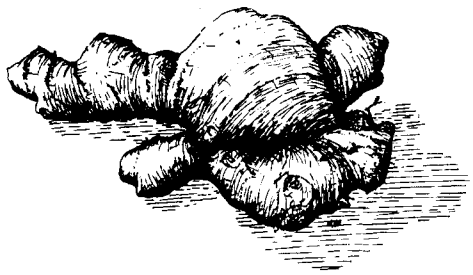
The Sewanee PLANT PRESS

Volume XI, No. 2 Newsletter of the Friends of the Herbarium Spring 2007

It's All in How (Closely) You Look at It



I was reading through a recent issue of *The Sewanee Plant Press*, enjoying an article on our native ginger (*Asarum canadense* L.), including some Doctrine of Signatures suggestions (basically the idea that a plant or plant part resembles some body part or function, and can therefore be used medicinally for the same), along with other medicinal and even "psychic" understandings concerning it and a sister species from the western U.S.

Mary Priestley, author of the piece as well as editor and contributing artist for this publication, went further afield with other members of the *Aristolochiaceae* (Birthwort Family), and even to a distant family closely related principally through common name. As I was reading along, I came across the common reference to the well-used part of our favorite tropical ginger, the ginger root of *Zingiber officinale* Roscoe. Only one problem, one that I'm all too familiar with—ginger "root" —is not a root, it's a stem.

I certainly couldn't fault Mary for this. Even the well-known game show *Jeopardy* has used this erroneous grocery store label, and on a Final Jeopardy question, no less, when the contestants are potentially wagering all the money that they've won on this one question. If I recall correctly, the question was about the biggest economic root crop on some Caribbean island, and the answer was "What is ginger root?" I almost wrote them then; however, I never got around to it. But that's another story.

Ginger "root" is a grocery store term, the structure in question actually being a rhizome, a type of modified stem. If you are an Iris grower, you may already have guessed at this possibility, as the ginger rhizome in the grocery store looks very similar to the Iris rhizomes of the common bearded Iris, along with many other species and the hybrids so common as garden plants.

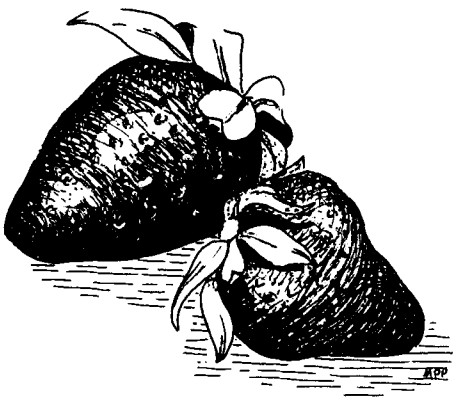
Why is this incorrect reference one with which I am so familiar? One of my favorite botany exercises that I've used in teaching kids from second grade up through college is grocery store botany. Once we've looked at the parts of a plant, often without even looking at the internal structures, a grocery store bag is opened and items from the produce section are passed around. Based on what can be seen—and hopefully identified—on the various items of produce, what part or parts of the plant are they? Just what is it that we're eating?

Celery is clearly the leaf, or more accurately the leaf petiole. Onions are also leaves, judging by the venation as well as by the way all those leaves are attached to a single structure at the base (the stem disc) from which roots are coming out. Many "vegetables" are actually fruits, since they contain seeds. And this leads to another strange grocery store and nutritionist term—vegetable. Botanically there is no such thing as a vegetable. There are plant parts, and there are fruits. Even the second graders aren't thrown by this blinding revelation, but we have some fun with it.

Now then, going back to the ginger rhizome, why is it a stem and not a root? Well, those wonderful lines that wrap almost all the way around it in a series of not quite circles are typical monocot leaf scars. Monocots generally don't have leaf petioles, having instead a leaf sheath that wraps around the majority of the stem. And just in front of those leaf scars, there are bumps, some of which may be more swollen than others. These are the axillary buds. And last but not least, assuming that you don't cut through the stem to determine the vascular bundle arrangement, there are often little holes, some of which still have little string-like structures along either the top or bottom of this piece of stem. Those are the remnants of where the roots were growing down, anchoring this stem onto the ground.

We usually don't focus on fruit types during this exercise, but another popular misconception has come up lately in some internet quizzes. I believe that it was mentioned by President Jed Bartlett in an episode of *West Wing* as well. The question: Name the only fruit that has the seeds on the outside. Now there may be a fruit with seeds on the outside, but I don't know of it. One thing's for sure—the answer is not the one commonly provided—the strawberry. I'll leave that for you to figure out why.

(continued on p. 2)



THE SEWANEE PLANT PRESS

The Sewanee Herbarium
Dr. Jon Evans, Director
Biology Department
Sewanee: The University of the South
735 University Avenue
Sewanee, TN 37383

WEB SITE
http://lal.sewanee.edu/herbarium

EDITOR
Mary Priestley
marypriestley@bellsouth.net

CALENDAR
Yolande Gottfried
ygottfri@sewanee.edu

CONTRIBUTOR
Jonathan Ertelt
jonathan.ertelt@vanderbilt.edu

COMPOSITOR
Tammy Scissom

*Drawings by Mary Priestley are bloodroot, strawberries, ginger **rhizome**, pepper, and onion.*

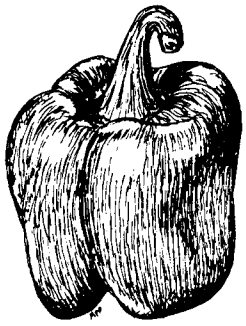
It's All, continued from page 2

This stuff is really so much fun. I love learning about it, and I love teaching about it. I was interested in plants before I got to Sewanee, but I can never thank Dr. George Ramseur enough for introducing me to the world of botany. Happy Exploring!

—Jonathan Ertelt

Jonathan Ertelt, who graduated from Sewanee in 1978, goes by the name "Dr. Jonathan, the Plant Man" when doing botany presentations for children. (He received an honorary doctorate degree from the Shooting Stars pre-school class at Vanderbilt University's Child Care Center.) He started developing programs to take into schools when he was at Nashville's Cheekwood Botanical Garden ('78-'87) and continued when he was at the University of North Carolina at Charlotte ('89-'95). Now back in Nashville as the greenhouse supervisor at Vanderbilt, he often lectures to college students, but he has found a niche working with elementary and pre-schooi students and teachers. For more information about Jonathan's programs, email him at jonathan.ertelt@vanderbilt.edu. —MPP

A is for Apple



Jonathan's article in this newsletter on grocery store botany brought to mind George Ramseur's wonderful fruit labs. George would bring in mounds of grapes and cherries; bags of apples, pears, bananas, and cantaloupes; and citrus of all kinds, as well as zucchini, avocados, green beans, tomatoes, and okra—basically whatever was available from the local market. Add a few hickory nuts, some milkweed pods, and a couple of cockleburs, and we students had our afternoon cut out for us.

He would start with the apple. He urged us to study the wrinkled remnants of the flower on the "bottom" and think about how the fruit had developed. Just as we were beginning to get the gist of it, he would slice the apple in half (side to side) and ponder with us the derivation of the cavities, bumps, and seeds embedded in the flesh. He would then pop a good portion of it in his mouth and smile with pleasure. Fruits are fun.

Tossing an apple to each of the students, he would invite us to join in the inquiry (and the snacking). And then it was on to cantaloupes, kiwi berries, and whatever else he had brought for our pleasure and edification. We learned that a fruit is a matured ovary, enclosing one or more fertilized eggs (seeds). So a green bean is a fruit; so is an eggplant; and so is a sunflower "seed"!

And we were truly enlightened: we learned that the type of fruit depends on the structure and arrangement of the flowers from which it developed. Did you know that an orange is botanically a *hesperidium*? Watermelons and their relatives (including cantaloupes, squash, and pumpkins) are *pepos*. Peaches, plums, and avocados are all *drupes*.

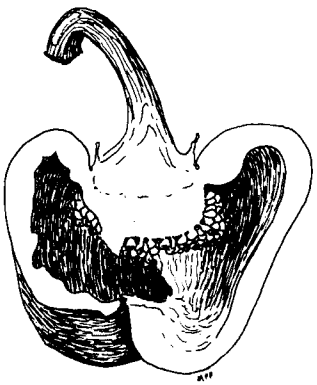
A blackberry is not a *berry*, and neither is a strawberry—at least not botanically. But blueberries *are* berries, and so are grapes, peppers, and tomatoes. If you think about it, structurally they have a lot in common. Blackberries, on the other hand, are *aggregate* fruits (makes sense), and strawberries are, well, *accessory* fruits—the yummy part is actually the tip of the flower stalk.

Nobody in lab seemed interested in nibbling on cockleburs or milkweed pods, making George's explanation of seed dispersal easy to comprehend: fleshy fruits, many of which are sweet, have evolved to attract animals to eat them and disperse the seeds; others ride on the wind, float on the water, or cling to animal fur for dispersal.

Michael Pollan in *The Botany of Desire* explains, "Sweetness has proved to be a force in evolution. By encasing their seeds in sugary and nutritious flesh, fruiting plants such as the apple hit on an ingenious way of exploiting the mammalian sweet tooth: in exchange for fructose, the animals provided the seeds with transportation, allowing the plant to expand its range." Many seeds, in contrast to the fruit, are bitter little pills: better not to bite into them, but let them travel intact through the digestive tract for sowing farther afield.

George did not limit his enjoyment of fruits to the once-a-semester botany lab. He could run into a pawpaw patch on a trip to Bluebell Island; a vine loaded with passion fruit in an old field undergoing secondary succession; or crabapples popping up along the fencerow of a long-forgotten farm that had returned to forest. He was quick to take advantage of these "teachable moments" and the opportunity for a tasty bite. We students were lucky to be along on these adventures.

—Mary Priestley



Spring Calendar of Events

Bluebell Island—Sat., March 24, 10 AM

Join the South Cumberland Regional Land Trust for their annual Bluebell Island Ramble to see an outstanding display of bluebells with trout lilies and other early bloomers. Meet at the Tyson Food Co. plant on Highway 50 in Decherd. Easy except for crossing the Elk River on a log, but ropes or something else will be set up to make it accessible.

Shakerag Hollow—

Sun., April 1, 1:30 PM Mary Priestley
Sat., April 7, 1:30 PM Jon Evans
Sat. & Sun., April 21, 22, Trails & Trilliums (see below)
Sat., May 5, 1:30 PM Yolande Gottfried & George Ramseur (see below)

This is Sewanee's "Mecca" for wildflower lovers and these leaders are the experts. Meet at Green's View parking lot (past the golf course). 2 miles, moderate, with one fairly steep incline.

Short Springs — Sat., April 14, 9:30 AM
Jean & Harry Yeatman

This natural area on the Eastern Highland Rim outside Tullahoma features a profusion of spring wildflowers, like a little Shakerag (says Jean), and includes plants not seen on the plateau, such as Jacob's ladder, bluebells, barren strawberry, Virginia spiderwort, twinleaf, and maidenhair fern. Join the Yeatmans on their annual visit to this special spot. Meet at the old pharmacy (next to the Sewanee Market at the blinking light on Hwy. 41A) at 9:30 a.m. for the one-hour drive to the site. The hike in is short but steep.

Collins Gulf—Sun., April 15, 10 AM
Mary Priestley

This section of the South Cumberland State Recreation Area is the only other local spot on the plateau that rivals Shakerag Hollow for number and diversity of spring wildflowers. Meet at the Collins West trailhead, just beyond the Swiss Memorial School in Gruetli-Laager. Bring lunch and extra water. 5 miles, strenuous.

Trails and Trilliums—Sat. & Sun., April 21, 22

The fourth "perennial" Trails & Trilliums, a celebration and sale of native plants, will be held on the St. Andrew's-Sewanee School (SAS) campus . The events will feature a native plant sale, workshops and speakers, guided walks, hikes in Shakerag Hollow (led by Herbarium staff and others), a wildflower art exhibit, and Kids & Kritters events for young naturalists. Trails & Trilliums, which is a project of the SAS Parents' Council, is committed to raising awareness about protecting and enjoying native plants. For more information, see the website, http://trails.sasweb.org.

Bird Walks at Morgan's Steep—
Sat., April 28 & Sat., May 5, 7-9 AM
David Haskell

Dr. Haskell, ornithologist and Sewanee biology professor, will be looking for spring migrants at this usually auspicious location. Meet at Morgan's Steep. Cancelled in case of rain or high winds.

Shakerag Hollow—Sat., May 5, 1:30 PM
George Ramseur & Yolande Gottfried

This walk will feature the debut of the newly-published "Shakerag Hollow Trail Guide", whose authors are the walk leaders. The later-blooming spring wildflowers should still be putting on a good show. Meet at Green's View parking lot (past the golf course). 2 miles, moderate, with one fairly steep incline.

April 23-April 29 is the week of the Spring Wildflower Pilgrimage in the Great Smoky Mountains National Park

Members of the Herbarium staff will be participating as walk leaders. For more information and registration visit the website at www.springwildflowerpilgrimage.org.

All times are CST or CDT.

Wear appropriate shoes on all of these walks. Risks involved in hiking include physical exertion, rough terrain, forces of nature, and other hazards not present in everyday life. Picking flowers and digging plants are prohibited in all of the above-mentioned natural areas.

For more information on these events contact Yolande Gottfried at the Herbarium (931.598.3346) during regular business hours or by e-mail at ygottfri@sewanee.edu. For directions to Collins Gulf contact the South Cumberland State Park Visitors' Center (931.924.2980).

Membership Application/Renewal

The Friends of the Sewanee Herbarium support the work of the Herbarium: education, research, and conservation. A $10.00 annual contribution would be very much appreciated. The date of your most recent contribution is printed on your address label.

Name and Address (if different from that on the mailing label on the back):

_____

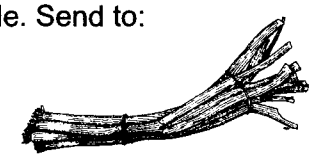
_____

_____

Amount Enclosed: ❑ $10.00 ❑ Other: $ _____

Please make check payable to The University of the South. Gifts are fully tax deductible. Send to:

Sewanee Herbarium
c/o Mary Priestley
735 University Avenue
Sewanee, TN 37383



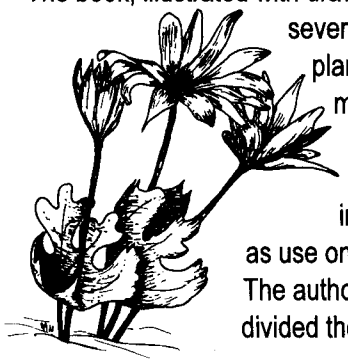
Others who might like to receive *The Sewanee Plant Press*: _____

_____

A Trail Guide to Shakerag Hollow

Yolande Gottfried and George Ramseur have completed their Shakerag Hollow trail guide, a preliminary version of which was published jointly with Mary Priestley's *Sewanee Spring Wildflowers* in 2003. Concentrating on the flora of Shakerag, the guide also includes information on geology, wildlife, and other aspects of this unique and beautiful trail.

The book, illustrated with drawings of several of the plants, is meant for armchair botanizing, as well as use on the trail. The authors have divided the 3 km (approximately 2 miles) trail into logical sections, each of which is described during all four seasons of the year. The locations of the most notable wildflowers and trees are given within the body of the guide. A checklist of plants is also included.



In about 1994, a couple of years after George's retirement from the faculty, Yolande approached him about this project. They started walking the trail that fall and then nearly every week the following spring: measuring, taking notes, and collecting plants. "It was really a neat experience for us, watching the development of the flowers week by week," says Yolande. She adds, "And after going through Shakerag innumerable times with George, I began to be able to tell the difference between the trees by their bark!" a skill for which George is well known.

"It was our love of nature and our curiosity about the timing and sequencing of the spring flowers that led us to this survey of Shakerag," explains George. "Yolande is a keen observer and excellent field companion in the tradition of our common mentor, Dr. Albert Radford."

This guide promises to give us all a new understanding of Sewanee's woodland treasure. It will be offered for sale at the University Book and Supply Store in time for Yolande and George's May 5 Shakerag Hollow hike.

—Mary Priestley

SEWANEE
THE UNIVERSITY OF THE SOUTH
Herbarium, Biology Department
735 University Avenue
Sewanee, TN 37383-1000

ADDRESS SERVICE REQUESTED