

CHEMISTRY

**Super-DDT Discovered,
But Not Yet Available**

► A SUPER-DDT, a synthetic compound even deadlier to insects than the original DDT, has been discovered by British chemists. It is known by the convenience-name of Gammexane, and is sometimes referred to by the Apocalyptic number 666. Its exact chemical designation is the gamma isomer of benzene hexachloride.

It is not particularly closely related to DDT in its structural chemistry, but it seems to be even more of a knockout so far as insects are concerned. By a curious coincidence, its history is like that of DDT in that its existence had been known for a long time, but its insecticidal properties had not been suspected until it was tried out relatively recently. Then it was discovered to be the deadliest weevil poison that the British firm's chemists had ever tested, and it would kill flies in half the concentration required in a DDT solution. It was also proven to be deadlier than DDT to *Aedes aegypti*, the mosquito that carries yellow fever.

There are, however, some points about Gammexane that have not yet been cleared up. It is not known, for example, if it is as persistent under conditions of ordinary use as DDT, which is known to remain toxic to insects for months. Lime, which is used a great deal in agricultural sprays and dusts, is known to be destructive to Gammexane; how to obviate this difficulty has yet to be worked out.

Gammexane is not yet commercially available in the United States, but presumably will eventually appear in the market here.

Science News Letter, July 14, 1945

PUBLIC HEALTH

**Increase in Polio Cases
Not Cause for Alarm**

► AN INCREASE in infantile paralysis cases throughout the nation was reported to the U. S. Public Health Service for the week ending June 30. The total was 155, with reports not yet received from Mississippi and Rhode Island, which reported one and no cases respectively the previous week. The total for the week of June 23 was 116.

Authorities, however, see no cause for alarm and no signs yet of an epidemic. At this time last year, they point out, the number of cases was increasing sharply.

For the last week in June the total was 220.

Last year's epidemic did not fall off as abruptly or to as low a level as would be expected. Consequently during the early part of this year more than the usual number of cases were being reported. As the season for infantile paralysis approaches, the difference between the number of cases reported weekly this year and last year is increasing.

The greatest number of cases reported by any one state is 54 from Texas. Next highest figure is 16 from New York.

Science News Letter, July 14, 1945

ENGINEERING

**Giant Sealed Tanks
Now Transport Flour**

► FLOUR for bakeries is now transported from mills in bulk, in giant sealed tanks mounted on flat railroad cars, three to a car. The tanks are filled and emptied through pipelines by air pressure without other handling. Greater economy in handling and transportation is one result of the new method, but more important is greater sanitation. Moisture, dust and vermin cannot get into the flour during loading, on the road in the sealed tanks, or in unloading. The method will probably come into wide use in postwar days for baking establishments that buy flour in 25,000-pound lots.

The new system is a development of the National Fitch Corporation, which functions as a research and sales division for specialized railroad equipment. Together with the tank is a one-man conveyor mechanism for transferring the tank to a truck-trailer for transportation to bakeries that do not have railroad sidings. The unloading equipment is made by the Fuller Company of Catawqua, Pa., which manufactures suction devices for handling grain and granulated products. It draws the flour directly into the receiving bins in the bakery.

When the tank of flour has to be transferred to a truck, a special conveyor platform is mounted on the trailer that works in conjunction with a similar conveyor under the tank on the car. A special 110-volt direct current generator, mounted on the truck and powered by the truck's engine, furnishes the electricity to operate the conveyor motor. The truck is parked parallel to the car, connecting hooks put in place, the generator started, a button pushed, the motor turns and the tank is transferred in 90 seconds.

Science News Letter, July 14, 1945

IN SCIEN

ORNITHOLOGY

**Hummingbird Makes 75
Wing Strokes Each Second**

See Front Cover

► THE HUMMINGBIRD is the incredible member of the bird group. This smallest of birds is able to move its wings so rapidly that a distinct hum is heard when it flies. It has been estimated that the ruby-throated hummingbird, shown on the front cover of this SCIENCE NEWS LETTER, makes about 75 wing strokes each second while it is flying. It is the only bird that is able to fly in reverse. It feeds on flower nectar and small insects. When it approaches a flower for nectar, it is able to hover in front of a blossom while it uses its needle-like beak and long tongue to reach the bottom of the flower. When it wishes to leave, it flies backward until the way is clear for forward flight. The photograph was taken by George A. Smith of Quarryville, Pa., at .001 a second.

Science News Letter, July 14, 1945

CARTOGRAPHY

**Russians Made Map of
Berlin While Besieged**

► RUSSIAN cartographers in Leningrad prepared maps of Berlin while their own city was closely besieged by the Nazi army and German shells were bursting near the office where they worked. The story, illustrating the confidence with which the Red Army looked forward to victory even when the tide of war seemed to be running overwhelmingly against them, is related in the official *Information Bulletin* issued by the Embassy of the USSR in Washington, D. C.

Hungry and cold, the cartographers, draftsmen, engravers and printers got a great lift out of sealed orders received from the Supreme Command to draw up and print a new map in preparation for the eventual siege of Berlin. They got together all existing maps of the enemy capital they could find in Leningrad, and collated these with new data brought in by the Red Army's reconnaissance. When the break finally came, and the Russian forces surged westward, every officer had in his map case a new and accurate plan of the city they were to destroy and then occupy.

Science News Letter, July 14, 1945

CIE FIELDS

CHEMISTRY

Nobelist Hevesy Returns Safely to Freed Denmark

► ONLY a day after his safe return to liberated Denmark from his war refuge in Sweden, Prof. Georg von Hevesy, winner of the Nobel chemistry prize last fall, fell and broke his ankle, an accident that confined him to Copenhagen's famous Finsen Institute.

Danes during the German occupation were not given the opportunity of knowing that one of their countrymen by adoption had won the high honor of the Nobel prize. Nazi censorship suppressed the news. Prof. Hevesy is a Hungarian of Jewish blood and his safety was threatened to such an extent that in October, 1943, when the persecution of Jews by the Nazis reached its climax in Copenhagen, both he and Prof. Niels Bohr, head of the Institute of Theoretical Physics, fled to Sweden.

Prof. Hevesy, who is a professor at Bohr's Institute, won the Nobel prize as the result of his work on the use of "tagged atoms" or isotopes in studying chemical and physiological processes. He once drank some water containing heavy hydrogen when it was not known whether or not this rare kind of the lightest element was poisonous.

Science News Letter, July 14, 1945

AGRICULTURE

U. S. Will Grow Turkish Tobacco This Summer

► TURKISH tobacco, which is skillfully blended with domestic tobaccos in making American cigarettes, will be grown on 55 small farms in North Carolina, Virginia and South Carolina this summer, following demonstration by scientists of Duke University and the agricultural experiment stations of these states.

Hitherto it has generally been considered impossible to grow the diminutive aromatic leaf in the United States. From 50 to 75 million pounds of Turkish tobacco are imported each year for blending with domestic varieties.

Cultivation of the Turkish tobacco in the test plots is hoped to determine experimentally whether a high quality product can be grown profitably. A large amount of hand labor is involved in both

growing and curing the Turkish variety. The leaves are more numerous, but are only a tenth the size of domestic tobacco leaves, and require considerable handling.

The Turkish plant thrives and produces best quality leaves on comparatively poor soil, so the areas where it is likely to be grown do not overlap those where the domestic leaf is cultivated.

The Turkish leaf brings a substantially higher price per pound than does the domestic leaf, but more hand-labor is involved. It has been shown that from 700 to 900 pounds of excellent Turkish leaves can be grown per acre.

The research program, underway for the last five years, has demonstrated that fresh seed need not be imported from the European growing regions each year. It had previously been thought that seed grown in the United States would not continue to produce plants which are true to type.

Turkish plants are placed close together, the closely spaced stalks producing a large number of small leaves. There are 55,000 to 60,000 Turkish plants per acre as compared to 5,000 to 6,000 domestic plants per acre. For six to nine primings, at intervals of five to nine days, are required to remove all leaves from the stalk.

Science News Letter, July 14, 1945

LIMNOLOGY

Research Institute for America's Inland Seas

► ORGANIZATION of a new Great Lakes Research Institute, which will undertake to do for North America's five inland freshwater seas what is being done for the oceans by such laboratories as the Scripps Institution of Oceanography on the Pacific Coast and the Woods Hole Oceanographic Institution on the Atlantic, is announced in *Science* (June 29), by the Board of Regents of the University of Michigan.

The waters themselves, the rocky basins that contain them, their currents and other physical properties, and the animal and plant life forms that inhabit them, will be studied by a group of scientists trained in these special fields. Not all the investigators will be recruited from the University of Michigan; qualified men and women will be invited to participate in the research program wherever they may be found. Chairman of the new Institute is Prof. Paul S. Welch, limnologist.

Science News Letter, July 14, 1945

GENERAL SCIENCE

National Research Council Will List Laboratories

► INDUSTRIAL research laboratories of the nation are being listed by the National Research Council and new laboratories, especially, are being asked to provide information for this purpose.

Continuing a registry that showed 2,264 laboratories in existence in 1940, the new directory will include laboratories that improve products or reduce manufacturing cost as well as conduct fundamental and applied research.

Science News Letter, July 14, 1945

AGRICULTURE

Leaf Rust Disease Very Destructive This Year

► WHEATFIELDS in Oklahoma and Texas are taking a terrific beating from leaf rust disease, reports Dr. K. Starr Chester of Oklahoma Agricultural and Mechanical College, speaking on behalf of the American Phytopathological Society. This fungus, which is distinct from the species that causes black stem rust of grains, survived a mild winter and turned up on winter-wheat leaves 17,000 times more abundant this year than it was in the light rust season of 1944. Many thousands of acres of wheat in the Southwest have been given up as lost by the farmers; they have cut what is left for hay or plowed it under in preparation for a summer crop.

Dr. Chester fears that the rust spores, swept northward and eastward by summer winds, may spread disaster in the great grain areas still unaffected. His view, however, is not shared by scientists of the U. S. Department of Agriculture. They point out that the principal winter-wheat areas from Kansas northward are already well headed and approaching the ripening state. The long, cool temperatures have also slowed the growth of winter wheat to some extent, nevertheless the wheat has kept ahead of the fungi and seems now to be in fair position to finish several lengths ahead in the race.

It is still too early to state what may be the effects of a spread of leaf rust on spring wheat. However, in the main spring-wheat areas the varieties sown this year are resistant to known strains of both leaf-rust and stem-rust fungi.

Recent field surveys indicate also that infestation with wheat scab, another much-feared grain disease, is relatively light, at least in the central wheat area.

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