Nuclear deterrence

Everybody makes mistakes ...

In a follow-up to his article in SA3/85, **BERNT CARLSSON** examines the logic – or rather, the lack of logic – behind a defensive strategy based on nuclear deterrence, and evaluates some of the alternatives being discussed.

Earth is a planet alive. As such it is very vulnerable. It could easily be destroyed by a nuclear war, the ultimate environmental disaster. Earth could be turned into a gigantic morgue.

The idea that the strength of a nation can be measured in nuclear megatonnage is like thinking that building up a large supply of a very contagious and deadly virus to be used as defence makes a country powerful. A nuclear war is analogous to a chess game in which the pieces have been programmed to annihilate those of the adversary, by blowing up the board, the pieces and the players, by eliminating the game rather than winning it. Nuclear war negates a basic principle of strategy stated by Clausewitz, that war is the continuation of politics by other means. A nuclear war would result in the final end of humanity – and of politics.

Nuclear weapons per se are dangerous only for their owners. Several accidents with nuclear weapons have occurred, though none has yet caused an explosion. There are certainly enough nuclear weapons to kill everybody on earth several times over. But there are also bullets enough to do that.

Nuclear weapons become dangerous to others when combined with a capacity to deliver them to an adversary. The killing capacity of bullets is limited because the power to decide to use them is dispersed to the point that it is impossible to kill all of humanity in this way. However, nuclear weapons' killing-capacity is centralised in the extreme. Nuclear weapons constitute concentrated death on a global scale. It is not only possible to kill all of humanity with nuclear weapons, it is increasingly likely that it could happen.

More than 95 percent of existing nuclear weapons are owned by the superpowers. The overwhelming part of their megatonnage is integrated into gigantic delivery systems, 'Doomsday Machines', capable of annihilating the adversary in thirty minutes and, due to the effects of the nuclear winter to follow, all humanity in some months. By using only a very limited part of the force of the Doomsday Machines the communication capacity of the adversary could be blocked by high-level explosions of nuclear charges. The talk of nuclear weapons being carried in suitcases misses this important aspect of the Doomsday Machines. Only high-altitude nuclear explosions can threaten the global communications systems on which depend the control, command and intelligence of the nuclear forces of the superpowers and which are prerequisite to the delivery of a second strike after being attacked.

The two major technical disasters which occurred during 1986 were very different in character. But the explosion on 28 January of the US space shuttle Challenger and the fire in one of the nuclear power reactors at Chernobyl in the USSR on 26 April both illustrate the possibility of very advanced technological systems going fundamentally wrong, by a combination of technological failure and human error.

The space shuttles were considered to be very safe vehicles. Investigations after the accident reveal that there were at least 760 technical failures which could go wrong resulting in the destruction of the vehicle and the death of the crew.

As is well known incidents have occurred within the Doomsday Machines. One of these was in 1980. The US Doomsday Machine was then being tested on its ability to react on submarine-launched missiles aimed against the United States. By a computer mistake the exercise set off an alarm that the United States was under real attack. The officers in command did assume, however, that the alarm was due to a mistake. The scepticism and caution of these officers made them wait the six minutes until impact would have occurred. The world was saved. It is of some comfort to know that there are officers in the nuclear forces who will not function like robots at a time of crisis when the future of humanity might be at stake, no matter how loyal, disciplined and professionally competent they are. But it is not sufficiently reassuring.

The overwhelming risk factor for the start of a nuclear war is that of a technical accident, inside the Doomsday Machines. A nuclear war could be caused by separate or simultaneous malfunctioning in one or several of the computer systems of the communications, control, command and intelligence of the nuclear forces of either or both of the superpowers.

The political concepts of deterrence and mutually assured destruction are based on the assumptions that a superpower must be capable of launching a nuclear first strike, to attack, and that a nuclear attack will be answered by a nuclear attack. The first attack will thus not occur nor will policies be pursued which might lead to it. Nuclear weapons are the best guarantee against nuclear war and for world peace in general, it is argued, and thus also prevent major conventional wars. Nuclear arms are thereby supposed to guarantee peace, according to the deterrence doctrine.

The military strategy of a second strike in reply to a nuclear attack envisages it being launched upon impact, that is not until the first nuclear bombs of the attacking side have exploded. The superpowers are now replacing that strategy with a new one, to launch the missiles upon warning that the adversary is attacking, before any impact. Unfortunately such a warning could be caused by technical errors. Even more unfortunately some might not be identified as such during the short time available for checking on it. The idea of a superpower leader woken up in the middle of the night to make a decision on

Bernt Carlsson
is deputy minister for Nordic affairs in the Social Democratic Party (SAP) government of Sweden. From 1976-1983 he was the general secretary of the Socialist International, and from 1983-1985 a special ambassador of the Swedish government.
This article represents his personal views only.

whether to launch nuclear missiles in reply to an alarm of an impending attack is in itself absurd. There will not be time for even that anymore. The decision-making process is becoming computerised and pre-programmed.

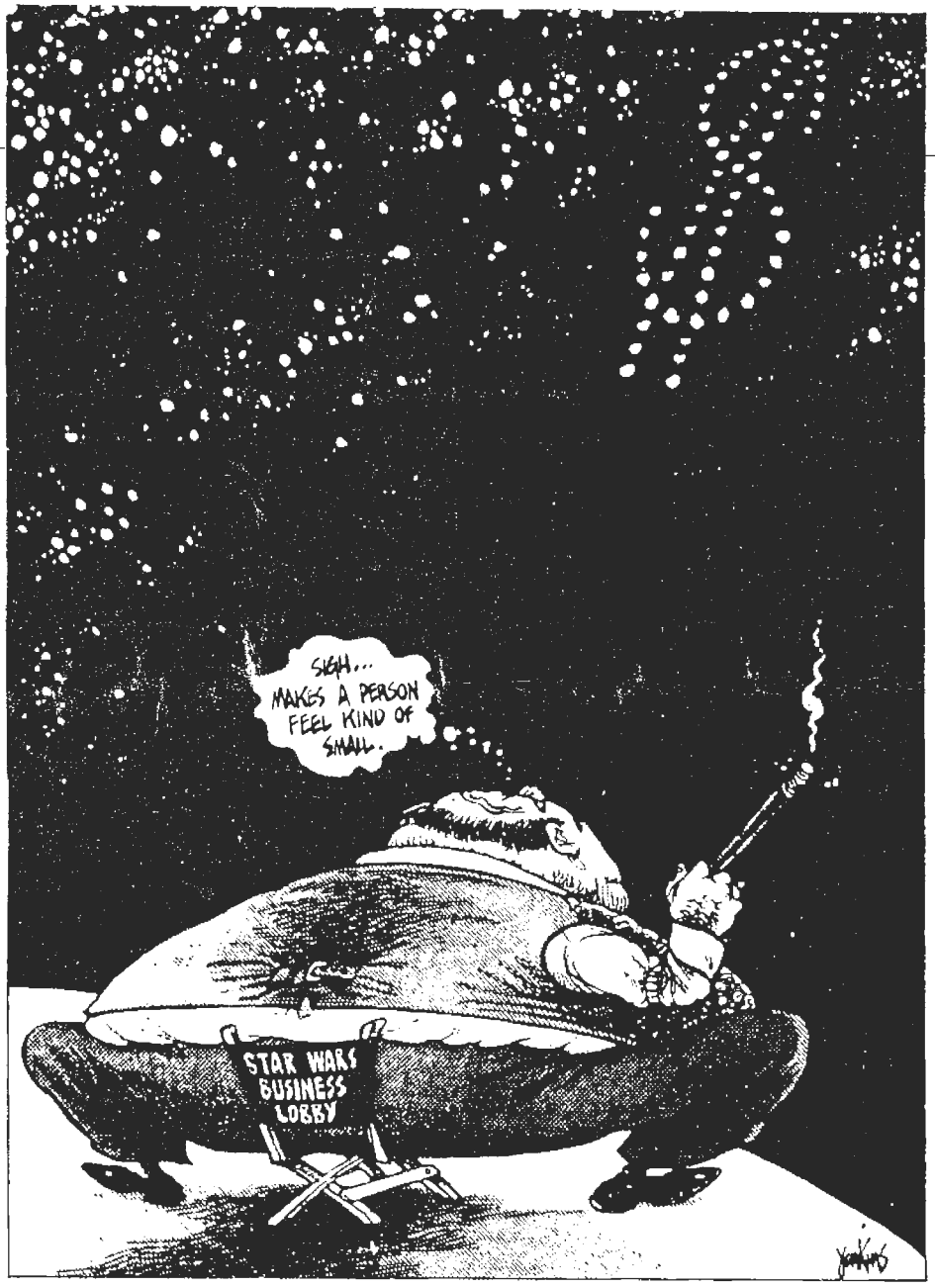
The superpowers have been reluctant to admit that this profound change of military strategy is taking place but it is obvious that the ever-increasing speed by which a nuclear war would be initiated is forcing such developments. The implications for humanity are such that the answer can only be to call for the Doomsday Machines to be dismantled, both the major ones of the superpowers and the Mini Doomsday Machines of the other nuclear powers.

Information is not commonly available in detail on how the complex systems of communications, control, command and intelligence of the Doomsday Machines actually work. The extent of the possibility for serious errors is perhaps known by the scientists and officers working within them. Two factors can however be stated beyond any doubt: that there is a risk and that it is increasing as time goes by. A nuclear war by accident is not supposed to happen. Yet it might. And it makes illusory the entire concept of deterrence.

Notwithstanding the imagery of some groups of the peace movement, the risk of a nuclear war deliberately started by a great power for political reasons is probably very small, especially as concerns Europe. It would probably be of advantage to world peace though if the Soviet armies in Germany would stop its apparent habit of rehearsing an invasion of the Federal Republic of Germany. A possibly somewhat more likely political reason for a nuclear war to emerge however, is out of a military conflict in the Middle East, developing in a totally unforeseen and destabilising way. It is argued that a nuclear war could also begin by a mix of political and technical factors such as in a naval incident. Exercises like the US naval manoeuvre held outside of Vladivostok in December 1984 can hardly be said to contribute to stability.

Another political risk factor is that of terrorism, for example by an extremist right-wing group attempting to take over a strategic missile base. The low level of ground security on some bases in the western United States illustrates the possible deficiency of military planning on this matter.

Deterrence and mutually assured destruction operate against rationally calculated decisions. They are meaningless against irrational, accidental and unexpected triggering events.



The four methods usually associated with nuclear arms control are freeze, reductions, force restructuring and stabilising measures. None of these explains how the world is to get out of the grip of deterrence, away from the Doomsday Machines.

Nuclear-free zones such as the Tlatelolco treaty for Latin America are legitimately viewed as stepping stones towards a nuclear-weapons-free world. But they should not be taken as goals in themselves. The people of Latin America are going to perish if there is a global nuclear war, regardless of Tlatelolco.

There is no alternative but the dismantling of the Doomsday Machines. For this purpose radical, even draconian solutions are required. Time is short, the situation too urgent for a gradual, reformist approach to be applied.

The superpowers are striving to preserve nuclear peace and to defend, or even to expand, the interests of their states and ideological systems. Obsessed by the perceived or real threat of their adversary, neither has paid enough attention to the threat to themselves and to the rest of the world their own policies entail.

Now, however, both superpowers are suggesting ways to extricate the world from this threat. A nuclear war cannot be won and should not be fought. This was the joint position stated by President Ronald Reagan and General Secretary Mikhail Gorbachev at the summit meeting in Geneva in November last year. Both leaders have called for making nuclear weapons obsolete or abolishing them. President Reagan proposed in a speech on 23 March 1983 that this should be achieved by technological means – the Strategic Defense Initiative (SDI) is supposed to establish a defence shield making nuclear weapons obsolete.

Research and development for SDI is to go on until 1993. Then a decision on

production and development is to be made. SDI, if deployed, would represent a quantum leap in weapon technology similar to or even greater than that of the introduction of the H-bomb in 1950, of the intercontinental ballistic missiles in the early sixties and of the MIRVed missiles in the early seventies.

According to President Reagan's proposal, the SDI system was to be linked with the elimination of offensive nuclear weapons. That is not happening, however. Quite the contrary. It would thus appear that the proposal of the president is being ignored by the US Department of Defense.

Critics argue that SDI would bring about a chaos in the planning of strategy with a fundamental destabilisation of the East-West military situation as its result. To criticise the strategy of SDI does not fully describe the situation, however. It appears that the Reagan administration is avoiding the entire problem of a strategy for strategic defence. It is not providing the answers. In this way it has a supply-side approach to military strategy. If a new technology can be built, it will be developed, especially when seen to promote industrial development, regardless of the consequences for military strategy and arms control. Others will then have to try to fit the new technology into a strategy to guarantee nuclear stability and peace. It is thus to be left to successor administrations to try to figure out how to apply the SDI system, including its potential offensive aspects. It could possibly be used against surface targets – a development which would bring warning time down to zero or close to it. The world would consequently be in even greater danger.

In a speech on 15 January this year General Secretary Mikhail Gorbachev proposed that all nuclear weapons be abolished before the year 2000. This is to be achieved through a three-stage plan, beginning with a reduction of the number of strategic weapons by 50 percent. Though presented first to the public and only later placed on the negotiation table, the proposal should not be dismissed as a piece of propaganda. The sheer magnitude of its scope makes it a policy statement of enormous import.

However, the main difficulty with the plan is apparent. It proposes that the nuclear arms race should be taken right back to the time before it was started by nazi Germany in 1939. But it is impossible to disinvent nuclear technology. Proposals for abolition will therefore have to be accompanied by ideas on how abolition can be verified, how the simultaneous steps to a non-nuclear-weapons world should be taken and how it should be maintained once established.

These drawbacks have led some to conclude that the superpowers are merely attempting to influence the opinion of a gullible public. There is more to it. It must be kept in mind that the superpowers are not only trying to influence global public opinion. They are also in command of their Doomsday Machines. It is not to be excluded that on the basis of their knowledge of the working of the Doomsday Machines the leaderships of the superpowers have in fact drawn the conclusion that the present nuclear arms race cannot go on. It will end in either of two ways: by a nuclear war which would abolish nuclear weapons by using them, or by a deliberate political decision and policy to get away from them.

To sum up, the US proposal indicates a way to stabilise a non-nuclear-weapons world once abolition has taken place. The method suggested, the Strategic Defense Initiative, may well have the opposite effect, however, due to its inherent offensive aspects. Nor does the US proposal explain how abolition is in fact to be achieved. The Soviet proposal sets a goal, a time limit and a policy for eliminating nuclear weapons but does not explain how to verify the process or how to maintain the situation once abolition has been achieved.

And while making these proposals the superpowers are further expanding the speed and capacity of their Doomsday Machines.

The contradictions between the policies of the superpowers and their pronouncements seem to indicate either that their dedication to eliminating nuclear weapons is merely propaganda posturing or that there possibly are divisions of opinions within the leaderships of both countries. Another way to put it, perhaps, is that the concern is genuine but its applications so far have been mainly propagandistic. Concrete, mutually acceptable policies to turn ideas into action have not entered the process, yet some elements have emerged, such as the provisional Soviet halting of nuclear weapons tests.

A path towards beginning the abolition process has been outlined by the Five Continent's Peace Initiative of Argentina, Greece, India, Mexico, Sweden and Tanzania. The most immediate task is a nuclear test ban. That would put an end to the risk of further proliferation. A test ban would gradually make existing stockpiles of nuclear weapons obsolete, as samples of existing stockpiles could no longer be tested. If depending on that process only, the policy of non-testing would have to last for a considerable time, perhaps a hundred years, until the Doomsday Machines had wasted away. This is indeed a very long period given the instability and danger of the present situation.

The most important result of a test ban is thus that it would stop a further development of the Doomsday Machines.

Another idea of similarly great urgency is a ban on missile flight testing. A third step would aim at increasing the length of warning time – to get away from the extremely dangerous strategy of launch upon impact. Among steps to be taken are abolishing intermediate range missiles and preventing strategic submarines and bombers from patrolling too close to the coasts of the adversary.

Those who argue for a total abolition must however propose some answers on how to guarantee the stability of such a policy in order to move forward to 1999 and not vainly try to restore the pre-1939 non-nuclear world. It would appear that some form of anti-missile defence systems must be developed by both sides.

It is a sad state of affairs when the great utopian dream is that humanity will not blow up the entire world, when to call for abolition is described as a non-serious non-starter. What could be more serious than to call for the survival of humanity?

The crucial decisions will be taken by those with the nuclear weapons. Others can contribute by helping to foster an appropriate political climate for the decisions to be taken. The nuclear arms race must be stopped by a political decision by the nuclear powers, and especially the superpowers, on abolition and how to secure and stabilise mutual relations in a world free from nuclear weapons. It is obvious that the dismantling of the Doomsday Machines will have to be accompanied by an improvement in superpower relations, both between governments and between citizens.

Those in the leaderships of the superpowers who work for such solutions should be given worldwide encouragement and support by public opinion. The declared intent by President Reagan and General Secretary Gorbachev to get away from the dominance of nuclear weapons must be acknowledged and built upon.

The policy proposal by Mikhail Gorbachev for the total abolition of all nuclear weapons by the year 1999 ought to be supported. The Doomsday Machines must be dismantled. The concern for verifications and defence against violation are legitimate, however. The means of moving toward abolition while preventing anyone – from superpower to small nation, or even terrorists – from violating the process exist or can be found, now. It is a matter of political will.

The Barbarossa/Pearl Harbor Syndrome

In a strikingly different approach to arms control and disarmament issues, **BERNT CARLSSON** offers this strictly personal view. He argues that abolition of nuclear weapons and defence against nuclear attack are integrally linked issues – including a possible role for space weapons.

There is an emerging worldwide consensus that a nuclear war is not a policy option, that it must never be fought. The question of how to avoid nuclear war is the number one priority of humanity. Millions are concerned enough about the nuclear arms race to work actively against it in the peace movement, now a very large popular force. All the citizens of the earth, whether from large or small countries, are potential victims and have the right, even the responsibility, to speak up and to present their own views on how to deal with the threat of humanity's annihilation.

There are the perennial optimists about this threat, those who take the view that as there has not yet been a nuclear war, it is not likely to happen. And there are those who display despair, indifference or cynicism.

To the optimists, however, the knowledge that the armed forces of the superpowers are stockpiling enormous amounts of morphine and other analgesics and anaesthetics as a part of their preparatory plans for nuclear war should be somewhat unsettling.

A pessimistic counterreaction is the proposal to stockpile cyanide in preparation for mass suicide in case of nuclear attack, an initiative by the students at Brown University in Rhode Island, USA – an understandable but defeatist response. Many people react to the threat of nuclear war as they do to the prospect of their own death. It is a known end, but inevitable, and best disregarded in favour of continuing one's daily life.

But it cannot be denied that there might be a profound change in the attitude of humanity, as a result of the permanent threat of nuclear annihilation. It is not known what long-range effects it may have. The possibility that it will breed a culture of death, with a very damaging impact on long-term social developments, cannot be excluded.

A number of very committed idealists may draw anarchist conclusions and decide that the nuclear arms race must be fought through terror. They may well decide to strike at what they see as the root of the problem, at those who are responsible for it. They might argue that there is a moral imperative to threaten the superpowers with terrorism rather than allow them to go on menacing all of humanity with genocide.

Terrorists might attack not only individuals, but also target large communities. Time is short for those who want to stop the nuclear arms race through arms control because those who would argue for direct action will gain strength if superpower negotiations bog down.

'Both superpowers have accelerated the production and deployment of new offensive systems such as the MX and the SS-24 missiles – a programme which might be called the 'SOI', the strategic offensive initiative.'

Recent events indicate just how complex a defence against terrorism is, what appalling risks and costs it imposes. And the world has never yet even faced the horror of terrorist nuclear blackmail.

The United States and the Soviet Union are now showing interest in getting the arms race under control. However, even after the launch of the Geneva talks, they have accelerated the production and deployment of new offensive systems of death and destruction such as the MX and the SS-24 missiles. Both superpowers are planning to increase their production of weapons-grade plutonium. In reality, they are thus continuing to build up their strategic offence systems – a programme which might be called the 'SOI', the strategic offence initiative. It remains to be seen whether the talks between the superpowers will produce any real arms reductions or are only gestures designed to reassure a profoundly and increasingly worried world public opinion.

In defiance of all the speeches, demonstrations, seminars, scientific colloquia, conferences, resolutions and appeals, and despite the resumed negotiations, the nuclear arms race continues relentlessly, and at a terrifying pace. Technology has leapfrogged and is outpacing arms control efforts. Vertical proliferation is increasing all the time. There are the risks of horizontal or multi-state proliferation. A seemingly irreversible momentum of nuclear buildup has developed.

Bernt Carlsson
has been international secretary of the Swedish Democratic Party (SAP), and was general secretary of the Socialist International from 1976-1983. He is now a special ambassador for the Swedish government. This article represents his personal views only.

The mirror images

It is obvious that there are some persons in the Reagan administration who are not interested in arms control in any form, who aim for military supremacy. But the nuclear arms race did not begin on January 20, 1981, when Ronald Reagan was inaugurated as US president. It began again after the second world war and has escalated in stages since then. The current phase began in the late 70s.

Those who argue that the blame lies on one side only serve to promote the competition of the superpowers. To an outside observer, there is a strange similarity in the arguments presented by the superpowers. They appear as echoes or mirror images of those of the adversary.

The causes of the nuclear arms race go very deep. They are linked both to the flow of human progress and to the inability of humanity to rid itself of the instincts of aggression and fear suitable to and inherited from an earlier era of biological evolution.

The road to oblivion

When blame is to be apportioned for starting the nuclear arms race, it must focus on nazi Germany.

The nuclear era can be said to have been opened in 1905 when Albert Einstein published his thesis on special relativity. In 1938 Otto Hahn, the German physicist, managed the first successful nuclear fission experiment. It was followed up in 1939 by the French physicist, Joliot Curie. During the same year, nazi Germany started its nuclear weapon development programme. The nuclear arms race had begun.

The fear inspired by the nazi programme helped provoke the US Manhattan project. Once ready they were used by the United States in attacks on Hiroshima and Nagasaki in August 1945 – a terrible month in human history whose fortieth anniversary is marked this year.

During the second world war, the US and the UK bombed, deliberately and repeatedly, the nuclear research and production facilities of nazi Germany. It was an early, if unreliable, form of anti-proliferation policy. After the war, it was discovered that Japan had also been working on the development of nuclear weapons.

The timing of Hahn's experiment was perhaps the height of bad luck for humanity. Imagine if it had been conducted fifteen years later, at a safe distance from the second world war. The knowledge of how to produce an atomic bomb, perhaps then widely and generally understood, would have been tempered by the memory of the horrors of the war. An understanding of the scale of the devastation such a bomb would inflict might then have served as a deterrent in itself.

However, that is but speculation, for the fact is that a bomb was ready to be dropped in July 1945, just forty years after Einstein's first thesis.

The nuclear arms buildup did not stop with an end to the second world war though. On the contrary, it rapidly got out of control. As early as 1948 the then chairman of the US Atomic Energy Commission, David Lilienthal, was horrified at the rate at which the US Air Force was demanding more atomic bombs. The generals were beginning to order atomic weapons like 'mess kits and rifles', he noted at the time.

In 1949 the Soviet Union exploded its first atomic bomb. The momentous decisions by both superpowers in 1950 to go ahead with the production of the H-bomb followed. The age of overkill was born.

In 1985 the United States and the Soviet Union have 50,000 nuclear warheads, of which 20,000 are strategic, with a total explosive power of approximately 16,000 megatons, the equivalent of 16,000,000,000 tons of TNT.

There are now large vested interests in the nuclear arms race on both sides. The industrial-military complex in the United States and the bureaucratic-military complex in the Soviet Union are its greatest engines. Both have a considerable number of people who depend on the race continuing. Institutional inertia, as well, helps prevent a break in the nuclear arms race.

The nuclear arms race long ago left the realm of reason and logic. It is literally a race to oblivion. The nuclear numbers game in many ways resembles the fascination of an older generation of military strategists with numbers of artillery pieces – somewhat irrelevant to predictions of supremacy then, fatally so now.

The efforts to construct an intellectual justification for the nuclear arms race can be seen as some form of highly sophisticated computerised chess. It appears on one level as analytic and rational, on another as a form of psychopathy.

As pointed out by US physicist Hans A. Bethe and others, the policy of mutual assured destruction (MAD), did not come about as the result of careful military planning. MAD is not a policy or a doctrine but simply a fact of life, or death. It descended like a medieval plague, the inevitable consequence of the enormous destructive power of nuclear weapons, and the impotence of political institutions in the face of such momentous technological innovations.

Nuclear deterrence based on the strategy of MAD, still valued in many quarters, is becoming increasingly fragile. There are serious flaws – one accident or unauthorised firing of a single missile could bring all-out nuclear conflict. The main argument of the deterrence based on MAD is that it has worked. This is a powerful argument but it does not guarantee the future.

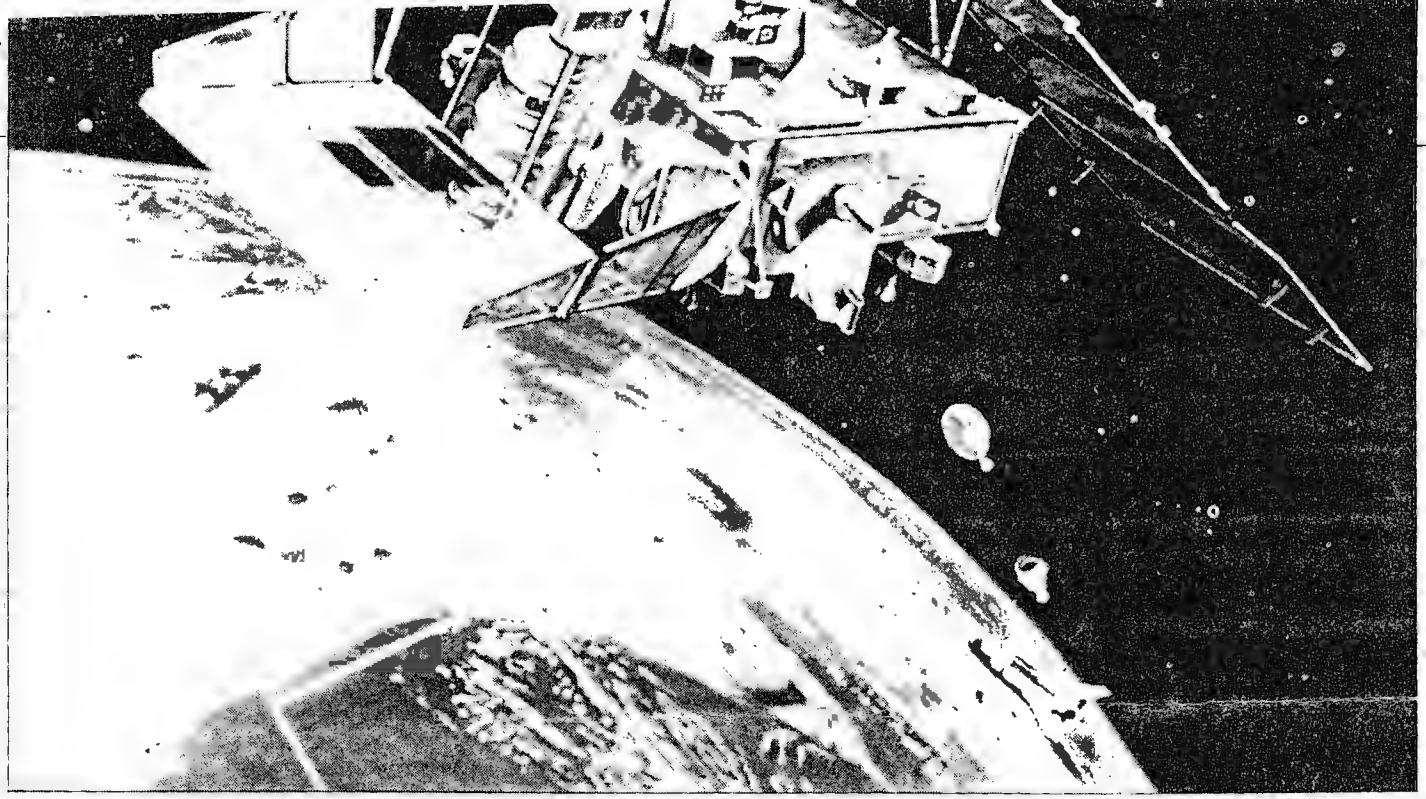
It is rather like predicting that someone will live to be a hundred, having successfully avoided committing suicide or falling under a bus for their first twenty-five years.

Some claim that the possession of a large number of nuclear weapons on both sides creates a dynamic range in the relation between the superpowers, as each could accept losses in a nuclear exchange and still be able to retaliate. In other words, the more nuclear weapons, the safer the world. The argument is however limited to some aspects of the problem only. It could also be said that the more nuclear weapons and the longer time they are around, the greater the risks of accident.

MAD has been weakened by developments such as euro-strategic weapons and Soviet missile-carrying nuclear submarines patrolling closer to the east coast of the United States. Warning times are getting even shorter. The present trend to greater precision and miniaturisation of nuclear weapons and their delivery vehicles is aggravating the situation. It is further destabilising as it blurs the distinction between nuclear and conventional weapons.

Both sides are being forced to move closer to a launch-on-warning strategy in which the fate of humanity will be decided in a few minutes. Decisions will be required so quickly that, in part, they will be pre-programmed in computer control systems. People may not be trusted to make such momentous decisions, but it is surely madness to leave the fate of humanity largely in the hands of computers!

Is it really possible that the policy of deterrence will remain successful under such circumstances? And for how long? For another decade? A century? The rapid technological developments are leading to a situation in which the launch of a second strike looks increasingly problematic. The focus of the arms race is shifting from the technological aspects of the weapons systems themselves to the combined political and technological problems they present and to questions of intelligence, communication, control and command of the



Aero / Sipa

Keeping an eye on things: Artist's impression of the P-80-1 satellite funded by the US Defence Advance Research Projects Agency; shown is 'Teal Ruby', a low-altitude surveillance system

nuclear forces.

Nobody knows if the defending country's command structures would even function at the start of a nuclear war. The defenders will not know for sure if it is only another false alert, first of all. Among those in command it is conceivable that there will be a number of deaths even before the first nuclear weapon explodes – suicide, murder, and psychotic behaviour in the face of annihilation are, after all, not unheard of. This is really unknown territory.

It seems increasingly likely that deterrence only works for the side which strikes first. After a first strike, whatever caused it, in addition to the enormous immediate destruction, there will be many other complicating factors such as the electromagnetic pulse (EMP) and other impacts impeding or disrupting communications.

The communications systems of either superpower could be destroyed by the EMP-effect of the high-altitude explosion of less than ten H-bombs.

A second strike might turn out to be no option at all as the command structure might have ceased to function. Of the offensive nuclear weapons systems, the only ones with a great likelihood of survival are those on strategic nuclear submarines. But who would give the command for a retaliatory attack? How would the communications be transmitted even if orders could be given?

The command of these missiles is, in a war scenario, delegated to the officers of the submarines. This introduces another dangerous element, that of individual officers being free to make independent decisions. It heightens the risk of unauthorised or accidental launchings, even if these are of perhaps low probability. Given the destructive power of a single strategic nuclear submarine, the officers on one vessel could decide on the fate of humanity by initiating a nuclear attack.

The chain of events of accidents, incidents, misunderstood orders, miscalculations and madness in high office which could lead to a global nuclear war is by definition unpredictable. Only predictable factors can be brought into a control system: the random causes are variables impossible to plan for.

As is painfully clear to computer programmers, a level of apparently random error creeps into programmes as the length and complexity increases. It is impossible to 'test out' all the possible errors other than in operation. The programmes governing nuclear delivery systems increase in complexity and sophistication every year as each side increases efforts to improve accuracy and tracking ability.

Each side fears the other side acquiring a strategic superiority, each side sees the other one as seeking a first strike capacity. At the root of deterrence is the fear of a surprise attack. A nuclear surprise attack *can* be carried out operationally and must therefore be feared.

A paramount political question remains to be answered though. Why would anyone give the order for a deliberate all-out attack? It seems impossible to understand why any political leader in Washington or Moscow would think of such an action. It is, however, easier to contemplate if one posits a grave crisis situation, each side fearing a loss of control, each side aware that there is an advantage in striking first.

The view that a nuclear war could be limited or halted, if launched, before major escalation, is a dangerous concept. Dangerous, first of all, in that it would weaken the line between the use and non-use of nuclear weapons. But also because it is probably delusionary to plan on an agreed halt, or the creation of a stop button, in even a limited nuclear exchange. How could it be guaranteed in the face of a massive disruption of military communications systems?

The theoretical basis for the nuclear strategies of the superpowers is not easy to understand. How is the concept of mutual assured destruction consistent with the concepts of parity or even regional sub-parity, for example? It appears as if the idea of victory, of winning a military conflict – by definition a pre-nuclear concept – has become mixed with the post-nuclear understanding of total mutual annihilation.

The basis for MAD is breaking down. Victory will go to the side which strikes first. Victory, that is, until the arrival of the nuclear winter.

Who benefits?

As the US astronomer Carl Sagan has observed, the consequence of the nuclear winter scenario has implications for doctrine and policy. Some have argued that the difference between the deaths of several hundred million people in a

nuclear war, (as was widely held until recently to be a reasonable upper limit for fatalities in a nuclear exchange), and the death of every person on earth, as now seems possible, is only a matter of one order of magnitude.

But the difference is considerably greater. Restricting our attention only to those who die as a consequence of the war conceals its full impact. If we are required to calibrate human extinction in numerical terms, it should include the number of people in future generations who would not be born. A nuclear war imperils all of our descendants.

But as the British biochemist James Lovelock has pointed out, humanity is not likely to be capable of wiping out all life forms on earth. Insects will probably survive.

Who benefits? The ants and the cockroaches.

The Barbarossa / Pearl Harbor syndrome

The basic problem is thus political. It is the lack of confidence or trust which keeps the nuclear arms race going. In both superpowers, the view of the adversary is marked by outright distrust and hostility. The question is open whether increased mutual confidence and cooperation is the prerequisite for arms control or vice versa.

A significant fact, little noted perhaps, is that the generation now in power, both on the political and military level, in both superpowers, were in their formative years when their countries were drawn into the second world war forty-four years ago. They then suffered treacherous surprise attacks which caught them both quite unprepared.

Those now in command have reason to remember the year 1941, when on Saturday evening, June 21, the Soviet Union was at peace, and at 0300 hours on Sunday, June 22, nazi Germany attacked with all its strength focussed in a gigantic effort, codenamed Operation Barbarossa. Similarly, the United States was at peace on Saturday evening, December 6, 1941 and at 0755 hours on Sunday morning, December 7, imperial Japan attacked the United States.

In spite of their knowledge that a major war had been raging for years, neither the Soviet Union nor the United States was prepared for these attacks. Perhaps it is not so surprising if the echo of Operation Barbarossa and Pearl Harbor still resounds in this fear of a surprise attack, so prevalent in the 'logic' of the nuclear arms race.

Now these leaders are gearing their countries to react on the basis of instant nuclear threats. It is thus possible to identify a very specific mentality, a state of fear which could be labelled the Barbarossa / Pearl Harbor syndrome. In the present situation this mentality, though understandable, is at the root of the instability. The fear on both sides can be seen as the primary nuclear war generating factor.

Mikhail Gorbachov said, in April this year, to the Central Committee of the Communist Party: 'We will spare no efforts for the defence of our country and our allies, to ensure that nobody will take us by surprise'.

This fear is now so institutionalised that it is hard to conceive of even a younger generation of leaders in either of the superpowers being free of it.

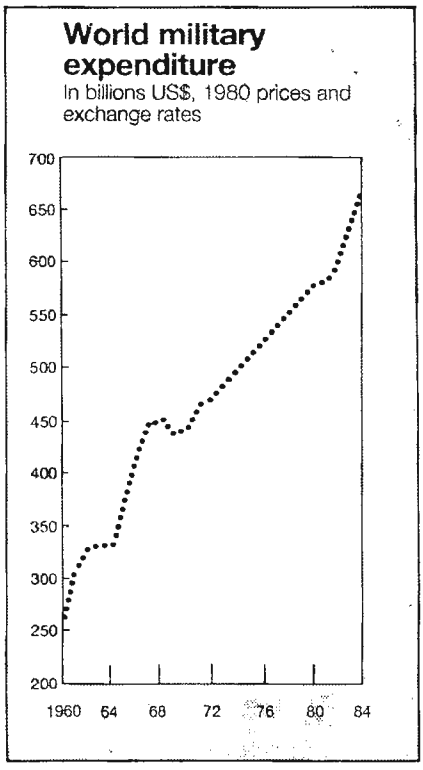
Abolition now!

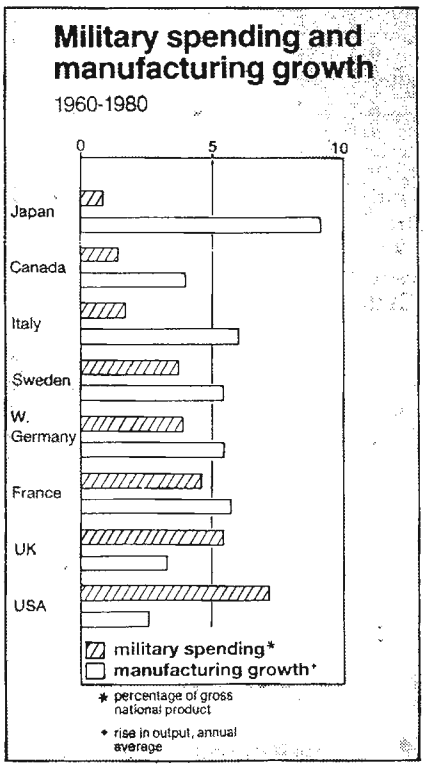
The superpowers, indeed all countries, and all of humanity, are caught in a trap of world history, where the lines of action seem frighteningly predetermined. Is there any escape? The answer must be that all nuclear weapons should be abolished now. That demands a resetting of the priorities in the arms control efforts.

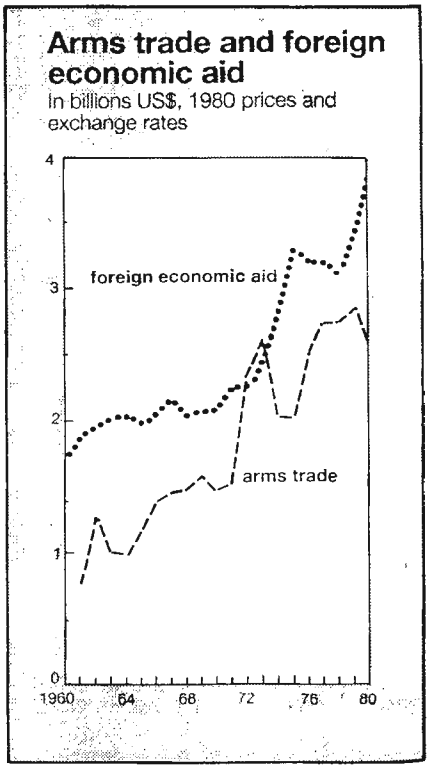
Nuclear weapons do not only kill and destroy, they are also a form of war against future generations.

They are, as described by Soviet physicist Yevgeny P.

The cost of it all — Facts and figures on the arms race







Velikhov, 'a planetary cancer'. Either this cancer is eradicated or the planet will be. Why delay their abolition? If nuclear arms are not abolished then the nuclear arms race may come to an end in another way – the annihilation of humanity.

It is not possible to disinvent nuclear technology. But it is possible to abolish nuclear weapons and their delivery systems. This may seem to be an absurd idea, but the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological Weapons points the way for it to be done. The discussion must now focus on how to make the entire world a nuclear-weapons-free or cancer-free zone within this century.

It is up to the superpowers to show leadership in ending the nuclear arms race. It is up to them and the other nuclear powers to negotiate the abolition. It will be an extremely difficult process which must proceed at a symmetrical pace. If mismanaged it could easily bring about the opposite effect. The problems will increase as abolition brings the total megatonnage down to the level where a war could be waged without triggering a nuclear winter, and will increase even more dramatically as it is approaching zero.

Negotiations would have to start with the safeguards for a world free of nuclear weapons – and managing a world of sophisticated conventional weapons would present great complexities – and then move on to the mechanics of the abolition itself.

The starting point could be a general and comprehensive test ban treaty to be followed by a quantitative and qualitative freeze on development, production and deployment of new nuclear weapons and vehicles. Research will admittedly be very difficult to monitor. The argument that a comprehensive test ban treaty would be difficult to monitor is phoney. It is easier to monitor a total ban than the size of ongoing tests.

The pledge of 'no first use' might increase stability in a MAD strategy if accompanied by the necessary redeployment of the nuclear forces. But it might also create a false sense of security, delaying the abolition process.

Methods might be devised to diminish the fears of a first or decapitation strike, but the risks will remain until nuclear weapons are abolished.

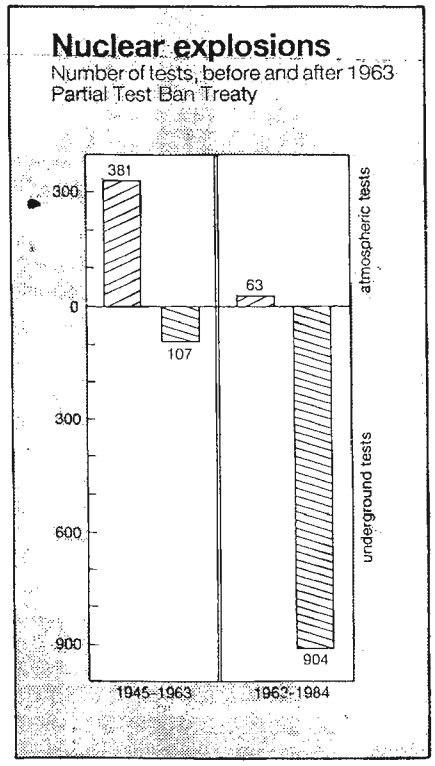
The policy of aiming at partial reductions of the number of strategic warheads must be seen only as a stepping stone. Even great reductions of the strategic nuclear forces of the superpowers, down to half the existing stockpiles or more, will not make any difference in terms of the risks or the outcome of confrontation. Were the numbers to be cut as low as 2,000 it would be a giant step forward but still insufficient as a goal.

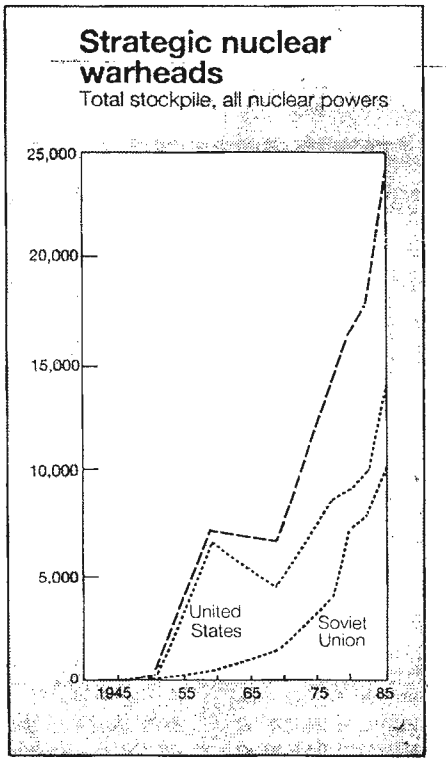
Even a war employing 'only' 100 megatons might under some circumstances trigger a nuclear winter. The debuilding of the megatonnage and of the number of warheads must reach zero.

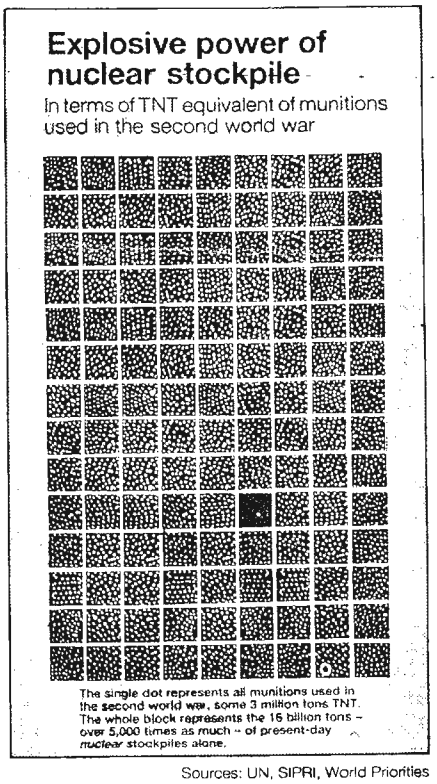
Measures would have to be taken with respect to the nuclear threshold states. The world would have to abandon its hypocrisy about the secret nuclear states and deal with their destructive capacities as well. Some – perhaps pessimistic – experts have estimated that by the year 2000 more than thirty countries will have the capacity to produce nuclear weapons.

International cooperation to prevent the non-state and terrorist use of nuclear weapons would be essential. The introduction of such steps might make the maintenance of human rights difficult. Society risks becoming a garrison state that would gradually abolish at least some concepts of civil liberty and human rights.

It seems clear that control of terrorist attacks is diminishing, not improving – there is a proliferation in their countries and groups of origin, sophistication, and ferocity. A nuclear-weapons-free world will require a successful prevention of terrorist access to tools of mass destruction.







Sources: UN, SIPRI, World Priorities

The knowledge of this cancer cannot be abolished, but there can be cooperation to control its use, just as international cooperation has proved the key to the abolition of any disease.

The window for negotiations

The time to launch negotiations on abolition is now. The problems of verification, which in the past have been a major stumbling block, will not be easier in the future. Cruise missiles present a growing problem. Conventional cruise missiles cannot be distinguished from nuclear ones. By 1995, supersonic intercontinental cruise missiles with stealth technology will probably have been developed. These will be easy to conceal. Their manufacture, let alone their deployment, cannot be monitored by traditional arms control surveillance methods.

What is to be done about arms control when these cruise missiles or other yet-to-be-developed delivery systems of an even more advanced technology are deployed? Given human ingenuity methods might perhaps be devised. But the safest way is not to build these weapons. At the latest by the mid-90s, arms control efforts in their present form will have come to an end.

There exists a window for negotiations now. It will slam shut in less than ten years.

Who will start?

The key question is of course – How? How can the superpowers be convinced? Probably not through negotiations alone, otherwise humanity would not still be in this trap today. It is obvious that if a serious nuclear accident were to take place – so potentially catastrophic that it would scare the leaders of the superpowers – it would probably trigger a big change in nuclear behaviour.

A failed circuit, a faulty programme, could well lead to the beginning of the end for nuclear weapons. But do they want to take that risk? Do the superpowers want their survival strategies to be dictated by a flawed bit of silicon?

The abolition of nuclear weapons will have to overcome the superpowers' fear of cheating, and the fear among all the nuclear powers of some nation clandestinely building nuclear weapons and the fear of the terrorist use of nuclear weapons. The experiences of world history dictate that policy cannot be built on trust. Great power policies must be based on self-interest. It is in their self-interest to avoid a global nuclear war.

Even Karl Marx warned of the possibility of treachery in disarmament questions. In his article 'The French Disarmament', he pointed out that talk of disarmament could be used to lull the vigilance of states.

'The generation now in power was in its formative years when their countries were drawn into the second world war. They then suffered surprise attacks.'

Abolition policy has to be built on total mistrust if it is to succeed. There must be answers to questions such as how to avoid an imbalance of nuclear forces during the process of abolition. Once nuclear weapons have been abolished, how would it be possible to maintain that state, to avoid cheating or behaviour that would lead to a breach in the ban? The question of trust is important but it is the result of sufficient control systems.

Entire new civilian and military agencies dealing with abolition control and monitoring would have to be set up. Existing institutions ranging from the diplomatic services to the International Atomic Energy Agency to peace research institutes and even customs services, would have to be expanded.

Many employees of the nuclear research and development centres would be transferred to abolition agencies, for the same expertise that produced complex nuclear systems should also be able to invent adequate control and verification systems. In an ideal world the superpowers and other nuclear nations could establish widespread networks of military checkpoints on each others' territories to monitor and control abolition, with unlimited numbers of on-site inspections. In reality this would not easily be acceptable.

How should it then be done? In judging the value of any arms-control proposal, one must recognise that no treaty can be rarefied to perfection. The ultimate control might have to be supervised by an expansion of clandestine intelligence observation. It would be necessary for the great powers to increase the capacity for foreign operations of their intelligence services, both military and civilian.

It should be observed here however that no governmental agency has ever devoted a fraction of the effort and resources to mutual verification that they have to avoiding detection in their military deployment strategies. This should be acknowledged by those who declare the impossibility of effective verification systems being established.

The transition from a nuclear to a nuclear weapon-free world will be a difficult and unstable period until abolition is completed. It will require new forms of guarantee and confidence building at a level we have not yet contemplated.

It might be proposed, for example, that an effective form of nuclear surety would be a system of 'volunteer' hostages. Adult members of the families of political leaders and senior military officers of the superpowers could be obliged to live in the capital and major cities of the adversary. This curtailment of the human rights of the families involved might inculcate a heightened awareness of the responsibilities of nuclear decision-making power, as well as its prerogatives. Of course, cognisant of the risks involved, officers and politicians would be free to decline high office.

A defence against what?

The measures mentioned above are in themselves inadequate, however. There must also be defensive systems operating as if nuclear weapons and their delivery systems still existed. This is the context in which systems for strategic defence against ballistic missiles ought to be discussed and analysed.

There is an obvious advantage in dismantling nuclear weapons in a phase when defensive systems are being researched and developed.

At present both superpowers pursue research programmes on defence against ballistic missiles. The United States is doing so in a highly publicised way while the Soviet Union is very discreet about its programme.

But the US strategic dedfence initiative (SDI), with its unilateral and global ambitions, represents a great leap in the nuclear arms race, which threatens to unravel the entire system of arms control treaties negotiated since the Partial Test Ban Treaty.

The current research seems to be based on an assumption of a static level in the design of offensive weapons, which is not a reliable assumption given the acceleration of the offensive arms race. So the SDI system which may eventually

be required may have to be even more sophisticated than that which is currently contemplated. The technical challenges are very real.

The arguments against SDI are now well known, if internally contradictory – some critics say that such a system is technological fantasy, and would be disastrous if deployed. The most serious critique, though, is that their unbalanced deployment would be profoundly destabilising and could lead one side or the other into a first strike.

The combination of the strategic offence, or 'SOI', and SDI programmes can be understood as an effort to achieve military supremacy. But to pursue both the SDI and MX programmes at the same time is to issue an invitation to disaster.

The discussion of whether the SDI programmes will work in a nuclear weapons world or not helps deflect attention from the real issue – abolition. SDI would make sense only if it was limited to defence against missiles and if nuclear weapons and their delivery systems were to be abolished first. The deployment would then have to be coordinated with the pace of abolition. It could offer additional protection against nuclear cheating.

If nuclear weapons cannot be transported to the adversary by strategic ballistic missiles, then cruise missiles, bombers or even clandestine methods may be employed. It is theoretically possible that nuclear weapons can be prepositioned on the territory of an adversary, for example, hidden as civilian merchandise and then conceivably triggered by a telephone call. As prerequisites for abolition it would be necessary to strengthen defences against any form of delivery of nuclear weapons, based on the assumption that somebody is cheating.

Swords into...?

The electronics, aerospace and nuclear research centres and industries of the superpowers represent an immense achievement of human effort. They constitute some of the greatest concentrations of human talents ever assembled on earth. The discussions about conversion have seriously underestimated what to do with this remarkable capacity in terms of scientific, engineering and technical skills if nuclear arms and their delivery vehicles were to be abolished.

There is the prospect that the superpowers' spending on the civilian exploration of space will gain momentum towards the end of this century, if the world has not perished in a nuclear holocaust by then. The amounts now spent on civilian space research are meagre compared to military spending. The most immediate target beyond the space stations and other earth orbit projects could well be peopled expeditions to the planet Mars.

The hope has often been expressed that some of the huge amounts of money now wasted on the nuclear arms race could be transferred for development both of industrialised countries and of the Third World.

This involves much wishful thinking.

An end to nuclear arms would not create such great savings as is often imagined. Conventional arms spending still accounts for 80 percent of all military expenditure, and that level would not shrink dramatically in a nuclear-free world. On the contrary, the initial costs for restructuring and rearming the defence forces for conventional warfare would be very large.

The costs of monitoring the abolition of nuclear arms would be substantial, no matter what systems were employed. The costs for various forms of defensive systems against a potential small-scale nuclear attack would still be considerable.

It is thus not realistic to expect that there would be any significant savings in economic terms, indeed, quite the reverse. But is the cost factor so relevant? Surely no cost can be seen as prohibitive if it enables the world to rid itself of the threat of a nuclear holocaust.

The first rung on the technical ladder

As SOCIALIST AFFAIRS went to press, the United States announced it had successfully tested an anti-satellite (ASAT) weapon on September 13. As our schematic representation of 'star wars' on pages 10-11 shows, the technology illustrated in the right-hand panel seems now in place ...

According to information released by the Pentagon, the rocket was launched from an F-15 jet at an altitude of 11,000 metres over the Pacific Ocean, flew into space, where the infrared sensors of its miniature homing device (the 'smart rock') locked on to an obsolete scientific satellite, slammed into it and destroyed it through the sheer force of impact.

This was the first live firing of an ASAT weapon against an actual object in space. The first two, carried out in January and November last year, had been limited to firing at a point in space.

The Reagan administration justified the test on the grounds that the United States needed to match the efforts of the Soviet Union, which 'already has an operating, albeit more crude, ASAT weapon'.

Since President Reagan gave Congress the required notice of intent to proceed with the test, its timing and its taking place at all had been criticised both in the US and worldwide. Four Democratic congressmen and the Union of Concerned Scientists had sought a restraining order to block the test, but their case was dismissed.

The Soviet government has made it clear it will now also begin testing ASAT weapons.

Conventional disarmament: a distant goal

The abolition of nuclear weapons should not be confused with general and complete disarmament. It is a far more distant goal that should not be allowed to interfere with the more immediate task of how humanity is to avoid a nuclear war. Total disarmament is desirable but it is not necessary for the immediate survival of the species.

The alleged lack of balance of conventional forces is one of the causes of the nuclear arms race. Some form of balance of conventional forces is a necessary complement for the abolition of nuclear weapons. In terms of human resources armed forces might have to be increased during the transition period. Conscription might have to be on a parallel level in both superpowers to guarantee a nuclear peace. The problems of peace management in a conventional world are enormous indeed. It is obvious, however, that in the long run humanity cannot afford to go on wasting its resources on a conventional arms race or even to maintain it on the present level.

Arms control and disarmament must now concentrate on getting rid of 'the future destroyers', those weapons which at best have effects which last centuries, and at worst will annihilate the future. Each generation may have the right, however tragic, to war among itself – but not to inflict its military excesses on all unborn generations.

The issue of arms control for those weapons which cause death and destruction today – conventional weapons, and the ecological time bomb which is now being constructed – will have to be tackled, but the priority must be nuclear weapons.

Nothing threatens humanity more absolutely, constantly and terrifyingly. The priority for human survival *must be* the abolition of nuclear weapons.

A utopian goal, but achievable through practical, comprehensible, very non-utopian steps – today.