

# The Nature of Nuclear Attack

IAN CARR, M.D., Ph.D., FRC Path, F.R.C.P.(C)

This subject is not essentially a facet of the study of war. It transcends war. It is not an aspect of politics. It goes deeper than politics. It is rather a consideration of one of the great biological turning points of our species. The ability to wage nuclear war is the inevitable result of the quarreling of humankind and of the awesome technical advance of humankind. We are discussing whether human civilization can survive this century. We are too apt to assume permanence. There are optimists and there are pessimists. I am an optimist — I believe we have a 51% chance. But if nuclear war happens, it is likely to be global and total because of early destruction of command, communication and control systems. There should be no mistake. In such an event human survival is unlikely.

How is this relevant to us as Canadians? We are members of a nuclear armed alliance, committed to the decisions of that alliance, protected by the power of that alliance, and subject to the fearful doom of that alliance if things go wrong. There are nuclear weapons on our soil. Nuclear armed planes have rights of overflight in time of war. We are the West Germany of North America, we live between the protagonists. The fallout will fall on us; it is likely that the missiles are aimed at us. If more than one or two nuclear weapons are exploded, then you and I, our families, our homes, our patients, our institutions will be destroyed. Our civilization will die — either quickly in a bright flash or more slowly, by fallout, starvation or disease.

What is the nature of a nuclear explosion and its effects? There are no facts about nuclear war. There are facts about two nuclear explosions. The 15KT bomb (a kiloton is 1,000 tons of TNT) dropped on Hiroshima killed 100,000 people. We now talk in megatons — one million tons of TNT. There are no facts about a war involving over 50,000 weapons, involving the exchange of more than 10,000 megatons. The 1976 U.S. National Academy of Science report said that the unpredictable effects are likely to be worse than the predictable effects. The "facts" presented here come from U.S. Defence Department and Disarmament Agency sources,

and from the literature of Physicians for Social Responsibility. They are correct at best to  $\pm 25\%$ .

An advertisement signed by 700 physicians in the New York Times (2 March, 1980) reminds us of the effect of ONE SINGLE 20 megaton bomb exploded at ground level on an American city. It is the generation of a small sun on the earth's surface. The fireball would be one-and-a-half miles in diameter and have a temperature of 20-30 million degrees Fahrenheit, vaporizing everything. At six miles from the explosion centre a silent heat flash moving at the speed of light would kill everyone and melt glass. Supersonic shock waves and wind would flatten buildings. To ten miles there would be 50 % dead and 40 % injured, and to 20 miles 50 % dead or injured by direct heat and blast. Random spontaneous fires from gas lines and oil storage tanks would coalesce into a firestorm 1,000 square miles in area. Immediate deaths would be between one and two million people. Any survivors of this would die of radiation — and everyone up to a hundred miles downwind could receive a lethal dose of radiation. Sublethal doses of radiation would produce fetal malformation, cancer and persistent genetic change. A calculation of 1 megaton = 1 megadeath is probably approaching the likely facts. If a firestorm is generated, the lethal area is increased five fold. This can occur because a pressure wave travels outwards at more than the speed of sound, followed by a wind at greater than 1500 km per hour. This creates a low pressure area. The surrounding air rushes in and fans fires which, inevitably, have started.

One U.S. government estimate is that 150 million people would die in an all-out nuclear attack on the U.S.A. Food, air and water would be contaminated. Survivors would die of thirst and starvation, radiation sickness and uncontrolled infection. The widespread destruction of hospitals and health personnel would incapacitate health care. Other papers in this symposium discuss this at greater length. Deaths in excess of 40 million are expected in the U.K. where recent Health Service "plans" for survival include widespread shooting of the sick and injured who cannot be treated, and include cordons of armed police around the doomed cities BEFORE the attack occurs.

Professor and Head Department of Laboratory Medicine St. Boniface General Hospital 109 Tache Avenue Winnipeg Manitoba R2H 2A6