

wild tree tobacco native to our southwestern states and Mexico. Like nicotine, it is an effective insecticide. Although produced in Russia, it has never been developed commercially in the United States.

One of the earliest uses of insecticides was to stun fish so they could be caught easily. Natives in the East Indies, Africa, South America and India crushed various plants in water and poured the mixture into the stream they wished to "fish." Stupefied by the preparation, fish rose to the surface where they were easily caught. Derris, cube and other plants whose roots were so used all belonged to the family *Leguminosae*.

These plants have subsequently been found to contain a compound called "rotenone." Today most of our rotenone is grown in South America.

### Discover Rotenone's Structure

Following years of research, the complete chemical structure of rotenone was determined almost simultaneously by groups of chemists in the United States, in Japan and in Germany. The American chemists, who published their results in 1933, were Dr. F. B. LaForge, Dr. H. L. Haller and L. E. Smith, all of the U. S. Department of Agriculture. They devised analytical methods for determining the amount of rotenone in the root dusts.

The effectiveness of rotenone, like pyrethrum, can be increased by mixing it with certain synthetic compounds. The late L. W. Brannon, Department of Agriculture entomologist working in cooperation with the Virginia Truck Experiment Station, in 1947 discovered that piperonyl cyclonene is a particularly effective synergist with rotenone.

The search for other plants with insecticidal qualities continues.

*Specimens showing materials that are toxic to insects but low in toxicity to humans and animals have been collected for you by Science Service. Pyrethrum flowers, wheat protectant, grain protectant, allethrin and two other specimens are included in the kit along with suggested experiments. The kit is available for 75 cents. Write Science Service, 1719 N St., N.W., Washington 6, D. C., and ask for the Pyrethrum Insecticide Kit.*

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### Fives and Threes

➤ **COUNT PETALS** on as many kinds of flowers as you can find. Opposite the name of each, put down the number of petals its flowers show, thus: wild rose, five; violet, five; trillium, three; toothwort, four; star-grass, three; and so on.

After you have made your list as long as you can, take a look at the numbers. Notice how they are dominated by five and three. Those two prime numbers are the trademarks of the two great divisions of the flowering plants.

Five is the dominant number among the plants that come up with two seed-leaves, the dicotyledons, or for short, "dicots." Three is the mark of the plants with only

### PSYCHIATRY

## Photoshock Treats Psychos

➤ "PHOTOSHOCK" INSTEAD of electroshock is the newest thing in shock treatment for mentally sick persons. In this treatment, an intermittently flashing light is used with a sensitizing drug, Azozol, Dr. George A. Ulett of Washington University, St. Louis, reported at the meeting of the American Psychiatric Association in Atlantic City.

Although it is something like the commonly used electroshock treatment, it is less severe, has a milder onset and seems safer, especially with elderly patients.

The patient does not lose consciousness but has marked changes in his brain wave pattern. This gives an opportunity for research which may help in better understanding of the basic mechanisms underlying all shock treatments.

Electrostimulation, using less current than in conventional electroshock treatment so that convulsions are not produced, was praised by one group of psychiatrists and condemned by another.

one seed-leaf, the monocotyledons, or "monocots."

This "fiveness" is not confined to number of petals alone. The whole flower is apt to have its parts in fives or multiples of five—five sepals, five or ten stamens, five seed-chambers in the fruit.

Similarly, the "threeness" of the monocots will run through all the structures. What appear to be six petals in lily, amaryllis, dog-tooth and tulip are really three true petals surrounded by three sepals that have become petal-like. Botanists, to avoid splitting hairs, call them "perianth-parts."

Sometimes the petals or perianth-parts have become fused together, so that the corolla is bell- or trumpet-shaped as in lily-of-the-valley and trumpet-creeper. Yet even here you are apt to find points or lobes on the margin proclaiming its origin—again three (or sixes) and fives. And the inner structure of the flower, the stamens and the parts of the pistil, will be arranged according to the old basic numbers.

There are, of course, departures from the schemes of fives and threes. The mustard-and-cress family, for example, is so strongly four-petaled and four-sepaled that the group has been named the crucifers, or cross-bearers. Also there are flowers with petals so modified that it is difficult to tell anything about the basic number scheme—Dutchman's breeches, for example, and the wild orchids.

There are also some flowers that produce simply indeterminate numbers of all parts, such as waterlily, magnolia and anemone. But after you have lived with plants for a while you get to regarding these as exceptions or aberrations, and the five-and-three arrangement as the norm.

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Drs. Harry M. Berliner and Fred L. Schartenberg of the VA Hospital at Lyons, N. J., reported that use of this kind of treatment for several years showed it to be safe and effective in certain cases. Included in these are one type of schizophrenia, anxiety states, psychosomatic disorders and reduction of the irritability, anxiety and depression of epileptic patients.

But Drs. Eugene A. Hargrove and A. E. Bennett of the University of California and Dr. Frederick R. Ford of Herrick Memorial Hospital, Berkeley, Calif., reported from their experience that treatment of patients with anxiety or mild depression by electrostimulation is "a very poor second choice to treatment by psychotherapy alone."

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At least 3,000 species of lizards now are known.

The trumpeter swan is the largest American bird of the waterfowl family.