

Many U.S. Targets Subject to Devastation By Hydrogen Bomb

(Following is the second of six dispatches prepared by the American Society of Newspaper Editors' committee on atomic information in collaboration with the bulletin of the atomic scientists, and distributed by the United Press.)

There is no hydrogen bomb "secret," any more than there was ever an American-held basic secret of the atom.

Nor is it a secret to Generalissimo Stalin that the hydrogen bomb is a weapon particularly suited to destroying America's civilization.

A hydrogen bomb, when and if one is built, may be able to demolish New York or Washington in a split second. The United

States has many such targets, some within reach of a bomb-carrying submarine or freighter that could creep into a harbor and deposit its cargo.

The Soviet Union has but a few: Its industries are scattered and its major cities land-locked and well ringed by defenses.

Some Open Secrets
These are some of the open secrets about the hydrogen bomb discussed in the current issue of the Bulletin of the atomic scientists.

The Bulletin was founded four and a half years ago by scientists who helped make the A-bomb, then became concerned with helping master it. The March issue is an H-bomb issue, dedicated to the proposition that Americans have not debated the issues exploded by this and other new weapons.

When it comes to the H-bomb's basic scientific facts, the fact is there are no facts to hide. It is now common knowledge that top scientists believe you can set off an explosion in some forms of hydrogen, using the explosion of an ordinary A-bomb as the trigger.

In 1946 the Bulletin of the atomic scientists received a copy of a book by a distinguished Austrian scientist named Prof. Hans Thirring. It contained a whole chapter about the reactions on which a super-bomb might rely.

Refrain From Printing
The Bulletin's editors refrained from printing this or other articles like it, for fear of giving the appearance that the United States was building this bomb. This week they reprint Thirring's article, and this week they say: "These facts were familiar to nuclear scientists everywhere in the world even before the discovery of uranium fission."

An H-bomb, we now learn by reading Thirring and others, would be made not from ordinary hydrogen—the stuff in your drinking water—but from a rarer "heavy hydrogen" called deuterium. The deuterium will be mixed, it seems likely, with a still rarer "heavy heavy hydrogen" known as tritium.

People already know how to separate heavy hydrogen from ordinary hydrogen, in a standard and fairly inexpensive process. You can make small quantities of tritium by bombarding the element lithium with neutrons in an ordinary atomic pile.

While you could theoretically use an infinite amount of hydrogen in the H-bomb—and theoretically make a bomb 1,000 times more powerful than the A-bomb—in practice it might have to be smaller, just for convenience. Dr. Louis Ridenour of Illinois University has observed:

Depends On Intentions
"To say the fusion bomb would be 2, 7, 10, 100 or 1,000 times as devastating as the conventional fission bomb (the A-bomb) is to speak from ignorance, the effective size will depend upon the intentions and skill of its designers."

The possibility remains open that the H-bomb might be more compact than one might otherwise expect. For the higher the density, or compactness, of heavy hydrogen, the better the chances of an explosive reaction.

You might compress and liquefy hydrogen gas at extremely low temperatures, then, and have a lot of explosive in a transportable package. If a bomb were 1,000 times more powerful than the Hiroshima A-bomb, it would cause almost complete destruction up to a 10-mile radius, and fatal flash burns up to 20 miles or more. Such a bomb could obliterate almost all of greater New York or Moscow or London.

Scientists today know the basic H-bomb theory, but cannot be sure until they try that it will work. Dr. Hans A. Bethe, one H-bomb architect, has predicted that completing it will take "several years." Other estimates have been shorter—the time may depend on how hard we labor.

Could Dwarf A-Bomb
The H-bomb, if it works, could easily dwarf today's A-bomb in deadly radioactivity, just as in blast power. For the H-bomb reaction would eject millions of the penetrating particles called neutrons.

The neutron shower would turn some of the nitrogen in the air into carbon 14, a radioactive form of carbon that lasts thousands of years. This will be absorbed by plants and get into all forms of life.

The effect on human genetics alone—the way the radiation could alter our genes and affect future generations—might be terrible. It is even true, Albert Einstein now says, that "radioactive poisoning of the atmosphere, and hence annihilation of any life on earth, has been brought within the range of technical possibilities."

On a broadcast by the University of Chicago round table last month, four important scientists raised the possibility of "rigging" an H-bomb to produce even more radioactivity than normal.

One, Dr. Leo Szilard of Chicago University, has explained: "If it becomes possible to detonate practically unlimited quantities of heavy hydrogen, then it automatically becomes possible to release very large quantities of radioactive substances in the air—simply by incorporating into the H-bombs elements which become radioactive when they absorb neutrons."

Szilard raised the issue of national dispersal—moving people and industries from fat, easy targets. He said that to move 30 to 60 million people from big cities might cost 15 to 25 billion dollars a year for 10 years. (The entire defense budget today is 13 billion dollars.)

He said that with the possibility of H-bombs rigged for radioactivity, mankind could "Reach a new day when the loser of a war (will) have the desperate option of inflicting death on the whole world."

One of his fellows said we must realize that the cost of building H-bombs, then, could be "not only the cost of the bomb, but the fantastic cost of proper dispersal, which would protect cities from blast effects if not from radioactivity—and permit us at least some security than we would have" otherwise.

David E. Lilienthal, former U. S. atomic energy commission chairman, accused these four scientists of creating "growing hopelessness and helplessness" and arousing "emotions that play into" communist hands.

"What he said we did not say to scare people, nor did we say it for lack of restraint," replied Szilard. "The reason for speaking up is rather this: Neither the president nor the atomic energy commission has explained to the American people what the decision to develop hydrogen bombs will involve, what the meaning of the 'hydrogen bomb' is, or what the cost of the indispensable defense measures must be. Yet these are things the people must know."

"It might very well be true that the people will decide against relocation, and that congress will not vote funds for it," he added.

People Will Pay
"But if that happens, and the atomic arms race continues, and the cold war goes on and on, there may be a price. It is the people who will pay the price, and it must be their decision to pay it, and they will have to discuss it before they will be able to decide."

Two of the round table participants—Cornell's Dr. Bethe and Illinois University's Dr. Frederick Seitz—are among 12 physicists who have said the United States should build the H-bomb only if it pledges never to be first to use it.

"We believe no nation has the

Smart Little Dress



Alice Brooks

Just a straight tubular piece for the skirt! Simple crochet for the top, too. Presto! A frock for best, inexpensive to make.

It's the fashion—a crocheted frock done in string! Pattern 7238, directions, sizes 2, 4, 6.

Our improved pattern—visual with easy-to-see charts and photos, and complete directions—makes needlework easy.

Send **TWENTY CENTS** in coins for this pattern to The Mail Tribune, Household Arts Dept., P. O. Box 5640, Chicago 80, Ill. Print plainly NAME, ADDRESS with PATTERN NUMBER.

Our ALICE BROOKS Needlework catalogue is the best ever! Send fifteen cents, in coins, now, for your copy. Illustrations of

right to use such a bomb, no matter how righteous its cause," they asserted.

"This bomb is no longer a weapon of war, but a means of extermination of whole populations. Its use would be a betrayal of all standards of morality and of Christian civilization itself."

Yet many scientists, while equally horrified by devastation and war, fear we may be facing a war of survival, and that the question to ask is—"Is this bomb practical?"—not "Is it moral?"

Most would probably agree with Dr. Louis Ridenour, Illinois graduate dean, writing in the current Scientific American: **Old Way More Unpleasant**

"Once it is decreed that people are to be killed, the 'moral' question is fully settled. The instructions of that killing are not at all affected with human or moral questions. It was probably far more unpleasant to be disemboweled by the 18-inch sword of the Roman soldier than it will be to vanish in the flash of a nuclear reaction."

In his quarrel with Szilard and his fellows, David Lilienthal made a statement which would indicate that he and these scientists may not be far apart after all.

"To face the dangers of a very tough world, what we need is not to be overwhelmed with these dangers, but to understand them," said Lilienthal, "and with courage and resolution and patience face up to them and see them through. We have done it before, we can do it again."

Murder Suspect Held in Van Buren, Ark.

Columbia, Mo., Mar. 22—(U.P.) Police Chief Eugene Pond will fly to Van Buren, Ark., today to question two suspects in the rape-slaying of 14-year-old Janett Christman.

Pond declined to identify the men, but said one had a newspaper account of the murder in his pocket.

"He has a peculiar explanation of how he happened to have it," Pond said.

Pond would not talk about the "peculiar explanation" because "I don't want to give him a chance to set up an alibi."

One of the men, Pond said, was a "Kansas City taxicab driver."

Janett, whose 14th birthday was yesterday, was buried in an Easter suit she bought with

money she earned as a baby-sitter.

En route to Georgia he plans to visit his sister, Mrs. Lono Guilfoyle, and her family, in La Grange, Mo.

Hingham, Mass. (U.P.)—This town, incorporated in 1635, has its first set of triplets, Donna, Deborah and Dianne Antoine, daughters of a policeman.

Sergeant Minger recently completed one enlistment period, and has served the last 18 months at Vance air force base in Enid, Okla. He has reenlisted for six years.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

air force. He has been visiting with his parents, Mr. and Mrs. Ray A. Minger, 2238 Aloha street.

Medford Airman Goes To New Post Of Duty

Sgt. Raymond E. Minger left Medford Monday for Georgia where he is stationed with the

</