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Soviet Science and Technology at the Boston Meeting

Much has been written about the Washington summit and the activities surrounding it. More is sure to be written about what it means in terms of world peace, arms control, *glasnost*, and *perestroika*. Unfortunately, not much has been written about the importance that the Soviet Union attaches to science and technology as engines of present and future development. The Soviet Union now trains more scientists and engineers than any other country in the world. The Soviets have an outstanding space research and development program and world-class efforts in some areas of basic research, as well as some of the same problems that we do in transforming basic research into practical products. They also have problems with the environment, ecology, and quality control that are not unlike some of those that concern the United States.

Members of the Soviet delegation touched on these and several other subjects in a 3-hour meeting at the National Academy of Sciences on 8 December. What was remarkable about this meeting was the openness and frankness with which the Soviet delegation discussed issues of science, technology, and economic development. The makeup of the Soviet delegation included leaders in science, engineering, economics, and law.

Academician Yevgeni Velikhov pointed out the problems with producing personal computers, the fact that the country needs 1.0 million by 1990 and that one half would go to precollege education programs. Sergei Zaligin discussed how a government plan to divert some northern rivers to the south would have been an environmental and ecological disaster and how the role he played as the editor of *Noviy Mir* helped in mobilizing a popular effort that stopped the project. I found this even more remarkable than stopping a major water project in the United States on environmental grounds. Academician A. G. Aganbegyan, secretary of the Economics Department, discussed the economic aspects of *perestroika* and said that Soviet management must change: "It has served as a brake on economic and social development." He pointed out that this change will cause serious problems of disruption in careers of mid-level managers: "It is not possible to make progress if you don't touch anyone."

It is unfortunate that U.S. delegations to summit meetings do not also include a group of leading scientists, engineers, economists, and editors—not as window dressing, not just brought along for the ride, but rather, as an involved, informed group capable of discussing the scientific and technical issues on their merits with their peers and counterparts from the other side. Economics, arms control, and management do not exist as disembodied activities, but influence and, in turn, are influenced by science and technology.

Later, on the same day as the meeting, an eclectic collection of individuals were invited to the Soviet Embassy for a meeting with General Secretary Gorbachev. The group included several scientists and engineers in addition to some 40 authors, actors, religious leaders, and arms control activists. After a brief reception, Gorbachev addressed the group for about 40 minutes, calling attention to Velikhov and the importance of science. This was followed by about a 40-minute discussion period during which most of those who commented praised Gorbachev for his role in *perestroika* and *glasnost*. On the basis of my limited observations, I believe that Gorbachev has a good understanding of the roles that science and technology play in economic development and that he is going to give increased emphasis to science and technology in his government's *perestroika* efforts.

I was pleased to see the emphasis placed on science and technology in some of the activities associated with the summit. I have long felt that the United States would benefit from a better understanding of basic and applied research in the Soviet Union. So about 8 months ago, I invited Velikhov to come to the AAAS Annual Meeting in Boston in February and to bring with him about ten Soviet scientists and engineers to make presentations on Soviet science and technology. Velikhov accepted but, unfortunately, the names of the Soviet speakers and their subjects were not provided in time to be included in the meeting program. A complete listing of the names and titles of the talks will appear later in *Science*. The AAAS meeting will provide an excellent forum for talks in areas such as biology, chemistry, physics, archeology, genetic engineering, and military-political research by leading Soviet scientists and engineers. I hope that many of you will attend the Boston meeting and participate in what promises to be an interesting event.

—ALVIN W. TRIVELPIECE