Atomic Bombs to U-Bombs in Ten Years

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Mr. President: Few subjects are of greater importance to the nation and, for that matter, to the world, than the rapid development of the destructive power of atomic weapons. A great deal of information on this subject has been published in the press both in this country and abroad. Yet we do not have this information collected in a form that brings home to those of us who are not specialists the full impact of developments in this field.

We need not approach the subject of atomic weapons with fear. On the other hand, we cannot pass it off as just another innovation in military science. Either of these approaches, it seems to me, can lead us into very serious errors of foreign policy.

What we require are the facts on the potentialities of atomic weapons development. We require them, moreover, in a perspective which will enable us to understand the life and death issues that are involved. Then, perhaps, we may have a chance of devising effective policies for dealing with the enormous forces which scientific knowledge is setting loose in the world.

As a step in my own education on this subject I have compiled a study of developments in atomic weapons, as reported in the public press and it is the information so obtained that I wish to make available to the Senate.

I reiterate that the material for this study has been drawn solely from public sources. Enough has been published, however, to make clear that there is an urgent need for a most penetrating study by the Senate as well as the Executive Branch of the implications of atomic weapons developments for our foreign policy. The time of decision on the question of the survival of civilization, if not human life itself, appears to be drawing uncomfortably close.
It is almost ten years since the first atomic-fission bomb killed 70,000 people and destroyed two square miles of the city of Hiroshima in Japan. Since that fateful day the scientists of the free world and those of the communist world have made astounding advances in the physical sciences. Advances in this Atomic Age have been so great that it is predicted that it is now possible to build one bomb equivalent to 60 million tons of TNT. This prediction was made by Val Peterson, Civil Defense Administrator, in a speech in Chicago on January 25, 1955.

Nine years after the bombing of Hiroshima, on March 1, 1954, the Atomic Energy Commission task group detonated a thermonuclear device of monstrous size. In its widest implications that explosion has not yet ceased to reverberate. A long chain of incidents, ranging from the curious to the tragic, has made it clear that "peacetime" nuclear explosions may be a possible threat to our well-being. Storm signals from earlier atomic tests such as fogged photographic fields and radioactive rain have given way to the storm -- which has already resulted in the radioactive poisoning of several hundred people, according to news releases. The March 1, 1954 explosion also blasted the lid of secrecy from the AEC's thermonuclear adventures, giving the public its first real look behind the "uranium curtain"; thus it is now known that the AEC touched off three prior explosions, the third of which was detonated in November, 1952. Likewise, we have been told that the Russians have set off three more atomic explosions since August of last year.
The March 1, 1954 bomb was expected to explode with a force of four to six megatons or, from 4 to 6 million tons of TNT. Instead, according to Joseph and Stewart Alsop, New York Herald Tribune, April 7, 1954, the force of the explosion was 14 megatons. It left scientific measuring instruments unable to record its full effects. The magnitude of this test can best be illustrated by comparison with previous explosions. The earlier hydrogen blast set off at Eniwetok equalled at least one megaton, or one million tons of TNT. The atomic bomb dropped on Hiroshima equalled about 20,000 tons of TNT. The largest blockbuster of World War II equalled ten tons of TNT.

Today, according to Hanson Baldwin in the New York Times, March 17, 1955, "our least powerful atomic weapon has an explosive force equivalent to about 3,000 tons of TNT." Sound waves from the March 1, 1954 blast were detected in London, and an American astronomer said the flash could have been seen from Mars. President Eisenhower admitted that the explosion astonished and surprised the scientists, but the AEC called it a "routine atomic test," and clamped on the tight lid of secrecy. Then word leaked out that there were some inhabitants of the Pacific islands who were "unexpectly" exposed to radiation.

On March 13, 1954 a grave new consequence of the "routine atomic test" was reported. The Japanese fishing trawler Fukuryu Maru docked in Yaezu, Japan, with its twenty-three crew members showing symptoms of acute radiation exposure. They told how on March 1, 1954 they were some eighty to ninety miles from Bikini, when at 4 a.m. they fancied they saw the sun rising prematurely "in a strange manner." Six or seven minutes later they heard a roar, and two hours later they were showered with a white ash,
which continued to fall for several hours. The ash was fall-out from the explosion, consisting mainly of irradiated coral dust. Only after they had become quite ill did they suspect that they had been rained with "ashes of death" and headed for port. They had on board 40 tons of freshly caught tuna and shark, which according to the New York Times exhibited radioactivity "sufficient to be fatal to any person who remained for eight hours within thirty yards of the fish." Two of them were in worse condition than the rest, having eaten some of the fish. The crewmen were hospitalized, the trawler was ordered burned at sea and sunk, and the fish buried but not before several thousand pounds of the contaminated fish had been unloaded and shipped to market. A "hot fish" panic ensued in Japan, and police, in a frantic effort to track it all down, ordered a thousand tons of other fish destroyed.

Soon after the mishap, Dr. John Morton, head of the Atomic Bomb Casualty Commission (ABCC) at Hiroshima, reported concerning the twenty-three fishermen, "they will recover completely within a month." But by the 23rd of March, 1954 five of the fishermen were reported in serious condition.

About March 25, 1954 it was reported that the U. S. Navy tanker Patapsco, operating with the H-bomb task force group, had received "light but not dangerous contamination by radioactive fall-out."

On March 27, 1954 two more "atom-dusted" Japanese trawlers came into port and were quarantined. One had been operating about 780 miles from the test site and the other 200 miles away. There were numerous other ramifications, of varying degrees of gravity, from the first March explosion.
On March 29, 1954, Newsweek magazine wrote:

"The subject isn't discussed openly around the AEC but scientists are worried about the whereabouts of the radioactive 'mushroom cloud' generated by the March 1st H-bomb explosion. Within a few days after all previous tests, laboratories around the U.S. have reported detecting traces of radiation in the atmosphere. So far no traces have been spotted from the March 1 bomb, which shot its mushroom an unprecedented 20 miles into the air."

Against this turbulent background, the AEC detonated an even larger H-bomb on March 26, 1954. The March 26th bomb was intended to have been dropped by parachute from a B-36 superbomber, according to reports, but for reasons of caution this plan was abandoned. This was probably for the best since the bomb, expected to develop three megatons, exploded instead with about seventeen (according to the Alsops). And Newsweek later reported on April 12, 1954 that "Air Force officials refuse to talk about it, but a giant B-36 superbomber observing the March 26th H-bomb explosion was flipped completely over by the blast." The AEC had by now taken many new precautions, such as extending the "restricted zone" to an area 450 miles wide, covering several hundred thousand square miles. It had searched the area carefully, to make sure no ships were there. Nevertheless two Japanese fishing boats came into port on April 8, 1954 with cargoes of radioactive tuna.

The guarded secrets and facts about the H-bomb were gradually coming out and, as we know, a vast clamor rose about the tests around the world. It seems that the test model we now have is a far cry from the H-bomb ordered by President Truman in 1950. Thus, we now have a sketchy resume of the highlights following the March hydrogen bomb tests.
Strange incidents continued to show up in the newspapers but each received less notice than the last, until it was practically forgotten. Then on September 23, 1954 Aikichi Kuboyama, a humble Japanese fisherman, died -- the world's first fatality from a hydrogen bomb blast. He died in Tokyo Hospital, reportedly of jaundice brought on by radiation sickness. This one death incident perhaps is not important, but it brings very close to home the horrifying aspects of the hydrogen bomb.

I admit to being a complete amateur in the physical sciences. My entire source of information has been a large number of our national magazines, quarterlies, reviews and daily newspapers. The material on the atomic and hydrogen bombs, guided missiles, the cobalt bomb, radioactivity, and the various aspects of nuclear warfare that I have accumulated has been authored by eminent scientists and laymen. The end result has been enlightening but disturbing.

It is difficult to realize that science has progressed to such a point that one hydrogen bomb can destroy 200 square miles of a city and kill several million city-dwellers. New York, London, Moscow or Peking could be effectively destroyed by a single H-bomb.

As I understand it, each exploded nuclear weapon sends into the atmosphere its share of radioactive by-products. One result of this is an increase in the radioactivity of the gases which make up the earth's atmosphere. The other is "fall-out". The increase in radioactivity now appears inconsequential and will remain so unless there is a general war with the all-out use
of nuclear weapons, in which case the matter could become serious, according to the experts. Unless such a war occurs, radioactivity will continue to be less of a menace to humanity than automobile exhausts and cigarettes.

(The Commonweal, Dec. 10, 1954)

Fall-out, according to an article in The Commonweal, Dec. 10, 1954, is quite another matter. When a nuclear explosion occurs, particles of radioactive matter -- vaporized metal, sand, etc. -- are thrown into the upper air and carried by the winds until they cool and resolidify. Then they drop like rain. It was such an unexpected fall-out which struck the Fukuryu Maru.

Atomic weapons, particularly those in high-penetration missiles and "small" bombs, do not produce fall-out of any drastic consequence. But the Commonweal article says that a strategy of attacks on industrial complexes would almost inevitably mean the large-scale employment of air burst hydrogen bombs. Judging from published reports, an all-out air-burst hydrogen attack on a scale intended to cripple a modern state could render uninhabitable an area equivalent to the populated portions of Russia or North America. Unexpected winds, like those which affected the Japanese fishermen, could bring the fall-out down upon the attacking -- or an innocent -- nation. The combination of these two dangers, general radioactivity and fall-out, not to mention the incredible physical destruction involved, would mean that a nation launching all-out nuclear war would be toying with human suicide.

Overshadowed by the official announcements and speculation about the hydrogen bomb and the atomic bomb is the so-called "C-bomb" or cobalt bomb.
According to a *New York Times* article, March 28, 1954, "This in itself will not be an explosive weapon designed primarily for mass destruction by blast and heat, but a vehicle of radiological warfare. It would be an additive to powerful explosive weapons. The explosion would disseminate the radioactivity impregnated in the element cobalt—."

In an all-out war situation, there might be a need for other means of incapacitating enemy troops or war workers or of rendering a big area uninhabitable for a period. In such a case the natural "fall-out" of radiated material from an atomic cloud, with its short life, would be inadequate. The problem seems to be to keep alive, at a high level, the radioactive contamination. The mineral element cobalt is providing the answer.

Cobalt, according to the *New York Times*, is not fissionable. That is, its atoms cannot be split readily like uranium, nor fusioned, driven together, like hydrogen. But some forms, such as the element Cobalt 60, have a prolonged radioactive life when impregnated. The contamination can last for several years. Of equal significance militarily, other atomic forms of the element have much shorter life spans, so the contamination can be imposed for days or even years.

Professor Otto R. Frisch, the noted British professor of nuclear physics at Cambridge University issued a warning in a speech in January, 1954, that he believed that a "cobalt bomb" could wipe out all civilization. Frisch helped build the first American atom bomb.

According to a February 13, 1955 news release from Hamburg, Germany, Nobel Prize winner Otto Hahn, first man to split uranium, declared
that the explosion of ten cobalt-coated hydrogen bombs could endanger continuation of human life, "no matter where they are dropped." The scientist said radioactive explosion dust, coated with cobalt 60, would retain its fatal effects for years "and destroy all life." He said the danger for mankind is even bigger since the price of radioactive cobalt is only a small fraction of that of the same amount of radium.

As a finale to the intrigue and speculation over the atomic and hydrogen tests, the Washington Post & Times Herald reported on March 5, 1955 that, "The 'thermonuclear device' detonated on March 1, 1954 in the Pacific was more than a single hydrogen bomb -- it was an incredibly enriched superbomb offering the most potent weapon of death and destruction thus far known."

"It was not the long-dreaded cobalt bomb, either, but its fire-ball blast and lethal radioactive fall-out quickly outdated even the concept of the C-bomb."

The International News Service has learned authoritatively the March first blast used a hydrogen bomb core surrounded by a deadly jacket of natural state uranium (U-238), a relatively inexpensive substance. The result of this new super-bomb, the U-bomb, surpasses the death potential of the theoretical C-bomb. This conclusion has been verified by top nuclear scientists.

The February 15, 1955 AEC report revealed that the death-zone from radioactive fall-out in the March first blast covered a cigar-shaped area up to 7,000 square miles.

According to the press the same principle works in both the U and C-bombs. A cobalt jacket would surround the bomb core and -- when exploded --
lay down a lethal radioactive blanket of dust over large areas. The difference, as already noted, is that cobalt decays very slowly while uranium decays rapidly. Since the rate of decay is related to the radioactivity given off, this means that cobalt has a relatively low lethal value per day. On the other hand, uranium gives off a high dosage in the first few hours.

So, while cobalt can contaminate an area for a long period of time, its low radioactivity gives populations a chance to evacuate. With uranium, enough radioactivity is laid down to give an immediate lethal dose. One of the advantages, if that can be said, is that the new U-bomb is cheap and very effective. There is no need to refine uranium into the precocious U-235. Scientists have been unable to experiment with the Cobalt bomb because it would leave a large area contaminated for a long period of time, years perhaps.

The United States is far advanced in many respects as compared to the Soviet Union. While their military strength is considerable and increasing, we outstrip them in most fields except mass manpower.

Published estimates of comparative nuclear strength in the New York Times, March 4, 1955, indicates that the United States stockpile of all types of nuclear weapons is probably more than 5,000. The Russian stockpile may be more than 500, perhaps as many as 1,000. If a more accurate yardstick is used -- the total yield of the two stockpiles -- the combined power of available Russian weapons today is between twenty and forty megatons, or the equivalent of 20 million to 40 million tons of TNT. One United States thermonuclear test device, detonated a year ago in the Pacific released the equivalent of 20 million tons of TNT.
Moreover, according to the New York Times, there is no clear-cut evidence that Russia yet has an operational hydrogen bomb, one that can be carried by plane. There is no physical evidence that the Russians have practiced air refueling. Another illustration, the bulk of their long-range bomber fleet is still composed of more than 1,000 B-29 type propeller-drive aircraft, which are obsolete in our services except for special missions.

My immediate concern is not that the Russians are going to take the lead in this race very soon or that the United States will ever take a secondary role.

The danger which has disturbed me above all the mysteries of the Atomic Age, is whether or not there is a world-wide cut-off, or danger point. Will the abnormal amount of radioactivity released in each explosion have a very slow but definite cumulative effect upon the earth's atmosphere and or upon its vegetable and animal life, and hence upon human life?

There are many scientists and lay people who are worried about this possibility and they do not know the complete answer. According to a November 8, 1954 article in the New York Times, "The increasing worry -- and it is nothing more definite than that -- is primarily about the ingestion and inhalation and absorption of tiny radioactive particles -- not at the moment about the external menace of these particles to the human body."

According to the press, there seems to be a real possibility that continued explosions could slowly raise radioactive levels around the world to
the detriment of health and human genetics, and there is the sure knowledge that the area of immediately dangerous "fall-out" is much larger than had been expected before the last tests in the Pacific. Views on this topic extend from one extreme to the other. Nevertheless there is genuine concern about this problem, and I am in complete sympathy with that concern.

In November of 1954 Prime Minister Winston Churchill stated in the House of Commons that it was his "understanding" that the radioactivity released by the explosions of nuclear devices might be "cumulative" and that the detonation of an "undue number" might have serious effect upon the earth's atmosphere for 5,000 years. This statement may have created unnecessary fear, but at the same time no one has the answer.

During the CBS "Years of Crisis" broadcast on January 2, 1955 correspondent David Schoenbrun, spoke of the great scare that was raised in France last December when Nobel Prize-winning physicist Prince Louis de Broglie claimed that the danger-point in atomic saturation of the earth's atmosphere has already been reached, perhaps it has even been surpassed, by the result of ten H-bombs being exploded experimentally in the last two years. He warned that life on earth might be changed or even wiped out if ten or fifteen more bombs are exploded in the next year or two, even without war.
Is there an internal threat? As nuclear tests go on, will the earth's atmosphere become contaminated? Will animals and humans occasionally subjected to small but more than normal amounts of radioactivity, absorb, breathe or eat these particles to such an extent that development, growth, or life itself might be affected?

In a series of articles in the Washington Evening Star by Science Editor, Thomas R. Henry, he writes of the threat to the continued existence of man on earth during this Atomic Age.

What is involved in this threat is not the frequently voiced fear of slaughter and destruction in war on an unprecedented scale, but of the effects of a hidden, insidious, largely undetectable and uncontrollable poison which perhaps is capable of destroying the human race as a biological genus.

According to this thesis, which admittedly is far from satisfactorily established, it is not members of the present generation who are being injured. It is their unborn descendants for generations to come.

These implications were stated forcefully by Professor A. H. Sturtevant in an address before the Pacific Division of the American Association for the Advancement of Science. "There is no possible escape from the conclusion that the bombs already exploded will ultimately result in the production
of numerous defective individuals -- if the human race survives for many generations. The risk is one to which the entire human race, present and future, is being subjected," the California professor said.

Scientists are very concerned over the possible effect of radiation on the genetic structure of man. The series of articles by Thomas Henry is only one of many attempts to bring the problem to the general public in words they can understand.

In the face of warnings from some of the world's foremost geneticists that the human race may suffer serious deterioration over a course of generations because of the inevitable buildup in the background radiation of the earth due to atomic bomb detonations, experiments to date indicate the danger may be quite exaggerated.

This is reassuring but at the same time there is no positive proof that future generations will not be affected.

On February 15, 1955 Lewis L. Strauss, chairman of the Atomic Energy Commission, announced officially that a hydrogen bomb such as was exploded in the Bikini Atoll last March is capable of blanketing a 7,000-square-mile area the size of New Jersey with deadly radioactive fall-out.

According to the Washington Post, "Such a bomb, if exploded over Norfolk, for example, could shower enough fall-out particles to:

"Kill all the unprotected persons living as far north as the southwest edge of Washington.

"Kill half the unprotected persons living between Washington and the outskirts of Baltimore."
"Kill five or ten percent of the unprotected living between Baltimore and the Maryland-Pennsylvania line.

"Allow the residents of Harrisburg, Pa. -- more than 220 miles away from Norfolk -- the dubious privilege of being left alive to gaze at the holocaust within the deadly fall-out ellipse.

"The projections, drawn from figures in the report, are extremes," based on the assumption that the inhabitants remained fully exposed to the radioactivity over a 36-hour period, taking no shelter or other protective measures. Even simple shelters, Strauss said, greatly reduce the danger from radioactivity.

This belated admission of this new atomic hazard has come long after unofficial analyses had described the newest danger. It is assumed by some that this report was planned to coincide with the start of the new series of atomic tests in Nevada and may have been intended to assure the American people that the Nevada tests represented only a very slight danger. As I understand it, atomic weapons, particularly those in high penetration missiles and "small" bombs, do not produce fall-out of any drastic consequence. Presumably these are the type atomic weapons which are being tested in Nevada. The second test of the 1955 series in Nevada, a small nuclear device -- the probable prototype -- exploded on February 22nd with a force that jarred cities 135 miles away. The pre-dawn flash was seen 400 miles away, according to the February 23rd edition of the Washington Post & Times Herald.

The device tested on the Yucca Flats is said to have been one of the smaller weapons. The shot rattled windows in Las Vegas, 75 miles away, and jolted St. George, Utah, 135 miles eastward. It gave the Congressmen, AEC scientists and 200 military observers a sharp jolt or two, depending on where
they were standing. Wind and atmospheric conditions were such that the rumble of the blast was heard in Bishop, California, about 140 airline miles west, but skipped the Charleston range where many observers were watching the tests.

The orange flash was reported to have lit up the morning sky in Los Angeles, about 250 miles away, and was visible in Sacramento, California and the San Francisco Bay area, 400 miles distant.

The biggest blast of the new atomic test series on March 7, this year flashed forks of light visible in a dozen states including Montana, caused an earth rumble 360 miles away, and sent scientists and soldiers scurrying for safety from the Nevada test site. The predawn flash of a nuclear device believed to be at least 1-1/2 times the strength of the standard A-bomb was seen in the Black Hills of South Dakota, more than 800 miles northeast, south of the border in Mexico and in all eleven western states. The fireball lasted 20 seconds, according to the Washington Post and Times Herald.

Incidentally, in statements to the press, two Colorado University professors said that fall-out from the Nevada tests can no longer be ignored by persons concerned with public health and safety. Dr. Ray R. Lanier and Dr. Theodore Puck were not suggesting that necessary nuclear tests be discontinued but stressed the importance of continued study of the effects of these experiments on the human race.
I recognize the necessity and value of tests and experiments, but at the same time it is difficult to reconcile this with the possibility of miscalculation and the number of hydrogen and atomic bomb explosions that it will take to make the atmosphere radioactive, if there is any basis to the numerous fears of some of the world's greatest scientists. In addition to the remarks of scientists and statesmen that I have already cited, a statement made by Dr. Edgar D. Adrian has been brought to my attention. He is quoted as saying last fall, "We must face the possibility that repeated atomic explosions will lead to a degree of general radioactivity, which no one can tolerate or escape." Adrian, President of the Royal Society, is a former Nobel Prize winner and serves officially as the master of Trinity College, Cambridge University in England.

President Eisenhower and Chairman Strauss have answered the question: should we continue to test hydrogen weapons? Their answer was yes. There is a great element of risk in this decision, but at the same time it is the only answer at the moment, for it might very well be disastrous if the Soviet Union was allowed to gain an advantage over us.

There are those who feel that continued atomic and hydrogen bomb tests are a crime against humanity and will only intensify the jeopardy to the human race. Others feel the program should be expanded and accelerated in this race with the Soviet Union. Few will argue against forging ahead in the nuclear sciences, but relying on the hydrogen bomb as our principal offensive weapon is something else again. It is definitely a deterrent but complete reliance on such a suicidal weapon may lead to self-destruction.
The latest move along this dangerous path is the new doctrine of "limited" atomic war with tactical weapons, recently expounded by Secretary of State Dulles, with the endorsement of President Eisenhower. This new doctrine has merit in time of war when considering our present nuclear power superiority when faced with the Communist advantage in ground forces. But this argument seems to be rather shortsighted.

Tactical atomic weapons used on military targets only is a wishful attempt at minimizing the dangers of nuclear warfare. Can we rely entirely on this increased precision and accuracy? We must not overlook the unpredictable changes in weather, human error and mechanical failures. Military targets, particularly airfields, are usually near towns and cities. A weapon large enough to insure the destruction of such targets will almost inevitably take a toll of non-military areas. To completely paralyze an enemy it would be necessary to hit the cities, the centers of industry. The nuclear bombardment of cities would turn war into suicide. I find very little assurance in the possibility of limiting an atomic war once it was started.

It is not my intention at this time to discuss the merits and demerits of the present military and defense program in general. An excerpt from an address by Sir Winston Churchill in the House of Commons on March 1, 1955 at this point might be very timely. He said:
"The hydrogen bomb has made an astounding incursion into the structure of our lives and thoughts. Its impact is prodigious and profound, but I do not agree with those who say, 'Let us sweep away forthwith all our existing defense services and concentrate our energy and resources on nuclear weapons and their immediate ancillaries.' The policy of the deterrent cannot rest on nuclear weapons alone. We must, together with our NATO allies, maintain the defensive shield in Western Europe."

We do not have the answers to substantiate or discredit the fears about continued hydrogen tests, or if answers do exist, they are kept under a tight lid of secrecy. Until such time as we know of these things, we should not for one moment forget the earth shattering and destructive power that we are placing so much confidence in.

The working paper before the United Nations sponsored by the United States proposes the establishment of a United Nations disarmament and atomic energy development authority composed of the members of the Security Council and Canada. The objectives in establishing this authority were:

1. To provide international control of atomic energy so as to enforce compliance with the prohibition of atomic and hydrogen weapons and insure that nuclear materials are used for peaceful purposes.
2. To supervise programs for limitation and balanced reduction of armed forces and conventional armaments, and prohibition and elimination of major mass destruction weapons.

3. To supervise the various safeguards necessary to enforce a disarmament program, including disclosure and verification.

4. To assure each participant that the other states are observing the various agreements.

It is the opinion of many that such a disarmament program as this is somewhat of a lost cause in many respects. The Soviet Union has placed many obstacles in the course of any plan which would meet the approval of the Western World. The most recent was the new Soviet demand, made public almost on the eve of the latest London negotiations, for a preliminary "freeze" on armed forces and armaments as of last Jan. 1. Such a "freeze" would prevent the armament of Japan and, more particularly, West Germany. This is unacceptable to both the United States and Great Britain. At this point it is very unlikely that any system of inspection can be arranged to meet the approval of all nations concerned.

In recent months a great deal of interest has been rallied around a proposal to seek an international moratorium on experimental detonations of hydrogen bombs. Such a moratorium was suggested last fall by David R. Inglis, of the Argonne National Laboratory, and proposed informally to the President and the Secretary of State by Pierre Mendes-France during his Premiership.
It also has the backing of the Asian Prime Ministers who met at the Colombo Plan conference in Jakarta last December, though they suggested it not because they thought it would be a substitute for disarmament but because so many of them do not like the nearness of the Pacific proving grounds.

The Washington Post and Times Herald, on February 11, 1955 suggested in its editorial columns five significant advantages of such a proposal. They are briefly: (a) The plan would be a step, even though a small step, away from war; (b) the ban would be self-enforcing, no elaborate enforcing machinery; (c) it would tend to curb the development of new nuclear devices; (d) the ban would relieve fears about the further accumulation of radioactivity in the atmosphere; (e) a careful proposal would help convince the world of the sincerity of this country’s efforts to reverse the drift toward war.

Before I conclude I wish to make note of a proposal sponsored by the Federation of American Scientists which would establish a United Nations commission to study the effects of atomic and hydrogen bomb tests. The 2000-member federation suggests that the UN commission examine the extent of radioactive contamination as the result of past tests, evaluate the potential genetic effects on human beings of future tests and attempt to establish a “danger threshold.” This proposal is more or less a modification of the plan I have just discussed.

If the United States were to initiate a program along these lines, it would undoubtedly have a great effect in quieting many fears.