Nuclear Bravado

Nuclear Blackmail and Nuclear Balance. RICHARD K. BETTS. Brookings Institution, Washington, DC, 1987. xiv, 240 pp. $28.95; paper, $10.95.

At a time when many American scientists are deeply engaged in analyses of public and private proposals for nuclear arms control, Richard K. Betts poses pointed questions about nuclear saber rattling. His book is about attempts by the United States and the Soviet Union to exert leverage on the outcome of international crises by flexing their nuclear muscles. Since the bombing of Hiroshima and Nagasaki, he counts more than a dozen cases "in which some sort of nuclear threat was used as a sparring tactic in tense confrontations" (p. 2).

Betts describes and analyzes these incidents, concentrating upon threats by the United States for which there is "a fair amount of reliable evidence." Instances in which the Soviets attempted nuclear coercion include threats that he discounts as bluster because they were issued after a crisis had peaked (p. 7). Among the lower-risk cases he catalogs the Berlin blockade (1948), the Korean War (1950–53), the crises in Indochina and the Taiwan Straits (1954–55), in Suez (1956), and in Lebanon and the Taiwan Straits (1958), and the Soviet-Chinese border clashes (1969). More serious were the two Berlin crises (1958–61), the Cuban missile crisis (1962), the Middle East War (1973), and the Carter Doctrine regarding defense of the Persian Gulf (1980).

Throughout the book, Betts contrasts two theories offered to explain American use of nuclear threats: the balance of interest theory and the balance of power theory. Advocates of the former expect that if both sides can inflict severe nuclear damage on each other, the balance of military and nuclear power will be less important to either side than how much it stands to lose if it backs down. Advocates of the latter theory expect that a nation that has more to lose from nuclear war than it can gain will not start one, whatever else is at stake. He shows that both explanations are partially valid—the former accounts for American decisions to resort to nuclear threats and the latter for the Soviet posture of risk aversion—but that neither is adequate to account for the behavior of both sides. On the basis of his examination of specific cases, Betts observes that American leaders have straddled the boundary between these theories. "As political animals they were willing to gamble rather than to invite defeat, but they hedged their bets"; they have shown "more flexibility and less coherence in practice than theorists do in principle" (p. 13). Uncomfortable as it may be, the theorists must find ways to consider the messy, sometimes unpredictable political factor.

Betts cautions that the fact that nuclear threats seem to have worked in the past does not mean they will work now. One good reason is the transition of the United States from domination to parity in strategic nuclear weapons, despite the "overlapping conceptual confusions and political evasions" about what nuclear superiority and parity mean. Nonetheless, he tries to find lessons in past direct or hinted threats and to think about how nuclear blackmail might again enter into relations between the superpowers. His final message calls for restraint: "If a whiff of nuclear blackmail enters at all in the midst of conflict, the action should have a purpose. If the purpose is not serious, why depreciate the nuclear currency, and why tempt fate?"

Nuclear Blackmail and Nuclear Balance helps to fill a gap in our understanding of nuclear weapons and their uses, while reminding us that nuclear bravado could lead to an unintended unleashing of these weapons. Within the aviary of nuclear arms controllers, Betts seems more likely to bring comfort to the doves and owls than to the hawks.

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Making Space Pay

Space Resources. Breaking the Bonds of Earth. JOHN S. LEWIS and RUTH A. LEWIS. Columbia University Press, New York, 1987. xviii, 418 pp., illus. $30.

In a narrow sense *Space Resources* concerns the existence of resources in the portion of the solar system near Earth and their potential for supporting activities in space—both near to and far from Earth. The authors' point is that there are plenty there and they can be of major help in carrying out and paying for the space program. Space resources are defined as almost any usable material or energy that can be found in space. The most immediate sources are the moon and near-Earth asteroids for materials like metals, oxygen, and water and the Sun for energy. There are also resources to be scrounged from objects launched into space and abandoned, such as unspent fuel in the external shuttle tanks and the container itself. John S. Lewis, a chemist and planetary scientist, is especially credible discussing the composition of raw materials in space and the refining processes that can make them usable.

In a broader sense, though, this book concerns what is wrong with the U.S. civilian space program and NASA, and it offers a plan to correct these faults. These seemingly disparate topics, space resources and space programs, are nicely blended into a coherent story, with remarkably broad coverage. The book treats the questions of how and where NASA went wrong. It argues that NASA does not now carry out its own charter, which is research and development, but instead attempts to be in a service industry and neglects or even destroys its research effort, as epitomized by the near demise of the Solar System Exploration Program. Through discussion of the history and motivations for space races, the authors show how the unrelated and dead-end U.S. projects (for example, Apollo) were actually carried out, as compared with the planned orderly progression toward occupation and utilization of space.

A very specific and far-ranging set of proposals is given for getting the U.S. program back on track, paying for itself and proceeding with a productive development of space. The authors carefully outline 30 specific steps, some with several subdivisions. The first is obvious and not unreasonable, namely, that "Congress, the Executive Department, and NASA must confirm the commitment of NASA to abide by its charter" (R&D). Additional steps deal with enhancement and redirection of manned activities in space and development of basic enabling technology. Finally, considerable emphasis is given to the internationalization of the space program, which has already happened and is leaving the United States behind.

Lewis and Lewis treat each topic with blunt logic, numbers and facts, and some humor. The arguments and proposals are easy to understand, even if some readers may not agree with them. The book is unusual in that it treats scientific and political topics equally well and in an integrated way. There is credibility, basis in fact, and soundness of logic. The question of whether our institutions as now constituted are able to recognize the errors and implement the solutions, however correct they may be, is not treated—and perhaps just as well. This is a book by a scientist and a science writer, not by a politician or a manager. On the topic of the decaying U.S. civilian space program, the problems are so numerous that there is a tendency for those involved to become emotional and shrill; the authors avoid that trap for the most part. I believe