsides. But not many, so our quests lead us into fields, bogs, wooded trails, and uphill climbs.

This leads to a debatable question: Should field trips be confined to leisurely botanical walks omitting longer and more strenuous hikes to distant floral objectives?

Probably not.

There are members of our club, who, endowed with vigorous constitutions, enjoy and prefer a field trip with the hiking aspect; and for them, some trips should be so planned. Others, for a number of reasons, prefer to confine themselves to the leisurely botanical experiences, and their wishes should be accommodated.

The problem then arises--how does each member decide which trips are preferable? Additional information should be provided in the published field trip schedules. It would be helpful to have short significant wording indicating approximate length of the walk, the type of terrain, and perhaps the intent of the leader.

Since our club is favored and enhanced by an increased and diverse membership, we have an obligation to disseminate more complete information.

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IN SEARCH OF...

Harvey Krouse

It was eight years ago last month that Verna and I moved to this delightful part of the Carolinas with its natural environmental appeal. We had been informed that it was a botanist's paradise created by merging of ice-age migration of northern flora and that from the southland. How true this information eventually has been revealed.

Patience is a decided necessity in searching for new plants--which I completely ignored as I rushed out soon after our arrival to find and photograph these enticing strangers. How unrewarding! To be sure during my initial burst of enthusiasm I did come across a few new plants: two southern species of phlox and, surprisingly, I discovered that yucca is a native!

But where were all those rare and exotic taxa that I had read about and were promised would be here? Before the end of that summer I employed what I had always known wherever I botanized. First, familiarize yourself with the surrounding topography then ask, explore, observe, and associate with kindred souls.

In a new area a helpful start is to become acquainted with a recognized plant herbarium. Not all are too cooperative, but I found the herbarium at the University of North Carolina at Chapel Hill to be especially helpful. So much so, that the curator, Jim Massey, and his associates responded to my long "want list" by furnishing known localities in Western North Carolina where most of my listed plants were collected.

Aided by this information, with diligent searching, and help of friends, I eventually found some of these native rarities.

Shortia, first priority! Plenty of transplanted ones to photograph, but being a purist I had to find Shortia in a natural habitat--preferably at the general location where Michaux first saw it! Thanks to Charlie Moore, my wish was satisfied.

What a delight it was to find the shooting star in its only known colony in Western North Carolina; then the yellow form of the red pitcher plant. The white form of Monkshood on Sugar Loaf Mountain had previously been reported in a remote spot in Iowa. Several new members of the orchid family have been observed--particularly the purple fringeless Orchis. I was especially rewarded in locating a few plants of the vining Monkshood with its small yellow flowers. I had been searching for it for thirty years.

Those are some of the rarer plants, but during the ensuing years most of the more common ones of our area have been caught by my camera lens. Then more distant places beckoned--the western slopes of the Smokies in Tennessee and the savannahs of the Coastal Plain.

Two trips to the Smokies were revealing and exciting but in some ways a let-down. No doubt the most rewarding plan is to spend several weeks there exploring the many remote trails with a knowledgeable and oriented companion. This approach was confirmed by a chance discussion with the Park Botanist on my first visit in 1974. Using the prepared checklist, he pin-pointed where a number of plants I wanted to see could be found. They included, of course, the white fringed Phacelia, so abundant along the roadside. As frequently as the little white Viola blanda with its red peduncle is found in our area, the similar one, Viola palens with its green peduncle is common on these western slopes. How many of you have seen the Wild Ginger with the long acute sepals? It is found along a few of the trails, and not so rare but certainly infrequent is the Dwarf Ginseng, about 5" tall with its tiny umbel of white flowers. Also quite abundant on the western side of the Smokies is the yellow Trillium, often in crowded colonies.

This spring of 1980 we again headed for the Smokies by way of the southeastern approach bordering Fontana Lake and its outlet stream, the Little Tennessee River. Although abundant in a pleasing display of the anticipated spring flowers, I spotted noting new in this area. The tortuous ride winding through the Little Tennessee gorge was well rewarded by banks and banks covered with Birdsfoot Violets.

Then with anticipation, we swung in from the north into Cades Cove. With all its unusual topography (described as a geologic "window" showing uncovered limestone), Cades Cove is a "floral disappointment," in my opinion. A fairly

careful search during my two visits confirms this appraisal.

Assisted by the guidance and knowledge of Don Schnell, a specialist in carnivorous plant life, a number of us became easily and intimately acquainted with many of the plants growing in coastal counties of North Carolina. They are found along wet ditches, swampy savannahs, and stagnant ponds. Most striking are the Pitcher Plants, particularly the largest one called the Yellow Trumpet. One that deserves its name is the Hooded Pitcher Plant where the leaf folds over in this manner. Most common is the smaller red-flowered one growing in colonies.

Other carnivores include several species of the Sundew, particularly the Threadleaf Sundew with the glistening sticky hairs covering its long thread-like leaves. Its flowers are quite striking, too, being 1" across and often deep pink in color.

A bit of searching revealed the considered prize of them all, Venus Flytrap, often going unnoticed until the white flowers appear on slender stems.

Individual Bladderworts are inconspicuous but quite in evidence where they fill a shallow pond, particularly the less frequent purple-flowered one, Utricularia Purpurea.

Although not rare, but surprising, is finding a goldenrod in flower in late spring--the coastal species, Solidago verna.

In mid-May 1980 we visited the islands of the North Carolina Outerbanks, a trip considered each year but preempted by my delaying tactics. This was a most worthwhile experience, particularly the two-hour ferry ride from the mainland to Ocracoke Island. Flora, however, was unrewarding. A wide variety of unfamiliar shrubs and trees were monotonously present growing in the older sand dunes. The lack of flowering herbaceous plants could be attributed to extreme drought that had prevailed.

My photographic notes indicate several plants on my search list: seacoast thistle, Carduus lecontei; lance-leaved Coreopsis; the sand dune Phlox drummundi, listed as an established garden escape originally from England; and a yet unidentified species of knotweed in colorul fruiting stage.

An updated review after eight years of Carolina botanizing has resulted in finding and photographing a wealth of our native flora, but, the urge persists--In Search of....

FUNGI INSTEAD OF CHEMICAL INSECTICIDES?
Extracted from an Article in the April 1980 issue of the "Cornell Countryman."

Biological pest controls as opposed to chemical pesticides such as DDT are not new in the world of agriculture. Studies in this area cover a wide range of possibilities.

Dr. Richard Soper of the U.S.D.A. Insect Pathology Research Unit at the Boyce Thompson Institute now located at Cornell University, is successfully investigating insect control by fungi. Elimination or at least limited crop insect damage is the objective. It is achieved through the use of fungi that can actually penetrate the body walls of the pests, killing them.

"We are presently involved in five programs, all of which are concerned with pathogenic insect fungi," Soper explains. The five insects under research are grasshoppers, spruce budworms, aphids, Colorado potato beetles, and black flies. The program concerning the aphid pathogen is closest to completion.

Collaboration exists with the Pasteur Institute of Paris. This facility concentrates on production where growing of fungi spores is done in a machine known as a fermenter. Soper points out: "We at Boyce Thompson are involved with formulation and field testing."

There remains formulation combining a substance that will not only stick to the plant, not injuring it, but compatible with the fungi pathogen. The eventual selected formula must be inexpensive and commercially feasible. Field testing will determine the success of the project.

If successful, this method of insect control has several inherent advantages over petroleum-based chemicals.

Pests are less likely to develop a resistance to pathogenic fungi as they do with chemicals. "Since we are dealing with two living systems in this case, even if the insect should form a resistance to the fungus, the fungus can also change," according to Dr. Soper.

Another plus is that they are insect-specific pathogens, harming only insects to which they are infectious, posing no threat to humans or the plants on which they are sprayed.

A LITTLE KNOWN PLANT
BUCKLEYA DISTICHOPHYLLA

Our world traveler and plantsman, Harry Logan, has taken a keen interest in this rare plant. This shrub and what Harry has done about it deserve our attention.

By description, Buckleya, related to our oilnut or Buffalo nut, is a shrub attaining a height of 10 or 12 feet, wide-branching with light green delicate foliage. The flowers and fruit are rather inconspicuous. More details are pictured on page 5.

The interesting feature is the restricted location of Buckleya as evidenced by Charles S. Sargent writing in the May 14, 1890, issue of "Garden & Forest."

> The French Broad River flows along the base of a high limestone cliff just before it passes from North Carolina into Tennessee. This is Paint Rock, on the right bank of the river, and a few miles below the Warm Springs of

Fig. 37.—Buckleya distichophylla.—See page 136.
1. Flowering branch of the staminate plant, natural size. 2. Flowering branch of the pistillate plant, natural size. 3. Fruiting branch, natural size.
4. Staminate flower, enlarged. 5. Vertical section of a staminate flower, enlarged. 6. Pistillate flower, enlarged. 7. Vertical section of a pistillate flower, enlarged.
8. Vertical section of a seed, somewhat enlarged. 9. Embryo, much magnified.

North Carolina. Paint Rock is divided by a small stream which cuts through it nearly at right angles with the French Broad, into which the smaller stream falls at this point, marking the boundary between the two states. On the steep rocky ledges which rise from the banks of the smaller stream grows one of the rarest plants in America--Buckleya distichophylla.

Subsequently Harry Logan was the one to come across this plant. "It was several years ago when on a trip with the Carolina Mountain Club that I first observed the plants, photographed them, and collected a few fruits--not knowing what the plant was."

A friend to whom Harry gave seeds gave him three growing seedlings in pots. By then the plants were identified.

Further from Harry's notations: "On a visit in October 1978, there was no fruit whatever." But in October 1979 friends collected a gallon of fruit for him with this additional statement of his: "...seed was gathered last October (1979) along the Appalachian Trail on a ridge just above the Nulichucky River in Tennessee where the plants extend perhaps for half a mile along the ridge and a little distance down the slope. It occurs among Carolina hemlocks and pines which species I don't recall."

Harry has disseminated seeds of the Buckleya among a number of his nursery friends anticipating that they will propagate and distribute this native shrub.