

NEWS & NOTES

● **MEETING SOUTH OF THE BORDER:** The AAAS will join with Mexico's newly formed Consejo Nacional de Ciencia y Tecnologia to hold the first general inter-American meeting on science and technology, in July 1973. The 3-week gathering, to take place in Mexico City, will be largely devoted to meetings of societies representing special fields of science. One week is earmarked for discussions of interdisciplinary problems of science and ways in which science and technology can be directed toward resolving problems of society. Some 5000 scientists from all countries in the Western Hemisphere are expected to attend.

● **NAS ANNOUNCES SLAVIC PROGRAM:** The National Academy of Sciences is accepting applications from scientists for expense-paid trips to Russia and Eastern Europe. Under agreements with the academies of science of the U.S.S.R., Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and Yugoslavia, American scientists may make 1-month visits to acquaint themselves with foreign research efforts, or 3- to 12-month visits to perform research. The NAS pays the bill, including reimbursement of salary lost during long visits. Applicants must be U.S. citizens and have a doctoral degree or its equivalent in physical, biological, or behavioral sciences, mathematics, or engineering sciences. Applications should be made to the NAS, Office of the Foreign Secretary (U.S.S.R./EE), Washington, D.C. 20418, before 22 November.

● **TURNOVER AT OST:** John Dickson Baldeschwieler, a 37-year-old chemistry professor at Stanford University, was confirmed by the Senate on 29 July as successor to Hubert Heffner, who for the last 2 years has been deputy director of the Office of Science and Technology. Heffner resigned as of 15 July to return to Stanford, where he is a professor of engineering and applied physics. Baldeschwieler has been on the President's Science Advisory Committee since May 1969 and has served as its vice-chairman since last spring. Holder of a Ph.D. in physical chemistry from the University of California at Berkeley, Baldeschwieler taught at Harvard for 5 years before joining the Stanford faculty in 1965.

guments attentively, and an independent study by the General Accounting Office (GAO) backed up the FAS position. Furthermore, the soon-to-be-released annual report of the Senate Armed Services Committee is likely to side with the FAS, thereby issuing a blow to Foster's credibility. The FAS challenge comes in an area where Pentagon witnesses have often appeared in the past as the sole experts. But the FAS is not lacking its own experts, and Congress can hardly dismiss FAS witnesses as misinformed pacifists. Chaired by the 26-year-old organization, which was recently resuscitated as "the voice of science on Capitol Hill" (*Science* 26 March) is Herbert F. York, the occupant of Foster's Pentagon position from 1958 to 1961. In addition, the group that authored the report on the R&D gap consists of four well-seasoned arms experts, one of them a former Defense Department employee †.

At the heart of the Defense Department's concern about Soviet weapons technology is the belief that the Russians are now outspending us at the rate of some \$3 billion per year for military RDT&E (research, development, test, and evaluation). This fact was revealed, according to Foster, by recently devised intelligence techniques for analyzing the Soviet budget. This analysis disclosed that since 1968 the Soviets have shifted from an emphasis on investment in technology for space to an emphasis on military R&D. Because the American RDT&E investment has essentially leveled off in this period, in the Pentagon's view, we are in danger of falling behind.

Foster acknowledges that in most areas the United States still holds the same 2- to 3-year lead that it has had over the past 10 years or so. (Indeed, virtually every major innovation of the arms race has been the product of U.S. technology.) Nevertheless, if we allow the Soviets to continue to outspend us for military RDT&E, we could, according to Foster, expect some technological surprises from the Soviets

within the next year or so, lose our technological superiority by the middle of the decade, and risk the necessity of enormous expenditures over several years to protect our national security.

The FAS attacked the Pentagon's assertions on several levels. For a number of reasons, they questioned the reliability of the estimates of Soviet spending on military RDT&E. These included uncertainties in the exchange rate of rubles to dollars and difficulties in dissecting the individual components of the highly secret Soviet budget.

Moreover, the FAS report claimed that, even if it could be known for certain that the Soviets are outspending us for military RDT&E, this is no reason to assume that they are headed for technological superiority or even a technological advantage. According to the FAS report, the Pentagon makes no effort to distinguish between possible advances in the Soviet "technological base" (breakthroughs in basic concepts of weaponry) and vastly more expensive development based on existing technologies. Thus the increased Soviet expenditure could be directed entirely toward bolstering their stocks of existing weapons.

On these points, the independent study by the General Accounting Office, undertaken at the behest of the ad hoc subcommittee on R&D of the Senate Armed Services Committee, essentially substantiated the FAS viewpoint. "On the basis of the limited information available to us," said the GAO, "we believe that extreme secretiveness by the Soviet Union results in data which are insufficient for a realistic measurement of its military R&D efforts." The report concluded, "Although we believe that the Defense Department methodology with its limited data base may be useful in indicating trends and the apparent magnitude of the Soviet Union military R&D threat, we have reservations as to its usefulness in quantifying relative efforts or spending gaps between the two countries." The GAO report noted that even the Defense Department's assessment of U.S. expenditures for military RDT&E had been inaccurate.

All of this has had the effect desired by FAS of deflating Foster's claims of an imminent threat of Soviet technological superiority. But FAS spokesmen have carried the argument even further, questioning the very need for our frantic efforts to maintain tech-

† The committee that wrote the report was chaired by Marvin Goldberger, chairman of the Physics Department at Princeton University and a former high-level official of the Institute for Defense Analysis, as well as a member of the President's Science Advisory Committee and the Defense Science Board. The other members are George Rathjens, professor of political science at M.I.T. and former deputy director of the Defense Department's Advanced Research Projects Agency; F. M. Scherer, professor of economics at the University of Michigan and coauthor of a standard work on military R&D, *The Weapons Acquisition Process*; and Richard R. Nelson, professor of economics at Yale and internationally recognized authority on the economics of research and innovation.