

Atoms for Peace and War, 1953–1961: Eisenhower and the Atomic Energy Commission. (A History of the United States Atomic Energy Commission, Vol. 3.) Richard G. Hewlett and Jack M. Holl. 725 pp. University of California Press, Berkeley, 1989. Price: \$60.00 ISBN 0-520-06018-0. (Reviewed by David Hafemeister.)

If you wish to become informed on the present history of nuclear arms control negotiations in the 1970s and 80s, read Strobe Talbott's trilogy: *Endgame*, *Deadly Gambits*, and *Master of the Game*. If you wish to become informed on the in-depth, historical beginnings of the atomic age, read Richard Hewlett's trilogy: *The New World, 1939–1946*, *Atomic Shield, 1947–1952*, and the subject of this review, the recently released *Atoms for Peace and War, 1953–1961*. Since Hewlett was the official historian of the Atomic Energy Commission, writing the history of the AEC from AEC and National Security Council classified documents, one might be concerned that history might be written to justify the past actions of the AEC. I am convinced, however, that Hewlett and Holl deserve both great respect and gratitude for unbiased reporting and honest analysis. Primarily, Hewlett and Holl write history, without many value judgments. If something was clearly silly, like the nuclear-propelled airplane, they say so by implication. Ike was dismayed that the AEC would spend funds on this unlikely project just because the air force wanted it, yet his administration continued to fund it. For something much more complicated, like Eisenhower's Atoms for Peace, they refrain from passing judgment, but rather inform us by using classified documentation to tell us what was at issue, and how it was decided. This book tells the story of the conflict between two quite different men: Eisenhower and Lewis Strauss, the Chairman of the AEC. The authors buttress present-day revisionist historians by showing that Eisenhower was an activist president, leading his government to ban all nuclear weapons tests (1958–61), to negotiate a cutoff on the production of plutonium and highly enriched uranium ("the fissile cutoff"), and to promote the peaceful atom with safeguards through the creation of the International Atomic Energy Agency (IAEA). On the other hand, as one might expect, Strauss was very protective of the AEC's right to produce plutonium and carry out weapons tests.

In order to focus this review, I will mainly cover just two topics: first, the Atoms for Peace Plan; and second, the nuclear test ban moratorium. Thus we will skip such interesting topics as the Oppenheimer trial and the development of the commercial nuclear fuel cycle in the US. The title of the book, *Atoms for Peace and War*, aptly expresses Eisenhower's dream to reach out to the world with peaceful nuclear power, and somehow tame the military atom (while also continuing to build Polaris and other weapons). In retrospect, he did a rather good job of carrying out this lofty plan, considering the hand he was dealt and the uncertain information that was at his disposal. Early on in 1953, Ike decided that more candor and honesty were necessary

on the effects of nuclear weapons, stating that, "...personally I think the time has arrived when the American people must have more information on this subject, if they are to act intelligently...I think the time has come to be far more, let us say, frank with the American people than we have been in the past" (p. 55). By informing the public more about the effects of megaton blasts, but not informing the public about the danger to uranium miners and the fall-out at St. George, Utah, the goals of "candor" were only partially fulfilled. By amending the Atomic Energy Act of 1946, some of the secrets of the atom were unclassified in order to establish the commercial fuel cycle. Atoms for Peace ultimately creates a dilemma. Greater access by other countries to nuclear methods and special nuclear material has, of course, eased their transition to the bomb. This doesn't sound like Atoms for Peace, but rather Atoms for War. However, the opposite side of the coin is created by the carrot of supposedly cheaper nuclear power, which has encouraged nations to give up some of their sovereignty by (1) abstaining from nuclear weapons and (2) allowing international inspectors into their nuclear facilities. A very good result is that all but a half-dozen of the non-nuclear weapon states that have nuclear power have agreed to the bargain of safeguards on all their nuclear facilities. However, one wonders if Ike was somewhat misled on the ultimate dilemma of Atoms for Peace when he stated to the United Nations on 8 December 1953 that, "The ingenuity of our scientists will provide special safe conditions under which such a bank of fissionable material can be made essentially immune to surprise seizure." What was he referring to? Denatured plutonium with ^{240}Pu won't prevent weapons; it only complicates the production of quality weapons. The plutonium produced in the commercial sector is more accessible than nonexistent plutonium. However, Ike did initiate a somewhat sturdy regime, the best one we have, in that famous speech by stating that the nuclear nations "begin now and continue to make joint contributions from their stockpiles of normal uranium fissionable materials to an International Atomic Energy Agency" to be established under the aegis of the United Nations (p. 72). It was hoped that Atoms for Peace would somehow solve future proliferation problems of the atom, break the disarmament stalemate with the Soviets, and enhance the prestige of the US (p. 215). Eisenhower's aim was to lessen Cold War tensions and to siphon off weapon-grade material from existing nuclear stockpiles (p. 225). As the policy process unfolded, it is apparent that the US government did not discuss and understand all the paths to nuclear proliferation (p. 222). Power reactors produce about 250 kg per year of reactor-grade Pu that can be made into lower quality weapons by less sophisticated nations. Initially the US was going to require "the return of all spent fuel and nuclear by-products for reprocessing in the US"; however, this was not required in the early agreements of cooperation with other countries (p. 227). We are still grappling with these issues today. By offering to contribute 100 kg of fissionable material, the process gained momentum. At

first the Soviets were skeptical about proliferation from Atoms and Peace, but in time they joined in. By 1955, the peaceful atom was used as a tool to entice other nations to be helpful with our foreign policy (p. 239). Easy financing from the Export-Import Bank helped launch a large export industry. All of these negotiations took place before nuclear power had become a reality; our first commercial power plant at Shippingport first operated on 2 December 1957. The driving force behind the policy was Ike's strong belief that without a peaceful atom the world was doomed. In 1957, the National Security Council concluded that the US "would try to persuade other governments to accept the international safeguard provisions in the agreements for cooperation..." (p. 439). Ultimately, the Nuclear Nonproliferation Treaty and tightened export laws have nudged most nations toward "full-scope" safeguards, but only after a period of years to convince other nations to accept inspectors of other nations on their soil. The authors do not pass final judgment on the Atoms for Peace plan. In my opinion, *Atoms for Peace, on balance*, was a success, considering that ultimately there are no technical barriers to the bomb for medium-sized countries. Certainly, we have accelerated some near-term proliferation by technology transfer and training with India and Israel, *but* an international regime has been established under the IAEA, the NPT, and the nuclear supplier nations. This is no small accomplishment. Only under Ike's leadership could this have been possible. Only time will tell if the world has gained more than it has lost in terms of the vertical and horizontal arms race. It is hard to imagine world stability without these norms.

The Castle Bravo shot on 1 March 1954 tested the US's first "dry" hydrogen bomb. The fallout from the 6 megaton Castle Bravo gave doses as high as 1000 REM, 200 miles from the explosion. Unfortunately, the Lucky Dragon fishing vessel was in its path, 90 miles away, and all 23 Japanese crew members suffered from radiation exposure. As one can imagine, public opinion on nuclear testing was greatly inflamed, encouraging Eisenhower to look for a solution. Strauss and the AEC Commissioners did cover things up as much as possible: "Within the Commission, however, there was much less evidence of compassion for the fishermen and more concern about the security and scientific implications" (p. 177). As early as April 1954, Eisenhower and Dulles decided to explore the possibility of ending all thermonuclear testing (p. 223). Yet, over the years, Eisenhower continued to test nuclear weapons. "He expressed his frustration at having to conduct extensive tests on the one hand while professing readiness to suspend testing in a disarmament program on the other" (p. 457). Interestingly enough, the early US proposals were tied to the fissile cutoff, a ban on the production of plutonium for weapons, a proposal that favored the US at that time. The day after the conference of experts adjourned in Geneva, Eisenhower announced on 22 August 1958 that the US would unilaterally suspend all nuclear weapons testing, provided the nuclear powers could establish an effective inspection system and make substantial progress on arms control (p. 546). Unilaterally, Ike had changed US and NATO policy. He had established a comprehensive test ban (0 kiloton limit) without the sophisticated verification technologies that we have today. Ultimately the Soviets joined this moratorium,

which lasted until 1 September 1961, when the Soviets broke the moratorium. By today's standards, this was an incredible set of circumstances, a unilateral US act, soon followed by the Soviets, for a total ban of nuclear tests which could not be verified down to the zero kiloton level, and which did not allow for inspections. Ike did admit that he favored continued underground testing, but he concluded that world opinion against testing was more powerful than thermonuclear weapons. And Ike moved over the objections of Lewis Strauss and Edward Teller, who wished to promote the testing of clean "bombs" and the peaceful nuclear explosions of Project Plowshare. Ike told Strauss that the AEC alternatives "led nowhere but to an indefinite arms race; at least Dulles' position might be a step toward general disarmament" (p. 546). And it did work—for 3 years. Had the moratorium been maintained, we would not be faced today with the destabilizing MIRVs that are placed on the SS-18 and MX missiles. This history lesson remains with us today. Now that dangers from nuclear fallout from nuclear testing have been eliminated by testing underground, public opinion against testing is not nearly as strong as in the 1950s. Nevertheless, underground nuclear testing does allow further modernization of weapons such as the earth-penetrating warhead, and that is why the Comprehensive Test Ban Treaty is still an issue today.

These two events, the Atoms for Peace Plan and the nuclear test moratorium of 1958–61, are impressive. Looking back to the prerevisionist days, I recall that Eisenhower was demeaned as a not-very-bright, golf-playing, former general. The authors argue that he deserved a much better epitaph than that. His farewell address gave us an indication that there was a much greater dimension to this man:

In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex...Only an alert knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together...Partly because of the huge costs involved, a government contract becomes virtually a substitute for intellectual curiosity...In holding scientific research and discovery in respect, as we would, we must also be alert to the equal and opposite danger that public policy could itself become the captive of a scientific-technological elite...Because this need is so sharp and apparent, I confess that I lay down my official responsibilities in this field with a definite sense of disappointment...As one who knows that another war could utterly destroy this civilization which has been so slowly and painfully built over thousands of years—I wish I could say tonight that a lasting peace is in sight (p. 563).

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