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Should We Ban Nuclear Testing Now?

In 1963 the United States and the Soviet Union signed a limited test ban treaty which banned all but underground nuclear tests and which proclaimed as aims "an end to the armaments race" and "the discontinuance of all test explosions of nuclear weapons for all time."

Since 1963 both countries have continued nuclear testing with full vigor; there has been no perceptible slowdown in the arms race and no progress so far in negotiations for a comprehensive test ban.

From a purely technical perspective the case for a comprehensive agreement is now much better than it was a decade ago.

In 1963 it was estimated that the seismic signals from as many as 150 Soviet earthquakes per year could be confused with those from underground nuclear explosions. To resolve ambiguities and as a deterrent to clandestine testing, the United States insisted that a comprehensive agreement include the right to conduct a limited number of on-site inspections of suspicious events. Efforts to conclude a comprehensive agreement foundered on the on-site inspection issue. Since then, seismic and other means for identification have been improved so that they are more effective than feasible on-site inspections.

Of equal importance, after the failure of the last 10 years of intensive underground nuclear testing by both countries to produce any significant breakthroughs in weapons technology, there seems little possibility that any Soviet clandestine testing program could produce a destabilizing outcome.

All in all, the net military risk of a comprehensive test ban is thus very low—lower now without on-site inspections than with them a decade ago.

Also, from the results of continued nuclear testing and detailed analyses, peaceful uses of nuclear explosions appear to be even less promising than they were in 1963.

Notwithstanding these developments, only a "threshold" treaty is now proposed. This would proscribe underground testing above some given level, defined in terms of the magnitude of the seismic signal.

It is unlikely that a threshold lower than 4.75 on the Richter scale will be agreed upon. This means that virtually all current nuclear testing could be continued. Even though explosions greater than about 100 kilotons would be ruled out, this would represent only a small obstacle to the development of new strategic systems, since both countries have large numbers of tested warhead designs already in their inventory. Particularly, it must be expected that there would be no effect on the new Soviet missile programs, since it is inconceivable that the Soviet Union would conclude such an agreement without already having tested suitable warheads for these missiles.

Would such an agreement be helpful in preventing the further proliferation of nuclear weapons? Hardly. Even if nonnuclear powers were to accede to the agreement, they could develop and test weapons without violating it. In fact, such an agreement might even have negative effects in holding the line on nuclear proliferation. It would raise questions as to why a comprehensive ban could not be negotiated, given the dramatic improvements in seismic identification capabilities. It would signal the reluctance of the superpowers to give up nuclear weapons testing, and it would be widely viewed as a measure of how pathetically little they are prepared to accept in the way of nuclear arms control at this time.

Thus, while a threshold treaty would impose some limitations on weapons development, its political effect is likely to be minimal at best, and very possibly negative, particularly now that a comprehensive treaty would be so welcome and seems within reach.—G. W. RATHJENS and J. P. RUINA, *Massachusetts Institute of Technology, Cambridge 02139*