Aldermaston's New Bomb

MY THOUGHTS ON EDITING:

- THE STRUCTURE AND FLOW OF THE ARGUMENT ARE TO BE PRESERVED
- THE HARD HITTING BUT CONSIDERED TONE ALSO TO BE MAINTAINED.

Third Draft

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Ten years ago Britain signed the Comprehensive Test Ban Treaty. The vital importance of the Treaty for nuclear disarmament and non proliferation was underscored by the then Foreign Secretary, Robin Cook, when the UK ratified the treaty on April 6 1998. "The CTBT is a cornerstone of international efforts to prevent nuclear proliferation," he declared, adding "Britain's ratification signals our commitment to the goal of a nuclear weapons free world."

This report exposes how the US and UK nuclear weapons laboratories, and their supporters in Government, have been able subvert the President Clinton commitment to the CTBT, install their man in the White House, President George W. Bush, and convert the UK Prime Minister, Tony Blair, from being a defender of the CTBT into a collaborator in strategy which uses a program to maintain their existing nuclear weapons, known as Science-based Stockpile Stewardship, as a cover for an assault on deliberative democracy and the CTBT.

The result is that the UK Government is:

- Pre-empting democracy by investment of billions of pounds in upgrading the technical facilities the UK nuclear weapons laboratory, Aldermaston, needed to make a new nuclear weapon before it the nation has been able to debate whether Britain should have a new nuclear weapon or Parliament has decided whether or not a new nuclear weapon should be built.

- Following the US in turning the Nuclear Non Proliferation Treaty and the Comprehensive Test Ban Treaty into hollowed out shells which can be used for branding nations like Iran with nuclear ambitions as outlaws while the US and the UK cooperating together to use their own extra-ordinary technical capabilities to make their nuclear arsenals more 'usable' against non nuclear states and embrace strategies which call for the pre-emptive use of nuclear weapons in conventional wars.

It is, therefore, vital that MPs and Lords defend deliberative democracy and the test ban by voting against any decision to replace Trident by a new nuclear weapon.

There is a better alternative. Britain should immediately stop its development of new nuclear weapons. It should take Trident off patrol and place its nuclear weapons in an internationally monitored store on land. And it should use these measures as a spring board for defending the NPT and the CTBT and for restarting stalled multi-lateral disarmament. This is a strategy all parties can unite behind. It would give those who need it the reassurance that the UK would not be completely without nuclear weapons while other countries continue to have them. And it would open the way for the moderate Democrats and Republicans who are likely to dominate US politics in the near future to take multi-lateral peace-building and nuclear disarmament further.

A PRE-EMPTIVE STRIKE AGAINST DEMOCRACY ...

The Government claims that its investments in AWE are necessary 'irrespective' of any decision to develop a new nuclear warhead.

The Atomic Weapons Establishment (AWE) stated in 2002 that a major driver for current investments in Aldermaston is the need to overcome the 'considerable scientific and technical difficulties' of developing a successor to Trident without conducting nuclear tests. This is one of the principle reasons AWE tells us that it is 'developing a complex science-based program at AWE that will require special facilities across a variety of disciplines.'[1]

To counter criticism that the Government has pre-empted its promise of a national debate on whether the UK should develop a new nuclear weapon by this program of investment, Minister have deployed the 'Science-based Stockpile Stewardship' argument developed by America's nuclear weapons laboratories to justify the massive expansion of their research and development program after the signing of the Comprehensive Test Ban Treaty in 1996. This is the argument that the scientific disciplines and technologies that are needed to develop a new nuclear weapon without nuclear testing are exactly those needed to maintain the 'safety and reliability' of the US nuclear deterrent without nuclear testing.[2] Thus on 19th July 2005 then Defence Secretary John Reid stressed that:

'The purpose of investing some £ 350 million over the next three years is to ensure that we can maintain the existing Trident warhead stockpile throughout its intended in-service life' and in its November Memorandum to the Defence Select Committee the Defence Select Committee emphasised that:

> This additional investment at AWE is required to sustain the existing warhead stockpile in-service irrespective of any decision on any successor warhead.[3]

The discrepancy between the Government and AWE's statements about the purpose of this program of investment raises a considerable question mark over the credibility of the Government's claim that the purpose of these investments is to maintain existing warheads. When the timing, accelerated pace, vast scale, scientific and technical details, and intensified cooperation with the US underway at AWE Aldermaston are considered this claim becomes incredible.

The timing, massive scale, and accelerated pace of investment in AWE make the Government's claim difficult to believe...

It is striking that there appears to have been no need for these investments to maintain the existing deterrent until the very point at which the Government announces that it is considering replacing Trident by a new nuclear weapon. The vast scale and accelerated pace of the investments makes no sense if the aim is simply to maintain the existing nuclear weapons. The whole project, according to Aldermaston's Bob Irvin, quoted in December's edition of AWE's in-house newspaper *AWE Today*, "will make AWE one of

the largest construction sites in the UK - similar in scale to the Terminal 5 project at Heathrow." The Government has committed itself to spending an extra £ 350 million each year for the next three years on upgrading Aldermaston and Burghfield.[4] The actual money required, however, will almost certainly be larger than this as similar US projects have typically ended up being many times their predicted costs. {Ref}

... And when we add to this the hiring of a new generation of nuclear scientists, the quantum jump in the capability of AWE's technical capabilities, and intensified cooperation with US nuclear weapons laboratories make the Government's claims become simply incredible.

This immense program of expenditure is leading to a quantum leap in Aldermaston's capacity to design and build a new nuclear weapon without testing – though some nuclear weapons designers believe that may not be possible and that the attempt to do so will lead to pressure to resume nuclear testing.

In the first place AWE is hiring a new generation of nuclear scientists, engineers and technicians. In the period July 2005 to March 2006, Aldermaston recruited 90 scientists, 250 engineers, 57 technical support staff, and 98 business services. Its natural wasteage in this period, by contrast, was 180. It now plans to recruit a further 700 staff by the end of March 2008, in roughly the same proportion.[5] In key areas the large increase in the number of scientists with expertise relevant to bomb making, cannot be adequately explained if the purpose is to maintain the existing deterrent, thus it is planned to increase the number of scientists working on hydrodynamics testing at AWE from 70 to 95 over the next three years.

In the second place, we are seeing the kind of increased cooperation between Aldermaston and the giant US laboratories that might be expected if a nuclear weapon programme was underway.

The Ministry of Defence has appointed a top US nuclear weapons scientist, Don Cook, to manage Aldermaston. Recent years have seen a rough doubling in the number of meetings between Aldermaston scientists and their counter-parts from US nuclear weapons laboratories.[6] The US corporation Lockheed Martin is one of the three companies which comprises AWE Management which manages the Aldermaston site. In 2004 the Government prepared the way for the scientific and technical cooperation with the US necessary to develop a new nuclear weapon by renewing the Mutual Defence Agreement, which provides for technical cooperation between the USA and the UK on the manufacture of nuclear weapons. Furthermore, the Government has authorised officials to begin talks with the USA and with defence companies about a successor to Trident.

In the third place AWE is building, or planning to build, technical facilities which will massively improve its ability to design and build a new nuclear weapon without underground nuclear testing. Among the key facilities are:

The Blue Oak and Larch Super-computers AWE is buying new super-computers (Blue Oak and Larch) which will improve its capacity to model nuclear weapons explosions nine hundred times.[7] If it were in service today, Larch would be the most powerful super-computer in Europe. That may be only the beginning. AWE is planning to acquire yet more powerful super-computers through the coming decade. The original purpose of three dimensional modelling of atomic bombs was to improve nuclear weapons design. Nuclear weapons cannot be design from physical first principles. For this reason nuclear weapons designers drove forward the development of very high powered computers as tools for bomb design. These enabled them to model the complex interactions, and non linear processes, that take part in a nuclear explosion.

The Core Punch Hydrodynamic Facility AWE is planning to build a new hydrodynamic testing facility, known as the Core Punch Facility. This will have the capacity to make measurements an order of magnitude more precise than the existing hydrodynamic facility.[8] Hydrodynamic testing is used to study high explosives and the behaviour of plutonium and other materials under the pressure of high explosives. A key use is to examine how the primary stage of a nuclear warhead implodes (compresses) under the pressure of its detonating high explosive. The term "hydrodynamic" is used because under the high pressures produced in these experiments solid materials flow like liquids.

The Orion Laser AWE currently has the Helen laser which it uses to carry out experiments in inertial confinement fusion. It is now building the Orion laser, which will be one thousand times more powerful.[9] In addition AWE can carry out experiments using a vast new US laser which it has provided part of the funding for, the National Ignition Facility. Lasers are used to study the process of fusion and boosting. Multiple intense laser beams are focused on targets containing deuterium and tritium. These targets are heated and compressed sufficiently for fusion to occur. The technical term for this is inertial confinement fusion. This enables scientists to study the hot, dense, plasmas that are produce. These plasmas are similar to those inside a star, like our sun, and those at the centre of the boosting part of the primary and the hydrogen bomb part of the secondary.

.... AND A PREEMPTIVE STRIKE AGAINST THE TEST BAN

Science-based Stockpile Stewardship is providing cover is also providing cover for the erosion of the Comprehensive Test Ban Treaty (CTBT) and the international norm of not testing which emerged from the long moratoriums on nuclear testing in the 1990s and which, though shaken by the Indian and Pakistani tests, continues to hold today as no nation has tested since 1998.

Readers of George Orwell's Nineteen Eighty Four will not be surprised that this is being done in the name of respecting the CTBT. Thus AWE insists that it is developing the scientific capacity and the exotic technologies it needs to make a new nuclear weapon so that it can comply with the CTBT ban on nuclear testing! In a strictly legal sense AWE is right that it is complying with the CTBT which only commits its signatories not to carry out nuclear tests. These developments are, however, completely against the disarmament and non proliferation purposes of the treaty.

The negotiating record of the CTBT and its preamble show that it is intended as a non proliferation and a disarmament measure. At the 1995 Nuclear Non Proliferation Treaty (NPT) review Conference the declared nuclear weapon states agreed to negotiate a CTBT by 1995 as part of their NPT Article 6 commitment to negotiate disarmament. The CTBT is, therefore, part of the grand bargain at the centre of the NPT whereby the declared nuclear weapon states agree to negotiate disarmament and the non nuclear states agree not to acquire nuclear weapons.

The disarmament purpose of the CTBT is clearly set out in the preamble to the Treaty which states that the State Parties to the Treaty recognize that:

> The cessation of all nuclear weapon test explosions and all other nuclear explosions, by constraining the development and qualitative improvement of nuclear weapons and ending the development of advanced new types of nuclear weapons, constitute an effective measure of nuclear disarmament and non-proliferation in all its form.

The preamble concludes by emphasising the disarmament purpose of the CTBT. All the States Parties who sign the Treaty, it emphasises, recognize that 'an end to all such nuclear explosions will thus constitute a meaningful step in the realization of a systematic process to achieve nuclear disarmament.' More broadly, AWE's cynical manipulation of the CTBT is out of step with the majority of the world's nations. As Hans Blix's time report on Weapons of Mass Destruction underscores, the majority of the world's nations continue to see themselves as stakeholders in a jointly managed system of treaties and organizations for disarmament, arms control, verification and the building of security. Crucially, they do 'not accept a de facto perpetuation of a licence for five – or more – states to possess nuclear weapons and they resist measures that would expand the inequality that exists between the nuclear haves and have-nots. Renouncing nuclear weapons for themselves, they wish to see steps that will lead to the outlawing of nuclear weapons for all.'[10]

THE UK IS BEING INTEGRATED INTO AMERICA'S AGGRESSIVE NEW NUCLEAR AGENDA

How the US weapons laboratories invented a new purpose of nuclear weapons after the Cold War ....

In using Science-based Stockpile Stewardship as a cover for a nuclear weapons development program AWE and its supporters are copying the strategy developed by America's giant nuclear weapons laboratories – Los Alamos and Sandia in New Mexico and Lawrence Livermore in California – to enable them to continue to develop America's nuclear arsenal despite President Clinton strong commitment to the CTBT. The irony is that by deciding to support the rapid development of Aldermaston's capacity to build a new nuclear weapon the UK Prime Minister, Tony Blair, has ended up supporting a strategy which he initially opposed.

To see how this has happened a brief look at the activities of the US nuclear weapons laboratories is in order. In the years after the end of the Cold War America's giant nuclear weapons laboratories – Los Alamos and Sandia in New Mexico, and Lawrence Livermore in California -- faced a crisis. The dissolution of the Soviet Union meant that there was no longer any rationale for the continued development of new nuclear weapon types. The nuclear weapons scientists and their supporters fought back. They argued that the 1991 Iraq War showed that nuclear weapons were needed to deal with the threat that 'rogue' states armed with 'chemical or biological weapons' might poses to US conventional forces engaged in securing US 'vital interests' overseas.

The problem was that existing nuclear weapons were 'self-deterring' as they were so destructive that the could not be used because of the public outrage that would follow. For this reason America needed a new nuclear arsenal of nuclear weapons whose extreme precision and low explosive power meant that they could be used to destroy political or military objectives without killing (many) civilians. The new nuclear weapons, doctrine, and infrastructure, the US Strategic Air Command Reed Report claimed, were needed to reaffirm America's "status as the world's pre-eminent military, economic, and political power."[11]

... and converted the White House and Number 10 from being supporters of the test ban to being supporters of new nuclear weapons

The laboratories were also threatened from another direction. The US announcement of a moratorium on nuclear testing in 1992, and the likelihood that the US would make this permanent by negotiating a comprehensive nuclear test ban, meant that they would soon be without the nuclear testing that they regarded as essential to the development of new nuclear weapons. This led the weapons laboratories to accelerate their development of technologies which they believed could make it possible to develop nuclear weapons without underground nuclear testing (Super computers and three dimensional supercomputer simulations of nuclear explosions, hydrodynamic testing, laser fusion, and materials testing).

The directors of the US nuclear weapons laboratories then took advantage of the fact that President Clinton believed he needed their support to get two thirds of the US Senate to ratify the CTBT to strike a deal. In return for supporting the CTBT, the President would support their further development of the technologies needed to develop nuclear weapons without testing by giving Cold War levels of funding.[12]

The administration and the laboratories then justified by developing the 'Science-based Stockpile Stewardship' argument. This is the highly paradoxical argument that the CTBT required that the US develop exactly the technologies which made it possible to develop new nuclear weapons without testing to maintain its existing nuclear weapons without testing. The term 'Science-based Stockpile Stewardship' involves a shocking inversion. In coining the term the US nuclear weapons laboratory's have drawn on the positive emotion attached to the word 'Stewardship' in Christianity – in which God gives man stewardship over the wonderful natural world he created – and sought to use it to gain support for the use of science and high technology to maintain the US's world destroying nuclear weapons into the distant future.

In the end the directors of the US nuclear weapons laboratories reneged on the deal. In 1999 they provided Senate Republican's with technical testimony – which was in fact contradicted by their own research – which gave them the cover they needed to claim that their votes against the ratification of the CTBT was not motivated by a partisan desire to discredit the Democrats in an election year.[13] It is at this point that the Tony Blair, along with France's President Jacque Chirac and the German Chancellor Gerhard Schroeder, took the unprecedented step of intervening in US internal politics and supporting President William Clinton's call for the Senate to ratify the CTBT through a joint statement in the New York Times.

They were unsuccessful President Clinton was unable to gain the two thirds majority needed to ratify the treaty. The US laboratories were well rewarded by President Bush who increased their funding to the point that it was equal to the best they had enjoyed during the Cold War – a staggering £ 6.3 billion dollars in ?? -- and who backed their development of new, more usable, nuclear weapons. Moreover, through Tony Blair's decision to support Aldermaston's development of the technologies needed to build a new nuclear weapon without testing the US nuclear weapons laboratories, assisted by AWE, has added the capture of the UK Prime Minister Tony Blair to their capture of the White House.

SCIENCE-BASED STOCKPILE STEWARDSHIP HAS BEEN DISCREDITED BY LEADING US NUCLEAR WEAPONS SCIENTISTS

The use of 'Science-based Stockpile Stewardship' as a cover for activities which undermine the CTBT is exposed and discredited by the fact that leading US nuclear weapons scientists have argued that not only is science-based stockpile stewardship not necessary for this purpose but that it will inevitably create pressure for a return to nuclear testing.

Their conclusions are particularly embarrassing as they are made by men who have been at the very heart of US science policy and nuclear weapons physics.[14] Ray Kidder was a senior nuclear weapons designer at Lawrence Livermore and advised the Senate Armed Services Committee. Norris Bradbury had been the director of Los Alamos. Carson Marks was the former head of Los Alamos Theoretical Division. Physicist Jonathan I. Katz was a member of the elite JASON group of eminent scientists formed to give high-level science advise to the US government. Richard Garwin had not only headed research at IBM's Thomas J. Watson Research Centre but had been a member of the President's Science Advisory Committee and the Defense Science Board. These scientists opposed Science-based Stockpile Stewardship for two main reasons:

It was not needed to maintain the safety and reliability of US nuclear weapons – this is best done through engineering-based stockpile stewardship based on inspection and remanufacture. A nuclear weapon is composed of thousands of parts. The functioning of most of these, however, can be checked by simply detaching them and testing them separately. If any problems are found these can then be fixed. There is, therefore, no problem with most of the weapon. This leaves the 'physics package,' the nuclear part of the bomb, which can no longer be tested by exploding it. The safety and reliability of the physics package is an engineering not a science problem. What is need is the periodic inspection of each part of the physics package to see whether there are any signs of deterioration. If there are the part is simply replaced by an identical part. A stock of identical parts is created through remanufacture according to the original specifications. The robustness of the engineering approach is shown by the fact that this is the way that the US stockpile was, in fact, maintained during the cold war. The small number of nuclear tests that were done to check the safety and reliability of the stock pile showed that it worked. By contrast, science-based stockpile stewardship was a radical departure from past practice. The best way to maintain the US nuclear deterrent, then, was the engineering approach based on inspection and re-manufacture.

Science-based stockpile stewardship will lead to reduced confidence in the safety and reliability of US nuclear weapons – creating pressure for a return to nuclear testing. The only way to acquire the skill to design and build a new type of nuclear weapon is by checking hypothesis against the actual results obtained from nuclear tests. This is because what happens inside the small space of a nuclear warhead during the extremely brief time it takes to explode, involving temperatures and pressures similar to that inside a star, cannot be deduced from known physical first principles. The actual design of working warheads has always been based to a large extent on the tacit

knowledge gained from see what actually happens in nuclear tests. The situation is analogous to open heart surgery. You can't learn how to do successful heart surgery from a book. You must work under an established practitioner, and you must take part in actual heart operations. You would not entrust your life to a heart surgeon who had learnt their trade in any other way. It is not, therefore, possible to train a new generation of nuclear weapon scientists without testing. This is because the conditions created by the use of powerful lasers or hydrodynamic tests are very different to those created by an actual nuclear explosion. The result of using knowledge gain in this way to change existing warheads or to develop new nuclear weapons will be increasing uncertainty that these warheads will perform as planned – and these doubts will give the US an incentive to check whether the nuclear warheads really do perform as claimed by restarting nuclear testing.

These same points were also made by two reports commissioned by the US Department of Energy from the JASON group, an elite body of US scientists set up to give high level advice to the government. This report came down in favor of Science-based Stockpile Stewardship, which it saw as essential if the US was to maintain the ability to make improvements to its nuclear weapons without nuclear testing. On the narrow issue of how best to maintain a safe and reliable nuclear arsenal, however, its authors stated that this was best done by inspection and remanufacturing and they underscored the need to avoid 'improvements' in warheads because this would undermine certainty in warhead performance and lead to pressure to renew testing.[15]

UK ENTANGLEMENT IN THE RELIABLE REPLACEMENT WARHEAD WILL CREATE PRESSURE FOR A RENEWAL OF NUCLEAR TESTING

The US nuclear weapon scientists concerns are directly relevant to Aldermaston because the attempt to make a nuclear weapon without testing may, in the end, lead Britain and the US back towards nuclear testing. The issue is now a live one in the US because the Bush Administration plans to produce a new warhead. This is known by the innocuously sounding name of the 'Reliable Replacement Warhead.'

This program is relevant to the Trident replacement debate because it is most likely that what Aldermaston will do is not so much to design and develop a new nuclear warhead from scratch but to follow its past practice of adapting a US nuclear weapons design – and the design chosen will very likely be the Reliable Replacement Warhead. Indeed, according to articles by Michael Smith in the Sunday Times Tony Blair authorized scientists to begin design work on a new warhead immediately after his re-election in 2005 and scientists at Aldermaston are now in a friendly race with the US to develop the RRW. According to a senior British source cited by Smith the UK is actually ahead of the US in this work and officials in Washington are impressed that 'the Brits have done so much with so little.'

If Britain is involved in the development of the RRW there are likely to be two problems. The first is the argument made by the US weapons scientists in the 1990s, and now being reiterated by critics of the RRW in Washington, that it will be impossible to be sure that the new warhead will work as intended without testing it, and this will lead to political pressure to resume nuclear testing. The danger is underscored by US nuclear weapons physicists and long time advisor to the US Government Sidney Drell:

> I can't believe that an admiral or a general or a future president, who are putting the U.S. survival at stake, would accept an untested weapon if it didn't have a test base.[16]

What this means is that Britain is in danger of being drawn into a US program which may lead to a resumption of nuclear testing by the US and the demise of the Comprehensive Nuclear Test Ban Treaty.

The second problem is that while the RRW may well be a new cover for US programs to upgrade the US nuclear arsenal. This is bourn out by a series of statements by senior officials which show that they consider the RRW program as vehicle for precisely this purpose. Thus the Secretary of the Energy Advisory Board described the RRW program as 'the first of a series of design-production cycles that would allow the stockpile to meet an evolving or changing threat environment.' The head of the National Nuclear Security Administration, Linton F. Brooks, is clear that the 200? Nuclear Posture Review requires new nuclear weapons with precision guidance, ability to be used in small scale strikes, and greater flexibility in command, control and delivery – and that the RRW program will provide this. And the Defence Science Board has endorsed the RRW program as part of a larger effort to develop nuclear weapons which can produce 'special effects.'[17]

There is, therefore, a second way in which British participation in the RRW program could undermine the CTBT. As other countries see the US and Britain using their technological superiority to build a new nuclear weapon without testing, they will ask themselves why they should continue to obey a treaty which the US has not ratified and which prevents them using nuclear testing to upgrade their nuclear weapons or to get the nuclear bomb for the first time.

AS WELL AS HIGH TECHNOLOGY THE US AND THE UK ARE USING A FULL SYSTEMS APPROACH TO REMAKE THEIR NUCLEAR ARSENALS WHILE NOMINALLY RESPECTING THE TEST BAN TREATY

The use of scientific expertise and exotic technologies is one way that US and UK nuclear weapons laboratories are seeking to get round the CTBT prohibition on nuclear testing. Another way is by developing the whole nuclear weapon system while leaving the nuclear warhead untouched. The importance of this tactic has recently been underscored by the US nuclear weapons designer John Browne, a former director of the Los Alamos nuclear weapons laboratory:

> You can't just have a conversation about the warheads – it has to be about the delivery systems and even the military's command and control. These things are part of an interrelated system. That's what people forget.[18]

This may actually be more important than the development of new nuclear warheads as it is providing nuclear weapons laboratories with a way of making the major part of the US and UK nuclear arsenal more usable against non-nuclear nations while nominally respecting their commitments to nuclear disarmament under the NPT and to not to test under the CTBT.

What this means in practice can be seen by looking at how the US and the UK have worked together to transform Trident in the years following the end of the Cold War. The first stage of this upgrade was led by the UK and enabled it to upgrade Trident without breaking 1990s moratoriums on testing established by Russia and the US. The reason why Britain took the lead is that the UK was not ready to deploy Trident until 1993, years after the dissolution of the Soviet Union meant the UK Government's official rationale for Trident – that it was needed to deter a Soviet nuclear attack – no longer make any sense. In these circumstances the then UK Secretary for Defence, Malcolm Rifkind, set out a new rationale. Trident would be useful to secure Britain's 'vital interests.' For this reason Malcolm Rifkind argued that Trident needed to be adapted to have a 'sub-strategic' role. The key changes to the UK Trident system are as follows:

- *Extending the number of targets and rapid retargeting.* The US Submarine-Launched Ballistic Missile Retargeting System (SRS) enables Trident submarines 'to quickly, accurately and reliably retarget missiles to targets', and allows 'timely and reliable processing of an increased number of targets'. The system allows the USA rapidly to produce a nuclear attack plan using a small number of Trident warheads in a regional operation. The UK has purchased the fire control system at the core of SRS, and this has been installed in UK Trident submarines.

- *Single-warhead missiles.* In 1993 Malcolm Rifkind argued that a hostile leader might gamble that the UK would never use Trident to secure its vital interests because of the public outrage that would follow a full-scale Trident attack. He therefore recommended the development of a 'sub-strategic' Trident. This 'sub-

strategic' mission was first deployed on *HMS Victorious* in December 1995 and involved fitting some missiles with only one warhead.

- *Low-yield warheads.* UK Trident has also been made more 'usable' by reducing the yield of the warheads. In 1998 the Secretary of State for Defence, Mr. George Robertson, stated that 'The UK has some flexibility in the choice of yield for the warhead on its Trident missile.' This flexibility may be intended to help fulfil the sub-strategic mission. A lower yield can be achieved by detonating only the atomic bomb part of the weapon, making it an atomic fission weapon rather than a hydrogen fusion weapon.

It was only when these developments had been completed in that AWE proudly announced in June 2001 that it had remade the Trident system so as to make it more 'usable' in conventional wars against non nuclear states:

> With high accuracy, targeting and an option of two warhead yields, [Trident] can operate in both strategic and sub-strategic roles.[19]

The Government, however, continues to keep vital details secret. It is suspected that Trident's variable yield means that it can function as a mini-nuclear weapons (technically defined as having a yield of 5 kilotons or lower). Despite questioning by Members of Parliament, however, the Government has refused to let Parliament know whether this is or is not the case. Most recently it citied 'national security' as the reason for refusing to answer a question by Norman Baker MP asking to know the range of yields for the Trident warhead.[20]

The further development of the US and UK Trident system.

In the years since the signing of the CTBT the US has also been using 'Science-based Stockpile Stewardship' to take the transformation of the Trident system further. The US Airforce led the way in the transformation of the US nuclear arsenal to make it more 'usable' by adapting the B61 nuclear bomb so that it could be used by the B2 'Stealth' bomber to destroy hardened underground targets by giving it a bunker-busting capability – it already had a mini-nuclear weapon capability because its variable yield means it can be used as a mini-nuclear weapon. The US Navy, however, has been catching up by following the UK's lead in transforming Trident. As we have already seen this has led to the deployment of a new targeting system which has been bought by the UK and installed in its submarines. This, however, is only the beginning.

Under a 'Science-based Stockpile Stewardship' programme known as the 'Submarine Warhead Life Extension Programme' (SLEP) and other programs the US nuclear weapons laboratories have continued to develop the Trident system in ways that facilitate its use against targets across the globe.[21] In 2005 the US Treasury allocated $1.7 billion for the development of the Trident D5 missile alone. Programmes under way include:

- *Reducing the yield of the W76 warhead.* There appears to be a current programme to reduce the size of the nuclear explosion produced by the US W76 warhead. According to a July 2005 report in the Santa Fe *New Mexican* newspaper, the W76 is being modified so as to reduce its yield by 40 per cent to 60 kilotons.

- *Improving the W76 warhead's ability to destroy hardened targets.* If Trident's warhead could be made to explode close to the ground, then a low yield warhead could be used to destroy hardened targets such as missile silos. To achieve this the USA is seeking to give the W76 warhead a radar arming, firing and fusing mechanism similar to those fitted to the W88, which already has such a capability.

- *Improving the D5 missile's accuracy.* If Trident was made more accurate, then a lower-yield warhead could be used to destroy a wide variety of targets. Recent years have seen a number of projects under way to give Trident 'GPS-like accuracy' (about 10m). The idea is to use GPS and/or inertial guidance to steer a manoeuvrable re-entry vehicle to its target. Manoeuvrability will be achieved either by adding controllable flaps or a moveable inside weight to the re-entry vehicle.

These programs are of immediate concern to the UK. The US is replacing the Trident D5 missile with the Trident D5 A missile and it is pressing the UK to adopt the new missile because the rocket motors and the guidance system for the older system are no longer in production. If it does so the UK will automatically acquire the more accurate guidance system and the contact fuse mentioned above, thereby taking the transformation of its Trident nuclear weapon system into a min-nuclear weapon a stage further.

Threat to use Trident against non nuclear states

These technical developments need to be set side by side with the US and UK's development of new strategies involving the pre-emptive use of nuclear weapons in conventional wars against states which do not themselves possess nuclear weapons. The current Bush Administration's enthusiastic endorsement of the pre-emptive use of nuclear weapons is well known. What is less well appreciated is that the current Labour Government has built on Malcolm Rifkind's idea that Trident should be used to defend Britain's vital interests. This can be seen in the Government's 1998 Strategic Defence Review which states that the size of the UK Trident force is now the 'minimum necessary to deter any threat to our vital interests.' This idea is then spelt out in detail in the 2002 New Chapter to the Strategic Defence Review, whose page on deterrence states:

> We must seek to deter <u>any use of weapons of mass destruction against us, our interests, or our Allies, but also any other attacks that cause (or intend) mass casualties or grave damage to the economy, the environment, government or the fabric of society.</u>
> 21. The UK's nuclear weapons have a continuing use as a means of deterring major strategic military threats, and they have a continuing role in guaranteeing the ultimate security of the UK. <u>But we also want it to be clear, particularly to the</u>

> leaders of states of concern and terrorist organisations, that all our forces play a part in deterrence, and that we have a broad range of responses available. We must influence leaderships by showing that we are prepared to take all necessary measures to defend ourselves (Greenpeace underlining).

The clear implication is that Britain is not only prepared to use Trident against non nuclear states and terrorists that threaten its vital interests but that it is prepared to do so preemptively. Moreover, in the run up to the recent US UK invasion of Iraq the then Defence Secretary Geoff Hoon stated to the House of Commons Defence Select Committee that the UK would not rule out using nuclear weapons if its troops were threatened by Iraqi chemical or biological weapons. The Defence Secretary insisted that:

> I am absolutely confident, in the right conditions, we would be willing to use our nuclear weapons.[22]

To make sure that there was absolutely no doubt that the message was clear, he then repeated that the UK was ready to use nuclear weapons to Jonathan Dimbleby, insisting that nuclear weapons would be used pre-emptively if the UK believed that British forces were about to be attacked with Iraqi chemical or biological weapons. And then told the full House of Commons that Britain was prepared to use nuclear weapons.[23] Since then the UK Government as downplayed ideas that nuclear weapons could be used pre-emptively to defend Britain's vital interests but it has never definitely stated that it will not do so.

TIME FOR PARLIAMENT TO DEFEND BRITISH DEMOCRACY AND THE COMPREHENSIVE TEST BAN TREATY

In the twentieth Century Parliament emerged as the guardian of deliberative democracy in the UK. More recently the UK's decision to ratify the CTBT in April 1998 was proceeding by votes in the House of Commons and the House of Lord's supporting ratification -- see The Nuclear Explosions (Prohibition and Inspection) Act 1998. Through this action the House of Commons and the House of Lords declared their support of the Treaty and made themselves custodians and guardians of the CTBT.

This report has shown how the US and UK nuclear weapons laboratories, and their supporters in Government, have been able subvert the President Clinton commitment to the CTBT, install their president in the White House, President George W. Bush, and convert the UK Prime Minister, Tony Blair, from being a defender of the CTBT into a collaborator in strategy which uses Science-based Stockpile Stewardship as a cover for an assault on deliberative democracy and the CTBT.

After initially resisting pressure from parliamentarians and the public calling for a vote, the UK Government has now stated that there will now a Parliamentary vote on whether or not the UK should replace its existing Trident nuclear weapon by a new one. **It is, therefore, vital that MPs and Lords defend deliberate democracy and the CTBT by voting against the replacement of Trident by a new nuclear weapon. They should also demand that the UK stop upgrading its existing Trident nuclear weapon by stealth through the adoption of US upgrades to the weapon.** There should be absolutely no doubt in MPs and Lords minds as they go through the lobby to vote that a vote in support of Trident replacement will be a historic abdication of their guardianship of the CTBT and an acceptance of the capture of the UK State by the US and UK nuclear weapons laboratories and their supporters.

What the UK does now is crucial for the future of the test ban. The US Senate's refusal to ratify the Treaty, and the Bush Administration's hostility to it, mean that the Treaty is already in a weakened state. Nonetheless the long moritoriums on nuclear testing during the 1990s, and now the fact that no nation has tested since the India and Pakistan tests in 1998, mean that not testing is becoming a key criteria of global good citizenship. The UK's actions now can tilt the balance one way or the other. By pressing ahead with the upgrading of Trident and/or the development of a new warhead it will contribute to the break down of the CTBT in two ways:

- ***It will contribute to the permanent transformation of the CTBT into a hollow shell treaty which will be abandoned by other nations.*** The UK's action will show that it supports the use of 'Science-based Stockpile Stewardship' by Aldermaston and the giant US laboratories as a cover for making their nuclear arsenals more 'usable' in conventional wars with non nuclear states. As we have seen the US and the UK have used a systemic approach to upgrading the Trident nuclear missile system which has enabled them to make it more 'usable' without their having to conduct nuclear tests. Moreover, the US has already carried out a

massive investment program to develop the technologies needed to make new nuclear weapons without having to test and the UK Government is now making the investments necessary for Aldermaston to participate fully in the development of a new nuclear weapon without testing. The danger is that this will lead other nations to ask: 'Why should we continue to respect the test ban when the US and the UK are using a systemic approach and exotic technologies to upgrade their nuclear arsenals without testing?' The world's non nuclear states, in particular, will note that this is happening at a time when the US and the UK are not themselves threatened militarily and that these nations are deliberately upgrading their nuclear weapons so as to make their use more conceivable against themselves.

- ***There will be a growing lack of confidence in the performance of nuclear weapons which will create pressure for a return to nuclear testing.*** Leading US nuclear weapons scientists believe that developing new nuclear weapons without testing will lead to uncertainty about the performance of these weapons, thereby creating pressure for a return to nuclear testing which will break the CTBT. There is a danger that the UK is being drawn into the Bush administration's program to develop a new nuclear weapon, the Reliable Replacement Warhead, and that there will eventually be uncertainties about the performance of this warhead which will lead the US to conduct new underground tests. Once officials in the US administration and weapons laboratories had become uncertain about the performance of this warhead, it is an open question whether or not the UK would be able to persuade the US not to go ahead with testing it because of its concerns about the future of the CTBT.

A decision by the UK to go ahead with building a new nuclear weapon now, when it is clear that there is not threat to the UK that a nuclear weapon might be used to deter, would send a clear signal that the UK had abandon its promise to get the US to ratify the Treaty and had completely embraced the Bush administration's belief that overwhelming military might, unilateral military action, and a disregard for multi-lateral agreements were the way forward.

There is a better alternative. In his recent report on weapons of mass destruction for the United Nations, Hans Blix emphasised the vital importance of getting the CTBT ratified. 'The single most hopeful step to revitalize non-proliferation and disarmament today,' he stated in the report, 'would be ratification of the CTBT by all states that have nuclear weapons.'[24] The UK played a leading role in the negotiation of the CTBT and the Labour Government and the Foreign office can rightly point to it as one of the UK's greatest foreign policy successes. The CTBT outlawed the nuclear testing needed to develop nuclear weapons. This greatly strengthened international cooperation to get rid of nuclear weapons and to stop their spread. Without testing it is very difficult to construct any kind of nuclear weapon at all and be sure that it will not blow itself to pieces before the full nuclear chain reaction can develop into a nuclear explosion. And without testing it is extra-ordinarily difficult, some experts believe impossible, to develop the small sized (but highly destructive) nuclear warheads which can be fitted on a missile. Stopping testing,

moreover, brought to an end the use of nuclear tests by states to threaten other nations by demonstrating that they could destroy their cities as the US had destroyed Hiroshima and Nagasaki in 1945.

It is vital that the UK now build on these achievements. A decision by the UK Government (1) **not to replace Trident by a new nuclear weapon and to stop the development of Aldermaston's capacity to design and build a new nuclear weapon; and (2) to take UK's Trident nuclear weapons off patrol and placing UK nuclear weapons in an internationally monitored storage facility on land; should be used by the UK to (3) launch for a global campaign to get all states to ratify the CTBT and to kick start stalled multi-lateral nuclear disarmament.** This is a strategy which members of all political parties can unite behind. It would provide reassurance to those who believe that it would be unwise to be completely without a nuclear option while other countries continue to have nuclear weapons. Furthermore, it would make clear the UK's commitment to the NPT and put us at the forefront of the multi-lateral disarmament and peace-building which alone can ward off a return of a Cold-War type situation, in which we as a nation are once again threatened by the thousands of nuclear weapons still retained by the major nuclear powers. The basis for such a campaign has already been laid by the Russian Duma's 2000 decision to ratify the CTBT, and if Britain could persuade France to take the same approach it could bring the collective weight of European states behind the campaign. It would, moreover, be far sighted to act immediately as there is every likelihood that over the next few years US politics will be dominated by a coalition of Democrats and moderate Republicans and that in these circumstances the US could be brought to throw its weight behind the campaign.

Appendix 1.

'A Treaty We All Need,'

Article by Prime Minister Tony Blair, President Jacques Chirac & Chancellor Gerhard Schroeder, *The New York Times*, 8 October 2000

During the 1990s, the United States has made a vital contribution to arms control and non-proliferation. Thanks to the common resolve of the world's powers, we have achieved a substantial reduction in nuclear arsenals, the banning of chemical weapons, the indefinite and unconditional extension of the Nuclear Non-Proliferation Treaty and, in 1996, the conclusion of negotiations on the Comprehensive Test Ban Treaty. South Africa, Ukraine, Kazakhstan and Belarus have renounced their nuclear weapons in the same spirit. The decisions we take now will help determine, for generations to come, the safety of the world we bequeath to our children…

Failure to ratify the Comprehensive Test Ban Treaty will be a failure in our struggle against proliferation. The stabilising effect of the Non-Proliferation Treaty, extended in 1995, would be undermined. Disarmament negotiations would suffer. Over half the countries that must ratify the new treaty to bring it into force have now done so. Britain, France and Germany ratified last year. All the political parties in our countries recognize that the treaty is strongly in our national interests, whether we are nuclear powers or not. It enhances our security and is verifiable…

The treaty is effectively verifiable. We need have no fear of the risk of cheating. We will not be relying on the good will of a rogue State to allow inspectors onto its territory. Under the treaty, a global network of stations is being set up using four different technologies to identify nuclear tests. The system is already being put in place. We know it will work. Opponents of the treaty claim that, without testing, it will not be possible to guarantee the continuing safety and reliability of nuclear weapons. All nuclear powers, including the United States, Britain and France, examined this issue carefully. With the right investment and modern technology, the necessary assurance of safety and reliability can be maintained without further nuclear tests.

INSERTS

'The single most hopeful step to revitalise non-proliferation and disarmament today would be ratification of the CTBT by all states that have nuclear weapons.'

> Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms (The Blix Report) Page 61.

'It is often forgotten that the NPT nuclear disarmament commitment applies to all states parties. The 'package deal' that enabled the indefinite extension of the treaty in 1995 included a call for this goal to be 'fulfilled with determination' and urged the nuclear-weapon states to make systematic and progressive efforts to reduce nuclear weapons globally.

This was in 1995. It is easy to see that the nuclear-weapon states parties to the NPT have largely failed to implement this commitment and failed to 'pursue negotiations in good faith' on nuclear disarmament as required of them under the NPT. Indeed, all states that have nuclear weapons are still seeking to modernize their nuclear capabilities.'

Blix Report, page 95.

The Comprehensive Test Ban Treaty is the culmination of almost 40 years of efforts involving painstaking negotiations. When the parties to the Non-Proliferation Treaty agreed a set of principles and objectives in 1995, they described a comprehensive test ban treaty as the next step on the road to nuclear disarmament ... the Treaty will constrain the development and qualitative improvement of nuclear weapons and end the development of advanced new types. That is truly an important step forward.

Tony Lloyd, Minister of State, Foreign and Commonwealth Office, 6 November 1997.

The CTBT is a cornerstone of international efforts to prevent nuclear proliferation. Britain's ratification signals our commitment to the goal of a nuclear weapons free world.

Robin Cook, British Foreign Secretary, April 6 1998.

'Any State contemplating the modernization of its nuclear weapon systems must consider such action in the light of all relevant treaty obligations and its duty to contribute to the international nuclear disarmament process."

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'France and the UK will have to decide whether it will be meaningful to

retain costly nuclear arsenals that were developed for an enemy that no longer exists, in order to meet hypothetical threats against which such weapons are of questionable value. Both countries are now at a crossroads: going down one road would show their conviction that nuclear weapons are not necessary for their security, while the other would demonstrate to all other states a belief that these weapons continue to be indispensable. In addition, by pursuing their security interests without nuclear weapons, they would avoid the need for costly investments in dangerous new nuclear capabilities or replacements for existing weapons.'

Blix Report, p 95.

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