

Critique of Nuclear Extinction

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The idea that global nuclear war could kill most or all of the world's population is critically examined and found to have little or no scientific basis. A number of possible reasons for beliefs about nuclear extinction are presented, including exaggeration to justify inaction, fear of death, exaggeration to stimulate action, the idea that planning is defeatist, exaggeration to justify concern, white western orientation, the pattern of day-to-day life, and reformist political analysis. Some of the ways in which these factors inhibit a full political analysis and practice by the peace movement are indicated. Prevalent ideas about the irrationality and short duration of nuclear war and of the unlikelihood of limited nuclear war are also briefly examined.

The peace movement and its allies¹ are almost completely unprepared for the political consequences and aftermath of nuclear war and nuclear crisis. This lack of preparedness is both a result of and a cause of a limited political analysis and practice for ending the threat of nuclear war.

The possible crises that may arise for the world and for the peace movement can be illustrated by a few scenarios.²

(a) Limited nuclear war in the periphery. A war breaks out in the Middle East, and resort is made to nuclear weapons, killing a few hundred thousand people. The United States and the Soviet Union place their nuclear forces on the highest alert. As the tension continues to build up, a state of emergency is declared in the US. Normal democratic procedures are suspended, and 'dissidents' are rounded up. A similar process occurs in many countries allied militarily to the US, and also within the Soviet bloc. A return to the pre-crisis state of affairs does not occur for years or decades. As well as precipitating bitter political repression, the crisis contributes to an increased arms race, especially among non-nuclear and small nuclear powers, as no effective sanctions are applied to those who used nuclear weapons. Another similar limited nuclear war and superpower crisis becomes likely . . . or perhaps the scene shifts to scenario b or c.

(b) Limited nuclear war between the superpowers. A limited exchange of nuclear weapons between the US and the Soviet Union occurs, either due to accident or as part of a threat-counterthreat situation. A sizable number of military or civilian targets are destroyed, either in the US or the Soviet Union or in allied states, and perhaps 5 or 10 million people are killed. As in scenario a, states of emergency are declared, political dissent repressed and public outrage channelled into massive military and political mobilisation to prepare for future confrontations and wars. Scenario c becomes more likely.

(c) Global nuclear war. A massive nuclear exchange occurs, killing 200 million people in the US, Soviet Union and Europe. National governments, though decimated, survive and apply brutal policies to obtain economic and military recovery, brooking no dissent. In the wake of the disaster, authoritarian civilian or military regimes take control in countries relatively unscathed by the war, such as Australia, Japan and Spain. The road is laid to an even more devastating World War IV.

Many other similar scenarios could be presented. One feature of these scenarios is familiar: the enormous scale of physical destruction and human suffering, which is only dimly indicated by the numbers of dead and injured, whether this is hundreds,

or hundreds of millions. This destruction and suffering is familiar largely because many people have repeatedly warned of the human consequences of nuclear war. What has been almost entirely absent from peace movement analysis and planning is any consideration of the political consequences of nuclear war.

In this paper I critically analyse the idea that nuclear war will kill most people on earth, and present some possible reasons for the prevalence of this and related beliefs. I argue that exaggerated ideas about nuclear war are both a cause and an effect of a limited political analysis which underlies much activity directed towards eliminating nuclear war.

Some readers may feel that in criticising the idea of nuclear extinction I thereby become an apologist for the military. To this I respond as follows. First, if peace activists hold or promote exaggerated views about nuclear war, these need to be justified on some grounds such as political necessity. This has not been done. Indeed, I argue that beliefs in extinction through nuclear war are counterproductive for the peace movement. Second, the test of a peace activist should be political and social effectiveness in helping people move together towards a world without war, not the extremity of one's views about the consequences of nuclear war.

The evidence

The available evidence suggests that a major global nuclear war, one involving the explosion of most of the nuclear bombs that exist, would kill 400 to 450 million people, mostly in the US, Europe and Soviet Union, and to a lesser extent China and Japan.

Direct effects. Most of the deaths and injuries from a nuclear war would be due to blast and heat in the neighbourhood of each explosion and to exposure during the first few days to fallout deposited downwind of explosions at or near the surface of the

earth.³ The number of people killed would be higher if population centres around the world were systematically bombed⁴ or if the cores of many nuclear power plants were dispersed.⁵ The number would be lower if substantial numbers of nuclear weapons were used on military targets or if more than minimal civil defence measures were used.

Indirect effects. (a) Global fallout. The main effect of long-term fallout would be to increase the rate of cancer and genetic defects by a small percentage. Tens of millions might be affected worldwide over a period of many decades, but this would provide no threat to the survival of the human species.⁶

(b) Ozone. Nuclear war would cause an increase in ultraviolet light from the sun which reaches the earth's surface, due to reductions in stratospheric ozone caused by its catalytic destruction by nitrogen oxides produced in nuclear explosions. This would increase the incidence of skin cancer (which is mostly non-lethal) and possibly alter agricultural productivity, but would be most unlikely to cause widespread death.⁷

(c) Fires. Extensive fires caused directly or indirectly by nuclear explosions would fill the lower atmosphere in the northern hemisphere with so much particulate matter that the amount of sunlight reaching the earth's surface could be greatly reduced for a few months. If this occurred during the northern spring or summer, one consequence would be greatly reduced agricultural production and possible widescale starvation.⁸

(d) Climatic changes. Such changes might be caused, for example, by injection of nitrogen oxides or particulate matter into the upper atmosphere. The more calamitous possibilities include a heating trend leading to melting of the polar ice caps, the converse possibility of a new ice age, and the changing of climatic patterns leading to drought or unstable weather in areas of current high agricultural productivity.⁹ The rate of impact of such climatic change is likely to be

sufficiently slow – decades, or years in some cases – for the avoidance of the death of a substantial portion of the world's population through climatic change.

(e) Agricultural or economic breakdown. A major possible source of widespread death could be the failure of agricultural or economic recovery in heavily bombed areas, followed by starvation or social breakdown. Agricultural failure could occur due to reduced sunlight due to fires or to induced changes in weather. An agricultural or economic collapse would also increase the likelihood of epidemics. If agricultural or economic breakdown followed by widespread starvation or epidemics occurred in heavily bombed areas, and no effective rescue operations were mounted by less damaged neighbouring areas, then it is conceivable that many tens or even several hundred million more people could die, mainly in the US, Soviet Union and Europe.¹⁰

(f) Synergistic and unpredicted effects. The interaction of different effects, such as weakened resistance to disease due to high radiation exposure or to shortages of food, could well increase the death toll significantly. These consequences would mostly be confined to heavily bombed areas. Finally, there is the possibility of effects currently dismissed or not predicted leading to many more deaths from nuclear war.¹¹

To summarise the above points, a major global nuclear war in which population centres in the US, Soviet Union, Europe and China were targeted, with no effective civil defence measures taken, could kill directly perhaps 400 to 450 million people. Induced effects, in particular starvation or epidemics following agricultural failure or economic breakdown, might add up to several hundred million deaths to the total, though this is most uncertain.

Such an eventuality would be a catastrophe of enormous proportions, but it is far from extinction. Even in the most ex-

treme case there would remain alive some 4000 million people, about nine-tenths of the world's population, most of them unaffected physically by the nuclear war. The following areas would be relatively unscathed, unless nuclear attacks were made in these regions: South and Central America, Africa, the Middle East, the Indian subcontinent, Southeast Asia, Australasia, Oceania and large parts of China. Even in the mid-latitudes of the northern hemisphere where most of the nuclear weapons would be exploded, areas upwind of nuclear attacks would remain free of heavy radioactive contamination, such as Portugal, Ireland and British Columbia.

Many people, perhaps especially in the peace movement, believe that global nuclear war will lead to the death of most or all of the world's population.¹² Yet the available scientific evidence provides no basis for this belief. Furthermore, there seem to be no convincing scientific arguments that nuclear war could cause human extinction.¹³ In particular, the idea of 'overkill' if taken to imply the capacity to kill everyone on earth, is highly misleading.¹⁴

In the absence of any positive evidence, statements that nuclear war will lead to the death of all or most people on earth should be considered exaggerations. In most cases the exaggeration is unintended, since people holding or stating a belief in nuclear extinction are quite sincere.¹⁵

Another major point to be made in relation to statements about nuclear war is that almost exclusive attention has been focussed on the 'worst case' of a major global nuclear war, as indeed has been done in the previous paragraphs. A major global nuclear war is a possibility, but not the only one. In the case of 'limited' nuclear war, anywhere from hundreds of people to many tens of millions of people might die.¹⁶ This is a real possibility, but peace movement theory and practice have developed almost as if this possibility does not exist.

Why the effects of nuclear war are exaggerated

Why do so many people have an exaggerated idea of the effects of nuclear war, or focus on the worst possible outcome? Many people tend to believe what they hear, but in the case of nuclear war there are both very pessimistic accounts and other accounts which minimise the dangers. Many people, though not all by any means, seem to assume the worst and not look into the technical details – as indeed I myself did until a few years ago. Why?

Here I outline a number of possible reasons for exaggeration of the effects of nuclear war and emphasis on worst cases. While the importance of most of these reasons may be disputed, I feel it is necessary to raise them for discussion. The points raised are not meant to lay blame on anyone, but rather to help ensure that peace movement theory and strategy are founded on sound beliefs. By understanding our motivations and emotional responses, some insight may be gained into how better to struggle against nuclear war.

(a) Exaggeration to justify inaction. For many people, nuclear war is seen as such a terrible event, and as something that people can do so little about, that they can see no point in taking action on peace issues and do not even think about the danger. For those who have never been concerned or taken action on the issue, accepting an extreme account of the effects of nuclear war can provide conscious or unconscious justification for this inaction. In short, one removes from one's awareness the upsetting topic of nuclear war, and justifies this psychological denial by believing the worst.

This suggests two things. First, it may be more effective in mobilising people against nuclear war to describe the dangers in milder terms. Some experiments have shown that strong accounts of danger – for example, of smoking¹⁷ – can be less effective than weaker accounts in changing behaviour. Second, the peace movement

should devote less attention to the dangers of nuclear war and more attention to what people can do to oppose it in their day-to-day lives.

(b) Fear of death. Although death receives a large amount of attention in the media, the consideration of one's own death has been one of the most taboo topics in western culture, at least until recently.¹⁸ Nuclear war as an issue raises the topic insistently, and unconsciously many people may prefer to avoid the issue for this reason. The fear of and repression of conscious thoughts about personal death may also lead to an unconscious tendency to exaggerate the effects of nuclear war. One's own personal death – the end of consciousness – can be especially threatening in the context of others remaining alive and conscious. Somehow the death of everyone may be less threatening. Robert Lifton¹⁹ argues that children who learn at roughly the same age about both personal death and nuclear holocaust may be unable to separate the two concepts, and as a result equate death with annihilation, with undesirable consequences for coping individually with life and working collectively against nuclear war.

Another factor here may be a feeling of potential guilt at the thought of surviving and having done nothing, or not enough or not the right thing, to prevent the deaths of others. Again, the idea that nearly everyone will die in nuclear war does not raise such disturbing possibilities.

(c) Exaggeration to stimulate action. When people concerned about nuclear war describe the threat to others, in many cases this does not trigger any action. An understandable response by the concerned people is to expand the threat until action *is* triggered. This is valid procedure in many physiological and other domains. If a person does not heed a call of 'Fire!', shouting louder may do the trick. But in many instances of intellectual argument this

procedure is not appropriate. In the case of nuclear war it seems clear that the threat, even when stated very conservatively, is already past the point of sufficient stimulation. This means that what is needed is not an expansion of the threat but rather some avenue which allows and encourages people to take action to challenge the threat. A carefully thought out and planned strategy for challenging the war system, a strategy which makes sense to uncommitted people and which can easily accommodate their involvement, is one such avenue.²⁰

(d) Planning and defeatism. People may identify thinking about and planning for an undesirable future – namely the occurrence and aftermath of nuclear war – with accepting its inevitability (defeatism) or even actually wanting it. By exaggerating the effects of nuclear war and emphasising the worst possible case, there becomes no post-war future at all to prepare for, and so this difficulty does not arise.

The limitations of this response are apparent in cases other than nuclear war. Surely it is not defeatism to think about what will happen when a labour strike is broken, when a social revolution is destroyed (as in Chile) or turns bad (as in the Soviet Union), or when political events develop in an expected though unpleasant way (as Nazism in the 1920s and 1930s). Since, I would argue, some sort of nuclear war is virtually inevitable unless radical changes occur in industrialised societies, it is realism rather than defeatism to think about and take account of the likely aftermath of nuclear war. An effective way to deal with the feeling or charge of defeatism is to prepare for the political aftermath of nuclear war in ways which reduce the likelihood of nuclear war occurring in the first place. This can be done for example by developing campaigns for social defence, peace conversion and community self-management in ways which serve both as preparation to resist political repression in time of nuclear crisis or war, and as positive

steps to build alternatives now to war-linked institutions.²¹

(e) Exaggeration to justify concern (I). People involved with any issue or activity tend to exaggerate its importance so as to justify and sustain their concern and involvement. Nuclear war is only one problem among many pressing problems in the world, which include starvation, poverty, exploitation, racial and sexual inequality and repressive governments. By concentrating on peace issues, one must by necessity give less attention to other pressing issues. An unconscious tendency to exaggerate the effects of nuclear war has the effect of reducing conscious or unconscious guilt at not doing more on other issues.

Guilt of this sort is undoubtedly common, especially among those who are active on social issues and who become familiar with the wide range of social problems needing attention. The irony is that those who feel guilt for this reason tend to be those who have least cause to feel so. One politically effective way to overcome this guilt may be to strengthen and expand links between anti-war struggles and struggles for justice, equality and the like.

(f) Exaggeration to justify concern (II). Spokespeople and apologists for the military establishment tend to emphasise conservative estimates of the effects of nuclear war. They also are primarily concerned with military and economic 'survival' of society so as to confront further threats to the state. One response to this orientation by people favouring non-military approaches to world order and peace is to assume that the military-based estimates are too low, and hence to exaggerate the effects and emphasise worst cases. The emotional underpinning for this response seems to be something like this: 'if a militarist thinks nuclear war will kill 100 million people and still wants more nuclear weapons, and because I am totally opposed to nuclear war or plans for waging it, therefore nuclear war surely would kill 500 million people or everyone on earth.'

This sort of unconscious reasoning confuses one's estimate of the size of a threat with one's attitude towards it. A more tenable conclusion is that the value structures of the militarist and the peace activist are sufficiently different to favour very different courses of action when considering the same evidence. The assumption that a given item of information will lead to a uniform emotional response or conclusion about its implications is false. The primary factor underlying differences in response to the threat of nuclear war is not differences in assessments of devastation, but political differences.

The identification of the degree of opposition to nuclear war with the degree of devastation envisaged may also lead to the labelling of those who make moderate estimates of the danger as lukewarm opponents of nuclear war. In many cases such an identification has some degree of validity: those with more awareness of the extent of racism, sexism, exploitation and misery in the world are often the ones who take the strongest action.

But the connection is not invariable. Extremism of belief and action does not automatically ensure accurate beliefs or effective action.

A recurrent problem is how to talk about nuclear war and wide scale devastation without appearing – or being – hard-hearted. Peace activists are quite right to reject sterilised language and doublethink ('peace is war') in discussions on nuclear death and destruction, especially when the facade of objectivity masks dangerous policies. But an exclusive reliance on highly emotional arguments, or an unofficial contest to see who can paint the worst picture of nuclear doom, is undesirable too, especially to the degree it subverts or paralyses critical thinking and creative development of strategy.

Another unconscious identification, related to the identification of the level of opposition to nuclear war with the level of

destruction thought to be caused by it, arises out of people's abhorrence at 'thinking about the unthinkable', namely post-nuclear war planning by military and strategic planners. This abhorrence easily becomes abhorrence at 'thinking about the unthinkable' in another sense, namely thinking about nuclear war and its aftermath from a peace activist point of view.

The abhorrence, though, should be directed at the morality and politics of the military and strategic planners, not at thinking about the 'unthinkable' event itself. Many peace activists have accepted the reality of nuclear war as 'unthinkable', leaving the likes of strategic planner Herman Kahn with a virtual monopoly on thinking about nuclear war. So while post-nuclear war planning is seriously carried out by some military and government bodies, the strategies of the peace movement are seriously hampered by the gap created by self-imposed 'unthinkability'.

(g) White, western orientation. Most of the continuing large-scale suffering in the world – caused by poverty, starvation, disease and torture – is borne by the poor, non-white peoples of the third world. A global nuclear war might well kill fewer people than have died of starvation and hunger-related disease in the past 50 or 100 years.²² Smaller nuclear wars would make this sort of contrast greater.²³ Nuclear war is the one source of possible deaths of millions of people that would affect mainly white, rich, western societies (China and Japan are the prime possible exceptions). By comparison, the direct effect of global nuclear war on nonwhite, poor, third world populations would be relatively small.

White westerners may tend to identify their own plight with that of the rest of the world, and hence exaggerate the threat of destruction wreaked on their own societies into one for all of humanity. White westerners may also tend to see the rest of the world as vitally dependent on themselves for survival, and hence see catastrophe for

all as a result of a nuclear war which destroys 'civilisation'. In practice, poor non-white populations arguably would be better off without the attentions of white, western 'civilisation' – although nuclear war is hardly the way to achieve this.

These considerations suggest the importance of strengthening links between peace struggles and struggles for justice, equality and freedom from exploitation in poor countries.

(h) Failure of the peace movement. A nuclear war would be for many people in the peace movement a failure of the peace movement itself. It would mean psychologically that all their pleas, proposals, efforts to promote disarmament, protests and intense commitments had been in vain. There may be a tendency to confuse a perceived failure of the peace movement with the 'end of the world': the end (failure) of attempts to prevent nuclear war, which is the end of the previous (pre-nuclear war) 'world' of the peace movement, is unconsciously identified with the end of the *real* world. This may lead to a tendency to exaggerate the effects of nuclear war.

In actuality, any nuclear war would be primarily the consequence (but not the intent) of activities of institutions that prepare for war, such as governments, military establishments, and arms manufacturers and designers.²⁴ Any suggestions emanating from this realm that the peace movement is somehow to blame would merely be an exercise in scapegoating. But it is important for peace activists to be aware that their own efforts and organisations and aspirations are not the be-all and end-all. Peace activists should realise that the necessity of their efforts will not be ended with the coming of nuclear war, but rather multiplied. Strategies should not be built on the idea that everything ends when nuclear war starts, but must be resilient in the face of crises and failures.

(i) Day-to-day life. Most people's lives are based on a firm foundation of underly-

ing regularity, pattern and routine: job, home life, friends, recreation, commitments, aspirations. Often this is finely tuned and balanced: one may be struggling to maintain house payments, to do the right thing to obtain a future job or promotion, or to maintain important or sensitive personal relationships. All this is tied in with a delicately balanced rationale for existence: doing the right things in terms of family, friends, work and social issues.

Day-to-day life is severely threatened by the idea of nuclear war, which is one reason why many people blot the idea from their conscious minds. All one's plans for rearing one's children, doing one's duty at home or on the job, or retiring comfortably are thrown into jeopardy. One way to avoid the problem is to believe that nuclear war is the end; if it comes, everything disappears, including personal worries and difficulties. Perhaps even a greater threat to day-to-day life is the possibility of *survival* in a major social change such as nuclear war. In the ensuing chaos, one's previous achievements and current abilities may become totally irrelevant: one may have to start from scratch in the quest for food, clothing, shelter, new personal relationships and meaning for life in a post-nuclear war world. Old hierarchies may be toppled or severely challenged: the ability to manage a government department, or write advertising copy, or sell merchandise may become irrelevant. This would be especially threatening to many who currently are highly successful in the eyes of the world.

Personally, after I became aware of the evidence concerning the effects of nuclear war, it took me quite some time to adjust to the idea of survival and existing in a post-nuclear war world. It seems plausible to me that the tendency to believe the worst about nuclear war owes something to a reluctance to envisage a drastic change in one's day-to-day life or to realise the pointlessness of many of the ordinary activities which give most people their sense of identity.

It is vitally important that activists *do* think through their response to survival of a nuclear war. Even if nuclear war never occurs, this is still valuable, since nuclear war is not the only social crisis that can dramatically alter our usual lives. If the war system is to be transformed, almost certainly it will require vast social changes for which activists need to be prepared psychologically and organisationally.

(j) Reformist political analysis. Closely linked with exaggeration of the efforts of nuclear war and emphasis on worst cases is a political strategy that provides little fundamental challenge to prevailing social institutions. The bulk of efforts for peace are based on the assumed power of knowledge and logic to convince decision-makers to change policies. This includes many of the efforts to influence directly the opinions of decisionmakers (e.g. negotiation, lobbying), to influence their opinions through public pressure (e.g. generated through education campaigns) and even through direct action (e.g. mass demonstrations, civil disobedience).

The solution promoted by many such efforts is essentially disarmament within the framework of present social, political and economic structures. The institutional structures in which corporate managers, party bureaucrats and political leaders are dominant would still be intact: only the bombs would be gone. It can be argued²⁵ that efforts based on the assumed power of knowledge and logic are insufficient, since the actions of decision-makers are mainly determined not by opinions but by interests rooted in current institutional arrangements. Furthermore, disarmament is an inadequate goal in as much as it leaves intact the structural forms which are linked with the use of organised violence, including hierarchical organisational forms, large differences in power, prestige and wealth, and the nation-state system.

If these structures are the source of the nuclear threat, then it might be asked, why

should disarmament be pursued in a way which leaves them intact? The apparent answer is the very magnitude of the nuclear threat itself. One false step by one's own leaders, so the conventional wisdom decrees, and the holocaust may be upon us – initiated by the enemy, of course. In these circumstances, any destabilising challenges to the power structures on *either* side are dangerous, and to be avoided. This becomes a prescription for reformism, rather than promotion of more fundamental changes, as the road to peace.

The greater the magnitude of disaster that nuclear war poses, the greater the injunction to avoid dangerous destabilising tactics and strategies. It may be for this reason that governments have not made greater attempts to disabuse people of the notion that nuclear war is the end of civilisation or life on earth. The more extreme the disaster, the more apathetic people become and the less likely they are to challenge the powers that be. Military and political planners do not think in these terms, naturally, and so on occasion publicly promote measures for civil defence or for fighting limited nuclear wars, so stimulating a hornet's nest of citizen concern and opposition.

Doomsdayism has often been linked with conservative or reformist politics, as in the case of claims of environmental doom.²⁶ A more realistic assessment of the consequences of nuclear war needs to be accompanied by a non-reformist political strategy for challenging the war system. Such a strategy might for example be built around campaigns for social defence, for peace conversion, for freedom, justice and equality, and for creating non-hierarchical political and economic institutions.²⁷ At the same time, present campaigns based on the power of knowledge and logic would remain important: although insufficient, they are still necessary.

(k) Media. The media tend to promote drama and death, and hence promote exaggeration and emphasis on worst cases in

relation to nuclear war, and promote those who make these emphases. This arises partly from the lack of continuity and social context in most media stories, and from providing sufficient bad news (death, destruction) so that the consumers of the media can delight in the 'good' news (advertising of products, one's own ordinary untraumatic life). These tendencies in the media are accentuated by centralised control over the form and content of the media.

(1) Cataclysm. Cataclysms are usually seen as more significant than constant or routine processes which have the same net effect. Large airplane crashes receive intense publicity, whereas the road toll – or the toll of starvation, disease and poverty – less often rates attention. Although there may be an innate tendency to notice unusual events, social mechanisms could readily be developed to focus appropriate attention on non-spectacular problems. The emphasis on cataclysm is reinforced by the media and by the conservative nature of day-to-day routine.

Nuclear war is seen as the ultimate cataclysm, and this leads to emphasis on worst cases. The challenge for peace activists is to shift the focus of attention from the cataclysm of nuclear war to the routine efforts needed to build opposition to the war system – itself a routine operation.

Is nuclear war irrational?

Many people see the nuclear arms race as 'irrational' or 'out of control'. In this framework, nuclear war is seen as the outcome of an irrational or out-of-control process, and hence not something which one can really think about rationally or plan for.

Yet many key decision-makers do plan for nuclear war and do have a measure of control over the nuclear arms race. From *their* particular frame of reference – which in practice sets a high priority on maintaining existing power structures – their behaviour *is* rational.²⁸ Most members of the public, on the other hand, do not have

much control over the nuclear arms race. It is from their frame of reference – which sets a higher priority on preserving human life and using resources to best advantage, for example – that preparations for nuclear war can be seen as indeed irrational and out of control.

Thus, what is rational from the point of view of those in power who prepare for nuclear war can be at the same time irrational from the point of view of many of the relatively powerless majority who will suffer the consequences. This difference is not new, and was apparent for example during the Southeast Asian war, in which US forces destroyed many villages in order to 'save' them.

Although the possible consequences of nuclear war are much greater than most other problems arising out of modern industrial society, this does not mean that the reasons for the problem are fundamentally any different. Just as the systematic murder of Jews and others under the Nazis was carried out by fairly ordinary people living and working in a social and institutional framework not greatly different from prevalent ones today, so nuclear war will be unleashed and waged by ordinary well-meaning people doing their job in a familiar bureaucratic and ideological framework. Far from being 'irrational' or mystical, the forces behind the nuclear arms race are mostly all too familiar; what is changed is the magnitude of the consequences.

By thinking that the arms race is 'irrational' or 'out of control' per se, any possible analysis of strategies which challenge and transform the war system is severely curtailed. There is a great need to understand the routine and common forces which drive the arms race, to communicate that understanding broadly, and to integrate the development of this understanding with challenges to these routine forces.

Will nuclear war be short?

A common view, routinely promulgated by

the peace movement in particular, is that a nuclear war will be short: all over in a few days or even hours. This is a possibility, but by no means the only one. Another possibility is the exchange of a few nuclear weapons – or just a declaration of all-out war – followed by months of political and military preparation and jockeying before full-scale nuclear attacks, in the manner of World War II. Even after a major exchange of nuclear weapons, there easily could be weapons left over for further use, for example in bargaining or taking hostages.

A long nuclear war, or an extended crisis associated with the threat of nuclear war, would pose severe problems for groups working for peace. These possibilities seem to have been ignored, for reasons similar to those for believing that major nuclear war would kill most of the world's population or destroy civilisation.

Can nuclear war be limited?

It often has been argued that the use of a few nuclear weapons could lead, gradually or suddenly, to an all-out nuclear war between the superpowers. But it is also at least possible that a nuclear exchange could occur *without* this leading to all-out war. A nuclear war might be waged solely in the Middle East; or an 'exchange' might occur consisting of nuclear attacks by the US on remote installations in southern Soviet Union and by the Soviet Union on remote US installations in Australia; or 'tactical' nuclear weapons might be used in a confrontation restricted to Europe, or to the border region between China and the Soviet Union. The likelihood of any such possibilities is a matter of some dispute. What should not be in dispute is the *possibility* – whatever assessment is made of its likelihood – that a nuclear war can occur which is less than all-out global nuclear war.

Anti-war people – and others – spend a lot of time arguing that limited nuclear war is virtually impossible. Their main rea-

son for arguing against military strategies for limited nuclear war seems to be that this possibility makes nuclear war seem more plausible. But plausible to whom? Military leaders and national security managers are not likely to be swayed by arguments advanced by the anti-war movement (though they may be swayed by its political strength). So the argument that limited nuclear war is impossible has impact mainly on the public, which is pushed into all-or-nothing thinking, leading to apathy and resignation.

Much of the argumentation presented by anti-war people criticising the concept of limited nuclear war seems to be almost a reflex action against planning by militarists. It is important to realise that strategic planning about limited nuclear war is not automatically suspect just because such thinking is done by military planners. It is entirely possible for peace activists to think about and to prepare their own strategies to confront the political consequences of nuclear war, and furthermore to do this in a way which reduces the likelihood of nuclear war in the first place.²⁹

If the peace movement is to argue that nuclear war cannot be limited, then it should do so on the basis of a careful political analysis and in the context of an ongoing strategy for peace. It may be that the argument that nuclear war cannot be limited, like the view that nuclear-war is the final catastrophe, is based on a limited political analysis and is in many ways counterproductive in its effects.

Conclusions

I have argued that some of the stock beliefs of the peace movement – that nuclear war will be the end of civilisation or of life on earth, and that nuclear war is irrational and cannot be drawn out or limited – need critical reassessment. To a considerable extent these beliefs seem to be both a cause and an effect of a limited political strategy for challenging the institutions which create

the threat of nuclear war. One implication of this analysis is that peace activists need to be prepared for the political consequences and aftermath of nuclear war and nuclear crisis, and to build this preparedness into present campaigns. If they do not do this, the task will be left to military and political elites.

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NOTES

1. By the 'peace movement' I refer here to groups and individuals who explicitly and publicly work to achieve a world without war, and who are for the most part independent of national governments. Those fitting this description are a varied collection, and the term 'movement' is at best only partially appropriate. By the 'allies of the peace movement' I refer to groups and individuals who support the aims of the peace movement but who seldom participate in activities explicitly relating to peace. These allies could be expected to join peace movement activities or initiate their own similar activities in situations of sufficient urgency or crisis. The allies include many groups and individuals involved in, for example, the feminist movement, the environmental movement, some left-leaning political movements, some religious organisations, and the general public, among others.
2. Other scenarios are found for example in Calder (1980).
3. On the effects of nuclear war, see Glasstone and Dolan (1977), Fowler (1960), Aronow et al. (1963), Lewis (1979), Office of Technology Assessment (1980), United Nations (1981).
4. Such a mindless massacre makes no military sense. In any militarily realistic scenario, many nuclear weapons would be used on military targets, and some targets would receive numerous nuclear weapons, some of which would kill more people if used elsewhere. (I thank Desmond Ball for comments on this point.)
5. This could considerably increase the area blanketed by fallout. Reactor cores are fairly well protected, but a policy of targeting many power reactors and reprocessing plants could increase the death toll significantly. See Chester and Chester (1976), Ramberg (1980) and Fetter and Tsipis (1981).
6. Actually, long-term fallout provides no such threat precisely because it is long term: most of the radioactivity had died away by the time it circulates to areas away from the latitudes of major nuclear conflict. See National Research Council (1975).
7. See Hampson (1974), Whitten, et al. (1975), National Research Council (1975) and Crutzen and Birks (1982). As the US and Soviet Union convert their strategic nuclear arsenals to larger numbers of smaller warheads, the threat of ozone reduction is reduced, since sub-megatonne explosions deposit little nitrogen oxide in the stratosphere. John Hampson (1974, and personal communications 1981, 1982) believes, contrary to the conventional wisdom, that severe ozone reductions could occur, in particular due to high altitude explosions. His arguments are yet to be fully evaluated.
8. Crutzen and Birks (1982). These authors point especially to the dangers to marine ecosystems from screening of sunlight during the northern summer if nuclear war occurred at this time. Another effect they have studied is the creation of severe photochemical smog throughout the northern hemisphere from the fires.
9. National Research Council (1975). Knowledge on these possibilities is uncertain.
10. The probability of this happening is hard to evaluate. Studies of heavily bombed areas, such as Japan and Germany during World War II, show that economic or social breakdown does not occur readily even in extreme situations, contrary to popular belief (see for example Iklé (1958)). But widespread nuclear devastation would impose such enormous strains on survivors that no firm predictions can be made.
11. The threat of ozone reduction from nuclear war was first raised publicly in 1974, and the consequences of fires from nuclear war on transmission of sunlight through the lower atmosphere in 1982. It seems likely that further major hazards are yet to be studied.
12. On the extent of the belief in annihilation see, for example, Iklé (1958, p.vi), Kahn (1961, p. 9) and Laurie (1972, p. 22). It is easy to find many cases in which it is stated or implied that nuclear war can cause human extinction. Here are a few sample quotes, rather arbitrarily chosen:

'In the event of a nuclear war there will be no chances, there will be no survivors - all will be obliterated' - Lord Mountbatten (1979).

'An all-out nuclear war could destroy civilisation and even threaten the survival of our species' – Medical Association for Prevention of War (1980, p. 739).

'Full-scale nuclear war will put a stop to history' – Richard J. Barnet (1980, p. 39).

13. I have come across only two arguments of any substance which hold that human life could be extinguished by nuclear war. First Sternglass (1969a; 1969b and replies; 1969 c and replies in several following issues) provides the sketch of an argument for extinction on the basis of genetic defects induced by strontium-90. To my knowledge this view has received no detailed substantiation by any other scientist, and has virtually no support in the scientific community.

Second, Feld (1976) claims that fission of a sufficiently large mass of nuclear warheads could release enough global radiation to kill everyone in the world. But the amount required is at least 10 times greater than present stockpiles. Furthermore, geographical variations in fallout would allow many to survive even in the event that such stockpiles existed and were used.

14. 'Overkill: the ability to exterminate a population more than once. "Both the US and the Soviet Union now possess nuclear stockpiles large enough to exterminate mankind three or four – some say ten – times over" (Philip Noel-Baker, Nobel Peace Prize winner, 1971)' – Cox (1977, p. 10).

Statements such as this seem to be based on a misleading extrapolation from the number of people killed by the nuclear bombs dropped on Hiroshima and Nagasaki. Nuclear explosive power is normally measured in kilotonnes or megatonnes. One kilotonne (detonated kt) is equivalent to 1000 tonnes of high explosive, and one megatonne (denoted Mt) is equivalent to 1000 kt (that is, one million tonnes of high explosive).

Estimates of deaths due to the 13 kt bomb dropped on Hiroshima range from 60,000 to over 200,000. Adopting a figures of 130,000 as an example gives a ratio of 1 tonne of explosive power for each 10 people killed. Using the same ratio, the explosion of 6500 Mt – rather larger than is likely to be exploded in a full-scale nuclear war – gives a figures half a million times as large as the Hiroshima death figure, namely 65,000 million, which is over 12 times the present world population.

But in reality this sort of linear extrapolation does not hold. If the Hiroshima bomb had been 1000 times as powerful, namely 13 Mt, it would not have killed 1000 times as many people: 130,000,000 is larger than the present population of Japan. Rather, a 13 Mt bomb would have killed at most all the resident population of Hiroshima on 6 August 1945, say 250,000. The

'overkill' calculation then leads not to a value over 12 but to one less than 1/25.

The idea of 'overkill', when expressed in terms of killing everyone on earth a certain number of times, is misleading. By analogous reasoning it might be said that 'there is enough water in the oceans to drown everyone on earth 12 times'.

15. It may be that those who make statements such as those quoted in note 12 have a clear picture of the actual consequences of nuclear war, and that the exaggeration implicit in their statements is for the sake of rhetoric. But in my experience at least, a large number of people accept statements about overkill and the like as the literal truth. Rhetorical exaggeration may be justifiable if everyone recognises it for what it is; in the case of nuclear war it may lead to undesirable consequences for peace movement strategy.
16. The major strategic US military bases in Australia are remote from population centres, and it is quite possible that nuclear attacks on them would kill only working personnel (as well as inducing a number of cancer and genetic defect deaths worldwide over the following decades). On the more destructive possibilities from limited nuclear war, see Drell and von Hippel (1976).
17. Frank (1967, pp. 30 – 31).
18. See Fulton et al. (1978) and references therein.
19. Lifton (1979).
20. One framework for such a strategy is given by Lakey (1973).
21. These and other examples are developed in Martin (1982a).
22. It is estimated that at the least several million people – perhaps many more than this – die each year of starvation and hunger-related disease. Counting back a sufficient number of decades gives a total of similar magnitude to the death toll from a major global nuclear war – and these are actual rather than possible deaths.
- The problem of hunger and starvation is similar to that of nuclear war in one important respect: the problems are political ones, and require political and institutional change rather than technical fixes for solution. On the extent of world hunger and starvation, and on their political roots, see George (1977), Lappé and Collins (1977), Vallianatos (1976) and de Castro (1977).
23. For example, a limited nuclear war could kill less than the depopulation of native peoples during the period of imperialist and colonialist expansion, which totalled at least several tens of millions (Bodley (1975)).
24. The perspective on war which links it to structural or institutional features of society, rather than to individual misperceptions or failures, is adopted throughout this paper. For elaboration on this theme see, for example, Barnet (1972) and Galtung (1980).
25. Martin (1980).

26. Roberts (1979, chapter 1).
27. I present the outlines of such a strategy in Martin (1982b).
28. Roberts (1981).
29. Martin (1982a).

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