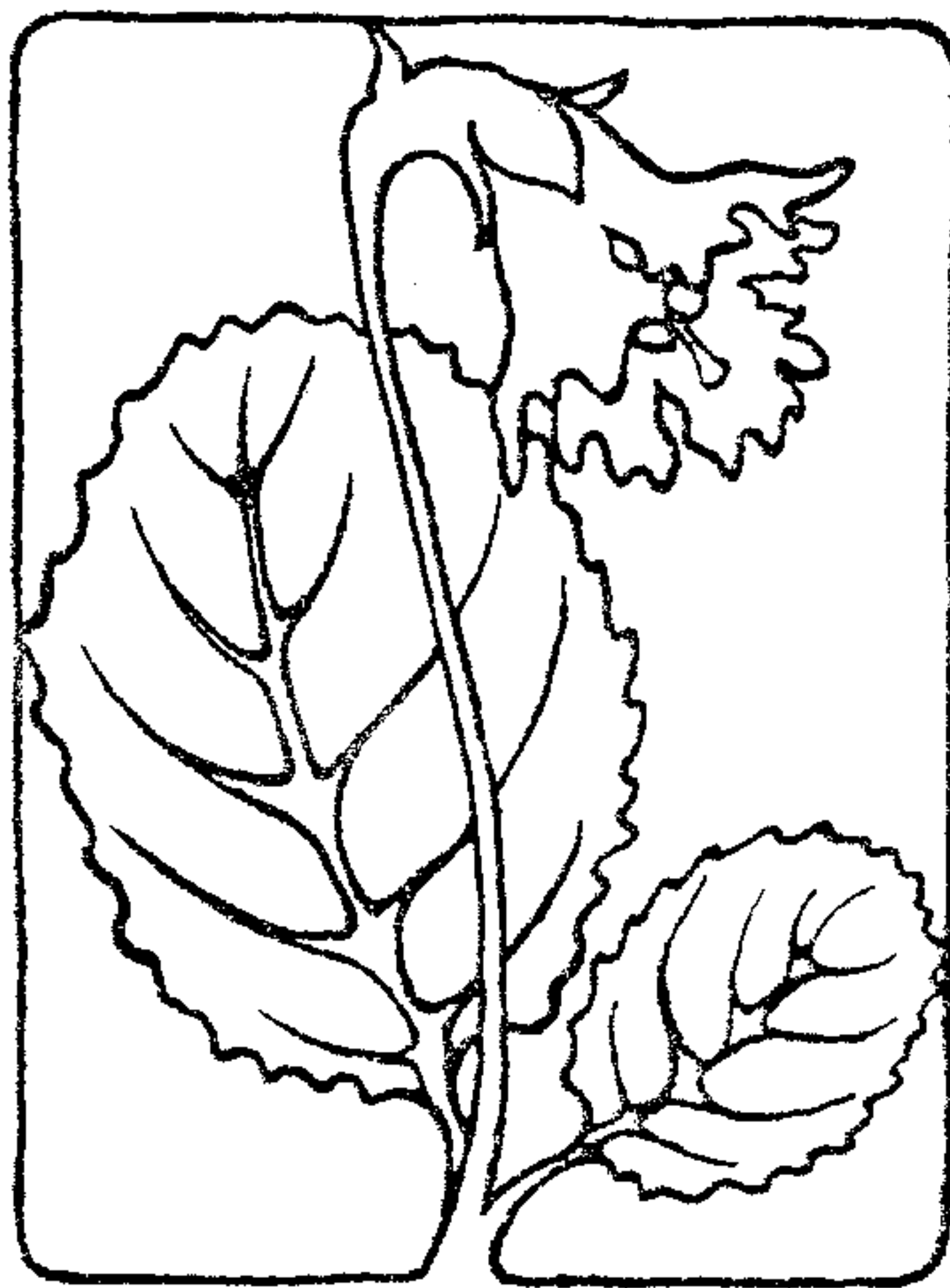


SHORTIA

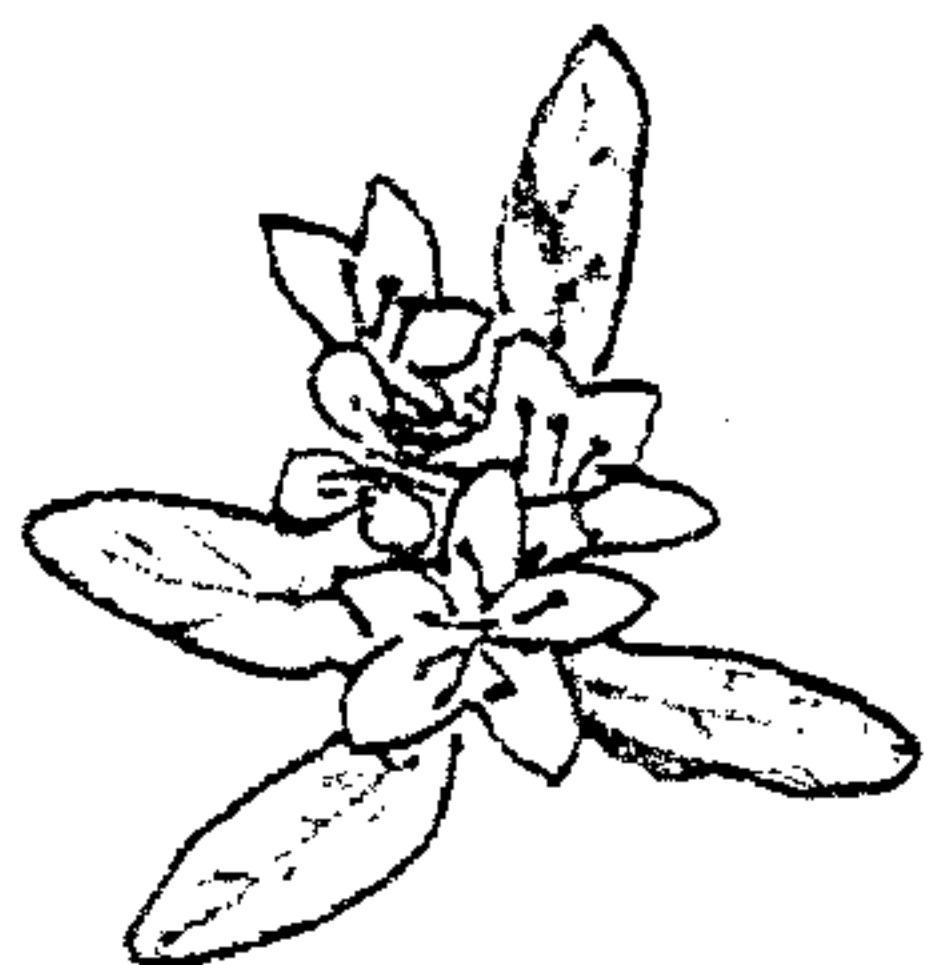
NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

SUMMER 1982



HELEN TURNER, Editor

CONGRATULATIONS, AUGUST KEHR



We are proud to announce that our president, Augie, received the B. Y. Morrison Award at the annual meeting of the American Rhododendron Society in Washington D. C. on May 8. The Award included a medal and \$1000 honorarium.

Augie was president of the American Rhododendron Society 1975-1977 and of the American Genetic Association in the 1960's.

The B. Y. Morrison Memorial Lectureship was established by the Agricultural Research Service of the U. S. Department of Agriculture to recognize outstanding accomplishments in the science and practice of ornamental horticulture and other environic sciences ... to encourage their wider application to improve the quality of life ... and to stress the urgency of preserving and enhancing natural beauty in man's surroundings.

Mr. Morrison was the first director of the National Arboretum.

CALLAWAY GARDENS FIELD TRIP

For the 21 WCBC members who toured the Callaway Gardens, Pine Mountain, Ga., on March 25-27, Augie Kehr's knowledge of azaleas was obvious and his friendship with Fred C. Galle was a bonus. Galle is chief horticulturalist at the Gardens and spent a day and a half guiding us. He also arranged for us to tour the gardens at the Cason Callaway home under the guidance of its chief gardener, Gordon Tyrell. Fred and his wife, Betty, capped the trip with an invitation to their lovely modern home, where we saw some of Fred's scale model wood carvings of mushrooms. For each family there was a souvenir plant -- the rare and threatened Silene polypetala, which brightened many of our gardens in May with its fringed pink blossoms.

Callaway Gardens is the result of efforts of Mr. and Mrs. Cason J. Callaway, Sr., to reclaim a large plot of depleted and eroded land. In time a portion became a place for employees in the family's textile mill to enjoy the out-of-doors. Today this is a 2,500 acre garden operated by the Ida Cason Callaway Foundation as a place "where all may find beauty, peace, inspiration, knowledge and wholesome recreation." A subsidiary operates recreational, lodging and retail facilities.

Each of the participants would probably mention different plants or aspects of the plantings as the "best" of the trip: wildflowers, dogwoods, formal boxwood gardens, or even a newly emerged luna moth. The azaleas, however, were dominant. Several of the earliest native azaleas were in bloom and, with the exception of Pinxter-Flower (Rhododendron nudiflorum), all were species not found in western North Carolina. Florida Azalea (R. austrinum), golden yellow with reddish tubes, and Piedmont Azalea (R. canescens), which was seen in the typical shades of pink and also in a pure white form, were flowering profusely. Oconee Azalea (R. speciosum) was just coming into flower; this ranged in color from salmon to orange-red blended with apricot yellow. There were also a few specimens of Roseshell Azalea (R. roseum) whose normal distribution lies to the north, rather than to the south, of our area.

LOOK AGAIN!

With the foliage of the trees overhead blocking out much of the sunshine, summer woodland flowers are relatively few, and the sight and fragrance of Pipsissewa in bloom are especially welcome.

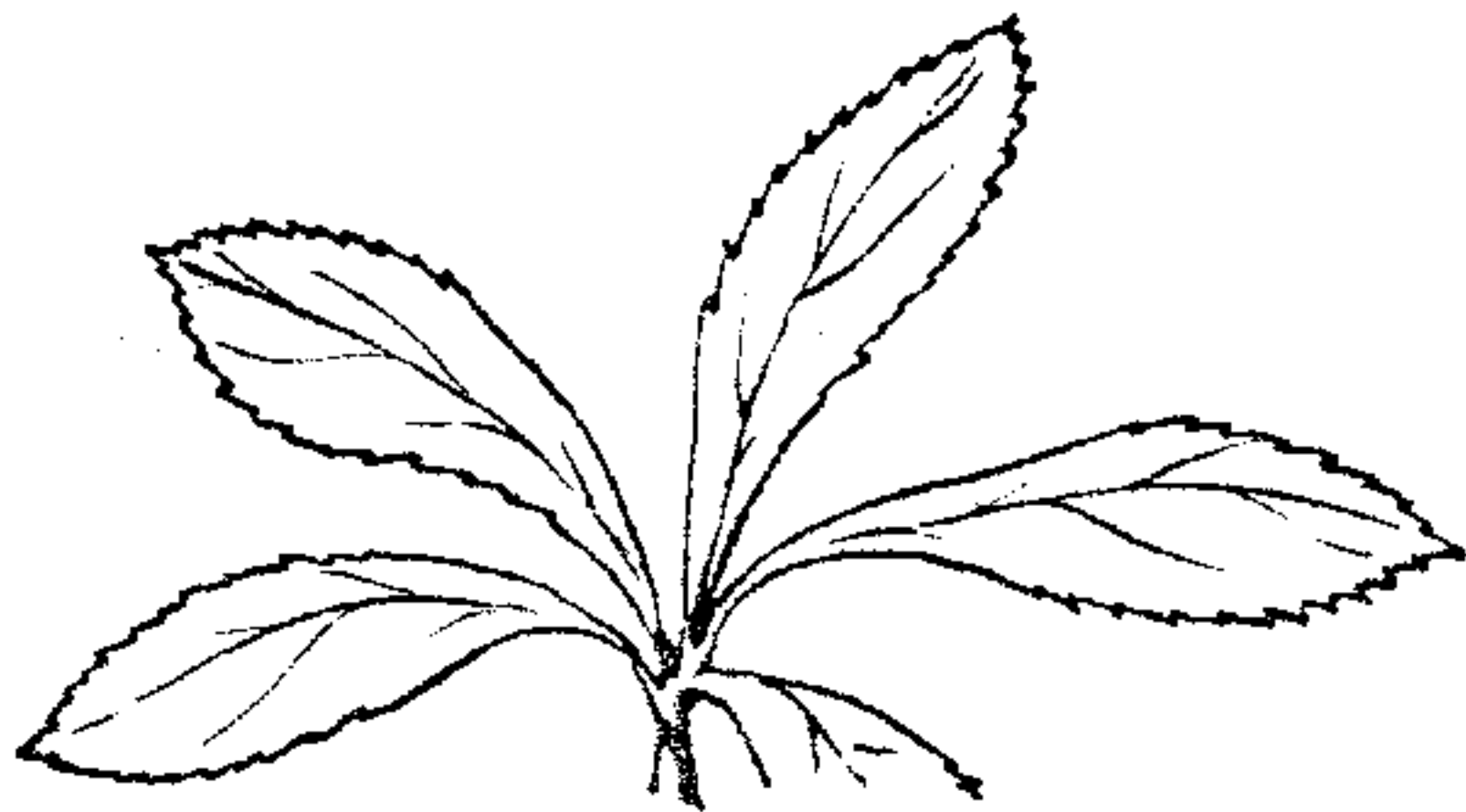
The Indian name "Pipsissewa" is an attractive one, and its very sound - somewhat like a birdcall - makes it one of those words which we enjoy enunciating. Maybe the temptation is too great, for we often apply it without favoritism to two quite different plants.

For those who like to keep these things straight, the two are known technically as Chimaphila maculata and C. umbellata, but those supposedly descriptive scientific names can cause as much confusion as the indiscriminate use of "Pipsissewa" or, as we shall see, some of their other common names.

In each species, the nodding waxy flowers are in a loose corymbose cluster; not only are they not arranged in umbels, but the one that more nearly approaches that form is not C. umbellata, as you might expect, but C. maculata. Moving on to the latter, the specific epithet maculata means "spotted" and refers to the white markings on the dark green leaves, but they are not spots at all but broad stripes that follow the midrib and the secondary veins.



Chimaphila maculata



C. umbellata

We can resort to colloquial names, and yet avoid the "Pipsissewa" problem altogether, by calling C. maculata by its other nickname, "Spotted Wintergreen". Ignoring the first part, the term "wintergreen" is entirely acceptable as being descriptive of the persistent, ever-green foliage. Provided, of course, we don't forget that the true Wintergreen is another heath, Gaultheria procumbens! Chimaphila umbellata also has another name, "Prince's Pine", but whether it is thought to be scientifically irresponsible or merely whimsical, one seldom hears it used.

Ironically, the plants themselves present less cause for confusion than do their names. In addition to the characteristics already noted, C. umbellata has bright green unvariegated leaves with serrate margins, and petals tending more toward pink, while the leaves of C. maculata have widely spaced teeth and its flowers, if not white, are only slightly roseate.

Dick Smith

THE SIGNIFICANCE OF DNA -- A LAYMAN'S EXPLANATION

The letters DNA stand for deoxyribose nucleic acid which, in molecular form, is found in cells of plants and animals, and which carries hereditary information.

To relate this brief definition to plant life, it is helpful to first review the composition of a typical living plant cell. As shown by Sketch #1, the contents of the cell are contained within the cell wall (walls are lacking in animal cells). Adjacent to the periphery of the wall is the living material known as cytoplasm in which the nucleus and the chloroplasts, containing chlorophyll, are imbedded. Irregular in size and volume is the vacuole containing cell "sap" -- mostly water with dissolved, very low concentrations of numerous chemical substances.

For continued consideration we are concerned with the nucleus. As depicted in Sketch #1, the nucleus can be viewed by a light microscope magnified approximately 600 times. To search farther to reveal the contents of the nucleus, the scanning electron microscope must be employed providing magnifications of several thousands of times that actually enables viewing of molecules of matter.

Observed microscopically in the nucleus are elongated and irregularly shaped paired bodies known as chromosomes (Sketch #2). They are the determiners of hereditary characteristics. As cells divide during growth these chromosomes pair and split so that equal chromosomes and their genetic characteristics are faithfully reproduced.

On these chromosomes is the actual carrier of this genetic information, the DNA molecule. More highly magnified, the DNA molecule appears long threadlike, assuming an irregular winding configuration, as shown by Sketch #3.

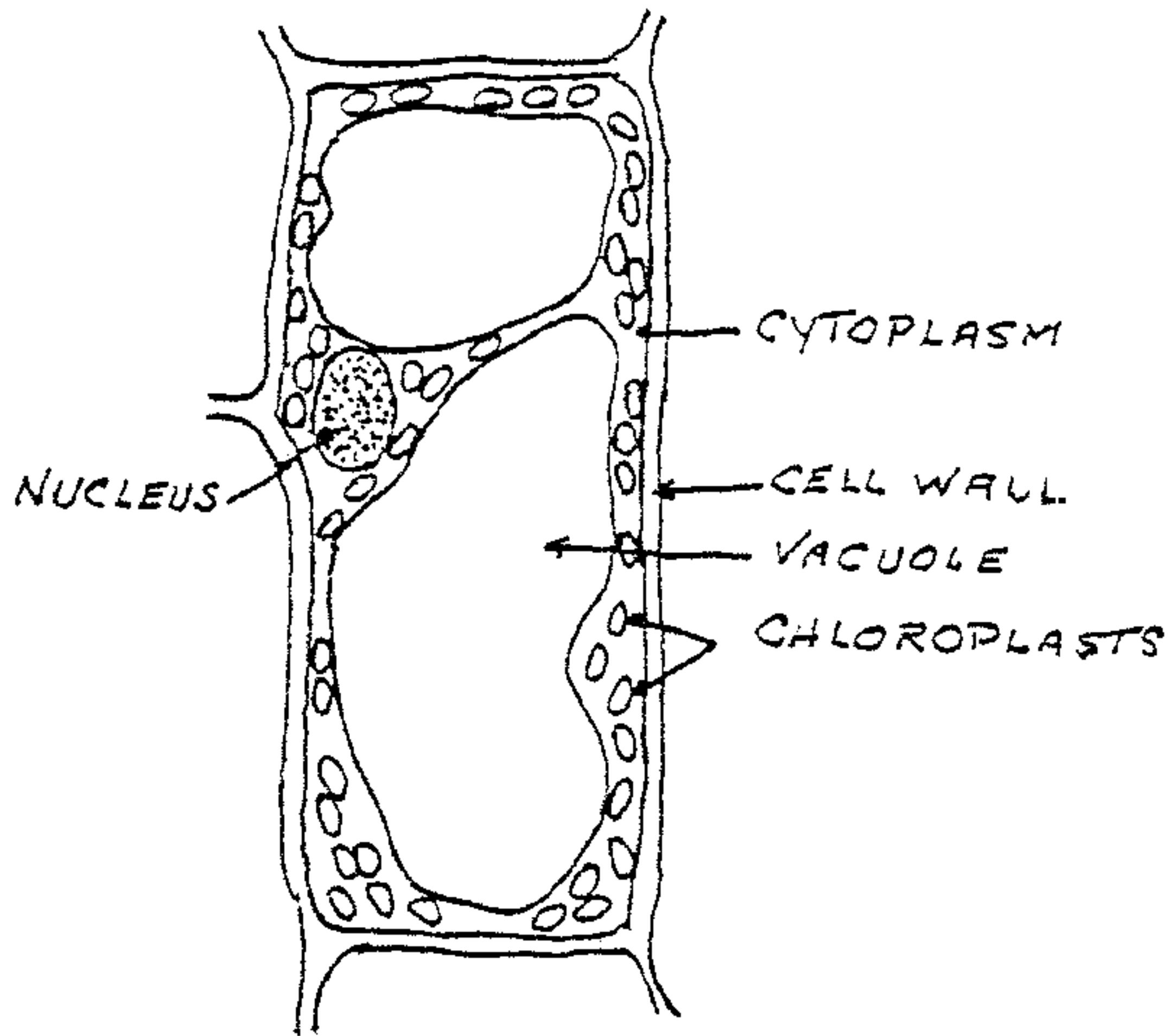
This DNA strand, a complex chemical structure, has the hereditary genes in the form of proteins and bases distributed along its double helix length as shown diagrammatically by Sketch #4. The number and characters of the genes vary in accordance with subject under study -- be it bacteria, higher plant tissue, or animal substance.

So in effect, the language of life in the genetic code is stored in the DNA molecule. And this language is rapidly directing biological research into the alteration and recombination of the genes of the DNA ribbons in a relentless revolution known as genetic engineering.

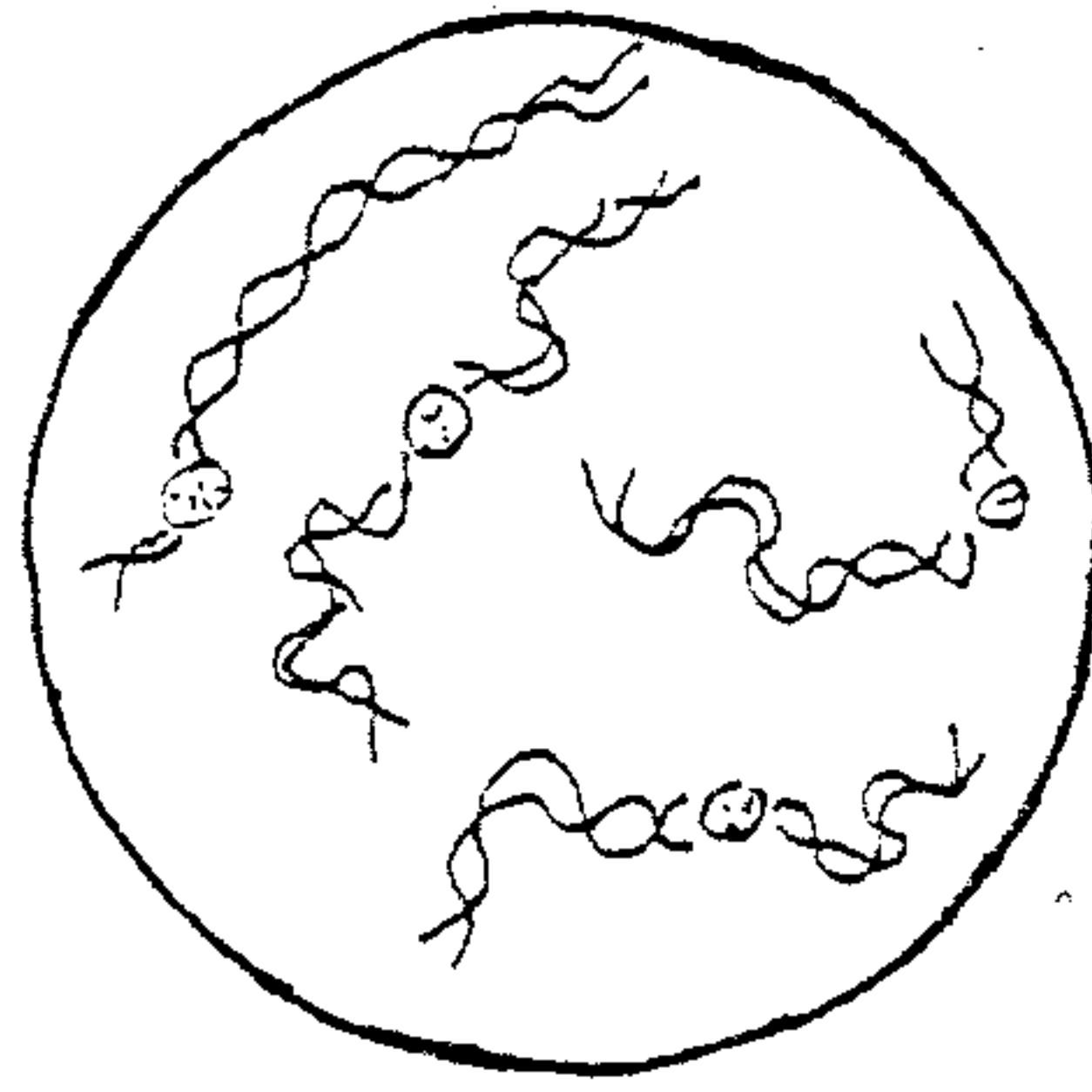
Gene splicing experimentation, although currently intensively pursued, has much to be proved before some of the envisioned benefits are attained. A long list of proposals includes the insertion of new genes to enhance the nutritive value of certain farm crops and enable plants other than the legumes to extract nitrogen from the air for soil enrichment. One study of the potential for new genetics in agriculture forecasts a 50 to 100 billion dollar worldwide market developing in the next 20 years. The latest actual development, "the gene machine", is a desk-top computer that automatically synthesizes fragments of genes whose genetic code can be typed on a keyboard!

What next?

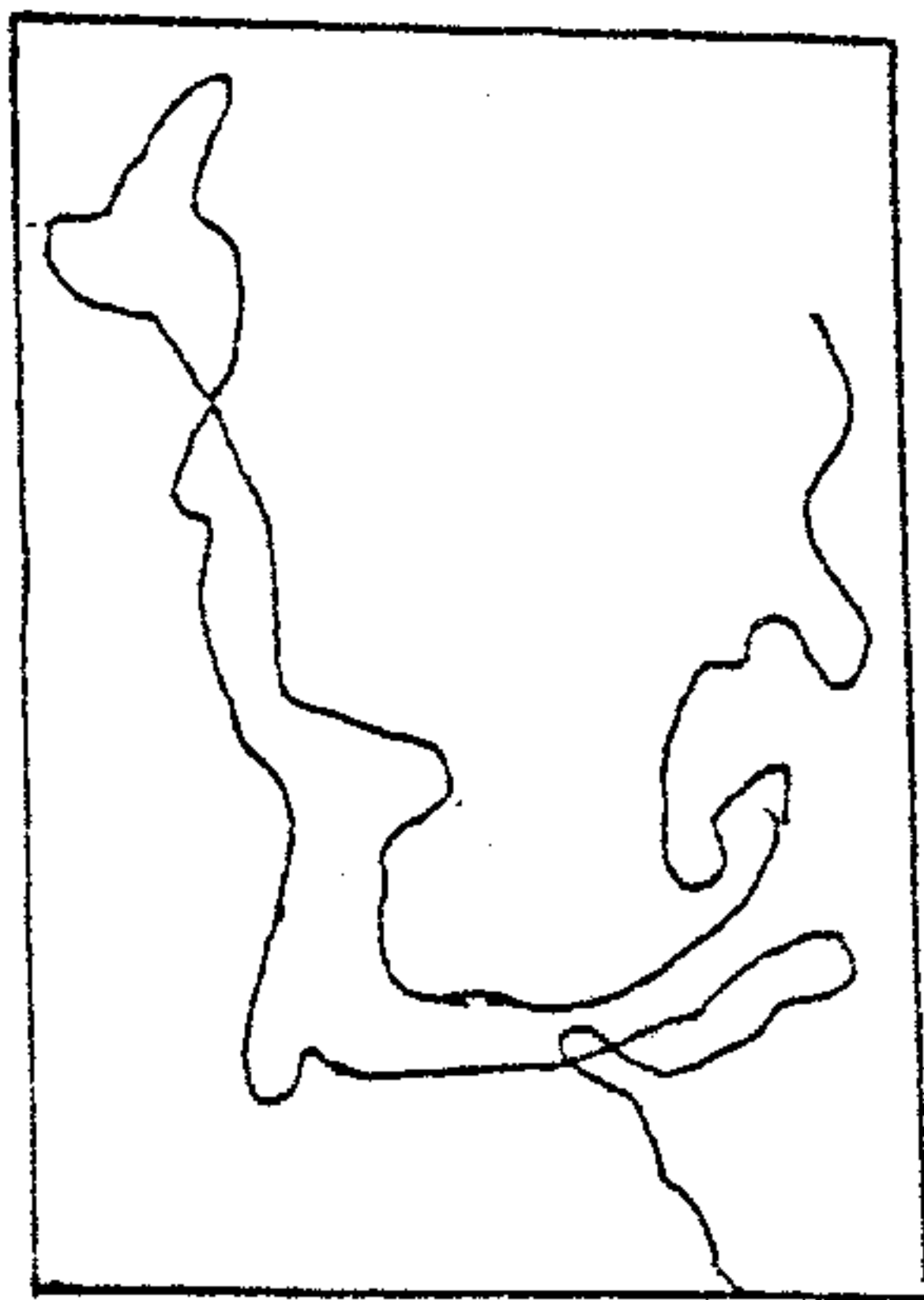
Harvey Krouse



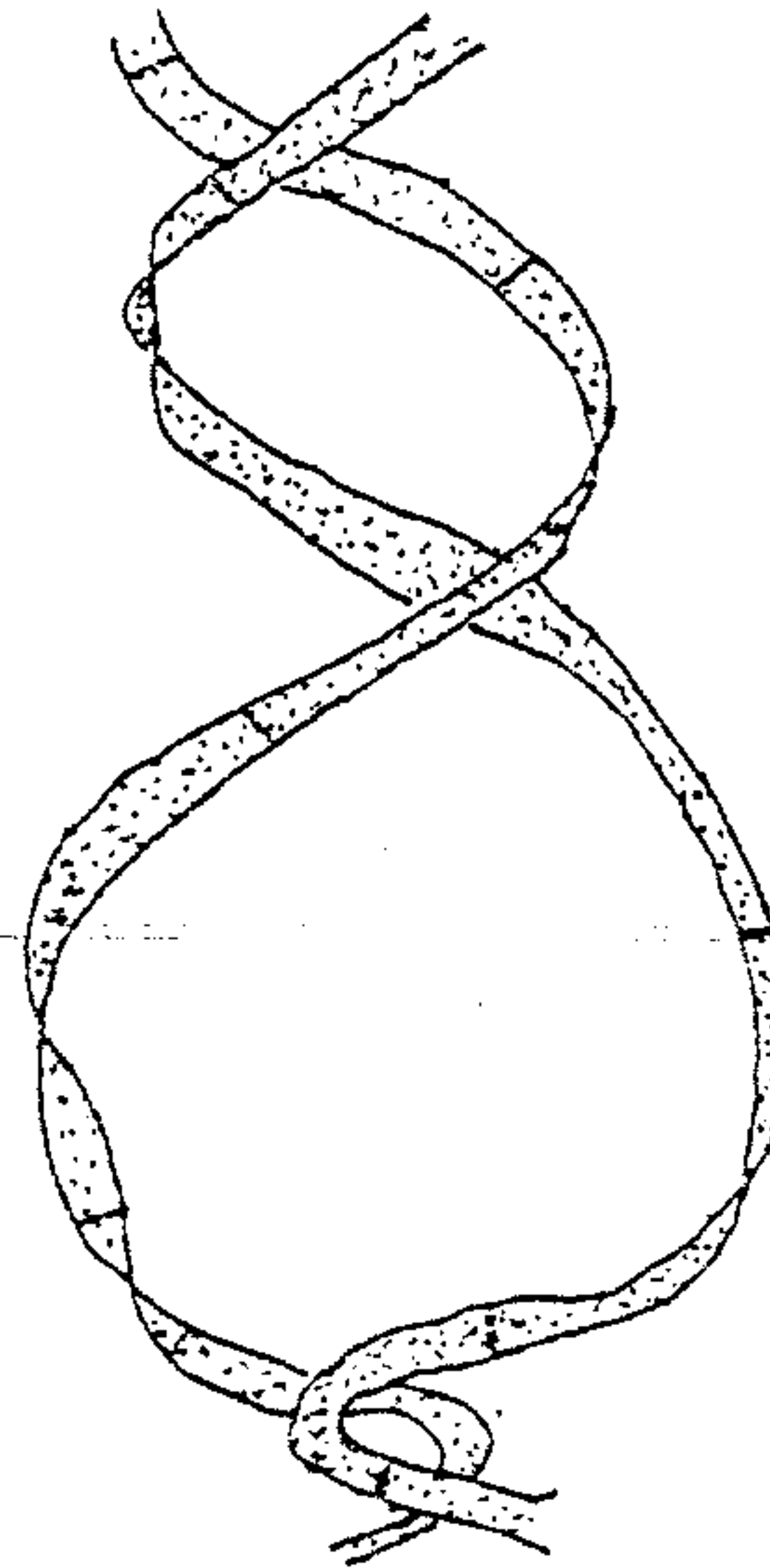
SKETCH #1
DIAGRAM OF LIVING CELL



SKETCH #2
DIAGRAMATIC CONCEPT
CHROMOSOMES IN A NUCLEUS



SKETCH #3
 LONG THREAD-LIKE DNA
 MOLECULE



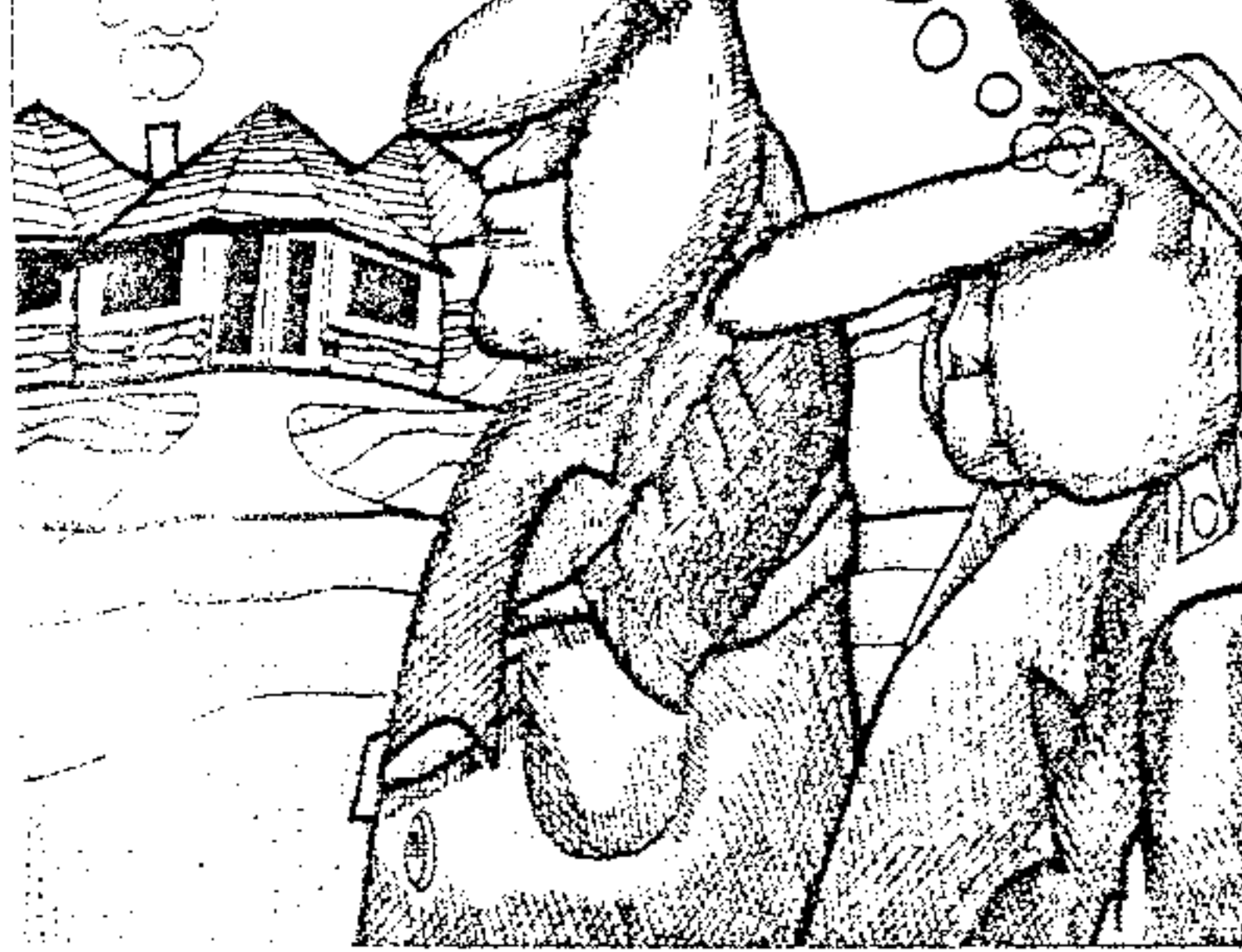
SKETCH #4
 PART OF DOUBLE HELIX OF DNA

JUST A REMINDER

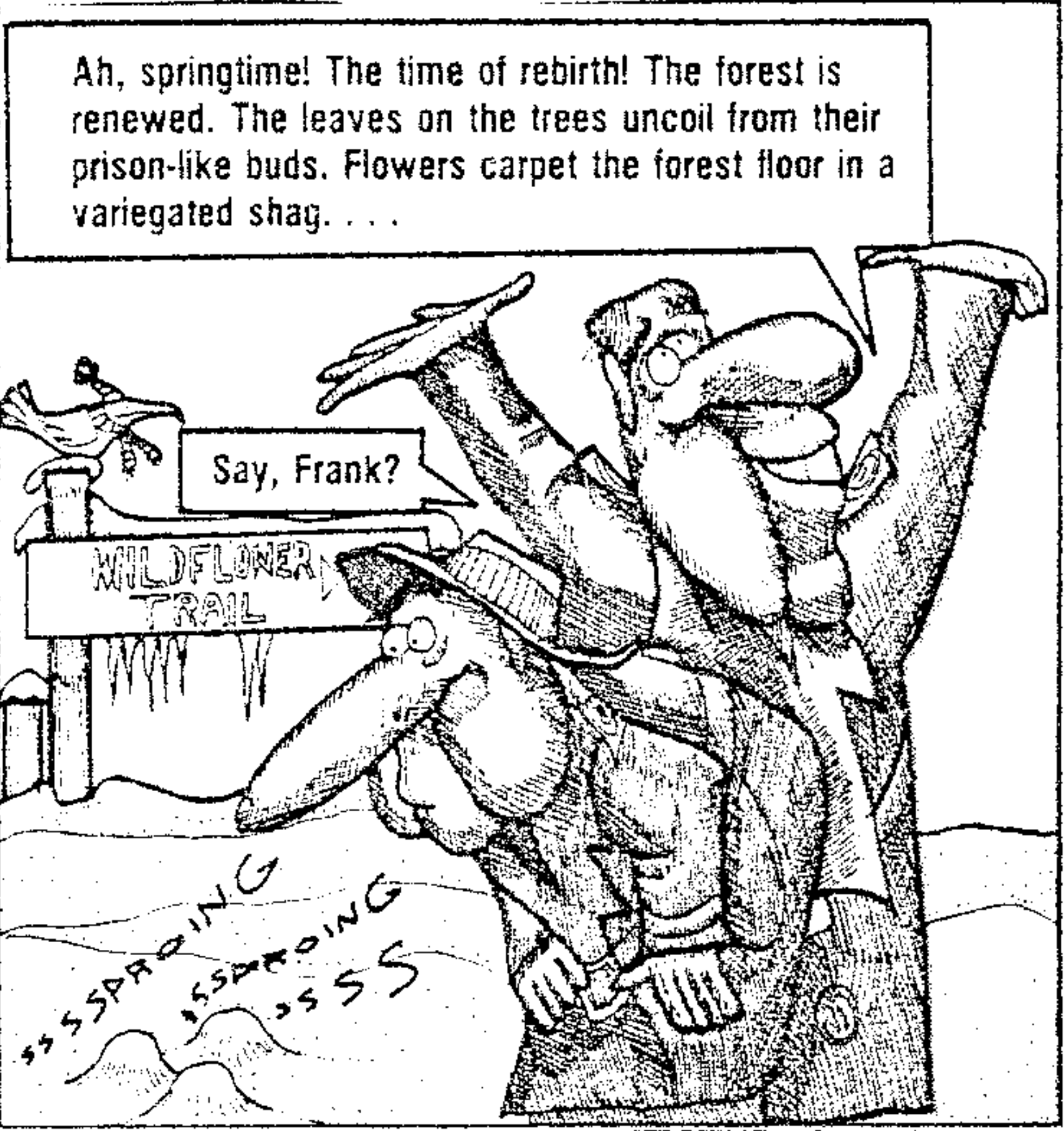
On June 8 the WCBC will have its day of weeding at the Asheville Botanical Gardens. Let's have a good turnout for this event. Bring your own tools and lunch.

Hendersonville group meet at Ingles at 9:15 AM and join others at the Gardens at 10:00 AM.

The Adventures of FRANK & JOE, Nature Detectives



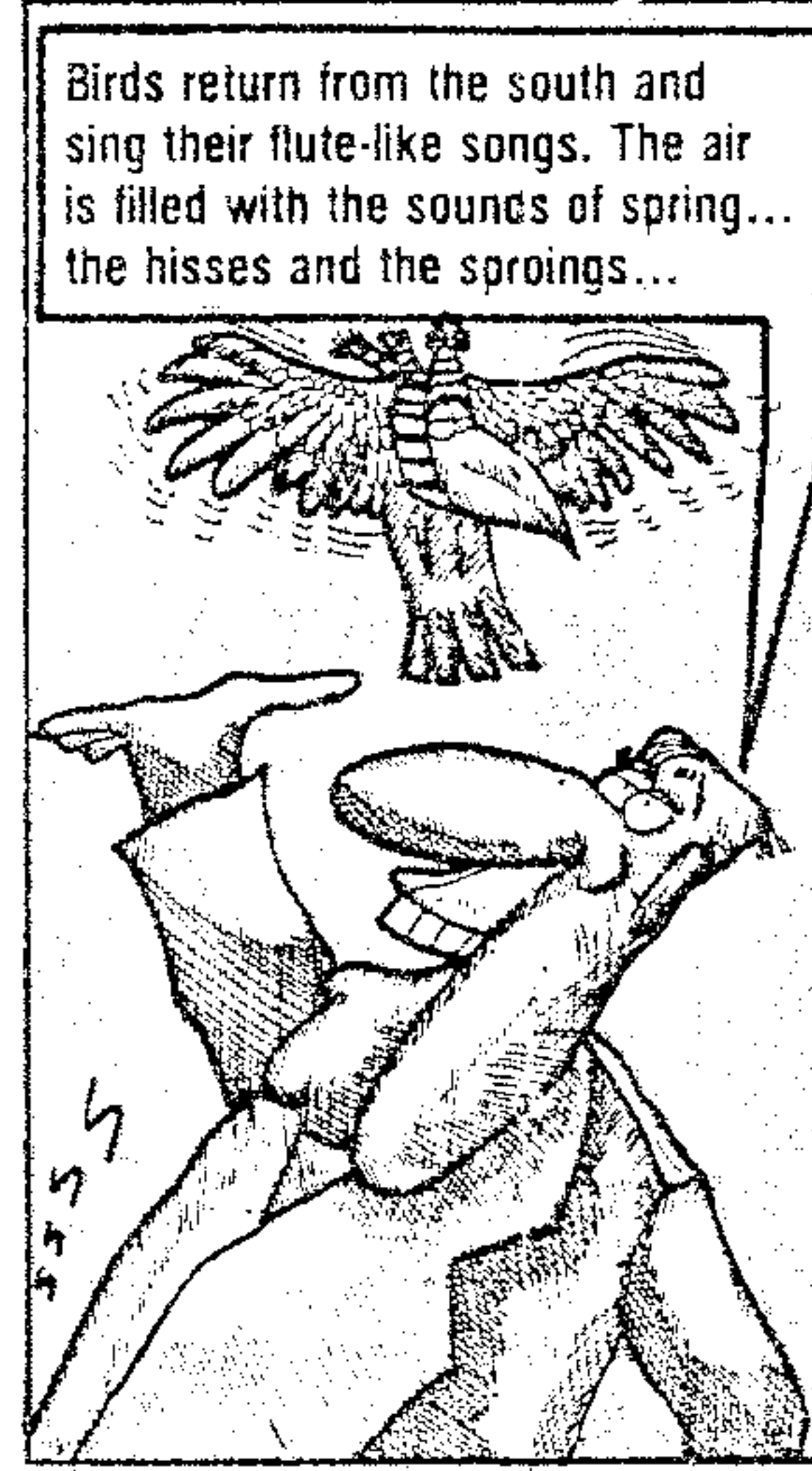
Frank drags me out here to see signs of spring. All I see is snow.



Ah, springtime! The time of rebirth! The forest is renewed. The leaves on the trees uncoil from their prison-like buds. Flowers carpet the forest floor in a variegated shag. . . .

Say, Frank?

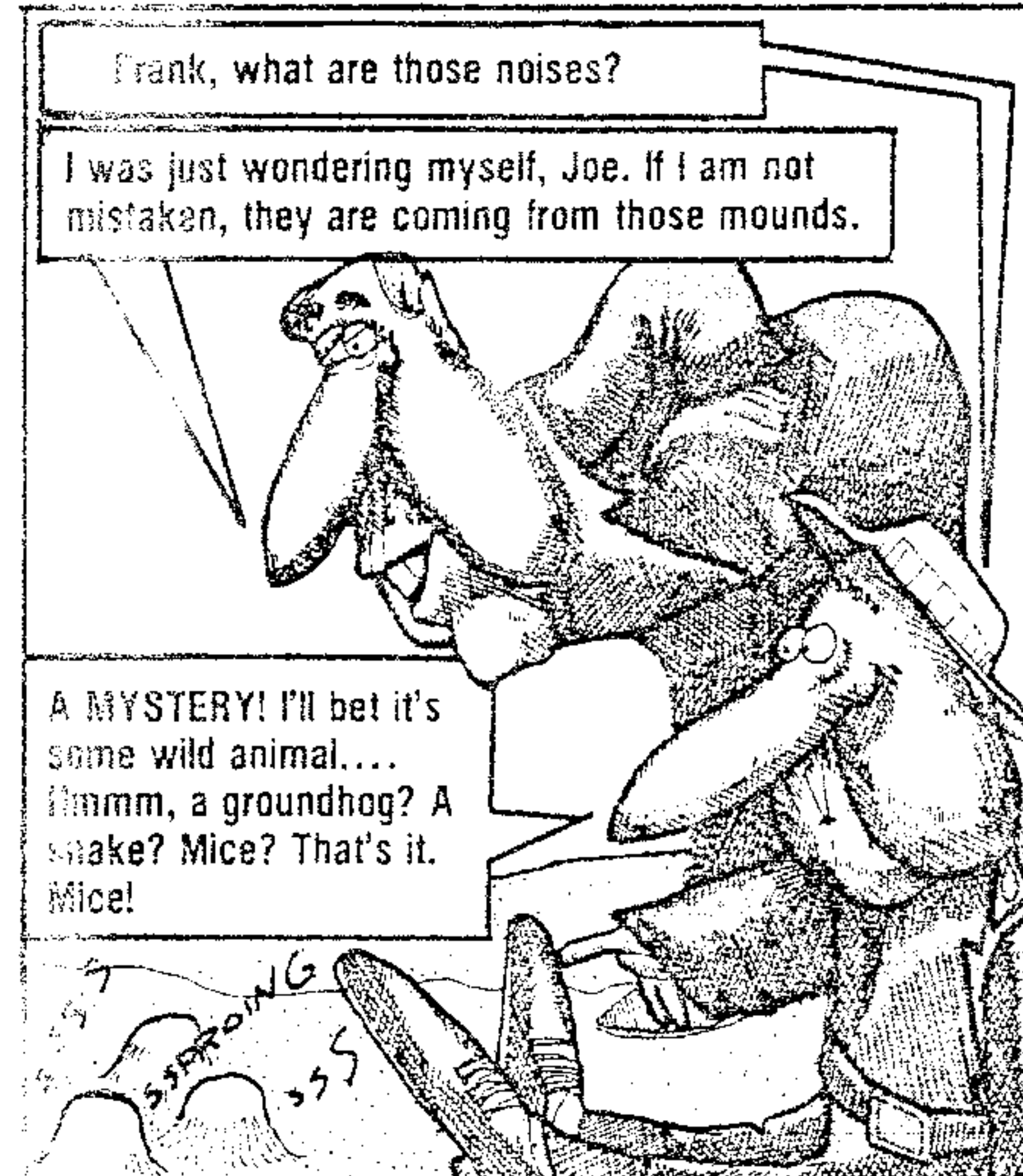
SSSPROING SSSPROING SSSSS



Birds return from the south and sing their flute-like songs. The air is filled with the sounds of spring... the hisses and the sproings...



HISSES?? ... SPROINGS?? ...

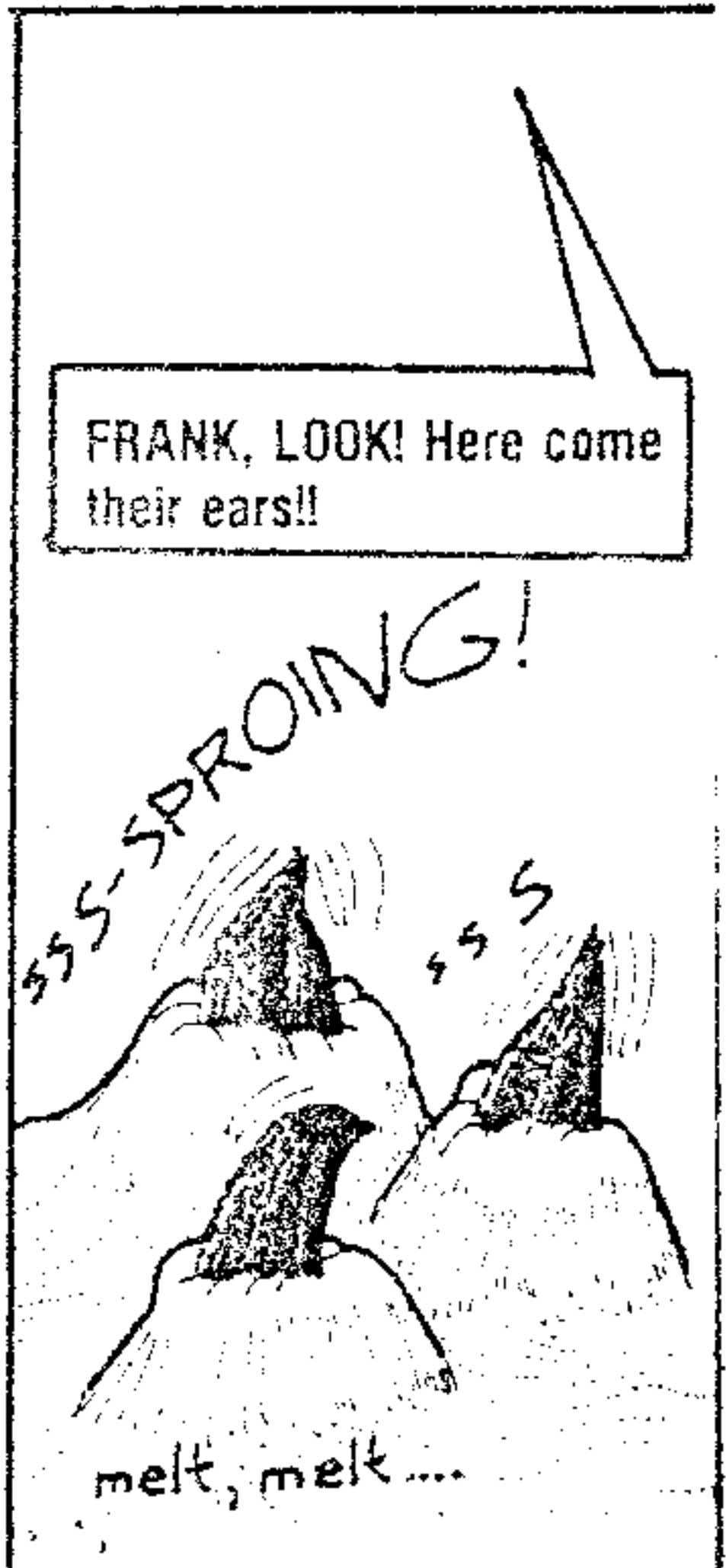


Frank, what are those noises?

I was just wondering myself, Joe. If I am not mistaken, they are coming from those mounds.

A MYSTERY! I'll bet it's some wild animal.... Hmmm, a groundhog? A snake? Mice? That's it. Mice!

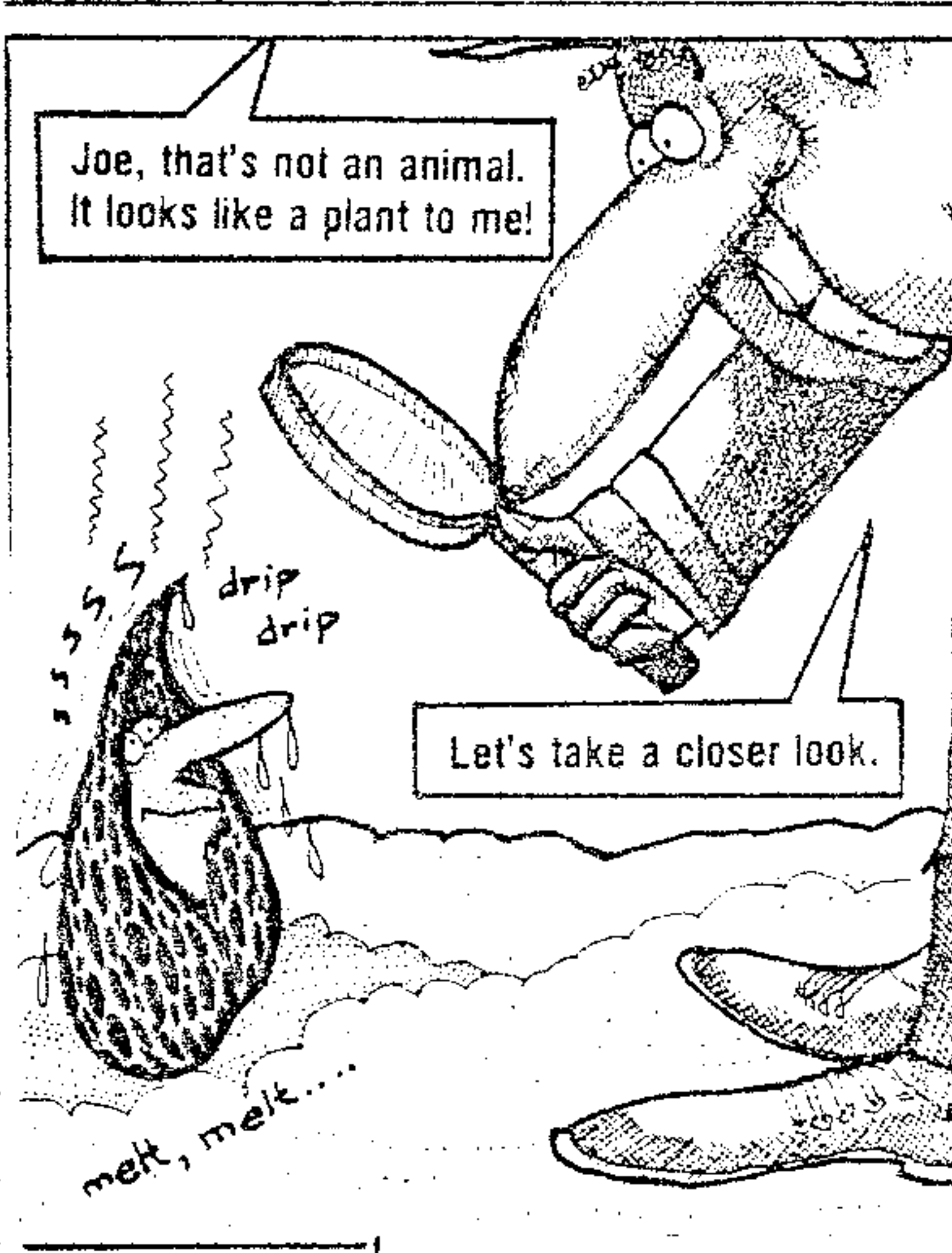
SSSPROING SSS



FRANK, LOOK! Here come their ears!!

SSSPROING!

melt, melt....



Joe, that's not an animal. It looks like a plant to me!

drip drip
melt, melt....

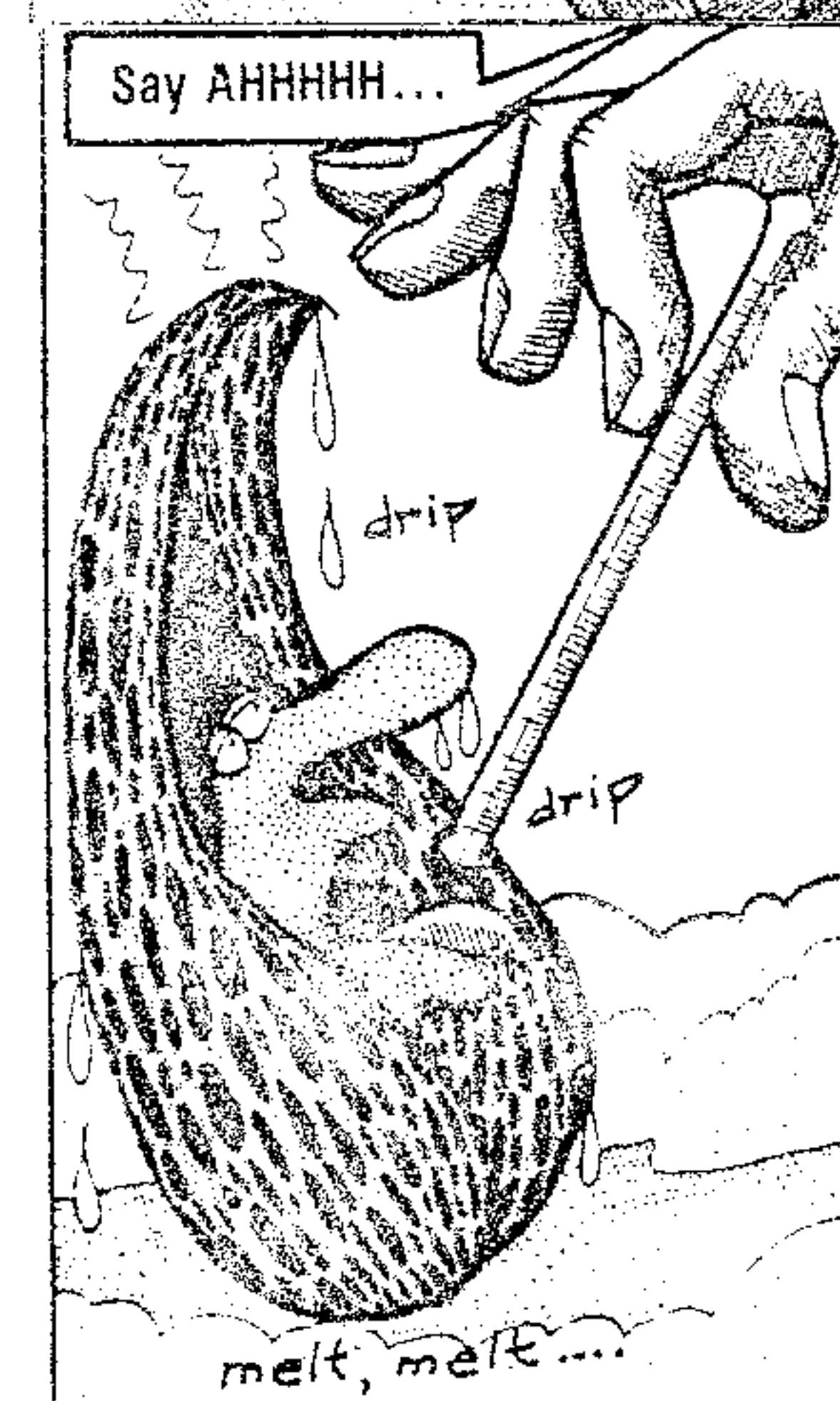
Let's take a closer look.



Gee, Frank. How can a plant grow when the ground is frozen solid?

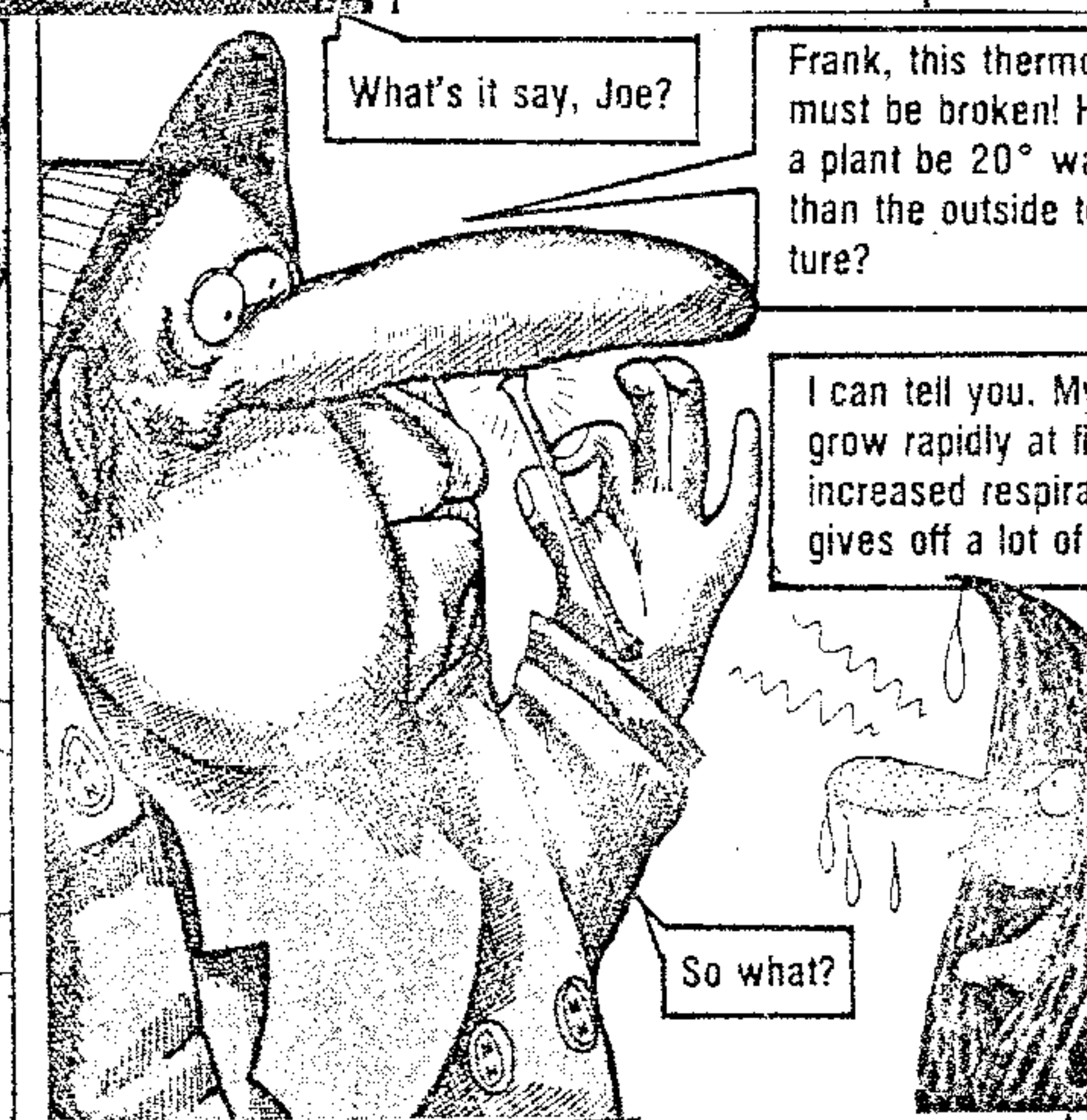
The snow is melted here around the plants! Hmm! Where's your thermometer, Joe?

melt, melt....



Say AHHHHH...

drip drip
melt, melt....

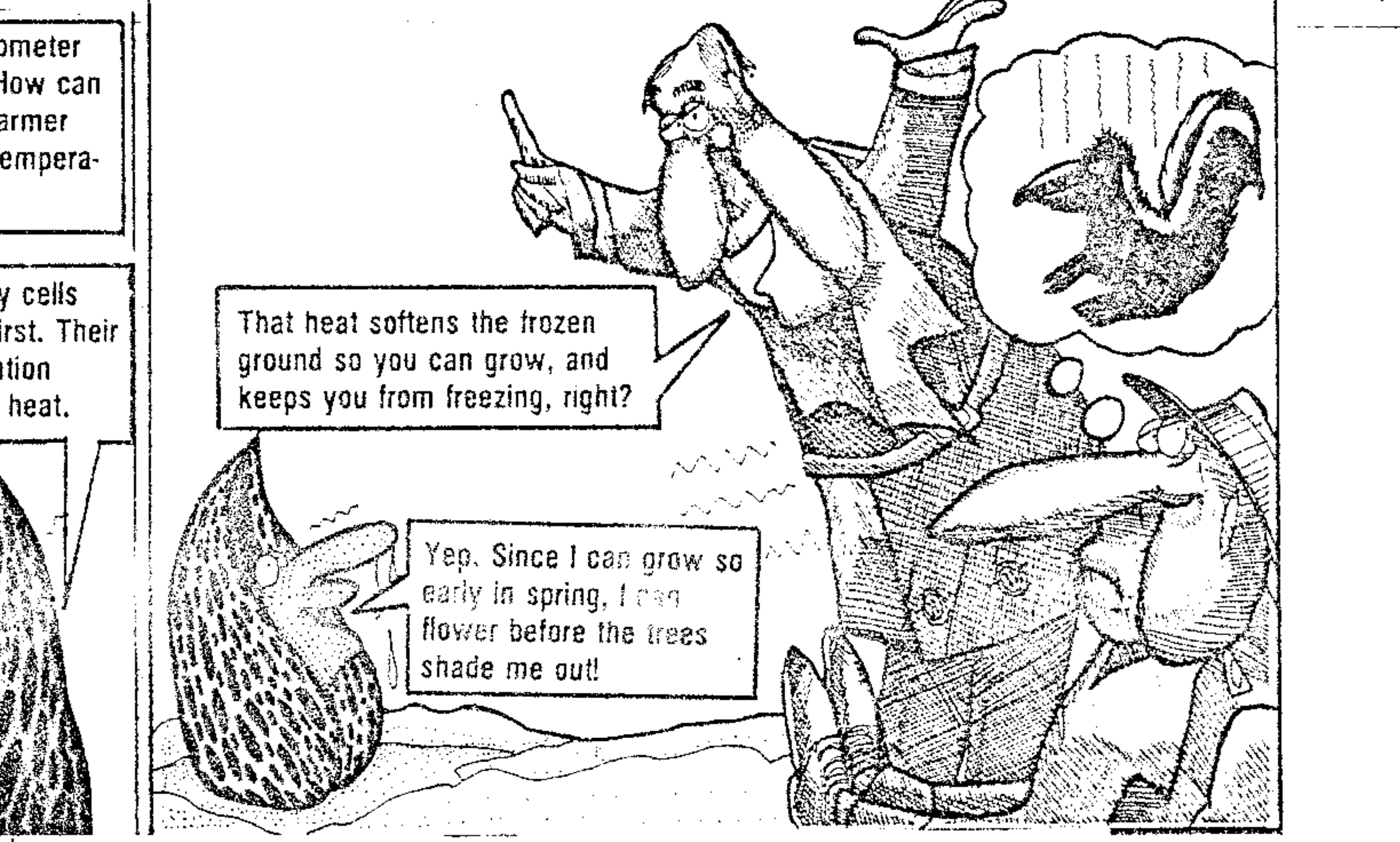


What's it say, Joe?

Frank, this thermometer must be broken! How can a plant be 20° warmer than the outside temperature?

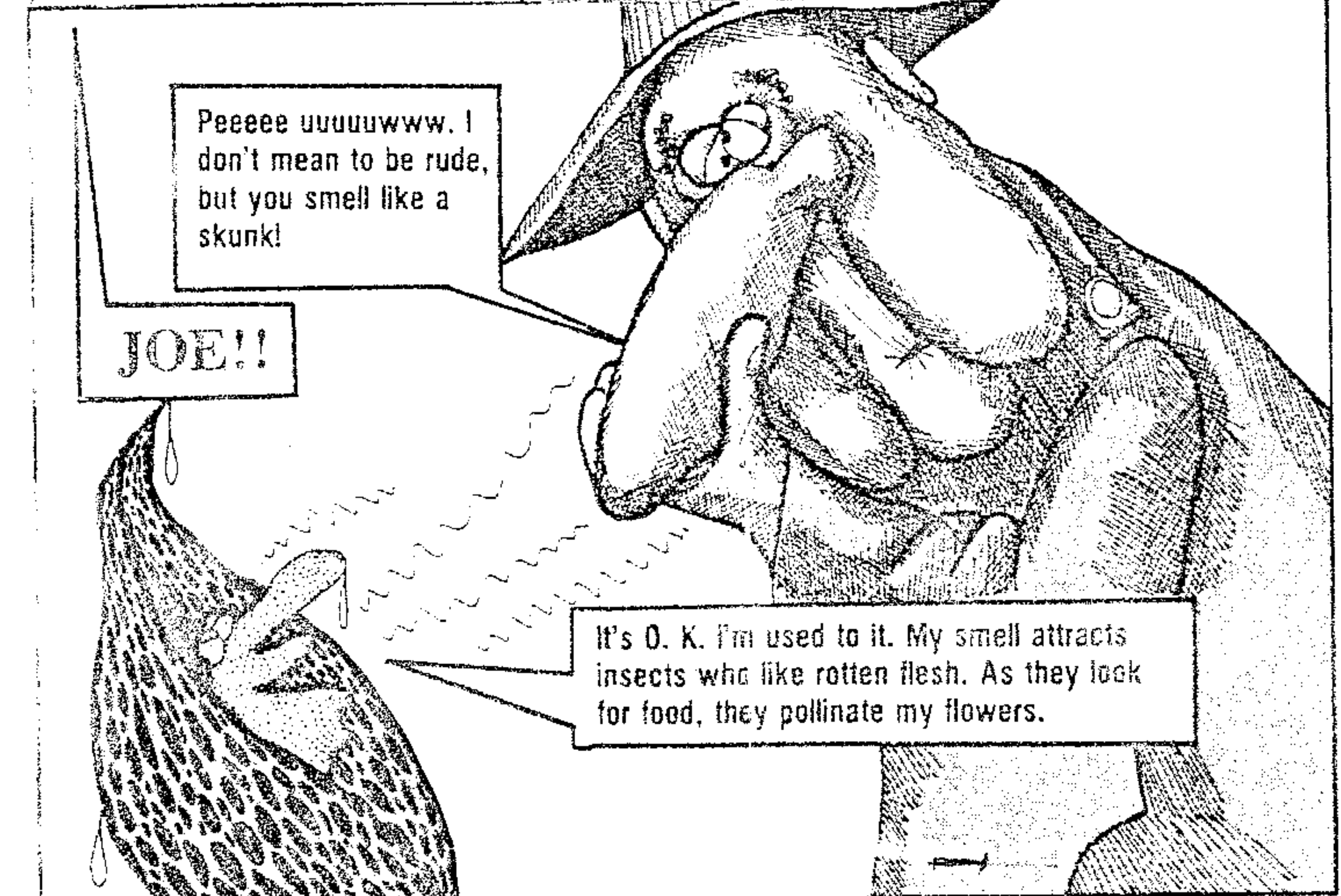
I can tell you. My cells grow rapidly at first. Their increased respiration gives off a lot of heat.

So what?



That heat softens the frozen ground so you can grow, and keeps you from freezing, right?

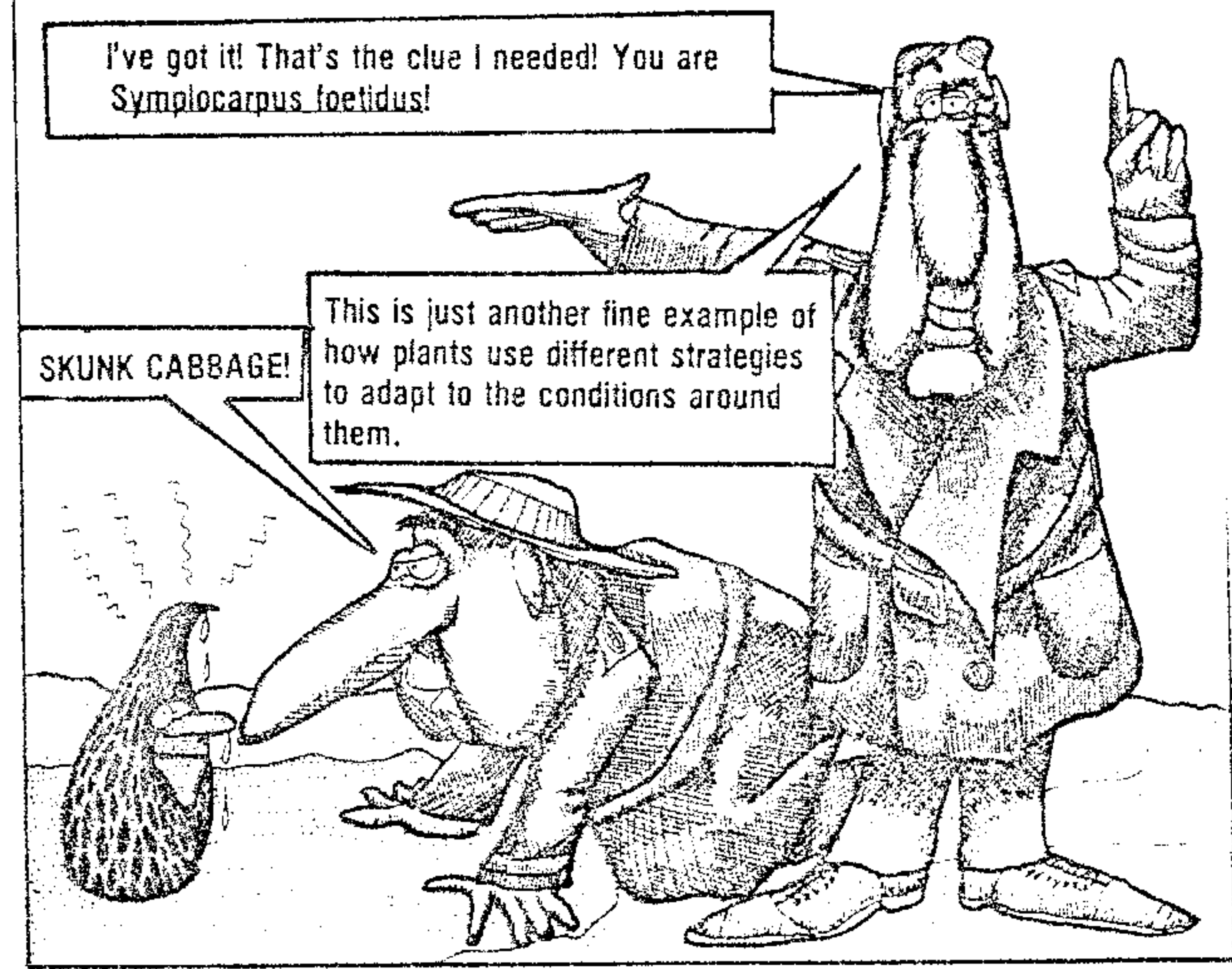
Yep. Since I can grow so early in spring, I can flower before the trees shade me out!



Peeeeee uuuuuwww. I don't mean to be rude, but you smell like a skunk!

JOE!!

It's O. K. I'm used to it. My smell attracts insects who like rotten flesh. As they look for food, they pollinate my flowers.



I've got it! That's the clue I needed! You are *Symplocarpus foetidus!*

SKUNK CABBAGE!

This is just another fine example of how plants use different strategies to adapt to the conditions around them.

CLEISTOGAMOUS WILDFLOWERS

I hold a record of sorts. I have taken Harvey's wildflower course at BRTC more times than anyone else. Like Peggy Camenzind, I learned what zygomorphic and actinomorphic mean. But I also learned what cleistogamous plants are. One day Harvey told us that the Violets -- all except Birdfoot -- are cleistogamous. That is, they produce flowers that are self-fertilized within the unopened flower bud. I held up my hand and asked Harvey if there were any other wildflowers that had this same characteristic. You know what his answer was? He said: "Why don't you just take that on as a research project? You find out and let us know." I still say Harvey's a great teacher.

I finally got around to doing some research on this and, so far, I have learned that the following wildflowers, in addition to Violets, are cleistogamous:

- o Gay Wings or Fringed Polygala (Polygala paucifolia) -- we saw this rather rare plant at Charlie Moore's Preserve on April 22, 1977.
- o Venus's Looking-glass (Specularia perfoliata)
- o Hog Peanut (Amphicarpa bracteata)
- o Touch-me-not or Jewelweed (Impatiens pallida)

But that's all I can find. CAN ANYONE ADD TO THIS LIST so that I can complete my research project and get my degree?

I also learned that the normal kind of flower is called chastogamous, and that every plant that bears cleistogamous flowers also bears chastogamous ones as well, but it's usually only the cleistogamous flowers that set seed. Usually the chastogamous are very colorful and conspicuous -- witness Violets and Gay Wings.

Ralph Raymond

WHAT'S IN A NAME?

I wondered why the pretty Carolina wildflower Trautvetteria carolinensis, known also as False Bugbane, would have such a foreign sounding name. After consulting with Dr. Edgar Reilly, conservator of the N. Y. State Museum at Albany, and Ritchie Bell at Chapel Hill, and with some assistance from my son, John, I now have the story of the naming of this flower.

In a list of some hundred plants collected at Salt Pond Mt. in Virginia in 1890 was this herbaceous plant that had originally been listed by Walter in his 1788 FLORA CAROLINIA in the genus Polygynia. Later, in 1803, Michaux in his FLORA BORTALI called it Cimicifuga palmata. Still later Anna Vail more correctly named it Trautvetteria since it had features of a Japanese species T. japonica, which had been named by Fisher and Meyer in honor of Ernst R. Trautvettia, Professor of Botany at the University of Kiev, Russia.

So -- this plant is a native American, similar to a Japanese plant named for a Russian botanist! There is only this one species of this genus in North America, but such a distribution pattern -- southeast Asia and southeast North America -- is not uncommon in some other families of plants.

Ben Tuller

HISTORIAN'S REPORT

Starting with the Hardy Souls hike in February, we have had a most interesting series of field trips this Spring. In February, 12 of us walked in the snow and cold and enjoyed it. At the end, Bob and Martha Taber invited us to their home to have our lunch in warmth and comfort.

We have had several good indoor slide shows -- all well attended. Harvey Krouse, Harry Logan, and Dr. Creech gave interesting talks on Plant Functions, Indian Artifacts, and Plants of Japan, respectively. John Kuhn gave us his Preview of Spring Flowers. Dick and Jeanne Smith not only showed slides but fed us doughnuts and coffee at the start of their Davidson River walk.

Soon thereafter, Harry Logan and a sizable group took the trip to Callaway Gardens.

It is impossible with our limited space to tell the full story of every trip -- so here are a few reminders:

Clemson University Experimental Forest was an entirely new area to us. The trail was lovely and we saw many plants blooming.

Several old stand-by areas provided the usual good walks and flower counts: Table Rock, Barnardsville, Augerhole, and Holmes State Forest.

Moore Cove Falls brought out 43 persons to see a lovely trail and falls, and some 40 flowers in bloom.

The Great Smoky Mountain trip, taken by 15 members, proved to be a very beautiful one -- flowers blooming all along the Blue Ridge Parkway; Serviceberry so thick on the mountains that it looked like a white mist among the pines. On the trail, we saw the most flowers blooming of any trip this Spring -- 72 in all. Even the drive home late in the afternoon was lovely.

Two scheduled trips had to be called off because of bad weather: Bat Cave (twice) and the Cradle of Forestry.

This Spring we would like to acknowledge with appreciation a number of special and beautiful trips on private estates. To all the following we wish to say: "Many thanks for your interest in and kindness to the WCBC."

Millie Pearson -- at whose home we had our lunch along her lovely rushing stream after we had walked her trails and seen some 42 plants in bloom.

Frank and Mrs. Bell -- who asked us into their home. Frank took us on the trails and to the bog after which we ate lunch under the trees near their house high on a hill.

Charlie Moore -- who is always so willing to welcome our group and to spend his time taking us over the lovely trails, bog and meadows of his property. We much appreciate his knowledgeable, cheery trail guiding.

Mr. and Mrs. Shinn -- who have always welcomed our group and who, in recent years, have depended on us for trail guides during the Spring Wildflower Pilgrimage at UNC when persons visit their gardens on two successive days. This has proved a mutually happy occasion.

Reports of scheduled events after the middle of May will appear in the next issue of SHORTIA.

Louise Foresman

NEW MEMBERS

(Hendersonville understood unless otherwise specified)

Ammann, William & Virginia, 29 Peachtree Lane 692-9443
Bellamy, Lorraine, Rte. 2, Box 519
Blaha, George & Mildred, Drawer F, Cedar Mt. 28718 885-2424
Graves, Rupert D., 919 5th Ave. W 692-1690
Kriner, Ray & Janet, 4 Little River Lane 692-7295
Lindley, Mary Ellen, Franklin, NC 28734
Moore, James B. & Ruth, Rte. 3, Box 450, Fletcher, NC 28732 .. 684-8554
Pearson, Mildred, Rte. 1, Box 330, Saluda, NC 28773 749-3171
Stevens, Bill & Jeanne, P O Box 2685, Hendersonville 28793 ... 693-1942
Wagner, Louise, 1700 5th Ave., Villa 13 692-7333
Winter, Robert & Lois, 110 Cannon Dr. 692-3855

S H O R T I A

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Please submit contributions for the next issue by August 15.
