

NUCLEAR WEAPONS AND THE NEW WORLD ORDER

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Talk of a 'new world order' stemmed from two inter-related developments at the beginning of this decade. One was the process of disintegration of the Soviet bloc set in train by Gorbachev. The other was the international action taken under the auspices of the UN (and made possible by the changes in the Soviet Union) which culminated in the Operation Desert Storm action against Iraq. What this new world order seemed to promise was a world in which there would be no big superpower confrontation, no Cold War, and therefore no need for huge arsenals of nuclear weapons, and a world in which 'small' conflicts could be resolved by a UN restored to its original purpose.

Some of the problems with this vision were not hard to predict and are becoming increasingly apparent, particularly in former Yugoslavia. With regard to nuclear weapons, however, extremely difficult practical and moral issues now need to be tackled which before were shrouded by the Cold War. Unfortunately the end of the Cold War may not make nuclear war less likely. Proliferation of nuclear technology to more and more nations may instead increase the possibility that nuclear weapons will be used.

This scenario begs a number of questions, of course. Do many nations want to acquire a nuclear capability? Would wider access to nuclear weapons

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necessarily make nuclear war more likely? Or could, indeed, 'more be better' because nuclear deterrence would reduce regional conflict? In answer to the first question, it is enough for now to note that while aspirations for nuclear arms are not the norm, they are nevertheless sufficiently widespread to be of concern. Whether further proliferation of nuclear weapons would be a good or a bad thing is a matter of conjecture. It could be argued that if nuclear deterrence has been so effective at keeping the peace then the more of it the better (Waltz 1981). Such 'logic' is hardly compelling; it not only supposes that nuclear weapons were a major factor in keeping the 'peace' (between the superpowers, and in Europe) in the past, but also that future nuclear-armed states will operate in a similar environment (as regards both their internal politics and their external relations). Although it may smack of ethnocentrism, indeed racism, it is surely prudent to view the extension of nuclear weaponry to less stable regions of the world with alarm.

The types of international action that can be taken to counter nuclear proliferation depend on the stage potential proliferants have reached. Nations which have not yet acquired a nuclear-weapons capability can be dissuaded or inhibited from so doing, whilst those that do have 'the Bomb' can be persuaded or coerced into giving it up. The Iraqi nuclear programme provides us with a vivid example of both these stages in nuclear proliferation. On the one hand, Western firms (and governments to some extent too) aided the acquisition of nuclear technology, whilst on the other US-led, UN-sanctioned action was taken to destroy that nuclear capability.

THE IRAQI BOMB

Although many reports from Western sources must be treated with scepticism, the evidence does now point to the likelihood that Iraq could have built a crude nuclear bomb within a few years (Albright and Hibbs 1991b). The Iraqi bomb design was apparently ready, only needing sufficient enriched uranium to make it a reality. Although the bomb designs discovered by UN inspectors look likely to work, they also look extremely dangerous. In order to ensure detonation the explosive core would have been packed with so much uranium as to be almost 'critical', making it very susceptible to being triggered accidentally (Milhollin 1992).

Of course, building a bomb requires more than just the appropriate nuclear materials. Actually designing a weapon is probably the easiest part, given that an extensive literature provides the basic principles and many pointers towards implementation. What cannot be acquired easily are the range of engineering skills necessary to build, assemble and test the many components

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of a bomb, and the broad nuclear infrastructure needed to support this effort (MacKenzie and Spinardi 1994). However, to a considerable extent the means to build Iraq's nuclear industry were provided by 'the West', either willingly (though not always openly) or inadvertently through Iraqi circumvention of trade bans.

Through the supply of relevant technology, and critical expertise, Western companies and governments helped Iraq build its nuclear capability. Although some technology transfer can be attributed to skilful Iraqi covert purchasing, much would appear to have been done openly, with the tacit agreement of Western governments. Certainly the revelations about the Matrix Churchill case, where the UK government had apparently broken the spirit, if not the letter, of its own policy by condoning the sale of computer-aided machine tools to Iraq, indicate that weapons proliferation has not been taken seriously in the past.

The Matrix Churchill case is a reminder that the infrastructure required to support the design, development, construction and testing of nuclear weapons comprises many technological resources, not all of which are overtly nuclear or military in nature. Machine tools are one example where a technology could be argued to be civil in purpose, whilst actually providing critical assistance to weapons development. As then Foreign Office Minister William Waldegrave scribbled in the margin of one document relating to the Matrix Churchill case: 'Yes, I agree, Screwdrivers also required to make H-bomb'.

However, much of the technology supplied to Iraq by Western firms could readily have been identified as intended for a nuclear weapons programme. Germany and the USA have been the worst culprits. Germany, in particular, has been the source of the key technology: the centrifuges used to enrich uranium to make it suitable for weapons use. Based on German designs (which may have been stolen), the Iraqi centrifuges were produced using specialised equipment purchased openly from a number of German firms. Other equipment was bought from American firms with the approval of the Department of Commerce despite strong warnings from the Department of Defense (Milhollin 1992).

The Iraqi experience also provides a test case for the use of force as a means to destroy a nation's nuclear capability. The evidence is not entirely encouraging. The UN Special Commission charged with the 'destruction, removal or rendering harmless' of the Iraqi nuclear weapon potential has had limited success (Milhollin 1992). While the Commission's inspection teams have uncovered enough evidence to confirm that Iraq was close to building a bomb, they have been less successful in undermining this effort. UN

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inspectors report their frustration at being unable to carry out their mission satisfactorily. While some nuclear facilities have been identified and destroyed, it appears others have been successfully concealed. Notwithstanding Iraq's resounding defeat in the Gulf War, it has not proved possible to translate this military outcome into a completely effective programme of 'denuclearisation'.

PREVENTING PROLIFERATION

What, then, are the means for preventing, and reversing, the spread of nuclear weapons technology? Two basic approaches can be distinguished; what could be called 'political' and 'technical' means. Whereas technical approaches attempt to deny the wherewithall to produce nuclear weapons, political approaches attempt to make such a course of action undesirable. Previous non-proliferation policy amounts to a contradictory mix of these two elements, lacking both coherence and consistency.

A number of international measures exist to limit proliferation - principally, the Non-Proliferation Treaty (NPT), the International Atomic Energy Agency (IAEA) safeguards system, and various trade controls, such as the Nuclear Suppliers Guidelines. The NPT, which has been in force since 1970, commits signatories to a number of pledges. Existing nuclear-armed signatories agreed 'not to transfer nuclear explosive devices or the means to produce them to non-weapons states', while non-weapons signatories agreed not to receive them (the USA, the Soviet Union the UK were initial signatories; China and France signed much later) . The key mechanism for checking the behaviour of non-weapons states is inspection of their nuclear facilities and accounting of their nuclear materials by the IAEA (weapons states were omitted from this requirement, but the USA and the UK informally agreed to some inspection of their non-military facilities).

Two aspects of the NPT embodied recompense for the commitment of non-nuclear states to remain so. Firstly, there was a pledge by all the signatories 'to work towards universal nuclear disarmament', with the onus falling naturally on those already nuclear-armed. Secondly, there was the promise of access to peaceful nuclear technology. Thus the ban on transfer of nuclear technology and materials did not apply if they were for the production of nuclear energy. In addition, article V of the treaty bizarrely states that: "'Peaceful nuclear explosions" are permitted, and their potential benefits will be made available on a non-discriminatory basis.'

Thus the NPT codified one of the great tensions in nuclear proliferation policy, that of allowing or encouraging the spread of peaceful nuclear

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technology whilst at the same time attempting to curb the spread of its military application. The NPT is clearly a political solution to this dilemma, offering help with peaceful uses in exchange for military abstinence. Technically, it makes no sense at all, since much of the technology necessary for peaceful applications is equally useful for bomb building. Sharing the technology for 'peaceful nuclear explosives' is clearly absurd since there is no significant distinction (apart from delivery system issues) between them and weapons. The basic principles of design are the same for military as for such peaceful devices, although these principles might be applied to achieve different ends (such as extremely low residual radiation so as not to contaminate oil extracted by a nuclear device, or unusually slim, cylindrical devices which can be lowered down a drill shaft).

Although in practice common sense seems to have prevailed as regards providing assistance with 'peaceful nuclear explosives', the transfer of technology for nuclear energy provides a proliferation loophole. No matter what the intentions - whether sensitive to the potential dangers or not - sales of nuclear power technology inevitably also amount to providing much of the hardware required for nuclear weapons development. Signatories to the NPT - such as Iraq - can thus acquire much nuclear technology legitimately.

Expertise is also necessary, of course, both to use and adapt this hardware, and also then to fashion the fissile material (enriched uranium or plutonium) into a bomb. Often sales of nuclear power technology have been accompanied by technical assistance which has facilitated the development of indigenous competences. Moreover, the 'new world order' has reduced superpower demands for nuclear technology and thus created a world glut not just of nuclear materials and weapons components, but also of expertise. The many employees of the former Soviet nuclear weapons industry are of particular concern. An important initiative was the establishment in December 1992 of the International Science and Technology Centre in Moscow. Funded by the European Union, US, and Japan the centre's aim was to employ former weapons scientists on projects such as nuclear safety, environmental protection and energy production. However, the possibility remains that some (especially those with particular nationalist, ethnic or religious allegiances) will still seek to sell their expertise. An especially alarming development was the setting up of a private company in the former Soviet Union - the Chetec Corporation - to market nuclear technology.

Another worrying consequence of the end of the Cold War is a world glut of nuclear materials. It is estimated that the nuclear weapons scheduled for dismantlement over the next decade will yield 100-200 tons of plutonium and

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500-1000 tons of highly enriched uranium (Berkhout et al 1992). Proposals for a 'plutonium economy', based on reprocessing spent reactor fuel to extract plutonium which could then be used in other reactors, look increasingly dubious. With uranium prices falling, there can be little justification for the security risks involved in the extensive transportation of plutonium around the world. Smuggling of nuclear materials is already reported to be on the increase, though as yet it does not seem to provide a significant short-cut to the acquisition of weapons grade material (Borger 1993). Not only does British Nuclear Fuels Limited's new THORP reprocessing plant in Cumbria look likely to have no economic future (once the initial contracts run out), but it will also add to the world's oversupply of nuclear materials.

Prevention of nuclear proliferation requires international cooperation to agree on what kinds of technology - in terms both of hardware and expertise - should be covered by strict trade embargos. This will clearly not be easy, but evidence about how Iraq acquired its nuclear weapons facilities suggests that it would at least make the process harder for an aspiring member of the nuclear club. Indeed the evidence from Iraq indicates that the international sanctions on nuclear technology which followed the invasion of Kuwait were more damaging to the Iraqi weapons programme than the much touted bombing of Operation Desert Storm (Albright and Hibbs 1991a).

However, there are difficulties with devising, creating, and enforcing an international regime to hinder the transfer of technologies helpful to nuclear weapons development. Particularly problematic is the charge that technology embargoes could be used to hinder free trade and the indigenous development of technological resources in developing nations. Is it reasonable to attempt to deny nations access to, say, sophisticated machine tools or computers because they could potentially be useful for weapons development? Moreover, such attempts at denial of the technical means to nuclear weapons development can probably only delay a determined nation, not stop it entirely.

Even more difficult is the question of how such sanctions would be enforced, and the whole issue of the use of military action. If prevention fails, should the international community be prepared to threaten, and possibly use, violence in order to block nuclear aspirations?

POLICING THE WORLD?

There are two particular problems with this kind of policing action. One is the general moral question of whether the use of force can be justified for internationalist aims. Even if, in some abstract sense, we could agree that the

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aims were worthy and that no other means looked likely to be effective, would we want to resort to even the most 'surgical' of strikes against a nation to dissuade it from nuclear ambitions? The second, more practical problem, is who decides what happens. At the moment the UN Security Council is an unrepresentative body, though one more attuned to the concerns of citizens of states such as the UK than of most of the world's people. How was it that threats to Kuwait's national sovereignty led to Operation Desert Storm when many other invasions have provoked little more than mild condemnation from the UN (did anyone mention oil?), and how did the issue of weapons of mass destruction get brought in? Clearly, the UN is in great danger of simply coming to be seen as a tool of the USA and its friends.

Particularly depressing has been the self-serving attitude taken by the US in talks to limit arms sales. The aftermath of the Gulf War left the world community, including the major arms exporters, apparently ready to contemplate serious measures to curb the arms trade. At one level there was disquiet about the way that weapons developed and built 'in Britain' (for example) could 'boomerang' back to kill 'our boys', a disquiet that reached deep into what might be called the military-industrial complex. At another level, it became clear that concerted action was required to inhibit the spread of technologies that could be used to develop weapons of mass destruction.

Thus the prospects seemed hopeful when President Bush initiated the 'Big 5' talks on arms sales after the Gulf War - the Big 5 comprising the United States, Russia, the UK, France and China. Unfortunately the participants' motivation was, at best, half-hearted, since the shrinking defence budgets that accompanied the end of the Cold War already meant job losses in their defence industries. Certainly for George Bush practical domestic politics pointed not towards reducing arms sales, but towards increasing them. 'My desire to curb proliferation,' he explained, 'doesn't mean we're going to refuse to sell anything to everybody' (quoted in Feinstein 1992). Moreover, while one lesson of the Gulf War was that arms sales could be dangerous (although lucrative) for the sellers, another was that they were desirable for the buyers. Especially in the case of American weaponry, the war provided a showcase from which 'edited highlights' could be seen as demonstrating the particularly efficacious power of 'smart bombs' and the like.

It is hardly surprising, then, that the Big 5 talks have been unproductive. Even on the issue where the participants have most to gain in terms of security and least to lose in arms sales - controlling the proliferation of weapons of mass destruction - there has been no significant progress. Although interim guidelines on such weapons were agreed in May 1992, they

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were neither substantive nor enforceable. According to a US negotiator at the talks: 'We agreed to nothing just for the sake of having something to agree to' (Feinstein 1992).

Nuclear weapons are not the only big issue which raises difficult problems in this regard. Global environmental degradation, whether it be through greenhouse gases, ozone depletion or acid rain, provides a compelling need for nations to act together in the common good. But the problem of the common good is well-known; it can pay to cheat unless some method of enforcement exists. Again, as in the control of nuclear weapons, there is the problem of how the rules are decided and enforced. Can an industrialised nation which has been belching out pollutants for a hundred years or so complain about the behaviour of 'Third World' nations desperately trying to modernise themselves?

The short-term answer to such a question may be simply to admit (to ourselves, if no-one else) that the UN is unfair. Especially with the former Soviet republics so in need of Western aid, the UN Security Council is heavily weighted towards Western interests. We ('the West') could decide that we know best, and pragmatically press our concerns on to the rest of the world. Simply because the UN is unrepresentative should not necessarily condemn the more powerful nations to 'politically correct' inaction. Many problems are too pressing to wait on reform of the UN, and of the unfair world order it represents.

One hopeful development for this 'benevolent use of power' viewpoint was the election of Bill Clinton as US President. While his administration's record so far on former Yugoslavia is not impressive, the issue of nuclear proliferation allows for more consensual solutions. Should the US start to take nuclear proliferation more seriously (and it appears to be doing so now) then the UN could become a powerful forum for action. Practical measures to prevent proliferation - such as controlling trade in critical technologies, in nuclear materials, and in expertise - could be backed up by sanctions. Nations which flout international agreements could face concerted pressure, and in extreme instances the use of military force could be the ultimate sanction.

In the meantime British nuclear weapons policy must reflect the changing world situation. Whatever it means, the redefinition of Trident as a 'sub-strategic' weapon, and the accompanying cancellation of the tactical air-to-surface missile (TASM), must be welcomed as a sign of realism (albeit prompted by budgetary concerns, not strategic rethinking) (Brown 1993). The security of the UK, and of the world as a whole, could arguably be better served by preventing nuclear proliferation rather than by the deployment of

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further British nuclear weapons. As a 'poacher turned gamekeeper', the British nuclear weapons establishment at Aldermaston could redirect its efforts away from fostering the design of new nuclear weapons towards ways of inhibiting the building of them by other nations. Such efforts are already underway at the American laboratories; Lawrence Livermore has recently formed a Nonproliferation, Arms Control and International Security unit. In addition, Britain could follow Russia, France and the US in announcing a test moratorium, encouraging China to follow suit, and thus perhaps bolstering the credibility of the Non-Proliferation Treaty with more than just words.

This, indeed, is the key to any effort to prevent, and reverse, nuclear weapons proliferation. Attempts to deny the technical means to nuclear weapons development, backed up by sanctions and possible military force, are not the whole solution. Indeed, they may become part of the problem if resentment is fuelled in developing nations which bear the brunt of their impact. An unfair world order in which the powerful nations (including those with nuclear weapons) attempt to bully others into not pursuing nuclear ambitions may only legitimate the equation of nuclear arms with power. Strong-arm tactics to stem proliferation may thus make nuclear weapons acquisition seem more politically desirable, not less.

Even the highly desirable goal of a Comprehensive Test Ban Treaty - in which signatories would agree not to test nuclear devices - would be of value for its political significance, not because it would impose an insurmountable technical hurdle to weapons development. Certainly, it would be a very significant commitment by the current nuclear powers because it would make the development of more refined nuclear weapons hard to pursue with any degree of confidence about actual performance. State-of-the-art nuclear weapons design operates not just at the edge of scientific knowledge, but beyond it. Experienced weapons designers rely heavily on matching their computer models of nuclear weapons behaviour (based on physics theory, but with many approximations) with experimental data from nuclear tests. However, the desirability of nuclear testing for the design process does not make it an absolute requirement. Indeed the type of bomb dropped on Hiroshima had not been tested previously (although the more complex design used at Nagasaki was).

Instead, emphasis should be concentrated on the reasons why states might consider the development of a nuclear weapons capability undesirable (Spector 1992). To some, certainly, the opprobrium of the international community could be, to coin a phrase, a deterrent. This may have played a role in the decisions by Sweden and Canada not to pursue such a course.

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Others, however, may have less to lose in this regard and more to gain (they think) in terms of national prestige and security. It is this question of what makes states desire a nuclear weapons capability which surely lies at the heart of future efforts at preventing proliferation. Central to this is a willingness by the current nuclear-armed states to disarm, requiring a fundamental reappraisal of what this nuclear status means for them.

Rather than a military asset the UK's nuclear trappings thus constitute a barrier to effective international action to control the spread of nuclear weapons. Persuading others to forego or give up 'the bomb' requires a similar commitment by ourselves. Current economic hardship and the self-evident lack of credible targets point to a compelling logic for discarding a 'military capability' which has in fact conferred little (if any) actual military advantage, but at considerable expense.

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