

Dryness Brings Spider Pest

Entomology

The prolonged dry weather in the East has proved highly favorable to destructive work by the small red spider, which has developed in enormous numbers upon various plants, such as garden phlox, apple trees and oak leaves, according to information obtained at the Bartlett Tree Research Laboratories at Stamford, Conn.

The depredations of these spiders produce in each case a somewhat characteristic yellowish or grayish spotted discoloration, usually small. It was stated that a continuance of the dry weather would probably produce additionally large numbers of spiders and that serious injury to foliage would result, as badly discolored leaves cannot function properly. The evergreens, such as red cedars, are likely to be affected by the spider.

Experiments now in progress show that atomic sulfur used at the rate of five pounds to fifty gallons of water is a satisfactory spray, provided all of the leaf surfaces are covered. In the case of the phlox the under side of the leaves should be sprayed.

Science News-Letter, August 24, 1929

Test Finds Right Milk

Physiology

New hope for bottle babies was held out by Dr. Reuben L. Hill, nutrition expert of Logan, Utah, at the Thirteenth International Psychological Congress.

Dr. Hill has developed a test at the Utah State Experiment Station by which the toughness of the curd formed by the normal coagulation of milk can be measured. There is reason to believe, he declared, that this quality of toughness in milk curds is a more important factor in choosing baby's milk than the fat content, previously the item most stressed in picking out suitable infants' food.

Not more than ten per cent. of cows, according to the tests made by the Utah doctor, give milk curds soft enough for delicate babies to digest. By the use of the new curd test it is possible to find cow's milk that closely approximates mother's milk, an invaluable asset for young and sickly babies that have to be fed by a bottle. Such milk, he added, when fed to infants, requires little if any modification or dilution, a condition that does away with the troublesome mixing of the complicated formula on which many modern babies get their start in life.

Science News-Letter, August 24, 1929

Control Chemical Growth

Botany

A plant's speed or slowness in producing flowers and seed depend on internal chemical adjustments, which in turn may be controlled by changing the conditions under which the plant grows, in the opinion of Prof. N. A. Maximov of the Russian Institute of Applied Botany. Prof. Maximov has lately duplicated by chemical manipulation the results obtained by himself with temperature control, and by the American workers, W. W. Garner and H. A. Allard, in shifting the flowering and fruiting times of plants.

It is Prof. Maximov's theory that there is in plants an antagonism between vegetative growth, producing stems and leaves, and reproductive growth, which results in flowers and fruits. What encourages one discourages the other. Some plants, moreover, have a tendency to run strongly to vegetative growth, and only some kind of a physical jolt will drive them into reproductive activity.

The general condition which causes plants to vegetate instead of reproducing is a high carbohydrate ratio in their make-up; high nitrogen content drives them into bloom. Prof. Maximov held natural early bloomers in the vegetative condition for a long period by cutting down their supply of nitrogen fertilizers, and he forced natural late bloomers into precocious flowering by giving them a superabundance of this element.

Science News-Letter, August 24, 1929

Baby Mice Grow Into Giants

Physiology

Gigantic mice, developed by allowing baby mice to be nursed by rats, have been grown as a result of an experiment recalling H. G. Wells' famous story, "The Food of the Gods." Dr. A. S. Parkes, working as Belt Memorial Research Fellow at University College in London, is the experimenter who has obtained these remarkable results.

In previous researches Dr. Parkes had shown that among normally suckled mice, members of small litters grew much faster than those from large litters. He explained this fact on the assumption that the amount of nutrition available was about the same for all litters no matter what their size, so that the nutrition available for each individual young mouse was less the larger the litter. In order to test this explanation he attempted successfully the unnatural experiment of foster-mothering young mice with mother rats.

"The manoeuvre required much care in selecting docile rats, etc., and even when the mice were not eaten, many difficulties arose, such as the weight

of the rat when lying on the young mice," explained Dr. Parkes. He was rewarded for his perseverance by having his explanation completely confirmed by the results, for size of the litter had no effect on rate or weight increase when the mice available had the comparatively unlimited nutrition supplied by the mother rat's milk. His much pampered rat-suckled mice became of comparatively elephantine size. At weaning time they each weighed as much as a full-grown mouse; but, like humans, they paid the penalty for their enormous bulk by losing mobility.

"This great increase in size, however, did not cause a corresponding increase in development," he said. "The eyes, for instance, opened at the normal time—13 days old, and the animals at 3 weeks old were practically immobile owing to failure of the immature frame to cope with a weight almost equal to that of the adult animal. . . . Under conditions of unlimited nutrition the growth of young mice may proceed to a degree which is both unusual and unhealthy."

Science News-Letter, August 24, 1929

Overspeed Test Pit

Engineering

Our cover this week, reproduced by courtesy of the General Electric Company, from a painting by Mott Smith, shows the installation of a water-wheel generator rotor in the Company's test pit preparatory to giving it an overspeed test. As such a test may smash a rotor, and liberate a tremendous amount of energy, the pit is built stronger than the heaviest bridge or building.

The inner wall is of concrete three feet thick and reinforced with one-inch steel bars closely woven together. Surrounding this wall is a seven-foot cushion of closely packed sand, and around that another wall of reinforced concrete four feet thick. The steel lid, four feet thick, constructed of a steel plate on a braced I-beam skeleton, prevents the pot from "boiling over." Instruments in the pit permit the observers outside to check everything that happens until a smash actually occurs.

Science News-Letter, August 24, 1929