

NUCLEAR PHYSICS

H-Bomb Devastation

A string of hydrogen bomb explosions in the Pacific could kill all life in the U. S. Until everything is done to live peaceably with Russia, it is wrong to develop the H-bomb.

► A STRING of hydrogen bomb explosions off the Pacific coast could kill every living thing in the United States with radioactivity. Similarly, a string of H-bombs along the line of the iron curtain could kill every living thing 3000 miles into Russia.

This is the warning of Dr. Harrison Brown, associate professor in the Institute for Nuclear Studies at the University of Chicago and wartime A-bomb scientist.

Writing in the Phi Beta Kappa's AMERICAN SCHOLAR (Summer 1950), Dr. Brown said that the H-bomb may well be too big to be used merely for its explosive power and blast effect.

"If the bomb works at all," he said, "there may well be no upper limit (or at least a very high limit) to the size of the nuclear explosion that may be created. One might well ask, of what use is a bomb which will destroy an area greater than, say, 500 square miles by its blast effect?"

"The answer is that one would not use such a weapon to destroy by blast effect," he went on. "Instead, one would utilize the radioactivity that could be produced by such an explosion and permit the westerly winds to carry it over the enemy territory."

The radioactivity of a hydrogen bomb could be greatly increased by adding material that would become radioactive to the other ingredients of the weapon.

Dr. Brown visualized a series of hydrogen bomb explosions carried out along a north-south line through Prague. The radioactivity produced by the explosions would be carried eastward by the prevailing westerly winds. "All life would be destroyed," he said, "within a strip 1,500 miles wide, extending from Leningrad to Odessa, and 3,000 miles deep, extending from Prague to the Ural Mountains."

"By the time the radioactivity passed the Urals (approximately three days), the intensity would be lower and the destruction would be less. By the time the Pacific had been crossed and the west coast of America reached, the radioactivity would not be dangerous."

Admitting that many human beings might survive such an attack by protecting themselves, Dr. Brown pointed out that animals and vegetation, without protection, within the area would be destroyed.

"Such an attack," he said, "would produce a scorched earth of an extent unprecedented in history."

Russia could use the same tactics on the United States. Hydrogen bomb explosions could be set off on a north-south line in the Pacific approximately 1,000 miles west of California.

"The radioactive dust," Dr. Brown said, "would reach California in about a day, and New York in four or five days, killing most life as it traversed the continent."

As for the more conventional uranium-plutonium bombs—so-called A bombs—it is later than we think, according to Dr. Brown.

"We can expect," he said, "that the Soviet production of bombs is being pushed forward today with all possible rapidity. Indeed, it is quite possible that by the summer of 1951 Russia may have a sufficient number of bombs of the present type to enable her to destroy completely the major cities of Western Europe, should she feel compelled to do so."

Tightening "security" will not delay Rus-

sian production of the A-bomb and development of an H-bomb.

"There can be little question that the revelations of men such as May and Fuchs aided the Russian atomic development program to some extent. But we must not fool ourselves. It is probable that the Russians, solely by asking the proper questions of nature, would have developed the bomb anyway."

Dr. Brown doubted the wisdom of President Truman's decision to go ahead with the H-bomb, in view of the enormous potentialities of the new weapon for eradicating life and what the scientist called "the many constructive alternatives" to the bomb.

In concluding his article, Dr. Brown asked whether our government has done all that can be done to determine whether or not an agreement with Russia is possible.

"Until we make a concerted effort to determine whether or not an agreement is possible," he declared, "we have no moral right to proceed with the development of this new weapon."

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PSYCHOLOGY

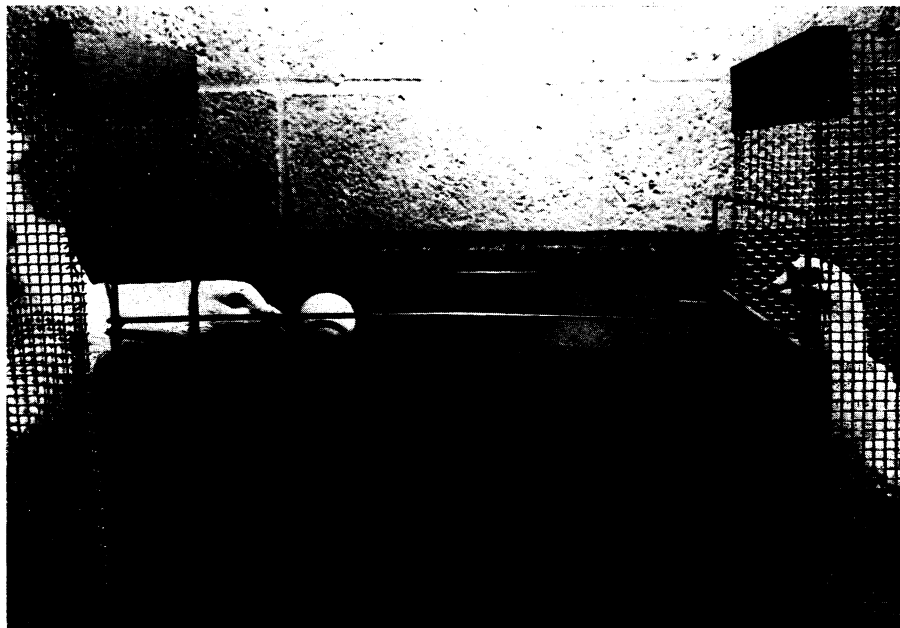
Pigeons Play Ping-Pong

► PIGEONS at Harvard University in Cambridge, Mass., play ping-pong and peck out tunes on the piano.

The birds are not training for a vaudeville act—they are serving as laboratory ani-

mals in studies directed by Dr. B. F. Skinner. The Harvard psychologists are exploring the relative importance of reward and punishment in learning.

The table on which the birds play ping-



PIGEON PING PONG—The sports-loving pigeons engage in a lively game of ping pong. A hit is made as player A (left) bats the ball with his beak while player B watches his opponent attentively.