GENERAL SCIENCE

1952 Science Review

History may know 1952 as year of H-bomb. Year's medical advances include drug that could conquer malaria, new anti-TB drug, promising steps toward polio protection.

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 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 28, and also the issue which will appear next week, Dec. 27.)*

By SCIENCE SERVICE STAFF

➤ THE TOPS in 1952 science, as well as tops in energy loosened by an act of man, was the hydrogen bomb, which presumably was achieved in secret Eniwetok tests.

We cannot be sure just what happened, but if scientists succeeded in transmuting or fusing tritium, the triple-weight isotope of hydrogen, into helium with mass lost converted into tremendous energy, the world has a new power source ranking with the fissioning of uranium and plutonium and the burning of fuels.

There is speculation, fed by the secrecy of the atomic energy program, that this hydrogen-helium conversion might even take place, slowly, without the trigger action of the immense sun-like heat of the plutonium bomb that is believed used to set off a hydrogen bomb. This would be of immense importance. But those not in secret circles can only surmise.

Atomic energy progress announced included the operation of the world's largest accelerator of atomic particles, the cosmotron at Brookhaven National Laboratory, that will rival the cosmic rays with energies up to 3 billion electron volts. Even this is only the beginning, for accelerators that will double and perhaps triple that energy are actually building, and the scientific possibilities of a machine operating at 100 billion electron volts were demonstrated during the year.

Application of atomic power to military uses made gains during the year. The keel of the year's first atomic submarine was laid, engines for it are underway, as are atomic power plants for an aircraft carrier and even airplanes themselves.

In man's continuing fight against disease, the most exciting progress was the successful testing upon prisoner-volunteers of a new drug that in very small doses both cures and prevents malaria. For the first time there is the hope of eradicating this mosquito-carried disease that is rated the world's No. 1 ill, killing 3,000,000 annually and afflicting a quarter of the earth's population.

To join with streptomycin in fighting tuberculosis by chemical methods, a new drug, called isoniazid, came into use, with encouraging results to supplement the older method of fighting the great white plague.

In a year that saw infantile paralysis cases rise to an unusually high level, there was a mass test of the effectiveness of injections of the gamma globulin fraction of human blood in protecting children against polio. It seems to have worked, cutting the expected paralytic polio cases in half. This method will undoubtedly be used on a larger scale in 1953.

Two promising approaches to a vaccine were made. Virus was grown in eggs which may lead to a useful vaccine. Another vaccine method may give protection against all three types of polio, which were shown to be all the types that cause epidemics.

Promising progress was made in perfecting and using on human patients machines that can take over during operations the functions of the heart and other organs, while some attempts were made to transplant kidneys and lungs.

In electronics and communication, more use was made of transistors, the semi-conductor devices that can do some of the things that vacuum tubes usually do.

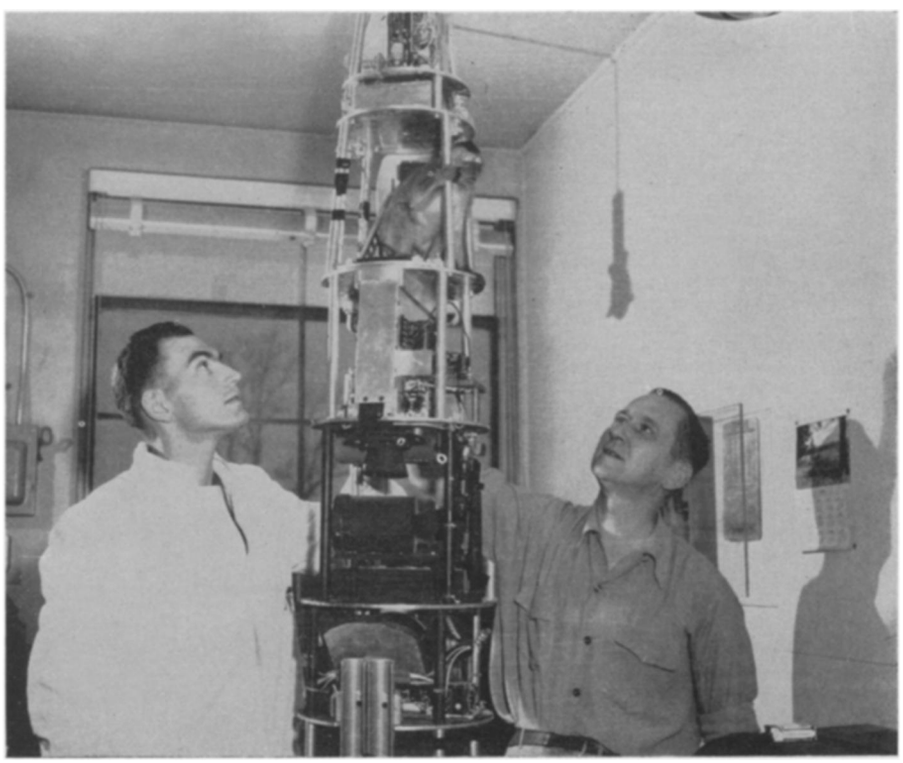
The automatic factory and the mechanized business office are being foreshadowed by some of the developments in electronic automatic control mechanism.

There has been the hope that electronic computers could be applied to weather forecasting, which now is a matter of human experience and judgment. The mechanical "brains" progressed during the year so far that there is hope that large masses of numerical weather information can be fed into them to secure weather forecasts in the future sufficiently fast to be useful.

Jet airliners of British manufacture began commercial service between London and South Africa, marking an aviation epoch. Hidden largely under cloak of secrecy, more progress was made on jets for military use. We learned that a U. S. experimental plane in 1951 flew almost twice the speed of sound, and wind tunnel research is being conducted in the region of as high as seven times the speed of sound.

Much such advanced aviation research is aimed at bigger and faster guided missiles, pilotless craft that could reach any part of the world from any part of the world, carrying atomic warheads. We may be sure that already long-range missiles, which may outmode both pursuit plane and bomber, are flying. Some of them will soon be in production.

One of the consequences of radiocarbon dating, itself a by-product of the atomic



HISTORIC ZERO-GRAVITY FLIGHT—One of the monkeys which was rocketed nearly 40 miles into space. Results showed that man may be able to stand the gravity-free state for brief periods.