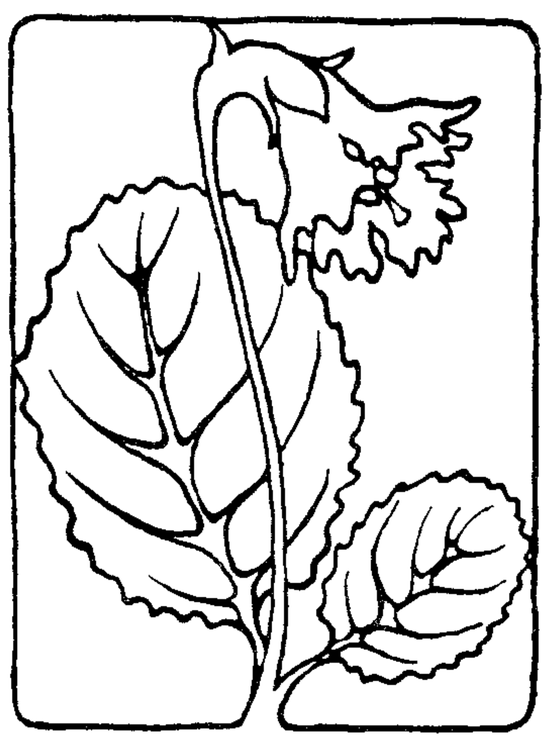
SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

WINTER 1988-89



DOROTHY RATHMANN, Editor

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FROM THE PRESIDENT'S DESK.....Bill Verduin

Friendship is what it's all about. Yes, I am talking about the Botanical Club. Oh, I knew quite a few common wildflowers when I joined -- but now I'm on friendly terms with ever so many more. (Even on a Latin-name basis.) I had several favorite trails, but now I know a much larger number of "user-friendly" areas in our beautiful mountains.

But best of all, of course, are the many new friends among you, the members. You are a group of mighty fine people and it has been a great privilege to count many of you friends. To my fellow officers, to the many trail leaders, and to all of you a **hearty thanks** for all you do to make our hikes and meetings such friendly occasions.

And so to one and all, a **Merry Christmas**, and may the New Year bring many happy days for all of us "on the trail."

LOOK AGAIN! REPRINTS AVAILABLE

Last year, some WCBC members ordered a reprint collection of Dick Smith's LOOK AGAIN! pages. Millie Blaha tells us that she has nine extra copies of the collection at $3.25 each, including postage. If you want one, drop a note and check made out to: Millie Blaha, Drawer F, Cedar Mountain, NC 28718.

1988 MEMBERSHIP LIST

Hendersonville 28739 unless otherwise noted

ADDITIONS (*NEW MEMBER; +WINTER ADDRESS)

*Mathis, Mr. & Mrs. Harris, Rte. 4, Box 164A,
Mill Cove, Brevard,NC 28712 885-2764
+Rte. 2, Box 44, Jennings, FL 32053.....
*Pearce, Sr., James & Jean, PO Box 822, Flat Rock, NC 28731.. 692-3885
*Phillips, George W., PO Box 147, Flat Rock, NC 28731..... 693-4681
+Sawyer, Martin & Ruth, 2301 Fremont Drive, Sarasota, FL 34238...
*Tangert, Eugene & Elfriede, 619 Hidaway Cove..... 692-9909

NEW ADDRESSES

Krouse, Verna M., 580 Shuford Circle Drive, Newton, NC 28658..465-2209
Orchard, Neville & Beryl, 17 Skynka Trail, Columbus, NC 28722...
Wagner, Louis, 2601 Highway 64 E, Box 118..... 692-8713

LOUISE WAGNER MEMORIAL BOOKS

The Friends of the (Henderson Co.) Library recently acknowledged, with thanks, gifts in memory of the late Louise Wagner. According to Nancy G. Snowden, Adult Services Librarian, these gifts have been used to purchase the following books:

MARTY STOUFFER'S WILD AMERICA by Marty Stouffer
ON NATURE ed. by Daniel Halpern
WORDS FOR THE WILD: THE SIERRA CLUB TRAILSIDE READER ed. by Ann Ronald
WORDS FROM THE LAND ed. by Stephen Trimble
A BOOK OF BEES by Sue Hubbell
TREES OF THE SOUTHEASTERN UNITED STATES
THE MAN WHO PLANTED TREES; a story by Jean Giono
A SENSE OF THE MORNING by David Hopes

COMPUTER DISPLAY FOR THE UNIVERSITY BOTANICAL GARDENS.. Lowell Orbison

The two principal objectives of the University Botanical Gardens are to collect and preserve the native plants of the Southern Appalachian area and to display them for enjoyment and education.

To accomplish the first objective of collection and preservation requires continuous care of the collection in the Gardens and, simultaneously, the replacement of lost species and the seeking out and addition of new species to make the collection more nearly comprehensive. These activities are very demanding in terms of both time and knowledge.

The second objective, to display the plants, is intimately related to and dependent upon the first but, in addition, requires display of the plants in esthetically attractive ways so that the Gardens will be appealing to visitors. Unfortunately many plants are small and obscure so that obvious esthetic displays are not feasible. Thus, detailed knowledge of the location of these plants in the Gardens is necessary if they are to be identified, appreciated and studied.

The effort and dedication of the volunteers over the years in accomplishing these objectives has been indeed remarkable.

In 1975 Dr. Martin Wadewitz (1895-1985) and his committee on plant identification published a catalogue of the plants in the Gardens and a map of the Gardens divided into sections. With this catalogue and the map, a volunteer or a visitor could direct his search for a specific species to a section of the Gardens. However, these sections varied in size from about 100'x30' to 200'x200'.

Ten years later computers had been developed to where it was possible to put all of the information in the plant catalogue, as well as additional information, into the memory of the computer and, also, to produce a map for display on the computer monitor.

At that time, I proposed the development of a computerized map of the Gardens to the Computer Science Department at UNCA as a senior project for a computer science major. The suggestion was accepted by the Department and Mr. Jack Culbertson selected the project for his senior project. In the spring of 1986 Jack had developed a program and demonstrated its feasibility by preparing one section of the map and demonstrating it on the computer monitor.

Some time later when I had almost completed putting the data for the map in the computer, Dr. Michael Ruiz, Professor and Chairman of the Physics Department, happened by and expressed an interest in the mapping process. In our subsequent discussions he became interested in the whole display concept and offered to write a program to implement it. In the next few months Dr. Ruiz prepared a highly imaginative and sophisticated program. Not only was the map displayed but beside the map was a "window" in which the common names of plants was displayed in alphabetical order; in another "window" was shown the blooming dates and the botanical name of any plant selected; and finally the location of the plant on the map could be lighted. It was a highly successful effort to "display" the plants in the Gardens and to show their precise locations.

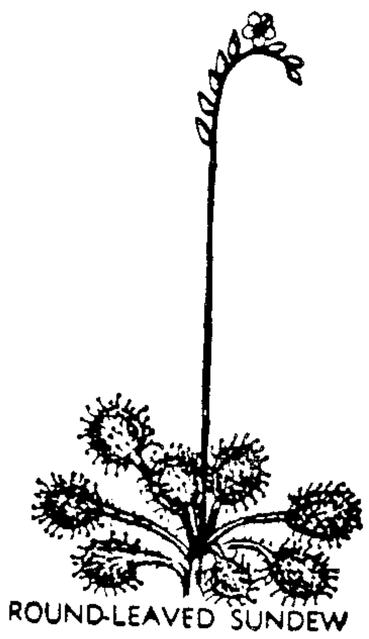
During the next several months I put the data into the computer basing its organization on the VASCULAR PLANTS OF THE CAROLINAS by Radford, Ahles and Bell. The data included the botanical names and common names of the plants, their blooming dates, their locations based on a grid covering the map so that each location had an x and y coordinate, and the sources of the plants if they were known.

This input of data was tedious and at times frustrating, yet it was also rewarding. The tediousness arose from the fact that each piece of data had to be entered precisely as it had been programmed and the slightest variation in sequence or punctuation would completely abort the program when I next tried to run it. The searching for such errors was a slow and frustrating part of the experience. The frustration was heightened by the fact that during the time I was inputting data the brand of the computer was changed four times with accompanying changes in commands. But through it all the gradual accumulation of data, its storage and ease of retrieval and the ability to display the precise location of a plant on the map made it all very rewarding.

The presence in the Gardens of 728 species, 427 genera and 129 families is the result of the work over the years of many dedicated volunteers. Ahead there is the challenge of adding to the collection to make it more nearly a complete representation of the plants of the Southern Appalachians and the Southeastern United States and to make their display readily available through the use of the computer.

HIGHLIGHTS OF SUMMER . . . . . .

ANNE ULINSKI
recorder



As June began, the pink-shell azaleas on Pilot Mountain, the lady's slippers at Kanuga, the trilliums, the violets, the anemones, the bellworts together with the cool days of spring faded into our memories and the hot, dry summer began. There were few respites, but we continued to search for plants, preferably in high places.

So we went to Richland Balsam, and to Craggy Gardens. We went to Big Butt where we found Indian paintbrush, wild geranium and the yellow Clintonia (Clintonia borealis). As we drove up the gravel road and through the gates to the tracking station on Sugarloaf Mountain we saw goat's-beard, wild yam, fawn's breath, spiderwort. We drove to Roan Mountain to search for and find Gray's lily (Lilium grayi), the white cinquefoil (Potentilla tridentata), the rare Robbin's ragwort (Senecio robbinsii) and Mitchell's St. John'swort (Hypericum mitchellianum).

Ben Tullar and Bud Pearson took 23 of us to Daniel Creek where some old favorites were spotted: Yellow star-grass, enchanter's-nightshade, sabatias or marsh pink, and Deptford pink. The woods were delightfully cool the day we went to Bear Pen Gap. The area near the trail had been burned out by a forest fire a few weeks earlier, but a back-fire had protected the trail itself including the numerous plants of umbrella leaf with their leaves grown to an enormous size. At the top of the trail, as we came out into the high meadow, we walked through a field of phlox in full bloom to a rock outcrop where we had our lunch.

In August, Bill Verduin and Ivan Kuster took us on a day trip to the Black Camp Gap area which included Heintooga and the meadow near the Masonic Monument. We saw the rare Rugel's ragwort (Senecio rugelia) at Heintooga, and open fields full of wildflowers at the meadow beyond the Masonic Monument. Again we found the orange-fringed orchids although not as numerous as the previous year.

Those who were fortunate enough to tour the N.C. Mountain Horticultural Crops Research Center, heard Dr. Stewart Warren speak about herbicides, ground covers to control erosion, and research projects in progress at the Center. There was a tour of some of the experimental plots, and lunch in an air-conditioned conference room.

Then came the time for gentians, grass of parnassus, sundews and ladies'-tresses, and we drove to the Parkway to search for them. With Millie Pearson, we went to the rock cliffs across from Log Hollow Overlook, then to an area on Rt. 215 and finally to the rock faces past the Herrin Knob Overlook. Although the rocks were drier than usual, we found the plants we hoped to see, and many others.

The summer would not have been complete without the composites. We looked at hairy stems, glands on bracts, basal leaves (when we could find them) disc and ray flowers (fertile and otherwise), and struggled with the keys. If the words Helianthus, Heterotheca, Hieracium and Heliopsis made your head swim, you could close your book, step back to enjoy the profusion of gold and purple flowers, breathe in the cool air and be content to be in the Blue Ridge Mountains on a fine summer day.

PLANTS AS INSECTICIDES..... Elton Hansens

For centuries, some plants or parts of plants -- roots, leaves, stems, flowers, or seeds -- have been used against insect pests. Only in the present century have the actual toxic chemicals in plants been isolated and their chemical structures determined. In a few cases these toxic chemicals have been used either as ground up plant parts or as extracts of the toxic chemicals from the plants. These botanical insecticides became commercially available and were used for controlling insects in agriculture or specialty products such as household fly sprays. Commercial products came from six plant families and are nicotine in Solanaceae, pyrethrum in Asteraceae, derris and cube in Fabaceae, hellebore in Liliaceae, and ryania in the tropical Flacourtiaceae. Only pyrethrum is used in appreciable amounts today.

Pyrethrum, extracted from the dried flowers of Chrysanthemum cinerariaefolium, is a highly effective contact insecticide used in sprays or aerosols against aphids, houseflies and other pests. Pyrethrum breaks down quickly in sunlight and has very low toxicity in mammals. The crop is labor intensive for flowers must be harvested by hand when they have maximum pyrethrum content.

For nearly 30 years chemists sought to identify the insecticidal constituents of the flowers and, finally, isolated four related compounds which are insecticidal, namely, pyrethrin I, pyrethrin II, cinerin I and cinerin II. Of these cinerin I has the simplest structure. Following this break-through, chemists succeeded in synthesizing a safe and stable related compound which they named Allethrin. By 1951 Allethrin had reached the market and 10,000 lbs. of it was used in aerosol bombs.

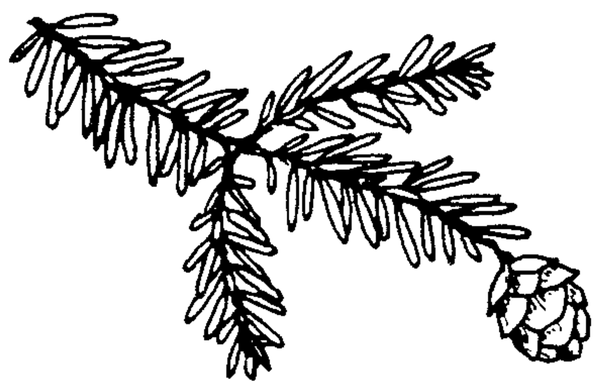
This success stimulated research for other related compounds and a number were synthesized. Among them was Resmethrin which has longer residual life and equal safety to Allethrin.

Hundreds of plants have been identified which have toxicity or repellency to insects. Most poisons are at concentrations too low for commercial development. However, plants find them useful as part of their arsenals against insects.

Some of the plants we in WCBC see regularly contain low levels of insecticidal compounds. These include ox-eye (Heliopsis helianthoides var. scabra), fly poison (Amianthium muscaetoxicum), bunch flower (Melianthium virginicum), hellebore (Veratrum album and V. viridis), Peruvian ground cherry (Nicandra physalodes), Virginia creeper (Parthenocissus quinquefolia), poison hemlock (Conium maculatum), and goat's rue (Tephrosia virginiana). Others recorded for North Carolina include crop plants such as pumpkin (Cucurbita pepo) and tobacco (Nicotiana sp.), ornamentals such as canna (Canna sp.) and castor bean (Ricinus communis) and trees and shrubs including China berry (Melia azedarach), American chestnut (Castanea dentata) and Hercules club (Zanthoxylum clava-herculis).

LOOK AGAIN !

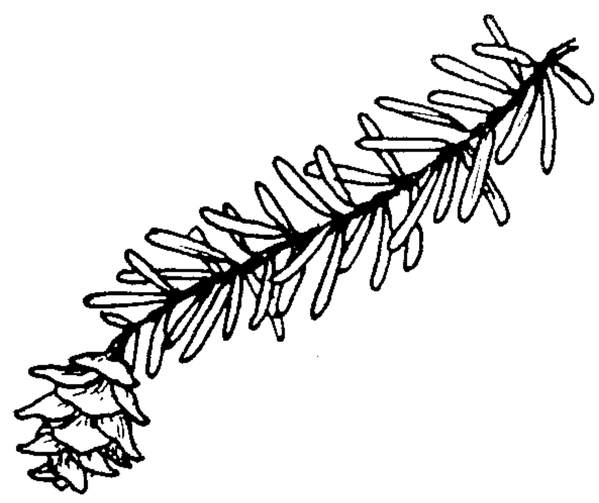
To most of us a hemlock is a hemlock, and if we don't push it too far we are correct. At least we learned long ago that the tea that did Socrates in was not made from the familiar evergreen tree but from a very different plant belonging to the Parsley Family--Poison Hemlock, or Conium maculatum.



T. CANADENSIS

It is, in fact, possible to brew a perfectly harmless tea from the needles of a hemlock tree, and although it is claimed to have a high Vitamin C content it can hardly be recommended for pure enjoyment unless one happens to like the taste of Christmas trees.

Actually, there are more than a dozen species of Tsuga, or true Hemlock (unlike most generic names, which are derived from Greek or Latin, this one is Japanese). Of the two in our area, Eastern Hemlock (T. canadensis) is by far the more widespread, extending all the way into southern Canada. It is the one best known to us, a graceful, bluish-green tree with feathery, softly drooping branches. The individual needles are flat, and although they are attached spirally to the twigs they are twisted at the base so that they extend outward in two opposite ranks, except for a few that lie upside-down along the top. The cones of Eastern Hemlock have thin woody scales and are quite small, seldom exceeding three-quarters of an inch in length.



T. CAROLINIANA

Confined to the mountains of North Carolina and adjacent states, and nowhere abundant, is the Carolina Hemlock (T. caroliniana). It is a brighter green in color, and the needles, which are longer than those of Eastern Hemlock, project from the twig in all directions instead of lying in flat sprays. The cones are an inch or more long, with scales that spread widely at maturity.

Dick Smith

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S H O R T I A

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