

PRIVILEGED

Meeting of the Delegations of the U.S. National Academy of Sciences
and the Academy of Sciences of the U.S.S.R.
on International Security and Arms Control

Washington, April 1-3, 1986

Section BW.

SUMMARY

Delegations from the U.S. National Academy of Sciences (Committee on International Security and Arms Control) and the Academy of Sciences of the U.S.S.R. met on April 1-3, 1986, at the National Academy of Sciences in Washington. Dr. Wolfgang K.H. Panofsky, Director Emeritus of the Stanford Linear Accelerator Center, chaired the American delegation and Academician R.Z. Sagdeev, Director of the Institute of Space Research, chaired the Soviet delegation.

The agenda for the meeting was a synthesis of items suggested by both sides and contained the following items:

1. Possibilities of radical cuts of nuclear weapons in context of 50 percent cuts examples.
2. Biological Weapons.
3. Verification problems arising due to technological innovation of nuclear weapons and their carriers.
4. Discussion of Strategic Defense. The boundaries between permitted and unpermitted activities relating to strategic missile defense and the uses of outer space.
5. Balance of Military Forces in Europe, NATO and Warsaw Pact, and problems of security, disarmament and confidence-building measures.

Sagdeev in his opening remarks expressed concern about the current state of U.S.-Soviet relations and what he viewed as their deterioration

said that the official position was to ban only nuclear-armed cruise missiles. He said this raised the central problem, along with the problem of radar detection and determining their trajectories from the point of view of sufficient detection time, of their configuration and characteristics. He said it was very difficult to distinguish a nuclear one from a non-nuclear one and that this was an issue which he thought should be resolved. Kokoshin said he could not give a reply at this moment and that he did not know how this problem was being considered in Geneva, but that he really believed that we were facing a very complicated problem not only because they were hard to count, but also because they were destabilizing and it was difficult to distinguish nuclear-armed from non-nuclear-armed cruise missiles, even with on-site inspection. Kokoshin said that so many people would be involved in this kind of verification that the budget could not carry it.

Panofsky said he agreed that verification of cruise missiles would be very difficult. He said there were two different ways to do it: either negotiate verification measures or ban all cruise missiles or GLCMs (he said banning SLCMs would be more difficult). Panofsky asked whether the Soviet position was to find a way to verify the difference between nuclear and non-nuclear cruise missiles, or simply to forego the nuclear ones along with the non-nuclear ones and ban them all. Kokoshin responded that he personally thought that this whole class of weapons should be banned, so that once and for all this problem of verification could be solved. He said we could spend years and years on this problem and devote entire institutions to its resolution. Kokoshin said that Gorbachev's January 15 proposal was to find a way to eliminate weapons that would simplify verification. Kokoshin said that both sides would have to sacrifice weapons that were promising as conventional weapons in order to solve the verification problem.

Sagdeev said that was a very important point. He asked whether the two sides had finished with the first agenda item. Panofsky said yes, and suggested taking a break before coming back to discuss biological weapons.

After the break, Sagdeev said it was time to move to the second agenda item - biological weapons - and to Dr. Lederberg's presentation.

Lederberg said he was glad to hear that the meeting of a special subgroup on biological weapons was something he could expect to happen. Lederberg said he would give a recapitulation of his remarks at last year's meeting (see attachment #5). He said these remarks were not particularly controversial, and that they were just his own background on the problem.

Lederberg said the difficult problems of potential and rapid breakout of the BW convention may persist regardless of both sides' current intentions and activities. He said the potential was always there for the use of biological agents in a military setting. Lederberg said that there were steps that could be taken to attempt to protect responsible governments from the BW threat from third parties. He said that grave threats also came from nature, adding that today's example was the AIDS virus but that every decade there had been a similar natural threat. Lederberg said there was no doubt about the misery that could be caused by germs.

Lederberg said there was no forum now available to discuss BW, share information and define the problem. He said this group had done that for conventional and nuclear weapons. Lederberg said there was a degradation of confidence that spilled into other areas of arms control. He noted that one reporter for the Wall Street Journal had launched an anti-Soviet campaign based on uncertainties, but said that this was symptomatic of anxieties in this country. He said that on the other side the political left in this country was noisily concerned about what research the U.S. was carrying out. Lederberg said all of this did not create a good atmosphere for arms control.

Lederberg said that, on the positive side, he hoped this joint study group could help restore confidence and work toward cooperation in biomedical research. He concluded that he looked forward to the opportunity to proceed.

Sagdeev said that Ustinov would make some remarks about what would be happening on this issue on the political level.

Ustinov said that Lederberg's concerns were important and deserved study. He said that there was to be a review conference for the BW convention. He added that at the last five-year review conference, the participants were satisfied with the Treaty and how it had been carried

out by all countries. He said that the vitality of this agreement was manifested by the fact that as of January 1, 1986, it had 101 signatories. Ustinov said that later that month in Geneva there would be a preparatory meeting for the Review Conference. He said the British and the Soviets had been discussing how this next conference would be organized. He said there had been a proposal to guarantee the world against the appearance of new weapons of mass destruction and the proliferation of chemical weapons. He said we could think of similar programs for BW. Ustinov said the Review conference would be provided with working papers that showed the state of affairs in different fields and how new technology was correlated with the treaty. He said this conference would take place in the autumn and that Lederberg's paper could be useful in the preparation of the working papers.

Sagdeev thanked Lederberg for his comments and said he remembered when Lederberg raised this problem almost two years ago, particularly the problem of terrorist or third party use of these agents.

Lederberg said that the military potential of these new technologies were still ten or fifteen years away. He said the problem with the military application of this technology was not one of lethality, but of control. He said he'd like to keep in balance the capability of today and that since WWII. He said that much of the research that was dedicated to the control and prevention of diseases could be used to make variants of a disease too.

Sagdeev asked about the AIDs virus. Lederberg responded that it could not be used effectively militarily because it was unique in its method of transmittal. He said it would take ten to fifteen years to kill the target. Sagdeev said he had read that recently there had been major news in the field of AIDs and asked whether Lederberg could comment on these new breakthroughs. Lederberg said it had to do with the discovery of more variants of the AIDs virus. Lederberg said it appeared that AIDs began in Africa as a virus epidemic in green monkeys. He said that there appeared to be variants in Africa that were not so lethal. Lederberg said the big problem was how to test vaccines.

Sagdeev commented that Lederberg had said that scientific exchanges in biotechnology could help reverse the deterioration of confidence, and asked if there had been any cooperation on AIDs research. Lederberg said

that in the West there was competition of research and publication and also great sharing of information. He said the problem of AIDs would become a problem for the Soviet Union too.

Doty said that it might be useful to say a word about chemical warfare, noting that there was a growing interest in that subject. He said one could applaud the expression of common Soviet-American interest in attacking the problem of proliferation of chemical weapons. He said this should not deflect us from the central question of whether it was possible to control chemical weapons in the East and West. He said it had become a more elevated concern given the Iraq/Iran war. Doty said there would be a meeting on chemical warfare in Berlin in June to discuss whether it was possible to control chemical weapons. Doty said there was a large area of agreement but also a fundamental area of disagreement in how to verify undisclosed stockpiles of chemical weapons. Doty said there might be no solution given the difference in our two societies. Doty said he had started to study the problem more, and that he saw no solution. He said what was needed was a change in attitude toward verification and that the Soviet pronouncements fell short of what was necessary to be done. He said the present traditional methods of verification placed limits on what could be done.

Ustinov said it seemed to him that it would be justified to regard the situation with some optimism since there were multilateral discussions underway at the Disarmament Conference in the Special Committee on Chemical Warfare. Ustinov acknowledged that there was a serious fear of cooperation among the forty participating states.

Ustinov said that on January 15, the Soviet government reiterated its intention to devote itself to a solution to this problem. Ustinov said that this was not just a declaratory statement. He said they were working toward the conclusion of a document prohibiting the production of chemical weapons. He said they were talking not just about stockpiles, but about a prohibition of production bases. Ustinov said that the Soviet position in the January 15 Gorbachev proposal was formulated precisely and optimistically. Ustinov said the disarmament negotiations might be speeded up. He said the U.S. and Soviet delegations often met bilaterally, and that last month in Bern, U.S. and Soviet officials discussed the nonproliferation of chemical weapons. He said these

developments were only part of a broader issue, and that it would be useful if they led to a global prohibition on all weapons of mass destruction.

Ustinov said the Soviet Union was prepared to develop procedures for dismantling production facilities. He said he felt that the field of disagreement had been reduced. He said it would be possible to state in advance the location of facilities producing chemical weapons and to see that they did not produce chemical weapons in the future. Ustinov said that Gorbachev's proposal said that the Soviet Union was willing to go along with such procedures. Ustinov said that the elimination of the production bases should not enable them to produce chemical weapons under the guise of commercial production. He said he understood that this involved both commercial and government facilities, and said that these measures should apply to transnational corporations too. He said that on-site inspections could be used when necessary.

Ustinov said that chemical weapons was one of the promising areas of arms control. He said it would be right to take this opportunity to prohibit chemical weapons now to prevent their use in the future. He said that both sides, in fact all sides, needed to adjust their positions to resolve the remaining problems. Ustinov said we could look forward to a resolution because this problem was ripe for resolution.

Panofsky asked whether Ustinov or Doty could talk about the points of difference in these negotiations.

Ustinov responded that in Geneva they were discussing the technical fine points of how to locate production facilities. He said the sides were approaching this problem in a businesslike fashion, trying to do away with the remaining small details. He said the fine points of verification remained, and that some countries feared that verification would touch on commercial activity. Ustinov said that the Federal Republic of Germany, Japan and Holland expressed doubts about this, but he thought that the problems could be resolved in the near future.

Doty said that Ustinov was closer to these matters than he was, and that everyone could take heart from his optimism. However, Doty said he thought it was like going across a stream from rock to rock, and we were at the last step to shore. He said the Soviets saw it as a small step, but the Americans saw it as a long step. Doty joked that Keeny said the

solution was to learn to walk on water. Doty asked how it would be possible to verify undisclosed stocks or illegal production facilities after a treaty was made. Doty suggested that the two delegations should take five minutes in every future meeting to ask whether there were any new developments in this area.

Ustinov said he agreed that they should keep an eye on it, but said it should be a constructive eye. He said this issue was not a stumbling block in the talks.

Lederberg said he was skeptical about the possibilities for progress because there were risks concerning the completeness of verification. He said there was a coupling between the restoration of confidence and exchange of information and the possibility of coming to an agreement that could not be perfectly verified.

Sagdeev agreed that there was a need for increased confidence. He asked what Keeny's view on this was, from the point of view of a former negotiator.

Keeny responded that he was not current on the state of negotiations now. He said he was encouraged by Ustinov's comments, but surprised because he shared Doty's impression that the problems were far from resolved. Keeny said that verifying residual stocks and small-scale production was extremely difficult to accomplish. He said he would like to ask a related question, which was: If there were an agreement on no stocks, etc., what would you do about defensive measures? Keeny said that both countries had a massive CW defensive capability, yet neither side had thought that both should get rid of their defensive measures as a signal of seriousness of intent. Keeny asked for the Soviet reaction to this proposal.

Sagdeev responded that, at first glance, it was a very interesting idea for CW. But he added that for BW, it would not be possible.

Doty said that the difficulty with this proposal was with the nuclear side of the game because the protection against fallout was similar to the protection against chemical warfare agents. Garwin said that the suits were really very different. He said the chemical suits used liquid to wash the chemical weapons and neutralize them.

Lederberg said that one extreme of chemical weaponry could not be controlled, namely the commercial chemicals of multiple use. He said

there was the problem of legitimizing those that weren't limited by the treaty. Lederberg said there was a certain security in that if one side cheated, the other side was still not helpless. Lederberg said that an agreement that allowed some possibility of violation would add paradoxically to a sense of confidence.

Sagdeev joked that the deliberate toleration of clandestine use had an analogy in the Soviet policy on alcohol.

Garwin said that less effective agents could be compensated for by sophisticated means of delivery. He said that control of delivery means of agents was important along with the control of sophisticated agents.

Sagdeev asked whether the day's session should be concluded. Panofsky concurred and the first day's meeting adjourned at 5:30 p.m.

The second day's session convened at 9:00 a.m. on Wednesday, April 2.

Panofsky said they had a good discussion the previous day. He reviewed that they had exchanged views on the effect of 50% cuts on stability and discussed the definition of stability. Panofsky said there had been agreement that high MIRVing was unstable. Panofsky said the two sides overlapped in other areas, but with different emphases. Panofsky said they had heard a good summary by Lederberg of the BW issue, preparatory for the future meeting of specialists on that subject. He said there had also been a good summary of the CW business by Ustinov and comments by Doty.

Panofsky said that today the subject was the discussion of verification issues raised by new technologies. Panofsky said that Sagdeev yesterday talked about the pace of diplomacy being slower than the pace of technology. Panofsky said the advent of cruise missiles and mobile ICBMs raised new verification issues. He said the agenda item was to discuss the verification issues which those new technologies introduced. He said Flax would discuss verification of land-mobile missiles.

Flax said he would give a free-form consideration of the problem, ranging over many possibilities. He said some of those ideas might appear impractical or unworkable, and that he would welcome comments.

Flax said that mobile missiles of any kind potentially posed new verification problems. He said if their numbers were small relative to the total aggregates of strategic missiles, then some degree of