

AGRICULTURE

Coffee Woes Just Starting

Coffee supply situation expected to get worse before it improves since, outside of South America, the bean-yielding trees have been hit with a serious rust disease.

► THE PROSPECT of a 15-cent cup of coffee has shaken the foundation of the coffee drinker's world, but in the future he may not have good coffee at any price.

Latin America is the only part of the coffee growing world which has not been devastated by *Hemileia vastatrix*, a rust disease of coffee trees. Scientists are convinced it is only a matter of time before the rust enters Latin America.

When it does, coffee will not be \$1.30 a pound—it will be much, much higher.

In Africa and the Orient, coffee growers have either abandoned their plantations or planted resistant trees which bear a bean yielding an inferior coffee.

Hemileia vastatrix is particularly ruinous to the tree, *Coffea arabica*, which produces the fragrant, taste-tingling brew Americans like in the morning. In order to head off the possibility of ruin in the coffee industry, scientists are working to develop a hybrid coffee tree that is resistant to the rust.

To help this breeding work, two U. S. scientists, Drs. Frederick L. Wellman and William H. Cowgill, working in coffee countries under the Point Four program, made a round-the-world trip looking for coffee plants. As a result of their trip, about 100 varieties have been grown at the U. S. Department of Agriculture's plant intro-

duction garden at Glenn Dale, Md.

Next month the last of these plants will be shipped to experiment stations in Brazil, Colombia, Costa Rica, El Salvador and Puerto Rico. Agriculture's Dr. Walter H. Hodge points out that scientists are not guessing about what rust could do to Latin America's coffee trees.

Tests made with Brazilian plants in Portugal have shown that they are very susceptible to the rust.

Dr. Wellman has remarked that all the coffee trees now growing commercially in Latin America are the descendants of one or, at most, only a few original plants. Breeding experiments with many different varieties may produce hybrid trees with higher yields.

Unless more funds are made available, U. S. participation in the coffee-breeding work will end when the last plants are shipped by air this month.

A future possibility is a coffee variety "bank" in Florida, where many varieties could be grown as a reserve for breeding work in Latin America. The advantages of this plan are that new varieties can be tested without endangering existing plantations with diseases the new plants might carry.

Science News Letter, February 13, 1954

MEDICINE

Cancer Rare in Monkeys

► CANCER RESEARCH is handicapped by the rarity of cancer in monkeys naturally and the inability of scientists to produce cancers in the animals artificially.

Dr. Paul Steiner, pathologist on leave from the University of Chicago at the National Cancer Institute, Bethesda, Md., pointed out that scientists have no "experimental and transplantable primate tumors to study." Monkeys, like man, are primate mammals. Most cancer research involving animals is now done with rats and mice.

Efforts by Dr. Harold L. Stewart, chief of the pathology laboratory at the Institute, to induce cancers in monkeys with powerful hydrocarbons, known cancer-causing compounds, or carcinogens, in other animals, have so far failed.

Both pathologists pointed out that studies of monkeys have not included many old animals. The incidence of cancer is usually much greater in old animals than in younger, and the rarity in monkeys may be due to insufficient observation.

Reports from zoo autopsies, however, indicate that tumors and cancers have been rare in those monkeys that have lived and died in captivity. Dr. Steiner reported that some individuals in a monkey colony at the University of Chicago developed cancer of the tongue and mouth. No other monkeys in the colony, though, have had cancers since that time. The scientists could offer no explanation for the apparent resistance of monkeys to cancer.

It is known that different species of animals and different individuals vary greatly in their susceptibility to natural and induced cancers. Some of this resistance may be environmental and some may be tied up with heredity.

Dr. Steiner said that experiments with monkeys and cancer have been inconclusive. The great expense involved in experimenting with such animals has held back research.

In-bred strains of mice have been developed in which the incidence of cancer

can be predicted with great accuracy. These animals have been of great use in the study of cancer. They are, however, much lower in the evolutionary scale than primates.

The National Cancer Institute is one of the National Institutes of Health of the U. S. Public Health Service.

Science News Letter, February 13, 1954

ENTOMOLOGY

Dry Sugar Is Downfall Of DDT-Resistant Flies

► SUGAR COMBINED with some potent insecticides is the downfall of super-flies that shrug off DDT like so much dew, entomologists at the U. S. Department of Agriculture Research Station, Orlando, Fla., have discovered.

Three insecticides, malathion, diazinon and a dialkyl phosphate chemical, have been mixed with dry sugar and sprinkled in dairy barns and poultry houses. The three chemicals reduced the DDT-resistant fly population by 90% within four hours.

These three insecticides, all organic phosphate chemicals, seem to be well suited for farm use because their high fly-killing power is linked with a relatively low injurious effect on livestock and humans, the scientists said.

The dry sugar and insecticides are mixed and placed in a jar with a perforated lid. Daily treatments can be completed in a short time with this method. Using this method in a dairy barn, enough insecticide for the entire fly season would cost less than single spray treatment with a residual insecticide like DDT, they reported.

It was necessary to treat breeding places five times a week for two or three weeks to reduce fly populations to a low level, but elsewhere the results were quickly obtained. In most cases it was found that the dry sugar baits were more effective than the liquid insecticide baits previously announced by entomologists, (See SNL, Jan. 16, p. 39.)

Science News Letter, February 13, 1954

CYTOLOGY

Virus Starts in Nucleus of Cell

► VIRUSES, SUCH as those that cause cold sores and influenza, apparently start their development in the nuclei of susceptible cells and complete it in the surrounding cytoplasm. Inside the cell nucleus, the virus particle is sphere shaped and often surrounded by a single membrane. When it gets into the cytoplasm, it is two or three times larger and usually has a double membrane. In vaccinia virus, used for vaccination against smallpox, a structure "strikingly similar to a cell nucleus" can be seen.

These findings are reported in *Nature* (Jan. 30) by Drs. Councilman Morgan, Solon A. Ellison, Harry M. Rose and Dan H. Moore of Columbia University College of Physicians and Surgeons, New York.

Science News Letter, February 13, 1954