

QUESTIONS AND ANSWERS ABOUT NUCLEAR WAR

By Owen Greene, Oct 1984.

FIRST DRAFT

Question 1 Would a nuclear war really be catastrophic?

Scientists estimate that between 300 million and one billion people would die after a global nuclear war as a direct result of the blast, heat, and nuclear radiation. For years there would be little or no industrial and agricultural production in vast areas of the world. It is estimated that a further one billion people would die from disease, starvation, or cold, in the aftermath. This takes no account of the threat of the nuclear winter that many experts now expect to follow a nuclear war. In all probability a large scale nuclear war would destroy human civilization and radically alter the Earth's ecological system of plant and animal life.

Question 2 Surely we would pull through, as we have in the past?

Nuclear war would be qualitatively different to all previous wars. It is hard to believe that all we know and love about life could be destroyed by one human event. But it is true. Nuclear devastation is so hard to imagine that some people fall back into believing that it would be something like World War II. We all have to overcome these illusions if we are to come to grips with the nuclear age.

Question 3 What does it matter? Even a few thousand deaths are catastrophic enough.

~~Certainly,~~ All wars are abhorrent no matter whether they are big or small, 'conventional' or nuclear. All civilised people must do what they can to

prevent any war. Unfortunately we live in a brutal world in which wars do occur regularly. Nuclear war would be so terrible that we cannot dare to wait for the elimination of all war before we abolish nuclear weapons.

62

Question 4 How powerful is a nuclear explosion?

Nuclear weapons are so powerful that their explosive energy is measured in terms of thousands or millions of tons of the high explosive TNT. The Hiroshima bomb had an explosive power of $12\frac{1}{2}$ Kilotons, or 12,500 tons of TNT. Warheads in today's nuclear arsenals range in power from 1 kiloton or less to over 20 megatons (million tons). By comparison, all of the weapons used by all sides in World War II had a total explosive power of less than five megatons. There are presently over 50,000 nuclear warheads in existence, with a combined power of about 15,000 megatons.

96

(TYPE?)

Question 5 What happens when a nuclear warhead explodes?

52? The energy from a nuclear explosion comes from the strong forces that hold the nucleii of atoms together. When the warhead is detonated there is an immediate flash of light and a burst of deadly neutron and gamma rays. The light is intense enough to be capable of blinding people over 30 miles away. X-rays from the bomb heat the surrounding air, creating a massive nuclear fireball which is as hot as the surface of the sun. About half of the bombs energy goes to form a blast wave which can devastate areas several miles from the detonation point. Meanwhile the hot nuclear fireball rises high into the air, sweeping large amounts of material up with it, to form the characteristic mushroom cloud.

107
(120)

Question 6 Is the heat of the nuclear fireball dangerous?

pto

The nuclear fireball radiates its heat, causing burns and starting fires far from the explosion. If a one-megaton bomb exploded in the air, anybody outside could be charred by the heat over seven miles away. Exposed skin would be blistered as far as 8 miles away. Combustible materials such as fabrics, leaves, and wood, could be ignited over an area of more than 150 square miles. Secondary fires would start if gas and electrical facilities, for example, were damaged by the blast. In an urban area or forest, the fires would probably spread to form a massive conflagration. Burning plastics would produce large amounts of poisonous fumes.

Question 7 How destructive is the blast wave?

The same one-megaton explosion would smash windows over 17 miles away. Almost everything would be reduced to rubble within $2\frac{1}{2}$ miles of the explosion. Brick houses would be flattened over four miles away, where the blast effects would kill or injure about 90% of the population. About $7\frac{1}{2}$ miles away, buildings would be severely damaged and 50% of the population would be casualties. Serious injuries would still occur 11 miles away caused by fragments of glass and roof tiles flying through the air at about 70 mph.

Question 8 What about radioactive fallout?

As the fireball cools, radioactive atoms, mostly from the bomb and bomb casing, would condense onto the particles in the air and other debris. Some of the smallest particles would be carried so high that they would take months or years to fall back to the Earth's surface. By that time much of their radioactivity would have decayed away, and the winds would have spread them around the world. This is known as global fallout. Other particles would not be carried so high and would descend within a few weeks.

If the explosion was a groundburst, where the fireball touched the ground, then it would gouge out a vast crater and hurl vast quantities of debris into the air. In this case much of the radioactive fallout would be carried no more than a few hundred miles by the wind and reach the ground within a few hours. This fallout is an immediate hazard to people downwind of the explosion, as its radioactivity would still be intense.

193 Large doses of radiation induce radiation sickness which kills people over a period of up to two months. Low doses can cause cancers, and genetic damage.

Question 9 What is EMP?

45 If a nuclear bomb explodes high in the atmosphere, it induces an intense pulse of radio waves, known as the Electro-Magnetic Pulse (EMP). This will be picked up by electrical conductors over many thousands of square miles, burning out electrical apparatus and destroying communications.

Question 10 What would happen to the UK in a nuclear war?

That depends on the scale of the attack. The UK is likely to receive at least 40% (about 200 megatons) of the Soviet nuclear warheads currently allocated to it. These probably would be used against targets of military significance. If so, about 39 million people would be killed by the direct effects of blast, heat, and radioactive fallout. Some four million others would be injured. Fires would lead to still more casualties. [These figures assume that cruise missiles had not been dispersed around the countryside. If they had been, the scale of nuclear attack and the number of casualties

77 would be even greater.]

5

Question 11 Would the number of casualties be reduced if people followed government civil defence advice?

The casualties quoted above assumed that most people had followed this advice. In the absence of an extremely expensive public blast-shelter-build-
ing programme, very little can be done to protect people against blast and
fire. The do-it-yourself fallout shelter would be useless for about two-
thirds of the population since the shelters would be destroyed by blast.
Such shelters could only make the difference between life and death from
radiation sickness for a relatively small proportion of the population in
the blast-free peripheries. In any case, few of the survivors from the
direct effects of attack would survive for long in the aftermath.

106

Question 12 Could the medical services help?

The British Medical Association estimates that even a single nuclear explo-
sion over a city would completely overwhelm the entire national health
service. The scale of suffering and disease after nuclear war would be
unimaginably great. Transport, fuel, electricity, clean water, and all of
the other services that are normally taken for granted, would be virtually
non-existent. Many of the surviving doctors and nurses would be preoccupied
with searching for or looking after friends and relatives. There is no prosp-
ect of the medical service being able to cope.

87

12? [There are plans to introduce the 'triage' system. According to this, only
those for whom treatment seems likely to make the difference between life
and death would qualify for attention - if there was anybody available to
give it.]

clearer?

Question 13 What would the aftermath be like?

Any survivors would live in a hostile, changed, world. Traumatized people would stumble over rubble searching for food, shelter, and water. Tens of million of corpses would lie unburied and decomposing. There would be little or no industrial or agricultural production. [If nuclear reactors and Sellafield (Windscale) had been attacked, large areas could be rendered uninhabitable for years by radioactive contamination.] Disease would spread rapidly. Many would starve. Law and order almost certainly would break down. British society and civilization would have been destroyed.

Σ?

83

Question 14 What would be the prospects for regeneration?

The prospects would be bleak. Most studies indicate that the situation would deteriorate rather than improve for the first few years. Resources would get increasingly scarce as they were consumed for survival quicker than they could be produced. We cannot predict the stage at which this downward spiral would end.

90

Question 15 Could nuclear war change the climate?

Recent research has led many experts to believe that nuclear war could lead to catastrophic changes in the Earth's climate. Groups of scientists in the USA, Europe, USSR, and elsewhere calculate that much of the northern hemisphere could become cold and dark for weeks and months after a nuclear war. They estimate that a war involving more than 10 - 20% of the existing nuclear arsenal would be sufficient to trigger these effects.

69

Question 16 What is this 'nuclear winter'?

p to

During a nuclear war, the heat of the nuclear fireballs would start fires over vast areas. The smoke from these fires would combine with the dust hurled high into the atmosphere by the explosions to form a black cloud. ~~This cloud of sooty smoke and dust~~ ^{which} would be spread by the wind to cover much of the northern hemisphere. Some computer calculations indicate that the cloud may spread deep into the southern hemisphere as well.

The cloud would block the sunlight from the Earth's surface below it. It is predicted that, even at noon, it would be like twilight or darker for weeks in many areas. Robbed of much of the sun's energy, inland temperatures are expected to drop sharply; possibly by as much as 20-30°C. The average temperature drop in Britain is unlikely to be more than 10 - 15°C, because of the warming effect of the nearby ocean. However, violent storms and sudden changes in the temperature and weather are also expected in this region.

157

Question 17 How would a nuclear winter effect living things?

With little sunlight, plants would not be able to photosynthesise all the energy they need to live and grow. They would become stunted or die. The sudden cold would kill or weaken vast numbers of plants and animals. Even in the sea countless fish would starve as a result of the sharp reductions in the numbers of tiny organisms known as phyto-plankton that live on the ocean surface. These survive by photosynthesis and form the basis of the marine food chains. The Earth's sensitive ecological system could be shattered, leaving the toughest species of weeds and pests to dominate.

A group of eminent biologists have estimated that more than half of the species of life on this planet could become extinct after a nuclear winter.

The possibility cannot be excluded that all human life in the northern hemisphere and large parts of the southern hemisphere could ultimately be wiped out.

149

Question 18 Surely the horror of nuclear war strengthens the rationale behind nuclear deterrence?

This can only be the case if the chance that a nuclear war will ever occur is virtually nil. It is not enough to claim that nuclear deterrence makes war unlikely. If nuclear deterrence fails once, the costs could be practically infinite as far as human civilization is concerned.

In fact, no-one can claim that there is no chance of nuclear war occurring as a result of accident, misjudgement, misperception, uncontrolled escalation, or madness. Furthermore, the stability of the military system is decreasing as more weapons designed for nuclear warfighting are deployed. Therefore nuclear deterrence is an unacceptably risky defence policy that should be replaced by a safer policy as quickly as possible.

113

Question 19 Could a nuclear war be limited?

This is conceivable but extremely unlikely. Once the nuclear threshold has been crossed, the war is likely to escalate uncontrollably. Even if, against all the odds, control was maintained, it is hard to believe that a truce could be agreed in time to prevent massive use of nuclear weapons. It is hard to see how negotiations could succeed in the midst of nuclear war after they had failed to prevent the nuclear war from starting in the first place.

79

Question 20 Can anything be done to secure nuclear disarmament?

Yes. There are several ways in which nuclear disarmament could be achieved without putting any of the nuclear weapons states at great risk during the process. The problem is that the leaders of these states lack the political will to carry them out. CND and the rest of the peace movement exists in order to create that political will and to campaign for some immediate first steps towards nuclear disarmament. Join us and together we can rid Britain and the world of nuclear weapons.

85