BOTANY

NATURE RAMBLINGS

by Frank Thone

Help Yourselves!

➤ CHILDREN, turned loose in the blossoming spring woods, are apt to indulge in an orgy of flower-picking, just from sheer exuberance of delight in the simple beauties their young minds can comprehend. It is a sad necessity for their elders to restrain them from gathering some kinds of flowers, lest none may be left for the next generation of children.

Violets, however, need no help from the parental or avuncular "don't". Little fingers may be permitted to take all they care to, of these favorites, so long as the plants are not pulled up roots and all—and with most species of violet that is not an easy thing to do.

For free leave to pick violets without fear of ill consequences there are two reasons. Violets are perennials, coming up for several years from the same root-mass, and propagating by simple vegetative growth and spread. Perennials are usually deeper-rooted and more resistant to even wanton attack than are annuals.

The second safety-measure of the violet is even more interesting. Most flowers are dependent on the results of their own pollination for seeds. Not so the violet. While seed-pods may follow the pretty blue and white and yellow flowers, the main crop of seeds is produced later, from a second production of flowers which most of us would never recognize as such. These are short-stemmed, bud-like affairs that never open and have no petals; they shed their pollen internally on their own seed-producing parts and thus insure an abundant crop of seed as it were in secret.

Botanists have a special name for flowers of this kind. They call them "cleistogamous"; the word comes from two Greek roots that combine to mean "hidden marriage". And that is essentially what the whole strange proceeding amounts to.

With two kinds of flowers to produce seed, and vegetative increase to insure survival and supplement the plants' spread, it is not remarkable that violets are among the most successful of spring flowers. Not only do individual plants swarm in woodlands and over open fields; the number of separate species has evolved amazingly. There are at least 300 different kinds of violets, ranging throughout the temperate regions, in habitats ranging all the way from swamps to dry, rocky mountain heights.

Science News Letter, April 30, 1949

PHYSIOLOGY

Codfish Get Heat Stroke

➤ FUTURE Antarctic and Arctic expeditions may benefit from experiments in which codfish will get heat stroke. The fish are Arctic cod which thrive in the icy waters of the far north. They are going to be dropped, by Dr. John Field of Stanford University, into waters comparable in temperature to those of the Pacific Ocean off the California coast.

Human swimmers may shiver in these waters on a July day, but to the cod they are hot water. Although he expects the cod to die, Dr. Field has reason to believe that they might survive if they could be adapted to the higher water temperatures by slow degrees. He will try this in later experiments.

Dr. Field's experiments are being carried on at Point Barrow, Alaska, under a contract with the U. S. Office of Naval Research which is interested in the mechanisms by which animals and fish adapt themselves to extremes of heat and cold. He reported some of them at the meeting in Detroit of the Federation of American Societies for Experimental Biology.

Arctic cod, he found, can live in waters as cold as three degrees below freezing because their metabolism, or rate of bodily chemical reactions, holds up well at low temperatures.

The metabolism of a cod does not fall off as rapidly with temperatures below 50 degrees Fahrenheit as does that of the black bass or goldfish or the isolated brain of a white rat. Above 75 degrees, however, the metabolism of the cod falls off rapidly, which is why those scheduled for exposure to warmer waters are expected to die of heat stroke.

Dr. Field and his assistant, Clarence N. Peiss, found out about the cod's metabolism by removing the brain and keeping the brain tissue alive in an atmosphere of oxygen and salt solution made to resemble the fishes' blood plasma. The brain's consumption of oxygen was then carefully measured. At each temperature studied, the rate of oxygen consumption by the Arctic cod brain was higher than that of temperate zone fish of comparable body size, and of white rat brains.

Science News Letter, April 30, 1949