

MISCELLANY

"Nuclear winter": A new term to add to the glossary of despair

FRANK RENNIE from *Ness in Lewis* on how climatic changes after a nuclear war could change — or indeed end — life on earth as we know it

A new term has recently been added to the glossary of despair which is constantly being amended to keep pace with the ever-accelerating arms race: that of the "nuclear winter".

This is a relatively new concept, even to the scientists who are currently researching it, and it has only been brought to the attention of the general public within the last year — largely through the information campaign spearheaded by the group Scientists Against Nuclear Arms (SANA).

As a result of the scientific investigations being conducted by individuals and teams of scientists, both in the Western and Soviet Blocs, certain startling new facts have been uncovered with regard to the probable consequences which a nuclear war would have on the climate and the natural environment of the Earth. If these conclusions are even only partially correct, then the two-billion people — half the world's present population — who would likely be destroyed by a global nuclear war are the lucky ones. The rest of the population and any surviving animals would with certainty be left to struggle vainly, and perhaps briefly, against the prospect of our extinction as a species.

The conclusions which these internationally-respected scientists have arrived at were based initially on the calculated effects resulting from a nuclear war in which 5,000 megatons (one megaton is equivalent to one million tons of TNT) of bombs were to be dropped. This is in fact regarded by many as a rather conservative estimate as it is less than one-third of the present nuclear arsenals of the USA and USSR alone. Furthermore, as it is unlikely that once a nuclear war has been started it can be limited or stopped in any simple way, the quantity of weapons unleashed is likely to be very much higher — and the penalties correspondingly much heavier — than the following model would indicate.

The nuclear winter really begins immediately after the first bombs have been exploded, and though the

northern hemisphere is expected to experience the effects much sooner (there are vastly more "targets" in the north — 20 military installations in the Western Isles alone!) the nuclear winter will inexorably spread to encompass the entire world.

Two main factors will trigger the nuclear winter off, even in the most glorious of summer weather. One is the enormous quantities of dust which nuclear explosions stir up from the ground (the familiar mushroom-shaped clouds), which rise high into the atmosphere and remain there in suspension for years — even decades! The second is that because of the intense heat which is radiated from a nuclear explosion, large numbers of fires are likely to be started (covering an area of between 300-500 square metres per megaton of explosive power). As many of the targets will include oil refineries, oil and gas fields, fuel supply dumps (Stornoway NATO base?), and indeed large cities, there will be a vast amount of smoke produced. It is on record that the fires resulting from the bombing of Hamburg (with non-nuclear weapons) during the last world war sent flames five kilometres high, and smoke which rose to over 14 kilometres (eight and a half miles).

This smoke and dust rising into the atmosphere — even by conservative estimates — would be so thick that the light from the sun would very soon be reduced to only a few per cent of normal, and within a week after the war most of the northern hemisphere would be in a permanent state of twilight or complete darkness. Obviously it would depend on how close you are to the centre of the bombing just how quickly the smokescreen would obscure the sun. By the end of a month this thick cloud would have plunged the whole of the planet into continuous night.

If this is beginning to sound like something from a Dr Who film then think again, for this evidence is based on the hard facts of responsible scientists who are using the very same information as the other scientists who are knowingly and willingly designing ever more powerful nuclear weapons.

The story continues, however, with increasing fatalism. As the smoke-screen spreads and the sunlight is progressively blocked out, the temperature of the land and air will rapidly fall to levels well below zero — perhaps as much as minus 30°C. This in turn will disrupt the local weather patterns dramatically, resulting in tempestuous storms where warmer air from the sea meets the cooler air of the land, and many areas will experience several months of continuous snowfall.

Even if there were to be any survivors of a nuclear attack, they would be the helpless victims of extreme cold, drought (water supplies frozen), and famine (crops destroyed by storms, cold, and lack of sunlight).

This last point is significant. As plants derive most of their growing energy from sunlight, the long spell of continuous darkness will kill or severely retard almost all crops and vegetable matter in the northern hemisphere. Deprived of food, subjected to extended periods of severe cold, and perhaps even buried under heavy snow as we have often seen in recent "normal" winters, most farm animals would die.

As if all of this were not enough, the detailed conclusions which the scientists have come to suggest that large amounts of smoke and dust in the atmosphere will enlarge the danger of radioactive fallout (the deadly, invisible spread of radiation after any atomic explosion) over several weeks rather than days, and that the huge urban fires will release large amounts of deadly pollutants into the atmosphere, serving as a further threat to the health of survivors.

Even a few months after the end of a nuclear war, when the smoke begins to clear, the damage which it will have inflicted upon the upper atmosphere will mean that greater amounts of ultra-violet light will be able to reach the surface of the Earth. This in turn affects the immune system of many organisms and therefore any survivors — human or animal — would have substantially less resistance to the diseases which can be expected to be rife with so many dead and dying in

the population. A grim picture indeed.

And remember that these calculations are based on the fairly optimistic case of there being a fairly small-scale conflict. The real situation could easily prove to be much worse.

Horrific as this picture is drawn up to be, it should not simply be allowed to be passed by with a shiver up the spine and an easy agreement that the aftermath of a nuclear war is too horrible to contemplate. If we are prepared to have these weapons we must be prepared to think of the consequences of their use. The real significance of these new scientific discoveries should not be allowed to rest quietly nor be overlooked — it spells out quite plainly that no nation can make a major nuclear attack even against an unarmed opponent without itself committing suicide.

The next logical step is to realise that if indeed such nuclear weapons are guaranteed to cripple and destroy the users of these weapons — even without retaliation from its intended victims — then the absurdity and absolute futility of nuclear weapons is complete. What is the point of having such deadly weapons if you are never going to be able to use them without destroying yourself? Clearly they are much more of a liability than a guarantor of defence and we in the Western Isles should make it clear to the government of the day that we are not prepared to have these weapons sited here, with the eventual aim that we should scrap them altogether and have a Nuclear-Free Scotland as a pioneering example to the world.

So now whenever the sun shines a little more strongly than usual, stop to ponder on how you would feel if it disappeared overnight and we were left with an interminable Arctic winter over the entire planet. Then ask yourself if it pays to accept patiently having nuclear weapons sited on your doorsteps.

Further information on *Nuclear Winter* from Scientists Against Nuclear Arms (SANA), 112 Newport Road, New Bradwell, Milton Keynes, MK13 0AA, England.