The CTB Debate

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The CTB is the oldest serious nuclear arms control proposal, dating back to the Bravo test in 1954. In the intervening 38 years, every facet of the test ban has been analyzed in excruciating detail. Even I tire of debating the same points over and over. The issue has assumed the character of a holy war, and a CTB long ago become a symbol rather than an issue to be debated on its own merits.

I've been instructed to discuss only the "technical" aspects of a CTB, but I want to say at the outset that I believe that this is impossible. Arms control initiatives can only be judged in the context of what the United States is trying to accomplish in the world, and in the context of its theory for how to go about this: in other words, U.S. grand strategy, and how it intends to use military instruments -- of which nuclear weapons are just one component -- in support of its goals.

So it makes little sense to talk about the CTB in a political vacuum. We obviously don't have enough time to debate grand strategy, but just so you know where I'm coming from, I believe that widely accepted U.S. goals are best served by further delegitimizing the use or threatened use of weapons of mass destruction, including and especially nuclear weapons.

Nuclear weapons should only be held to deter their use by others, and they should only be used, and their use should only be threatened, in retaliation. The U.S. is the most powerful nation on earth. The U.S. has more to lose than gain by continuing to maintain the notion that nuclear weapons are legitimate instruments of coercion and warfighting. If the most powerful nation on earth must rely on nuclear weapons to protect its interests, then how can much weaker nations fail to draw the same conclusion? And it is precisely in this non-technical area that most of the benefit of a CTB lies: in catalyzing and signaling a change in U.S. nuclear strategy, and in reinforcing the nonproliferation regime.

That said, let me turn to the technical aspects. Nuclear testing is not required to maintain a safe, secure, survivable, and reliable nuclear deterrent force. Testing <u>is</u> required to develop new warheads -- on that we all agree -- but no new warheads are needed.

We have more than enough nuclear weapons, and enough types of weapons, mounted on enough types of delivery vehicles, to provide for a very survivable and awesome deterrent force. In fact, substantial reductions beyond those already planned by the Bush administration are possible, desirable, and have already been proposed by Russia.

Additional investments in survivability are not necessary, but if at some future date they are deemed necessary, more survivable delivery vehicles can be designed to use existing types of warheads. For example, the SICBM, if it is ever deployed, will use the MX warhead, just as the new ACM will use the ALCM warhead. As Dick Garwin is fond of saying, when the U.S.

wanted to put an astronaut in space, it didn't make a custom-designed astronaut -- it built the rocket to accommodate existing astronauts.

Our strategic warheads are the result of nearly 50 years of effort, involving nearly 1,000 nuclear tests. At this point, improvements in performance will at best be marginal.

Even if you don't agree with me on strategy, the case for continued nuclear testing is very weak. Nuclear weapons may be used for signaling our resolve deep in a crisis, but the arsenal we will have after the current reductions will be more than adequate for such purposes, and it can still be used, if we are so misguided to do so, to raise the risk of escalation of a conventional war.

Edward Teller has suggested recently that we need a new generation of "mini-nukes" to destroy tanks and other forces, but this is just the warmed-up argument of a by-gone era. Besides, the Gulf War showed that conventional explosives can do the job just fine, and their performance should continue to improve. The war also showed that fuel-air explosives can be deadly to dug-in troops, and have a destruction effect comparable to "mini-nukes." No new nuclear weapons are needed.

As regards security, most U.S. nuclear weapons -- especially those planned to remain in the arsenal -- are outfitted with sophisticated PALs, ESDs, and electrical systems. In the few cases in which this is not true -- for example, SLBMs do not now have PALs -- such modifications can be made without nuclear testing.
Safety is the most recent objection to a CTB. The trouble with this argument is that it has no end: weapons can <u>always</u> be made safer. The real question, which is not often addressed, is how safe if "safe enough," and do the improvements in safety made possible by continued development and testing outweigh the economic and political costs? The DOE and the weapon labs have maintained that the current arsenal is safe. The argument that the arsenal is safe, but that billions must nevertheless be spent to make it safer, is too subtle an argument for DOE to make. It would be unwise to undermine public confidence in the safety of the arsenal as a mere tactic in the war against a test ban.

Some safety features, such a IHE, are sufficiently valuable that one might conclude that they should be adopted on all warheads, but this would involve a limited test program that need not extend past 1995. (See Kidder) I do not agree that this is necessary, because many warheads already use IHE, and because modified handling procedures, like not keeping nuclear-armed bombers on strip alert, and loading SLBMs without the warheads attached, greatly lowers the risk. Advanced safety features, like fire-resistant pits and separable components, are <u>not</u> worth it. FRPs may protect the Pu in a fire, but not in an explosion (which is the real worry); separable components would result in a marginal increase in safety at the expense of a massive research, development, and testing program lasting a decade or more.

Finally, the reliability of the nuclear deterrent, and confidence in that reliability, can be maintained without nuclear testing. Much has been written on this in the past few years, so I will limit my remarks to a brief review. Nuclear testing has been used to correct reliability problems in the past, but the large majority of these problems were design errors that were corrected within two years of their first deployment. Moreover, the fact that nuclear testing was <u>used</u> doesn't

mean that it was required to restore confidence -- only that it was convenient. Possible problems are identified and diagnosed by disassembly, inspection, non-nuclear testing, and computer simulation, not by nuclear testing. Problems due to aging and deterioration can be corrected by remanufacturing warheads to original specification -- something which the DOE and the weapon labs agree can be done with sufficient funding -- or by substituting another warhead type for the problem design. Residual worries can and should be resolved by a limiting nuclear testing program over the next 2 - 3 years.

Clearly, the U.S. has a choice. It can build on the atmosphere of cooperation with the former Soviet Union, and the nuclear reductions proposed by Russia -- including a CTB -- and build on the recent advances in nonproliferation in South America and South Africa, and build on the spirit of cooperation with old and new allies that made the coalition against Iraq possible, to prevent future Iraq's from emerging.

Or, the U.S. can go its own way, rely on its own military might and judgment, and develop an "improved" nuclear arsenal that it can brandish in new situations and against new enemies. To me, cooperation is the obvious choice, and a CTB is an obvious part of that choice. A CTB is not a big deal, but our stubborn refusal to negotiate one is becoming a big deal, and an irritant in our relations with Russia and other nations.
For 40 years we raced because we believed we had to. Now the political situation has changed dramatically and irreversibly, and our nuclear policy must change with it. Let's not waste this opportunity by searching for new reasons to continue doing the same old thing.

Thank you for your attention.