

## Conference Report

### Nuclear war: preventable or inevitable?

RICHARD SMITH

Can 450 doctors from 53 countries meeting and talking for four days do anything to prevent nuclear catastrophe? The delegates to the fourth international meeting of International Physicians for the Prevention of Nuclear War in Helsinki presumably thought that they could, but some of the depressing evidence presented suggested otherwise. One of the copresidents and founders of IPPNW, Dr Bernard Lown, an American cardiologist, pointed out that since the movement started "not a single major weapons system has been dismantled." Indeed, all the evidence suggests that the world is much closer to disaster than ever before. Even in the few days since the conference ended the United States Senate has voted to allow renewed testing of an antisatellite weapon: most delegates, I am sure, would consider this as one more step towards disaster.

One of the working groups at the conference spent two days discussing the question "Is nuclear war inevitable?" "If things go on as now, of course it is," answered one delegate, "but just to answer the question yes is trivial, we must concern ourselves with how and why." And so the group did, considering risk assessment, computer failures, the policies of the superpowers, human error, C<sup>3</sup>I, (the American military intelligence system) and the like. But was this too rarified? Would all the complex talk and hot air that filled the room for two days lead anywhere? Some of the delegates clearly felt not: they could not make the connection between this fascinating discussion and bringing the world back from the brink of destruction. As one student put it: "We seem to be in danger of becoming an organisation to study nuclear war rather than an enterprise that is trying to stop one."

IPPNW's strengths and weaknesses are intermingled. One strength is that by being apolitical it can attract members from all over the world—and from both East and West. But the weakness of this is that some of its statements have to be so watered down that they become almost meaningless. Furthermore, preventing a nuclear war is essentially a political problem, not a medical or scientific one, and one of the working groups at the conference did break ranks and call for IPPNW to be more political. A second strength of IPPNW is its emphasis on science, but what is needed to prevent nuclear war is not so much scientific information with its endless qualifications (particularly when the experimental material is only two "tiny" bombs exploded 40 years ago) but propaganda. A Swiss woman summed up the problems thus: "The trouble with this conference is that it does not go straight ahead; it goes too deep and gets lost."

But in the general meeting, several doctors counselled against despair. "In these perilous times, optimism becomes a historic duty," urged the same inspired and inspiring Dr Lown. He reminded his audience that the slogan of the conference was: "Physicians insist: nuclear war can be prevented." Dr Howard

The prime aim of IPPNW is to spell out to every one of the world's inhabitants the diabolically destructive effects of nuclear weapons. In this battle symbols are important to capture the imagination of both the public and the mass media. A gimmick used at the congress in Helsinki was to show a film of a Russian physician astronaut, Dr O Y Atkov, orbiting round the earth in the Salyut-7 space station. Bobbing up and down in his capsule he gave the conference a message: the work of IPPNW, he said, showed great courage and social responsibility and was a sign of hope. His words may not have been particularly magnificent, but the delegates were inspired by this technological (and public relations) achievement and gave him a standing ovation.

Hiatt, the dean of the Harvard School of Public Health, also encouraged the doctors in their work in his keynote address. "The physician's campaign has," he said, "contributed significantly to the social unacceptability of nuclear war fighting rhetoric." Dr Andreas Papandreu, the prime minister of Greece and one of the world's foremost campaigners against nuclear weapons, also managed an optimistic note: "I truly believe that we are now experiencing the awakenings of the peoples of the world on these issues." Doctors, he thought, had played an important part in this awakening.

And the doctors at the conference, despite their depiction in some newspapers, are not communists, deluded radicals, aging hippies, or fringe doctors. They are very much just ordinary doctors. Most of them work with patients everyday and they see in their patients the fear of nuclear war. Speaker after speaker emphasised to the audience (most of whom had the grey suits and bald heads that dominate any medical conference) that it was incumbent on every doctor to work to avoid nuclear war.

#### Nuclear winter

One undoubted aim of doctors campaigning against nuclear weapons is to assemble as much information as possible and present it forcefully to the public. The most important new information to emerge in the past year is that on the nuclear winter, and a whole session was devoted to the topic.

The theory, which emerged less than a year ago,<sup>1</sup> is that a nuclear war would throw up so much dust and smoke into the atmosphere that the sky would be darkened for months and the temperature would drop to as low as -25°C. This effect might be experienced over much of the globe, leading to tropical forests dying, thousands of species disappearing, and large areas

becoming desert. As Dr Lown put it: "Disease and misery would rampage in a cold radioactive world submerged in darkness." Some scientists have even suggested that the effect might be so severe that it could lead to the extinction of the human species.

These ideas have arisen from computer models of the possible effects of nuclear war on the atmosphere, and these models contain so many variables that there is plenty of room for argument over what exactly would happen. Both Dr H Jack Geiger from the USA and Academician V V Aleksandrov from the USSR explained the limitations of computer models. Problems also arise because nobody can be sure of what exactly will happen if nuclear war breaks out: for instance, how many tons of dust would be thrown up; how much would be brought down by rain; and would the dust and soot be distributed uniformly or patchily.

Since the original predictions were published in *Science*<sup>1</sup> others have appeared. A much milder prediction appeared in *Nature* in March,<sup>2</sup> but Academician Aleksandrov and a colleague have published other predictions that are worse than those of the *Science* paper.<sup>3</sup> Because of this confusion, Dr Geiger explained, the National Academy of Science in the USA has been slow to confirm the findings. But, he emphasised, undoubtedly a nuclear winter would occur after a nuclear war. The debate is over how much the temperature would drop, how long the winter would last, how far it would extend, and how many plant and animal species would be affected.

He pleaded with the conference not to become immersed in arguments over technical details. What mattered was that just at a time when any survivors of a nuclear war would have to live off the natural world that world would be at its most hostile. Indeed, to use the word survival in such circumstances was delusory because the world would be so unbearable. Another crucial point was that it had taken 40 years to discover the nuclear winter. How many more appalling effects of nuclear weapons remain to be discovered? He was confident that what we do not know is both far greater and far more awful than what we do know.

One crucial political implication of the nuclear winter is that nowhere would be safe. People in the Third World and in the Antipodes will be affected almost as drastically by nuclear war as those in the north.

### The economic effects of nuclear weapons

Another important emphasis of the conference was on the effects on health of spending such large amounts on nuclear weapons (see second box). People, and particularly children, are dying now all over the world because of limits on spending on health and education because of high expenditure on nuclear weapons. Dr Hiatt told the conference how in 1982 there was a 46% increase in infant mortality compared with 1981 in five inner city health centres in Boston. That area had had a cut in its maternal and child health grant budget from the federal government from \$1.5m in 1980 to \$900 000 in 1982. Similar increases in infant mortality have been seen in the poorer areas of Detroit and New York.

He pointed out, too, that the nuclear powers are a long way down the list of countries with the best infant mortality rates. Finland, Japan, and Sweden, all countries strongly against nuclear proliferation, have the lowest rates of about 7 deaths per 1000. France, in contrast, is 10th with a rate of 10, Britain 13th with 11, the USA 14th with 12, and the USSR 28th with 26. Many of the British doctors at the conference thought that one of the main thrusts of their campaign against nuclear weapons should be to bring home to British patients the link between long waiting lists, unnecessary deaths from renal failure, and the deterioration in the NHS with Britain's high expenditure on nuclear weapons.

Dr Hiatt told the conference of his personal initiative of sending a letter to the leaders of all the nuclear powers asking them if they would independently set aside one modern nuclear weapons system from their budget and spend the money on poor

children within their own country. Only Mrs Thatcher had replied, and she had said no.

But the idea that diverting funds from defence to health and education can improve health standards is not just theory: Dr Leonardo Mata from Costa Rica told the conference how his country had abolished its army in 1949 with the result that the infant mortality rate (and other indices of disease) had plummeted despite Costa Rica continuing to be a poor country. In 1965 the infant mortality rate had been 76 per 1000; by 1980 it was 19 per 1000, a lower rate than in most countries in Eastern Europe. Death rates from all infectious diseases are falling.

### Guns and butter

The conference heard that:

- Worldwide military expenditure (\$750 000m a year) is greater than the total annual income of the poorest half of the world.
- One million children can be immunised against the preventable communicable diseases for about \$5m, the cost of one Pershing II missile.
- The total amount spent on research in tropical diseases is less than \$100m, the amount that the world spends on arms each hour.
- The cost of a 20 year programme to provide essential health and food needs to all Third World countries is estimated to be less than that spent each year worldwide on nuclear weapons.
- Smallpox was eradicated for \$600m, less than 0.1% of the annual worldwide military expenditure.
- The cost of one new nuclear submarine equals the annual education budget of 23 Third World countries with 160m schoolchildren.

Polio and diphtheria have been eradicated, and in recent years there have been no deaths from measles. Ever since 1959 expenditure on both health and education has been ten times higher than on defence (some defence money is still spent on policemen).

All this is in great contrast to the other countries in Central America, where expenditure on defence has increased, health indices are awful, and illiteracy is high. In El Salvador, for instance, defence expenditure increased from 8.4% of the national budget in 1960 to 27.2% in 1973; in the same years defence expenditure in Costa Rica fell from 4.1% to 2.5%. El Salvador has seen endless armed struggle, while Costa Rica has had none.

### The effects on children of the threat of nuclear war

Children's health may be affected not just because resources are diverted to military expenditure but also because of the anxiety induced with living constantly with the threat of nuclear war. Previous IPPNW conferences have recommended that research into the psychological effects of the threat of nuclear war on children should be one of the main medical thrusts, and this conference had a whole research symposium devoted to the topic. More than a dozen papers were presented, and data were available from more than 10 countries. Sadly, most of these studies have been of poor scientific quality and have consisted of biased observers asking selected groups leading questions. Furthermore, people are often not clear what problem they are trying to answer or what they want to do with their results.

Ultimately because no control group is available it will be impossible to prove that children are harmed from the threat of nuclear war, but it should be possible to frame falsifiable hypotheses.

In the meantime the descriptive studies that have been done have shown that children are very aware of the threat of nuclear war and many say they are anxious about the possibility. Dr Eric Chivian, an American child psychiatrist, has studied the problem in American, Russian, and now British children. His groups are not directly comparable and he has spoken to only a few British children, but his strong impression is that children in Britain are not only more frightened than the others about nuclear war but also feel that they have less control over stopping it. But, more optimistically, his and other studies have also suggested that the children of campaigners against nuclear war are less pessimistic than the children of those who do not campaign.

### Is accidental nuclear war inevitable?

Much of the anxiety about nuclear war is created by the idea that it may start at any moment through an accident. In the past few years much publicity has been given to accidents with nuclear weapons, and many people think that a false signal from a computer or a drunken soldier pressing the wrong button might be enough to start a nuclear war. The main message that emerged from the working group that discussed this problem was that isolated errors would be most unlikely to be enough to start a war. A much more important problem, said Milton Leitenberg from the Swedish Institute of International Affairs, was the whole way in which the superpowers had been behaving for the past 20 years. Every day all over the globe American and Soviet forces are nudging each other and playing military games that may one day lead through misunderstanding and poor communication to a full scale war. More important still, Dr Leitenberg argued, is the way that the superpowers are quick to threaten each other with nuclear attack in times of crisis and the coupling of nuclear and conventional forces.

Neither of the nuclear powers in these circumstances would be intending to start a full scale war, and in that sense the war could be called accidental or unintentional, but, Dr Leitenberg emphasised, neither of these terms are accurate because the war would be the result of policies that have been in existence for more than 20 years. William Ury from the Harvard Law School nuclear negotiation project drew an analogy with the way that the first world war had started. Most of the major powers had tried to draw back from the war, but their threats and behaviour combined with misunderstandings and poor communication had led inexorably to war. This, Dr Ury thought, is the most likely way for the next war to start. Dr Leitenberg was eventually pushed to put a figure to the relative probability of war starting through the persistent behaviour of the superpowers as opposed to isolated human or computer error: he put the figure at 10 000 to one.

Both computer experts and psychologists in the group were, however, unhappy with Dr Leitenberg's emphasis. They did not think that one computer error or one drunken soldier pressing the wrong button was very likely to start a nuclear war, but they did think that Dr Leitenberg was underestimating the importance of computer malfunctions and human behaviour. The superpower systems for watching the other side and mounting responses are extraordinarily complex, and within such a system there is ample room for human and computer problems to lead to an unintended war. Professor Alan Borning, a computer scientist from Seattle, told the group how the computers used by the American military were primitive compared with those available commercially and much of the programming was also of a low standard. Mistakes were common and were often uncorrected. James Thompson, a psychologist from London, talked about the many psychological problems encountered by people who are part of the military systems. Most important of

all might be the behaviour that occurs in times of crisis: the handful of people who are at the centre of the crisis often begin to behave in abnormal ways. The commonest comment made after crises by those involved in them is: "I have no idea what overcame us." Everybody in the group was agreed that the chances of "unintended" war were highest in times of crisis.



Dr Bernard Lown from the USA (left) and Academician Evgueni Chazov from the USSR, copresidents of IPPNW. Both are eminent cardiologists and played a crucial part in founding IPPNW. Their friendship symbolises for many the hope of IPPNW, but longstanding members of the organisation assured me that if necessary it could now survive without either of them.

It followed from these discussions that the only sure way to prevent nuclear war will be to reduce drastically, and ultimately eliminate, the number of nuclear weapons. And before that much desired end is reached the superpowers must also change the way that they posture and play around with these lethal weapons. But the group also heard suggestions on how the risk of unintended nuclear war could be reduced now. These came from William Ury, who has cowritten a best selling book called *Getting to Yes*.<sup>4</sup> He and the rest of the Harvard nuclear negotiation project have devised a scheme for controlling a nuclear crisis that they have presented to the US government.<sup>5</sup> The two central ideas are that there should be crisis procedures devised and agreed on by the Americans and the Russians and that there should be nuclear crisis control centres staffed round the clock by both American and Russian diplomats and military officers. One would be in Washington and one in Moscow, but they would be connected not only by phone but also by computer and television. The people who staffed these centres would get to know each other, which would allow them to work together with understanding when a crisis came. The working group was impressed with these suggestions, but it was emphasised that they could be no substitute for reduction in nuclear weapons. Dr Thompson quoted in his paper a Turkish proverb: "A weapon is an enemy even to its owner."

### Ways forward

Although I may so far have seemed cynical about the conference, I must make it clear that a marvellous buzz of togetherness, optimism, and energy prevailed in Helsinki. Perhaps the main function of the conference is to inspire and revitalise the many doctors working for peace—often in difficult and lonely circumstances. And there were plenty of ideas about what those individuals should be doing: the two research symposiums and the 11 working groups generated dozens of recommendations. This again is an example of an intermingled strength and weakness: ideas were abundant but not enough energy was devoted

to deciding on priorities. Perhaps, however, it is the job of leaders to decide priorities, and they did suggest some.

Dr Lown thought that the movement should concentrate on working for a test ban treaty. This plan has the great advantage that new technology could make it easily verifiable. Secondly, sophisticated first strike weapons will be impossible to develop if tests are banned—for you cannot rely on a weapon unless you can be sure that it works. Thirdly, he argued, if old weapons could not be tested then confidence in them would be eroded and their numbers would have to be reduced. Dr Lown pointed to the limited test ban agreement of 1963 as a model for this idea. A

**A message to my patients: a letter that any doctor can give to his patients**

As a doctor I have a duty to inform my patients of any grave threat to their health and life. Nuclear weapons pose such a threat.

If even a single nuclear bomb were exploded over a major city hundreds of thousands would perish. Few could receive medical attention.

An all out nuclear war would destroy world civilisation, and human existence itself would be imperilled. There could be no adequate medical response to a nuclear war. The only cure is prevention.

I am asking my patients to join me in educating our fellow citizens about the dangers of the nuclear arms race. Together we must convince political leaders around the world to reverse this march towards extinction.

worldwide public campaign had led President Kennedy to take a unilateral initiative. Premier Khrushchev had promptly responded, and a new agreement had been reached in just 13 days. IPPNW's main role in striving for a new test ban treaty will be to change public opinion: Dr Lown concluded, "Our aim above all else should be to mould public opinion to comprehend that nuclear weapons are devoid of any political or military purpose and that they are not weapons but instruments of genocide."

Dr Papandreou also had clear ideas on the way forward. He described the initiatives that his government along with others

has been taking. One has been to work for a nuclear free zone in the Balkans, which, importantly, include NATO, Warsaw Pact, and non-aligned countries. Dr Papandreou's hope is that the Balkan zone will link up with a Nordic nuclear free zone, drive a nuclear free corridor through central Europe, and eventually free the whole of Europe of nuclear weapons. Another initiative of his has been to join together with other world leaders—including the leaders of India, Tanzania, Mexico, Argentina, and Sweden—to try to restart negotiations between the superpowers and to push for a freeze. His speech was received with great enthusiasm by the conference.

Finally, the conference heard about practical and immediate steps that IPPNW is taking. Firstly, a letter (which had been through 12 drafts) was sent from the conference to the leaders of the USA and USSR. Secondly, a letter was drafted that any doctor in the world can give to his patients (see box). Thirdly, a report was given on the progress being made in collecting signatures for the international physicians' call for an end to the nuclear arms race. More than a million doctors (about a quarter of all those in the world) have now signed the petition. But there are big regional variations in the proportions that have signed: for instance, 45% of European doctors have signed but only 0.1% of those from the western Pacific. (Britain has not done well either.) A particular aim is to get at least one signature from all of the 154 countries in the United Nations—so far signatures have come from 83.

These signatures will eventually be presented to the leaders of the five nuclear powers. This is just one part of the work of IPPNW, and many of those at the conference were very optimistic that the leaders of the superpowers would not for long be able to resist the pressure of more than 100 000 members from 53 countries (along with countless others working for peace) to step back from the brink of nuclear catastrophe.

**References**

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*Are gall stones more or less common in those taking low cholesterol diets?*

Although cholelithiasis is associated with obesity, a high calorific intake, and the production of bile that is supersaturated with cholesterol, it is difficult directly to relate gall stones to dietary cholesterol. For example, in Japan the adoption of a Western style of diet has been associated with an increase in cholelithiasis, but total calories, refined carbohydrate, and fat are also increased in this form of diet. This suggestion that a high cholesterol diet causes calculi is contradicted by a controlled study from the United States in which there was an increase in gall stones as determined at necropsy in those subjects taking an experimental diet low in cholesterol but where total fat intake was not reduced owing to a substitution of vegetable for animal fat. Such a reduction in total fat intake is now generally advised when a low cholesterol diet is recommended for cardiovascular prophylaxis. In addition, the group taking vegetable fat were appreciably less obese at the end of the study, suggesting some weight loss over the treatment period. The latter is associated with a temporary increase in the cholesterol saturation of bile and may have been responsible for increasing calculus formation. Thus the case for a low cholesterol diet either increasing or decreasing cholelithiasis

is not proved, but if such a diet is combined with a reduced calorie and total fat intake, after an initial increased risk if weight loss is pronounced, the long term chances of gall stone formation are probably reduced.—ROGER WILLIAMS, consultant physician and director of liver unit, London.

<sup>1</sup> Sturdevant RA, Pearce ML, Dayton S. Increased prevalence of cholelithiasis in men ingesting a serum-cholesterol-lowering diet. *N Engl J Med* 1973;288:24-7.

*Is there any danger in stripping lead based paints in a confined space with a hot air gun or blow lamp?*

Yes. Cutting through lead painted metal with an oxypropane torch is one of the commonest causes of lead poisoning at the present time. Someone stripping lead based paints with a blow lamp, particularly in a confined space, is in danger. I would suggest that the worker wears a protective mask with a fresh air supply. Make sure that the intake of "fresh air" is upwind of the work. I have seen cases of poisoning occur where the intake was downwind.—W R LEE, professor of occupational health, Manchester.