FALLOUT-- RAIN OR DEATH?

by FRANK CAPPELL

A JUSTIFICATION OF CIVIL DEFENSE

by SUE HERMAN

Civil Defence does not pretend to be a military warning unit. Such a task is left to the DEW line and the Intelligence Corps. It does attempt, however, to utilize and organize existing agencies to the best advantage after disaster has struck. The Springhill mine disaster came under the jurisdiction of the Civil Defence authorities. In this scheme, groups such as the Red Cross participate, but the tasks of each are specialized so that the basic functions like feeding, clothing, housing, registration and inquiry, and personal services do not overlap.

Civil Defence exists on three levels, federal, provincial, and municipal. Each target area possesses a direct telephone line to Ottawa. The head of the municipal sector is the mayor, who, in turn, has a planning committee consisting of the heads of the police and fire departments, engineering department of the N.S. Light and Power, and Acadian Bus Lines.

"Community Preparation for Community Preservation"

It is vehemently argued that in the case of nuclear attack, the Civil Defence is powerless. The Civil Defence cannot prevent the dropping of a Hydrogen bomb on Halifax. It can, in the words of Mr. E. J. Vickery, Director of Civil Defence for Halifax, provide "community preservation." The Civil defence organization in the USSR is far in advance of ours simply because, living under a democracy, the people here cannot be forced to do even the few deeds that might save their lives.

The point is granted that, should a plane somehow slip past the warning systems, centers like Montreal, Ottawa and Halifax will only have two to three hours notice. Also conceded is the fact that it would be close to impossible to do more than begin to evacuate a city in that length of time, even should the people have the initiative to co-operate.

Halifax—a Potential Target

However, there are 206 major target areas on the North American continent, only 13 of which are in Canada. Of these, Halifax ranks sixth, Ottawa, Montreal and Toronto coming first, with Victoria and St. John at the end of the list. The prime targets are the large United States' air bases. It is unnecessary to state that no enemy country is going to be able to attack 206 centers at once, without retaliation from an allied country, at least.

Because of the location of the main target areas, approximately eight to ten hours warning could be received. Everyone in the entire city could be evaculated, should the Prime Minister so order, in ten hours if all means of transportation were in the correct place at the correct time. In two hours 40,000 people can be removed from Halifax, on the estimation that each outgoing route can handle 1000 cars, each carrying five people, per lane, per hour.

Run, Run, Run

There are four major dangers which occur upon the explosion of the H-bomb, **flash, blast, heat** and **immediate radiation,** all of which are felt within a radius of 12 miles from the explosion. Within a radius of two miles, everything would be completely destroyed. From two to six miles out, most people would be killed. At nine miles, those not in shelters would probably not survive. Those who had taken cover and were in the 12 mile radius zone would, in all likelihood, live.

Assuming that enough of the population heed an evaculation warning, there will be, after the initial explosion, thousands of people scattered outside the city in small communities up to 100 miles away. Some one should keep these people informed, provide them with shelter, food and clothing, and protect them against "radioactive fallout." Why not Civil Defence?

This phase over rehabilitation is necessary. The countless families that are separated the employees whose job locations are no longer in existence, the children, evacuated first, whose parents might not have made it . . . all these must be cared for. The task belongs to someone. If there is no organization prepared to undertake this, much needless hardship and heartache will result. There is no such organization without the Civil Defence.

You Can Escape Fallout!

Those who believe that taking shelter against "fallout" is an ineffectual precaution, might be advised to at least read the following figures. First of all, "fallout" is not the immediate radiation which follows the blast, but consists of dust particles that have become radioactive, and which drift with the wind in a cigar-shaped cloud more than 100 miles long and up to 20 miles in width.

The wall of a wooden house cuts the intensity of the radiation to one-half. A cellar, and the surrounding earth cut it by one-hundreth. Complete protection against fallout can be obtained in a dug-out under three feet of earth. At the end of 49 hours, the intensity is one-hundredth of its original strength.

It Can Happen to You

Finally, Civil Defence was not created in Great Britain in 1935 as a **peacetime** disaster force for the purpose of offering aid in the event of nuclear warfare, although, in the attempt to adapt, in this, as in other cases, the Canadian Armed Services at home, are placed at its disposal. Other disasters can occur. Nova Scotia is situated in one of the earth's regions most prone to earthquakes. Halifax does not need to be reminded of the danger of unexpected explosions.

"It will never happen to me." It does, and it just might. During a state of war preparation may not seem as foolish but it may be too late. In the event of a nuclear attack, precautions could snatch the public from the joys of a free cremation.

Our natural surroundings, the earth we live on, and the air we breathe contain and always have contained, **long before the first atomic bomb was made,** a good many sources of atomic and non-atomic radiation.

The Conservative View

It is important to dispel an erroneous assumption generally made by non-scientists: mutations (genetic changes) induced in plants and animals by radiation are not necessarily injurious. In fact, the human body possesses a considerable degree of resistance to radiation—if this were not true, then the human race would not have been able to withstand the radiation to which we have already been exposed.

"Living organisms," points out Dr. Pelluet of the Biology Department, "tend to be very stable, and tend to return to their stable state, the balance being ever so slight." Thus the human body tends to resist radiation in the same way that we sweat when we are warm and shiver when we are cold. The most recent experimentations in the study of genetic mutations induced by radiation on plants and animals does **not** show any change in the outward appearance of the plant or animal, nor in the appearance of their offspring.

Thus the effects of that dosage of radiation to which we have been exposed since before the atomic age have not been injurious. True, atomic bombs affected some Japanese citizens very severely in 1945, but hardly added to the atomic radiation received by the rest of the world.

"But since 1945, more especially since March 1, when the first well-publicized large H-bomb was exploded on Eniwetok Island in the Pacific—with far more effect than was expected, because of a mistake in the preparatory calculations made by the responsible scientists—what amounts to a general addition to the universal natural background has extended all over the world because of radioactive fallout from the upper atmosphere. There seems to be little general agreement about the extent and danger of this fallout, and it seems likely that observations have been distorted in both directions, if not willfully.

A Measure of Agreement

What is perhaps even more to the point, is that scientists are not generally agreed on the possible effects of **future** large doses of atomic radiation, which seem to threaten us more menacingly every day. To this, however, even the most conservative authority would agree: mutations induced by **radiation** may, or may not, be injurious, BUT, if there is **actual physical contact** with a more than "reasonable" dosage of radiation the effect is certain to be lethal.

Even non-scientists can deduce from the experience of the human race at Hiroshima that any atomic bomb of a similar magnitude (and our bombs are much larger today) would result in immediate death for those within the general area of the bomb and ultimate death for those inhabitants of a much larger area who came into actual physical contact with radioactive fallout.

The Majority View

What about the additional radiation we **already** have from recent atomic testing? On this point, the conservatives would admit that at least some damage has been done; few would claim that it is negligible, but would nevertheless brand as "hysterical" the admonitions presented recently by 9000 scientists to the UN.

The majority of scientists, however, would point to facts such as these:

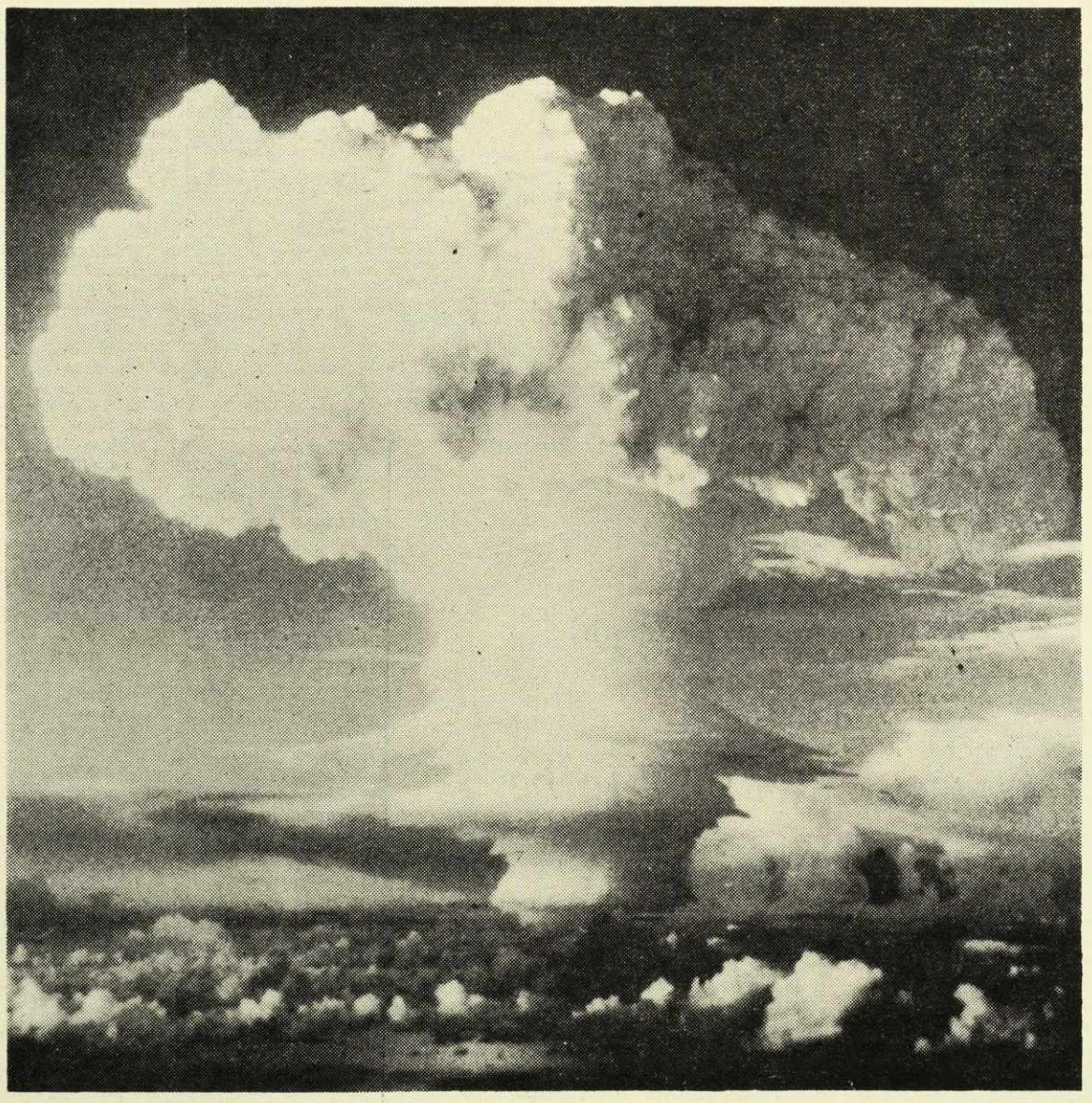
For one thing, there is the severe gentic danger from Caesium 137. The radioisotope Caesium-137, present in the fallout we already have, gets into milk, plants, and the muscles of animals, including human beings. There is no doubt that this element does cause genetic mutations in the genes which we pass to our children and, through them, to posterity.

Most scientists agree that mutations caused by Caesium-137 are harmful; if they are correct, then we should do all we can to keep the mutation-rate from increasing, for any increase adds to the genetical burden of mankind, and causes more deformed births, congenital idiots, and a great deal more general weakness in future generations.

Secondly, there is the cancer danger from Strontium-90, which received considerable publicity in Toronto about a year ago. No radioactive Strontium was ever identified on earth before atomic bombs had gone off. Since it resembles calcium, Sr-90 settles in bone when it gets inside the body, and it therefore cannot cause appreciable mutations. But it **can** cause cancer of the bone, and, in the case of an atomic explosion, it is **impossible** to avoid contact with Sr-90. Sr-90 is now to some extent coming down all the time everywhere from the stratosphere, and it will find its way to our bones through the atmosphere, rainwater and the food we eat.

Warning

Regardless of the view we may hold, recent remarks made by Dr. J. G. Kaplan of the Dalhousie Medical School deserve our most careful attention: "I have but little patience with those who argue that the effecs of nuclear testing 'not very significant' . . . one wonder how many deaths would be required for significance?"



ISLAND DISAPPEARS IN WAKE OF H-BOMB
MARSHALL ISLANDS: This is the sixth in the series of eight photos released by the Federal Civil Defence showing the explosion of the H-bomb in the Marshall Islands of the Pacific in the Fall of 1952. The mushroom portion of the explosion has now reached a height of 25-miles deep into the stratosphere, and when fully spread, will reach for 100 miles across. Called Operation IVY, the experiment was conducted by Joint Trask Force 132, for the Atomic Energy Commission and the Department of Defence, at the AEC's Pacific Proving Grounds. The particular test island (Elugelab) of the atoll completely disappeared.
—(Civil Defence Photo from United Press)