

## Dynamite in DDT

ON MAY 23, 1945, the sun shone warmly on a large oak forest near the village of Moscow, Pennsylvania. Bird calls and songs rang through the woodland as the birds flew about feeding hungry young ones. But the forest was ill; its leaves were covered with millions of devouring gypsy-moth caterpillars. Though birds ate vast numbers of the caterpillars and carried them to their newly hatched young, the horde was beyond their control.

Early the next morning, an airplane droned over the forest, dropping a fine spray of DDT in an oil solution at the rate of five pounds an acre. The effect was instantaneous. The destructive caterpillars, caught in the deadly rain, died by the thousands. On May 25, the sun arose on a forest of great silence—the silence of total death. Not a bird call broke the ominous quiet.

The symptoms of poisoning were always the same: the birds were first barely able to fly, arising a few feet with a weak motion of the wings, then falling back to the ground. As the poison overcame them, they staggered, pitched forward and died, fluttering their wings violently. During the eight days that followed, at least 4,000 birds succumbed. They had been sacrificed to a practical experiment to see how much DDT birds could withstand.

This test arouses more than compassion for the birds. There is the cold significance of a chill wind in the potential power of DDT. Birds, along with beneficial insects and weather, are a steady curb on the destructive insects which threaten to consume all of man's green food supplies. If we removed the birds and helpful insects from large areas of the earth, we might soon know a great famine.

The stage for the pathetic drama in the Pennsylvania forest had been set in advance. The Bureau of Entomology of the United States Department of Agriculture had selected the 1,200-acre oak forest for experiment when it learned that a gypsy-moth outbreak had started there in early spring. Serious insect eruptions have destroyed millions of cubic feet of potential American timber in the past. DDT offered quick, economical control of harmful forest insects.

In a nearby 40-acre tract of the forest, only one pound an acre of DDT had been applied. No birds were killed, but the caterpillars were destroyed as effectively as in the mile-square area where five pounds an acre had killed virtually every bird. From these experiments the government scientists learned that dosages of DDT as low as one pound an acre will kill the gypsy-moth caterpillars and spare the birds.

Down in Maryland, there is a government wild-life refuge of 2,600 acres, called Patuxent. Last spring an airplane rained an oil solution of DDT on 117 acres of Patuxent forest bottom land at the rate of two pounds an acre. After the spraying, government biologists claimed there was no appreciable loss of birds, although the DDT had been sown at the height of the breeding season. The population of insect-eating forest mice and shrews, and larger fur and game animals remained unaffected, but

other creatures suffered disaster. In a pond within the area, surface-feeding fish—blue gills, sunners, and minnows—were almost completely exterminated. The deeper-feeding suckers and pike were not affected immediately, but destruction of small fry removes the food of pike and other game fishes.

DDT destroys large fish when it settles in the water and kills aquatic insects on which big fish feed. Trout have died from eating poisoned water insects, and crayfish, salamanders and tadpoles are also destroyed by the insecticide. Thus streams and ponds may become barren of all life from the cumulative effects of DDT. Not only are freshwater fishes killed, but along our Eastern seacoast, hundreds of thousands of edible salt-water fishes and crabs have died where DDT was used experimentally at the rate of one-half pound an acre for mosquito control.

DDT's greatest defect for use of out-of-doors is its non-selective killing power. Even in experienced hands, its use may be likened to firing a broadside at a throng of people in which we have both enemies and friends. Fortunately for us, there are more kinds of insects that are helpful than harmful. The destructive ones make all insects seem baneful, but it is probable that we could not live without the services of beneficial insects any more than without the birds.

In the Pennsylvania forest experiment, DDT destroyed all gypsy-moth caterpillars and canker worms, but it also annihilated the lady-bird beetles which feed upon aphids. The aphid, a destructive pest, is little affected by DDT. When the enemy of the aphid was removed, there was a tremendous outbreak of them in the oak forest. But aphids are short-lived in wet weather, and fortunately, a rainy spell arrived soon afterward.

DDT, sprayed on peach trees to kill the destructive Oriental fruit moth, was even more deadly in killing the parasitic insect that orchardists had introduced to prey on the moth. DDT is not effective against the woolly aphid, a serious pest of apple trees, but is very destructive to the Aphelinus parasite that usually controls the woolly aphid. In California, gigantic outbreaks of the European red mite occurred in citrus orchards after spraying with DDT. The insecticide had exterminated insects controlling the pestiferous red mite.

Honey bees are regarded as beneficial, not only for the 225 million pounds of honey they produce annually in this country, but for their importance in pollinating flowers. Were it not for bees carrying pollen from flower to flower, many orchards and field crops would not bear fruit or seed. Insect pests of apple, clover and alfalfa blossoms, controllable with DDT, require spraying at the time bees visit the flowers. Thousands of bees, syrphus flies and other pollinating insects are killed when they alight on blossoms loaded with DDT.

Unfortunately, DDT and the new and powerful British insecticide, 666, are two-edged swords. Used indoors, DDT is the perfect insecticide. It kills practically every destructive household insect. Its staying power, when sprayed on indoor surfaces and dusted into clothing, assures the continued killing of flies, bedbugs, moths and other insects for months afterward. Used out-of-doors it is the most dangerous insecticide ever devised by man. DDT kills gypsy-moth and tent caterpillars, canker worms, the grubs

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of Japanese beetles and other pests. Yet it completely fails to harm many other destructive insects, while killing their insect enemies in enormous numbers. Parasitic insects, birds and other creatures preying on pests are not easily or quickly replaced.

There is now evidence that some destructive insects develop an immunity to certain insecticides. After years of spraying arsenic on codling-moth grubs which infest apples, the grubs have become resistant to it. Thirty years ago, the California red scale, a pest on citrus trees, was readily controlled by fumigating trees with hydrogen cyanide. But a "resistant race" of red scale evolved and their control with this chemical is now more difficult.

In a recent test, rats were killed by feeding them milk from goats receiving small daily dosages of DDT. Scientists conducting the experiment are worried that cow's milk might become impregnated with DDT if dairy cattle are allowed to graze on areas sprayed or dusted with the insecticide.

The federal government has 14 experimental areas in the United States where the effect of DDT is being observed on plants and soil, and on insects, birds, fishes and other creatures important as food or in keeping harmful insects within bounds. It seems advisable not to use DDT outside of buildings until the results of these experiments are better known. DDT must be reduced to a much finer selectivity if it is to spare many wild creatures which we not only seek for recreation but depend on for existence.

JOHN K. TERRES

## The Bandwagon

CITY GREET'S CHURCHILL;  
POLICE GUARD INCREASED

—Headline in the New York Sun.

Churchill received no fee for his address. The Green Foundation of little Westminster College (225 students now) each year sponsors a lecture by an outstanding speaker. The purpose of the foundation is to promote international good will. —From the Des Moines Register.

Bricker Warns Against Growing Social Security. —Headline in the New York Sun.

Filipo L. de Hostos, president of the Puerto Rican Chamber of Commerce, says that this American island has some of the world's most far-famed slums because their residents like them that way. . . . The free-and-easy-going Puerto Rican of the lower class is happy where he doesn't have to worry about rent, plumbing facilities and water mains, de Hostos says. —From the Chicago Daily News.

Democracy in Action, Southern Division

Tennessee has no white primary law and in the cities proportionately about as many Negroes as whites manage to get over the poll-tax obstacle to voting. There is very little political discrimination, though Negroes never get elected to office.

—From an article by Jennings Perry in PM.

## But Could He Sing?

The followers of Caravaggio, for instance, who adorn these walls do it far more elaborately than Caravaggio himself, whose one example, "St. Francis in Ecstasy," is not really so complicated after all. This is a boyish St. Francis, good-looking and charming, and not unlike our Governor Dewey, and it is easy to see why people rallied to him. —From Henry McBride's column on Art in the New York Sun.

## Dog's Best Friend

Student, stay with your dog evenings, Sat., Sun.; 4 years vet. med. J320 Times. —Situation-wanted ad in the New York Times.

Our readers are invited to contribute to this column; \$1 will be paid for each item used. Address Bandwagon, care of the New Republic. Please enclose the original clipping. —THE EDITORS

## Correspondence

### Italy's Share in the Allied Victory

SIR: Because of the Fascist dictatorship, many people think of Italy as an Axis country. Few know the importance of the contribution of the Italian nation to the Allied victory in Europe.

The Patriot movement, the military branch of the Italian Resistance, grew to an army of about 25,000 men in central Italy and to possibly as many as 150,000 in northern Italy during the summer of 1944. Patriots were badly equipped, poorly armed and often lived at starvation levels. They engaged several German and Fascist divisions which otherwise would have fought against Allied troops. Twenty-six thousand Patriots killed and another 40,000 wounded and missing (one-third of their total strength) testify to the severity of their struggle. The civilian branches of the Resistance lost about 18,000 killed.

At the time of the armistice, 16,000 men of Italy's regular forces had died fighting the Germans; 540,000 were interned in Germany. Only 80,000 regular-army soldiers were allowed to join the fight for Italy's liberation, but 196,000 were employed in Italy in auxiliary services and 482,000 war prisoners were enrolled in workers' units or engaged in other activities in the United States and in the British Commonwealth. Total casualties of the Italian regular forces during the twenty months of war with the Allies were over 52,000, navy and air forces included.

These are dry figures, but they give a picture that must be set against the damage inflicted while the Italian nation was an unwilling partner in the Axis.

Bennington, Vt.

MASSIMO SALVADORI

### Save the Anti-Nazi

SIR: Americans can send aid to anti-Nazi survivors of the Resistance in Germany for the first time in thirteen years. On V-E Day, the war of hunger against the German people had been rising in a steady crescendo of death. The anti-Nazi in Germany must be saved if there is ever to be a democratic

many and world peace. A presidential order has now been issued. CRALOG, the Council of Relief Agencies Licensed for Operation in Germany, and designated the International Rescue Relief Committee, one of eleven member agencies authorized to give relief in Germany. All food, clothing and medicine