

**Commentary: *Timely Warnings Still—
The Wohlstetters and Nuclear Proliferation***

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Strike up a serious discussion in Washington regarding the spread of nuclear weapons, and there's a good chance the works of Albert and Roberta Wohlstetter will be invoked to add an air of authority to whatever is being said. Those citing the Wohlstetter's works, however, do so as if Albert and Roberta were only of historical interest.¹

Certainly, the Wohlstetters understood far better than most officials do today how the spread of nuclear weapons, even to friendly states, could undermine our security and international stability. That's why they detailed the security risk of the United States and other states supplying dangerous nuclear technologies and materials for civilian purposes under loose safeguards. They also understood the inherent dangers of additional states making nuclear fuels or using nuclear weapons-usable fuels, and how inspections by the International Atomic Energy Agency (IAEA) could provide little warning of diversions of these materials and activities to bomb-making.

For these reasons and others besides, they objected to interpreting the Nuclear Nonproliferation Treaty (NPT) as if it recognized the *per se* right of signatories to make or stockpile nuclear weapons-usable fuels. Here, they were attentive to the notion, heralded in the NPT, that it was the "benefits" of peaceful nuclear energy that were to be promoted, not money-losing, dangerous activities that brought states to the brink of acquiring bombs. That's why they made such painstaking efforts to clarify which nuclear activities and fuels were economical and safe, and which ones were not.

Finally, although the Wohlstetters were skeptical of arms control and nonproliferation schemes that thought "minimum deterrent" nuclear stockpiles were justifiable for states to threaten each others' cities with, they were open to sounder arms control proposals. Here, they felt more comfortable promoting restraints that focused on economics and approaches that might increase the number of states that could veto the access of nations to dangerous materials and activities rather than elaborate civilian nuclear supply "grand bargains" whose success depended on unverifiable "peaceful" end-use pledges.

The analyses and key conclusions of the Wohlstetters are still timely today. A brief review of their key works on nuclear proliferation clarifies why.

N + 1 Problems.

Since 9/11, it's been fashionable to see U.S. nonproliferation efforts as turning upon the distinction between friends and adversaries. The United States should worry about hostile states like Iran getting nuclear arms, it is argued, but support the nuclear activities of possible friends, such as India. It makes sense to help our Middle Eastern friends to develop "peaceful" nuclear energy, but there is a problem with North Korea or Syria doing so.

This line of reasoning is plausible. The Wohlstetters certainly were no friends of Communist North Korea or revolutionary Iran. But to an extent rarely expressed in Washington today, they also worried about friendly countries acquiring nuclear weapons. As Albert made clear in "Nuclear Sharing: NATO and the N+1 Problem" (1961), alliance members that try to acquire nuclear weapons, even with U.S. help, can significantly reduce alliance cohesion *and* defense capabilities against first-tier competitors (such as Russia and China today) or even second-tier competitors (such as a possible nuclear-armed Iran). In his view, it was a major mistake for the prospective or newly nuclear-armed state and its friends to view proliferation as being a problem limited to the next country that acquired nuclear weapons after them (that is, the "N + 1" problem country). Instead, in Albert's view, alliance and security headaches arose from the prospective or newly nuclear-armed state (or the "Nth" problem country) itself.

The Wohlstetters certainly were much more skeptical than most officials and academics, then and today, of the ability of smaller states—France in the 1960s, India in the 1970s, and beyond—to make their nuclear forces any more than net liabilities to a security alliance relationship. As Albert noted in *Strength, Interest and New Technologies* (1968), Russia needed to dedicate only a small percentage of its strategic offensive and defensive forces to neutralize France's entire *force de frappe*. Moreover, France would constantly be pressed financially and technologically to make its nuclear forces even minimally credible without simultaneously drawing down critical conventional force capabilities:

A small nuclear force . . . is hardly likely to make any country that has it the equal of any other in deterring at-

tack on itself. And the technological defects of small nuclear forces limit their potential for protecting their possessors indirectly by triggering one major power against the other. However, even if these defects did not obtain and any country with nuclear weapons could thereby get direct or indirect protection for itself, there would still remain the need to protect non-nuclear countries from nuclear coercion. And giving bombs to everybody hardly seems the way to do it.²

These points should raise more than a few questions for U.S. and allied policymakers today. Just how much of a headache might India and Israel create for the achievement of U.S. and allied security goals *because* of their nuclear forces?³ What assistance might each demand of the United States to maintain their force's survivability and effectiveness against improved Chinese and Pakistani forces and, in Israel's case, against its neighbors with nuclear ambitions? Might Israel ask the United States for intelligence or other help in bombing future threatening "peaceful" nuclear sites in Iran, Syria, Egypt, or Saudi Arabia? How critical might the American role be in keeping the peace between New Delhi and Islamabad? Failing this, how automatic might deterrence between India and Pakistan be? What advanced offensive and defensive strategic weapons technologies might India or Israel ask the United States to share in order to assure these countries' nuclear strategic freedom of action? How much assistance will the United States be asked to lend to the respective conventional forces of India, Israel, and Pakistan as each of these countries tries to cope with the constant technical and financial demands of keeping their strategic deterrents credible against key adversaries?

This, then, brings one to questions touching on U.S. foreign policy. How might attending to these demands detract from other U.S.-allied security objectives? Will India or Israel ever be able to keep their nuclear forces sufficiently survivable or effective to suit their own views of what is required for their national security? How might trying to fulfill their requests for strategic assistance (or failing to do so) affect Washington's ability to shore up allied counterinsurgency, counterterrorism, and state-building efforts in Iraq or Afghanistan, or America's need to maintain sound relations with Pakistan in the war on terror? Given the questions with these states, how eager should the United States be to humor

or support the military nuclear musings of Australia, Brazil, Turkey, Ukraine, Japan, Saudi Arabia, Egypt, South Korea, or Taiwan? What headaches for U.S. security might these nations' efforts to go nuclear pose? Should we simply assume that these nations will go nuclear no matter what we do, or should we instead try to discourage them by offering—or strengthening existing— security arrangements?

Safe or Dangerous?

The next set of issues that the Wohlstetters' nuclear studies highlighted is the imprudence of nuclear-supplier states spreading dangerous civilian nuclear technology under loose safeguards. Here, the Wohlstetters were the first to seriously analyze and question the nonproliferation merits of the Nuclear Nonproliferation Treaty, the International Atomic Energy Agency's Statute, and the IAEA's nuclear materials accountancy system.⁴ None of these nonproliferation⁵ measures, the Wohlstetters concluded, would do anything but *spread* the means to make bombs unless they did a much clearer job of defining what is—and is not—"peaceful," "beneficial," and "safeguardable."

The Wohlstetters certainly were clear about the dangers of allowing for the transfer of nuclear weapons-usable fuels and nuclear fuel-making plants to states that did not have nuclear weapons. They also were firm in their opposition to moving toward commercial use of plutonium-based fuels, even if such fuels were "lightly" irradiated to reduce partially their usability in weapons. Today, the Global Nuclear Energy Partnership (GNEP) proposes to share virtually identical plutonium-based fuels. Such fuels, it is claimed, can be made sufficiently "proliferation resistant." But how likely is this? Already, the backers of GNEP promise only to make fuels that might be difficult for terrorist organizations to divert for bomb-making. GNEP fuel recycling, they concede, would be risky to share with other states that do not already make their own nuclear fuels because it might allow them to break out and make bombs quickly.⁶

Then, there is the whole question of the ability of IAEA safeguards to keep track of such fuel and fuel-making activities in order to warn against possible military diversions in a timely manner. The Wohlstetters were particularly wary of attempts to use Article IV of the NPT to justify the further spread of plutonium-based fuels, centrifuge plant technologies for uranium

enrichment, and reprocessing. It was fashionable in the 1970s, as it is again today, to insist that the NPT recognizes that all states have a *per se* right to any and all declared and inspected nuclear technologies and materials so long as they have some conceivable civilian application. Yet, as the Wohlstetters detailed in, “Signals, Noise, and Article IV” (1979), for historical, technical, economic, and legal reasons, asserting such a *per se* right is both dangerous and untenable.

One reason why is the clear limit of protection that international inspections can afford against the diversion of civilian nuclear programs to military uses. No inspections system, the Wohlstetters noted, could possibly afford timely warning of military diversions from fuel fabrication and production plants where materials directly usable to make bombs were being generated or handled. These facilities, and materials in them, literally could bring states within days—or hours—of acquiring nuclear weapons. Again, the only safe locations for such plants or materials, the Wohlstetters noted, locations in states that already had nuclear weapons.

Unfortunately, this point—which the Wohlstetters amplified in “Spreading the Bomb without Quite Breaking the Rules” (1976), *Swords from Plowshares* (1979), *Towards a New Consensus* (1979), and many other works—has yet to sink in. President Bush, for example, proposes to make nuclear fuel accessible at “reasonable prices” to any states that do not now make nuclear fuel as a way of discouraging them from making their own nuclear fuel. Both the State Department and former Senator Sam Nunn, chairman of the Nuclear Threat Initiative, back such fuel offers, along with power reactor assistance in general. They warn, however, that we will fail to get states to use such fuel services unless we reassure them that by taking our assistance, they will in no way jeopardize their “inalienable right” to make such fuel on their own if they subsequently should choose to do so. European supporters of such assurances even insist that offers of such assistance will be believable only if the fuel is produced in facilities built in states that don’t currently make nuclear fuel.

None of this is likely to reduce the spread of nuclear weapons capabilities. As the Wohlstetters noted in their analyses, there is no reliable, timely way to detect military diversions from centrifuge enrichment plants or reprocessing plants. These facilities could quickly convert fresh or spent power-reactor fuel into bomb-usable plutonium or uranium. Nor did the Wohlstetters see any

reliable way to prevent or detect in a timely manner the gradual or quick diversion of nuclear weapons-usable and near weapons-usable fuels to make bombs.

None of these points are getting their due today. There is renewed interest in negotiating a “verifiable” military fissile material production cutoff treaty, but there really is no way to verify such a treaty effectively, not only because covert bomb-fuel plants cannot be detected reliably, but because a military cutoff treaty would still allow states to make nuclear fuel for “peaceful” purposes. Insisting that these civilian plants can be safeguarded in weapons states will inevitably lead nonweapons states to insist that they can be safeguarded everywhere. Even now, one hears desperate talk of somehow limiting Iran’s nuclear enrichment activities so that they might be safeguarded. Sadly, this is not feasible.

For these and other reasons, the Wohlstetters were eager to discourage states from pursuing dangerous nuclear activities. They also were skeptical of regionalizing them. Where were these regional fuel-making centers to be located? Who would build, run, and own them, and what would be charged for the fuel produced? Would such services increase or decrease the number of states that could acquire nuclear weapons, or simply be used as yet another reason for states to acquire large, uneconomical reactor programs of their own?

These questions bring us back again to current proposals to make nuclear fuel available at “reasonable” prices from international or regional nuclear fuel banks. Wouldn’t subsidizing the fuel simply encourage more states to pursue nuclear energy programs? Each reactor would require tons of fresh low enriched uranium, and would make many bombs worth of weapons-usable plutonium annually. What would prevent these states from using these materials to make highly enriched uranium or separated plutonium? As already noted, the official U.S. position is that all states retain their “right” to make such materials at any time. What is to keep them from exercising this “right”?

Atoms for Peace.

This, then, brings us to a related problem that Roberta Wohlstetter spotlighted in her detailed Energy Research and Development Agency study, *The Buddha Smiles: Absent-Minded Peaceful Aid and the Indian Bomb* (1976): the tendency of American and allied officials to oversell the “control value” of various

civilian nuclear initiatives. This point is all too painfully clear when examining the U.S. nuclear cooperation agreements and disputes with India, which arose from Canada's and America's concessionary diplomacy of the 1950s and 1960s. Here, American and Canadian diplomats thought that they had secured clear, "peaceful" end-use pledges from New Delhi that would prevent India from ever misusing the nuclear goods that they might receive. The pledges, instead, were fatally vague. India, in fact, insisted that it had done nothing wrong in using this aid to detonate what it called a "peaceful" nuclear explosive device.

Diplomatic failures of this sort—the result of haste and inattention—are still prevalent today. Certainly, many of the contentious Indian demands made during the 1950s and 1960s regarding the CIRUS and Tarapur reactors are all too similar to those more recently raised during the negotiation of the U.S.-Indian civilian nuclear cooperative agreement. If the U.S. Executive Branch is not lucky, it may yet see India test nuclear weapons and again have to defend such action against Congressional demands that Washington suspend further U.S. nuclear cooperation.⁷

This helps explain why the Wohlstetters were so hard-nosed when it came to nuclear restraints and economics. They understood the power of economics, and believed that it was a mistake for any government to pay extra to produce strategic forces or nuclear electricity or fuels if, in the process, it only reduced security. They both went to great lengths to analyze the economics of different types of nuclear power fuels and reactors, and to detail the high economic and security costs of creating even a "small" nuclear force.

This analysis complemented their insight that the best proposals for restraint played to the natural tendencies of states to defend themselves and to surrender only that which was safe to give up. Rather than relying heavily on efforts to bribe specific states into "doing the right thing" (e.g., Agreed Frameworks, Iranian nuclear incentive packages, and other "grand bargains"), the Wohlstetters preferred to develop country-neutral rules that played to states' clear security interests.

In this vein, Albert sketched out a worthy proposal in a brief memo entitled "Nuclear Triggers and Safety Catches, the 'FSU' and the 'FSRs'" (1992). The memo addressed the potential problems posed by Russian nuclear weapons in post-Soviet Ukraine. Albert asks: Instead of trying to reduce the number of nations with their finger on the nuclear "trigger" (i.e., demanding that Ukraine give

up its nuclear weapons to Russia), why not secure the weapons and increase the number of states – starting with Ukraine, Russia, and the United States – that would have a veto over the Ukraine’s ability ever to regain access to the weapons? In discussing this idea further, Albert was quite willing to see his idea expanded to cover other nuclear problem sets—for example, to weapons-usable nuclear materials.⁸ Why not get Japan, North Korea, and China to surrender whatever direct-use nuclear materials they felt comfortable to declare to be in surplus (including highly enriched uranium, plutonium-based fuels, and separated plutonium) and make access to this material by any of these states contingent upon total agreement among and consent from all of these states? Initially, one might simply put the material under safe storage with state-of-the-art cipher locks. Later, one could remove the material to some safer, more remote location (*e.g.*, Greenland) with much greater physical barriers and protections. The idea would be to increase the number of states whose fingers would be on the “safety catch” rather than reduce the number of states whose fingers were on any nuclear trigger, and also to increase the holdings kept under such safety arrangements.⁹

Conclusion.

Albert was fond of arguing that it would be nice if we could somehow stop making our mistakes hereditary. What he was referring to, of course, was the diplomatic tendency not only to grandfather past errors, but to insist that we repeat them in the future so that no one might notice the original mistake. What’s worrisome about this practice is that it generally works. In time, we accept our past policy choices as absolutes and actually stop thinking about reversing course—even when it makes sense to do so.

There’s no question but that if the Wohlstetters were alive today, they would continue to push for clear changes in U.S. and allied policies regarding civilian nuclear energy and nonproliferation. They certainly would be dismayed by the current enthusiasm to use plutonium-based fuels commercially and to subsidize further capital-intensive nuclear energy projects. They would object to the U.S.-Indian nuclear deal, as well as to nuclear cooperative efforts with states in the unstable Middle East, and would be sharp critics of the way the United States and its allies have handled the North Korean and Iranian crises. What

would distinguish them from other such critics today, however, would be that their objections would not be partisan, but would be consistent with many decades of sound research. We could do much worse than to read them either again – or for the first time.

ENDNOTES - Sokolski

1. E.g., see Brad Roberts, “Rethinking N + 1 Proliferation of Nuclear Weapons,” *The National Interest*, Spring 1998; and David Santoro, “Of the Utility of the Non-Proliferation Regime: The Essential Dialectic between Supply and Demand,” in *Strengthening the Global Nonproliferation Regime: Views from the Next Generation*, Brad Glosserman, ed., Washington, DC: Pacific Forum CSIS Young Leaders, May 2006, available from www.tinyurl.com/6bqak9.

2. See Albert Wohlstetter, *Strength, Interest and New Technologies*, opening address before *The Implications of Military Technology in the 1970s*, the Institute for Strategic Studies’ ninth annual conference, Elsinore, Denmark, September 28 to October 1, 1967, D(L)-16624-PR, Santa Monica, CA: RAND Corporation, January 24, 1968, available from www.rand.org/about/history/wohlstetter/DL16624/DL16624.html. The address was also published as Wohlstetter, *Strength, Interest and New Technologies*, in *The Implications of Military Technology in the 1970s*, Adelphi Papers No. 46, London, UK: Institute for Strategic Studies, March 1968.

3. We have more than an inkling of what the Wohlstetters’ views of the Israeli and Indian nuclear programs were. In *Moving Toward Life in a Nuclear Armed Crowd?* (1976), the Wohlstetters were quite clear about the high costs and negative security value of nuclear weapons for smaller states such as Japan. They spotlighted the great expense smaller nations would have to pay in order to make their nuclear forces truly survivable and effective against large and small competitors. Regarding Israel, Professor Wohlstetter published little but detailed before a student seminar held in 1976 – years before it was publicly clear that Israel had nuclear weapons – the “mistake” Israel made in acquiring its own nuclear forces. His key arguments were that Israel would gain little in possessing its own nuclear force, that maintaining sound relations with the U.S. would otherwise provide security, and that Israel would run severe strategic risks if these relations soured. The reason why was simple: Israel (and other states, including

nations as large as Japan) could hardly make its nuclear forces truly competitive against major powers, whose favor Israel's security would ultimately rely upon.

4. The best known of these studies was *Moving Toward Life In a Nuclear Armed Crowd?* a Pan Heuristics report completed for the U.S. Arms Control and Disarmament Agency in 1976 and subsequently published by the University of Chicago Press in 1979 as *Swords from Plowshares: The Military Potential of Civilian Nuclear Energy*.

5. Albert Wohlstetter once warned his University of Chicago class against thinking that "deterrence" was always a very clear thought. "Turning a verb into a noun," he warned, "was rarely a good idea." With this in mind, one would have to wonder about the clarity of "nonproliferation," which is a verb ("proliferate") turned into a noun, and with a prefix ("non") attached to it.

6. On these points, cf. the U.S. Department of Energy's website, www.gnep.energy.gov; Edwin Lyman and Frank von Hippel, "Reprocessing Revisited: The International Dimensions of the Global Nuclear Energy Partnership," *Arms Control Today*, April 2008, available from www.armscontrol.org/act/2008_04/LymanVonHippel.asp; and Committee on Review of DOE's Nuclear Energy Research and Development Program, National Research Council, *Review of DOE's Nuclear Energy Research and Development Program*, Washington, DC: National Academies Press, 2007, esp. "Minority Opinion: Dissenting Statements of Gilinsky and Macfarlane," pp. A1-A6, available from www.nationalacademies.org/morenews/20071029.html.

7. On these points, see Victor Gilinsky, "Nuclear Consistency: The U.S.-India Deal and Our Approach to Rogue Nuclear Powers Is Threatened by Double Standards," *National Review Online*, April 30, 2007; and Roberta Wohlstetter, *The Buddha Smiles: Absent-Minded Peaceful Aid and the Indian Bomb*, PH-78-04-370-23, final report prepared for the U.S. Energy Research and Development Administration in partial fulfillment of E (49-1)-3747, Los Angeles, CA: Pan Heuristics, November 15, 1976, revised November 1977, available from www.npec-web.org/essays/19771100-RW-BuddhaSmiles-Revised.pdf, courtesy Joan Wohlstetter.

8. Author's private conversation with Albert Wohlstetter at his California residence, spring 1992.

9. This idea should be seen as still ahead of its time. A similar proposal recently was suggested by Robert Einhorn at an international conference hosted by the Nuclear Threat Initiative and the Norwegian Government held in 2008 in Oslo, Norway.