BOTANY

Flowers We Fail to See

Easter's symbolism of the triumph of life over death can be seen in the tiny flowers of trees if you look carefully. Most stem from high up.

By DR. FRANK THONE

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➤ EASTER has always been a feast of flowers. Flowers are emblematic of the triumph of life over death, which is the primary significance of the whole Easter observance. Laid on a tomb, they speak of hope. Heaped on the altar, they sing of triumph.

Strangely enough, though, the flowers we always use at Easter are for the most part earth-bound. Lovely as they are, lilies and narcissi and tulips do not stand far above the ground, and even such early-flowering shrubs as forsythia and lilac and spiraea rise but little higher. We seldom gather flowers from trees, unless they are low trees with branches easily seized from the ground, like hawthorn and cherry and crabapple. Flowers that aspire nearest to heaven, on tall trees, we seldom seek.

Some Large Flowers

Some full-sized trees have flowers large and conspicuous enough to make a showing even at neck-craning distance; the waxy blossoms of magnolias, for example, or the showy clusters of horse-chestnuts and catalpas.

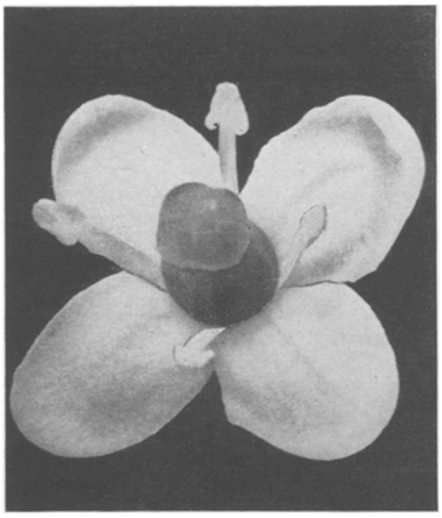
But the flowers of most large trees are not only borne high up, they are also so small and inconspicuous that few persons outside the professional ranks of botanists and foresters pay any attention to them. Their roster is a notable one: all the conifers, all oaks, hickories, maples, beeches, elms, poplars, willows, hackberries, walnuts, sycamores—in fact, almost all trees that figure importantly in the makeup of our native forests.

There is good cause for this, if you accept either the evolutionary doctrine that structures without survival value to the organism are themselves unlikely to survive, or its more simply-stated philosophical opposite number, that "everything has its use." Most of the trees in this list, and many others besides, are wind-pollinated. Needing no help from insects, their flowers lack the lures of bright petals, sweet odors and tempting nectar that attract insects to the kind of flowers that most of us think of as "really flowers."

Small But Beautiful

Small and inconspicuous though these usually unnoticed flowers are, they have beauties of their own, as all well-adapted, functional structures are likely to have. These hidden symmetries can be spied out with a good hand lens, or recorded permanently with a medium-power enlarging lens on a camera. Prof. Walter E. Rogers' "Tree Flowers," published a dozen years ago, is a classic of this kind of photography; more recently Dr. W. M. Harlow of the New York State College of Forestry has also done some notable work along this line.

Brought up to a scale that the human eye can perceive and appreciate, these tiny flower-parts can be great stimulants to the imagination. The styles on a chestnut's female or pistillate flower, shown on the cover of this SCIENCE NEWS LETTER, reach out like pale, supplicating fingers; willow seed-clusters, seen enlarged on the cover, group into a flame-like plume; an individual floret from the dogwood's flower-cluster looks like a miniature Greek vase in porcelain or carved ivory; twin sacs filled with pollen in almost any staminate flower are the gold-bags of a miser until they burst—then they are a spendthrift's pockets.



HOLLY FLOWER—If the flowers of this tree were as large as cherry blossoms, holly would be as highly esteemed for them as it is now for its berries. Pictures by Prof. Walter E. Rogers.

Not all these small but beautiful flowers belong to the group that lets the wind do their wooing. Some of them are fair copies of more conspicuous blossoms that depend on insect cooperation, with sepals and petals as well as the indispensable reproductive parts, the stamens and pistil.

Such a one, for example, is the holly flower. Enlarged to a more easily visible size, it becomes an even competitor with any cherry or apple blossom. It was appreciated as long ago as the sixteenth century, as witness two verses in the old Christmas carol:

"The holly has a blossom
As fair as the lily flower."

One interesting thing is brought out by a magnifying-glass examination of holly flowers: Although holly trees and bushes are separately either male or female, it was evidently not always so. For the female flower, that forms the berry, has four stamens as well as its pistil; but their anthers are withered and never produce any pollen. Similarly, the male flower, with its functional stamens, also has the nub of a pistil, which is of course barren.

Sweet Scent

Some of these small flowers that nevertheless attract insects make up for their lack of conspicuousness with intensified odor. As late spring turns the corner toward full summer, go out to a linden tree, or to a flowering grapevine. Either of these, when in full bloom, will pour forth a flood of sweet scent that is intoxicating even to dull human nostrils. No wonder that the more scent-sensitive bees and small moths go as mad over them as a cat over a catnip ball!

While some of the small, wind-pollinated flowers, like those of willows, alders, elms and poplars, come in plenty of time for Easter, and even weeks before that, wind pollination is not necessarily an early-season phenomenon. Most oaks, for example, bloom in May, when there are plenty of insects around, and plenty of insect-pollinated flowers for

them to work on. Many of the conifers, too, toss their clouds of yellow pollen to the breeze when it has been warmed up a bit.

It used to be thought that "imperfect" flowers, dependent upon the wind for pollination, were relatively primitive and "simple"—the marks of earliest-evolved seed-plants. There is no question that the earliest-evolved seed-plants were wind-pollinated—the insects that existed in those times were ill adapted to the job of carrying pollen. But to conclude from that fact generalization that all wind-pollinated plants are primitive is a case of reasoning backward: certain wind-pollinated families, such as grasses and sedges, are relatively highly evolved; and it is becoming apparent that some of the wind-pollinated trees, like oaks and hickories, merit consideration above the humble rank to which they were assigned by earlier botanists.

Although we may need the aid of a magnifying glass to see their tiny flowers, there is no need for magnification of the importance of wind-pollinated plants. To this group belong all grains, the beets and the cane that are the sources of almost all of our sugar, the palms that yield us nuts for oil and dates for food, such fiber plants as hemp and ramie, all softwoods and most hardwood trees, the grasses that form our pastures, lawns and golf courses, and most of the shade trees that line our streets and fill our parks. We may lavish our attention on the plants with showy flowers, but it is the ones without such adornment that really make human (and animal) life on this planet possible.

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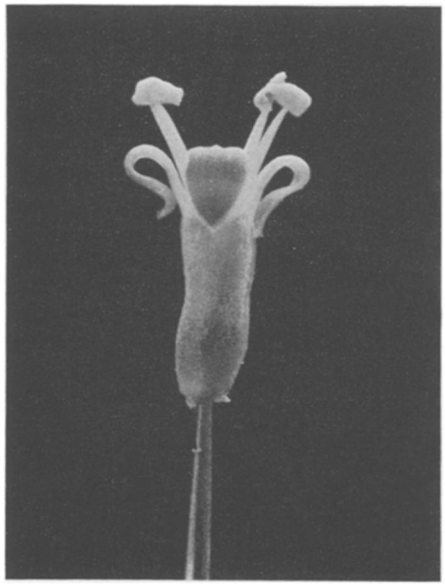

DECEIVING DOGWOOD—Things are not what they seem: this is the real flower of the flowering dogwood.

MEDICINE

A-Bomb Story Not Yet Told

Four or five generations may pass before the full effects of A-bombs will be felt. Jap babies show no abnormalities traceable to radiation.

➤ EVERYONE ALIVE in the world when the atomic bombs fell on Hiroshima and Nagasaki may be dead before it is known definitely whether Jap babies are going to be born deformed or abnormal because of A-bomb damage to their parents' germ-cells.

The effects of such damage may not show up for several generations. At 20 years to the generation, it may be 100 years before abnormalities, if they do occur, will appear in descendants of the atomic bombing survivors, it is thought.

This is because the changes, or mutations, which irradiation can bring about in some species of life, such as fruit-flies, are in most cases recessive and may go undetected for several generations.

The fact that some deformed babies have been born in Japan since the A-bombings does not mean that the deformities or abnormalities were the result of the bombings. Members of the Atomic Bomb Casualty Commission, who have just completed a special study of the situation in Japan, found no more cases of such abnormalities than would be normally expected. In any population, it was pointed out, there are always a certain number of individuals born who are not fully normal.

Sterility of a temporary nature apparently occurred, the Commission found from autopsy studies made on those who died within a few weeks after the bombings. Whether any survivors will be permanently sterilized cannot be determined yet.

Starvation and infectious diseases are sterility factors which were present at the time of the bombings. If sterility does occur, it may be difficult or impossible to determine the part played by these factors and the part played by radiations from the bombs.

Members of the Commission were: Dr. Austin M. Brues of the University of Chicago and the Argonne National Laboratory; Dr. Paul S. Henshaw of the Clinton Laboratories, Oak Ridge, Tenn.; Lieuts. Melvin A. Block and James V. Neel (MC), U. S. Army, and Lieut. (j. g.) Frederick W. Ullrich (MC), USNR.

Concrete affords such a degree of protection that a person within a concrete building 500 meters (slightly under one-third of a mile) from the ground center of the explosion fared no worse, on the average, than a person standing in the open 1,400 meters distant from the blast.

A large number of burns suffered by the victims, the Commission found, healed with the accumulation of large amounts of elevated scar tissue, called keloids. Whether these are forerunners of cancer and why they occurred are unanswered questions.

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PHYSICS

Air Pressure Measures Roughness of Surfaces

➤ A NEW LABORATORY instrument called a rugosimeter, for measuring the roughness of surfaces, is offered by Dr. Melvin Mooney of the United States Rubber Company for patent 2,417,988. Air under pressure is blown through an opening in the middle of a smooth plate applied to the surface to be measured. The rougher it is, the more openings for air flow it will offer; hence a pressure gauge can be used to give an integrated reading of the surface's roughness.

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