

with suppression of truth and dissent, suggests we need to be skeptical when Alvin Weinberg, former head of Oak Ridge National Laboratories, asks, as he did in 1977, that the public accept a "nuclear priesthood" to run the nuclear industry, and rely on its good judgment about the risks involved. The record of the scientific community in managing the enterprise of nuclear power and nuclear weapons is not promising.

Fortunately for what remains of democracy, truthfulness and scientific inquiry in the United States, the reality about the nuclear age began to emerge. The radiation damage suffered by Japanese fishermen in the 1954 BRAVO nuclear-weapons test, the realization in the Vietnam war that the government could not pursue a policy as successfully as it claimed, the realization in Watergate that government officials might lie, the accident at Three Mile Island that revealed critical risks in the nuclear enterprise—all of these events have made it clear that the public must become involved in the process of deciding about nuclear energy and the military nuclear future.

Broadening the arena of debate over nuclear power and nuclear war has been difficult. The most important change has been the development of alternate sources of information and expertise that can survive tests of scientific accuracy and objective judgment. Scientists and engineers have begun to leave nuclear-power companies and speak of their experience. Economists, environmentalists and researchers have begun to examine claims about the cost and safety of nuclear reactors and about the wisdom of pursuing yet another generation of destabilizing nuclear weapons. Gradually, this information has challenged the proponents of nuclear power and nuclear war. The debate over nuclear power has been the more successful, fueled by reactor safety incidents, the realization that nuclear power would cost a great deal more than promised, and the decline in demand for energy that followed the Middle East crisis of 1973. Nuclear technology's day is now passing. A similar stage in the debate over nuclear weapons is still a step away, but approaching rapidly.

With Enough Shovels: Reagan, Bush & Nuclear War

R. Scheer

285 pp. Random House, New York, 1983.
\$14.95

To explain his policy on arms control, President Ronald Reagan said in an interview (*The Wall Street Journal*, 3 February 1984), "The only way we were

going to convince them [the Soviet Union] that common sense called for reduction of arms was to build our own defenses to where we had a deterrent capacity." At the same time, Sir Rudolph Peierls wrote "one can argue about the size of the minimum deterrent, but there is no question that the stockpiles are grossly in excess of that minimum" (*Bulletin of the Atomic Scientists*, January 1984). Peierls, one of the world's pre-eminent physicists, was adviser to the British Government

for many years and has maintained active involvement in nuclear-arms-control discussions.

Robert Scheer's book *With Enough Shovels: Reagan, Bush and Nuclear War* is a useful reference to help one make sense of the disparity between these two statements. Scheer, a national reporter for the *Los Angeles Times*, has based his book on interviews with Reagan, George Bush, Eugene V. Rostow and other Administration officials. The title of the book is taken

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from an interview with T. K. Jones, Deputy Under Secretary of Defense for Research and Engineering, Strategic and Theater Nuclear Forces: The shovels are for digging holes that would be covered with a couple of doors and three feet of dirt. In Jones's view, the procedure would provide adequate fallout shelters for millions of people evacuated from cities to the countryside. "It's the dirt that does it," he said, expressing his belief that the United States could fully recover from an all-out nuclear war in two to four years. This interview took place in 1981; since then many scientists have made a concerted effort to form more realistic expectations of the effects of nuclear war in the minds of government officials and the general public. Although some success may have been achieved, the task is far from complete, as is evident from other of Reagan's remarks in his *Wall Street Journal* interview.

Scheer's book contains verbatim segments of his interviews and has chapters on The Committee on the Present Danger and the famous Team B, whose report to the CIA in 1979 (while George Bush was director) is thought to have formed the basis for Reagan's campaign assertions that the Soviets had betrayed the hopes of detente and that the United States must "rearm." Team B was successful in getting the US Government to alter its estimates of Soviet strength and intentions, though critics charged that Team B seriously distorted the CIA's raw data to conform to the political prejudices of its members. Scheer's book also contains background interviews with experts on nuclear war and arms-control negotiations: Hans Bethe, Herbert York, Robert McNamara, Cyrus Vance and Paul Warnke.

This book is a useful summary of interviews with top people. It helps make comprehensible the apparent absence of thought in the present Administration regarding this profound problem, the risk of nuclear war—risk being defined as the probability of an event times its effect. A criticism can be made that the book may be misleading because, focusing on the Reagan Administration, it gives the impression that this Administration differs from its predecessors on fundamental policy issues. I do not believe that this is the case. Some members of this Administration may have extended the idea that nuclear weapons are useful instruments of national policy. However, the Reagan policies are in the main a continuation of those of past administrations; see, for example, presidential directive 59 of the Carter Administration's last year. The essential principles of the Reagan policy are those of doctrinal and technological consensus.

However, this Administration is expanding defense expenditures, extending the militarization of space through the "star wars" initiative, and exacerbating, with crude cold-war rhetoric, the hostile atmosphere of contention between the superpowers.

Many intelligent observers now believe the risk of nuclear war is greater than it has ever been. We must rely on our political leadership to guide us away from this brink of catastrophe. As citizens of a democratic society, it is important to know as much as we can about those who are in charge. Scheer has rendered us an important service in documenting how Reagan and those whom he appointed took pro-nuclear positions before the 1980 election and how they continued to promote policies of nuclear confrontation as they moved into power as government officials. Scheer is an excellent journalist and his writing is crisp and readable. He has chosen quotations judiciously; although they often are long, the book remains very interesting to read. In addition to the main text, there are more than 60 pages of notes with references to books and periodicals that contain further details and eight appendices with long excerpts from Scheer's interviews.

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The Final Epidemic: Physicians and Scientists on Nuclear War

R. Adams, S. Cullen, eds.
254 pp. U. of Chicago P., 1981. \$4.95

Many older physicists will recall our efforts following the Trinity test of the first nuclear weapon. We attempted to prevent the spread of nuclear weapons to other countries and to prevent their use in future wars. One by one, many of us gave up in frustration. Now, after forty years, it is gratifying that members of the medical profession, in their new 5000-member organization, Physicians for Social Responsibility, are arousing their colleagues in many countries about the greatest epidemic humans have ever faced and to realize how close at hand it may be. In one chapter of *The Final Epidemic* Bernard Lown points out that, "The baton in the relay race against a nuclear Armageddon is being passed from physicist to physician." In this book physicians join physicists and engineers to discuss how serious is our course to nuclear war.

Ruth Adams and Susan Cullen include several scenarios of a nuclear war between the US and the USSR. Hundreds of millions are killed immediately, and an equal number are fatally

injured. Most of the physicians are killed and most hospitals are destroyed. Medical supplies are unavailable, food and water scarce, public services—electricity, gas, transportation, telephones, sewage treatment—are out of service. Any semblance of organized government in the US and USSR will be absent for months or years, and roving bands of men, women and children, concerned with their individual survival, will endanger everyone else.

Although the horror of the aftermath of a nuclear war as described in this book can be likened only to hell on earth, more recent data force on us the realization that we would have an even worse situation. In the northern hemisphere, temperatures would plunge below freezing even in August as a result of the dust cloud. The possibility of agriculture would be very dim for years. Some of the dust cloud would in weeks or months cross over into the



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