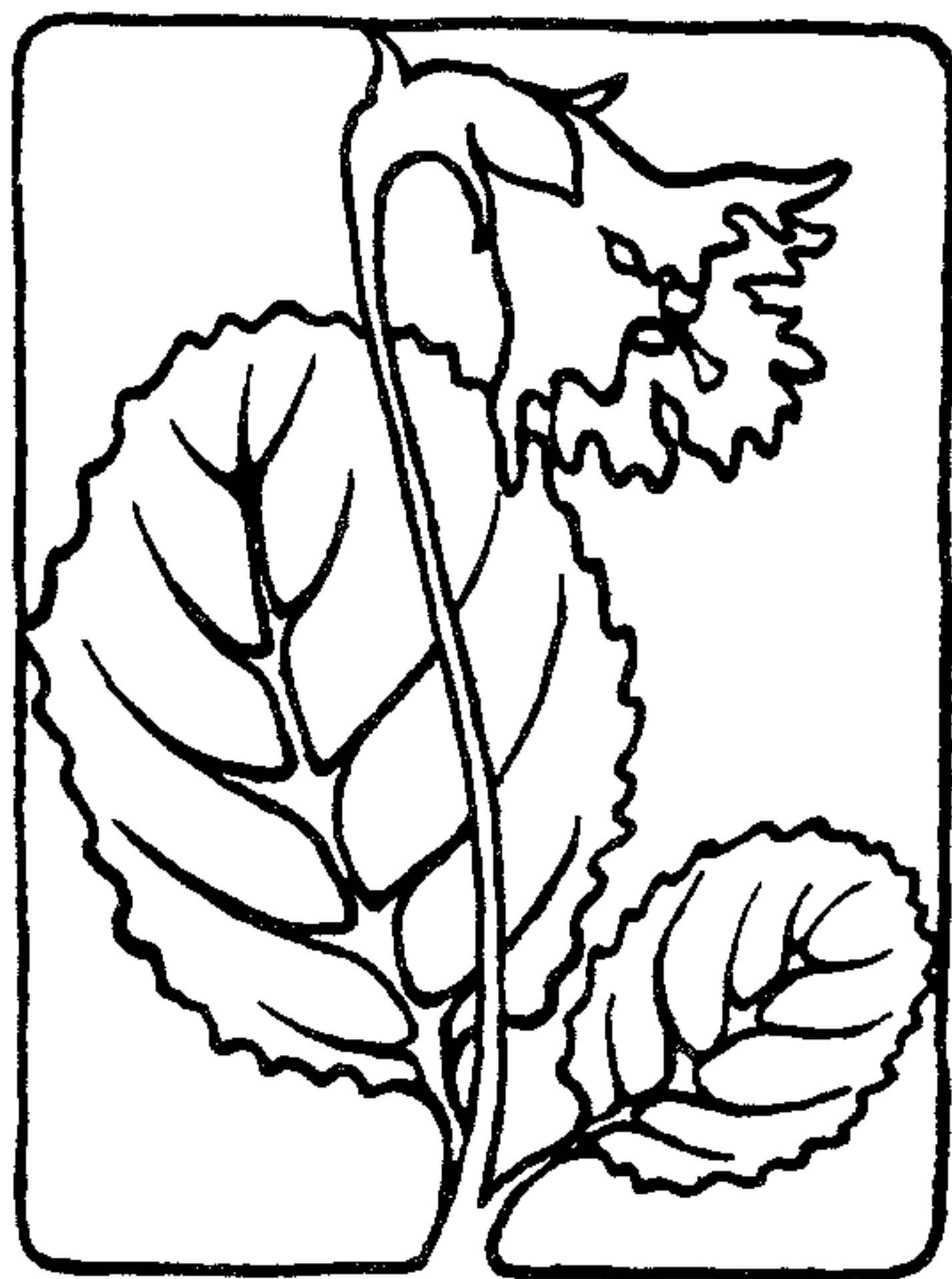


SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

WINTER 1992 - 93



BUD PEARSON, Editor

JANUARY 1993 MEETING SCHEDULE

Jan. 8, 1993 - At the Hendersonville Library, 2:00 PM. Edward Engle, engineer for the Department of Transportation, will speak on the landscaping of our roadsides.

Jan. 15, 1993 - At First Citizens Bank, 2:00 PM. Patricia Tolbert, Director of Annual Giving for the Nature Conservancy, will introduce us to some of the newer preserves as well as those already established in western North Carolina.

Jan. 22, 1993 - The ANNUAL MEETING, 11:00 AM, at St. John in The Wilderness, Flat Rock. The business meeting will be followed by a covered dish luncheon. Please bring a covered dish to share and your own table service. Coffee and tea will be furnished.

Jan. 30, 1993 - 2:00 PM - At the Carolina Room, Carolina Village. A LEARN AND SHARE meeting conducted by Bill Verduin. Ph. 697 7316. (There is a new parking lot at Carolina Village that is convenient to the outside door to the Carolina Room. It is opposite the pond, off the right hand drive from the main entrance. A walkway from the parking lot passes the pond and takes you directly to the Carolina Room door.)

THE PRESIDENT'S MESSAGE

by Bessie Sinish

Now is the season of green. Lycopodium of dark rich green with their candle like spores spread on the forest floor. The light colored buds of leaf and flower stand above the green leaves of the rhododendron. The delicate buds of *Leucothoe* hang from the axil of stem and green leaf. The green fronds of Christmas fern along with the green bronze fronds of the grape fern can be seen on hill and dale.

Now is the season to see the red color of partridge and holly berries, the yellow bracts of Witch Hazel, dark reds of Oak, the yellow of grasses, the light coppery browns of Beech leaves, and colorful mosses and lichens found on logs, stones and trees.

Then, too, it is the season to see the color and texture of tree trunks and to see how branches seem to reach upward to the blue and gray of the winter sky. If, truly, we are to enjoy the one Earth from which we all receive our many blessings, we then must engage all our senses through careful observation of nature. Are you ready to observe, to smell the earth, to feel the breeze and to listen to the sound of the great outdoors?.....Bessie Sinish

WITH SYMPATHY

On behalf of the Botanical Club, I wish to express our deep sympathy and love to Miles Peelle in the loss of his lovely wife, Eleanor. Her beautiful smile and enthusiasm for the world about her endeared her to us. We are richer for having known Eleanor Peelle.....Bessie Sinish

GREETINGS TO NEW MEMBERS

- Walker, Peter B. and Cynthia, PO Box 189, Fairview, NC 28730
- Thomas, William R. and Shirley A., PO Box 272, Cedar Mountain, NC 28718
- Harris, Mary Helen, Rte. 1, Box 650, Sylva, NC (April to Nov.)
6112 Archerwood Ct., Orlando, FL 32808 (Nov. to Mar.)
- Scott, Lee, 188 Cardinal Road, Brevard, NC 28712
- Gertz, Jean, 615 Biltmore Ave., Asheville, NC 28803
- Uptdike, Connie, 45 Grouse Lane, Brevard, NC 28712

The early plant collectors in the U.S.A. give us an appreciation of the plants that still intrigue us when we encounter them as rare or infrequent.

It may be a surprise that other plants than *Shortia*, found largely in Georgia and Northern Florida, have an interesting history. The most beautiful "lost" plant that is found in abundance in Western North Carolina and in the eastern states, is the horticultural *Franklinia alatamaha*, which has just finished blooming in mid-October at College Walk in Brevard, NC.

In 1765 the Bartram's encountered, in their travels, a cluster of 30 or 40 small spreading trees on the flood plain along the Altamaha River about 60 miles inland from the coast of southeast Georgia. The records are not clear as to whether the seeds were taken back to the Bartram's Garden in Philadelphia then or in 1775. In any case the success in raising the species occurred and soon other growers had success in keeping the species alive.

Other visitors and travelers reported in following years a few trees were still alive but in reduced numbers and by 1780 only 2 or 3 trees were alive.

From Charleston, SC, a well known botanist, E.A. Marsh reported in 1803 no tree could be found in Georgia or any other southeastern area. He wrote, at that time, the final botanical description and gave the tree its scientific name, naming it after John Bartram's close friend, Benjamin Franklin - hence the generic name *Franklinia*.

Success in propagation by various means continues to this day. A recent survey in and around Western North Carolina indicates the *Franklinia* is planted in large numbers here and north of North Carolina. It does well in Massachusetts. With protection it will do fairly well in southern Michigan but will not survive extreme cold winters. Strangely it will not grow today in southeast Georgia where the Bartrams found it in 1765. Of the three specimens bought by College Walk residents in 1987, two have survived. One had 128 flowers between July 26th and October 21st this year. One other plant belonging to Mrs. Helen McKelvey had 38 flowers.

In botanical relationships, it resembles the southern *Gordonia*, but differs in that it is deciduous with maroon colored leaves in the Fall color period, whereas *Gordonia*, of north Florida, has evergreen leaves.

In this area *Franklinia* is the only large shrub or tree with conspicuous white-gold flowers to bloom from late summer to frost in October, thus attracting attention by the floral loving public.by Miles Peelle

Editor's note. A specimen of the *Franklinia alatamaha* still grows in Bartram's garden in Philadelphia along the Schuylkill River. Personnel at the garden believe it is a descendant of trees grown from seeds collected on the Bartram's second trip to the place of their original discovery.

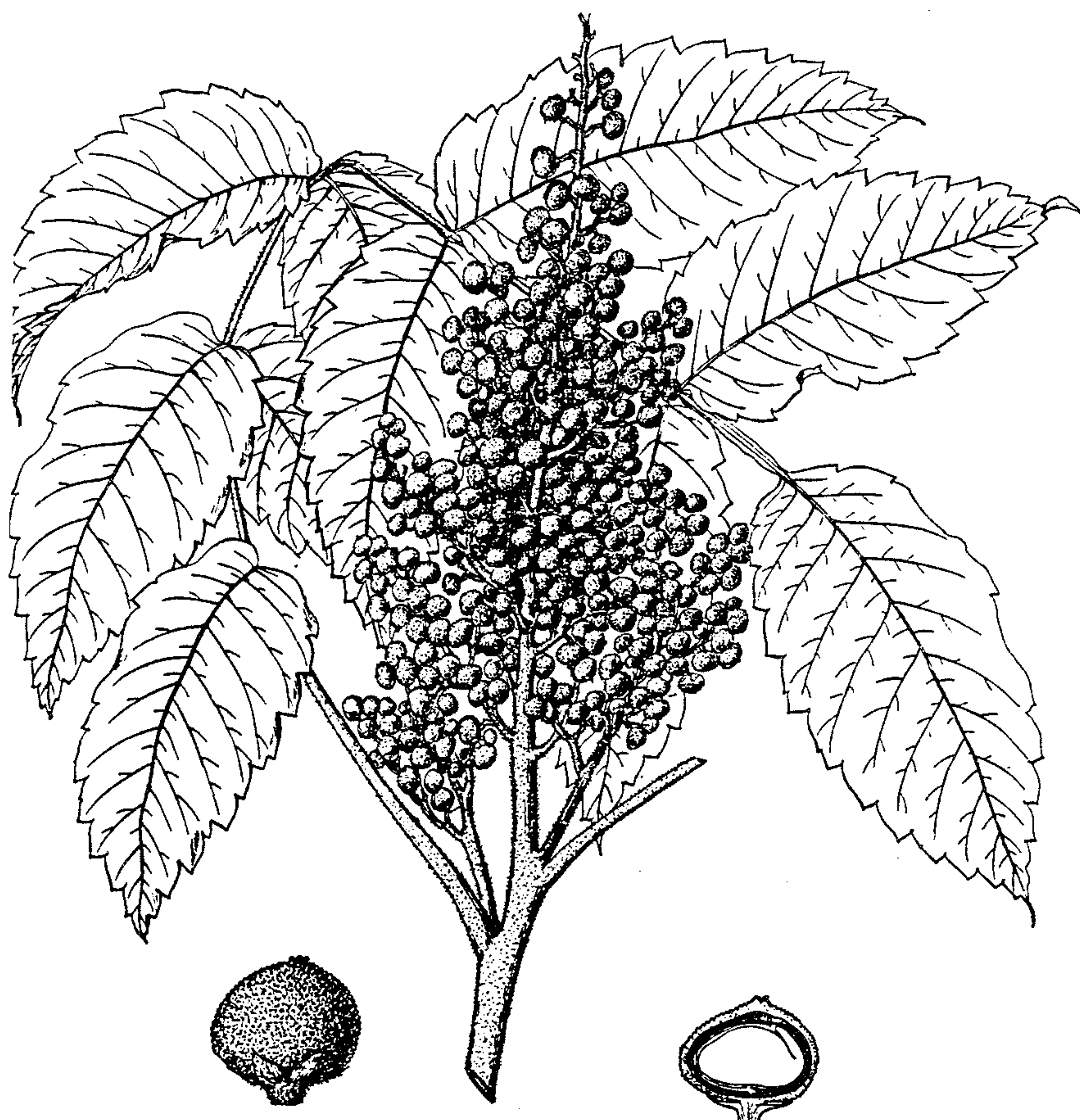
IN MEMORY OF BENJAMIN FRANKLIN TULLAR

We have lost a good friend and a respected member with the unfortunate passing of Ben Tullar. Ben was the capable leader of many field trips and always a pleasant addition to any of the clubs activities. He will be well remembered by all of us for his love of nature and the pleasure he gained from the forest and woods. Ben will also be remembered for his humor and good disposition - and his determination to eat lunch at twelve noon sharp.

Harry Logan has provided an article entitled, "New or Little-known Plants" from the October 9, 1895 issue of a publication named, "Garden and Forest", that was published between 1888 and 1897 in New York. The author was Charles Sprague Sargeant, of the Arnold Arboretum. It describes the *Rhus michauxii*.

Mr. Sargeant stated that the *Rhus michauxii* was an extremely rare, little known and long lost shrub in his 1895 article. It had been discovered by the French botanist Michaux in western North Carolina near the end of the 18th Century and recently (circa 1895) rediscovered by Mr. W.W. Ashe at Farmington, Davie County, North Carolina. Mr. Ashe was associated with the Geological Survey of North Carolina at that time. There had been other sightings by botanists named Lyon, LeConte and Boiken, in Georgia and North Carolina. The shrub had been introduced into the Vanderbilt Arboretum at Biltmore the previous summer, "whence it had been sent to the Arnold Arboretum."

The *Rhus michauxii* is described as a shrub with erect stems from one to three feet in height, spreading extensively by underground stolens. The entire plant is villous-pubescent. The leaves are deciduous, from twelve to fourteen inches



in length, with about eleven leaflets; these are oval or oblong, acute, gradually narrowed or rounded and slightly cordate at the base, coarsely crenately serrate, dark, dull and green on the upper surface, which is pilose along the conspicuous veins, pale on the under surface, about two and a half inches long and an inch and a half wide, sessile, or very short stalked, with the exception of the terminal leaf which is borne on a winged petiolule three quarters of an inch in length. The panicles of flowers are terminal, thyrsoid, nearly sessile, about six inches long and nearly three inches broad. The calyx is covered with cinereous tomentum and is divided into rounded pale yellow

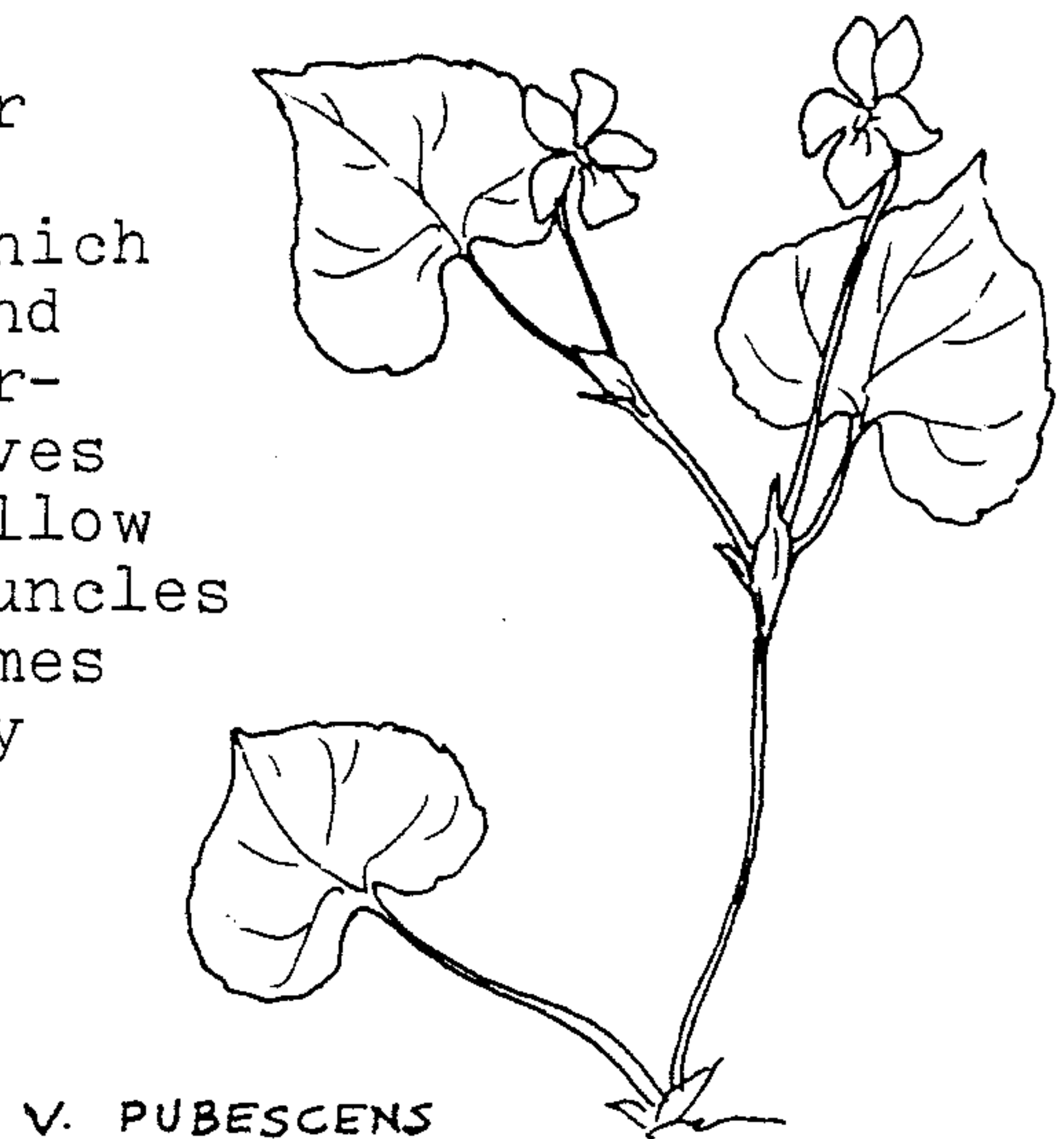
petals. The bright scarlet fruit is globose, about an eighth of an inch in diameter, and clothed with close silky pubescence. The juices turn black in drying. Like many of the plants of this family, it is poisonous.

Sargeant writes that, five years before Michaux reported this plant as *Rhus pumila* in his, *FLORA*, the name was used by another botanist for another plant that was probably not a *Rhus*, so the author proposed the name *Rhus michauxii*, naming it for the discoverer. I find no record of a *Rhus pumila* at this date.

LOOK AGAIN !

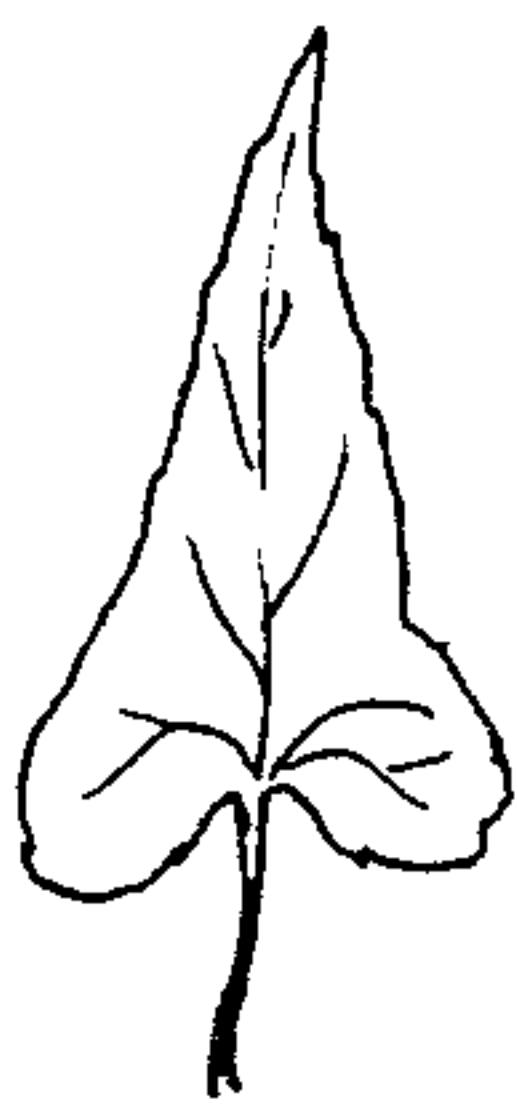
Because of their variability, to say nothing of confusing nomenclature, our leafy-stemmed Yellow Violets are often difficult to identify.

The two species that are most similar are the ones commonly referred to as the Downy and the Smooth Yellow Violets, to which we may assign the names Viola pubescens and V. eriocarpa, respectively. They are characterized by two or more heart-shaped leaves on the upper part of the stem, bearing yellow flowers with brown or purple veins on peduncles arising from the axils. As the common names indicate, the first is somewhat soft-hairy and the second essentially smooth. The cauline leaves are wider than long, those of the smooth species more noticeably so. V. eriocarpa usually has several long-stalked basal leaves as well, whereas V. pubescens normally has but one, or often none.



In Halberd-leaved Violet, V. hastata, the leaves are triangular, longer than wide, with a hastate or cordate base, and sometimes are variegated with silvery or purplish markings.

V. HASTATA



V. TRIPARTITA



Also quite distinctive is the Three-parted Yellow Violet, V. tripartita. The typical species has leaves that are deeply lobed into three narrow segments; in var. glaberrima, however, they are uncut and might be mistaken for V. hastata except for being truncate or tapered--never indented--at the base.

Dick Smith

We often overlook interesting plants because they are "common". The clovers, for instance, are a good example of this. We see White Clover, *Trifolium repens*, almost everywhere, but do we ever stop to think how it came to be so common? It is not a native of this country but hails from Europe and Asia Minor. It's introduction to the U.S. dates back to the first settlers who brought hay loft seed from Europe. It is now found growing throughout the southeastern U.S. from the mountains to Florida. It is one of the most important pasture legumes. There are three general types or forms of white clover: Large (Ladino), intermediate (Louisiana White), and small (English and New York Wild White). Common white clover (White Dutch) is of the intermediate or small type, or a mixture of the two.

Crimson clover, *T. incarnatum*, has long pointed flower heads composed of 75 to 125 florets. These brilliant colored florets open in succession from the bottom to the top of the flowering head. The seed forms and the plant dies back during the summer. This clover, a native of Europe, was introduced into the U.S. in 1819. We see beautiful fields of this along the highways of South Carolina.

Red Clover, *T. pratense*, most widely grown of all true clovers. A native of Europe and Asia, it was introduced into the U.S. nearly 200 years ago. We see clover planted on the sides of most of our state roads.

Alsike Clover, *T. hybridum*, Origin of this clover is not known, but it is a native of Northern Europe. Introduced into the U.S. about 1834, it has become an important legume in the northern half of the U.S. It grows best in a cool, moist climate and seldom "Winter Kills".

Strawberry Clover, *T. fragiferum*, native of south and western Europe and Asia Minor countries. The time of introduction to the U.S. is not known, but plant specimens were collected in Pennsylvania in 1878. It spreads by creeping stems that root at the joints and nodes.

Rose Clover, *T. hirtum*, Introduced into California from Turkey in 1944. It is a native of the Mediterranean basin, Asia Minor, Syria, North Africa, Southwest France and Italy. The single, grayish hairy, rose colored terminal flower heads are borne on erect to ascending stems. Petioles of leaflets and stems are densely covered with soft hair.

Persian Clover, *T. resupinatum*, native of Persia, was first established in the Mississippi Delta area in 1928. Since then it has spread through the southern states and north to Massachusetts, Illinois and Eastern Kansas, and in coastal sections of Pacific states.

Subterranean Clover, *T. subterraneum*, was introduced into the U.S. from Australia. It is a native of west and southern Europe, north Africa, Iran and the Caucasus. In the U.S. it is found in the Pacific northwest, California, Arizona, Arkansas, Texas, Tennessee, and the Southeast Atlantic states.

Bighop Clover, *T. procumbens*, is a native of Europe, western Asia and north Africa. It grows to heights of 10 to 18 inches. The flowers, in small loose heads, are yellow and become relaxed and brownish with age. Two other species of *Trifolium*, so closely associated with bighop that all are commonly known as hop clovers, are; Small hop, *T. dubium*, and Field hop, *T. agrarium*. Some botanist call this hop clover, *T. aureum*. These clovers, probably brought to this country with White Clover seed, are widely adapted and naturalized throughout the southern half of the U.S.

Bighop Clover is sometimes mistaken for Black Medic, *Medicago lupulina*, but the clovers have straight seed pods and the *Medicago* seed pods are coiled.

White Sweet Clover, *Melilotus alba*, and Yellow Sweet Clover, *M. officinalis*,
(continued on next page)

are not true clovers. They, too, are naturalized from the Old World. Tall and bushy, they are identified partly by their sweet odor of new mown hay.

So, as you can see, our "common" clovers are of very "worldly" origin.

PRONOUNCING THE TWO PART NAMES OF BOTANICAL SCIENCE

by Henry Pearson

Most of us recognize the misleading variations in common names for wildflowers and have come to accept the genus and species name as the best available way to identify each individual specimen. While accepting this, learning the scientific names has been made a bit more difficult by the problems of pronunciation. It is hard to remember words you can't pronounce. For many of us, memorizing is fast becoming a lost art, anyway. But repeating, to ourselves, terms we hear during programs or on field trips is a good way to memorize. To some who are more gifted at learning wildflower identification, the euphonious Latin (or Greek) is almost like learning musical tunes, one syllable naturally following another.

However, left on our own to read the scientific names, most of us are without confidence and tentatively fall back on our English phonetics. This may become embarrassing. An article on the subject, in an old issue of the North Carolina Wildflower publication, offers some helpful examples, but it is obvious that there are no all inclusive rules. Only experience in the presence of experts provides accurate pronunciation. Even then it is suggested that one should listen to three experts and adopt the pronunciation of the two that sound most alike. Even the "Latinized" words become "Englishized". The genus *Pinus* in latin would be PEA-noose, whereas, Pie-nus is most frequently heard.

There are some rules that offer a little help. One is; to pronounce as many syllables as possible. Every vowel is pronounced, (well almost every vowel). Cardamine (spring cress) might appear to be CARD-amine but is properly pronounced car-DAM-in-ne. Then there are the double "i's" added to latinize personal names, such as smallii and jonesii. Both "i's" are pronounced. It is SMALL-ee-eye, (not SMALL-eye), and JONES-ee-eye, (not JONES-eye or JOAN-ess-ee). However, there is the diphthong problem; double vowels pronounced as one sound such as, "eu" in Eupatorium. The most frequently used double vowel is "ae", usually pronounced as the long "e" as in "bee", or, in Classical Latin it would be "i" or "eye". Every family name ends in -aceae, pronounced -A-see-ee, or, A-see-eye if you prefer the Classical Latin. The combination "ea" isn't normally a diphthong and each vowel is pronounced, as in New Jersey Tea, Ceanothus (see-ah-NOTH-us) and chestnut, Castanea (cass-TAIN-ee-ah).

Another rule deals with syllable emphasis. As a general rule the third from the last syllable is the one to emphasize; LIL-e-um, kris-ANTH-e-mum, del-FIN-ee-um, ger-AIN-ee-um, cam-PAN-you-la. Before you take too much comfort in this rule, though, remember Rho-do-DEN-dron, Cor-e-OP-sis, and Hi-BIS-cus. This raised some curiosity as to whether the rule applied to words of Greek origin as well. A quick sampling doesn't provide any confirmation, but suggests some terms are scrambled Greek and Latin. But the rule works for some scientific name that have also become the common names; such as Crassula and Clematis. Following the rule to emphasize the third from last syllable, these terms become CRASS-you-la and CLEM-a-tiss. Is this of any help?

* * * * *

PHOTOSYNTHESIS: "Eating Light"

(A chapter heading from The Practical Botanist, by Rick Imes, copyright 1990. Rather new in the local library.)

VIOLENCE! Naturalist have observed that the public has accepted the Walt Disney view of a natural world inhabited with cute little creatures possessed of some of humankind's better virtues. Perhaps to correct this false image, there seems an abundance of nature film by National Geographic and various Public Broadcasting productions that show the real animal world in gory detail, with the life and death struggle of the animals who stealthily move through the vegetation, intent upon killing each other. There is a constant struggle for survival as animals fight for food and self preservation. When the television screen shows a pack of hyenas feasting on a jungle victim before death is final, this ruthless competition, which is the law of nature, is forcibly brought home.

Such behavior seems entirely lacking in the plant world. Here, we feel, is a realm where there is enough food and space for everyone, where organisms do not have to live in constant danger from natural enemies, where every bit of life may reach its fullest expression, without injuring other life. Unfortunately for the idealist this is not so. There are no howls or scream, but, underneath the placid exterior of the plant world, life is as rife with contest between species for survival as is the world of animals. Much of this struggle is invisible, all of it is silent. Yet it is a grim warfare without truce, with life as a reward to the victor and death to the luckless loser.

The struggle often centers on getting sunlight or water so essential for green plant nutrition. Where plants grow in close association with one another, the struggle is keenest. In tropical jungles, where there is plenty of water, the struggle rages for sun light, with weaker plant being overshadowed and dying. Many species of climbing plants twine about the trunks of trees and use them as ladders to reach for sunlight often killing or maiming the host tree.

In other areas of the globe the conflict involves the struggle for water where the more rapidly growing plants or plants with more efficient root systems get the water and the less advantaged competitor dies of thirst.

Much like the human experience, where one species colonizes an area, other species are driven out. The constant battle between lawn grasses and dandelions is an example. Without the intervention from a higher order, the dandelions would dominate the yards of many areas.

The most ruthless warfare is between the green plants and the colorless ones; between the chlorophyll-bearers and those plants that cannot create their own food and must steal from others to stay alive. The fungi have evolved and multiplied in type and number so well that there is one fungus for every three self-supporting flowering plants.

Wherever there is a green plant there is a host of parasites ready to assault and molest it. Every breeze brings with it legions of invisible spores ready to reproduce fungus in any plant where the wind might leave them. The spores will remain lodged on the surface of the leaf or trunk until they can find an opening and invade living tissue. There the spores germinate into mycelium of colorless filaments that grow through the plant's tissue, breaking into cells and depositing sucker filaments which feed on the living protoplasm. This incursion results in the death of leaf cells and leaves. In time, and if the invasion is extensive, the plant may lose all its leaves, causing cessation of photosynthesis and death to the host plant. Some times the assault is not deadly but will cause deformity, as cankers on tree trunks or witch's brooms,--closely packed twigs sprouting in a bushy growth on the branch of an otherwise normal tree.

The fungi do not usually bring death to the host until the mycelium is ready to produce spores. These are then produced on the surface of the plant where the invasive force is picked up by the wind to expand the war of destruction.

Nature can be monstrously cruel according to standards of conduct espoused by the higher order of creation.

SEX! Vegetables such as blue-green algae, who are thought to have invented sex long before animals existed on Earth, owe nothing to the animals in resourcefulness of lovemaking. Even though plants are less completely divided into males and females than animals, they are just as varied in shape, in their hermaphroditic and conjugal devices.

The Babylonians are the first people known to have recognized the sexual difference of plants. It was perceived that one type of date palm bore fruit, but only if a non-bearing date tree was present. The perceptive Babylonians surmised that the bearing tree must be the female, the other a male. Those early date farmers, who understood this, planted in such a way as to get the two types together. Actually, it has been since demonstrated that wind can pollinate date palms 50 miles away.

Today we know that thousands of different flowers and blossoms, male and female, are specifically shaped and adapted to fertilization by butterflies, moths, bees, beetles, birds, bats, even snails and other creatures. One bee or butterfly can attend as many as 20 flowers a minute, or a potential 20,000 on a long sunny day. Thus has the vegetable world ingeniously exploited, or even enslaved, the animal. The hermaphroditic plants usually separate themselves by time or space in order not to fertilize themselves. The primrose has a male flower on one stalk and a female flower on another at the same time, but the mallow and sage start off male and later become female. The *Aristolochia* makes the opposite shift from female to male. Others such as the buttercup, have a chemical barrier to self-fertilization.

The common dandelion has rejected sex altogether and dispenses airborne seeds that need no fertilization. Should the appalling prospect of the abolition of sex seem to have merit, consider that the specie has forfeited the possibility of change or adaptability through constantly recurring new combinations of male and female cells (the evolutionary "benefit" of sex). Some botanists are quoted as saying the dandelion is devolving and is likely to get wiped out by future environmental change it cannot adapt to!

If the wind in the willows is a poetic phrase to you, it is assuredly even more so to the willows and many other trees, to most grasses, mushrooms and a good tenth of all flowering plants. A breeze is in truth a link in life itself, for it is vital for these species to broadcast their spores and pollen to the open ocean of air around them, entrusting their descendants to the invisible rivers of wind which waft them as surely as any water current. A single ragweed plant has been measured to generate 1.6 billion grains of pollen an hour, few of which will land upon a waiting stigma.

Germination is expressed by the pollen's sprouting a kind of phallic root that in a few hours elongates to worm its way down to the surface of a papilla (hair) of the stigma, which is significantly coated with a potent chemical aphrodisiac. Once it penetrates the papilla's base, it draws further strength from the very nutritious tissue now around it, which also enfolds it snugly, seemingly to seduce it deeper and deeper until at last it bursts triumphantly into the cavity of the ovary and seizes one of the ovules, pouring its contents into it until their two substances fuse into one and she is fertilized. This is the key genetic act in vegetable reproduction.

Editor's Note: The above are copied, paraphrased, (and expurgated) from two books: one, "The World of Plant Life" by Clarence Hylander, the source for Violence, and the second book is entitled, "The Seven Mysteries of Life" by Guy Murchie, the source for Vegetal Sex.

DUES: YOUR ANNUAL DUES ARE PAYABLE BY DECEMBER 31ST. May we suggest that you send your payment immediately to the treasurer: Ken Sinish, 340 Echo Drive, Hendersonville, NC 28739

S H O R T I A

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