

GENERAL SCIENCE

# Science Speeds Victory

Science Review for 1944 shows jet-propulsion, rocket bombs, DDT, and the B-29 Superfortress have top billing among the year's advancements.

*This summary of the year's happenings in the world of science is limited by space to just the highlights. Most of the events are described in detail in the pages of the SCIENCE NEWS LETTER for the current year. If you wish to refer to any particular report you may find it readily through the index. (See SNL, June 24 and also the issue which will appear next week, Dec. 30.)*

By SCIENCE SERVICE STAFF

► JET-PROPULSION, rocket bombs, DDT, and the B-29 Superfortress get top billing in 1944's science and technology. There were scores of other important developments that came to public

attention, some of them under secret development before this year and announced only after they were put into use.

Science continued to contribute to the winning of the war and to the making of the peace. There was considerable thought as to reconversion of science and technology to the postwar world while uninterrupted research for the fighting forces continued.

Health advances were led by the remarkable effectiveness of DDT against insects, and the expanding usefulness of penicillin in treating many diseases, surpassing even the record of the sulfa drugs.

New materials and new processes that will prove of continuing usefulness were made known, among them the methylolurea impregnation of wood that converts soft woods into hard ones, the silicone family of synthetic resins that waterproof and insulate various materials, and chemical treatments to make stockings runless and clothes wrinkleless.

A camera photographed the floor of the ocean and a new gigantic calculator went to work.

Human blood was made to yield a measles preventive, a surgical plastic, a skin grafting material, and a substance to prevent bleeding, as well as albumin for shock.

Within secret laboratories scientists and engineers continued to work on new inventions, devices and processes for war and victory, but many of the advances made will not be announced until future years.

The detailed annual Science Service survey of the year's progress in science and technology follows:

## AERONAUTICS

### B-29 Superfortress Put Into Service by the Army

► THE B-29 Superfortress, speedy, long-range battleship of the air, was put into service by the Army.

The CW-20E, luxury airliner version of the military transport, was designed to meet the needs of medium-range airline operations; the cross-section of the fuselage is shaped like a figure-8 to permit maintaining constant atmospheric pressure and oxygen supply regardless of altitude.

The C-82 cargo plane, utilizing the twin-boom tail, was developed to carry heavy loads of troops and supplies to points where other cargo planes cannot land.

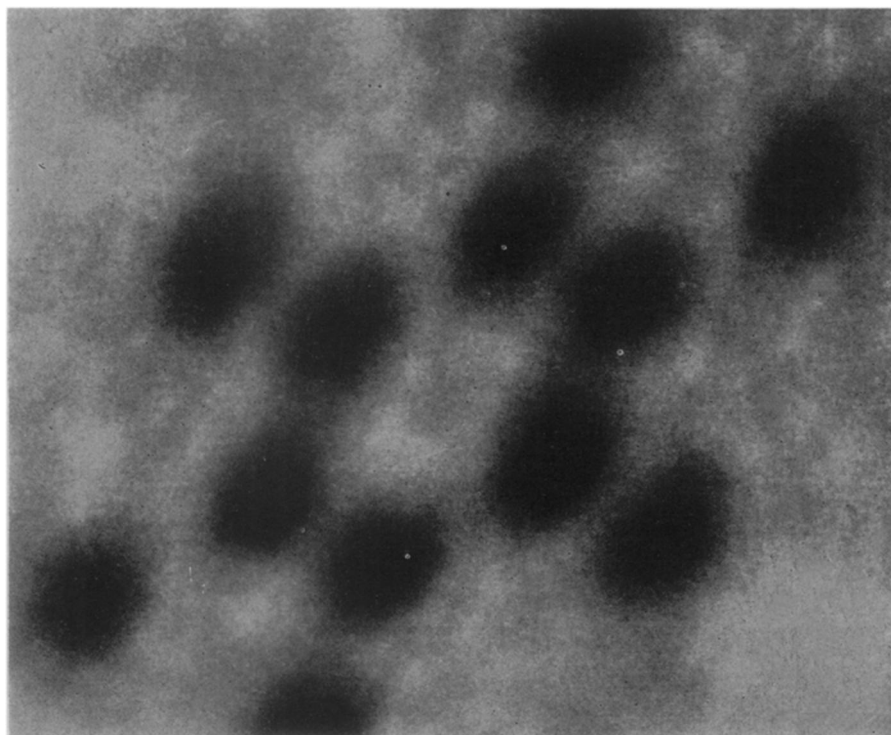
A droppable fuel tank attached to the wings of aircraft was announced which increases the operational range 60% with only a 2% decrease in top speed.

The stabilizing device for helicopters, placed between the mast and the rotor to keep the rotor in a horizontal plane regardless of the angle of the fuselage with the earth, was announced.

Jet-propulsion was used for fighter plane power for high speed, high altitude operation, and jet boosters for lifting heavy aircraft off the ground during takeoff.

Jets of air were discharged at the tips of rotor blades of helicopters to improve the efficiency of the vertical climb aircraft.

An electrical de-icer for airplane propellers was devised of three layers of synthetic rubber, the center layer being an electricity-conducting rubber containing a continuous chain of carbon particles.



**PORTRAIT OF THE INVISIBLE**—By a new development of the Bragg method, this picture has been made of a single molecule of hexamethylbenzene, a coal tar derivative, magnified about 200,000,000 times. It turns out to look like molecular patterns drawn from theory, except that the three hydrogen atoms known to cling to each of the six carbon atoms of the outer ring do not show because they have only one electron. The process developed by Eastman Kodak Laboratories involves making an X-ray diffraction photograph and then, with the information it provides, drawing a series of interference patterns which are then photographed in suitable combinations to give the picture shown.