

**SPECIAL ISSUE**

# Intelligence, Ignorance, and Diplomacy in the Cold War: The UK Reaction to the Sverdlovsk Anthrax Outbreak

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Drawing on perspectives from "ignorance studies," this article examines a case of multiple types of expertise and ignorance within the geo-political context of the Cold War. It revisits a suspected breach of the 1972 Biological Weapons Convention (BWC). In 1979, an outbreak of anthrax occurred in the Russian city of Sverdlovsk, killing numerous people; Sverdlovsk was also the site of a military facility suspected by the West of undertaking biological weapons research. As news of the outbreak reached the West, first the USA, then the UK approached the USSR seeking clarification. The diplomatic path followed by the two nations involved a tricky balancing act, requiring attention to the souring of East-West relations following the Soviet invasion of Afghanistan, the integrity of the BWC, and the remote possibility of ratifying the SALT II nuclear negotiations. Diplomatic tactics depended on epistemic issues: How to tell whether the disease outbreak was natural or a military accident, how to decide what evidence was needed? I argue that although officials and scientists did not welcome ignorance and uncertainty, they recognized it as an inevitable and highly problematic epistemological issue (can we know what happened?) and tempered it into a less problematic, or at least more manageable, pragmatic issue (is there sufficient evidence to follow a particular course of action?).

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Outlawing an entire class of weapons is a major step towards creating a safer world. On 10 April 1972, such a step forwards was taken as the world's nations were invited to sign the Biological Weapons Convention (BWC). There had been earlier attempts to ban use of both chemical and biological weapons, notably the 1925 Geneva Protocol. The BWC, with its ban on development, production, stockpiling, acquisition, and retention, as well as formally recognizing the earlier protocol, effectively created a total ban on biological weapons.<sup>1</sup> Eight years later, however, the treaty hit its first major obstacle.

Shortly after the First Review Conference of the BWC in 1980, David Summerhayes, the representative ambassador for the UK delegation to the Committee on Disarmament, wrote from Geneva to the UK Foreign and Commonwealth Office (FCO). In the letter, he gave an "informal account" of the conference. "What had promised at the outset to be a rather routine affair," he reported, "was transformed into a difficult and in the end tense negotiation after United States concern over the Sverdlovsk incident became a critical though unspoken issue during the Review."<sup>2</sup> The "incident" was an outbreak of anthrax in the closed-off Russian military city of Sverdlovsk (now Yekaterinburg) that had occurred in late April 1979. A large number of people were reported to have died. Moreover, anthrax had been a prime candidate for weaponization in past research programs on biological warfare.<sup>3</sup> Could this outbreak have resulted from an accident at a

<sup>1</sup> Sims, "Legal Constraints."

<sup>2</sup> Summerhayes to Moberly, 27 March 1980, NA, FCO 28/4205.

<sup>3</sup> Wheelis et al., *Deadly Cultures*.

biological weapons facility? And, if so, did the accident mean that the BWC had been breached so soon after its ratification?

Finding answers to these questions would, however, be challenging, as conceded in a US intelligence appraisal written at the time:

The analysis of BW [Biological Warfare]-orientated scientific developments is one of the most difficult areas of intelligence. The analyst must continually question whether a particular development is intended for BW purposes. Until a disease producing agent is placed in a delivery system for the express purposes of killing men, animals or crops, it is generally not considered a biological weapon development.<sup>4</sup>

Several scholarly analyses of the publicly available evidence have emerged since the Sverdlovsk incident. Instead of providing another post-hoc appraisal of the evidence and another account of what happened in April 1979, this contribution focuses on what UK officials and their scientific advisers knew—and, significantly, did not know—at the time.<sup>5</sup> To do so, I draw on the burgeoning field of “ignorance studies,” or more broadly studies of the dynamics of “non-knowledge.”<sup>6</sup> Some scholars, such as Stirling, have introduced typologies of “incertitude” that differentiate between uncertainty (where the statistical likelihood of something remains unknown) and ignorance (where both the likelihood of a risk and the nature of that risk remain unknown).<sup>7</sup> While broadly convenient, such taxonomy has not proven useful in my case study and I use the two terms interchangeably.

Broadly speaking, ignorance studies has developed in several stages. Early, somewhat disparate, studies of ignorance emerged from studies in the sociology of scientific knowledge in the 1970s. If one acknowledged that knowledge could be “socially constructed,” however strong or weak one understood the phrase, then surely the same could be claimed for the unknown.<sup>8</sup> The next stage of ignorance studies adopted the term “agnotology,” where studies of the manufacture of ignorance showed political or corporate interests to be instrumental in creating doubt and uncertainty over issues such as climate change or tobacco.<sup>9</sup> Here one or more dominant groups deliberately create ignorance within other groups. More recent studies of ignorance point to the generative or strategic dimensions of ignorance—social actors can create ignorance for themselves (rather than others) when it serves their interests.<sup>10</sup> This can often have negative consequences, for example, when it serves the pharmaceutical industry’s interests to maintain ignorance over drug side effects.<sup>11</sup> But it may also have positive consequences, for example, where the objectivity of double-blind clinical trials depends on the ignorance of who received the placebo or test dose.<sup>12</sup>

In this article, I build on these insights to argue that ignorance, rather than being either an agnotological hindrance or a strategic advantage, is actively “tempered” by scientists and government officials. Tempering, in this context, means making something less strong or extreme. Dissecting the historical sociology of the UK reaction to Sverdlovsk demonstrates how officials and scientific advisers, at first, were uneasy about the ignorance and uncertainty surrounding the situation. But, having recognized that it was endemic, they tempered the problem of ignorance. They transformed a highly problematic epistemological issue (can we know what happened) into a less problematic, or at least more manageable, pragmatic issue (do we have sufficient evidence to follow a particular course of action).

## Diplomatic Moves

The Review conference had taken place between the 3<sup>rd</sup> and 21<sup>st</sup> March 1980 and, apparently, the US delegation to the conference had been made aware of the allegations only minutes before they gave their opening statement.<sup>13</sup> News of the incident broke publicly at the start of the third week of the conference, but the US delegates—intentionally or unintentionally avoiding a drawn out debate about compliance—only raised the problem directly in their closing statement once the Final Document had been adopted. The

<sup>4</sup> Wampler and Blanton, DIA Intelligence, NSA, 15 November 2001.

<sup>5</sup> Gordin, “The Anthrax Solution”; Guillemin, *Anthrax*; Leitenberg and Zilinskas, *Soviet Biological Weapons*; Meselson et al., “Sverdlovsk Anthrax Outbreak.”

<sup>6</sup> Gross and McGoey, *Handbook of Ignorance Studies*.

<sup>7</sup> Stirling, “Risk, Precaution and Science.”

<sup>8</sup> Ravetz, “Sin of science”; Smithson, *Ignorance and Uncertainty*; Wynne, “Uncertainty – Technical and Social.”

<sup>9</sup> Proctor and Schiebinger, *Agnology*.

<sup>10</sup> Gross, *Ignorance and Surprise*; McGoey, “Will to ignorance.”

<sup>11</sup> McGoey, “Pharmaceutical controversies.”

<sup>12</sup> Gross and McGoey, *Handbook of Ignorance Studies*.

<sup>13</sup> Summerhayes to Moberly, 27 March 1980, NA, FCO 28/4205.

lack of resolution over Sverdlovsk displayed at the conference, according to Summerhayes, posed a threat to the effectiveness of the convention. Yet, on a more optimistic note, it also kept an important treaty alive. His informal report finished with a warning: “if a Soviet breach is conclusively proved, the implications will necessarily reach well beyond the Biological Weapons field.”<sup>14</sup>

The US concerns about Sverdlovsk had been recognized in the UK in the build-up to the First Review Conference and were later confirmed by Washington. In response, the FCO Arms Control and Disarmament Department (ACDD) circulated a report on 17<sup>th</sup> March 1980, noting that the USA believed the Soviet Union to be in breach of the BWC. Indicative of the severity of the matter, the report also included a separate briefing for the Private Secretary at 10 Downing Street, detailing what line to take if the matter became public. In this tense atmosphere, just a few months after the Soviet invasion of Afghanistan, the diplomatic line taken by both the USA and eventually the UK was to avoid a head-on confrontation over the suspected breach. The Americans had approached the Soviets, but rather than make an outright accusation that they were undertaking offensive research, which would have breached the core Article I of the BWC, instead they proceeded under Article V. Article I commits states to never “develop, produce, stockpile or otherwise acquire or retain” biological weapons. Article V obliges states parties to “consult one another and to cooperate in solving any problems which may arise in relation to the objective of, or in the application of the provisions of, the Convention.” Despite this less provocative route, the FCO report, echoing Summerhayes’ concerns, still flagged the gravity of the situation:

If these allegations are substantiated (and that will be difficult) it will be the first occasion on which the Russians have been caught in violation of the central prohibition in an arms control agreement. The implications for other arms control agreements, and for East/West relations, are serious and far-reaching.<sup>15</sup>

The US approach in Moscow met with a “frosty” reception.<sup>16</sup> Viktor Komplektov, Head of the Soviet Ministry of Foreign Affairs (MFA), rejected the suggestion that they had breached the BWC. He did, however, concede that there had, indeed, been an anthrax outbreak at Sverdlovsk in March and April 1979 but that this originated in animals and was transmitted to humans as a result of beef being sold “without proper veterinary supervision.”<sup>17</sup> A similar account had been conveyed from Moscow to the Soviet delegation at the Review Conference, after the head of the US delegation, Charles Floweree, raised the issue informally with the Soviet delegation.<sup>18</sup> Admitting an anthrax outbreak and at the same time distancing it from the BWC, was to become a recurrent motif in the Soviet response. Returning to the US *démarche* in Moscow, Komplektov added that the allegations were perhaps timed to coincide with the Review Conference, as “the impression was created that some people would like to cast a shadow on one of the most important agreements in the arms control sphere.”<sup>19</sup> A report to the FCO observed that the prompt response from the Russians was “sufficiently vague to allow for another perhaps fuller explanation if one is forced out of them.”<sup>20</sup>

The Sverdlovsk incident could barely have hit at a worse time for the beleaguered Carter Administration in the USA. Trouble came from many directions: mounting criticism that *détente* policy offered only false insurance; the ratification process of the SALT II nuclear arms limitation treaty in the USA had stalled; the Soviet invasion of Afghanistan shortly after the beginning of the Iran hostage crisis. All these events strained East-West contacts to the point that, according to one Cold War historian, “the relationship had been reduced to SALT II, and the pact was nearly dead because arms control proved too fragile, too politically exposed, to carry the entire burden of Soviet-American relations.”<sup>21</sup> The prospect of SALT II ratification was not jettisoned from diplomatic interchanges, yet there was little belief that it would materialize.

## Intelligence and Escalating Degrees of Response

In the months before the BWC Review Conference, US intelligence became less conjectural, informed by a mere trickle of information in October 1979, allowing a more robust, albeit still qualified, assessment in early March 1980. Earlier intelligence reports noted that “there is a suspect BW installation in Sverdlovsk but it is

<sup>14</sup> Ibid.

<sup>15</sup> Reeve to Moberly, 17 March 1980, NA, FCO 28/4205.

<sup>16</sup> Madden to Broucher, 25 March 1980, NA, FCO 28/4205.

<sup>17</sup> Ibid.

<sup>18</sup> Israelyan, *On the Battlefields*.

<sup>19</sup> Madden to Broucher, 25 March 1980, NA, FCO 28/4205.

<sup>20</sup> Ibid.

<sup>21</sup> LaFeber, *America, Russia*, 315–16.

not known if this is the site of the alleged accident."<sup>22</sup> On 3 March 1980, a top secret round-up dossier of trends in foreign technology and weapons systems, drew firmer conclusions claiming: "a very strong circumstantial case for biological weapons activity at the large well-secured military facility."<sup>23</sup> The section on Sverdlovsk stated that there was a "high probability" the disease was pulmonary anthrax, in other words, the disease was caused by inhaling spores of the bacteria *Bacillus anthracis* into the lungs. This diagnosis contrasted sharply with the Soviet explanation that the outbreak was caused by consuming contaminated meat, which would have resulted in a different form of anthrax, namely intestinal anthrax. The empirically supported difference between these two forms of anthrax would re-emerge throughout the controversy. The dossier then stated that an estimated necessary infective dose of 10,000 spores, "would negate any research and development for peaceful purposes i.e., vaccine research or BW defensive research."<sup>24</sup> Both vaccine and defensive research were permissible under the terms of the BWC. The dossier conjectured that "any number of factors" could have caused the leak, then concluded that the situation constituted a likely breach of the BWC: "Although the production of biological weapons cannot be confirmed at the Sverdlovsk facility the evidence points to an illegal store of biological agents and probably biological weapons development or production."<sup>25</sup>

US officials made further formal and informal approaches to Moscow following the unforthcoming response at the March démarche. These efforts culminated on 11<sup>th</sup> August with a further démarche, this time involving the US Chargé d'Affaires in Moscow, Mark Garrison, and First Deputy Foreign Minister, Georgi Kornienko. Garrison emphasized that the US remained skeptical and were still seeking a satisfactory explanation through Article V of the BWC. The Soviet line remained unchanged. The outbreak, claimed Kornienko, arose from contaminated meat, it had nothing to do with the convention, and the "Americans were motivated by a desire to damage US-Soviet relations."<sup>26</sup> Garrison's response sought to widen the context of the discussion, stating "that in the absence of any progress on a bilateral basis the US would have to consider what other action, including multilateral action, was open to them."<sup>27</sup>

Later, Garrison told Alan Brooke-Turner of the British embassy in Moscow that the Americans had already proposed technical consultations between experts, an offer repeated in the meeting with Kornienko, but the Russians had rejected this proposal. With the technical route barred, US officials held "inter-agency discussions at a senior level" and now raised the issue of bilateral talks with the UK.<sup>28</sup> A telegram from the Foreign Secretary, Lord Carrington, to the British embassy in Washington, warned that leaving matters as they stood "would leave the BWC seriously prejudiced. Worst of all, the Soviet Union might conclude that there was little risk in taking chances with arms control agreements."<sup>29</sup>

Carrington, echoing discussions within the FCO, then suggested a course of escalation by degrees including: offering a confidential meeting for depositaries of the convention (the UK, USSR and USA); making public the exchanges with the Russians; calling for a consultative expert group of the kind agreed at the March BWC review conference; taking action in the UN General Assembly; and culminating, if necessary, in calls for UN Security Council action on the BWC provisions. The US concurred, although responding with a further suggestion that a UK-USSR bilateral approach could be placed on this spectrum.<sup>30</sup> Mapping out this path meant that the question of knowing precisely what had happened in Sverdlovsk was tempered into potential questions about whether officials had sufficient evidence to move from one stage to the next.

The on-going US presidential election campaign provided some of the impetus behind the sustained US action over Sverdlovsk. Carter was set to enter the electoral race with one of the lowest poll ratings of recent times, and the Reagan campaigners had seized on Sverdlovsk as evidence of the weakness of US arms control policy.<sup>31</sup> The Americans were keen for the UK to be included in future discussions, thus signaling that Sverdlovsk was no trivial matter. Elsewhere, this request for high-level involvement was couched in less self-interested terms: "in view of the broad and far-reaching implications of the issue (for example, for the SALT process, détente and the future conduct of relations with the Russians)."<sup>32</sup> Over the following months, FCO officials, while acknowledging the Carter administration's position, maintained that the UK would move at

<sup>22</sup> CIA Intelligence Report, 15 Oct 1979, NSA.

<sup>23</sup> Trends and Developments, 3 March 1980, NSA.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> Brooke-Turner to Mallaby, 13 August 1980, NA, FCO 28/4205; Reeve to Bullard, 14 August 1980, NA, FCO 66/1520; Hawtin to Jackson, 18 August 1980, NA, FCO 66/1520.

<sup>27</sup> Brooke-Turner to Mallaby, 13 August 1980, NA, FCO 28/4205.

<sup>28</sup> Washington-FCO, 13 August 1980, NA, FCO 28/4205.

<sup>29</sup> Carrington to Washington, 15 August 1980, NA, FCO 28/4205.

<sup>30</sup> Washington to FCO, 15 August 1980, NA, FCO 28/4025.

<sup>31</sup> LaFeber, *America, Russia*.

<sup>32</sup> Washington-FCO, 13 August 1980, NA, FCO 28/4205.

its own pace and, furthermore, that its position as a depositary nation of the BWC was sufficient enough reason to become involved.<sup>33</sup>

### **Ignorance About Causation and Legality**

Officials eventually arranged two meetings with US representatives on the 9<sup>th</sup> September in London. The first, with 18 participants, included UK representatives from the FCO, the British embassy in Washington, the Ministry of Defense, and the Chemical Defense Establishment at Porton Down, which had taken over responsibility for biological defense research in 1979. The five-person US team was headed by Ralph Earle of the Arms Control and Disarmament Agency (ACDA). Later that day, with Carrington involved elsewhere, Earle met briefly with Douglas Hurd, who, as a junior minister in the department, was of roughly equal seniority as Earle.<sup>34</sup>

The discussion at the earlier meeting revealed the difficulty of the Western position on Sverdlovsk. Evidently something concerning had happened in the city; the deaths from the anthrax outbreak were now estimated to be over 50. But ignorance about what had actually happened manifested in two significant and distinct ways: causation and legality.<sup>35</sup> As Earle said in the meeting, the “US were confident that there had been a serious outbreak of human anthrax at Sverdlovsk at the beginning of April 1979. They were not confident of the cause, nor whether it indicated a violation of the BWC.”<sup>36</sup> Despite these doubts, Earle indicated that US intelligence reports suggested inhalation, not intestinal, anthrax; that the incident occurred within close proximity to a suspect BW facility; and that the size of outbreak, the large number of fatalities, and the scale of the clean-up afterwards all pointed to an accident rather than a natural outbreak. US attempts to calculate the quantity of agent needed to produce such a large outbreak had not been fruitful as there “were too many assumptions and uncertainties.”<sup>37</sup> In terms of legality, even if it had been an accident, it could have been the result of defensive research, which was permitted under the BWC. The Soviets had insisted, however, that the outbreak had nothing to do with the BWC and, in Earle’s view, this had created more problems than if they had tied their explanation to the treaty:

The Russians might have begun to paint themselves into a corner ... because of the story they had told their own public about bad meat and an intestinal anthrax outbreak. Certainly they could have told us a convincing story (probably related to defensive R&D) that we could hardly have disputed.<sup>38</sup>

We saw earlier that although US intelligence assessments had become guardedly more confident, about both the cause and legal status of the outbreak, the diplomatic path had been to avoid a politically charged direct challenge: that the Soviets had breached Article I, or for that matter any Article, in the BWC. Earle suggested the same should happen if the UK took matters a step further, with the tactical aim of “creating a situation where reasonable Article V discussion looked better for the Russians than maintaining their present line ... The Soviet Union may have believed that the problem would go away if they sat tight.”<sup>39</sup> This still left a dilemma. Having initiated the diplomatic game, it was now imperative to continue or else risk damaging the credibility of the convention. Yet, it remained unclear what would constitute an adequate response from the Soviets, if indeed any response was forthcoming. In the words of David Madden of the British embassy in Moscow: “however we approach the Russians there seems little chance of getting anything other than an unhelpful reply and probably a fairly sharp one.”<sup>40</sup> And, if no adequate response was made, how far would each country realistically be prepared to escalate matters? The difficulty with handling Sverdlovsk was encapsulated in the FCO’s follow-up notes to the meeting:

None of us believe that there is much chance of the Russians changing their version of the event. So the exercise is really about trying to make them give a more satisfactory response under Article V; to induce them to think twice before they take this attitude again; to maximise our propaganda advantage from the process; to educate external and domestic opinion; and to show that the BWC has some credibility.<sup>41</sup>

<sup>33</sup> Moberly to Fergusson and Acland, 19 September 1980, NA, FCO 58/2014.

<sup>34</sup> Reeve to Acland and PS/Mr Hurd, 22 August 1980, NA, FCO 66/1520.

<sup>35</sup> Underdetermination refers to a situation where the same observed evidence can be plausibly explained by more than one theory.

<sup>36</sup> Draft, 15 September 1980, NA, FCO 28/4205.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> Madden to Jackson, 8 October 1980, NA, FCO 28/4205.

<sup>41</sup> Draft, 15 September 1980, NA, FCO 28/4205.

Here we see officials tempering the effect of what they did not know by conceding epistemic ignorance about what happened and whose version of events was correct, then concentrating on more achievable outcomes. Earle's later meeting with Hurd reiterated the main points of the earlier meeting, with Earle adding that the US did not think that the USSR had a serious interest in a military BW program. Instead, he explained, "the main point was that Sverdlovsk was an embarrassment in terms of the internal US situation in relation to SALT II and other arms control agreements."<sup>42</sup>

The plan to escalate matters by stages remained intact and was now grouped into two phases. The gradual phase included a UK-USSR bilateral exchange, followed, if needed, by an expert consultative meeting to resolve outstanding issues. If these steps proved unsatisfactory, the proposal was to shift to a "more overtly propagandist" stance, including amending or even withdrawing from the BWC, or to take action in the UN. Towards the end of September, the UK plan to approach the Soviets received ministerial approval and the FCO initiated a "close and continuous process of consultations" with their US allies.<sup>43</sup>

Within the ACDD, officials were committed to maintaining the integrity of the BWC. The UK had championed the convention during its negotiation and it was regarded as one of the department's principal achievements.<sup>44</sup> Furthermore, although the British relationship with Moscow had certainly soured along with the US-Soviet relationship, as White points out, "there was a marked gap between the declaratory posturing, which was consistently tough and unyielding and substantive action, which was remarkably restrained."<sup>45</sup> Margaret Thatcher, elected Prime Minister in 1979, had been quick to back the Carter administration over Afghanistan. On the specifics, however, there had been little enthusiasm towards US calls for economic and diplomatic sanctions following the invasion.

### Science, Ignorance, and Evidence

Alongside these diplomatic moves, the US and UK authorities also drew on scientific expertise, secret intelligence, and expert commentary published in the media. Gathering more evidence or seeking interpretation of existing evidence appears to have been less about confronting the Soviet Union with "the facts," at this stage. Instead, the more immediate aims appear to have been to bolster confidence within government that there was a case to answer and, should there be any further Soviet response, to be in a better position to make judgements about its veracity. It was also conceivable that, at some point, the US, and now the UK, would need to produce evidence to convince NATO, other allies, and the public that the issue was serious. Discussion between experts and officials focused on several topics: whether the outbreak was caused by the inhalational or intestinal form of anthrax; the length of the outbreak; the number of deaths; the amount involved; and, if there had been an accidental escape from a BW research facility that had caused the accident.

Whether it was possible to distinguish intestinal from pulmonary anthrax was by far the most contentious issue discussed; one official called it "the crux of the problem."<sup>46</sup> Medics recognize three forms of anthrax, labeled according to the primary route of infection: pulmonary (inhalation), intestinal (ingestion), and cutaneous (skin). The Soviet contaminated meat explanation pointed to the intestinal form of the disease; whereas an aerosol cloud of anthrax released from a suspect facility would have resulted in people inhaling bacterial spores and succumbing to pulmonary anthrax.

The UK and US intelligence community accounts thought inhalation anthrax caused by a leak from a military facility to be more likely.<sup>47</sup> Despite this, UK and US officials also paid attention to an article by Vivian Wyatt, a microbiologist at the University of Bradford, in the 4 September *New Scientist* magazine. It offered a contrary interpretation. Wyatt argued that inhalation and intestinal forms of anthrax were indistinguishable. Behind closed doors, though shared with UK officials, the article drew criticism from Dr Robert Mikulak (ACDA) who argued that Wyatt had not supported his claim with citations to the medical literature.<sup>48</sup> Mikulak added that initial symptoms would differ: Inhalational anthrax would cause upper respiratory symptoms and intestinal cases would produce gastrointestinal symptoms. This point was elaborated shortly afterwards by Tim Trevan of the ACDD. Trevan added that only after several days, when, in the later stages, the disease was systemic and had spread throughout the vascular system and fluid had accumulated in all body tissues

<sup>42</sup> Meeting Earle and Hurd, 9 September 1980, NA, FCO 28/4205.

<sup>43</sup> Reeve to Weston, n.d., NA, FCO 28/4205.

<sup>44</sup> Interview Summerhayes, 2003, CCCA.

<sup>45</sup> White, *Britain, Détente*, 142.

<sup>46</sup> Trevan to Jackson, 17 October 1980, NA, FCO 66/1520.

<sup>47</sup> Draft, 15 September 1980, NA, FCO 28/4205.

<sup>48</sup> Pakenham to Trevan, 1 October 1980, NA, FCO 66/1520.

(systemic oedema), would Wyatt “probably [be ] quite right” that symptoms would be identical.<sup>49</sup> Further comments on Wyatt’s article and Mikulak’s critique were solicited from CDE Porton Down. Their advice was that any judgment about the route of infection should be based on more than just one type of evidence and more than one single case.<sup>50</sup>

Other experts were more circumspect, particularly as there were so few recorded cases—and even fewer in the West—on which to base a judgment. At a December meeting between FCO, MOD, and Porton Down scientists, it was pointed out that there were only about 10 documented cases of gastric anthrax outside the USSR, these were retrospective and had occurred in “third world countries where medical facilities are minimal.”<sup>51</sup> Moreover, reports of pulmonary anthrax in factories dealing with goat and sheep skins: “cannot be regarded as definitive,” since there was no experimenter present. Any experimental data that existed used non-human animals and extrapolating them to humans “was fraught with uncertainties.” That said, the scientists were confident that they could, by considering a number of different cases, determine on the route of infection. Turning from the general to the specific, and to the intelligence available, they noted that their key source was medically trained and so likely to know which form of anthrax had occurred.<sup>52</sup> This discussion demonstrates that both the scientists and government officials were generally aware that they were working with intractable ignorance and uncertainties. From the officials’ perspective, there was relatively little indication of them placing any naïve trust in science to resolve everything.

A corollary to the inhalation versus ingestion problem was the timescale of the outbreak and the exact number of deaths. The problem was that pulmonary anthrax did not seem to fit the pattern reported in the Sverdlovsk outbreak. Anthrax is rarely, if ever, transmitted directly between people. So, if the outbreak had been caused by an accidental release of a cloud of anthrax, leading to mass exposure of the population, then there would have been a sharp spike in the number of cases (people would breathe in the cloud at about the same time, and would become infected at about the same time, after which there would be a sharp decline in new infections). Conversely, anthrax by ingestion was more likely to produce a more protracted outbreak as people would probably eat contaminated meat at different times, possibly some time after the first victims. All intelligence pointed to the latter pattern, with cases being reported weeks after the initial outbreak.

CDE scientists offered possible ad-hoc explanations to rescue the pulmonary version of events. They conceded that some of the later cases could have been intestinal anthrax if the initial aerosol caused food contamination, but these would be few. More likely, therapeutic and prophylactic antibiotics might have delayed rather than prevented death. Preventative vaccines “may have altered the course of the disease in individuals and possibly introduced sometimes fatal anaphylactic reactions.”<sup>53</sup> Also, a smaller dose of bacteria could take up to 10 days longer to incubate than a larger dose, thus prolonging the outbreak.<sup>54</sup> The CDE added that there were no precedents from which to build knowledge: “As far as we know, there has been no previous instance when both a large tract of land and a considerable number of people have been exposed to airborne anthrax spores.”<sup>55</sup>

A further contention was over the amount of material involved in the outbreak. The BWC does not stipulate legal or illegal amounts of agent, simply that States Parties to the treaty should not possess agents “in quantities that have no justification for prophylactic, protective or other peaceful purposes.” Nevertheless, officials and experts discussed whether an estimate of the amount involved could differentiate between intestinal and pulmonary anthrax, and also indicate whether defensive (permitted) or offensive (illegal) research had occurred. In both cases, experts offered little certainty. In the US, “they had tried to assess the quantity of agent necessary to produce an outbreak on this scale, there were too many assumptions and uncertainties for that approach to be useful.”<sup>56</sup> Later, Porton Down scientist Gradon Carter added that Wyatt’s *New Scientist* article concentrated on the weight of meat involved rather than number of spores and was trying to “quantify the unquantifiable.”<sup>57</sup> Carter also noted that while data existed on the dosage needed to kill sheep and cattle, the gastro-intestinal tract of these animals was different to humans and so made this data difficult to extrapolate.

<sup>49</sup> Trevan to Jackson, 9 October 1980, NA, FCO 66/1521.

<sup>50</sup> Carter to Bell, 15 October 1980, NA, FCO 66/1521.

<sup>51</sup> Meeting Report, 9 Dec 1980, NA, FCO 66/1521.

<sup>52</sup> Ibid.

<sup>53</sup> Draft Working Paper, 7 Oct 1980, NA, FCO 66/1521.

<sup>54</sup> Meeting Report, 9 Dec 1980, NA, FCO 66/1521.

<sup>55</sup> Draft Working Paper, 7 Oct 1980, NA, FCO 66/1521.

<sup>56</sup> Draft, 15 September 1980, NA, FCO 28/4205.

<sup>57</sup> Carter to Bell, 15 October 1980, NA, FCO 66/1521.

Experts were also suspicious about using the amounts involved to differentiate offensive from defensive research. Knowing that small amounts of living agent could be grown into larger amounts, the CDE scientists pointed out that:

[I]t is impossible to define more explicitly the likely volume or weight of anthrax spores which might be handled in either offensive or defensive BW R&D.... A quantity as large as many kgs or litres of spores could give rise to suspicions which may not be attached to a few g or cm<sup>3</sup> but there are dangers in attempting to define a threshold of significance.<sup>58</sup>

Officials and scientists also discussed what might have caused an accident at the facility. With very little intelligence to work with, and vague reports such as that of a night-time explosion in the area, the CDE scientists commented that “in the absence of more specific intelligence, speculation on the precise nature of the accident within the facility can be almost open-ended. Like the US, the UK can readily suggest scenarios.”<sup>59</sup>

All of these uncertainties again suggest that the FCO and other officials were quite aware not only of the gaps in their knowledge but also the limitations of knowing. Scientific evidence and intelligence could establish certain things and could possibly deliver more, but this did not preclude additional judgements having to be made about—for example—whether any biological weapons research at Sverdlovsk was undertaken with defensive or offensive intent.

### UK-Soviet Démarche

The UK démarche took place on 12<sup>th</sup> November, between the UK ambassador, Curtis Keeble, and Vladimir Petrovsky, Head of the International Organizations Department at the MFA. Before the meeting, Keeble had advised the FCO to take an “unprovocative approach.”<sup>60</sup> It is likely that the defeat of Carter and election of Reagan in the week before the meeting introduced further caution to the démarche. Certainly, a telegram from the FCO to the British embassy in Moscow, sent just two days after the election, aimed to prepare the UK ambassador for potential Russian skepticism. The telegram stated that:

If the Russians try to probe our positions in the light of Mr Reagan's victory, perhaps by suggesting that arms control considerations are now academic, you should say that we continue to attach great importance to arms control negotiations which would increase confidence and security. We should expect the new US administration to take the same view.<sup>61</sup>

To complement the earlier “frosty” response to the US démarche, the response from Petrovsky was described as “dusty,” whereas Keeble himself described the meeting as “increasingly fruitless (though not acrimonious).”<sup>62</sup> Petrovsky stated that the Soviet position had already been explained to the USA, that the USSR strictly abided by the BWC, and that raising the Sverdlovsk issue would divert attention from important discussion about disarmament.<sup>63</sup> Keeble persevered, emphasizing that the UK government expected a serious response and not the same answers again and again. By this stage, it was not even clear to Keeble that Petrovsky felt the matter to have been closed at the meeting. Furthermore, he had no knowledge whether there would be a more formal reply to the démarche in the coming weeks. Within a week, with only silence from Moscow, officials at the FCO, in consultation with their US allies, decided that Douglas Hurd should call in the Soviet Chargé d’Affaires in London—a move that was unlikely to actually improve the “slim chance of a constructive Soviet response” but that would signal to the Soviets and the Americans how serious the issue was to the British.<sup>64</sup> The meeting between Hurd and Vladimir Keline, the Chargé d’Affaires, took place on 28<sup>th</sup> November and—as predicted—yielded few concrete results.

Now, the FCO shifted its focus to arranging a multilateral consultative meeting of experts—having been established as the next stage in the escalation process. But now that the meeting had become an actual prospect, there were two problems. First, at home, the Ministry of Defense raised objections. Second, abroad, the change of US administration began to act as a brake on the whole process.

<sup>58</sup> Draft Working Paper, 7 Oct 1980, NA, FCO 66/1521.

<sup>59</sup> Ibid.

<sup>60</sup> Keeble to FCO, 17 October 1980, NA, FCO 66/1520.

<sup>61</sup> FCO to Moscow, 6 November 1980, NA, FCO 66/1521.

<sup>62</sup> Reeve to Moberly and PS/Mr Hurd, 18 November 1980, NA, FCO 66/1521; Moscow to FCO, 12 November 1980, NA, FCO 66/1521.

<sup>63</sup> Moscow to FCO, 12 November 1980, NA, FCO 66/1521.

<sup>64</sup> Reeve to Moberly and PS/Mr Hurd, 18 November 1980, NA, FCO 66/1521.



Officials within the ACDD had kept the Defense Secretariat 17 (DS17) of the Ministry of Defense (MOD) informed of developments on Sverdlovsk. DS17 provided the Defense Secretary with advice on nuclear policy, arms control, and disarmament. At the beginning of December, after circulating a draft letter from the FCO to Washington outlining a possible way forward towards the consultative meeting, Mike Jackson of the ACDD received an irate letter from the head of DS17, Michael Legge. Legge began: "As you know we in the MOD have had continued doubts about the value of this exercise, chiefly because we cannot see where it is leading in practical terms. Having read your draft, those doubts are, I am afraid, reinforced."<sup>65</sup> Rather than bolstering Article V, he continued, "all we shall have achieved at the end of the day is to demonstrate its ineffectiveness and thereby undermine the whole Convention. The Russians have only to continue to withhold co-operation ... and we shall get nowhere."<sup>66</sup>

Legge urged Jackson not to race ahead of the Americans, not only because the new administration might want to adopt a different strategy, but also because "public pressure for answers on Sverdlovsk is minimal in the UK and much more of an issue in the US."<sup>67</sup> Legge also highlighted a key tension that had pervaded the diplomatic approach: Continued brinkmanship to save the BWC would result in hollow threats. "If the Russians don't cooperate," wrote Legg, "we shall then have to decide what to do next. Article V will be discredited, but do we then withdraw from the BWC? That course seems unthinkable."<sup>68</sup> These doubts were allayed once Jackson managed to convince Legge that the FCO had no intention of moving ahead unilaterally.<sup>69</sup> This exchange was a minor distraction, but it nonetheless highlights how what I have termed pragmatic ignorance was managed as officials judged whether or not and how to escalate matters.

What appears to have halted the whole process is the change of administration in the USA. Within a week of the elections, the Americans notified officials at the FCO that "it would become harder for US officials (and perhaps others) to make the proper calculations about policy as the changeover between administrations approached."<sup>70</sup> Indeed, the current approach of trying to hold the Soviets to account over their commitment to the BWC, and the plan to widen the debate internationally "appeared to be consistent with the thinking of the Reagan camp."<sup>71</sup> By mid-December the whole matter seemed to have stalled entirely. A meeting between Michael Pakenham, of the British embassy in Washington, and Alan Neidle (ACDA) made clear that the USA had placed matters largely in abeyance.<sup>72</sup>

## Conclusion

Sverdlovsk had significant implications for Cold War international security. By the time of the incident, the BWC was widely regarded as part of a regime of interlinked treaties.<sup>73</sup> As such, threats to the integrity of the BWC were simultaneously threats to wider arms control initiatives. Rather than purporting to add to the many detailed analyses of what occurred in 1979 in Sverdlovsk, this article has focused instead on the role of uncertainty and ignorance in the UK's initial response to events. In this respect, government officials and scientific advisors alike did not expect science or intelligence to completely resolve questions about what had happened, and instead recognized their ignorance on several counts. Uncertainty and ignorance existed over several issues: whether this was a case of gastrointestinal anthrax (evidence of a natural outbreak) or inhalational anthrax (evidence of a military accident); the length of the outbreak; the number of deaths; the quantity of anthrax involved; and, if it had been a military accident, what had caused it? Furthermore, recognizing areas of ignorance and uncertainty meant that questions could be shifted between the epistemic (do we know for certain what happened?) to the pragmatic (have we sufficient evidence to take a course of action?). Ignorance, in this respect, was tempered.

Several accounts of Sverdlovsk, which focus more on the brandishing of Sverdlovsk during the Reagan era as a general failure of verification, suggest that that too much reliance was placed on science to deliver an objective and uncontested version of events.<sup>74</sup> Clearly, in the UK, evidence about what had happened was important for building a case, both against the USSR and in order to enroll potential allies and domestic

<sup>65</sup> Legge to Jackson, 1 December 1980, NA, FCO 66/1521.

<sup>66</sup> Ibid.

<sup>67</sup> Ibid.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> Washington to FCO, 13 November 1980, NA, FCO 66/1521.

<sup>71</sup> Ibid.

<sup>72</sup> Ibid.

<sup>73</sup> Croft, *Strategies of Arms Control*.

<sup>74</sup> Gordin, "Anthrax Solution"; Harris, "Two Cases of Noncompliance."

audiences. However, from examining the archival evidence, key UK officials were at least aware that evidence had its limitations, for example, that establishing a leak had occurred at the Sverdlovsk facility would not necessarily establish a breach of Article I. In this respect, they were not naïve about the role of scientific evidence or indeed how that evidence could be used to sketch out the limits of knowledge and the beginnings of ignorance.

Yet, rather than take this ignorance as some kind of epistemic failure, officials were instead more pragmatic about what they needed evidence for. This was exemplified in the earlier FCO quote: “none of us believe that there is much chance of the Russians changing their version of the event.” Instead, they proposed a list of more pragmatic positive outcomes. As mentioned, from the perspective of ignorance, officials were forging ignorance as an epistemological issue into ignorance as a pragmatic issue. Concerns were expressed by officials about the steps in the escalation process—having started with an accusation, was there both sufficient evidence *and* sufficient political will to carry out the next step, from a *démarche* all the way up to BWC withdrawal or action in the UN? Here, knowledge of what happened would certainly have clarified the path to be taken and inserted additional steps in the process—but absence of certainty was not *in itself* the problem, because even with more certain knowledge the problem of whether and when to escalate would have remained.

Following the twists and turns in the UK response to Sverdlovsk has provided insight into the social dynamics of ignorance. In the introduction, I noted that previous studies of strategic ignorance demonstrate how “not knowing” can be a deliberate attempt to manage contentious issues. For the UK-Sverdlovsk case, an alternative form of ignorance management occurred, as officials and scientists brought different types of ignorance into focus and downplayed other types of ignorance. This case study has therefore looked inwards at ignorance as an enacted process. Briefly looking outwards to the broader historiography of Cold War science, the case presents us with one example of how ignorance and knowledge were deployed in a diplomatic context not focused on sites of scientific knowledge production, such as weapons laboratories and field test sites. Here, scientific knowledge was just one constituency alongside diplomatic, intelligence and—to a lesser extent—military expertise. As such, the case of Sverdlovsk can be read as a call to pay attention to the interplay of knowledge and non-knowledge when we consider other aspects of the geo-political separation of East and West and how ignorance figured in the broader field of Cold War scientific diplomacy.

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