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Nuclear Policies: Fuel Without the Bomb

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should be added to the collections of all libraries and airpower historians.

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Wohlstetter, Albert, et al. *Nuclear Policies: Fuel without the Bomb*. Cambridge, Mass.: Ballinger, 1978. 107pp.

Despite the conscientious efforts of the United States, a number of states continue to creep toward the development of nuclear weapons, constantly shrinking the leadtime between a discernible interest in nuclear weapons and the actual possession of them. As the authors of *Nuclear Policies* rigorously argue, "present conventions allow activities to come too close to a bomb to give a warning [safeguards] system time to work." This argument has had enormous significance in shaping the U.S. policy response to the problem of nuclear proliferation.

In fact, *Nuclear Policies* is a logical outgrowth of the seminal study, *Moving Toward Life in a Nuclear Armed Crowd?*,* which was prepared for the U.S. Arms Control and Disarmament Agency (ACDA) in 1975. The ACDA study played an important part in the formulation of the decisions of Presidents Ford and Carter to defer the commercial separation and use of plutonium in this country, and to ask other countries to join us in this moratorium. Unfortunately, while many countries share the U.S. concern with the prospect of living in a nuclear-armed crowd, they have not all shared the U.S. analysis of the problem and, as a result, have continued the construction of plutonium reprocessing facilities. Of course, the fact that makes such efforts worrisome is that plutonium—unlike

reactor grade uranium—may be used without modification as a fissile explosive material in nuclear weapons.

In September 1977 Albert Wohlstetter, considered by some to be the greatest living U.S. strategist and a leading scholar of matters nuclear, testified at British hearings in which proposals were reviewed for the construction of a plutonium reprocessing facility at Windscale. Wohlstetter's testimony is reprinted (with a few additional notes) as chapter two of *Nuclear Policies*. In his testimony he systematically addresses and demolishes a number of arguments that had been marshaled to support the construction of the Windscale plant. To very briefly summarize: Wohlstetter illustrates the questionable economics involved in recycling plutonium to reduce uranium requirements; he attacks the argument that as there are other routes to nuclear weapons, restrictions on plutonium commerce are irrelevant. (Such arguments are "like opposing inoculation for smallpox because one might die of bubonic plague.") He demonstrates that the storage of unprocessed spent reactor fuels is a safer alternative than an early commitment to commerce in plutonium; he establishes, using recently declassified information, that plutonium contained in spent power reactor fuel is neither "denatured" nor contaminated by unstable isotopes of plutonium. Therefore, it would be adequate for a fission weapon in the kiloton range, notwithstanding claims to the contrary; and he addresses the economic attractiveness of expenditures at the margin of civil nuclear programs in order to gain a nuclear weapons option, as opposed to the more costly and dangerous step of developing nuclear weapons from scratch. Wohlstetter's arguments are carefully supported, tersely presented, written in a readily accessible style (as are the other contributions in *Nuclear Policies*) and keenly persuasive to this reviewer. Sadly, the arguments

*Subsequently published in an updated and revised book as *Swords from Plowshares: The Military Potential of Civil Nuclear Energy*. Chicago: University of Chicago Press, 1979.

were not as persuasive to British members of Parliament, who voted by a government majority of 130 in the spring of 1978 (after the book went to press) to support the construction of the facility at Windscale.

Roberta Wohlstetter, the widely respected author of *Pearl Harbor: Warning and Decision*, provides a very interesting discussion of peaceful U.S. aid and the Indian nuclear program. Her chapter demonstrates the validity of the basic argument of *Nuclear Policies*, an argument that is given here in her own words:

... a government can, without overtly proclaiming that it is going to make bombs (and while it says and possibly even means the opposite), undertake a succession of programs that progressively reduce the amount of time needed to make nuclear explosives, when and if it decides on that course. This can be done consciously or unconsciously, with a fixed purpose of actually exploding a device or deferring that decision until later. But it is doing more than holding out the option. It involves steady progress toward a nuclear explosive.

The relevance of this argument is well illustrated by the case of Pakistan, which received so much attention in 1979.

Pakistan, faced with the lapsing of a French agreement to build a plutonium reprocessing facility, has apparently taken necessary steps to procure the components for a uranium enrichment facility at Kahuta (north of Islamabad). The Pakistani efforts, which came to public attention in April 1979, were deemed serious enough to justify the suspension of \$40 million in aid by the U.S. Government. The incongruity of the Pakistani efforts with any non-military nuclear program is vividly illustrated by the fact that Pakistan's only operating nuclear reactor requires

natural, not enriched uranium as fuel. Incidentally, while the Pakistani Government denies that it is developing nuclear weapons, there has been some discussion in Pakistan's press of "peaceful nuclear explosives"—the same term used by the Indians to describe their May 1974 atomic bomb. Even if the Pakistanis do not now intend to produce nuclear weapons, the steps that are being taken will inevitably take them closer to the option.

In addition to the chapters contributed by the Wohlstetters, Robert Gillette of the *Los Angeles Times* presents a competent and comprehensible primer on the technology of nuclear energy production and its relation to bomb making. Gillette's chapter serves as a useful introduction to the technical matters discussed in the remainder of the book.

Finally, Victor Gilinsky, a commissioner on the U.S. Nuclear Regulatory Commission and a widely respected authority on nuclear matters, provides two chapters emphasizing the attempts toward, and problems inherent in, the international control of nuclear energy. Gilinsky's chapters describe, among other things, the intense efforts that the domestic nuclear industry and the international trading partners of the United States have made to disprove any connection between civilian and military uses of nuclear energy. However, if we have learned anything it is that there are not two atoms—one benign and the other destructive—but only one, and the proliferation of dangerous peaceful nuclear facilities has also increased the likelihood of proliferation of another sort.

Roberta Wohlstetter offers some thoughts on a U.S. nonproliferation policy for both India and Pakistan. Her ideas, however, may be applied far more widely. She recognizes, as some U.S. policymakers have not, the need for the United States to address legitimate or perceived military challenges if the

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nuclear proliferation incentives are to be dampened (a factor applicable to Taiwan and South Korea, among others). She counsels that the abandonment of the Indian program might be used as a lever for securing a similar commitment from Pakistan; however, this is a problematic option given the levels of distrust and hatred that reside in the subcontinent. She also ponders the possibility that India might be given proprietary rights to the plutonium in its irradiated fuel, which would then be returned to the United States. If it were ever reprocessed, India would receive appropriate credits toward the cost of slightly enriched uranium fuel substi-

tuted by the United States. Most important, Dr. Wohlstetter recommends a firm U.S. policy that should condition future nuclear cooperation on the acceptance of fuel-cycle safeguards. This final recommendation is one of the clear messages of *Nuclear Policies*.

Perhaps the single guiding principle for the conduct of U.S. nonproliferation policies should be a quotation taken from Florence Nightingale and often quoted by Albert Wohlstetter: "Whatever else hospitals do, they shouldn't spread disease."

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OPEC's oil-pricing policies during 1973-1974 are examined to determine their effect on the world economy, and particularly on the countries of the Third World. A cooperative plan between OPEC and the industrialized nations to provide assistance to the less-developed countries is seen as the only means through which the poorer countries might attain a measure of long-range economic growth.

Ausland, John C. *Norway, Oil, and Foreign Policy*. Boulder, Colo.: Westview Press, 1979. 140pp. \$15.00

Norway as an oil-producing nation is examined from an international perspective. Such issues as the management of terrorist attacks and blowouts; the diplomatic conflicts over the oilfields in the Barents and North Seas; and the problems related to pricing, profits, and pace of production are scrutinized with regard to Norway's future prospects. Though lacking an index and a bibliography, this timely publication is the first English-language study of its kind. It is based on interviews, correspondence, official reports, and parliamentary debates.