Death at Sverdlovsk: A Critical Diagnosis

Intelligence agencies may have failed to tap a free asset—the scientific literature

Like a spy thriller from which the last chapter and denouement have been ripped away, the extraordinary incident that occurred in the Urals industrial city of Sverdlovsk during the wet spring of last year continues to baffle and perplex.

More seriously, it threatens to undermine the 1975 convention on biological warfare, and to erode the already weakening American appetite for arms control treaties with the Soviet Union.

Sverdlovsk, where the last of the Romanovs were executed, was the scene of another strange tragedy in April 1979. Over the course of a few weeks, scores of people, perhaps even as many as a thousand, struggled into hospitals with a terrible disease. Each of them, within a few hours of arrival, was dead.

The swift killer was anthrax, known also in Russia as Siberian ulcer. The scale and severity of the outbreak were without known precedent. As soon as news of it reached the West, intelligence analysts began to ask whether the cause was natural or man-made. Anthrax is endemic in Sverdlovsk. But it has also been considered as an agent of biological warfare, and in Sverdlovsk there happens to be a facility which U.S. intelligence has long suspected, though not proved, to be a biological warfare installation.

Intelligence data are not evaluated in a vacuum. To American analysts, there seemed little room for ambiguity in the reports coming out of Sverdlovsk. The chances of so deadly an epidemic being due to natural causes appeared small to vanishing. In the frenetic recesses of the Defense Intelligence Agency, it was evident that the disaster was man-made, caused no doubt by some explosion at the germ warfare station which dispersed a cloud of anthrax spores into the city air. The DIA's analysts even calculated that the weight of spores needed to bring about so many deaths must reach into the tens of kilograms. Later calculations showed that 1 gram could have been sufficient.

Whether because the analysis seemed so certain, or perhaps to embarrass the Soviets for their invasion of Afghanistan, the Administration allowed an important chance of clarifying the Sverdlovsk enigma to be compromised. On 17 March 1980, the U.S. Embassy in Moscow requested an explanation through the usual channels for resolving problems to do with arms control treaties. But the next day, before the Soviets had a chance to reply, the Administration broadcast to the world its suspicions that a biological warfare accident was the cause of the epidemic and that the Soviet Union might have flouted a solemn treaty.

Affecting umbrage, not without reason, the Soviet Union on 20 March curtly acknowledged for the first time that there had been an outbreak of anthrax in Sverdlovsk: it was gastric anthrax, caused by eating tainted meat, the Soviets asserted. They have stood pat on this statement ever since, refusing to discuss the objections raised by the United States.

Sverdlovsk, where the strange epidemic broke out in April 1979. [Photo: Sovfoto]

In the shadow of this impasse, suspicions in Washington grew only heavier. Having heard evidence in camera from intelligence analysts, a House subcommittee rejected the Soviet explanation of the epidemic as "incomplete at best, and at worst a fabrication."

"Whether or not there were cases of gastric anthrax in Sverdlovsk, the salient fact is that there is evidence that there was an epidemic of inhalation anthrax. Such an outbreak is almost certainly the consequence of a man-made strain of the disease," asserted the key conclusion of a report released by the House subcommittee on 30 June.

Despite its air of confident authority, the subcommittee's conclusion may well be misleading. It probably overstates considerably the degree of assurance with which that conclusion may be inferred from the available data. It also seems to go beyond the level of certainty felt even by intelligence analysts. The CIA's analysts, for instance, are now said to concede as much as a 10 percent chance to the possibility that the Russian explanation of the Sverdlovsk incident is entirely correct: in other words, that the epidemic was an outbreak exclusively of gastric anthrax, caused by eating tainted meat, with no cases of inhalation anthrax.

There is a particular piece of "hard" intelligence data that points strongly toward a diagnosis of inhalation anthrax. But the evidence, though significant, is indirect. If it were conclusive, the probability of the Russian explanation being correct could safely be set at zero.

If the assumption of inhalation anthrax is temporarily put in abeyance, the Soviet explanation becomes at least worth considering. That an outbreak of gastric anthrax should kill even 40 people—a minimal estimate of the Sverdlovsk epidemic is that less than 40 people died—is without known precedent. Yet one case is on record, from Yarvslavl in the Soviet Union in 1927, in which 27 people contracted gastric anthrax from eating a

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"small consignment of smoked sausage" prepared from the meat of compulsorily slaughtered animals, and all 27 died.

Extreme lethality is usually attributed only to the inhalation form of anthrax, but the Yarvslavl case is proof that on one occasion, at least, gastric anthrax caused 100 percent mortality. This significant incident is described in a Soviet textbook of epidemiology which apparently was not consulted by the U.S. intelligence community. Entitled *A Course in Epidemiology*, it was translated and published in English in 1961. The textbook states that "The intestinal form of anthrax is very rare at the present time and the pulmonary form is unknown in the Soviet Union." But it goes on to remark that six outbreaks of intestinal (or gastric) anthrax, affecting 64 people, "are known to have occurred in the U.S.S.R. between 1923 and 1940. They were usually associated with the consumption of under-cooked or semi-raw meat (smoked sausage) originating from diseased animals."

The Russian textbook establishes that outbreaks of gastric anthrax from consumption of tainted meat do occur in the Soviet Union. In the West, gastric anthrax is so rare that at least one leading specialist in the disease has never come across a case of gastric anthrax in 30 years of practice. "I have not seen any case of intestinal anthrax, and I doubt if anyone working in temperate zones has," writes A. B. Christie, of Liverpool, England, in the standard British treatise on the epidemiology of infectious disease.

Since Western doctors have such limited experience of gastric anthrax, they are not in the strongest position to contradict outright what Russian physicians may have to say about the development of the disease. Christie, for instance, has said that there is very little that can be reliably stated about the characteristics and course of gastric anthrax.

Could a case of gastric anthrax ever present itself as inhalation anthrax? Could the bacteria pass from the gut to the bloodstream and thereby to the lungs, causing accumulation of fluid and other symptoms typical of inhalation anthrax? Might a doctor faced with such a case erroneously diagnose it as inhalation anthrax?

According to Soviet doctors, this is precisely what happens. Admittedly the assertion was made, apparently for the first time, in connection with the Sverdlovsk epidemic. Its authors are two leading Soviet medical authorities, Ivan S. Bezdenezhnykh, chief epidemiologist of the RSFSR Ministry of Health, and Vladimir Nikiforov, chief specialist in infectious diseases in the same ministry. The Bezdenezhnykh-Nikiforov article, a report on the Sverdlovsk outbreak, appeared in the May 1980 issue of the Russian *Journal of Microbiology, Immunology and Epidemiology*. The article may or may not be a response to the American representations of March 1980, but it is not intended to appear as such, since it bears a submission date of 29 August 1979.

The Soviet authors state that "In humans, up until recent times, cutaneous, intestinal, pulmonary and septic forms [of anthrax] have been described." But since "any clinical form of the disease can become complicated" by poisoning of the bloodstream, "the isolation of the primary intestinal and pulmonary forms will be taken as provisional." Some physicians have even proposed dropping the distinction between pulmonary and intestinal and referring to both as "visceral" anthrax, the authors note.

Like many Soviet epidemiological reports, the Bezdenezhnykh-Nikiforov article is short on hard figures. There is not even any mention of human deaths, only of "cases of illness." The article observes that over a vast territory of the Sverdlovsk province, the soil is infected with anthrax in a patchwork fashion. From 1936 through 1968, 159 outbreaks among animals were recorded in the province. Another such outbreak occurred in the spring of 1979, the authors say, probably through the animals eating contaminated fodder.

The article continues, "During March and April, the slaughter of cattle in individual households increased significantly. The meat was sold privately in the city suburbs. In this connection, the possibility of sale by the private sector of meat obtained from forced slaughter was not excluded. At that time isolated cases of anthrax among humans were recorded, with cutaneous and intestinal forms of the infection occurring."

What the authors imply is that animals privately owned by peasants were slaughtered after contracting anthrax and that the meat was sold on the black market in Sverdlovsk. It is easy to envisage what may have happened next: the authorities would have been baffled as the cases of gastric anthrax continued to mount alarmingly despite all precautionary measures. When the black market was identified as the source of infection, the authorities were powerless to control it, or perhaps by then the epidemic had already run its course, with the fatalities already in the several dozen, or several of hundreds. If the authorities then tried to keep the incident secret, it would not have been the first time that a bureaucracy had covered up a bungle.

Such an explanation would account precisely for the reported fact that the deaths continued over a period of several weeks. If an explosion at a germ warfare facility were the cause, all deaths would be expected to occur within a short time of each other—inhalation anthrax causes death within 2 to 3 days. To invoke several explosions, or a primary accident with a train of undetected leaks, is to strain a hypothesis to fit the facts.

Granted the still unproved Soviet assertion that gastric anthrax can develop into inhalation anthrax, what is so inherently implausible about their explanation of the incident? For American intelligence analysts, it fails to explain what seems like an almost unbelievable coincidence, that a suspected biological warfare facility had been identified in Sverdlovsk several years before the epidemic occurred. But that coincidence is far less remarkable when placed in context. First, the facility is only suspected of being engaged in germ warfare. Second, the preexisting Soviet literature establishes that outbreaks of gastric anthrax can be expected at the rate of one every 3 years. Some 50 million Russians live in anthrax-prone regions, of whom more than 1 million live in Sverdlovsk. What are the chances of an outbreak of gastric anthrax occurring in Sverdlovsk in any given year? Clearly not negligible. What is the probability that an epidemic of any one of the diseases deemed possible germ warfare agents would occur naturally within range of one of the seven suspected Soviet biological warfare facilities during the 5 years since the 1975 convention came into force? Only in a spy novelist's conception of history would the probability of such a natural coincidence be set at zero.

The nature of the Sverdlovsk incident is still unresolved because the Soviets are still sulking. For that, the Administration is in part to blame. In effect, it has invited the Russians to sit down and discuss the issue with but one condition, that their explanation won't be on the agenda. Without doubt, something strange and unprecedented happened at Sverdlovsk in the spring of 1979. It could have been the result of an accident at a germ warfare plant. It could constitute a violation—extraordinarily foolish and self-defeating—of the 1975 convention. But, with perhaps almost as much likelihood, it could have been an epidemic caused by tainted meat, just as the Russians say.—NICHOLAS WADE