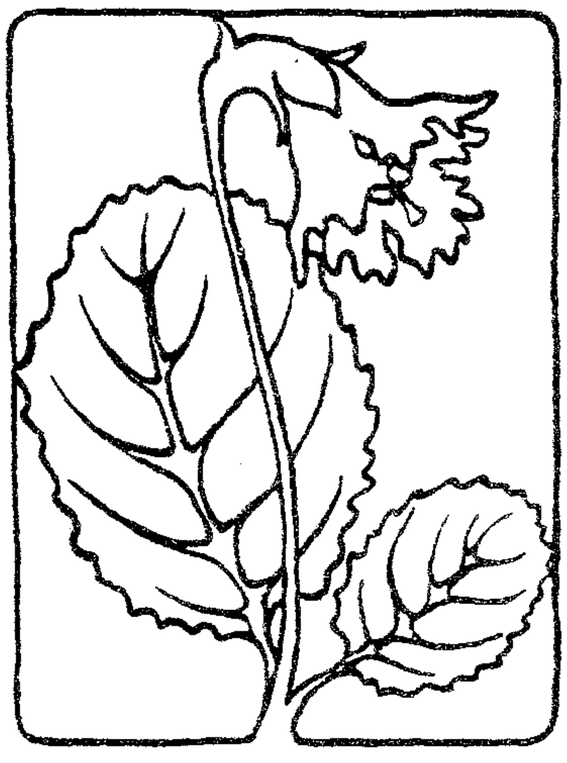
SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

AUTUMN 1983



HELEN TURNER, Editor

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President:	Dick Smith	Treasurer:	Margaret Kuhn
Vice President:	Sam Childs	Historian:	Louise Foresman
Secretary:	Margaret Canfield		

DID YOU KNOW?

Eagle-sitting isn't often on one's date calendar! In late July Tom and Barbara Hallowell had the delightful responsibility of tending the five young golden eagles caged before release on Tennent and Black Balsam Mountains. "We helped just two days," Barbara said, "but being a part of the project and experiencing dusk, night and dawn on the mountains as well as the familiar daytime scene was just plain wonderful -- with a full moon to top it all." The eagles are part of the NC Eagle Restoration Project. It is hoped they will return to nest in the area where they fledged.

If you have missed seeing them on some walks, Bruce Leech and George Oldham have been volunteers, helping maintain the Appalachian Trail in Pisgah National Forest.

Sam Childs, president of the local Rock Garden Society chapter, and other WCBC members checked out trails and were otherwise active in preparing for the American Rock Garden Society's fiftieth convention to be held in Asheville next year.

It is with sorrow that we report the death of Mrs. Shinn. Many of us have guided visitors through the beautiful Shinn gardens, where we were always greeted with warmth and cordiality. Our deep sympathy goes to Mr. Shinn.

Among the many classes during the last week of June at the National Wildlife Federation Summit at Blue Ridge Assembly in Black Mountain were ones on native ferns by Barbara Hallowell. She also led fern walks and, for the opening night feature, presented her program, TIME TO WONDER.

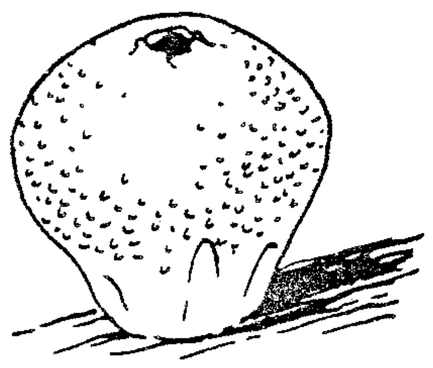
WELCOME -- NEW MEMBERS
Hendersonville unless otherwise stated

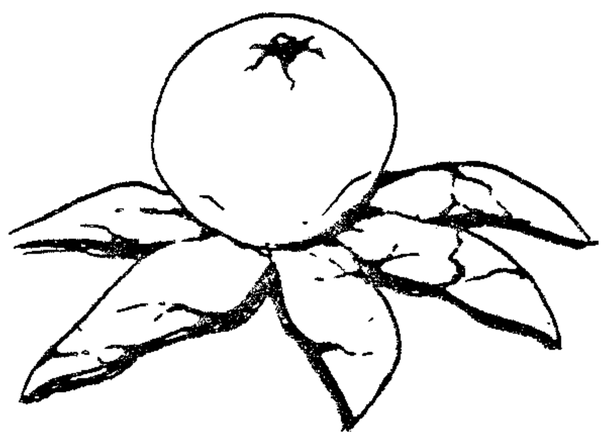
Allen, Dwight & Minnie, 107 Yardley Court.....692-2329
Boyd, Dr. Howard & Mrs., Route 4, Box 292, Brevard 28712....
Deskin, Richard & Elsie, 123 Turkey Run, Route 1,
Sherwood Forest, Brevard 28712.....
Kent, Sam & Ann, 25 Oakwilde Drive, Asheville 28803.....684-6469
McEver, Marie, Route 4, Box 346.....693-4425
Saby, John & Mary, 8 Tamarac Terrace 891-9509

LOOK AGAIN !

Of all the variously-shaped fungi, few are more fascinating than those whose spores are contained inside of spherical fruiting bodies. They belong to the Order Gasteromycetes ("stomach-mushrooms"), and it is tempting to lump them together loosely under the name "puffball". Identification of species can be tedious, and it will be enough here to differentiate between four common genera.

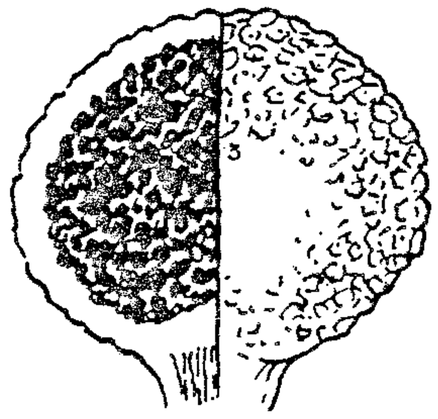
Lycoperdon is one genus of the true puffballs, which are stalkless and have a thin shell often covered with fine granules. Illustrated is L. pyriforme, light tan in color, growing on wood. It is filled with a soft, white fleshy spore mass (gleba) which at maturity changes to a fine, dry brownish powder, and this is ejected through a pore which opens at the top. (True puffballs are edible, but there is not enough space here for noting the precautions one should take against misidentification).

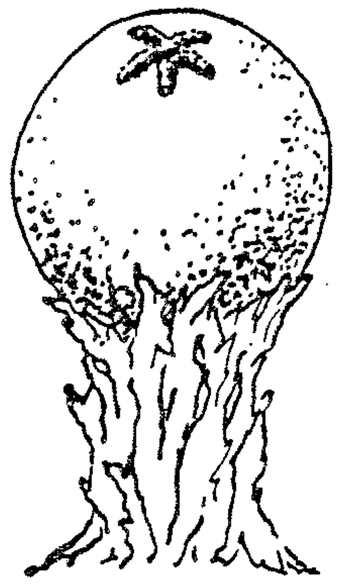




Now picture a puffball sitting on a star-shaped cookie, and you have an approximation of an earthstar, or Geastrum. These have two walls the outer of which splits evenly into rays and curves downward. The spores are then released through a rupture in the inner wall. Some earthstars have hygroscopic rays - i.e., they not only open and prop up the spore sac in wet weather, but close back over it when dry.

A third type is the earthball, or Scleroderma, which has an outer wall that is warty and, as the name implies, hard. It also is thick like that of the earthstar, but splits irregularly rather than into symmetric lobes. In immature earthballs the gleba is purplish, never white as in the true puffballs.

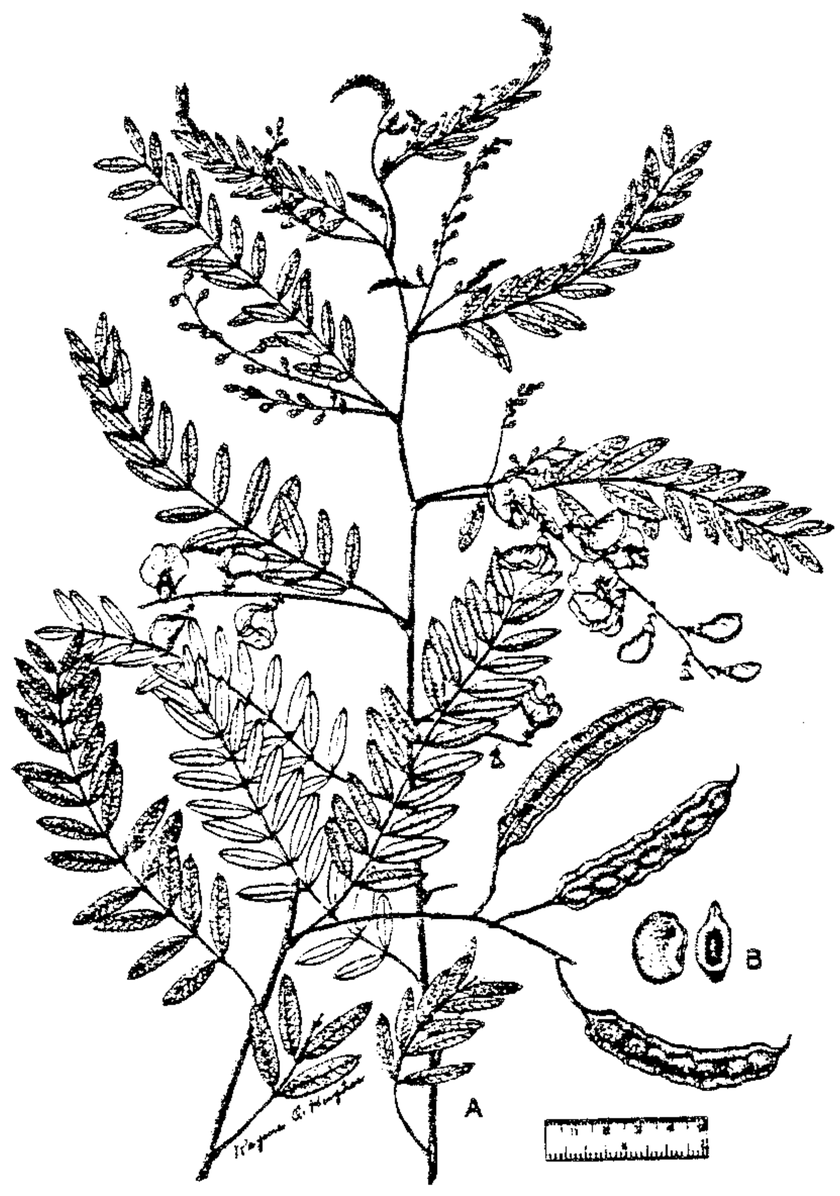




The stalked puffballs include a very unusual species, Calostoma cinnabarina, which is common along woodland roadbanks. Its outer covering is actually a translucent amber jelly. After this sloughs off, the thick stalk takes on the appearance of dry sphagnum moss. The exposed "ball" is tawny orange, topped by an asterisk made up of raised red welts. These ridges eventually break open, allowing the spores to escape.

Dick Smith

CANCER INHIBITOR FOUND IN NORTH CAROLINA PLANT



Seeds of a plant that grows in North Carolina and six other States, called coffeebean, rattlebox and other common names, has been found to contain a potent cancer inhibitor according to a report at the March 24, 1983 American Chemical Society Symposium.

The plant, Sesbania drummondii, is a legume. It produces sesbanimide which demonstrated antitumor activity "at exceptionally low dose levels" in mice with leukemia. Sesbanimide also was demonstrated to inhibit cells of human carcinoma growing in cell cultures in Cancer Institute assays. The extract from this plant resembles an antibiotic produced by soil bacteria. Its chemical structure has a relationship to cycloheximide, which in turn is produced with streptomycin by soil bacteria. The research was done by a team from the U.S. Department of Agriculture, Purdue University and Cornell University.

Sesbania drummondii grows in several southern States in ditches, waste places, fence rows in the coastal plain area. A related plant, Sesbania exalta, grows further inland, almost to the mountains. (This is not the "rattlebox" we have seen on our walks.)

August E. Kehr

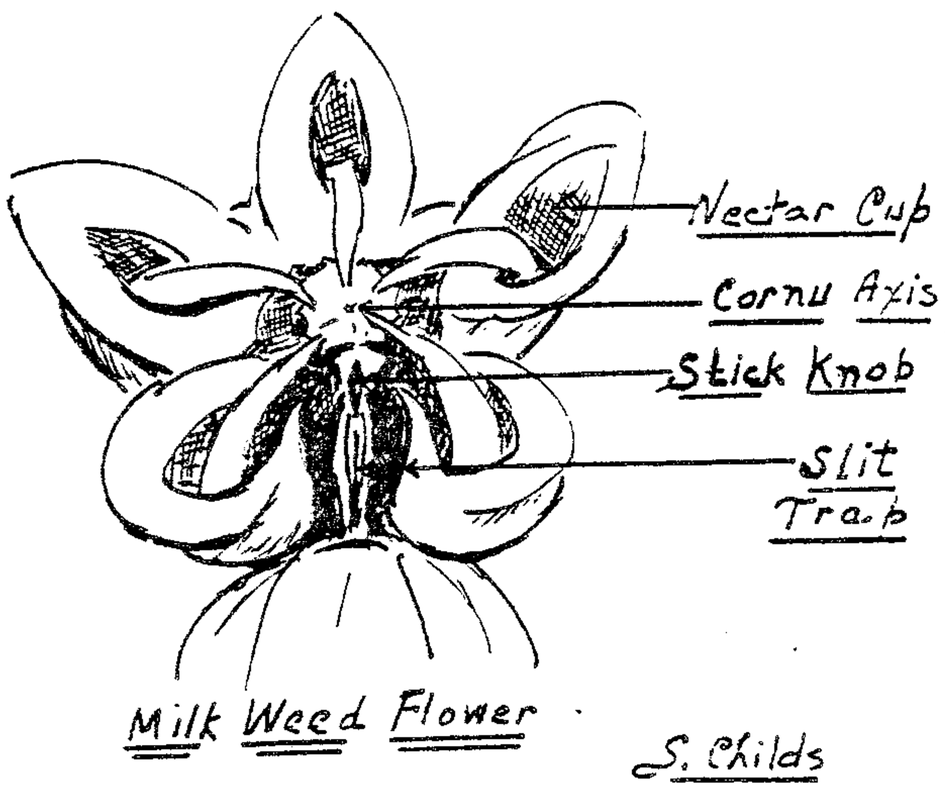
A COMMENT FROM OUR PRESIDENT, DICK SMITH

Ever stop to think how many of our activities take place in National Forests, on the Blue Ridge Parkway, or other National Park lands? Certainly, enough for us to take a serious interest in protecting these facilities from wildfire, vandalism, crime and related problems. Each Service has instituted a program -- similar to "Community Watch" -- for confidentially reporting suspicious or illegal activities. Put these telephone numbers in your wallet or pack; then, as soon as you reach a telephone, call in the location of the incident, description of people involved, license numbers of vehicles, etc.:

FOREST WATCH (Toll-free)	1-800-222-1155 (Any time day or night)
PARK WATCH (Call collect)	704-258-2850, Ext. 701 (Monday - Friday, 8 AM to 5 PM) 704-258-2808 (Weekends and Holidays)

POLLINATION AND THE MILKWEED FLORAL TRAP

Cross fertilization by wind or insect contact is familiar to the botanist. Less so, is a trap to insure cross pollination. At the "Look-See" display at the Hallowell's we could see the narrow trap slit on the sides of the central cornu axis of the milkweed flower. Inside, not visible, and towards the center, hidden pollen bags and ovules of limited number were awaiting ripe pollen to arrive and complete the fertilization process. The pollen sacs pressed tightly to the innermost ovules develop at different rates, so that it is necessary that the contained sacs be removed to allow ripe sacs to be inserted. This means that the slit trap has to be used twice.



To attract insects to remove and insert pollen bags, odors secreted in cups develop. These cups are highly polished and, as the insect descends, it slips and tries to work its way upward. In so doing, legs thrash and, sometimes, push into a slit trap. Note in the sketch the "slit," cups and slick knob. Like a vise, the leg is held in place while the hooks and claws entangle on the threads or sides of the pollen sacs. When the insect escapes (occasionally it dies in the trap), it may become trapped again in another flower.

After removal, the pollen bags must be carried to a flower older and with more ovules ready for fertilization. In search of more nectar, the laden insect must once more be trapped and the pollen sacs thrust into the central cornu axis that has had its own pollen sacs already removed. Also the central area with its fertile ovules must have ready enzymes to dissolve the pollen sac walls. These enzymes also stimulate the pollen to grow and release its male nucleus near and into the egg cell. The frequency of fertilization is, in consequence, very low.

If you examine umbels that are fading, perhaps you may find only one or two flowers that have been pollinated. If this is the case, why so many seeds per pod? The answer is relatively simple: one fertilization equals one seed normally, but in the milkweed the fertilized egg immediately "clones" and thousands of duplicate embryos result. This is known as Polyembryony. In the Fall field trips, we can once more observe the drifting wind-blown seeds, each a precious clone of a single fertilization by an accidentally trapped, thirsty insect.

Miles L. Peelle

RAMBLINGS -- PEOPLE, PLANTS AND PLACES

Twenty-eight hikes made for a busy schedule these past three months. Despite the heat, we had an average of 25 people on the trips (12 trips under 20); 5 trips were cancelled due to rain. Every hike was most enjoyable and, on all, we saw many flowers. However, due to space it is possible to highlight only a few. One-flowered cancerroot, mountain meadow rue, umbrella leaf and lyre-leaved sage were special on the DANIEL CREEK TRAIL. Jeanne Smith, on the HORSE COVE TRAIL, noted the swamp pink, pink lady's slippers, primrose leaved violet and 4 species of trillium. On the DUPONT property the beautiful fringe tree was in full bloom as well as the lead plant, cudweed, cowwheat, marsh violet, Bowman's root and climbing fern. A beautiful day on the LOOKING GLASS ROCK TRAIL -- a lovely forest area and we all made it to the 4,000 feet top where the view was great! SHERWOOD FOREST with the Blahas provided many flowers in bloom along the various trails and afterwards a look at the wildflowers in the Blaha's garden.

The June covered dish supper at HOLMES STATE FOREST drew a crowd as always and was special since James A. Hurt, Environmental Education Ranger, screened the program "Spring Wildflowers of Holmes State Forest" and, on behalf of the N.C. Forest Service, presented the Club with a Service Award Certificate in recognition of its contribution of slides. He stated that the program had already been viewed by more than 2,000 persons.

On the CAT GAP TRAIL the spreading pogonia (Cleistes divaricata) was found. Twenty-two of us enjoyed the WAYAH BALD - BURNING TOWN GAP overnight trip. On arrival we were met by Mary Ann Lindley and friends, botanists from Franklin, who took us to Standing Indian Campgrounds for lunch and then led botanizing on the roads nearby -- the flowering azaleas were spectacular and there were many other flowers blooming. Back to the motel -- so sorry we disturbed that truck driver's (?) nap with our noisy happy hour! Dinner, a pleasant one at the Ristorante in town. The following day on the back-roads, along the Wayah Bald trail and deep into the forest the azaleas were blooming in profusion ranging from a peppermint-striped white, yellows, to bright red. Tassel rue, waxy meadow rue, yellow vetchling, wild indigo, bird's foot violet, and mountain saxifrage were seen, to name a few. In all a good trip botanically and otherwise, and we especially appreciate the assistance given us by the Franklin group.

There is always a profusion of flowers on the BEARWALLOW MOUNTAIN TRAIL: Deptford pink, black knapweed, bittersweet nightshade, wild yellow flax, cat's ear, downy skullcap, leather flower and Venus looking glass, to name only a few. ROAN MOUNTAIN is a special trip -- Gray's lily, white cinquefoil (tridentata), Robbins' ragwort, sheep sorrel, wild chervil and mountain sandwort (greenlandica) all in profusion -- with views lovely "on top of the world." Then, something new on which Barbara and Tom Hallowell spent much time and effort: a CLOSER LOOK around their cabin area; everyone participating found it most informative and enjoyable. Kudos to the Hallowells!

The spectacular display on the SHUT-IN TRAIL off the Blue Ridge Parkway was unexpected --a breathtaking view of hundreds, perhaps thousands, of Turk's cap lilies, whole hillsides of oxeye (false sunflowers), black snakeroot, and Joe-pye weed -- all in a profusion seldom seen! Along the Balsam and Camp Alice trails on MOUNT MITCHELL, the green wood orchis, cinquefoil (yellow norvegia), spinulose wood fern, climbing false buckwheat, angelica. On the BLUE RIDGE PARKWAY, the tall bellflower, silky swamp dogwood, blazing star (Liatris spicata) and field thistle.

The covered dish supper in HOLMES STATE FOREST in August was enjoyed by 45 persons, some 25 of whom took to the trails with Sam Childs leading the long and John Kuhn leading the short trail hikes. Afterward, Elton Hansens really interested the group with his presentation on "bugs" and other phenomena found in the forest nearby -- in all a good get-together. The LEARN AND SHARE session at Nan Morrow's home had 14 of us exchanging ideas, reports of new studies and their implications, research on liverwort, slime mold and accompanying growths one could see and discuss -- and about mycorrhiza, a symbiotic association of a fungus with the roots of a tree and now found to stimulate the growth of said tree -- something new which all seemed to find most interesting and worthwhile.

Louise Foresman, Historian

ADDITIONAL COMMENTS ABOUT A CLOSER LOOK

On July 18, Barbara and Tom Hallowell, assisted by Millie Blaha, at Hallowell's mountain cabin, gave 30 Club members the opportunity for a closer look. Each group of ten was rotated in the three different areas. It was a very interesting and unusual program and they are to be complimented for all the thought, time and preparation for the day.

Did you recognize the small pancakes stuck on sticks as mushrooms? Or the dollar bill wrapped around the stem of a weed? How about the Iris seed pods on a goldenrod stem, looking as if they belonged there? Surely, you wouldn't expect a "partridge" to be sitting in a dogwood? And there's a snake! That's no snake -- it's a coiled up strand from an arm-shoulder exerciser. Certainly that sea shell and the horseshoe crab didn't feel at home in the mountains of North Carolina. And how could a mimosa branch grow out of a hemlock? It can't be -- there's a butternut fruit growing on a locust tree. There were many, many other things to be found and identified that made the whole exercise fun for all.

I do not believe that anyone had the least trouble identifying the two jugs of punch and the large plate of cookies that were served as we enjoyed lunch on the spacious porch. Much credit is due to Barbara, Tom and Millie for the planning and execution of this interesting meeting.

S H O R T I A

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Please submit contributions for next issue by November 15