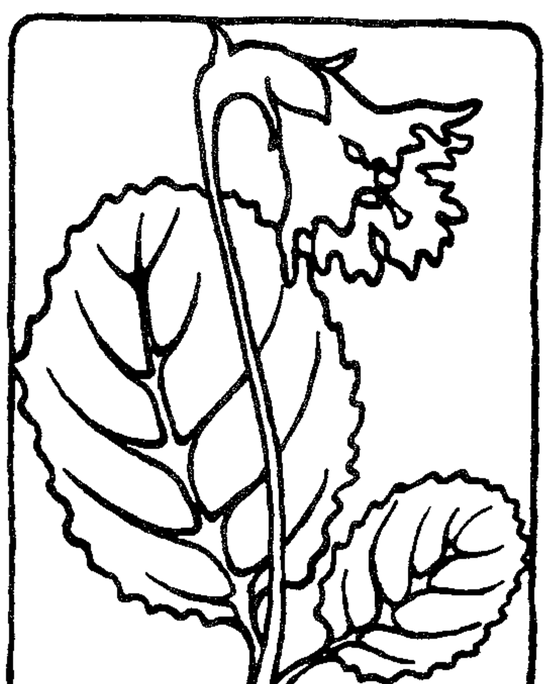
SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

SPRING 1993



BUD PEARSON, Editor

FROM THE PRESIDENT — Dorothy Rathmann

First, let me take this opportunity to thank Bess and Ken Sinish, Grace Rice and all the committee chairman and trip leaders for their devotion and hard work on behalf of the club this past year. The incoming officers have a hard act to follow.

From the beginning, this club has been a group of men and women sharing a common interest in wildflowers and the habitats in which they grow. It's a congenial group to which each individual brings skills and special interests with experts on one topic always willing to share their knowledge and learn in turn from others. That's what makes this club extra special. But like any organization, it depends on constant participation and feedback from its members. So if you have ideas about activities, please do let me and the other officers know.

With this issue of SHORTIA, Ruth Hoerich is taking over the responsibility for printing and distribution of club publications. Frances Gadd has worked faithfully for many years in assuring that we receive SHORTIA, the roster and schedule on time,- - a much more complicated task than most of us realize. Many thanks, Frances!

VOLUNTEER NEEDED TO EDIT SHORTIA

After serving as editor of SHORTIA since the Spring of 1991, Bud Pearson has asked me to "seek a new editor....someone who is present and attends meetings and field trips with some regularity." For me, as President, that is bad news! Bud has been doing a great job, publishing four issues a year.

SHORTIA is an important part of our club - - a ready route for news about the club activities and a source of informative articles of special interest to members.

Would you be interested in taking over as editor? If so, please call me at (704) 697 1767 or speak to me at a meeting. I hope I get several volunteers!

GARDENS OF THE TRIAD - - PREPAYMENT FOR ROOMS

See Schedule for description of this trip for April 13 - 15. There is already a good list of reservations. Deadline for sign up is April 1.

Dean Crawford has secured a special low room rate at the Holiday Inn West (Durham) by having WCBC manage the room charges as a block for the entire group. This means the club Treasurer must collect money ahead of time from each participant to cover the room charge. For two nights double occupancy that is a total (including tax) of $43.29 per person.

Your check should be made payable to WCBC and sent to:

Elaine Montgomery, Treasurer
1636 O'Hara Circle
Hendersonville, NC 28739

Please do so as soon as convenient but no later than April 1, because the Club has had to pay a sizeable deposit. Cancellations will be honored in full up to that date.

You will be expected to pay food and other charges on an individual basis. Dean has arranged for adjacent first floor non-smoking rooms. Any other special requests should be made through him. Maps and schedule will be provided and car pooling arranged by Dean as soon as all payments are made to Elaine.

...from the President, Dorothy Rathmann

HIGHLIGHTS OF THE ANNUAL BUSINESS MEETING

The club elected Millie Blaha and Elton Hansens to Honorary Life Membership. Millie and Elton have each distinguished themselves by their efforts on behalf of WCBC and by furthering interest and education in the field of botany.

Treasurer Ken Sinish reported the year end account balance was $850.79. Receipts were $1,194.79, while disbursements amounted to $1,225.78. It was agreed that a $75.00 contribution be made to each of the following:

Nature Conservancy
North Carolina Arboretum
University Botanical Gardens at Asheville
Friends of the Library, Hendersonville

The gift to the library was for the purpose of purchasing the following books to be made available to the public:

FERNS, A NATURAL HISTORY, Edward Frankle
GRASSES, AN IDENTIFICATION GUIDE, Lauren Brown
RED OAKS AND BLACK BIRCHES, Rebecca Rupp
GUIDE TO VASCULAR PLANTS OF THE BLUE RIDGES, B. Eugene Wofford
WILY VIOLETS AND THE UNDERGROUND ORCHIDS, Peter Bernhardt

NONPAYMENT OF DUES

Ken Sinish, former treasurer, announced that an asterisk beside your name on the address for this issue of SHORTIA indicates that there is no record that your dues have been paid. If you believe there is a discrepancy you may call Elaine Montgomery, Treasurer, at 693 7704, or you may mail your check, in the amount of $8.00 made payable to WCBC, to Elaine at; 1636 O'Hara Circle, Hendersonville, NC 28739.

20TH ANNIVERSARY CELEBRATION

This years annual meeting celebrated the twentieth anniversary of the Western Carolina Bontanical Club. Harry Logan was credited with suggesting the formation of the club and getting it underway by organizing the first field trip. Harry Logan, Pat Tooley, Bruce Leech, and Gladys Mulvey of the original ten founders were present for the celebration. Jeanne and Dick Smith and Elton Hansens published a booklet commemorating the anniversary, which has been distributed to the members.

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WILDFLOWER COURSE

Elizabeth Feil has announced that Chimney Rock Park will sponsor a 7 session Wildflower Course beginning April 14, 1993. The course is limited to 15 participants.."who must be able to walk the Skyline Cliff Trail loop." The cost is a $10 registration fee plus the cost of a season pass to the Park. For more information, contact Elizabeth Feil.

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Note: Fringed Phacelia should be at peak bloom on the Blue Ridge Parkway at mile posts 370-375 in April and May. So says the Parkway's Bloom Calendar.

RECORDER'S REPORT "THE YEAR 1992" by ERIKA S. PARMI

This past year the field trip season was marked by unseasonably warm weather in late winter and early spring and then cold weather in late spring. Some plants bloomed early, others late. As a result on many of the field trips fewer plants in blossom were seen.

Out of the 37 field trips scheduled, 7 were cancelled, including the overnight trip to the Smokies. Both the spring and mid-summer trips to Sugarloaf produced high counts of blossoming species, with the August trip producing the highest count of 69. Other trips on which more than 40 species in bloom were identified were the Mud Creek trip, the Haywood Gap Mountain to the Sea Trail, Butter Gap, and Parkway South.

A number of plants listed as being of increasing degrees of rarity by the Carolina Natural Heritage Program were found on some of our field trips. At Roan Mountain we saw *Alnus crispa*, green alder, and *Lilium grayi*. At Parkway South we found *Hypericum buckleyi*, Blue Ridge St Johnswort. At Pilot Mountain there was *Rhododendron vaseyi*, and at Mud Creek, *Ampelopsis cordata*, Heart leaf peppervine. *Trillium discolor*, Mottled trillium, and *Shortia galacifolia*, Oconee Bell, both were seen in South Carolina; the first is on the threatened status in North Carolina and the second is on the endangered list.

The four workshop programs on the rose family, ferns, mushrooms and goldenrods were well attended and received good reports. Perhaps we should continue to branch out from our concentration of wildflowers in bloom.

This year trip leaders were encouraged to emphasize the general features of the areas visited in order to help us understand the various habitats in our region. For example, the different types of hardwood forests as exemplified by the low elevation cove hardwood forest of tulip poplar, basswood, and buckeye seen at Bat Cave, and a more typical mixed hardwood and coniferous type dominated by oaks, beech and hemlock at Horse Cove. We also saw two types of wetland; Mud Creek with its standing water supporting such hydrophytes as pickerel weed and spatter-dock, as different from the seepage bogs covered with sphagnum moss in the Pink Beds area. We also visited high elevation meadows and balds and spruce-fir habitats at Roan Mountain and Haywood Gap.

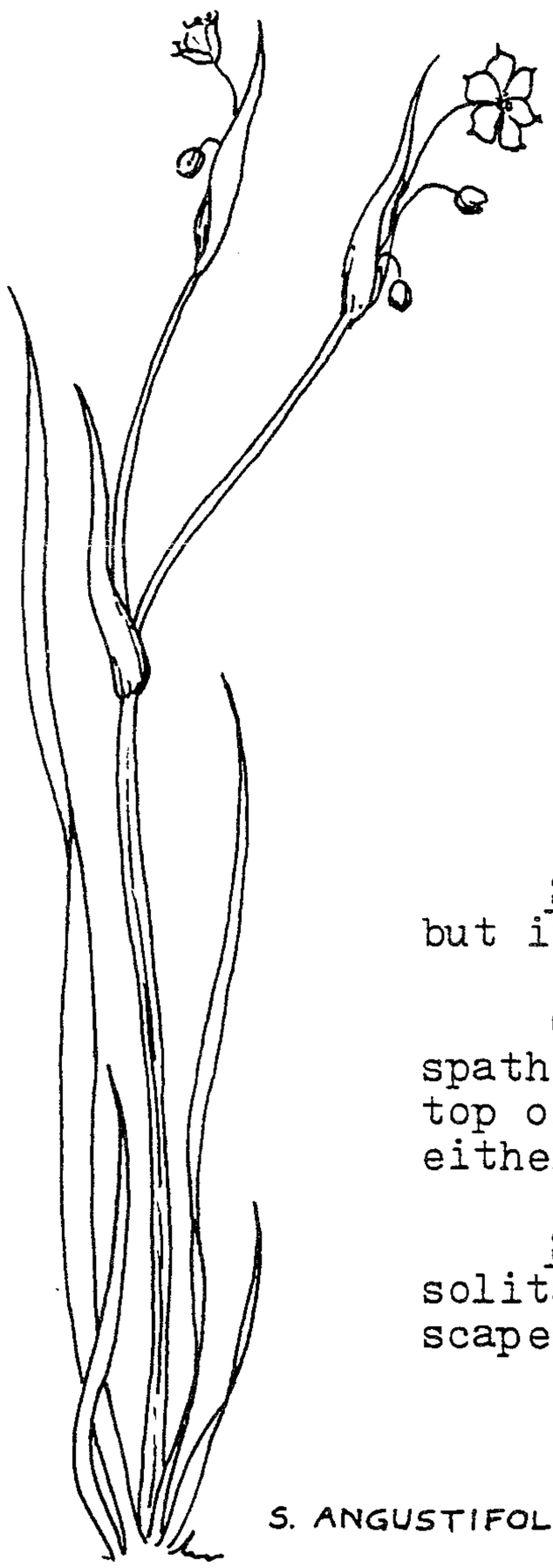
The Recorder furnished plant lists to leaders for distribution to the field trip participants. Please let the Recorder or a member of the committee know if you would like this distribution to continue in 1993. The committee has worked hard to put the new recording system into effect with many more trips now having, in addition to plant lists, trip directions and habitat descriptions available. A few more refinements are needed to make the system work even better.

In closing I would like to thank the members of the Recorder's Committee for all their hard work. Committee members are, Elton Hansens, Jane Blackstone, Louise Forseman, Grace Rice, Anne Ulinski and Bill Verduin. ....Erika S. Parmi

Note: Birdfoot Violets may be found at mile markers 147.4, 202, 260.5 and 379 of the Blue Ridge Parkway in the months of March thru May. There are supposed to be Serviceberry trees in bloom at mile markers 344.1 - 355.5. Will somebody check?

LOOK AGAIN !

The bright, wide-open innocent look of Blue-eyed Grass flowers makes them appealing enough to satisfy most of us, but those who have the interest--and patience--to pursue such things will soon learn that no less than four kinds of Sisyrinchium occur in our area.



S. ANGUSTIFOLIUM

The differences between species exist not so much in the flowers themselves as in the vegetative structure, and it is first necessary to become familiar with the several components and the terms that are used in describing them. Using as an example our most common species, S. angustifolium, we see that there are: (1) the leaves, which are basal and are long, flat and about 3/16" wide; (2) the winged scapes, or primary flower stalks, which also arise from the base and are flat and about the same width as the leaves; (3) the peduncles--in this case two--which actually are branches extending from the summit of the scape; and (4) two-bracted spathes, one terminating each peduncle. It is within these sheathing spathes that the flowers are borne on hairlike stalks in umbels.

S. atlanticum also has two peduncled spathes, but its leaves and scapes are only 1/8" wide.

Of the other two species, S. albidum has two spathes, but they are sessile and twinned at the top of the 1/8" wide scape. Its flowers may be either white or blue.

S. mucronatum, on the other hand, has solitary sessile spathes, and its leaves and scapes are extremely narrow, only 1/16" in width.

Dick Smith

THE COMPLEXITY OF COLOR

by DR. LOWELL ORBISON

Color in biology and perhaps most strikingly in botany is one of the principal sources of our enjoyment of the world around us. Barbara Hallowell in her beautifully illustrated talk, "Green is Beautiful", pointed up with clarity how much we depend on the color green for our appreciation of botany. There are , as we all know, many other colors in nature, and much research and many writers have given us information about how these colors are produced. Dr. Meuse in his book, "The Story of Pollination", presents an interesting summary of some of the factors involved in the production of the many colors in his chapter, "A Way to Paint".

Some of the more common factors that play roles in our perception of color are: A. Which colors are absorbed and which reflected; we see only the reflected colors. B. The pigments present: 1. Those present in solution in the cell sap, such as the anthocyanin. Though anthocyanin in Greek means blue flower, there is a family of these pigments that ranges from blue to red. Some even change color with change in pH. 2. Some pigments, such as chlorophyll and the carotinoid, are present in particles within the cells. The chlorophyll mixed with many other substances is present in chloroplasts. The carotinoids in the form of crystals within the cells, droplets of yellow oils and "flavone" relatives of the anthocyanins are a source of additional yellow color. C. Pigments of different colors in adjacent cells give various colors and the effect of "pointillism". D. Layers of cells, each layer with a different color, gives still greater variations, including black. E. The effect of air within the tissues and other tiny colorless bodies will produce white.

Let us examine some examples of these factors to illustrate how they work.

Green is so ubiquitous in plants that it seems appropriate to look first at it. We know that it is the green chlorophyll that synthesizes the substance necessary for the metabolism of the plant. But it is particularly interesting to realize that it is the red and blue colors of the white light that falls on the plant that are the source of energy for this synthesis. The green that we see is the light that is not used, what is "left over" and is reflected. The useful light, the red and blue, we do not see because it is used to supply the energy for the synthesis.

The anthocyanins provide us with a wide range of colors depending on the special chemical of the family and are probably the greatest source of botanical colors. But there are interesting modifications as well. The effect of pH of the soil is well known in the change of flowers of hydrangea from pink to blue as the acidity increases. The effect is indirect, however, for it is the increased availability of aluminum in acid soil that changes the color. A subtle variation in color is the result of different colors in different cells of a layer. One does not see the individual colors but a blend of them, the same as the "pointillism" used by Seurat in his painting.

A quite different effect is obtained if one layer of cells has one color in its cells and a layer below has another. The most extreme example may be the production of black. In the base of the poppy there is a red layer which absorbs blue and an underlying blue layer that absorbs red, and all the parts of the white light are absorbed. There is no light reflected, therefore no color, thus black. Another quite different effect is seen in the buttercup. We are all familiar with the bright , glossy color of the petals. The surface cells contain a yellow oil but below is a layer of cells so packed with starch granules that it reflects all of the white light and is intensely white. This reflection of white

(continued next page)

light back through the yellow gives the surface a brilliant glossiness with which we are all familiar.

The color, white, which is so common, usually results from tiny, colorless particles which reflect all of the white light that impinges upon them. These particles may be starch granules as mentioned above in the buttercup, or, very commonly they are tiny bubbles of air. The effect of this air can be demonstrated by placing a white petal in water and applying a vacuum to remove the air and then releasing the vacuum and letting the water fill the spaces formerly filled with air. The petal will become nearly transparent and colorless. This effect can be more easily shown by placing a single piece of toilet paper on a pan of water. Watch it lose its color and become nearly transparent as the water replaces the air.

One final example: If the colored surface is covered by tiny white hairs the tone of the color will be considerably lightened. Less obvious and perhaps more interesting is the fact that tiny irregularities of the surface will produce the deep soft colors so well known in velvet. The violet, rose and pawpaw, to name only a few, illustrate this effect.

Colors and their modifications are almost endless. Those above are just a small sampling to stimulate our interest. .....Lowell Orbison

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BUTTERFLIES go wherever they like and are liked wherever they go. They don't bite, sting or carry disease. They are beautiful and provide a vital link in the propagation of life. Their presence is indicative of a healthy ecosystem. Unfortunately, "progress" and population growth may limit their natural habitat. Individuals might consider gardens with nectar sources in their yards, or even preserving and maintaining host plants, if we know what they are. Some of the species listed may be found in the Western Carolinas. Most of the listed host plants are found in this area.

BUTTERFLY SPECIES	LARVAL HOST PLANT
SWALLOWTAIL FAMILY (*Papilionidae*)	
Pipevine Swallowtail Butterfly	pipevine and Virginia snakeroot
Black Swallowtail	parsley - both wild and cultivated such as carrot, dill, parsley and parsnip
Spicebush Swallowtail	spicebush and sassafras
Zebra Swallotail	pawpaw
SNOUT BUTTERFLY FAMILY (*Libytheidae*)	
Common Snout	hackberry
BRUSH-FOOTED FAMILY (*Nymphalidae*)	
Great Spangled Fritillary	violets
Buckeye	plantains, gerardias, toadflax, snapdragons, false loosestrife
Painted Lady	thistles
Red Admiral	nettles, false nettles
Viceroy and Red-Spotted Purple	willows-esp. black willow, pussy willow, poplars, plums, and cherries
Hackberry Butterfly	hackberry and sugarberry trees
WHITE AND SULPHUR FAMILY (*Pieridae*)	
Cloudless Sulphur Butterfly	sennas and partridge pea
Dogface Butterfly	false indigo, lead plant, and prairie clover
MILKWEED BUTTERFLY FAMILY (*Danaidae*)	
Monarch or Milkweed Butterfly	milkweeds and dogbane

S H O R T I A

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Please submit contributions for the next issue by May 10, 1993 to:--

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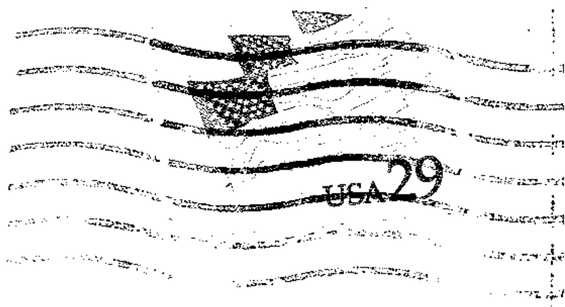

FIRST CLASS

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