

GENERAL SCIENCE

Expect H-Bomb Tests

Four nations may test fusion bomb this year, despite recent warnings by scientists that unlimited detonation of such blasts may endanger populations.

► A SERIES of peaceful H-bomb explosions by the United States, Russia and a joint effort by England and Australia can be expected this year, barring a sudden flare-up of hostilities resulting in World War III.

Despite recent fears and warnings expressed by scientists in England, France and this country that unlimited and unchecked detonation of H-bombs is a real danger to the world, 1955 will by necessity witness new series of superbomb blasts.

Although the Atomic Energy Commission keeps a tight security on future plans for nuclear and thermonuclear tests, there is still much to be learned about H-bombs that theory and paperwork cannot tell American scientists. More is needed to be uncovered about such things as the phenomenon of fusion, transmutation of light elements and the conversion of mass into energy.

The much publicized H-bomb blast of March 1, 1954, and its lethal radioactive fall-out all but denuded our civil defense plans. To better understand the super-weapon itself and ironically to help prepare a defense against it, the United States will have to test more H-bombs.

Any H-bomb tests by the United States will be conducted at the Pacific proving grounds. In July of last year, following the March furor, the United Nations Trusteeship Council gave its endorsement to the right of the United States to conduct further H-bomb tests in the Pacific if they were "in the interests of world peace."

Russia's H-bomb tests will probably be conducted somewhere in Siberia. Shortly after ex-premier Georgi Malenkov resigned, Foreign Minister V. M. Molotov rattled Russia's H-bomb might at the West and hinted that his country may have more superbombs in its arsenal than the United States has in its own armory.

This threatening message followed reports from Paris that Russia set off four unannounced nuclear explosions last fall, one of which is believed to have been an H-bomb. Japanese observers suggested that the tests took place on "Wrangel Island, inside the Arctic circle due west of American Point Barrow in Alaska."

Information from Australia indicates that England and Australia have agreed upon a series of atomic tests to be conducted in Australia in May, and including the first "made-in-England" hydrogen bomb. What the British will test has also been described as a new, streamlined device for triggering its H-bomb.

The joint British-Australian nuclear tests will be held at the new Australian atomic

proving grounds now under development near the Great Victorian Desert in southwest Australia. The Aussies are said to be abandoning the old proving grounds at Emu Field claypan in central Australia for these tests, because of problems encountered in transporting equipment and men in that wild and rugged part of the continent.

The tests will be under the direction of Sir William George Peney, director of Britain's Atomic Weapons Research Establishment, and are believed to include plans for firing guided missiles carrying live atomic warheads.

The danger from fall-out to the continent is less than it would be on a Pacific atoll, Prof. Marcus L. E. Oliphant, director of the research school of physical sciences at the Australian National University, has observed. The weather conditions over the Australian continent are better understood.

The material pulverized by an H-bomb exploded over ordinary ground is considered by Australian experts as less dangerous debris than the dust kicked up by a thermonuclear explosion on a coral atoll such as at the U. S. testing grounds in the Pacific.

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MEDICINE

Cancer Susceptibles Have Poor Antibody Factories

► HAVING POOR or inefficient antibody factories in the body leads to susceptibility to cancer.

This is true at least for mice and susceptibility to certain kinds of cancer, it appears from an American Cancer Society report of research by Drs. Samuel Albert and Ralph M. Johnson at the Detroit Institute of Cancer Research. Their work is supported by the society.

Antibodies are disease fighting substances in the gamma globulin fraction of the blood. Specific antibodies are formed in response to invasion of a specific disease germ, such as polio.

If it turns out that deficient antibody production goes with cancer susceptibility in other animals, including humans, tests might be worked out to detect cancer susceptibility long before the disease developed, the American Cancer Society pointed out. The Society reported the following about the Albert-Johnson research:

Two distinct factors seemed to weaken mice's ability to ward off breast cancer with antibodies: 1. A lack of inherited immunity with which they were born; and

2. a virus which they acquired from their mothers in nursing or with which they were injected. Increasing age also seemed to depress the antibody response of all mice.

The rodents' capacity to produce antibodies was measured by injecting them with radioactive phosphorus and, with the aid of counters, determining how rapidly the phosphorus was taken up and used by lymph nodes, which make antibodies.

Healthy lymph nodes took up phosphorus rapidly; and these animals beat down cancer transplants successfully. Unhealthy nodes did not take up much phosphorus and the animals proved highly susceptible to cancer transplants.

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