as the Cuban crisis did in the 1962 congressional elections. It may even temporarily immobilize the adversary. But where the national interest must be protected by a recurring triumph of the will, and commitments themselves become substitutes for rational policy objectives, then international politics can never transcend the game of "chicken" with its built-in permanent arms race.

Increasingly, the military establishment has come to rationalize the accumulation of military power in terms of transcendent symbolic and abstract goals rather than concrete political and economic interests. Those whose job it is to urge that the United States continue to divert about 70 percent of its annual budget to defense find that they must talk about "winning," "prevailing," or "demonstrating the national will" (without defining any of them) rather than about the specific diplomatic or economic results that military power is supposed to achieve. The reason is that military power is less and less relevant to the real threats to national security in a world undergoing political revolution, and its ineffectiveness to achieve useful political results is being demonstrated around the world, most notably in Vietnam. The plain truth is that, after spending $1300 billion since 1945 on defense, the Pentagon cannot prevent the nuclear annihilation of the United States. Today more hostile missiles are aimed at us than ever before. Each year the people of the United States pay a staggering national security bill and end up with less security than they had the year before. It is not surprising that the military establishment seeks to justify a bad bargain in mystical or heroic terms, for the defense budget would not stand the test of practical social or political accounting.

Ralph Lapp's book offers glimpses into the tortured politics of defense spending, but his own analysis underscores the inadequacy of his proposals to reform the system. Pointing out that "the author is no dreamer who thinks that the United States can abandon its commitment to arms overnight," Lapp recommends that Congress take a greater role in defense planning and that scientists contribute more to public discussion of nuclear issues. He gives ample proof why such mild initiatives, though they are desirable, are unlikely to move the Behemoth we have created. As long as the premise undergirding the military establishment—that more weapons mean more security, more power, and more prosperity for the American people—is immune from political debate, we will continue to finance the "weapons culture." Public discussion of substantive issues of defense, in which the military establishment is challenged to defend its budget in terms of specific national priorities, would be useful. But the military will always come up with a plausible argument for more until the very assumptions of the arms race are rejected by the electorate and the great bureaucracies that feed on the defense budget are recognized for what they are: a threat to the national security.

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Physicists' Meeting

International Nuclear Physics Conference. Gatlinburg, Tenn., Sept. 1966. RICHARD L. BECKER, C. D. GOODMAN, P. H. STELSON, and A. ZUCKER, Eds. Academic Press, New York, 1967. xxxvi + 1121 pp., illus. $22.50.

This conference represents the most comprehensive coverage of recent developments in nuclear physics available at present. The information explosion which has occurred in nuclear physics and elementary particle high-energy physics has prevented recent international physics conferences from attempting to cover both of these fields simultaneously. The Gatlinburg conference, as is evidenced by papers on such topics as pi-meson induced reactions and 1-Bev proton scattering, indicates that nuclear physicists still hanker for their earlier fruitful association with elementary particle physics. It was with much regret that nuclear physicists at this conference learned that the cosmotron experiments at Brookhaven were to be discontinued because the machine was being shut down.

Perhaps the most significant outcome of the conference was the realization that some of our sacred concepts may no longer be sacred. In particular, questions were raised as to the "closedness" of closed-shell descriptions of magic-number nuclei. Even more worrisome, apparently, was the suggestion that perhaps one cannot even detect the departures from the closed-shell description. The distorted wave theory of direct-reaction theory was as usual criticized, and those present were given their first opportunity to hear about the latest Butler theory of stripping, which purports to do better than the distorted-wave methods. Discussion given in the proceedings following the paper on this subject contains most of the physics of the arguments for and against such a theory, but unfortunately most of the colorful discussion actually presented was changed.

The improvements and innovations in experimental techniques led to papers in the proceedings which indicate several new sources of spectroscopic information. Typical of these experiments are those involving deuteron stripping below the Coulomb barrier, polarization and inelastic scattering of protons via analogue resonances, multinucleon transfer reactions, and muonic x-ray experiments. The wealth of spectroscopic information presented raises more questions than it answers and no doubt is what led Mottelson in his summary of the proceedings to remark, "It's amazing how little we really understand."

At the heart of the conference is a multitude of contributed papers, about 160 of which are reported completely, the remaining 120 or so being in abstract form. These papers cover a remarkable array of subjects ranging from fission following direct reactions to the production of helium-8 by negative pion capture, or to tests of time-reversal invariance by detailed balance experiments. This panoramic display of subject matter is accurately recorded but leaves one with a strong suspicion that this type of nuclear physics conference may not occur again. Students of nuclear physics would tend to be overwhelmed by the complexities and details shown in these proceedings, and it is clear that this conference was aimed at satisfying the desires of active research workers rather than at reviewing the field.

The editors of the proceedings deserve much praise for tackling an almost impossible problem and for organizing the material as they did, so that predominantly recent developments and results were presented. On the other hand, the proceedings, although very handsomely produced, have taken some 15 months to appear, which is far too long a period if a proceedings volume is to prove a useful source reference to research workers not attending the conference. Future conferences of this type, if there are any, must make a determined attempt to avoid such delays.

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