

source of information and guidance. In a nation like ours, where knowledge is valued and the search for truth is considered among the noblest of human endeavors, the scientist naturally and properly commands great respect. With that respect, however, comes responsibility.

On brilliance. "Too often in recent years we have seen scientists with well-deserved reputations for creative achievement and intellectual brilliance speaking out on behalf of political ideas that unfortunately are neither responsible nor particularly brilliant."

Shultz observed that "it is not surprising that scientists will have strong views on such technically complex matters as nuclear weapons, arms control and national defense. But the core issues in dispute here are really not technical, but political and moral. Scientists should not expect their words to have special authority in nonscientific areas where they are, in fact, laymen. Scientists are not specialists in the field of world politics, or history, or social policy or military doctrine. As citizens of a free society, they have every right to take part in public debate. But they have no special claim to infallibility."

This was said softly, somewhat diffidently, but with conviction, for, as one of his aides indicated afterward, the reproach of scientists for expressing viewpoints at odds with official positions on political and social issues had White House approval. "In the Oval Office this is compared with a baseball hero who boosts a brand of breakfast food," said the aide. "A ballplayer may be tops at what he does, but he's not an expert on human nutrition."

Much of Shultz's speech filled in details of remarks Reagan has made before similar groups. Even the words had a familiar ring. Shultz accordingly chided his audience for their pessimism—for a "mood, more one of fear than of hope" about, for instance, the limits to growth that some scientists issued warnings about in the 1960s and 1970s. "The revolutions in science and technology have opened up seemingly limitless possibilities for transforming our world," said Shultz. "With each new breakthrough, however, come new and difficult dilemmas. For while we may seek ways to change the world around us, there is also much we would like to preserve. Our civilization is not based on material things. Our culture, our moral values and our political ideals are treasures that we would not sacrifice even for the most amazing scientific miracle."

On morals. "Breakthroughs in biological engineering, for instance, raise fundamental moral questions about man's proper role in the creation and alteration of life, even as they offer new

hope to cure disease, produce food and broaden our understanding of the origins of life. . . . We need to ensure that the revolution in communications does not infringe on our right to privacy, even while recognizing the enormous benefits of improved communication for education and for bringing the world closer together. This is the human condition: The creativity that is one part of our nature poses constant challenges to the morality that is another part of our nature. . . ."

One of the most striking of today's scientific and technological dilemmas, according to Shultz, is "the issue of strategic defense. Here the great challenge to us is not simply to achieve scientific and engineering breakthroughs. As real a difficulty is to come to grips with what Einstein called our modes of thinking. . . . Adapting our ways of thinking is never an easy process. The vehemence of some of the criticism of the President's Strategic Defense Initiative seems to come less from the debate over technical feasibility—which future research will settle one way or another in an objective manner—than from the passionate defense of orthodox doctrine in the face of changing strategic realities. We are proceeding with SDI research because we see a positive and, indeed, revolutionary potential: Defensive measures may become available that could render obsolete the threat of an offensive first strike. A new strategic equilibrium based on defensive technologies and sharply reduced offensive deployments

is likely to be the most stable and secure arrangement of all."

Another complicated dilemma vexed Shultz: "We maintain a science and technology relationship with the Soviet Union . . . even though we must work to ensure that the technologies we share with the Soviets cannot be used to threaten Western security. . . . The Soviet Union has for decades sought to gain access, through one means or another, to the technological miracles taking place throughout the free world. . . . We seek an open world, where technological advances and knowhow can cross borders freely. We welcome cooperation with the Soviet Union in science and technology. And yet in the world as it exists today, the West has no choice but to take precautions with technologies that have military applications. Cooperation with our allies is essential. Countries that receive sensitive technologies from the United States must maintain the proper controls to prevent them from falling into the hands of our adversaries."

"Scientists can help us think through this difficult problem. What technologies can be safely transferred? How do we safeguard against the transfer of technologies that have dual uses? Where do we strike the balance?"

These questions were not answered by members of the audience in the four-minute question-and-answer period following Shultz's speech. Nor were there questions or comments on the Secretary's disapproval of scientists who oppose government policies. —IG

At last, a new deputy director for NSF

President Reagan has nominated John H. Moore, an economist who is associate director of the Hoover Institution at Stanford, California, as deputy director of the National Science Foundation. The post has been vacant for more than two years, ever since the resignation of Donald Langenberg, now chancellor of the University of Illinois's Chicago Circle campus. Langenberg was one of three top NSF officials suddenly asked to resign in 1982 when Reagan named Edward A. Knapp, a Los Alamos physicist, to head the agency. Some scientists and Congressmen charged at the time that the action was politically motivated—a situation considered without precedent in NSF history. Questioned about the matter at his confirmation hearings in the Senate, Knapp insisted he had the right to choose his own team (PHYSICS TODAY, July 1983, page 60).

Last year Reagan picked Erich Bloch, an engineer who was then a vice-president at IBM, to fill Langenberg's position. But when Knapp resigned last summer to return to research at

Los Alamos, Bloch was elevated to the top job (PHYSICS TODAY, July, page 59).

Moore was a research chemist at Procter & Gamble Co from 1959 to 1963 after earning a BS in chemical engineering and an MBA from the University of Michigan. His PhD in economics came in 1966 from the University of Virginia, where he taught the subject from 1966 to 1977. After teaching at the University of Miami and Emory University, in 1981 he joined the Hoover Institution, a conservative think-tank on the Stanford campus.

Since 1982, Moore has served as a member of the National Science Board, the policymaking body for NSF. As such he is expected to win Senate confirmation, possibly without hearings, despite concerns about his political views. Moore is not the first Science Board member to be appointed to the staff at NSF. In 1972, H. Guyford Stever, then president of Carnegie-Mellon University and a board member since 1970, became NSF director in the Nixon administration. —IG □