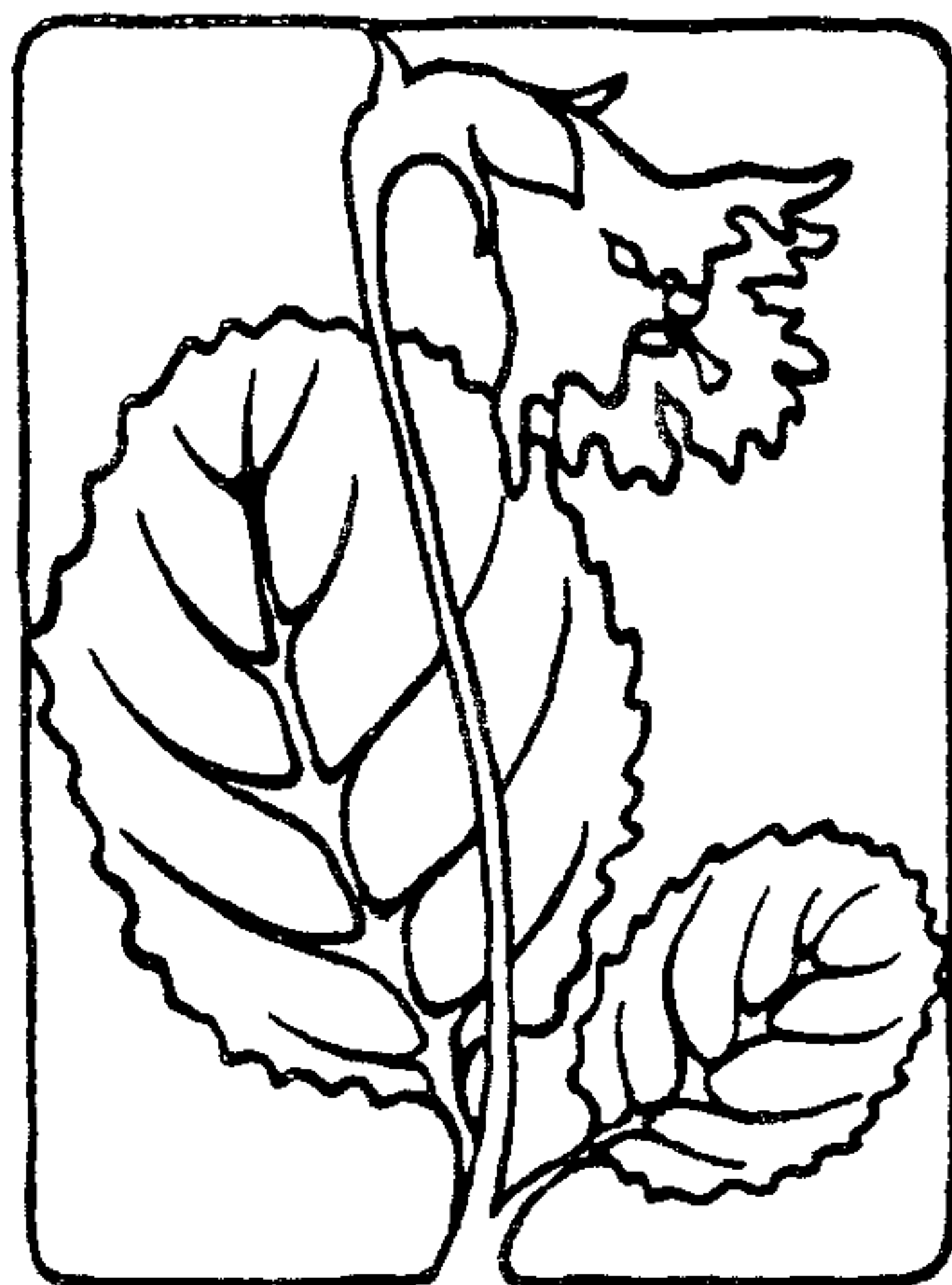


# SHORTIA

NEWSLETTER OF THE  
WESTERN CAROLINA BOTANICAL CLUB

SUMMER 1988



DOROTHY RATHMANN, Editor

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

It is with deep regret that I must announce the resignation of Millie Blaha as Editor of SHORTIA. Her all too brief term as Editor gave abundant evidence of her talent as editor and writer. And her willingness to serve as both President and Editor concurrently bespeaks a deep devotion to the Botanical Club. For all you have done, Millie, many, many thanks from all your friends in the Club.

And on the other hand, as the saying goes, it is with great pleasure that we welcome back Dorothy Rathmann as Editor of SHORTIA. Dorothy assisted Helen Turner for many years and then served as Editor for a year upon Helen's retirement, so she comes to the job "with experience and proven ability." We are grateful for her willingness to serve the Club in this capacity and look forward to many good issues of SHORTIA.

Dorothy would be quick to add that SHORTIA will be only as good as the members make it. She welcomes suggestions and contributions. Do give her ideas for articles or features you would like to see in SHORTIA -- and write something yourself that you think worth sharing with the Club.

**Reminder** -- as if any of us really needs one -- at least not about the day at Holmes, June 24! Everybody come! Bring food and a healthy appetite -- leave your diet at home. There will be hikes in the morning and lots of time for fellowship. Our Club seems just as adept at finding topics for conversation as for finding plants in bloom. Fun for all.

Anyone planning to spend some time in New England this summer may want to consult the 1988 Schedule of Programs and Events put out by the New England Wild Flower Society. Looks like many interesting one and three day trips similar to our outings but in a variety of ecosystems unlike ours.

**HELP!.....Elton Hansens**

The WCBC slides and script on Spring Flowers were loaned to someone and have not been returned. This is the duplicate set of the slides presented to Holmes Educational State Forest several years ago. I erred in making no record of the borrower. Will the person who has the slides please contact me?

**HAZELNUT SEEDS NEEDED.....Augie Kehr**

Eastern Filbert Blight, caused by the fungus Anisogramma Anomala, threatens the hazelnut industry in Oregon's Willamette Valley where 99% of the U.S. crop is produced. The disease is similar in many respects to Chinese Chestnut blight and is just as devastating.

Seeds from Corylus americana (American hazelnut) and Corylus cornuta (beaked hazelnut) are needed -- 25 seeds from each of 3 shrubs per location should be collected. Seedlings will be grown from these.

When nuts are formed on the hazelnut shrubs late this summer, if you can collect them, please send them to: Shawn A. Mehlenbacher, Dept. of Horticulture, College of Agriculture Sciences, Corvallis, Oregon 97331-2911.

**MEMORIAL TO HARVEY KROUSE.....Elton Hansens**

Verna Krouse has presented the following books to the Henderson County Public Library in memory of her husband:

- Luer, Carlyle A. THE NATIVE ORCHIDS OF THE UNITED STATES AND CANADA. (A beautiful and detailed treatment of the subject.)
- Rost, Thomas L., M. G. Barbour, R. M. Thornton, T. E. Weier, and C. R. Stocking. BOTANY, A BRIEF INTRODUCTION TO PLANT BIOLOGY.
- Justice, William S., and C. Ritchie Bell. WILD FLOWERS OF NORTH CAROLINA.
- Newcomb, Lawrence. NEWCOMB'S WILDFLOWER GUIDE. (A very popular book with WCBC members.)
- Miller, Orson M., Jr. MUSHROOMS OF NORTH AMERICA.
- Headstrom, Richard. NATURE DISCOVERIES WITH A HAND LENS.
- Elliot, John M. BOTANY. (Paper-back; 2 copies.)

We appreciate Verna's generosity and would like to see others enlarge Botany holdings in the Library.

**A QUIET WALK.....Elton Hansens**

Can you imagine 25 members of WCBC walking a trail for twenty minutes without a word being spoken? Such was the wonder of the "quiet walkway" on the Cades Cove Road in the Smokies. When we started the trail our leader requested that we try a new experience and walk quietly without a word and look and listen -- listen to the voices of the birds and the stream and enjoy the flowers and the trees. This we did and as we walked the trail, even our footsteps became silent and we revelled in the peace and calm, and in the beauty of the "quiet walk." We must do this again in the right place and at the right time.

The Smokies trip was at the peak of the Spring floral display both in kinds of flowers and in the sheer numbers of many species. Bill Verduin certainly selected the best dates and places for our trip; Cosby, Little River Trail, Little River Road, Chestnut Top Trail, and Chimney Tops Nature Trail revealed nearly 90 species in bloom. Cades Cove was an interesting historical place; on an evening trip we saw 200 to 300 deer. Bill Verduin and Elton Hansens were co-leaders.

**ABBREVIATED VERSION OF CADE'S COVE OVERNIGHT.....Ruth Mack**

Leadership/Organization: Flawless!  
Area visited: **Awesome!**  
Weather: Perfect!  
Flowers: Spectacular! Super-abundant!  
Lodging: Spacious (each with refrigerator)!  
Participants: Enthusiastic!

If you think I had a **fantastic** time, you're right!

THE INGENIOUS PLANT: Methods of Propagation.....Bessie Sinish

The world in all seasons is clothed with flowers -- the result of propagation. Plants perpetuate themselves and multiply in two ways: sexual (by seeds and some kinds of spores) and asexual (by vegetative parts). Sequencing of events is under genetic control with the DNA molecule in the cell nucleus acting as a sort of "Biological Clock" governing the events of sprouting, blooming, and propagation.

Plants may be annuals, biennials or perennials. Most **annuals** germinate from seeds, blossom, produce seeds and, then, completely die down in one growing season. A **biennial**, in the first year usually, produces a rosette of leaves and a fleshy root which acts as a reserve for over-wintering; in the second year it flowers and then dies out completely. **Perennials** under normal conditions live through many growing seasons and produce seeds each year; they can survive the winter on food stored in specialized underground stems.

The greatest spendthrift of all times is Nature, producing thousands of seeds -- yet only a few germinate having landed on spots compatible with their needs. Mature seeds are dormant and contain enough stored food for sprouting. Depending on the species and the immediate environment, seeds remain viable for a few months to many years. Dormancy ends (sprouting starts) under conditions of favorable moisture and temperature when other requirements such as light, the removal of chemical inhibitors and rupture of the seed coat have been met.

Nature in her ingenious way ensures continuous growth of some plants by underground stems/roots. These anchor the plant in the soil, absorb water and minerals, conduct nutrients to the upper stem and leaves, and may serve as food storage receptacles for over-wintering. Such stems/roots may be rhizomes, tubers, corms, bulbs, stolons, tillers, or suckers.

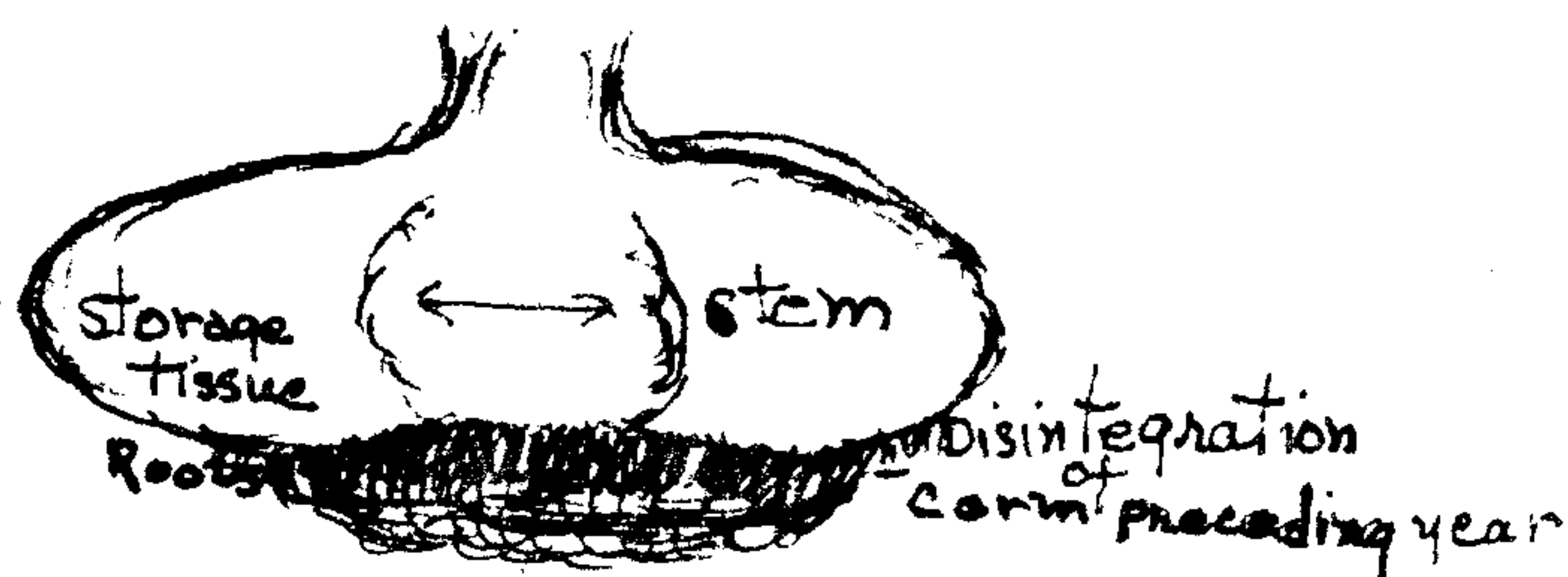


RHIZOME

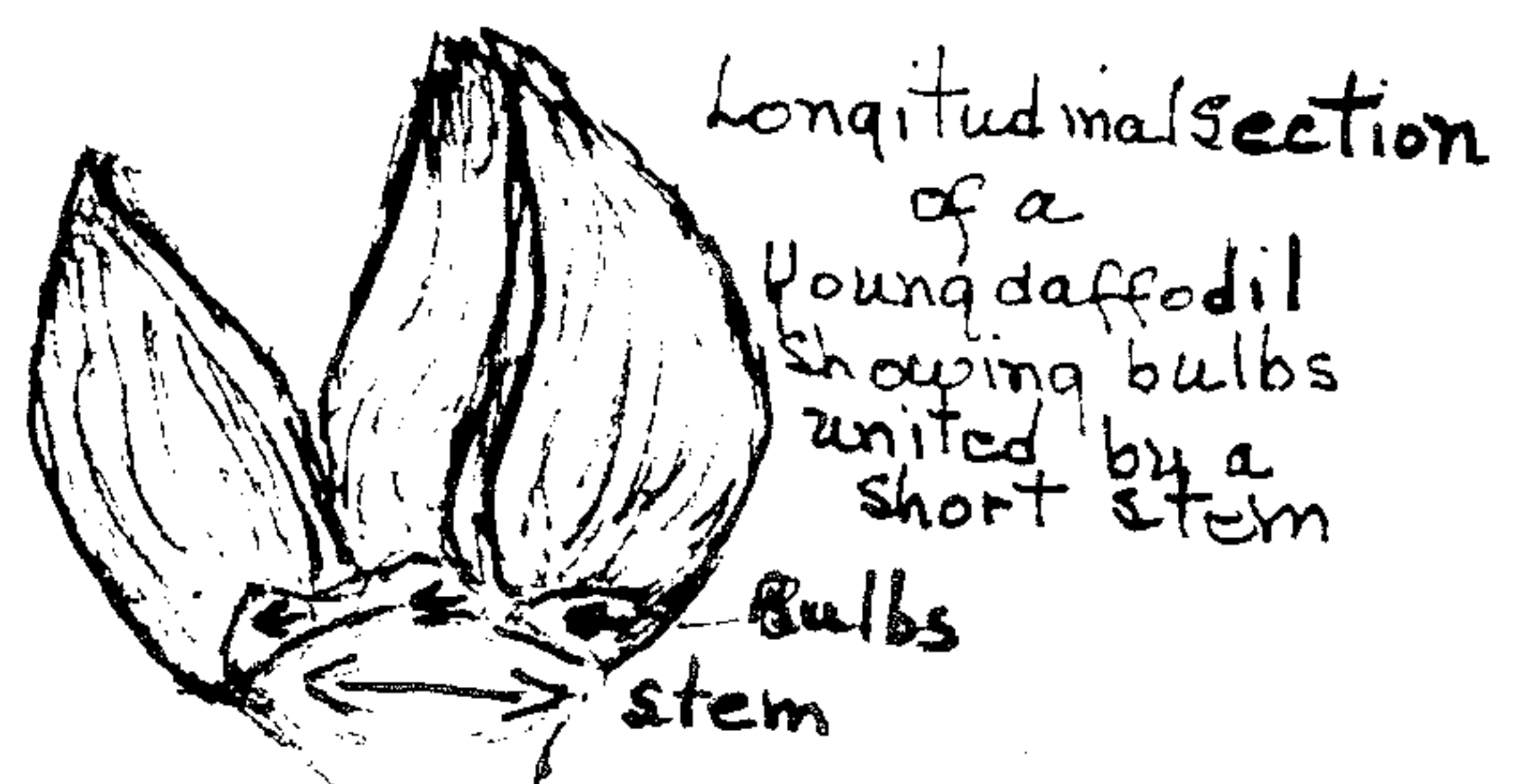


TUBER

The **rhizome** of plants such as iris, wild ginger, Solomon's seal and fern is an elongated underground stem; stems grow from the upper side and roots grow from below. Many trilliums have a short rhizome and grow from the tip. The **tuber** is an enlarged portion of a slender rhizome. It has small scale-like leaves (tiny buds) known as eyes or nodes that produce new plants; these eyes or nodes are nearly surrounded by starch. Potatoes, Jerusalem artichoke, heliantheses, tuberous begonias and Boston fern are examples.

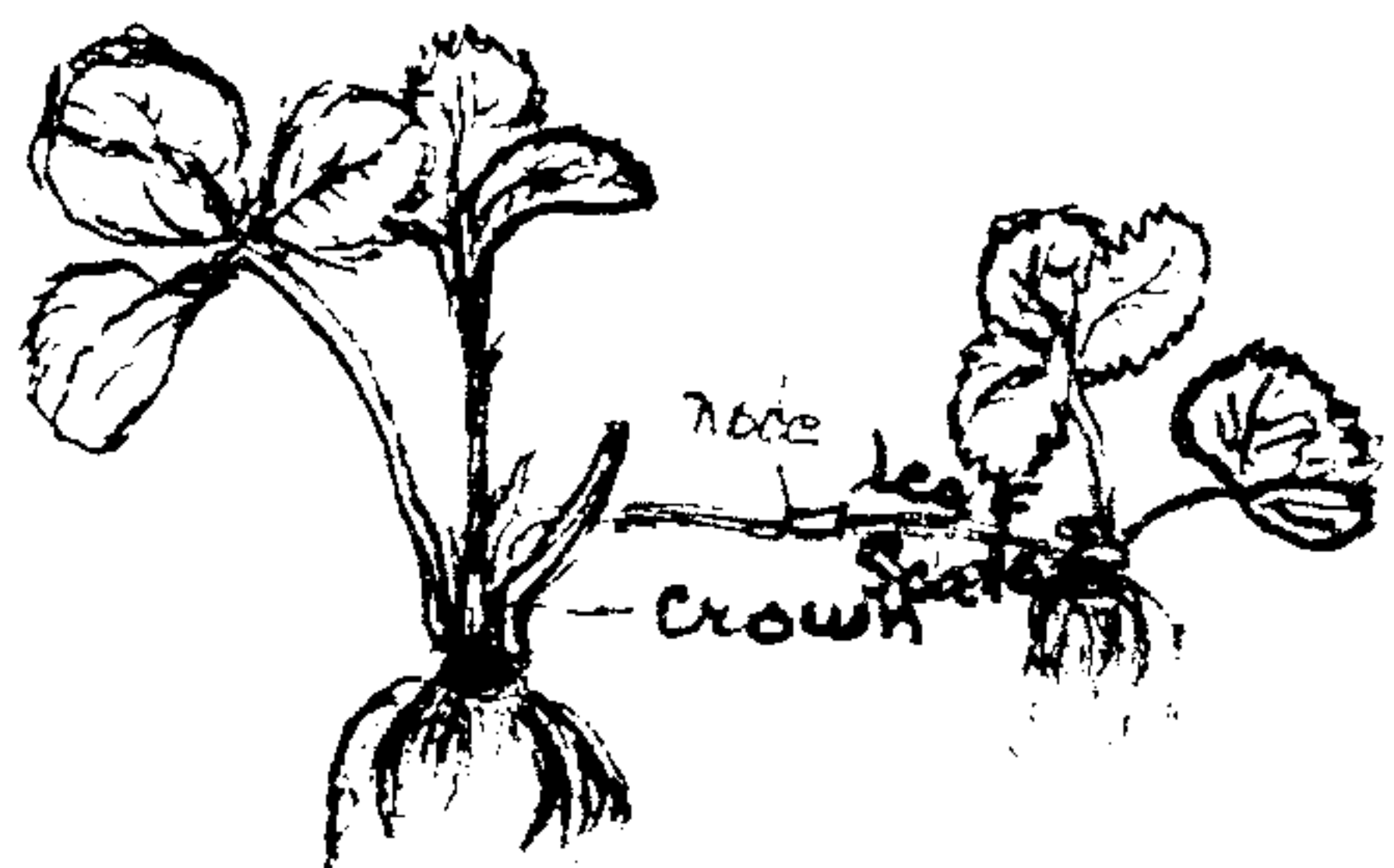


CORM



BULB

A short, solid vertical enlarged underground stem in which food is stored is called a **corm**; examples are gladiolus, crocuses, and Jack-in-the-pulpit. A **bulb** consists of a short conical stem bearing several concentric layers of fleshy modified leaves (as in an onion or daffodil) and is essentially a large bud containing considerable stored food.



**STOLON**

Some plants propagate by stems running along the surface of the ground such as **stolons** or **tillers**. Strawberries and Bermuda grass are in the first category. As the stolon creeps along the ground a node forms from which shoots and roots develop; in the Bermuda grass runner this takes place at every node while in the strawberry runner it occurs at every other node. In tillering, a stem grows laterally and roots at a joint; here a lateral bud forms at the base of the node as, for example, in grasses and cereals. Another type of runner is a **sucker** which runs underground; it has stem-like roots with nodes that spread out around the main plant and produce many upright plants such as a clump of knotweed.

There are three primary factors for successful propagation: water, energy, and light. All are essential for normal growth and development. The amount of water that a growing plant requires is astonishing. A young oak tree scarcely thirty feet tall can lose up to thirty gallons of water in a single hot summer day. This has to be made up from water in the soil, drawn into the tree by roots. Multiply this by the needs of all our vegetation!

Energy within the cells is derived from respiration -- the oxidation of food (for example, the sugar glucose) within the cells of living organisms, plant or animal. The starch stored around embryos in seeds or in underground stems is a polymer of glucose which is converted by enzymes back to glucose needed for growth and development.

Similarly, light is necessary as one stimulus for the termination of dormancy and through the process of photosynthesis in green plant tissues, for the formation of glucose/starch.

Also necessary for the development of a plant are hormones which act in regulating growth, cell division, stem elongation, and ripening processes. Environment is involved in maintaining genetic continuity as each species utilizes a specific part of its environment, its niche. The plant whose seeds are scattered does not always propagate "true" to the parent plant, while the plant which propagates by vegetative parts usually assures its genetic continuity.

Admittedly, the word "ingenious" -- meaning inventive, creative, inspired -- was originated by man who applied it to himself. Man has a nervous system, marvelous muscle coordination and the ability to reason but has never been able to manufacture the raw materials upon which his life depends. The vegetable kingdom, which existed long before man, is the source of oxygen, sugar, cellulose and many other vital products and has the means to produce and reproduce these materials by mechanisms not yet fully understood. To me, plants deserve the designation "ingenious."

VIOLETS .....Anne Ulinski, Recorder

For many of us spring means violets, the plants we admire but hesitate to identify. I've noticed this spring that although some are trying to identify the plants, others are throwing up their hands and saying, "Even the experts don't try".

Suppose you could identify 14 species of violets? Would you consider that a good step (maybe a final step!) in violet identification? Here is a list of 14 found in our area with a system for naming them. Concentrate on two observations: (1) Color and (2) Whether the leaves and flowers are on the same stalk, or whether the leaves and flowers are on separate stalks. Except for the uncommon three-parted violet (*Viola tripartita*) we have identified all of these on our outings this spring.

YELLOW VIOLETS

Leaves and flowers on the same stalk:

- Smooth yellow            *V. eriocarpa* var. *leiocarpa*\* (Leaves ovate)
- Halberd leaf            *V. hastata* (Leaves triangular, taper pointed)
- Three-parted            *V. tripartita* (Leaves divided into 3 parts, not common)

Leaves and flowers on separate stalks (Only one in our area!):

- Early yellow            *V. rotundifolia* (Leaves round)

WHITE VIOLETS

Leaves and flowers on the same stalk:

- Canada            *V. canadensis* (Flowers white, often purple on back, yellow bearded)
- Confederate        *V. papilionacea* var. *priceana* (Grey white flowers)
- Creamy            *V. stricta* (Flowers creamy, lower petal purple veined)
- Field pansy        *V. rafinesquii* (Small bluish white flowers)

Leaves and flowers on separate stalks:

- Primrose-leaved        *V. primulifolia* (Small flowers, egg-shaped oblong leaves)
- Sweet white            *V. blanda* (Small flowers, rounded heart-shaped leaves)
- White form/common blue    *V. papilionaceae* (Large flowers, heart-shaped leaves)

PURPLE/BLUE VIOLETS

Leaves and flowers on the same stalk:

- Long-spurred            *V. rostrata* (Spurred petal 1/2 inch long)

Leaves and flowers on separate stalks:

- Bird's-foot\*\*            *V. pedata* (Leaf blades deeply cleft, dry places)
- Swamp blue            *V. cucullata* (Flowers overtop leaves, wet places)

There are other purple/blue violets with leaves and flowers on separate stalks found in our area, but these tend to hybridize and are more difficult to identify. Ricketts writes: "It has been said there are no true species in this group, but that all form one vast and heterogeneous species."

\* Formerly called *V. pennsylvanica* var. *leiocarpa*

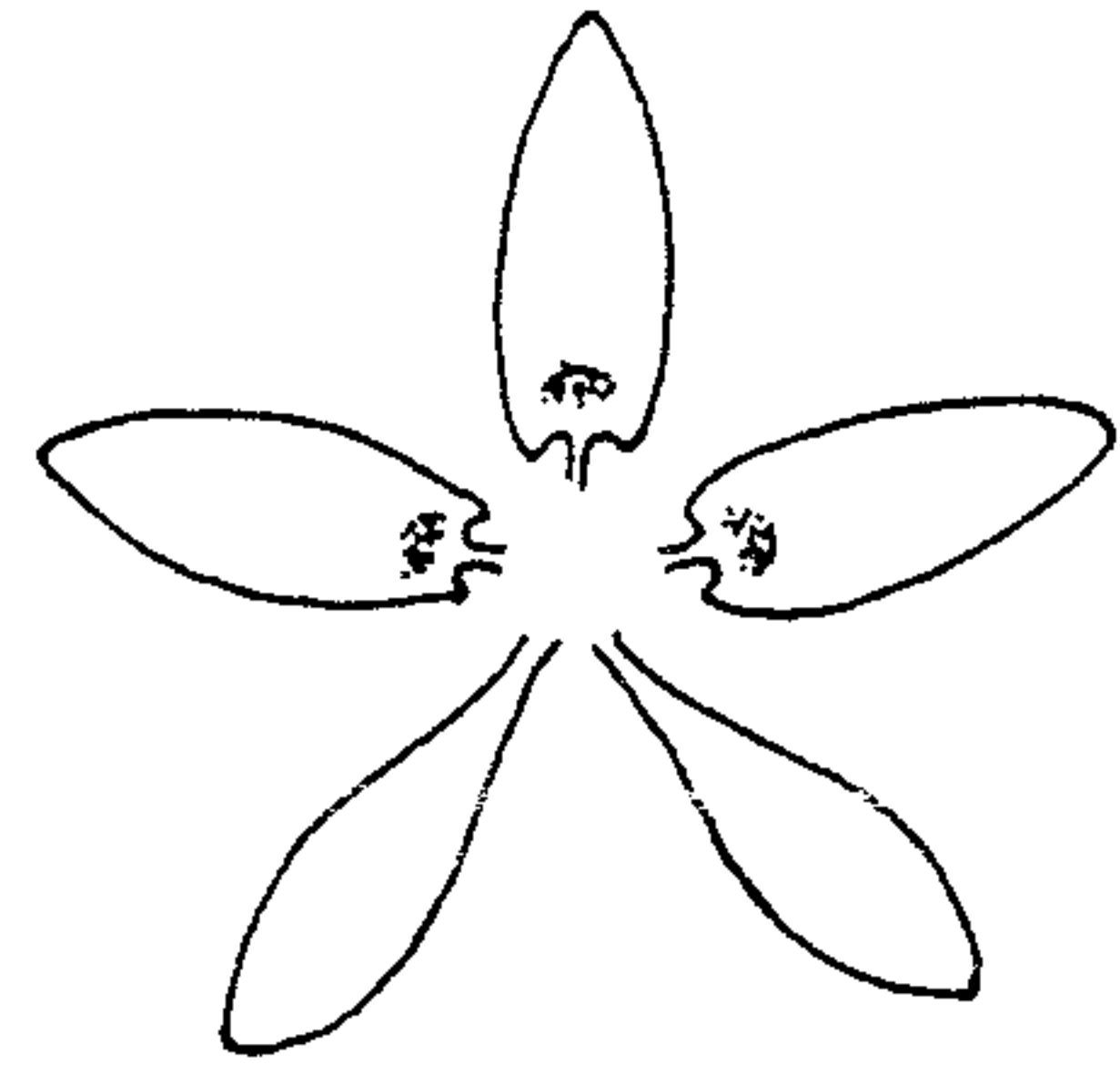
\*\* Sometimes called the queen of all violets

Note: The species shown above all grow in our area according to "Manual of the Vascular Flora of the Carolinas", Radford, Ahles and Bell, 1968.

# LOOK AGAIN !

Numbering about 300 species, the Saxifrages encircle the northern hemisphere inhabiting for the most part cold and mountainous regions. Here in the Southern Appalachians we can lay exclusive claim to a couple of handsome members of the genus.

• Mountain Saxifrage (Saxifraga michauxii) is probably the more familiar of the two. It grows from cracks in rocky ledges and on seepage slopes, but also spreads profusely on some grassy balds. Each plant emerges from a rosette of coarsely-toothed basal leaves which often assume a rich crimson hue. The myriad flowers, borne in a large diffuse panicle, form a cloud of misty white when seen from a little distance. They must, however, be examined closely with a hand lens to be fully appreciated--and to be distinguished from our other species. As shown by this diagram, they are zygomorphic (irregular) in form: the upper three petals are clawed and bear a yellowish gland near the base, whereas the lower two are spatulate and unmarked. The delicate beauty of these blossoms is enhanced by the ten stamens radiating from the center, each of which is tipped with a brick-red ball-shaped anther.



The other species is S. micranthidifolia, called Brook Saxifrage because it is so often found near running water. One of its favorite stances is on a moss-covered boulder in the middle of a tumbling mountain stream, another is among spray-drenched rocks at the base of a waterfall. Brook Saxifrage is a somewhat taller plant with more elongated leaves. The flowers are similar to those of S. michauxii but with the diagnostically importance of being actinomorphic, or regular, having all five petals clawed, yellow-spotted, and of the same shape.

Much more rare in the western North Carolina mountains are S. careyana (another southern endemic) and Early Saxifrage (S. virginensis), which is common throughout most of the piedmont province.

*Dick Smith*

S H O R T I A

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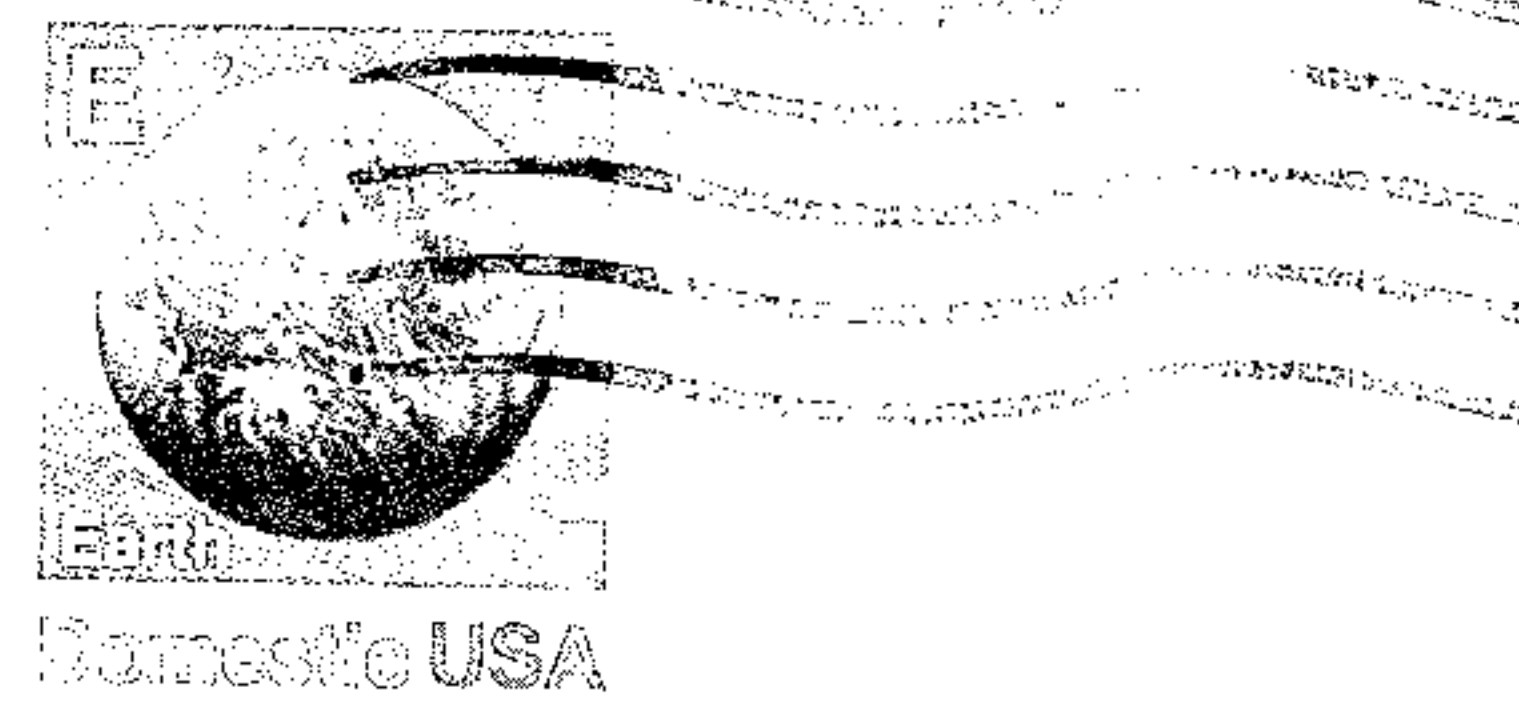
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