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A subcommittee of the NAS/CISAC Committee devoted to BW met in Moscow October 8-10, 1986. A list of the Soviet and U.S. participants is appended.

This is a preliminary transcript of my impressions of the meeting.

There will be a detailed transcript of the notes taken by Lynn Rusten and others of our delegation. This is a preliminary account of first impressions. I stress here matter that pertains particularly to problems of verification. In fact with the exception of Ustinov the Soviet scientists present at the meeting had very little experience or background in BW problems. I asked Ustinov about that and he said that he and Antonov had given that same group a briefing approximately a week earlier. It does happen then that this meeting has become a way of introducing a significant group of Soviet scientists from the civilian sector into some thought about BW arms control problems.

It is important to note that Dr M. Meselson of Harvard had been invited by the Ministry of Public Health to visit Moscow at the end of August, and was briefed for 3 days about the 1979 anthrax epidemic at Sverdlovsk. His respondents were Burgasov (Deputy Minister of Health), Bezdenezhnykh, (an epidemiologist from the RFSR health ministry), Nikiforov and Yampolskaya (both physicians from Moscow. Meselson talked to our group for about two hours in New York on September 22. The 5-year BWC review conference was held in Moscow at the end of September, and I was briefed about that by Robert Mikulak at ACDA.

Bochkov did not attend: "away on business." Sagdeev attended briefly at the end of the second day and at one of the luncheons. In addition I had an extended conversation with him at his home for dinner on Friday evening.

The meeting was held at the Institute for Bioorganic Chemistry, still under construction. Its director, Yuri Ovchinnikov, was away on business, in Europe. He has been rumored to be in poor health, but is evidently asymptomatic according to Dr. Rich, who saw him recently.

Although Ivanov is the deputy director of the Institute Sverdlov acted as co-chairman on the Soviet side. In a brief discussion of the agenda he was quite agreeable to devoting the first day to questions about BW arms control and the second day to cooperative research programs. It was evident from the outset that the latter was of the greatest interest and incentive to the group. I asked him whether it would be possible to invite Nikiforov to the meetings and he said that that had already been arranged and he would be available for the Thursday morning. Burgasov it turns out has retired only very recently (to the great delight of one of the Russians who said that he had been extremely restrictive, for example forbidding the publication of any information about AIDS in the Soviet Union). Bezdenezhnykh has died of a heart condition during the last few weeks. Nikiforov said that he was already in very bad health at the time that they had talked to Meselson.

My opening statement is attached. There was little concrete response

about my remarks on means of verification. By common agreement the conference of experts to be held at Geneva in early April would be the place to negotiate detailed proposals. There was, however, general agreement about the need for confidence building and a very strong affirmation that medical scientists did have an important responsibility to be sure that BW was indeed controlled and that the Treaty be strengthened in a way to assure mutual confidence. There was a repeated echoing of the thought that extensive scientific cooperation between the U.S. and the USSR in fields related to BW would contribute greatly to providing that mutual reassurance. There were really no dissonant notes of any kind: the only approximation to it was from Schvedkov a political scientist from the Institute for the US and Canada. He said the Soviet public has reason to worry about what the US military is doing. He quoted press reports about happenings in the Pentagon. He also quoted a story in Graham Allison's book on formation of foreign policy "that Nixon's proposals for BW disarmament had been resisted by the US Army. Also, Gorbachev had made the furthest proposals on verification in his speech on September 9th that would allow for an international network for verification of the nuclear test ban. Indeed a supra national network that might be viewed as a prototype for what could be done in the BW area. The Third country problems have to be looked at in a broad international context. Terrorism is generated by international conflicts and is the recourse of the weak against the strong. As to the BWC, suspicions are not supported by the fact and the convention is working. "

Nevertheless everyone else including Ustinov seemed to resonate with the conclusions of the BWC review conference in Geneva that called for strengthening of the BWC and even Schvedkov's remarks were made in a much milder tone than what usually comes forth from his institute. I had the impression that he had a perfunctory message that he was obliged to deliver and that nobody was paying very much attention to it.

My own remarks about the importance of affirmative cooperative verification, that each side had in his own interest the promulgation of openness and reassurance were responded to positively by every other member of the group to whom I talked. (Lisov from the Ministry of Defense did not utter one word during the entire meeting. He had a rather dour expression throughout, which may or may not have any significance.) The entire proceedings were videotaped. Lynn Rusten's request to get a copy was at first rebuffed bureaucratically "that it had not been arranged beforehand. Videotapes are stringently controlled." Sagdeev reassured her however that it would be done.

During the discussion I brought forward the Wall Street Journal article on BW defense budgets of the Pentagon. This was not new information but I think that some of our colleagues were a little startled to see the depth and candor with which this kind of discussion was published in the United States. At the very end of the meeting I also deposited the DoD Report to Congress on the same subject as an illustration of the openness that prevailed on our side. The scientists were hardly in a position to make promises about future Soviet behavior in this

direction but I'm sure this was useful and appropriate information for them to have.

Nikiforov arrived at the very start of the Thursday session but he had left the slides back at his institute (!). We agreed that it was important that they be included as part of his presentation and so he agreed to wait and to sit in in our discussion for the hour or so that it took for them to arrive. Nikiforov heads the department of infectious diseases at the Central Institute for Postgraduate Medicine in Moscow. This has a hospital of 360 beds; there are 110 departments which give courses ranging from a few weeks to many months to a total of 28,000 physicians every year (There are 1.2 million physicians in the Soviet Union). His department provides teaching for about 280 postgraduate physicians in the field of infectious diseases. Yampolskaya is an assistant in that department, one or two layers removed from Nikiforov. It is not unusual at all for them to be consulted on medical problems that arise throughout the Soviet Union. In this case they were called by Professor Korteve from the Medical Institute in Sverdlovsk about the two cases of disease with very strange onset. (In this precis, I will omit most detail that duplicates what was recorded by Meselson. As stated before, a full report will be provided later.)

Acute and severe abdominal pain and high fever suggested to them some form of intoxication. It was only after the post-mortem that they were able to confirm a diagnosis of intestinal anthrax. Throughout his career Nikiforov has seen many sporadic cases: perhaps 100 to 120 altogether, which had much the same picture. He said that previously they were all fatal so that he felt gratified that they were able to save even the small proportion that did survive in this case. There was no precedent for an outbreak of intestinal anthrax of this dimension in history. He did not think the clinical course of the disease was unusual for that particular diagnosis. They are not particularly research oriented and he does not believe the strains were saved. When tested contemporaneously they were sensitive to all the usual antibiotics including penicillin. The bacilli did have a very thick capsule which is closely associated with very high virulence in anthrax.

We had not as yet received Meselson's notes of his August trip. We therefore had only a few limited points of testimony to use as the basis of more detailed questioning.

At my request, Nikiforov met with us again on Friday, and asked Olga Yampolskaya to join us, together with Dr. Sverdlov. Her English is reasonably fluent, and this facilitated the discussion. When we asked them questions about epidemiology they stressed that they had no first hand information of those studies since their task was the clinical care of the individual patients in the hospital. Besides Yampolskaya there were five other assistants who came up at various times from Moscow and they had 22 local M.D.'s also helping in the management of the outbreak. Yampolskaya in fact had no detailed knowledge at all about the epidemiology until she heard Professor Bezdenezhnykh at the

meeting with Matt Meselson. That was the first time that she had any inkling that there were political overtones to the epidemic. Neither of them had the detailed case records at their own disposal. Yampolskaya thinks she was selected to help in the briefing because she had kept certain personal notes on a few of the individual cases. We did not think it fruitful to pursue very strongly the epidemiological side in Bezdenezhnykh's absence. We strongly urged, and Sverdlov echoed this, that it would be of great scientific (not to mention political) importance for a detailed account of the epidemic to be published. Nikiforov said that he had come to that conclusion himself. It was urged on him that he get a young epidemiologist to assist him in the compilation of the detailed records.

On the clinical course, Nikiforov gave very dramatic account of the development of the syndrome. When it reaches a stage of toxic shock it does include cyanosis and dyspnea but this is only fairly late in the development of the disease. As to the family distribution Nikiforov thought he remembered one family with as many as three victims. Perhaps ten of the families of the total had more than one case. He has no explanation for why a rather small proportion of those who presumably ate the infected meat actually came down with the disease. As the cases began to accumulate they became very concerned about trying to collect them at the earliest possible point so besides the public health measures with which he was not directly connected (the circulation of notices warning about meat contamination; destruction of sources of infection) he encouraged the hospitalization of essentially every case who presented with fever or other promonitory symptoms. He said that in total perhaps as many as 500 individuals with even mild fever were hospitalized for a time in order to enhance the opportunity of catching any new cases as early as possible. He concluded that penicillin was as effective as any of the other antibiotics but they had tried a variety of broad spectrum antibiotics not to leave out any possibilities. They used steroids in massive doses to attempt to mitigate the shock syndrome. (There is a mistranslation in our copy of the 1980 paper: prophylactic antibiotics were given to not by family members of the cases.)

Some of the gross pathology that he described was quite impressive. One set of pictures showed multiple lesions on the tongue and stomach which he believed were primary sites of infection by anthrax organisms.

At one point near the end of the discussion on Friday morning Nikiforov left an opening with a remark about the political colorations so we pressed him a bit more closely. He was unaware of any military involvement of any kind. There were no military or police in the hospital. He thought that conceivably they might have played some role in the public health management for example in arranging for the burning of some sheds in which infected animals had been kept. He said that most of these would have been in the suburbs in the south probably about two weeks after he arrived in the city. We showed him The New York Times article (dated '80) giving the emigres' report of the outbreak. He only seen it the day before, namely the copy I had given

to Sverdlov. He never heard of Kashino, reported there as a suburb of Sverdlovsk which was in the path of the airborne plume. As to the rumors, he was not aware of any at the time. He said he had had some hint of some fuss later on but had paid no particular attention to it. He put what he read in The New York Times article as the "Mark Twain Syndrome", recalling that he had once been involved in a cholera epidemic. He heard over the radio that the entire medical team including himself had been killed by the disease. "Reports of his own death were grossly exaggerated". After Chernobyl, families had all kinds of rumors about what was happening to them based on their fear of radiation.

Yampolskaya said that there were lectures from time to time in Sverdlovsk at the Medical Institute and in Moscow, where the outbreak was used as teaching material and there must be dozens if not hundreds of medical residents who have heard about it.

I was left in very little doubt that they had been describing their personal experience in the management of an epidemic of intestinal anthrax. For sources of corroboration it will be necessary to go into the epidemiological aspects of the disease and this information is now in the hands of the Ministry of Public Health. It is certainly an obstacle that Bezdenezhnykh has died and whether Burgasov's successor will be more or less amenable to the distribution of those records remains to be seen. Without yet having seen the internal report I did not have any grounds to proceed very much further in my own questions and I made no effort to get in touch with the Ministry. I'm sure that Ustinov would be very cooperative in responding to any requests to try to reach that channel. Official diplomatic sources should request documentary material from the Ministry of Public Health.

My own private thoughts are that the whole question of the anthrax epidemic is a secondary issue. The story told so far appears to be internally consistent and not in sharp violence with the other available data, although these can be interpreted in different ways. It would be very easy for other observers to panic about the nature of the epidemic particularly if they had reason to believe that there is indeed a military BW facility near Sverdlovsk. That question is after all not touched by any of the medical questions that we have addressed here so far. If there were also military personnel who had succumbed to the infection, whatever the source, they probably would not have been treated at the civilian hospital; so there is not a necessary contradiction with Nikiforov's statements.

The primary question, verification of the nature and functions of the military facility will have to be addressed at other levels. But it would be an interesting test of just how far the Russians are willing to go in "openness" to ask whether there is any form of inspection of the suspected facility to which they would be agreeable.

Meanwhile, again as a personal view, I believe that it would extremely imprudent on the part of USG to continue to refer to the epidemic as evidence of violation of the BWC. Separate questions are a) the

channels through which the Soviet Union is responding to its obligations for consultation under the BWC and b) the primary allegation, which may have nothing to do with the epidemic, of continued BW production activities at Sverdlovsk in violation of the BWC. It must cause them much embarrassment that a) anthrax remains endemic in Russia, and b) that public health safeguards had broken down, especially in the management of the bonemeal plant!

If we continue to refer to the epidemic per se in the face of the evidence they have presented, we face a) discredit from third parties, and b) [if it was indeed foodborne] the consolidation of Soviet views that we are not serious about our concerns for verification, but propaganda-motivated. It may be difficult to reach a standard of evidence that finally settles the matter and would require an affirmative retraction on the U.S. part; but there may be no need to reach that if we simply withhold further adverse comment about the epidemic. There remains every reason to demand satisfaction about facilities suspected of being BW-oriented; and the current Soviet mood may bend them to some accommodation by way of some form of inspection

If the epidemic itself is to be pursued, diplomatic channels might explore other kinds of corroboration: a visit to Sverdlovsk, if done at all, could focus on further conversations with the medical personnel resident there who were involved in treating patients. One might also be able to interview some of the few survivors and perhaps some family members of fatal victims to try to get some more detail about the clinical course of the disease.

Emigre sources might be interrogated more closely on the factual evidence of pulmonary vs abdominal involvement; also how they knew that the first casualties were military.

I did ask Nikiforov if he had seen inhalation anthrax himself. He said yes some years ago in Albania he had encountered a few cases of it. The distinctive pathological feature is involvement of the lung parenchyma which he said he did not see in the autopsies at Sverdlovsk. Fibrinolysis and plural hemorrhage as well as hemorrhage in every other organ system including the brain are characteristic of the systemic form of the disease whether of intestinal or other origin. He had graphic autopsy pictures of these features.

Dr. Woodward and Dr. Bennett could add with the benefit of their personal experience in pathology their impressions of what was being said.

Nikiforov and Yampolskaya have, I think, said all that they know and remember and they do not have more by way of their own records. Further investigation would have to stress the epidemiological aspects which would involve separate negotiations with the Ministry of Public Health, through governmental channels. We should not be too optimistic that they have the more detailed records that would conform to our expectations.

Our further discussions with the Russian academicians concerned areas that would be promising for scientific research cooperation. Dr. Sverdlov's resume is a fair account. It would further both medical science and cooperative verification of the BWC if some of these proposals could be implemented.

I am checking: Meselson had evidently phoned the Soviet Ministry of Health about our impending visit and this was undoubtedly how it came about that Nikiforov was primed to talk to us.

M.M. also recalled that the Russians had mentioned radio broadcasts warning of contaminated meat.

Date NYT, WSJ articles