

NUCLEAR LEGACIES: PUBLIC UNDERSTANDING AND FAS

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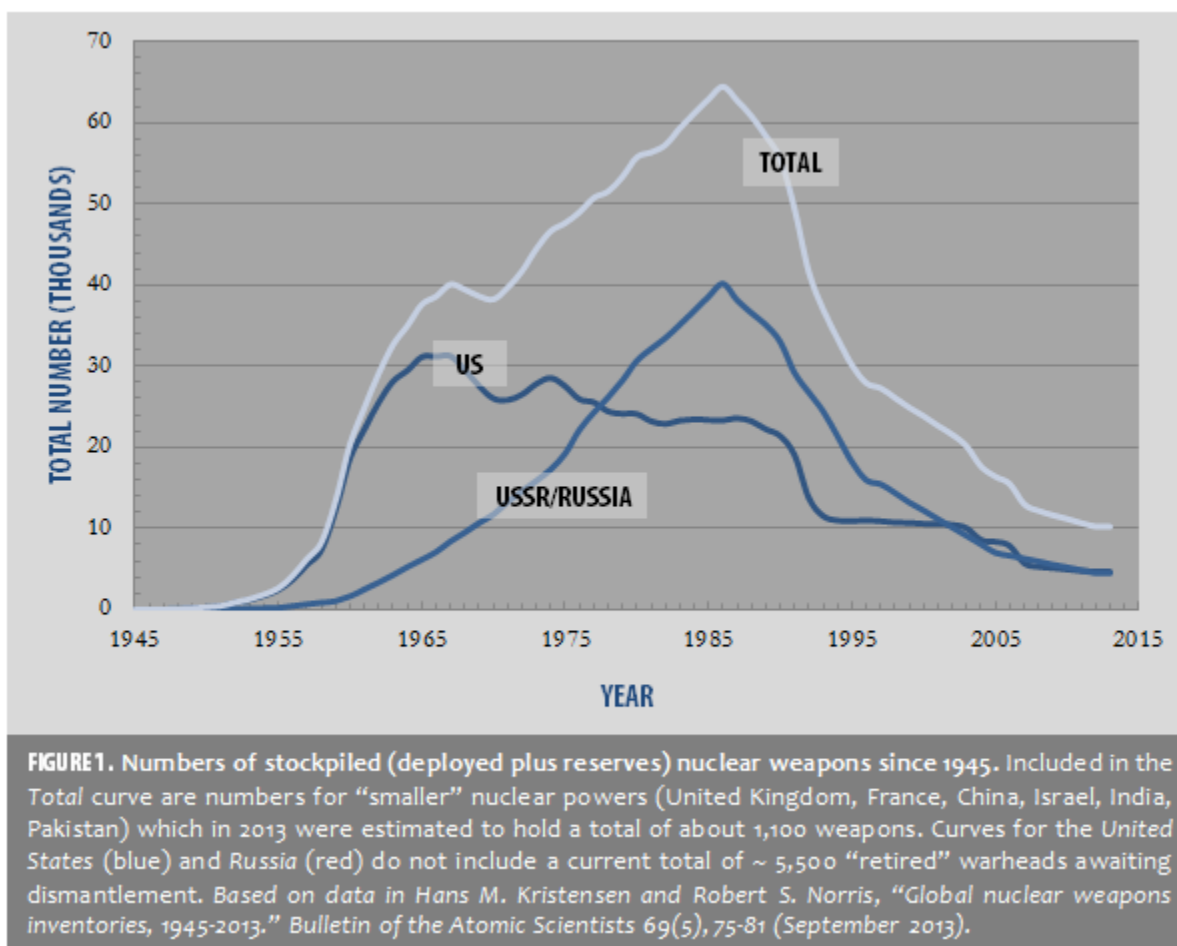
In late 1945, a group of scientists who had been involved with the Manhattan Project felt it was their civic duty to help inform the public and political leaders of both the potential benefits and dangers of nuclear energy. To facilitate this important work, they established the Federation of Atomic Scientists, which soon became the Federation of American Scientists. Over the years, FAS has evolved into a model non-governmental organization that plays a leading role in providing scientifically-sound, non-partisan analyses of nuclear and broader security issues. I have long admired FAS and was therefore deeply honored when President Charles D. Ferguson asked if I would be interested in preparing a brief essay for a special edition of the PIR that would commemorate the organization's 70th anniversary.

A period of mild apprehension then followed: *What could I say on the relationship between science and society that had not been said a thousand times before?* As it happened, Charles' request arrived just after the early-August anniversary of the bombings of Hiroshima and Nagasaki at the end of World War II. The 2015 anniversary was particularly notable because 70 years is the approximate average human lifespan and media and online coverage of the event seemed richer than usual. My reflections on this coverage became the inspiration for this essay.

I was distressed to find that most of the reporting I saw seemed to concentrate on two main themes. First were the renewed calls for the Japanese government to apologize for atrocities committed by the forces of their country during the war. The response was a lengthy statement from the Prime Minister of Japan that described the historical circumstances of the war, but never included a real acknowledgement of responsibility. A back-and-forth game of

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hollow rhetoric over an apology is pointless; such a gesture would now be (at best) only symbolic, as any surviving victims of Japanese aggression or their descendants could not expect any sort of meaningful compensation.



Second was the notion, often implicit but sometimes explicit, that America was guilty of a monstrous moral transgression by having used the bombs. However, the coverage tended to be thin on the complicated realities of the historical context. By August 1945, the Japanese were essentially defeated and sending out peace feelers, but the operational fact was that they were continuing to fight on in the hope of securing more favorable surrender terms as Americans grew weary of the war. The atomic bombings may not have ended the war, but they surely helped to end it, thereby sparing the lives of thousands of Japanese citizens who would otherwise have been lost had island-conquering campaigns and conventional and firebombing raids on that country’s cities continued – let alone what might have happened had a ground invasion occurred. President Truman and his advisors faced horrific decisions and had to keep in mind the eventual postwar strategic situation. Let us not also forget that Truman’s fundamental humanity manifested itself when he ordered a halt to any more atomic bombings after the destruction of Nagasaki. There is likely not one of us who did not live through those times who can ever internalize the weight of such decisions, the horror of Hiroshima and Nagasaki, the gut-wrenching anxiety of a Marine aboard a troopship awaiting his invasion

orders, the overwhelming worry of his family back home, or the subsequent lifelong soul-searching of a Los Alamos scientist, who by chance found himself spared from active service to play a role in the development of the most destructive weapons in human history.

It is understandable that brief media stories will concentrate on dramatically different opinions instead of trying to dissect a complex set of circumstances. But such coverage does viewers and readers a serious disservice in that it reinforces a perception that the background events have no relevance for today's world. After all, the war ended two generations ago, and weren't most nuclear weapons decommissioned after the end of the Cold War? Nothing could be further from the truth. Seventy years on, a myriad of pressing issues that had their geneses in that time are in desperate need of informed debate.

At least another seven decades worth of issues lie before us. Even many well-informed persons are utterly unaware that thousands of nuclear weapons still exist. What are their rational roles in the military and deterrence policies of the major nuclear powers in a world of rapidly evolving and very asymmetric threats? How many such weapons are realistically needed to sustain such policies? What weapons modernization programs are justifiable, and which are simply products of entrenched bureaucracies and turf protection? Do national laboratories have the resources necessary to preserve historical knowledge and build new capabilities in areas such as nuclear forensics as existing weapons systems are retired and dismantled? Can the fissile materials involved be responsibly secured against theft and proliferation until they can be blended into reactor fuel? How can weapons-reduction and test-ban negotiations remain on track and on the radar of the public and political officials in the face of the inevitable international crises and mutual suspicions between nations that will spring up? Can growing and aspiring nuclear powers be convinced that reversing their weapons-development trajectories would in fact bring them better long-term security and liberate resources that could be used to benefit their citizens? Can public trust in the safety of nuclear power be restored? How should we deal with the thousands of tons of nuclear waste that have accumulated, a burden that will only grow as we come to rely more and more on greenhouse-gas-emission-free nuclear power? Do we have the will to stick to the long-term commitments of funds, resources, and effective oversight that will be necessary to remediate areas impacted by fissile-materials production facilities? These questions and many more cry out for public education based on factual information presented by informed experts who are capable of balancing considerations of

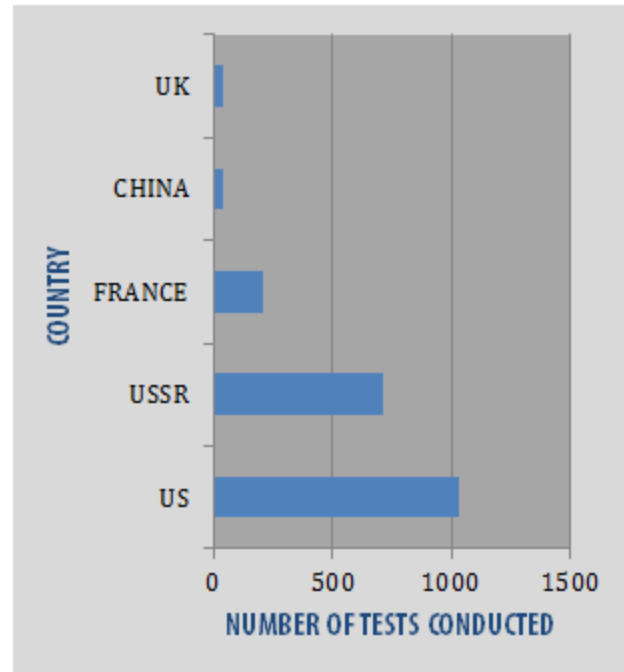


FIGURE 2. Numbers Distribution of 2045 postwar nuclear tests 1946-1996. The UK figure includes 24 tests conducted underground in the United States. Not included here are one Indian test in 1974, five Indian tests in 1998, six Pakistani tests in 1998, and four North Korean tests (2006, 2009, 2013, 2016). Data from Natural Resources Defense Council.

the various risks and benefits involved without advancing their own agendas. I encourage FAS to remain involved in such meritorious public service and members of the scientific community to contribute their knowledge and expertise to such efforts. The need is more important now than ever.

Richard Rhodes, author of the much-acclaimed book *The Making of the Atomic Bomb*, has optimistically asserted that we are now in the era of the “Twilight of the Bombs.”¹ But after years of researching nuclear weapons in general and the Manhattan Project in particular, I must respectfully disagree. I believe that the situation is more akin to the afternoon of a long summer’s day. The light of nuclear weapons is still very much with us and events in countries such as Iran and North Korea show that it still commands a compelling allure. Much work remains to be done to fulfill Secretary of War Henry Stimson’s May 1945 vision of nuclear energy as “an assurance of future peace rather than a menace to civilization.”² There is quite literally a world of opportunities for a new generation of scientists, educators, commentators, and policymakers to support the mission of FAS in contributing to realizing Stimson’s dream. What more fitting way could there be to honor his generation and those who founded and have helped to sustain FAS for the last 70 years?

United States of America
WAR
DEPARTMENT
ARMY SERVICE FORCES ~ CORPS OF ENGINEERS
Manhattan District

This is to Certify that

HARRIET S. MORRIS
The Kellex Corporation

has participated in work essential to the production of the Atomic Bomb, thereby contributing to the successful conclusion of World War II. This certificate is awarded in appreciation of effective service.

6 August 1945



Henry L. Stimson
Secretary of War

Washington, D. C.

Certificate of Service issued in August 1945 to Harriet Mitteldorf née Morris, a founding member of FAS.

¹ Rhodes, Richard. *Twilight of the Bombs: Recent Challenges, New Dangers, and the Prospects for a World Without Nuclear Weapons* (Vintage, New York, 2011).

² Reed, B. Cameron. *The History and Science of the Manhattan Project* (Springer, Berlin, 2014) p. 375.