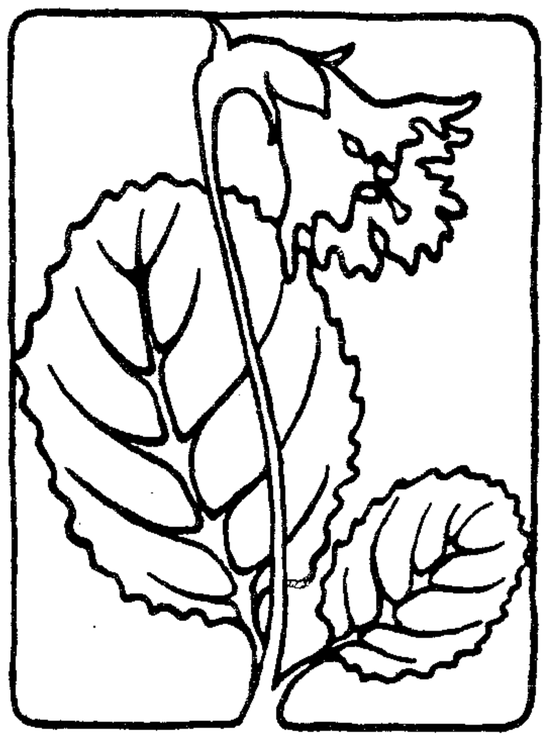
SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

WINTER 1990-91



DOROTHY RATHMANN, Editor

FROM THE PRESIDENT.....Bill Verduin

Sunday afternoon: this is the appointed time to write my greetings for SHORTIA. The old rocking chair on my cabin porch is the appointed place. No topic has been appointed and I had nothing special in mind when I left the house -- but the short walk over gave me several ideas -- all related to the Woods in Winter

Most of the leaves have fallen, some scarlet oaks and a few sourwoods still add spots of color. But the openness has its advantages -- I can now see the ridge line clear across the valley. Closer in, just across the cove, I can see scattered white pine and other features on the long, finger ridge coming down off of Wolf Mountain. The trails in winter reveal so much both near and far that is never seen or even hinted at when the vegetation is lush. And birds are so much more visible in winter. If that pileated woodpecker, making a racket over my right shoulder, comes this way through the bare trees I'll surely see him.

Coming up the trail to the cabin, I passed a mountain laurel just loaded with flower buds. Checking some other nearby plants leads me to predict a very good bloom on the laurel next May.

Have you ever tried to identify an oak when you had only an acorn to go by? I tried it the other day for the first time -- and had beginner's luck. The acorn had well defined rings around the tip, characteristic of the Scarlet Oak. Pick up a copy of FRUIT KEY AND TWIG KEY TO TREES AND SHRUBS by Wm. M. Harlow and try your luck.

And then try Harlow to identify some twigs using the winter characteristics. If you think that's impossible -- or you can't get to first base when you do try -- come to the workshop we have planned for February 8. Learn how to be a wizard at winter plant identification.

There is just so much to do in the woods in winter -- things to look at, things to look for, sounds to listen to, winds to hear and to feel -- ferns, mosses, rosettes, trees, shrubs -- all can be enjoyed on winter walks. So don't hibernate! Take full advantage of those clear, beautiful days in winter when THE place to be is out in the woods!

CHANGE OF JANUARY MEETING PLACE.....Bill Verduin

The Henderson County Library will not be available for our meetings on January 11 and 25. We will hold both of these meetings in the Agricultural Extension Building in Jackson Park. This is a brick building on the west side of the road near the south end of the Park. A large parking lot is right at the door.

ADDITION TO MEMBERSHIP LIST — NEW MEMBER

Caldwell, Edward, 183 Riverview Drive, Asheville, NC 28806.....

INVITATION FROM FRANK BELL

Frank and Calla Bell extend a cordial invitation to all WCBC members to visit their lovely place at Green Cove (Tuxedo). He says he has flowers in bloom every month of the year. Those who have been there know the Spring display is well worth a walk along his trails. Just phone ahead: 692-3241.

THE SAGA OF THE WHEEL-BUG .....ELTON J. HANSENS

In July, Bill Verduin reported that while eating lunch Evelyn noticed an orange to pink spot on one of their trees. When Bill investigated he found a large orange bug which he placed in a jar. Soon, he noted that the bug was shedding its skin and he identified it as a wheel-bug, Arilus cristatus. The adult insect is 3 cm. long and the wheel projects upright from the thorax. When Bill brought the specimen and cast skin to me, I confirmed his identification and elected to see if I could entice the bug to feed---but on what?

I remembered the nice big, smooth catalpa sphinx caterpillars, Ceratomia catalpae, I had seen defoliating a catalpa tree in the neighborhood. A large jar became the wheel-bug's environment along with fresh catalpa leaves and assorted sizes of caterpillars.

The wheel-bug did not feed for the next couple of days because the exoskeleton must harden after a molt. Then, feeling the wheel-bug was hungry, I placed it close to a caterpillar. The bug soon detected a possible meal and moved slowly toward the caterpillar, touched it gently with the tip of one antenna, and WHAM! In one forward movement the bug grabbed the caterpillar with its front legs and inserted its beak. In a matter of seconds the caterpillar was immobile and the bug proceeded to suck out the juices, moving farther down the worm from time to time to a new feeding location. Eventually the caterpillar turned dark, became flaccid, and died. The bug settled down to digest its meal. In the next week or so the wheel-bug consumed another eight to twelve caterpillars. Meanwhile, the caterpillars continued to eat catalpa leaves and became an important part of this story.

One morning when fresh catalpa leaves were provided for the caterpillars, one of the smaller caterpillars became the center of attention. About a dozen tiny white cocoons extended from its back and sides. I knew that they housed tiny parasitic wasps of the family Braconidae which had finished their feeding within the caterpillar, had emerged through its skin and had spun the cocoons.

Subsequently parasite cocoons appeared on other caterpillars. Two caterpillars had about 60 and 120 respectively. In the latter case 112 adult braconids emerged about a week after the cocoons were formed. These parasites were released near the catalpa tree.

You ask, "How could 120 parasite larvae be produced in a single caterpillar?" "Were 120 eggs laid in the caterpillar?" No, this is not the case; only one egg needs to be laid and then by a process known as polyembryony the cells of the egg divide and instead of producing one individual, multiple individuals result. In this case 120 larvae matured in the one caterpillar from one egg. Consider that the caterpillar fed and grew and provided enough nutrition for 120 parasites. With such parasitism the caterpillar never reaches its usual length of about 3 inches but does survive. Even after the cocoons are completed the caterpillar continues to move around in a sluggish fashion.

We saw a mature parasite larva cutting its way through a caterpillar body wall. As soon as it emerged the larva started to spin silk, first spinning a base on the caterpillar and then a loose envelope around itself. Within this loose silk it constructed a tight, white silk cocoon about 3 mm. long. This process took several hours. Within the cocoon changes take place rapidly and after a week the mature adult cuts the end from the cocoon, wriggles out and flies away. These adult wasps are only 3 to 4 mm. long.

After all of the parasitic wasps had emerged I happened to look at the remains of the very first larva we found with cocoons and was surprised to find a fly and its pupal shell. I identified the fly as one of the Tachinidae. These flies are also parasites in caterpillars. The female fly lays an egg in a caterpillar and it hatches into a maggot which matures within the caterpillar and emerges to become an adult fly. The catalpa sphinx larva, thus, had both tiny parasitic wasps (braconids) and a larva of the parasitic fly (tachinid) feeding within it. All emerged successfully as adults.

We can take this complex story one step further. One day as I closed a jar which contained the remains of a caterpillar killed by the wheel-bug, a tiny hump-backed fly (family Phoridae) flew into the jar and was trapped. The next day the caterpillar remains were seething with tiny maggots. Soon pupae were seen and a week later many adult flies had emerged. They are only 1 to 2 mm. long. Thus, though the wheel-bug had killed the caterpillar and fed on it, enough nutrition remained to feed a generation of the tiny phorid fly.

This saga could not be, without the wheel-bug and the catalpa tree.

WHENCE PLANT NAMES? Part II — THE BOTANICAL NAMES.....Lowell Orbison

In contrast to the thousands of years in which common names of plants have been in use, the binomial botanical names were devised only about 250 years ago by Linnaeus. This more nearly precise nomenclature has had little effect on the use of common names for it is not comprehensible unless specifically studied. But for the botanist and dedicated amateur, this system has a great advantage: each plant has only one binomial name which is recognized in botanical circles worldwide. Thus, the chances of confusion are greatly reduced.

In botanical nomenclature one must learn two names of each plant, a group name and a specific name, for example, **Magnolia** (a noun) and **tripetala** (an adjective). Most of these names are from the Greek and Latin; some commemorate individuals; some identify a site of origin; and a small number are from other languages. All have been Latinized.

Let us examine the generic name. Since words from both Greek and Latin are used frequently to express the same term or describe the same feature, the result can be confusing unless the linguistic origins are recognized. For example:

English	**Greek**	**Latin**	**Example**
Pea	lathyrus	pisum	
Tree	dendron	arbor	**Rhododendron** (rose tree)
			Arborvitae (tree of life)
Milk	gala	lac	**Galium** (sap may curdle milk)
			Lactuca (milky sap)
Two	di	bi	**Diphylleia** (two leaved)
			Bifolia (two leaved)
Drooping or Nodding	prenes	cernuum	**Prenanthes** (nodding flowers)
			Allium cernuum (nodding onion)
Gold	chrysos	aureus	**Chrysanthemum** (golden flower)
			Aureolaria (golden)
Resemble	opsis		**Coreopsis** (seed resembles a tick)
	homoios		**Ipomoeaips** (worm; bindweed; twining)

This last example illustrates that there are duplications even in the same language and, of course, many more comparisons between the Greek and Latin could be made. There are other terms that stand alone in one language or the other:
Dianthus (Greek from dio and anthus) Flower of the Gods
Potentilla (Latin) from belief in its medical potency
Aristolochia (Greek) from the belief that it helped in childbirth
Polygonum (Greek) many jointed
Aster (Greek) star and **Stellaria** (Latin) star
Nymphaea (Greek) waternymph
Aquilegia (Latin) for eagle claw-like spurs of the flower
Anemone (Greek) daughter of the winds; windflower

A number of generic names commemorate individuals, usually someone who has contributed to botany. A few examples are: l'Obel (**Lobelia**); Magnol (**Magnolia**); St. Barbara (**Barbaria**); vonHeucher (**Heuchera**); Anna Paulownia, daugher of Czar Paul (**Paulownia**); Clinton, governor of New York (**Clintonia**); Menzies, explorer in the Northwest (**Menziesia**); Duchesne, a French expert in strawberries (**Duchesnea**); Lespedez, Spanish governor of Floria, named by Michaux (**Lespedeza**); Kostoletsky, a Bohemian botanist (**Kostoletskya**); and Kalm, a pupil of Linnaeus (**Kalmia**);

Several generic names originiated in other languages: **Taraxacum** and **Cichorium** in Arabic; **Gingko** in Chinese; **Tsuga** in Japanese; **Ailanthus** probably in Moluccan; and **Amelanchier** in French.

Turning from the generic to the species names we find that they, too, come mostly from the Greek and Latin. Like the generic names, the same descriptive terms for species are frequently expressed in either Greek or Latin. For example, even the simple numerical prefixes are duplicated:

English	**Greek**	**Latin**
One	mono-	uni-
Two	di-	bi-
Three	tri-	tri-
Four	tetra-	quadra-
Five	penta-	quinqu-
Many	poly-	multi-
Large	macro-	grand-
White	leuco-	alba-
Red	erythro-	rubro-
Flower	antho-	floro-
Leaf	phyllo-	folio-

Names for people, countries and regions are in the Latinized forms, and directions are usually Latin so these terms are relatively simple to understand. Examples of the Latinized names of people are: **Michauxii**, **Grayi**, **Fraseri**, **Elliottii**, **Drumondii**, **Smallii**, **Cutissii**, **Wherryi**, **Muhlenbergii**. Examples of Latinized geographical names are: **Canadensis**, **Sinensis**, **Caroliniana**, **Virginiana**, **Novae-angliae**, **Illinoensis**, **Laurentiana** and **Roanensis**. Directions are few and relatively easy: **australis** (south); **borealis** (north), **septentrionalis** (north), **centralis** (central), **orientalis** (east) and **occidentalis** (west).

Thus we find that though the use of Greek and Latin and the Latinization of all words complicates the botanical nomenclature, the overall effect is to stabilize and clarify the names of the plants throughout the world.

RECORDERS REPORT.....Elton J. Hansens

Late summer and fall are an exciting part of the year for botanical field trips. The best trips are in open woodlands, fields, along roadsides and other places where plenty of sun favors plant growth and bloom. The Planning Committee did an especially good job in selecting trips that included much variation in elevation, terrain, habitats and other factors. In August, September and October a total of 15 trips were scheduled. Eight of these were especially rewarding for botanizing and I will discuss them in this report.

These trips are as follows: Aug. 10, Shut-in Trail; Aug. 17, Black Camp Gap including Plott Balsam, Black Camp Gap, Soco Gap and Heintooga; Aug. 31, Sugarloaf Mountain and road; Sept. 7, Foothills Equestrian Nature Center; Sept. 14, Camp Alice Trail on Mount Mitchell; Sept. 21, Blue Ridge Parkway South, stopping at 8 overlooks; Sept. 28, Butter Gap Trail; and Oct. 5, Hogback Mountain and the access road.

The recorder assembled a complete list of the species in bloom at all eight of these locations. Any club member who went on all 8 trips would have seen 198 species of plants in 119 genera and 34 families. Those who have familiarity with plants would know that the largest number of species in a family (74) were in the Asteraceae including 11 Aster (asters), 9 Solidago (goldenrods), 9 Eupatorium (joe-pye-weed, white snakeroot and others) and 5 Helianthus (sunflowers). Thirty-one other genera were represented. The Lamiaceae (mints) with 15 species, the Fabaceae (bean family) with 14, and the Scrophulariaceae (figworts) with 12 were the next most numerous. Of the species recorded 58% belonged to these 4 families.

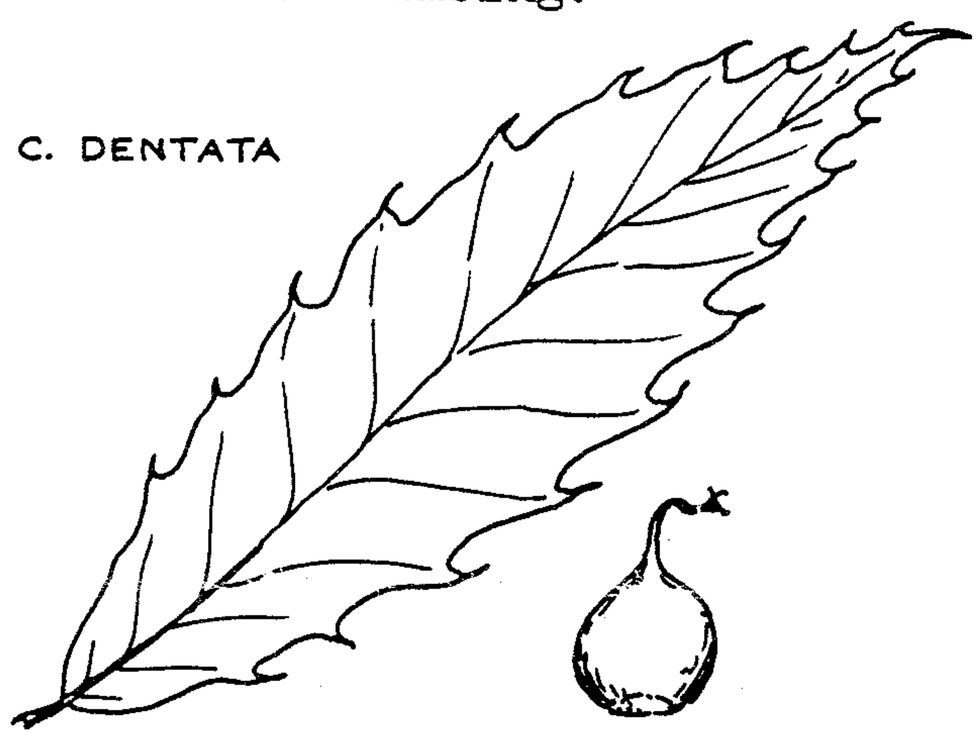
We can also examine these data relative to the eight locations and how many of them are found in more than one place. You might expect to find many again and again and others requiring a more specialized habitat at only one place. This was the case. No species was found in all 8 locations but 3 species were found in 7 of the 8 sites. These three were white snakeroot, Eupatorium rugosum; yellow wood sorrel, Oxalis stricta; and selfheal or heal-all, Prunella vulgaris. White snakeroot blooms from late July to October. In North Carolina it is common in the mountains, frequent in the piedmont and rare in the coastal plain. Selfheal blooms from April to frost in fields, pastures, roadsides and lawns throughout the Carolinas. Yellow wood sorrel, Oxalis stricta, blooms from May to October and is common throughout our area in woodlands, thickets and hedgerows. When we see these and other ubiquitous plants we pass them quickly but pause and contemplate the less common plants.

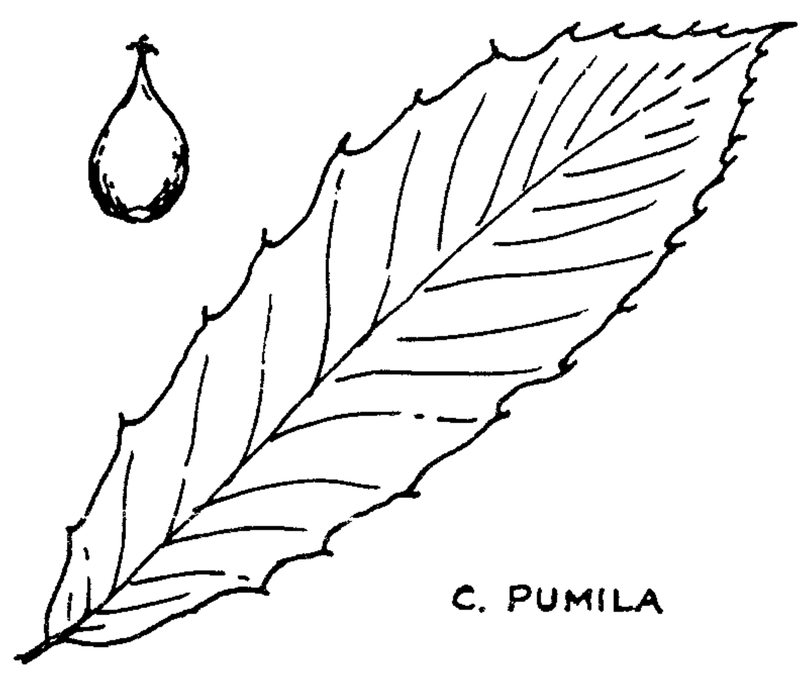
These less common or rare flowers are often limited to unique conditions in the environment. In our 8 trips 117 species of our list of 198 were seen at only one of the eight locations. Many of these plant species were limited to very special environments (ecological niches). The trick is to find them. As we looked we were rewarded by seeing such uncommon plants as slender yellow-eyed grass, Xyris torta; grass of parnassus, Parnassia asarifolium; monkshood, Aconitum uncinatum; meadow beauty, Rhexia virginica; and others. I, for one, enjoy seeing such a wealth of flowering plants and their diverse habitats.

I would like to acknowledge the help of Anne Ulinski, Millie Blaha, Bill Verduin, and other WCBC members who assisted in recording flowers on these field trips.

LOOK AGAIN !

As we walk through today's forests of oaks, hickories, beeches and maples it seems impossible that only a lifetime ago one-quarter of these trees would have been American Chestnuts. Yet when we look about we see ample evidence of this majestic species' prevalence before it was virtually wiped out by a lethal alien blight. A few silvery gray boles still stand erect; many more lie prostrate but are astonishingly sound. Even more abundant are old stumps ringed by vigorous, persistent sprouts that arise from the unaffected roots, some managing to produce spiny burs before succumbing.





The leaves of American Chestnut (Castanea dentata) have a distinctive look of sharpness about them, owing to the large bristle-tipped saw-teeth that give it its specific name and the long, attenuated apex. Beneath, they are pale yellowish green, smooth and shiny.

Sometimes mistaken for it is the related Allegheny Chinquapin (Castanea pumila), a shrub or at most a small tree. Here the leaves tend to be broader nearer the summit, and narrow more abruptly to a short tip, and the teeth are smaller. The undersides are whitened with a dense covering of soft woolly hairs.

When fruits are present, the two species can be easily differentiated. Chestnut burs are two inches or more in diameter, and each contains two or three nuts which are flattened on at least one side. In Allegheny Chinquapin, they are smaller and contain a single rounded nut.

Dick Smith

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S H O R T I A

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NOTICE: Meetings on January 11 and 25 will be in the Agricultural Extension Building in Jackson Park. See page 2.

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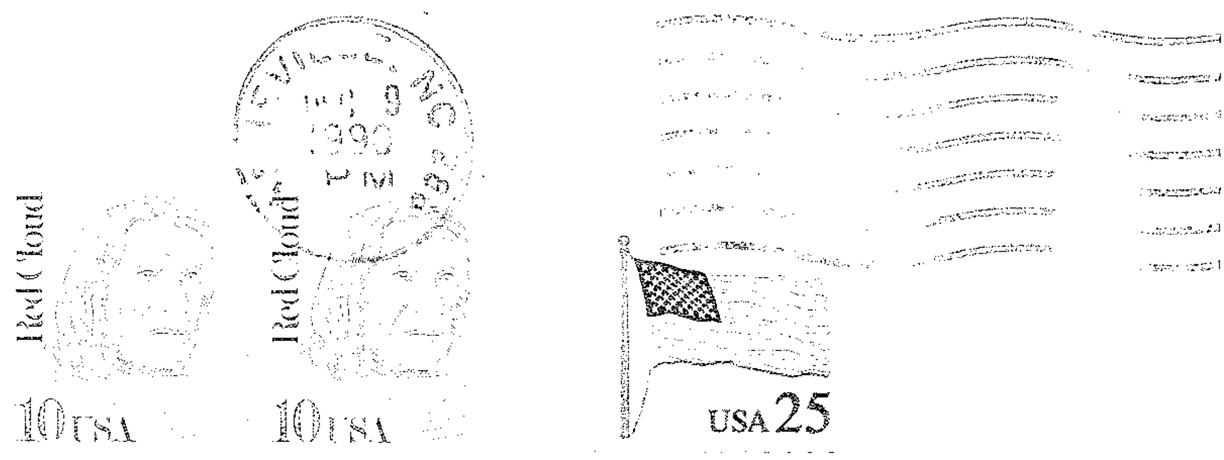

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