The Hydrogen Bomb

THE WORLD IN DANGER

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM

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THE HYDROGEN BOMB AND THE WORLD IN DANGER

The W.I.L.P.F. continues to stand fast by the principle that war itself, as a means of solving international conflicts, should be strenuously opposed. The experiences of the first world war led to the founding of a special committee directed against scientific warfare. Our aim has been more effectively to meet the new and ever-increasing perils of:

(a) the use of chemical, physical and even bacteriological science for mass destruction,

(b) the combined effect of these means with the fast development of air forces,

(c) the change of emphasis in attack on the civilian population.

Our Committee has been studying these methods and at the same time keeping in touch with the W.I.L.P.F. as a whole. Experts were summoned to a Conference at Frankfurt-on-Main. The results of their work, as given in reports to this Conference, have now been widely disseminated.

The second world war far surpassed even the gloomiest forebodings. So the W.I.L.P.F. once again found itself confronted with the need to investigate the latest developments of atomic, chemical and biological warfare. The latest atom-splitting and H-Bomb trials have illuminated the situation with lightning intensity, and consequently the Executive decided to reorganise our Committee and publish this pamphlet. Here is a statement, brief, but based on scientific fact, explaining why even the testing of atom and H-bombs, and still more the unlimited use by both sides of such means of warfare constitute a grave danger to the whole world.

The Swiss branch of the W.I.L.P.F. decided to publish this pamphlet which was written by one of its members.

THE NEW WEAPONS THREATEN THE WORLD

The gruesomeness of the new weapons, which are no longer directed against individual enemies but against the whole population of the earth, derives from the following factors:

(a) THERE ARE NO LIMITS TO THE SPREADING OF RADIO-ACTIVE ASH:

This can be seen by the falls of volcanic ash following volcanic eruptions all over the earth's surface. For example, after the famous eruption of Krakatoa in 1883, fine particles which had reached the higher atmospheric levels spread over the larger part of the earth's surface and made their presence known by unusual light effects at sunrise and sunset. In the space of 6 weeks the particles were distributed over practically the whole area between 30 N and 45 S. In the old world, they spread from Scandinavia to the Cape of Good Hope. In central Europe the presence of volcanic ash in the atmosphere could still be proved a whole year afterwards.

The fact that radioactive dust behaves in much the same way can be scientifically proved. According to the Zeitschrift Naturwissenschaft (Band 40, 1953, s.54), radio-active substances, which derived from the U.S.A. atom bomb tests, were discovered in Paris between December, 1951 and June, 1952 while previously a radio-active aerosol cloud was discovered in Freiburg in Ereisgau, 12 days after it had been observed in Helena, U.S.A. The journal "Science" of July 3rd, 1953 mentions the effects of radiating aerosol clouds, which reached U.S.A. extremely rapidly after the atom bomb explosion on Eniwetok, and there interfered with scientific experiments conducted in Newhaven, Connecticut. Regarding the speed with which these atomic dust clouds cover vast distances, "Science" stresses that their radio-activity was often not decreased sufficiently to be ignored.[1]

Furthermore it was found in various places, that the intensity of the radiation produced was quite considerable. As the explosive power of the atom bomb increases, the danger becomes proportionately greater. In view of these facts, the following statement by Admiral Strauss seems a strange kind of reassurance. On April 1st, 1954 the Frankfurte Allgemeine Zeitung reported Admiral Strauss as having admitted at President Eisenhower's Press Conference that the radio-activity present in the atmosphere had been somewhat increased by the test of March 1st. This, however, had been the case after every similar test conducted both by the Americans and the Russians! This strange kind of logic underlines the increasing danger, and if one adds to this the unparalleled development of atomic weapons, one can imagine the frightful dangers which threaten even the most distant places of the earth.

Another relevant statement comes from Professor Staub, Director of the 1st Department of the Institute of Physics at the University of Zurich (as published in the Neue Zurische Zeitung Nr. 1099, 6th May, 1954). "The transportation of radio-active material can happen through the agency of the prevailing wind which carries the radio-active dustcloud (the "mushroom") of the explosion in the upper layers of the atmosphere, with a small decrease in density over wide areas, where it would eventually fall as dust-rain or be deposited in the human body by breathing of the contaminated air."

In fact the same research worker measured the radio-activity in Calcutta after the March explosion. On top of the Koenigstuhl at Heidelberg, air was examined over a period of several months. It was passed through a filter changed every second day, and its radio-activity was determined with the help of a counter tube. "Naturwissenschaften" reported the tracing of an active component to a mixture of fission products due to atomic explosion. These reached the recording point in widely varying quantities, depending on the weather.

So-called monitor stations[2] like the above have been recommended by Professor Staub, who, unlike the W.I.L.P.F., still pursues the phantom of "protective measures". Their main object would be to watch over the radio-activity in the air, and they could furnish valuable information about the appearance and migration of radio-active fission products. Professor Staub adds: "Should such a station declare that the radio-activity of the air had reached a dangerously high level, special measures should be taken to protect the source of drinking water in particular".

And if the control finds "activity at a dangerously high level"? What then? We have then the choice between two kinds of death: to die of thirst or to perish from radio-active poisoning. For against this kind of contamination of the water even boiling is of no help.

But even this is not all the story. The air we breathe, the water we drink, are already in constant danger of radio-active contamination. The radio-active rain which was registered in Sydney (Australia)[3] —to leave out of account the many unrecorded instances of this kind—

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[1] This happens within such a short time that, e.g., particles of radio-active clouds — after travelling round the world at great altitudes — could be recorded at the place of origin four weeks after the explosion, on the Bikini Islands, of 1st March, (see Darmstadter Tagblatt 3rd and 4th April, '54).

[2] Prof. Liese Meitner has drawn our attention to the fact that the Heidelberg Station was originally set up to study horizontal currents of air. The first measurements of radio activity were taken 7 days after the Les Vegas bomb explosion of 5th May, 1953.

[3] From 6th to 21st May a lot of dust of considerable radio activity fell in Japan (see article in "The Nation", October 9th, 1954, and other press reports).

show clearly the danger to those countries, like Japan, which depend for their drinking water mainly on the rain water supply. This further poisons the vegetation (rice, sugar, tea, grass, fruit, etc.), freshwater springs and cattle, and those that live on them.

(b) Professor Staub believes the PLANT AND ANIMAL FOOD produced in the neighbourhood of test stations for atomic explosions present an even greater peril. "It is quite possible", Professor Staub says, "that fish and fish products for example, containing a significant amount of radio-activity could get into our country, without their dangerous contamination being discovered, as it were, by chance!" He therefore demands a systematic examination of imported foodstuffs. This examination would have to be extremely thorough. For no one can be sure whether eating of a tin of tuna fish for example, could not cause radio-active cell disintegration in the organs of digestion and elimination, followed by gangrene. Or he could suffer a change in the composition of the blood, as a result of the destruction of the white corpuscles—our principle protection against infection—or of the blood platelets which are one of the factors in the coagulation of blood. Nobody can be safe, even years afterwards, from the delayed onset of disease for which there is no cure. There may be no immediate signs of illness.

Nobody can know whether small children are condemned to death, like those who survived as babies the atom bomb raids on Hiroshima and Nagasaki, but who are perishing today, after months of dreadful agony.

Nobody can know whether his own genes have been damaged, with terrible consequences for the coming generations.

The treatment of patients suffering from radio-active contamination has been made more difficult by the fact that the composition of the radiation caused by atomic explosion is being kept as secret as possible. The doctors who were treating the members of the fishing boat crews caught in the fall-out of atomic ash, have not so far succeeded in getting from the American authorities the information necessary to enable them to treat the seriously affected patients successfully. To do this they would have to know the exact composition of the radiation involved. In the meantime one of the affected men has died, and the survival of the rest is doubtful.

The Japanese Legation in Bern has assured us that since March 19th, 1954, all fish caught in southern Japanese waters were subjected to a thorough investigation and were released only when they were completely safe. Tinned foods meant for export have been tested a second time and found quite harmless. This second control is no longer enforced, but can be provided at the request of the exporter (National Zeitung, Nr. 578. 14th Dec., 1954). Tests made in Switzerland did not show any radio-activity.

It is obvious that the trade in tinned fish is made more difficult. It could even be made impossible if further tests with more dangerous hydrogen bombs, as forecast for 1955, are carried out. As a result, the life of any people who depend on fish as a basis of their economy is imperilled. Not only are the catches lessened; not only is there sterility among fish poisoned by radic-activity; there are indirect perils, too. This means first of all, in the affected neighbourhood of test stations, consequences even more serious than the damage done to the ships and crews of the "Fukuryu Maru" and the "Lucky Dragon" and their catch of fish.[4] [5] There is hunger and misery for those affected, hunger and

[4] Regarding the patients of the Lucky Dragon, serious damage was done to their blood-producing organs. The number of blood corpuscles has not increased in spite of transfusions and blood-building drugs, and there is a tendency to haemorrhages. Their state of health bears resemblance to those affected by the Hiroshima bombs, half of whom died.

misery for the great masses of already poor and undernourished people, hunger marching on from people to people and from coast to coast. For there are no limits to the migrations of fish from the contaminated area, from one sea to another. Some may even wander far inland following the streams, and with them come hunger and death right into the very hearts of the continents.

What is the time limit of the danger of contamination, which, so Prof. Takajiros (University of Tokyo) claims, is still on the increase? (Basler Nachrichten of Oct. 7th, 110. Nr. 425, 1954 and "Volksrecht", Zurich, of 8th Oct., 1954). No one can as yet estimate the time. Plankton at any rate remains radic-active for months and forms a constant danger of infection to the fish whose principal food it is. The "Darmstadter Tagblatts" of August 23rd, 1954, reported that Japanese Government officials had to confiscate a few days earlier the 10 tons of tuna fish—the entire catch of one of the fishing boats just returned from the Pacific—because of its high radio-activity. The total value of confiscated radio-active fish in Japan during August amounted to £102.000 ("Basler Nachrichten", 7th Oct., 1954). We are not here concerned only with the loss as such. Prof. Kimagori of the College of Marine Science has proved by means of X-rays that the effect of radio-activity on fish has very serious results. The reproductive cells particularly are changed to such an extent that the first generation is born abnormal and its eggs are completely sterile. We can easily understand that the consequences of this on the fish-egg production of Japan and of the whole Pacific represent a menacing problem, as Prof. Kimagori points out.

(c) POSSIBLE CONNECTIONS WITH NATURAL CATASTROPHES:

The coral atolls themselves, as well as the plant and animal world below the sea, if they are in the region of atomic tests, are exposed to radic-active poisoning. Charles Darwin called the coral atolls miraculous constructions of the minutest living sea-organisms. This singular island world seems doomed to slow extinction through being used as a testing ground for atom and hydrogen bombs.

If the coral reefs are not smashed up by the explosion itself, they will gradually perish from the radio-active poisoning of the tiny creatures which built it, within the wide region of sea contaminated by the bombs. If the power of the explosions is such that they can smash coral islands, one may well ask what would happen if the force of such a bomb tore into the sea bed itself to any great depth.

The danger of a break-through of the sea, through clefts and faults in the sea bed to the fiery fluid of the earth's core[5] is not yet acute, and the question whether it could happen with further developments of the H-bomb if certain geological conditions existed, can not yet be decided.

[5] According to the Darmstadter Tagblatt of 3rd and 4th April, 1954, the whole cargo of 32 tons of tuna on board the fishing vessel caught in the radio-active dust had to be discarded.

[5] This would be a catastrophe first described by G. F. Rouelle (the teacher of Lavoisier, Founder of modern Chemistry) as the cause of volcanic eruptions. The theory is described in an article by P. Lemay and R. H. Oesper. "He ascribed volcanic phenomena to the meeting of fire within the earth with large masses of water penetrating into subterranean caverns." Though this theory has been held by some geologists up to this date, there are, of course, other and contradictory theories. If, however, the sea bottom should collapse under an atomic explosion, the consequences can be assessed by a knowledge of fundamental chemistry, and disregarding the geological theory: decomposition of sea-water and the salts dissolved in it, through heat and re-actions under formation of oxy-hydrogen gas, and explosive re-composition of water, violent re-actions of free basic metals, in particular of potassium with newly-formed water and water from the sea, etc. It is hard to imagine what these re-actions, known to the student of chemistry, would be like on a huge scale, for it would be a re-action between earth and sea.