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Science, Suspects, and Systems: Lessons from  
the Anthrax Investigation

Erin Murphy\*

David Sklansky†

\*University of California, Berkeley, emurphy@law.berkeley.edu

†University of California, Berkeley, dsklansky@law.berkeley.edu

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# Science, Suspects, and Systems: Lessons from the Anthrax Investigation\*

Erin Murphy and David Sklansky

## Abstract

The anthrax mailings of late 2001 triggered one of the costliest and most complex criminal investigations in the history of the United States Department of Justice. Parts of that investigation were carried out with impressive skill and creativity, but parts were not. The seven-year history of the anthrax investigation highlights certain longstanding problems at the Department of Justice: the Department's underdeveloped interface with organized science, its insufficient preparation for criminal investigations conducted at the intersection of public health, and its lack of formalized processes for institutional learning. This article reviews the course of the Department of Justice's anthrax investigation and then draws two sets of lessons, one having to do with thinking systematically about science, and the other having to do with thinking scientifically about systems. The first set of lessons includes the need for better and clearer decision-making and communication protocols for crises arising at the intersection of law enforcement and public health, the benefits of preserving the values of transparency and neutrality in harnessing scientific expertise, and the desirability of institutional structures to bridge the culture gap between law enforcement and science. The second set of lessons centers on the advantages of developing formal procedures for institutional learning within the Department of Justice, modeled on the "after action" reviews conducted by other government agencies.

**KEYWORDS:** criminal procedure, DOJ, Department of Justice, anthrax, FBI, Federal Bureau of Investigation, institutional learning, bioterrorism

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## INTRODUCTION

In late September and early October 2001, immediately following the horrific terrorist attacks on the World Trade Center and the Pentagon, letters containing anthrax spores were mailed to several American news offices and to two United States Senators. Twenty-two people were infected, five fatally. Seven years later, after spending about \$15 million on one of the most complex criminal cases in the history of the FBI,<sup>1</sup> the Department of Justice announced it had determined who had sent the letters: a former government scientist named Bruce Ivins. Ivins had committed suicide a few weeks before the announcement.

Days after laying out its evidence, which most but not all scientists familiar with the case found convincing, the Department formally exonerated another government scientist, Steven Hatfill—whom it previously had surveilled, harassed, pointedly labeled a “person of interest,” and then eventually paid 4.6 million dollars in a civil settlement. Other suspects wrongly targeted by the FBI during the long course of its investigation saw their marriages fall apart, lost their jobs, or had to leave the country.<sup>2</sup>

Publicly, at least, DOJ has not found any of this worrisome. Robert Mueller, the director of the FBI, refused to apologize “for any aspect of the investigation.”<sup>3</sup> It was wrong, he claimed, “to say there were mistakes.”<sup>4</sup> We are less sanguine, and we think the Bureau and the Department should be, too. In many ways the anthrax case was unprecedented. There is room for hope that in many respects it will remain unique. The nature and timing of the anthrax attacks placed extraordinary strains on the government, and despite those strains some aspects of the investigation appear to have been conducted with great skill. But other aspects of the investigation were handled less well. There are dangers in generalizing from a case that was so obviously atypical, but there are larger dangers in failing to learn from mistakes.

We believe there are two important sets of lessons to be learned from the anthrax investigation. One has to do with thinking systematically about science; the other has to do with thinking scientifically about systems. The first set of lessons includes the need for better and clearer decision-making protocols for crises arising at the intersection of law enforcement and public health, the need for more careful and systematic thinking about the flow of information between

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<sup>1</sup> We refer to the U.S. Department of Justice as “DOJ,” “Justice,” “the Justice Department” and “the Department” throughout the article, and to the Federal Bureau of Investigation as the “FBI” and “the Bureau.”

<sup>2</sup> See William J. Broad & Scott Shane, *Anthrax Case Had Costs for Suspects*, N.Y. TIMES, Aug. 9, 2008, at A1 [hereinafter *For Suspects*].

<sup>3</sup> See *id.*

<sup>4</sup> See *id.*

law enforcement and public health officials, and the need to create institutional structures bridging the culture gap between law enforcement and science. The second set of lessons centers on the advantages of developing formal procedures within the Department of Justice for institutional learning, modeled on the “after action” reviews conducted by other government agencies.

The first part of this article provides an overview of the anthrax investigation and highlights the daunting challenges that the Justice Department faced, the impressive accomplishments it can justifiably claim, and the worrisome junctions where the investigation went astray. The second part of the article draws lessons from this history, focusing first on thinking more systematically about science and second on thinking more scientifically about systems.

We write as outsiders, not insiders. There is much about the investigation that we do not know. That has made us cautious in drawing conclusions about the investigation, but it also underscores, for us, the importance of some of the conclusions we *do* draw—particularly about the need for the Department of Justice to formalize its own, internal procedures for learning from its experiences.

## I. THE ANTHRAX INVESTIGATION

The first obstacle in drawing lessons from the anthrax case is the complexity of the investigation itself. The attacks posed daunting scientific challenges, and the FBI followed a long, convoluted path in its attempt to identify the culprit. We are simultaneously helped and hindered by the public record, which provides both glimpses into the real-time investigation and retrospective examinations of the inquiry’s entire arc. This part of our article provides a basic overview of the investigation—how it began, how it proceeded, and how it ended.

### A. *Origins of the Crisis*

Anthrax is a lethal bacterial disease that infects grazing animals and people. In the United States, military researchers have developed at least one vaccine against the disease, and some forms of the infection respond to strong antibiotics. However, the bacterium remains an attractive instrument of biological warfare and bioterrorism because, in addition to its lethality, it can live for decades as a dormant spore. These spores can be concentrated into highly potent powders that disperse easily in the air. When they are inhaled, ingested, or brought in contact with broken skin, the spores reactivate and begin to multiply in their living host.<sup>5</sup> They produce deadly toxins that typically kill a person within days.

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<sup>5</sup> See Centers for Disease Control and Prevention, Questions and Answers about Anthrax, <http://emergency.cdc.gov/agent/anthrax/faq/> (last visited Feb. 22, 2009).

On September 18, 2001, two letters containing anthrax spores were postmarked in Trenton, New Jersey. One was addressed to NBC News anchor Tom Brokaw and the other to the New York *Post*.<sup>6</sup> Erin O'Connor, a thirty-eight-year-old assistant responsible for opening Brokaw's mail, handled the NBC letter some time between September 19 and 25, and also handled another letter, postmarked September 20 from St. Petersburg, Florida, that also contained white powder. The Trenton letter initially did not raise concerns, but the St. Petersburg letter did; it was given to the FBI, which failed to test it. On September 25, O'Connor developed a sore on her chest<sup>7</sup> which worsened over three days and was associated with other symptoms, including malaise and headaches.<sup>8</sup> On October 1, she was treated for anthrax exposure by an infectious disease specialist, who in turn notified the New York City Health Department. They obtained the St. Petersburg letter from the FBI and determined it did not contain anthrax.

It was not until later, when the Trenton envelope was located on October 12, that investigators discovered that it contained trace levels of anthrax. Meanwhile other victims of anthrax surfaced. The baby of an ABC World News Tonight producer fell ill on September 29, the day after attending a party at the ABC offices.<sup>9</sup> Claire Fletcher, a CBS News employee who routinely opened anchor Dan Rather's mail, developed a mark on her cheek. Then Robert Stevens, a sixty-three-year-old photo editor employed by American Media in Boca Raton, Florida, fell ill.<sup>10</sup> Two days later he was diagnosed with anthrax, and he died three days after that on October 5, 2001.<sup>11</sup> The ABC, CBS, and Boca Raton infections were never connected to a letter source, but they reinforced the impression that bioterrorist attacks were underway.

Until this time, the officials involved had been a patchwork of state law enforcement and public health officials, along with the federal Centers for Disease Control. On October 8, 2001, the FBI took over the anthrax investigation in Florida,<sup>12</sup> and around the same time additional cases of anthrax turned up: two

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<sup>6</sup> See Thomas J. Lueck & David E. Rosenbaum, *Anthrax Found on a 3rd Letter from Trenton*, N.Y. TIMES, Oct. 21, 2001, at 1A1.

<sup>7</sup> See David Barstow, *Anthrax Found in NBC News Aide*, N.Y. TIMES, Oct. 13, 2001, at A1 [hereinafter *NBC News Aide*].

<sup>8</sup> See Univ. of Cal. Los Angeles, Dept. of Epidemiology, School of Pub. Health, American Anthrax Outbreak of 2001, [http://www.ph.ucla.edu/epi/bioter/detect/antdetect\\_case2.html](http://www.ph.ucla.edu/epi/bioter/detect/antdetect_case2.html) (last visited Feb. 22, 2009).

<sup>9</sup> See Eric Lipton & Jim Rutenberg, *Anthrax Found in Baby of ABC News Producer*, N.Y. TIMES, Oct. 16, 2001, at B1.

<sup>10</sup> See Dana Canedy & Nicholas Wade, *Florida Man Dies of Rare Form of Anthrax*, N.Y. TIMES, Oct. 6, 2001, at A9.

<sup>11</sup> See *id.*

<sup>12</sup> See Lawrence K. Altman, M.D., *When Everything Changed at the C.D.C.*, N.Y. TIMES, Nov. 13, 2001, at F1.

American Media employees, Ernesto Blanco and Stephanie Dailey, showed signs of infection. Agents secured the American Media building and told 300 employees they had to be tested for anthrax.<sup>13</sup> But a conflict soon arose. FBI agents did not know how to collect environmental samples from the ventilation ducts, grounds, and office equipment inside the building, and the epidemiologists and scientists from the CDC and other public health agencies who were trained in this work—and who best knew how to manage the risks of anthrax infection—were forbidden by the FBI to enter the secured site, presumably for reasons of safety and preservation of evidence. In the end, scientists standing outside the building used transmitters to coach FBI agents inside the building on collecting samples.<sup>14</sup>

Tensions soon developed between federal and state authorities. In New York, Mayor Rudolph Giuliani was angered that the FBI had not brought word of a potential anthrax case to city officials earlier<sup>15</sup> and frustrated at the manner in which federal officials were widening the investigation. Giuliani ordered the NYPD to take over the investigations.<sup>16</sup> Around the same time, it became clear that the New York City Health Department officials who had tested the original Brokaw letter had accidentally contaminated the laboratory, rendering the space unusable for the critical period after anthrax was discovered and before the full scope of the problem was known. Meanwhile, federal rules limiting the use of biological agents prohibited anthrax testing at FBI headquarters at Quantico. As a result, all samples that needed to be tested for anthrax had to be sent to Albany or elsewhere.<sup>17</sup>

Halfway across the country, Iowa State University officials decided to destroy one hundred vials of anthrax cultures kept in a unique archive of samples accumulated and preserved since 1925,<sup>18</sup> so as to avoid their potential misappropriation.<sup>19</sup> Gov. Tom Vilsack had sent the National Guard to secure the samples based on early news reports, which led the university to believe that keeping the archive was not worth its trouble.<sup>20</sup> Iowa State University officials

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<sup>13</sup> *See id.*

<sup>14</sup> *See id.*

<sup>15</sup> *See* Jennifer Steinhauer & Jim Dwyer, *F.B.I. Did Not Test Letters to NBC or Immediately Notify City Hall*, N.Y. TIMES, Oct. 13, 2001, at A1.

<sup>16</sup> *See* Eric Lipton, *On a Day of Jitters, City and F.B.I. Differ Over Anthrax Sweep at ABC*, N.Y. TIMES, Oct. 17, 2001, at B6.

<sup>17</sup> *See* Sarah Kershaw, *Defense Dept. Aids a Busy City Health Agency with Tests*, N.Y. TIMES, Oct. 22, 2001, at B8.

<sup>18</sup> *See* William J. Broad, *Geographic Gaffe Misguides Anthrax Inquiry*, N.Y. TIMES, Jan. 30, 2002, at A11 [hereinafter *Geographic Gaffe*].

<sup>19</sup> *See* William J. Broad, David Johnston, Judith Miller & Paul Zielbauer, *Experts See F.B.I. Missteps Hampering Anthrax Inquiry*, N.Y. TIMES, Nov. 9, 2001, at A1 [hereinafter *Missteps*].

<sup>20</sup> *See id.*

contacted the FBI field office in Omaha, Nebraska and asked if the agents would have any objection to the university's destruction of the archive. After conferring with Miami field agents, who consulted with several scientists, the Nebraska agents gave their permission. The cultures were incinerated on October 11.<sup>21</sup> In retrospect, this was a reckless step that could have derailed the investigation by destroying important forensic evidence. It must have also been embarrassing months later, when the Bureau tried to assemble on its own archive, similar to that one. However, as it happened, the Iowa material turned out not to be essential.<sup>22</sup>

The anthrax scare turned into a full-fledged crisis on October 15, when aides to U.S. Senator Tom Daschle opened an envelope addressed to the Democratic leader in block letters. The envelope contained a white powder and a letter that read, "09-11-01. You can not (*sic*) stop us. We have this anthrax. You die now. Are you afraid? Death to America. Death to Israel. Allah is great." The text was almost identical to the *NBC News* and *New York Post* letters, and the letter had likewise arrived in a pre-stamped, first-class envelope postmarked in Trenton, New Jersey.<sup>23</sup> Unlike the news media letters, it bore a fictitious return address: "4th Grade, Greendale School, Franklin Park, NJ 08852." Police immediately quarantined Daschle's office, shut down the Capitol's mail system, and suspended public tours. Later tests showed that 28 people, most of them aides to the senator, had been exposed to the Daschle anthrax.<sup>24</sup> Law enforcement authorities in protective biohazard suits were seen through the windows of Daschle's office. Fifty people, most of them aides to the senator, were prescribed the antibiotic Ciprofloxacin, the only drug FDA-approved to treat inhaled anthrax.<sup>25</sup>

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<sup>21</sup> See *Missteps*, *supra* note 19.

<sup>22</sup> Federal investigators initially believed that the Ames anthrax strain was first identified in Ames, Iowa, but in fact it originated in Texas 1981. Only then was it sent to Fort Detrick, Maryland. This meant that it was unlikely that the anthrax used in the attacks was left over from the nation's bio-weapons program, shut down in 1969. It also meant that the Iowa State University stockpile was less critical to the investigation. Unfortunately, it also meant that the strain might be more widely available than first thought, because it is common in Texas soil. *Geographic Gaffe*, *supra* note 18.

<sup>23</sup> See David Johnston, *In Shift, Officials Look Into Possibility Anthrax Cases Have Bin Laden Ties*, N.Y. TIMES, Oct. 16, 2001, at B5 [hereinafter *Bin Laden Ties*].

<sup>24</sup> See Jennifer Steinhauer, *2 New Anthrax Infections Found; Previous Cases Share Same Strain*, N.Y. TIMES, Oct. 20, 2001, at A1.

<sup>25</sup> See Sheryl Gay Stolberg & Alison Mitchell, *Letter Containing Anthrax Sent to U.S. Senate Leader*, N.Y. TIMES, Oct. 16, 2001, at A1 [hereinafter *Letter Containing*]. Bayer announced a week later that it would triple the production of Cipro, the only drug that is FDA approved to treat inhaled anthrax. See David Johnston & Alison Mitchell, *Anthrax Mailed to Senate Is Found to Be Potent Form; Case Tied to Illness at NBC*, N.Y. TIMES, Oct. 16, 2001, at A1 [hereinafter *Anthrax Mailed*].

The FBI had earlier sent anthrax samples to the CDC for analysis. However, with the discovery of the Daschle letter, the FBI chose to involve a new agency, the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). Located in Fort Detrick, Maryland, USAMRIID is the military's primary institution for research on biological warfare and defense. Notably, both Stephen Hatfill and Bruce Ivins—the government's initial and ultimate suspects in the case, respectively—worked there, and Ivins was present at the initial test.<sup>26</sup> USAMRIID completed its initial analysis and delivered its first assessment—that the letter did in fact contain anthrax—to the FBI that night.<sup>27</sup>

Investigators then made a determination that ultimately helped solve the case: they stopped all mail delivery to the Capitol, and began collecting it in a secure facility. A month later, they devised a plan to comb through 600 trash bags of undelivered mail to test for traces of anthrax.<sup>28</sup> This painstaking investigation bore fruit: it uncovered an unopened letter addressed to Senator Patrick Leahy that appeared to contain anthrax.<sup>29</sup> Because each of the three prior letters were opened, they did not leave sufficient powder to conduct meaningful tests,<sup>30</sup> but the Leahy letter gave investigators nearly pristine evidence.<sup>31</sup> Over the next weeks, FBI agents waited to open the letter while they consulted anthrax and forensic experts from around the world on how best to preserve its forensic

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<sup>26</sup> See Rachel Swarns & Eric Lipton, *From Offering Help in the Anthrax Investigation to Being Named the Suspect*, N.Y. TIMES, Aug. 8, 2008, at A12; Scott Shane & Eric Lichtblau, *Scientist's Suicide Is Linked to Anthrax Inquiry*, N.Y. TIMES, Aug. 2, 2008, at A1 [hereinafter *Scientist's Suicide*].

<sup>27</sup> See *Missteps*, *supra* note 19.

<sup>28</sup> Around the week of November 12, 2001, FBI and Postal Service investigators in biohazard suits began searching through the unopened Capitol Hill mail that had been segregated in a highly secure facility in Northern Virginia. See Philip Shenon, *Suspicious Letter to a 2nd Senator*, N.Y. TIMES, Nov. 17, 2001, at A1 [hereinafter *Suspicious Letter*]. The building was a General Services Administration warehouse. See *id.* The agents began the search after determining that it could be carried out safely. See Philip Shenon & Sheryl Gay Stolberg, *Officials Hope for New Clues in Senate Mail*, N.Y. TIMES, Nov. 18, 2001, at 1B1 [hereinafter *Hope for New Clues*]. The mail in the facility was held in 600 plastic bags inside of about 280 drums. FBI agents and EPA employees constructed a large room sealed in plastic to handle the material. Each investigator was offered antibiotics, and some were required to take them. During the search, about six of the plastic bags were found to contain about 100 to 300 anthrax spores, a moderately high concentration. One bag had 23,000 spores, enough to kill two people. See *id.* “This was a large operation. . . the largest hazardous material investigation of its kind in the FBI's history,” noted one official. See Judith Miller & David Johnston, *Investigators Liken Anthrax in Leahy Letter to that Sent to Daschle*, N.Y. TIMES, Nov. 20, 2001, at B1.

<sup>29</sup> See *Hope for New Clues*, *supra* note 28.

<sup>30</sup> See *Suspicious Letter*, *supra* note 28.

<sup>31</sup> See Judith Miller & David Johnston, *Investigators Liken Anthrax in Leahy Letter to that Sent to Daschle*, N.Y. TIMES, Nov. 20, 2001, at B1.

clues.<sup>32</sup> Investigators wanted to make sure they would retrieve an anthrax sample large enough to examine the spores' concentration. They also wanted to know whether the spores had been finely milled or supplemented with additives such as silicon, two steps that would have allowed the spores to disperse more easily in the air and travel into the lungs of more people.<sup>33</sup> Acquiring the Leahy sample ultimately permitted the detailed forensic examinations that solved the case.

### **B. *Initial Reactions: Mixed Messages and Bureaucratic Confusion***

Throughout October and November 2001, the public received a series of mixed and confused messages about the source and dangerousness of the anthrax attacks. On October 12, Vice President Dick Cheney said the government should “proceed on the basis” that the anthrax attacks could be linked to Osama bin Laden.<sup>34</sup> Tommy Thompson, Secretary of Health and Human Services, added that it “clearly is an act of terrorism to send anthrax through the mail.” Asked whether al Qaeda was behind the anthrax mailings, Thompson said, “We don’t know.”<sup>35</sup> The investigation, inspired largely by circumstantial evidence including the attacks’ proximity to Sept. 11, the content of the letters, and the fact that several of the Sept. 11 hijackers happened to live near Boca Raton, FL and Trenton, NJ, focused initially on Islamic terrorism.<sup>36</sup>

On October 23, CIA Director George J. Tenet told President Bush and several Congressional leaders that he suspected an organized terrorist group was behind the anthrax attacks.<sup>37</sup> Attorney General John Ashcroft further said that investigators were “not able to rule out an association with terrorist acts of Sept. 11, but neither are we able to draw a conclusive link at this time.” The *New York Times* later reported that the Bush Administration pressured the FBI to explore possible links to Iraq and Afghanistan.<sup>38</sup> President Bush told reporters in mid-October that investigators did not yet have “hard data” linking the anthrax attacks to Osama bin Laden, but that bin Laden was “an evil man” who was “openly bragging” about how he hoped to inflict “more pain” on the United States.<sup>39</sup>

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<sup>32</sup> See *Hope for New Clues*, *supra* note 28.

<sup>33</sup> See William J. Broad, *Terror Anthrax Resembles Type Made by U.S.*, N.Y. TIMES, Dec. 3, 2001, at A1.

<sup>34</sup> See *NBC News Aide*, *supra* note 7.

<sup>35</sup> See Serge Schmemmann, *Recruiting a New Afghan Ruler, Bush's 'No' and Tracking Anthrax*, N.Y. TIMES, Oct. 15, 2001, at B1.

<sup>36</sup> See *Bin Laden Ties*, *supra* note 23.

<sup>37</sup> See David Johnston, *U.S., Hoping to Give Warning and Get Clues, Issues Copies of Anthrax Letters*, N.Y. TIMES, Oct. 24, 2001, at B6.

<sup>38</sup> William J. Broad & David Johnston, *U.S. Inquiry Tried, but Failed, to Link Iraq to Anthrax Attack*, N.Y. TIMES, Dec. 22, 2001, at A1 [hereinafter *Tried but Failed*].

<sup>39</sup> See *Letter Containing*, *supra* note 25.

However, scientists were finding evidence as early as October 2001 that pointed away from a foreign attack. Tests quickly showed that the anthrax used in Florida and New York was a highly virulent, domestic variety known as the Ames strain.<sup>40</sup> Ames anthrax had been studied for years at USAMRIID and then widely distributed to foreign and domestic laboratories attempting to develop an anthrax vaccine.<sup>41</sup> Investigators could find no evidence suggesting that it was among the strains sold or otherwise delivered to the Russian or Iraqi weapons programs, which were considered the most likely source of biological material for foreign terrorists.<sup>42</sup>

The FBI did pursue an additional possibility: that a disgruntled employee of a domestic laboratory that used anthrax carried out the attacks. But the investigation was piecemeal and uncoordinated. FBI agents claimed to have checked every American lab and found none missing anthrax inventory or reporting suspicious activity.<sup>43</sup> The *New York Times* reported that FBI agents visited Princeton University and asked the chairman of the molecular biology department whether the department held any threatening organisms and whether any had been stolen.<sup>44</sup> Several experts confirmed that subpoenas were sent to labs, requesting the names of people who have had access to anthrax cultures as well as records about where such cultures have been shipped.<sup>45</sup> The FBI even arranged with the American Society of Microbiology to forward an electronic copy of a letter from the FBI to 32,000 members in the U.S. The letter said “it is very likely that one or more of you know” the anthrax mailer and asked for the members’ help in finding the perpetrator.<sup>46</sup>

But the investigation also encountered several roadblocks. James T. Caruso, the deputy assistant director of the FBI’s counterterrorism bureau, told several U.S. Senators in November 2001 that the agency still didn’t know how many American labs had access to anthrax.<sup>47</sup> Answering this question was

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<sup>40</sup> The anthrax was identified first as belonging to the Ames strain very early in the series of attacks. See Yudhijit Bhattacharjee, *Paul Keim on His Life With the FBI During the Anthrax Investigation*, 323 *SCIENCE* 1416 (2009) (describing how “[h]ours after the first wave...sickened a man in Florida,” FBI scientists sent a sample to a university anthrax researcher who then identified the strain within twenty-four hours).

<sup>41</sup> See Nicholas Wade, *Scientist’s Findings Could Aid Anthrax Inquiry*, *N.Y. TIMES*, Feb. 12, 2002, at A20.

<sup>42</sup> See David Johnston & William J. Broad, *Link Suspected in Anthrax and Hijackings*, *N.Y. TIMES*, Oct. 19, 2001, at B5.

<sup>43</sup> See *id.*

<sup>44</sup> See David Johnston & David Kocieniewski, *As Investigation Churns, More Attacks Are Expected*, *N.Y. TIMES*, Oct. 25, 2001, at B7.

<sup>45</sup> See *id.*

<sup>46</sup> See *Biologists Enlist in Anthrax Hunt*, *N.Y. TIMES*, Jan. 31, 2002, at A13.

<sup>47</sup> See Sheryl Gay Stolberg & David Johnston, *F.B.I. Admits Little Progress on Bioterrorism*, *N.Y. TIMES*, Nov. 7, 2001, at A1.

complicated partly because the law did not require every laboratory with anthrax to register with the federal government.<sup>48</sup> Nevertheless, senators still lamented that it had taken more than a month for the FBI to issue subpoenas asking for the names of laboratory employees who had been vaccinated against anthrax.<sup>49</sup> It had also taken the agency that long to post electronic bulletin boards allowing members of scientific groups to contact criminal investigators.<sup>50</sup> The agency was further criticized for waiting five months, until late February 2002, to subpoena samples of the Ames strain from anthrax laboratories.

In addition to confusion surrounding the possible source of the anthrax, confusion also stirred over the nature and strength of the anthrax and the risk that it posed. This conflict reflected uncertainty within the investigation itself. The initial tests of the Daschle letter conducted at USAMRIID showed that the concentration of spores—an indicator of lethality—was much higher in the Daschle letter than in the earlier letters. Moreover, for three days, scientists believed that the spores had also been “weaponized”—or chemically treated to become even more lethal. By the time that assessment was revised, the notion had already leaked out and heightened concern, exacerbated by statements like that of Tom Ridge, recently appointed Assistant to the President for Homeland Security. Ridge said it was “clear that the terrorists responsible for these attacks intended to use this anthrax as a weapon,”<sup>51</sup> which was interpreted widely to mean the anthrax was “weaponized.” Despite public statements that there was no additive, which remains the view today,<sup>52</sup> weaponization rumors persisted.

Adding to this confusion, government error helped generate mixed reports on the strength of the anthrax. After the Daschle anthrax had been tested at USAMRIID, the FBI sent another sample for analysis at Batelle, a military contractor based in Ohio.<sup>53</sup> But Battelle, uninformed by agents that USAMRIID had already irradiated the sample, conducted standard pressure and steam tests to kill the anthrax spores before testing. As a result, their tests generated a far lower estimate of the powder’s concentration and corresponding lethality; the error was not uncovered for almost a week, during which several mail handlers fell ill.<sup>54</sup>

Confusion about the gravity of the anthrax threat was compounded by the statements of public officials, many of whom spoke carelessly or imprecisely. Attorney General John Ashcroft described the anthrax as “virulent, strong, very

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<sup>48</sup> See *id.*

<sup>49</sup> See *Missteps*, *supra* note 19.

<sup>50</sup> See *id.*

<sup>51</sup> See Sheryl Gay Stolberg & Judith Miller, *After a Week of Reassurances, Ridge’s Anthrax Message Is Grim*, N.Y. TIMES, Oct. 26, 2001, at A1.

<sup>52</sup> See William J. Broad & Judith Miller, *Officials, Expanding Search, Warn About Drawing Conclusions on Anthrax Source*, N.Y. TIMES, Oct. 26, 2001, at A7.

<sup>53</sup> See *Missteps*, *supra* note 19.

<sup>54</sup> See *id.*

serious.” He added that tests had not yet determined whether the anthrax “had been treated in any way that would make it especially more dangerous.”<sup>55</sup> Military officials told U.S. Senators that the anthrax was “very refined,” “had a fairly significant degree of concentration of spores,” and “clearly was produced by someone who knew what he or she was doing,” which Senators then relayed to the public.<sup>56</sup>

Senator Bill Frist, a physician, told his colleagues that the anthrax found in the Daschle letter was so potent and concentrated that it could have killed everyone in the Hart Senate Office Building if it had gotten into the ventilation system, even though that was wildly incorrect.<sup>57</sup> Speaker of the House Dennis Hastert hyperbolically told reporters that the anthrax was so powerful that it had “gotten into the ventilation system” and was “going through the tunnels” that linked the Capitol and its office complex. (He later backtracked, saying that that anthrax contamination was a mere “possibility.”<sup>58</sup>) House Democratic leader Richard Gephardt insisted the anthrax found so far was “weapons-grade material. . . . We’ve got to stop parsing words and trying to be anything other than accurate.”<sup>59</sup> Meanwhile, the Centers for Disease Control, along with Tom Ridge, assured the public that the anthrax spores were “naturally occurring” and had not been “weaponized.” And Major General Jon Parker described the Daschle anthrax as “sensitive to all antibiotics.”<sup>60</sup>

The absence of a clear and complete explanation created confusion, in the public and elsewhere. In fact, the Daschle anthrax was part of the naturally occurring Ames strain. It did respond to strong antibiotics and was probably not supplemented with silicon or other additives to make it aerosolize more easily. However, the Daschle anthrax was also much more concentrated than the spores in the previous letters. It had been finely milled so that it could be easily aerosolized and inhaled. It also contained about 1 trillion spores per gram, making it among the most concentrated anthrax powders ever produced.<sup>61</sup>

By mid-October the FBI had received more than 2,300 reports of suspected anthrax or other dangerous substances.<sup>62</sup> As public alarm mounted, the

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<sup>55</sup> See Todd S. Purdum & Alison Mitchell, *Tests Show Anthrax Exposure in at least 30 Capital Workers*, N.Y. TIMES, Oct. 18, 2001, at A1 [hereinafter *Tests Show*].

<sup>56</sup> See *Anthrax Mailed*, *supra* note 25.

<sup>57</sup> See David E. Sanger & Neil A. Lewis, *Officials Fail to Guarantee Mail is Not Contaminated*, N.Y. TIMES, Oct. 31, 2001.

<sup>58</sup> See *Tests Show*, *supra* note 55.

<sup>59</sup> See Francis X. Clines, *U.S. Officials Voice New Worry after Anthrax Traces Taint Off-Site White House Mail Room*, N.Y. TIMES, Oct. 24, 2001, at A1.

<sup>60</sup> See *Tests Show*, *supra* note 55.

<sup>61</sup> *Id.*

<sup>62</sup> See Clyde Haberman, *A Focus on Bioterrorism, A Show of Military Might*, N.Y. TIMES, Oct. 17, 2001, at B1.

CDC and postal officials assured workers at the Hamilton Township processing center, where the New York letters were processed, that anthrax could not escape from a sealed envelope<sup>63</sup> and that environmental tests at the plant showed no signs of anthrax contamination.<sup>64</sup> They also relayed the opinions of scientists, who said that even postal workers who had handled the Daschle letter had an infinitesimal risk of anthrax exposure.<sup>65</sup> However, both of these statements were debunked when environmental swabs ultimately revealed a trail of tiny anthrax spores leading straight from Trenton, through Washington, all the way to a Capitol elevator.<sup>66</sup>

In the meantime, eleven postal workers developed serious anthrax infections. Officials stopped processing mail at the Hamilton postal center and closed the small post office attached to it after getting confirmation that one worker was infected and that a second worker was ill with anthrax-like symptoms.<sup>67</sup> In Washington, D.C., two postal workers at the facility that handled congressional mail died of anthrax exposure on October 21 and 22—the second and third fatalities. On October 22, the CDC confirmed that anthrax could escape from a sealed envelope. Authorities closed mail distribution centers in New York, New Jersey, and Washington and provided prophylactic antibiotics to more than 9,000 mail workers. Officials later admitted that they had underestimated the health risk to postal workers.<sup>68</sup> “We were wrong, because we haven’t been here before,” U.S. Surgeon General Dr. David Satcher said.<sup>69</sup>

Two other fatalities underscored the dangers within the mail system. On October 31, 2001, Kathy T. Nguyen, a sixty-one-year-old hospital employee, died of inhalation anthrax.<sup>70</sup> More than 30 investigators were never able to discover even a single spore in her home or work, at stores she visited, or on her subway route to work.<sup>71</sup> However, the anthrax that killed her was indistinguishable from the bacteria mailed to Daschle, Brokaw, and the Florida news office.<sup>72</sup> Investigators ultimately concluded that Nguyen must have contracted anthrax

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<sup>63</sup> See David Kocieniewski, *Criticism of Postal and Health Officials Grows Louder*, N.Y. TIMES, Oct. 24, 2001, at B7.

<sup>64</sup> See *id.*

<sup>65</sup> See *id.*

<sup>66</sup> See Andrew C. Revkin, *Trail of Death and Illness on a Tainted Letter’s Path*, N.Y. TIMES, Oct. 31, 2001, at A9.

<sup>67</sup> See Eric Lipton, *Anthrax Is Found In 2 More People*, N.Y. TIMES, Oct. 19, 2001, at A1.

<sup>68</sup> See Todd S. Purdum, *More Checked for Anthrax; U.S. Officials Acknowledge Underestimating Mail Risks*, N.Y. TIMES, Oct. 25, 2001, at A1.

<sup>69</sup> See *id.*

<sup>70</sup> See Eric Lipton, *Bronx Woman Is Fourth To Die from Anthrax*, N.Y. TIMES, Nov. 1, 2001, at A1.

<sup>71</sup> See *id.*

<sup>72</sup> See Jennifer Steinhauer, *Familiar Anthrax Strain Is Seen in Woman’s Death*, N.Y. TIMES, Nov. 2, 2001, at B1.

from a piece of cross-contaminated mail. The same is true of Otilie Lundgren, a ninety-four-year-old woman living in Oxford, Connecticut. She died of anthrax infection in late November. Investigators spent nearly ten days poring over every inch of Lundgren's life and trying to discover how she might have been exposed to the bacteria. The only lead was a single anthrax spore on a letter delivered to a family living about one mile away from Lundgren.<sup>73</sup>

The mixed messages and lack of leadership frustrated public officials and fanned public alarm. At a Senate Governmental Affairs Committee hearing on the investigation,<sup>74</sup> Senator Joseph Lieberman asked in exasperation: "Who's in charge?"<sup>75</sup> DHHS Secretary Thompson conceded that no one person was in charge of preparing to respond to a biological attack on the United States. Afterward, he and Michael Brown, then General Counsel for the Federal Emergency Management Agency, traded contradictory testimony over whether FEMA, the FBI, or DHHS was the lead agency in a biological or chemical attack.<sup>76</sup> Senators also noted that the CDC and its mission of reducing health hazards had at times been at odds with the FBI and its mission of solving crimes.<sup>77</sup> Local officials felt altogether left out of the loop: Washington D.C.'s Chief Health Officer Dr. Ivan C.A. Walks claimed that he learned about the particularly dangerous qualities of the Daschle anthrax by watching ABC's *Nightline*.<sup>78</sup>

### **C. *The Investigation: Forensic False Steps and Scientific Successes***

As the foregoing indicates, the anthrax investigation started inauspiciously. It was characterized by bungled tests, lack of coordination and leadership, inaccurate and inconsistent communication among officials and between officials and the public, and inattention to the particular demands of an inquiry that was essentially scientific in nature. Moreover, the early efforts to identify a perpetrator were similarly fumbling—starting with the erroneous and inflammatory assumption that the perpetrators were foreign terrorists and continuing through the haphazard and ad hoc investigation of domestic universities and laboratories.

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<sup>73</sup> See Paul Zielbauer, *Connecticut Detects Anthrax on a Letter Near Victim's Home*, N.Y. TIMES, Dec. 1, 2001, at A1.

<sup>74</sup> See Stephen Labaton & Robert Pear, *Anthrax Menace Exposes Badly Coordinated Defense*, N.Y. TIMES, Oct. 18, 2001, at B7.

<sup>75</sup> See *id.*

<sup>76</sup> See *id.*

<sup>77</sup> See *id.*

<sup>78</sup> See Sheryl Gay Stolberg & Judith Miller, *After a Week of Reassurances, Ridge's Anthrax Message Is Grim*, N.Y. TIMES, Oct. 26, 2001, at A1.

But after the chaos of the initial response, the investigation settled into a more coordinated, sophisticated groove that ultimately led agents, through the creative harnessing of scientific talent, to the solutions that ultimately cracked the case. At this point, it was almost as if two parallel investigations were taking place. In one, scientists and researchers painstakingly and rigorously investigated the genetic roots of the anthrax, devising novel techniques and methods in what became a seemingly successful effort to find a perpetrator. In the other, agents rushed to judgment and relentlessly hounded a government researcher, based on the barest of circumstantial evidence and ignoring all contrary leads.

### 1. *Jumping to Conclusions: The Hounding of Steven Hatfill*

By December 2001, federal officials had largely, if reluctantly, abandoned the effort to link the anthrax letters with al Qaeda, Afghanistan, or Iraq. Tom Ridge told reporters that “when the case of anthrax emerged so close to Sept. 11, I couldn’t believe it was a coincidence,” but that, “now, based on the investigative work of many agencies, we’re all more inclined to think that the perpetrator is domestic.”<sup>79</sup> Around the same time, Barbara Hatch Rosenberg, a microbiologist at the State University of New York and chairwoman of a biological weapons panel at the Federation of American Scientists, suggested at conferences and in papers that the most likely culprit was a federal scientist, technician, or contractor who had gained experience with anthrax in a military laboratory.<sup>80</sup> She even theorized that the person might be Steven Hatfill and circulated an anonymous profile of him to other scientists and people in Congress. “They wanted to know whether I had ideas about who did it,” Rosenberg said.<sup>81</sup>

By this point, the FBI had identified a “short list” of 18 to 20 people who had the means, opportunity, and possible motive to send the anthrax letters. Officials said the list had been whittled in recent weeks from a larger group of 35 to 40 researchers and technicians, but the names had not been widely discussed or disseminated. The FBI was adamant in declining to call them suspects.<sup>82</sup> However, attention increasingly focused on Hatfill. Investigators discovered that he had padded his resume for the USAMRIID job with a number of falsehoods, including the claim that he served in the U.S. Army Special Forces.<sup>83</sup> As scrutiny

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<sup>79</sup> See *Tried but Failed*, *supra* note 38.

<sup>80</sup> See David Johnston & William J. Broad, *Anthrax in Mail Was Newly Made, Investigators Say*, N.Y. TIMES, June 23, 2002, at 1 [hereinafter *Newly Made*].

<sup>81</sup> See William J. Broad, *F.B.I. Queries Expert Who Sees Federal Lab Tie in Anthrax Cases*, N.Y. TIMES, Dec. 14, 2001, at B6.

<sup>82</sup> See Judith Miller & William J. Broad, *F.B.I. Has a 'Short List' of Names In Its Anthrax Case, the U.S. Says*, N.Y. TIMES, Feb. 26, 2002, at A1.

<sup>83</sup> See William J. Broad, *Anthrax Inquiry Draws Protest from Scientist's Lawyers*, N.Y. TIMES, Aug. 10, 2002, at A9.

mounted, Hatfill was fired in March 2002 from his job at Science Applications International Corporation, a CIA and Pentagon contractor that helps the government with germ defenses. The reasons were unclear, but Hatfill complained that incessant questioning by reporters led to his dismissal. Company insiders claimed that he was let go because he lost high-level and regular security clearances after failing a lie-detector test.<sup>84</sup>

Rosenberg, meanwhile, continued her campaign. As the chair of a prominent disarmament group, she speculated that the FBI might be “dragging its feet” in bringing charges against Hatfill or another insider because it did not want to risk disclosing a secret biodefense initiative on which he had worked.<sup>85</sup> On June 18, 2002, Rosenberg met with Senators Leahy and Daschle, along with Van Harp, the FBI agent in charge of the anthrax investigation. She put forward her theory to them,<sup>86</sup> although she claims never to have mentioned any suspect by name.<sup>87</sup>

One week later, FBI agents searched Steven Hatfill’s Fort Detrick, Maryland, apartment and a storage unit he had rented in Florida. Investigators removed computer parts and plastic bags of material from the apartment.<sup>88</sup> Hatfill consented to the search but said the FBI promised it would be private.<sup>89</sup> Instead, government officials tipped off television stations.<sup>90</sup>

As they had done in other home searches, investigators used bloodhounds from a local police department to attempt to trace a scent from the recovered letters to Hatfill’s home. Law enforcement officers said at the time that the bloodhounds’ “crazy” reactions at Hatfill’s apartment were one reason for the FBI’s focus on him. But independent bloodhound handlers said it was highly unlikely that a useful scent could be obtained from letters that were probably handled by the perpetrator with gloves, then rubbed against thousands of other scents in the mail, and then irradiated to kill the anthrax spores.<sup>91</sup>

In the meantime, Hatfill obtained a new position at the National Center for Biomedical Research and Training at Louisiana State University. Largely

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<sup>84</sup> *See id.*

<sup>85</sup> *See Newly Made, supra* note 80.

<sup>86</sup> *See* Complaint at 13, *Hatfill v. Ashcroft*, 404 F. Supp. 2d 104 (D.D.C. 2005) (No. 03-1793 (RBW)), <http://news.findlaw.com/hdocs/docs/hatfill/hatfillash82603cmp.pdf> (last visited March 30, 2009).

<sup>87</sup> *See* Eric Schmitt, *Scientist Denies Being Involved in Anthrax Plot*, N.Y. TIMES, Aug. 12, 2002, at A1.

<sup>88</sup> *See* David Johnston, *Apartment Searched Anew in F.B.I.’s Anthrax Inquiry*, N.Y. TIMES, Aug. 2, 2002, at A18 [hereinafter *Apartment Searched*].

<sup>89</sup> Tom Jackman, *Ex-Army Scientist Denies Role in Anthrax Attacks*, WASH. POST, Aug. 11, 2002, at A01.

<sup>90</sup> *See For Suspects, supra* note 2.

<sup>91</sup> *See* Scott Shane, *Evidence in Anthrax Case is Said to be Primarily Circumstantial*, N.Y. TIMES, Aug. 4, 2008, at A13 [hereinafter *Circumstantial*].

financed by the Department of Justice, the program taught police, firefighters, health professionals, and federal agents how to handle germ attacks.<sup>92</sup> Prior to Hatfill's start on July 1, 2002, FBI agents assured the center's director that Hatfill was not a suspect.<sup>93</sup> This was important not only because of the nature of his work but also because the LSU center was developing a beneficial relationship with DOJ: in the nation's scramble to prepare for another terror attack, the center's budget had grown from \$1 million in 1998 to \$15 million in 2002 to a proposed \$35 million for 2003.<sup>94</sup> With a clean bill from the FBI, Hatfill worked from home during the month of July, where he devised new course curricula and prepared his move to Baton Rouge.<sup>95</sup>

But then, in early August 2002, Attorney General John Ashcroft took the unusual step of publicly labeling Hatfill "a person of interest" in the anthrax investigation. Ashcroft did so on two nationally-televised morning shows. On CBS's *Early Show*, Ashcroft was asked, "Is Dr. Hatfill a suspect?" Ashcroft replied, "Well, he's a person of interest."<sup>96</sup> On NBC's *Today* show, Ashcroft stated that Hatfill was "a person that, that the FBI's been interested in."<sup>97</sup> Ashcroft reiterated this position a third time during a press conference on Aug. 22, describing Hatfill as "a person of interest to the Department of Justice."<sup>98</sup>

Also in August 2002, FBI agents searched Hatfill's apartment for a second time. Throughout the search, a news helicopter circled overhead.<sup>99</sup> Agents scrounged through his apartment and trash bins outside the building. Nevertheless, investigators emphasized in public that Hatfill was not a suspect and that they had no evidence linking him to the anthrax mailings.<sup>100</sup> Around the same time, FBI agents publicly announced their intention to search a small pond near Hatfill's home. When the \$20,000-a-day search was finally completed, agents announced that they had retrieved an unusual plastic box. At first, bioterrorism experts speculated the contraption might have been used to carry anthrax.<sup>101</sup> Their excitement was quashed, however, when a USAMRIID scientist

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<sup>92</sup> See William J. Broad & Kate Zernike, *In Second Move, Germ Attack Training Center Fires Director*, N.Y. TIMES, Sept. 6, 2002, at A15 [hereinafter *In Second Move*].

<sup>93</sup> See Gary Fields, Antonio Regalado & Robert Block, *F.B.I. Again Searches the Home of Former Army Researcher*, WALL ST. J., Aug. 2, 2002, at A3.

<sup>94</sup> See *In Second Move*, *supra* note 92.

<sup>95</sup> See *id.*

<sup>96</sup> See David Willman, *How Anthrax Case Stalled*, L.A. TIMES, June 29, 2008, at A1.

<sup>97</sup> See Complaint at 20, *Hatfill v. Ashcroft*, 404 F. Supp. 2d 104.

<sup>98</sup> See *id.*

<sup>99</sup> See Scott Shane, *Anthrax Inquiry Draws Criticism from Federal Judge*, N.Y. TIMES, Oct. 8, 2004, at A23 [hereinafter *Anthrax Inquiry Draws*].

<sup>100</sup> See *Apartment Searched*, *supra* note 88.

<sup>101</sup> See David Johnston, *Hunting Clues, Anthrax Investigators Drain Maryland Pond*, N.Y. TIMES, June 10, 2003, at A19.

with a rural southern upbringing saw the item: he instantly recognized it as a turtle trap.<sup>102</sup>

Nevertheless, Hatfill was subsequently suspended with pay from his new job, and then fired. Officials said they had terminated Hatfill because the FBI's interest in him had intensified.<sup>103</sup> The *New York Times* also reported that a member of DOJ's Domestic Preparedness Office had emailed LSU and informed the center that it should "cease and desist" from allowing Hatfill to participate in any program funded by DOJ. Hatfill's criminal attorney accused the government of leaking details from the affidavit supporting their application for a search warrant of Hatfill's apartment.<sup>104</sup>

Ironically, as Hatfill's personal and professional life imploded, Bruce Ivins—the person to whom the FBI now attributes the attacks—won the 2003 Defense Department's highest civilian award. He was praised for his work on a new anthrax vaccination, despite Ivins's having engaged in some dubious conduct during the investigation.<sup>105</sup>

Exasperated by the media attention, the loss of his employment, and the damaging of his public reputation, Hatfill filed a lawsuit in 2003 against Ashcroft and other DOJ officials. He accused them of having violated his constitutional rights and the agency's own rules by making him a "fall guy" in their inquiry.<sup>106</sup> In an October 2004 hearing on whether the FBI and DOJ could postpone the lawsuit, U.S. District Court Judge Reggie B. Walton—having reviewed a secret report on the anthrax investigation—stated that he saw little chance of the FBI solving the case in the next six months. Walton further noted, "If you don't have enough information to indict this man, it's wrong to drag his name again and again through the mud. That's not a government I want to be a part of."<sup>107</sup>

## **2. *Laboring for Scientific Answers: In Search of a Genomic Clue***

While FBI agents were vigorously pursuing Hatfill, civilian scientists were undertaking a series of tests to determine the genetic roots of the anthrax used in the attacks. Preliminary DNA tests showed that the anthrax in the Brokaw letter and the AMI case both belonged to the Ames strain. Because there are at least 1,200 strains of the bacteria, experts suggested the possibility that the anthrax used in the attacks came from the same original source.<sup>108</sup> The problem

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<sup>102</sup> See Scott Shane, *Troubled Life of an Anthrax Suspect*, N.Y. TIMES, Jan. 4, 2009, at A1.

<sup>103</sup> See *Anthrax Inquiry Draws*, *supra* note 99.

<sup>104</sup> See *id.*

<sup>105</sup> See *Scientist's Suicide*, *supra* note 26.

<sup>106</sup> See Judith Miller, *Scientist Files Suit Over Anthrax Inquiry*, N.Y. TIMES, Aug. 27, 2003, at A13.

<sup>107</sup> See *Anthrax Inquiry Draws*, *supra* note 99.

<sup>108</sup> See *Tests Show*, *supra* note 55.

remained, however: which of the many possible samples of the Ames strain that existed in the world at large was the genetic parent of the attack anthrax?

In late 2001, a non-governmental organization (NGO), the Institute for Genomic Research (TIGR) endeavored to answer that question by looking in detail at the genomes of a reference sample for the Ames strain, along with a sample of the material used in the attack taken from the body of the AMI victim, Robert Stevens.<sup>109</sup> Their research, supported by a grant from the National Science Foundation, represented a unique collaboration between the NGO and the FBI investigation. The FBI had already designated Dr. Paul Keim's laboratory at Northern Arizona University as a repository for the Ames samples collected by subpoena. The FBI then arranged for TIGR to receive and begin studying the material.<sup>110</sup>

Scientists identified and sequenced the 5,960 genes that control a generic anthrax bacterium. They also identified the 5.1 million DNA base pairs on both the reference and forensic samples.<sup>111</sup> What they found, however, did not help: the two showed very little difference; anthrax is a stable bacterium with DNA that is not prone to mutation.<sup>112</sup> In fact, at the time of the attacks, scientists had never identified any genetic markers that could differentiate among Ames stocks grown in different labs.<sup>113</sup> Nevertheless, the scientists persevered in the hope that alternative means might track the anthrax to its source.<sup>114</sup>

In 2002, a scientist at TIGR discovered that although in general the various samples shared genetic identity, some subpopulations of cells within the samples displayed genetic mutations.<sup>115</sup> By identifying these mutations, then, it might be possible to identify a parent strain that showed similar deviances. Scientists painstakingly undertook the process of unraveling the genome of seven "morphotypes," or mutations, four of which ended up serving as the ultimate "signature" for the attack strain of anthrax. Because this process took place entirely in one laboratory during a time when the technology was still primitive, the process took nearly two full years. Scientists had to first decode each

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<sup>109</sup> See William J. Broad, *Genome Offers 'Fingerprint' for Anthrax*, N.Y. TIMES, Nov. 28, 2001, at B1.

<sup>110</sup> Science Blog, *The Institute for Genomic Research, Scientists Find New Markers for Anthrax Isolates*, May 2002, <http://www.scienceblog.com/community/older/2002/C/20025369.html> (last visited Feb. 26, 2009); Bhattacharjee, *supra* note 40.

<sup>111</sup> See *Scientist's Findings*, *supra* note 41.

<sup>112</sup> See Nicholas Wade, *A Trained Eye Finally Solved Anthrax Puzzle Through 'Morphing' Samples*, N.Y. TIMES, Aug. 21, 2008, at A15 [hereinafter *A Trained Eye*].

<sup>113</sup> See William J. Broad & Nicholas Wade, *Scientists Report Genetic Finding That Could Aid Anthrax Inquiry*, N.Y. TIMES, Jan. 22, 2002, at A1 [hereinafter *Scientists Report*].

<sup>114</sup> See Scott Shane & Nicholas Wade, *Pressure Is Growing for FBI to Show Evidence on Anthrax Scientist*, N.Y. TIMES, Aug. 5, 2008, at A13 [hereinafter *Pressure is Growing*].

<sup>115</sup> See *Scientists Report*, *supra* note 113.

morphotype, and then develop and validate—in case of a later criminal trial—a test for finding the same morphotypes in comparison samples.

During this time, the FBI began collecting 1,070 samples of Ames strain anthrax from laboratories around the world, including the United States, United Kingdom, Sweden, and Canada.<sup>116</sup> The goal was to compare these samples to the forensic material in order to find a link. According to one official, this subpoena process, which did not begin until a full five months after the attacks began, was slowed because of the need to develop a scientific protocol that described exactly how the samples were to be taken and shipped. The protocol, developed in part with the aid of Bruce Ivins, aimed to ensure both scientific integrity as well as an evidentiary chain of custody for a potential criminal trial. The protocol instructed samples were to be shipped to USAMRIID and then on to other researchers.<sup>117</sup>

Significantly, later-suspect Bruce Ivins was responsible for submitting the sample from his own lab, which worked on anthrax vaccines. The 160-liter flask of anthrax solution in Ivins's custody, known as RMR-1029, was unusual in that it consisted of a mixture of 13 anthrax production runs made at the Army's Dugway Proving Ground and 22 spore preparations made at USAMRIID. The diversity of this mixture later proved useful in identifying it as the parent, because it gave it a characteristic genetic signature.<sup>118</sup>

Ivins's first submission of a sample of RMR-1029 was rejected and destroyed because it failed to comply with technical aspects of the FBI collection protocol that he had helped to devise.<sup>119</sup> In April of 2002, he resubmitted a sample that did not match the attack anthrax, but later investigation revealed that he had substituted material other than that from the RMR-1029 flask in his custody.<sup>120</sup> Fortunately, investigators recovered the original submission from a backup copy given to Paul Keim at Arizona. In April 2004, still uncertain whether it was the source, the FBI seized Ivins's RMR-1029.

Ivins had heretofore managed to evade detection, or even suspicion, despite an incident that occurred in December of 2001. While assisting in the federal investigation, anthrax spores accidentally spilled outside the secure area that housed Ivins's lab at USAMRIID. Ivins discovered the leak but did not

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<sup>116</sup> See Scott Shane & Eric Lichtblau, *FBI Presents Anthrax Case, Saying Scientist Acted Alone*, N.Y. TIMES, Aug. 7, 2008, at A1 [hereinafter *Acted Alone*].

<sup>117</sup> See William J. Broad, *Labs Are Sent Subpoenas for Samples of Anthrax*, N.Y. TIMES, Feb. 27, 2002, at A1.

<sup>118</sup> See *A Trained Eye*, *supra* note 112.

<sup>119</sup> See *id.*

<sup>120</sup> See *id.*

report it to his superiors as required.<sup>121</sup> Instead, he tried to disinfect the contaminated areas with bleach.<sup>122</sup>

As TIGR endeavored to find a genetic clue, scientists employed other methods to identify the source of the attack anthrax. In June 2002, scientists used radiocarbon dating to determine that the anthrax powder sent through the mail was made no more than two years before it was sent. This strengthened the theory that the mailer had a direct and current connection to a microbiology lab and may have used relatively new equipment. It also cast doubt on another theory, that the attacker had stolen or somehow obtained an old powdered sample.<sup>123</sup> Polygraphs were given to 10 USAMRIID scientists, including Ivins, and then more, but the results of those tests were not released publicly.<sup>124</sup>

In November 2002, FBI Director Mueller acknowledged that investigators also sought to replicate the process of making the powdery anthrax that was used in the attacks, both in its form and its particular characteristics. Earlier in the investigation, Colonel Arthur Friedlander, senior research scientist at USAMRIID, had denied that anyone at USAMRIID knew how to make dry anthrax.<sup>125</sup> Scientists thus aimed to replicate the attack anthrax to learn what equipment and laboratory procedures were required to manufacture the powder that was mailed.<sup>126</sup>

In addition, federal investigators had discovered that the attack anthrax grew more potent from one letter to the next, and that the Leahy letter was the most potent of all. In May 2002, they concluded that the Leahy anthrax was finer and its spores had a range of smaller particle sizes, whereas the particles in the Daschle letter had a larger size range and some clusters that were far too big to penetrate human lungs. The anthrax in the first letters mailed to Brokaw and the New York *Post* was relatively crude, contaminated with dead anthrax bacteria that never turned into spores.<sup>127</sup> Postal investigators theorized that an extra run through their sorting machines may have ground up the anthrax in the Leahy letter and thereby accounted for the discrepancy in its size of the particles when

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<sup>121</sup> See *Scientist's Suicide*, *supra* note 26.

<sup>122</sup> See Eric Lipton & Scott Shane, *Anthrax Case Renews Questions On Bioterror Effort and Safety*, N.Y. TIMES, Aug. 3, 2008, at A1; *Pressure is Growing*, *supra* note 114.

<sup>123</sup> See *Newly Made*, *supra* note 80.

<sup>124</sup> See *id.*

<sup>125</sup> See William J. Broad & Judith Miller, *Inquiry Includes Possibility of Killer from a U.S. Lab*, N.Y. TIMES, Dec. 2, 2001, at 1B1. The FBI has not indicated whether or not Ivins passed.

<sup>126</sup> See David Johnston, *Director Says F.B.I. Is Trying to Recreate the Deadly Anthrax*, N.Y. TIMES, Nov. 2, 2002, at A8.

<sup>127</sup> See William J. Broad & David Johnston, *Anthrax Sent Through Mail Gained Potency by the Letter*, N.Y. TIMES, May 5, 2002, at A1.

compared to the Daschle letter.<sup>128</sup> Discounting this idea, the FBI undertook to reproduce the process of generating anthrax of similar size and quality.

In 2005, a new generation of DNA sequencing machines became available that could sequence bacterial genomes quickly and for about \$500. Before the development of this new technology, decoding the genome of an anthrax bacterium could cost as much as \$500,000 and take from three to four months.<sup>129</sup> This scientific advance hastened the course of the investigation, because it allowed researchers to quickly check the submitted anthrax samples for a match. By the end of 2005, researchers had found mutations identical to those in the attack anthrax in eight of over one thousand samples submitted. Seven of those samples were the children of the eighth—and that parent was Ivins's RMR-1029 flask.<sup>130</sup>

However, this discovery did not necessarily implicate Ivins. Although Ivins controlled the batch of anthrax,<sup>131</sup> more than 300 scientists had potential access to it.<sup>132</sup> Scientists had also determined as of September 2006 that the anthrax bore no special coatings that would increase its deadliness and no hallmarks of “weaponization.” This realization reduced the amount of technical expertise necessary to make the powdered anthrax, and therefore broadened the pool of potential suspects.<sup>133</sup> Further investigation was required to identify an actual perpetrator.

Although Ivins was now a more prominent suspect,<sup>134</sup> he continued to have access to high-security defense research laboratories—access that continued until 2007 despite the acquisition of additional evidence against him.<sup>135</sup> In April 2007, prosecutors sent Ivins a formal letter saying he was “not a target” of the investigation.<sup>136</sup> Yet FBI surveillance vehicles began to follow him openly.<sup>137</sup> In October 2007, FBI agents requested a search warrant for Ivins's home. In an affidavit, they wrote that time-keeping records showed that he worked late at the lab in the days before the anthrax mailings in September and October 2001. Ivins explained that by saying that his “home was not good” and that he went to work

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<sup>128</sup> See Andrew C. Revkin & William J. Broad, *Postal Theory: Mail Sorter Acted as Mill for Anthrax*, N.Y. TIMES, May 9, 2002, at A33.

<sup>129</sup> See *Pressure is Growing*, *supra* note 114.

<sup>130</sup> See *id.*; *Acted Alone*, *supra* note 116; *A Trained Eye*, *supra* note 112.

<sup>131</sup> See *For Suspects*, *supra* note 2.

<sup>132</sup> See Scott Shane & Eric Lichtblau, *Seeking Details, Lawmakers Cite Anthrax Doubts*, N.Y. TIMES, Sept. 7, 2008, at A1. [hereinafter *Seeking Details*].

<sup>133</sup> See *Pressure is Growing*, *supra* note 114.

<sup>134</sup> See Eric Lichtblau & Nicholas Wade, *F.B.I. Presents Anthrax Details But Says It Can't Erase Doubts*, N.Y. TIMES, Aug. 19, 2008, at A1; *A Trained Eye*, *supra* note 112.

<sup>135</sup> See Eric Lichtblau & Eric Lipton, *Judge Says F.B.I. Can Examine Library Computers That Scientist Used Last Month*, N.Y. TIMES, Aug. 8, 2008, at A12 [hereinafter *Library Computers*].

<sup>136</sup> See *Seeking Details*, *supra* note 132.

<sup>137</sup> See *Pressure is Growing*, *supra* note 114; *Circumstantial*, *supra* note 91.

“to escape,” but FBI agents found this explanation unsatisfactory.<sup>138</sup> Some microbiologists later questioned the time records, pointing out that one FBI affidavit said he was in the secure part of the lab for exactly 2 hours and 15 minutes three nights in a row. They claimed that this unlikely coincidence raised questions about its accuracy.<sup>139</sup>

As the investigation zeroed in, Ivins seemed to implode. In March 2008, Ivins was found unconscious in his home. He spent four weeks in a treatment program at Suburban Hospital in Bethesda, Maryland.<sup>140</sup> Then, in July 2008, Ivins took an overdose of Tylenol with codeine.<sup>141</sup> He died two days later at a Frederick hospital.<sup>142</sup>

#### **D. *The Aftermath***

In August 2008, Jeffrey A. Taylor, U.S. attorney for the District of Columbia, took the unusual step of publicly outlining much of the case against Ivins, first to victims of the attacks, then at a news conference. Likely due to the high profile nature of Ivins’s suicide, and the disturbing history of Hatfill’s pursuit, both the public at large and involved scientists clamored for the evidence against Ivins. Taylor acknowledged the absence of direct evidence, but he called Ivins “a troubled individual” who carried out “the worst act of bioterrorism in US history.”<sup>143</sup>

The case, as outlined by Taylor, essentially boiled down to a mixture of character-based and circumstantial evidence. The strongest evidence, of course, was that the “flask that’s effectively the murder weapon from which those spores were taken ... was controlled by Dr. Ivins.”<sup>144</sup> Ivins also worked late at night alone in his lab in the days before the two mailings in September and October, 2001. In addition, the envelopes used in the attacks had a printing defect that allowed them to be matched to a small number of post offices in Maryland and Virginia in 2001, including a Frederick location where Ivins maintained a box under an assumed name.<sup>145</sup>

Addressing Ivins’s character, Taylor revealed that Ivins had acknowledged psychotic symptoms to colleagues.<sup>146</sup> He revealed Ivins’s statements about his

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<sup>138</sup> See *Acted Alone*, *supra* note 116.

<sup>139</sup> See *Seeking Details*, *supra* note 132.

<sup>140</sup> See Eric Lichtblau & Scott Shane, *Justice Dept. Set to Share Details in Anthrax Case*, N.Y. TIMES, Aug. 6, 2008, at A19.

<sup>141</sup> See *Scientist’s Suicide*, *supra* note 26; *Library Computers*, *supra* note 135.

<sup>142</sup> See *Scientist’s Suicide*, *supra* note 26.

<sup>143</sup> See *Acted Alone*, *supra* note 116.

<sup>144</sup> See *id.*

<sup>145</sup> See *id.*

<sup>146</sup> See *Library Computers*, *supra* note 135.

poor home life, and his use of work as an “escape.”<sup>147</sup> Ivins also had for years maintained a post office box where he received pornographic pictures of blindfolded women.<sup>148</sup> Finally, investigators pointed out that Ivins had an apparent obsession with the Kappa Kappa Gamma sorority,<sup>149</sup> which maintained some kind of space near the mailbox in New Jersey from which the letters were mailed.

Some scientists remained skeptical, however. They doubted whether Ivins possessed the skill to transform liquid anthrax into powder, although it was later revealed that he possessed a lyophilizer, which could be used for that purpose and was not ordinarily needed at USAMRIID.<sup>150</sup> Another microbiologist questioned whether Ivins’s involvement in the investigation might have resulted in his contaminating his own laboratory with the attack samples.<sup>151</sup> Lastly, the persistent “weaponization” issue reared its head one final time: although the anthrax was not formally weaponized, it did contain high levels of silica that FBI scientists were unable to reproduce in their efforts to replicate the manufacturing process. The FBI claimed that the silica was imported naturally by the spores from their environment; other researchers maintained that they must have been coated and that Ivins did not have the equipment to do this.<sup>152</sup>

The New York *Times*, in its retrospective on the investigation, reported that 21 FBI agents and nine postal inspectors were assigned to the query. Investigators had conducted more than 9,000<sup>153</sup> interviews and served 5,000 subpoenas.<sup>154</sup> Since the anthrax attacks, almost \$50 billion in federal money has been spent to build new labs, develop vaccines, and stockpile drugs. It is now known that about 14,000 people at about 400 labs have permission to work with agents that could be used in a bioterror attack, though not all employees are authorized to handle anthrax and other substances equally as toxic.<sup>155</sup>

As for Steven Hatfill, in February 2008, Federal District Court Judge Reggie Walton said “There’s not a scintilla of evidence to suggest Dr. Hatfill had anything to do” with the anthrax attacks, yet public notoriety has “destroyed his

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<sup>147</sup> See *Acted Alone*, *supra* note 116.

<sup>148</sup> See *Pressure is Growing*, *supra* note 114.

<sup>149</sup> See Eric Lipton, *In E-Mail, Hints of Delusions*, N.Y. TIMES, Aug. 7, 2008, at A1; *Acted Alone*, *supra* ne 116.

<sup>150</sup> See *Pressure is Growing*, *supra* note 114.

<sup>151</sup> See Gerry Andrews, *Open Questions on a Closed Case*, Op-Ed., N.Y. TIMES, Aug. 10, 2008, at WK10.

<sup>152</sup> See Eric Lichtblau & Nicholas Wade, *F.B.I. Presents Anthrax Details But Says It Can't Erase Doubts*, N.Y. TIMES, Aug. 19, 2008, at A1.

<sup>153</sup> See *For Suspects*, *supra* note 2.

<sup>154</sup> See Scott Shane, *In 4-Year Anthrax Hunt, F.B.I. Finds Itself Stymied, and Sued*, N.Y. TIMES, Sept. 17, 2005, at A1.

<sup>155</sup> See Eric Lipton & Scott Shane, *Anthrax Case Renews Questions on Bioterror Effort and Safety*, N.Y. TIMES, Aug. 3, 2008, at A1.

life.”<sup>156</sup> In June 2008, DOJ announced that it would pay \$4.6 million to settle the Hatfill lawsuit. The settlement consisted of \$2.825 million in cash and an annuity paying Hatfill \$150,000 a year for 20 years. Hatfill’s attorneys took their fee out of the settlement. The agreement did not require the government to admit liability or exonerate Hatfill.<sup>157</sup> Officials later noted that, when they reached the settlement, they did not want to alert Ivins to their interest in him by declaring that Hatfill had been cleared.<sup>158</sup>

In August 2008, though, DOJ formally exonerated Hatfill. In a letter, U.S. Attorney Jeffrey Taylor wrote, “We have concluded, based on laboratory access records, witness accounts, and other information, that Dr. Hatfill did not have access to the particular anthrax used in the attacks, and that he was not involved in the anthrax mailings.”<sup>159</sup> This was when FBI Director Mueller told reporters that he was proud of the inquiry and denied that “there were mistakes.”<sup>160</sup>

## II. LESSONS TO LEARN

The anthrax investigation was extraordinary in many respects. The attacks represented a serious bioterrorist event that occurred at a time when the nation was still stunned and reeling from the events of September 11. The scope and scale of the ensuing investigation far exceeded that of the average case. But the investigation also raised issues that are likely to resurface and possibly become more common as time goes on. This part uses the anthrax investigation as a means of thinking institutionally about DOJ and the FBI. We discuss how these agencies might better handle sophisticated scientific problems in the future and implement systems for self-criticism and improvement.

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<sup>156</sup> See Richard Perez-Pena, *With Order to Name Sources, Judge is Casting a Wide Net*, N.Y. TIMES, Mar. 17, 2008, at C5.

<sup>157</sup> See Scott Shane & Eric Lichtblau, *Scientist is Paid Millions by U.S. in Anthrax Suit*, N.Y. TIMES, June 28, 2008, at A1.

<sup>158</sup> See Eric Lichtblau, *Letter Officially Exonerates Scientist in Anthrax Case*, N.Y. TIMES, Aug. 8, 2008, at A13.

<sup>159</sup> See *id.*

<sup>160</sup> See *For Suspects*, *supra* note 2. The anthrax investigation remains officially open. In September 2008, Democratic leaders sent Mueller a letter, which stated that “important and lingering questions remain that are crucial for you to address, especially since there will never be a trial to examine the facts of the case.” *Seeking Details*, *supra* note 158. Congress and the National Academies of Science are expected to complete an audit of DOJ’s forensic evidence this year. See *Troubled Life*, *supra* note 102.

## **A. *Thinking Systematically About Science***

The anthrax investigation provides a glimpse into both the pitfalls and the potential of using science and technology to solve criminal cases. Given the high-profile and important nature of the investigation, it is revealing that so many basic and preventable blunders occurred. At the same time, scientists' innovation and creativity ultimately led to the most important breakthroughs in the case. The anthrax investigation thus offers an inviting window through which to examine the issues that arise when law enforcement attempts to understand and to harness the power of sophisticated science.

What emerges most generally is a portrait of the cultural conflict between science and law enforcement. Those two broad categories subdivide even further, with the "scientists" including both public health officials and technical researchers, and "law enforcement" including both police and prosecutors. Each of these four sub-groups has distinct purposes, its own language, and a set of customs that guides it in pursuing its mission.

The goals of law enforcement are typically to apprehend perpetrators quickly and with certainty, and usually with as little dissemination of information about the investigation or public involvement as possible. Prosecutors, similarly, seek to identify perpetrators and bring them to justice, but they must be attentive to both the general rules of due process and civil liberties as well as the particular evidentiary limitations of adjudication. The objective of public health officials, in contrast, is to treat those already stricken, to prevent additional outbreaks, and to inform the public; the needs of a criminal investigation are secondary, if at all relevant. And the goals of research scientists, ideally, should be to objectively and thoroughly probe scientific questions, without prejudice and in a manner open to and inviting of critical peer review. The anthrax investigation illustrates how these goals, while capable of working harmoniously, inevitably generate some degree of conflict. It is that potential for conflict that demands close examination, so that future cases—of whatever national importance—proceed more smoothly.

### **1. *Questions: Neutrality, Coordination, Communication***

Perhaps the most alarming element of the anthrax investigation is that the scientist now considered responsible for the attacks, Bruce Ivins, was closely involved in the investigation. Ivins was present when one of the letters was tested, he played a role in devising the protocol for submitting samples from laboratories, and of course he himself was responsible for submitting the RMR-1029 sample that ultimately proved to be the parent of the anthrax used in the attacks. It would be easy to view Ivins's culpability as either so extraordinary that it could not have been anticipated, or else so obvious that it must indicate the failure of the

government to subject its own institutions to the scrutiny it applied to others. But neither extreme proves exactly correct. After all, most of the scientists with access to and knowledge about anthrax were affiliated with the government. Indeed, the primary suspect for many years was also one of the government's own—Steven Hatfill, Ivins's colleague at USAMRIID.

Two lessons might be culled from the government's overlooking of Ivins. The first is not really a lesson about science at all but about traditional investigation. Once Hatfill became the primary target, based largely on the allegations of Barbara Rosenberg and the suspicions he raised by padding his government resume, the FBI began to work solely to build a case against him, rather than continue to explore the possibility that others might be responsible. Therefore, the government missed Ivins's history of mental health issues. It also failed to notice a red flag when Ivins, a drafter of the anthrax submission protocol, failed to submit a laboratory sample that complied with the directions. To be sure, the FBI's need to rely on scientists who were familiar with anthrax—and thus necessarily part of the logical suspect pool—created a greater-than-usual risk that agents might overlook a perpetrator sitting right in front of them. There is a more general point, though. This kind of tunnel vision—in which a casual suspect becomes a prime target based on scant evidence, and to the exclusion of others—is all too easy to succumb to, particularly in a high profile and high pressure case, absent institutional safeguards to the contrary.

But the more important lesson, and the one related to the scientific aspect of the investigation, is the degree to which the government allowed its zeal for a ready answer to overcome the painstaking and less immediate process of asking legitimate, technically correct scientific questions. In short, law enforcement goals dominated the scientific constituency—not only to the detriment of public health but also, it turned out, to the detriment of the investigation itself. The government identified Hatfill as the perpetrator, and then sought scientific evidence to confirm its identification. Instead, it should have let the scientific evidence lead the way.

For example, the government never had clear explanations how Hatfill would have accessed the anthrax, and whether he had the skills and equipment necessary to transform it into powder form. But the FBI did not ask these questions; instead, it relied on a series of hunches. Tellingly, some of those hunches were based largely on familiar and dubious “scientific” evidence like dog-sniff results, suspect behavioral profiling,<sup>161</sup> and handwriting analysis.<sup>162</sup>

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<sup>161</sup> The letter sent to the American Society for Microbiologists, for instance, described the suspect as having “a clear, rational thought process” and “appears to be very organized in the production and mailing of these letters,” and that the suspect “might be described as ‘stand-offish’ and likely prefers to work in isolation.” See FBI asks microbiologists for help on anthrax, CNN.com (Feb. 5, 2002), <http://archives.cnn.com/2002/US/02/04/inv.fbi.anthrax/index.html> (last visited March 30,

More dangerously, some of the ensuing investigatory practices—like showing a single photo of Hatfill to shopkeepers in the Princeton area where letters were mailed, or alerting the public days before the FBI dredged a pond near Hatfill’s house—dramatically increased the likelihood that erroneous or deliberately falsified evidence might surface. In a sense, it was as if two parallel investigations were taking place between 2002 and 2005. One, which occurred mainly at TIGR, was a deeply serious, innovative and meticulous attempt to unlock the genetic code of the anthrax sample to find a clue. The other was a farcical deployment of pseudo-sciences and plain harassment that ruined an innocent man’s reputation and career.

Although the targeting of Hatfill was perhaps the gravest error of the investigation, it was not the only one. Another obvious and recurring problem was the utter lack of structures and coordination for leadership and priority-setting. This led to conflicts that not only impeded the investigation but also jeopardized public health and increased public anxiety. The investigation involved national, state, and local actors, and touched upon the interests of law enforcement, public health, non-profit research, and government research. Each of these groups had its own customs, cultures and expectations, and few were accustomed to working with the others. Where jurisdictions overlapped and goals diverged, cooperation became more difficult, and areas of competition emerged. With so many players in a game without clear rules, it is perhaps no surprise that conflicts played out again and again at the expense of the investigation.

State and local leaders clashed with federal investigators about the pace and scope of the inquiry. Both the New York and D.C. mayors expressed frustration at the flow of information and the course of decision-making when federal investigators were working in their cities. Scientists and public health officials repeatedly expressed concern and frustration at having their public safety goals thwarted by law enforcement needs. When law enforcement set the tone for public disclosure, important health messages were not communicated to the public. Confusion plagued even the small community of involved scientists, and researchers failed to receive critical information. Workers at the New York laboratory misunderstood the sensitivity of handling anthrax; workers at the

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2009); *see also* <http://www.computerbytesman.com/anthrax/fbi2asm.htm> (last visited March 30, 2009). At the risk of stereotyping, it seems likely that a group largely composed of laboratory research scientists would find such a description of minimal utility in winnowing suspects.

<sup>162</sup> See Mark Derr, *With Dog Detectives, Mistakes Can Happen*, N.Y. TIMES, DEC. 24, 2002, at F1; Marilyn W. Thompson, *The Pursuit of Steven Hatfill*, WASH. POST, Sept. 14, 2003, at W06, <http://www.ph.ucla.edu/epi/bioter/pursuithatfill.html> (last visited March 30, 2009). Because the questions and results of neither Ivins’s lie detector test, nor the test allegedly taken of Stephen Hatfill at SAIC, were released, it is difficult to know whether polygraph testing—a technique with a controversial history of accuracy—played a role in decisions made about either suspect.

Batelle laboratory reached an erroneous conclusion about the strength of the attack anthrax after improperly re-irradiating their sample.

Of course, coordination of an investigation of this scope is no mean feat. At the end of the day, the science component alone spanned both federal and state labs, in both the public and private sectors; it included CDC, NY Public Health, USAMRIID, NIH, NSF, TIGR, FBI microbiologists, Sandia and Batelle. The problem is that the involvement of many entities—while perhaps extreme in this case—is certainly to be expected in any major public health threat scenario. And in this investigation, even among the federal agencies, which presumably would be easiest to coordinate, a sense of confusion prevailed; no clear leader of the investigation could dictate its course.

This lack of coordination among the various players in the investigation played out in part as a problem of communication. Without clear channels for transmitting information—among scientists, between officials and the public, or between scientists and law enforcement—too many important details got lost in the fray. For example, the involvement of a third party created communication problems about the potency of the Daschle letter, which tests showed to be much more dangerous than the news media letters. Officials from both USAMRIID and the private national laboratories said the reason that they did not communicate directly about their findings to the CDC, which was making public health decisions based on the testing it had done on the AMI and NBC letters, was that the letters were the subject of a criminal investigation that was being led by the FBI. Therefore, they felt that it was incumbent upon them to report only to the Bureau and to let law enforcement make the decision about what information to disseminate. There was also a level of distrust between USAMRIID, which focuses on defending American forces from biological attack, and the CDC, which only recently joined the efforts for bioterrorism preparedness and which was fundamentally oriented toward public health, not law enforcement.<sup>163</sup>

As a result of this lack of communication and coordination, however, the CDC failed to recognize the threat to mail processors, creating delay that may very well have resulted in some deaths. Similarly, scientists at laboratories that had studied the samples failed to come forward to dispel rumors that the anthrax was “weaponized” or untreatable. They assumed the decision to so inform the public rested only with the FBI. In the meantime, however, confusion reigned, and the public grew more alarmed. Months after the Daschle letter was received, CDC scientists told the *New York Times* that one of the lessons of the anthrax response was that “CDC was also not used to thinking of itself as part of a

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<sup>163</sup> See Judith Miller & Sheryl Gay Stolberg, *Stung by Criticism, Aides Gather to Coordinate Efforts on Anthrax*, N.Y. TIMES, Oct. 25, 2001, at A1.

criminal investigation,”<sup>164</sup> a stark admission that the agency was unaccustomed to working cooperatively with law enforcement.

Tellingly, in the vacuum of clear leadership, the entities that emerged as default authorities were the FBI and Homeland Security—that is to say, law enforcement. It was the FBI that determined whether to destroy the Iowa samples, whether to close off the AMI building to scientists and collect the evidence itself, and whether or not to correct the public record about “weaponization.” It was law enforcement interests that stirred up fever about the plot having derived from a foreign terrorist. And, in the end, it was law enforcement that deliberately chose not to formally exonerate Hatfill at the time of the civil settlement.

Apart from this direct assertion of primacy, a law enforcement backdrop also shadowed various decisions made along the way. The delays in issuing subpoenas for samples from anthrax laboratories occurred because agents needed to devise collection protocols that would withstand chain-of-custody challenges in court. Pressure was also applied to have the innovative testing done by TIGR validated and published so as to prove more readily admissible in court as evidence, even if development of such materials slowed the process of testing. Indeed, even the simple act of refusing to let scientists collect samples from the AMI building, and instead using law enforcement agents directed remotely, reflects the extent to which the criminal justice interest trumped all others. Paul Keim, the university researcher who coordinated the preparation of the DNA samples, observed that “the conversion of an academic lab to a forensic lab was painful: We had to follow strict rules concerning the handling of evidence.”<sup>165</sup>

If law enforcement goals could only have been met by subordinating all other interests, then this ordering of the investigation might have been defensible. But clearly that was not the case. After all, the investigation was, if anything, starkly public. Attorney General John Ashcroft had taken the rare step of publicly naming Hatfill as a “person of interest.” Senators and other public figures routinely took to the stage to announce (often incorrectly) the nature and scope of the threat. Recall also that, in desperation, the FBI mailed out a “whodonnit?” letter to the entire professional society of microbiologists. This was not a case where law enforcement did not want to publicly point fingers at suspects or to describe the evidence. The case was made in full; it was just stated inaccurately.

What is telling, then, is that in the absence of clear leadership priorities, law enforcement figures and approaches emerged victorious, even when missing information served only to confuse the investigation and to heighten public tension. As one government scientist complained, “What we don’t understand . . .

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<sup>164</sup> See Lawrence K. Altman & Gina Kolata, *Anthrax Missteps Offer Guide To Fight Next Bioterror Battle*, N.Y. TIMES, Jan. 6, 2002, at 1.

<sup>165</sup> See Bhattacharjee, *supra* note 40.

is why they couldn't select scientists who are trustworthy, brief them or have a discussion as to what would be dangerous to talk about in public, but permit respected government scientists to talk to the public in a way that would be appropriately reassuring."<sup>166</sup> Instead, public health perspectives from agencies like CDC and the scientific interests of laboratories like Batelle were presumptively and continuously subsumed to the greater authority of DOJ and FBI, and the officials of those entities willingly acceded to law enforcement's superior authority, even if it meant contravening their science and public health based roles.

But in the midst of a continuing public health crisis, with individuals falling ill, it is not at all clear that the law enforcement interest should, in fact, trump all others. Nor was it clear in this instance that public health and law enforcement goals were incompatible—for instance, the FBI's failure to timely alert CDC to the findings of subsequent testing served no clear law enforcement purpose, and caused CDC to mistakenly reassure postal workers when instead facilities should have been closed down. Indeed, law enforcement involvement arguably hampered and slowed the investigation at several critical points, such as in 2002 when Sandia National Laboratories determined that the silica found in the anthrax was naturally occurring, and not artificially created to make it weapons-grade—but sat by silently as public officials stated otherwise. As a result of this misinformation, engaged scientists might have dismissed the possibility that the anthrax could have come from a domestic source, because weapons-grade anthrax is so difficult to produce. (Indeed, “weaponization” has been cited by Ivins supporters as evidence the attack anthrax could not have come from him).

Ultimately, the investigation achieved its greatest success not when the government acted alone but when it harnessed the resources of a non-profit entity—TIGR—to look independently for genomic clues. Perhaps this is unsurprising. It represents the essence of the quandary posed by law enforcement efforts to engage in scientific inquiry. The FBI's acquiescence to the project was essential, because the Bureau supplied the anthrax samples, but the research itself was fully independent, conducted by a non-law enforcement laboratory. The success of the scientific investigation was thus inherently linked both to its openness and to its independence. Although government researchers were conducting concurrent tests, their efforts had not been successful because conventional methods did not suffice to differentiate among strands.

Of course, had Ivins been a TIGR employee, the story might have unfolded differently. Moreover, some have criticized the concentration of testing at TIGR on the grounds that it unnecessarily slowed down the process. But allowing independent entities that were able and qualified to conduct scientific

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<sup>166</sup> Labaton & Pear, *supra* note 74.

testing—beholden to no norms except their own scientific rigor—proved essential in cracking the case. The TIGR researchers, along with their companions at Northern Arizona University, were not on a mission to connect Hatfill to the evidence; they were simply conducting objective parentage tests. Together, they were given authority, time, NSF funding, and latitude to undertake a painstaking and lengthy, but thorough and innovative, investigation that ultimately resulted in the strongest evidence of the likely (and unexpected) perpetrator.

## 2. *Answer: Preparation*

It is always easy to criticize a complex investigation in hindsight, and to find flaws with decisions made in confused and complicated moments. But it also essential to undertake such criticism, in order to understand what went wrong and to implement changes that will avoid similar mistakes in the future. What systematic lessons about the scientific aspect of these investigations, then, might be imparted from close study of this investigation?

First, clear protocols are needed to establish both the decisional hierarchy and the communication responsibilities for investigations involving public health. In 2003, President Bush issued a series of orders to the Secretary of Homeland Security to develop a national preparedness and coordination plan for domestic emergencies. Pursuant to one of those directives, the Secretary was ordered to “establish a single, comprehensive approach to domestic incident management” outlined in a National Incident Management System.<sup>167</sup> The Directive specified that:

Initial responsibility for managing domestic incidents generally falls on State and local authorities. The Federal Government will assist State and local authorities when their resources are overwhelmed, or when Federal interests are involved.<sup>168</sup>

It further observed that:

Following a terrorist threat or an actual incident that falls within the criminal jurisdiction of the United States, the full capabilities of the United States shall be dedicated, consistent with United States law and with activities of other Federal departments and agencies to protect our national security, to assisting the Attorney General to identify the perpetrators and bring them to justice. The Attorney General and the Secretary shall establish appropriate relationships and mechanisms for cooperation and coordination between their two departments.

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<sup>167</sup> Homeland Security Presidential Directive/HSPD- 5, Management of Domestic Incidents, Feb. 28, 2003.

<sup>168</sup> *See id.* § 6.

These Directives resulted in a series of protocols, including the National Incident Management System (NIMS) framework.<sup>169</sup> These protocols do an excellent job at laying out structures for preparedness. However, they fail to recognize the distinct status of the law enforcement interest. While they do contemplate how federal, state, and local agencies will handle responsibilities, as well as how duties will be allocated among public health, research, and law enforcement entities, they do not acknowledge that absent direct mandates to the contrary, the law enforcement interest often assumes a paramount role.

Obviously, investigations of this scope are too large and unwieldy to expect every eventuality to be anticipated in advance. However, at a minimum there should be clear procedures for making important decisions—such as whether and when to release information to the public that is necessary to calm fears or prevent potential harm, even at the risk of failing to apprehend the perpetrator or acquiring important evidence. Treating DOJ and the FBI as just another set of agencies, on equal footing with FEMA, local crisis responders, and the Department of Transportation, fails to acknowledge the special urgency that law enforcement goals often assume in the midst of crisis. What the anthrax investigation tells us is that, among disaster responders, those who regularly carry guns and are in charging of stopping the bad guys tend to press, successfully, the primacy of their interests, absent clear direction otherwise.

Thus, serious consideration must be given to how to strike the proper balance in various scenarios between the goals of public health and safety and those of effective law enforcement. It seems evident that any acute risk to public safety should trump law enforcement needs, but the reality is that the trade-offs are often more subtle. Just as there are degrees of public health risk, there are degrees of law enforcement exposure. Devising guidelines and policies in advance can go far to ameliorate the perils of on-the-spot decision-making. Even a policy as simple as one that addresses when erroneous public statements should be corrected could go a long way. Other questions are likewise intuitive. How should researchers be deployed to be beneficially duplicative without compromising security or confidentiality? What kind of access should researchers have to evidence, and what safeguards should be followed to ensure evidentiary integrity? How should immediacy balance against concerns about future judicial admissibility? These are just a few of the questions that might be addressed by crafting thoughtful policies.

Second, embedded within these determinations should be structures for facilitating the flow of information between law enforcement and public health, and between officials and the public at large. Without clear role delineation, public health officials may assume that law enforcement agents are making

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<sup>169</sup>See [http://www.fema.gov/pdf/emergency/nims/NIMS\\_core.pdf](http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf) (last visited March 30, 2009).

conscious decisions to release or withhold information, when in fact they simply may not view this kind of communication with the public as part of their job. Conversely, public health officials need to be informed about the state of the investigation so that their efforts do not inadvertently or unnecessarily thwart the case. A set of policies that explore the nuances of these questions would mark a significant advance over the default stance, which appears to be that law enforcement coordinates all communication, even when they lack awareness or competence to do so.

Such policies might also offset even informal or inadvertent pressures that outsiders to the criminal justice system may experience when first encountering the law enforcement machine. Even researcher Paul Keim described meeting representatives of the FBI and the U.S. Attorney's office as late as 2008 and making a "nervous joke" about having "greased up [his] wrists just so I can slip out of my handcuffs."<sup>170</sup> If a respected scientist, intimately involved in the investigation for seven years, can still experience such an encounter as an occasion for nervousness, then most outsiders brought into the investigation for the first time are surely likely to react similarly, and perhaps with excessive deference. Of course, these kinds of concerns cut multiple ways. Dr. Keim also described how his laboratory took "very seriously" the FBI's instructions on proper handling of evidence, out of "the fear of having a Johnnie Cochran cross-examining us in court."<sup>171</sup> The key is that informal fears, as much as formal structures or assumptions about authority, can inadvertently shape the conduct of actors within an investigation.

This is especially true of the relationship between state and federal entities. Federal agents often have the advantages of cross-jurisdictional authority, national influence, and wider access to resources. But states and localities are often more attuned to the needs of their particular communities, and may be better poised to resolve some problems. Indeed, in many situations, it is local actors who will inevitably serve as the first responders and who will remain closest to the individuals affected by the investigation. Clearer hierarchies for dispute resolution, better calibrated to the comparative advantages of each entity—rather than a presumption that federal investigative interests always come first—would go far to ameliorating these kinds of conflicts and to making better use of available resources.

Third, the anthrax investigation reveals the power and possibility in harnessing the resources and comparative advantages of the private and non-governmental sectors in service of the law enforcement mission. Without TIGR's involvement in this case, the key genetic evidence might not have been revealed. Similarly, inadvertent creation of duplicative structures guarded against errors,

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<sup>170</sup> See Bhattacharjee, *supra* note 40.

<sup>171</sup> See *id.*

such as the initial destruction of Ivins's first RMR-1029 sample, and proved critical to solving the case. These experiences reveal that law enforcement's natural inclination toward secrecy and circling the wagons might not always serve it well. Of course, enlisting the aid of outside entities and sharing information can also create problems. The FBI's decision to deviate from typical practice by publicly identifying Stephen Hatfill hardly argues for casting light into the usual dark corners of investigation. On a less dramatic scale, even the simple failure of communication between USAMRIID and Batelle about irradiating anthrax samples can be viewed as a product of outsourcing parts of the investigation.

But lapses such as those might be minimized by implementing proper procedural safeguards. Naming of suspects or witnesses, for instance, might be deemed presumptively impermissible, even while selective publication or dissemination of evidence is allowed. Creative harnessing of technology—for instance, a secure online forum for tracking evidence or entering notes about the course of the investigation or a website devoted to disseminating public information about the investigation—might go far to minimize communication problems. Regardless of the details, the key point is that greater success in a criminal investigation might come about through deliberate and measured openness, even acknowledging the inherent perils of such an approach.

Fourth, and implicit in what we have already said, hierarchy and organizational efficiency should not be carried too far. Some of what went right in the anthrax investigation—most strikingly, perhaps, the preservation of an extra copy of the RMR-1029 anthrax collected from Ivins—bears out the advantages that organizational scholars have identified in bureaucratic redundancy.<sup>172</sup> Other successes in the anthrax case—the breakthroughs at TIGR, for example—may illustrate the importance of “organizational improvisation.”<sup>173</sup> But redundancy and improvisation are not inconsistent with coordination and communication. Indeed, much of the case we have tried to lay out for more coordination and communication when criminal investigations intersect with public health emergencies is precisely that, in the absence of coordination and communication, non-law-enforcement voices are too easily drowned out, and key actors may too readily conclude that their contributions are not required, because the matter is being addressed by others.

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<sup>172</sup> See JONATHAN B. BENDOR, *PARALLEL SYSTEMS: REDUNDANCY IN GOVERNMENT* (1985); Martin Landau, *Redundancy, Rationality, and the Problem of Duplication and Overlap*, 29 *PUB. ADMIN. REV.* 346 (1969); Anne Joseph O'Connell, *The Architecture of Smart Intelligence: Structuring and Overseeing Agencies in the Post-9/11 World*, 94 *CAL. L. REV.* 1655, 1675-84 (2006).

<sup>173</sup> See, e.g., *ORGANIZATIONAL IMPROVISATION* (Ken N. Kamoche, Miguel Pina e Cunha & João Vieira da Cunha eds., 2002).

Ultimately, however, coordination and communication cannot anticipate or resolve every crisis. At base, there will remain fundamental disjoints between the nature of scientific inquiry and the nature of criminal investigation. And, of course, the technical expertise of scientists will always require investigators to defer at some level to their conclusions—and thus face the quandary of trusting in-house researchers at the expense of overlooking a hidden wolf, or outsourcing a task and losing some control over the evidence. Surprisingly, though, it seems that the very difficult task of letting go is in fact the one that the FBI did best in the anthrax investigation. The Bureau loosened its grip on the evidence enough to give access to independent researchers like TIGR. In the end, it was those decisions that led to the breakthroughs that solved the case.

### **B. *Thinking Scientifically About Systems***

If the anthrax investigation offers some sobering lessons about the need for DOJ to think more systematically about science, and particularly about the challenges posed by criminal investigations that intersect with public health responses, the case also underscores the need for the Justice Department to think more scientifically about systems and especially about mechanisms of institutional learning. Director Mueller's adamant refusal to acknowledge any deficiencies in the anthrax investigation highlights a significant problem: the absence of any systematic, institutionalized procedures at the Department of Justice for learning from past mistakes.

This is a deficiency that sets the Department of Justice apart from other major federal agencies involved in the response to the anthrax mailings—notably the military and the Centers for Disease Control. It is a deficiency that may have been partly responsible for some of the missteps in DOJ's handling of the anthrax investigation, as well as some of the other, notable problems at DOJ over the past eight years. And it is a deficiency that is increasingly hard to justify as the range and complexity of DOJ's work increases.

A century ago the institutional memory of the U.S. Army was a lot like the institutional memory of the Department of Justice is today. It was informal, *ad hoc*, and tied to individual, long-serving career personnel. However, beginning in World War I, the Army began to centralize and systematize its after action reviews.<sup>174</sup> Since 1985, those reviews have been coordinated, overseen and facilitated by the Center for Army Lessons Learned at Fort Leavenworth, Kansas. The Center for Army Lessons Learned is a sizeable operation, employing more than 200 people. It conducts its own field investigations and analyses and also coordinates, supports, and disseminates self-critical analysis by combat personnel.

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<sup>174</sup> See DENNIS J. VETOCK, *LESSONS LEARNED: A HISTORY OF U.S. ARMY LESSON LEARNING* (1988).

In the past half-decade, Fort Leavenworth has repeatedly produced some of the most probing, sharply critical, and productive assessments of the strategic and tactical mistakes of the U.S. military, especially in Iraq.<sup>175</sup>

All of this has earned the Center for Army Lessons Learned lots of attention and a growing list of emulators. Similar if less elaborate “lessons learned” processes are now in place in the Air Force, the Navy, the Marines, the Coast Guard, and even the Pentagon. The Department of Energy has a “lessons learned” program. So does NASA. So does the national center that coordinates and supports agencies responding to wildfires.<sup>176</sup>

All of these programs have similarities to the “morbidity and mortality” conferences that hospitals have long held and to the “child death reviews” routinely conducted by social service agencies and public health authorities. The point of all these processes is to learn from mistakes—to transform public agencies into what people in the business school call “learning organizations.”<sup>177</sup> The importance for any organization of sustained, institutionalized self-criticism and self-reflection has become conventional wisdom among management theorists. It has also been increasingly recognized by educational administrators, social workers, and a wide range of other professionals concerned with the effective operation of large organizations.<sup>178</sup>

The Centers for Disease Control, for example, does not have a “lessons learned” office like the Army’s. But CDC personnel routinely and publicly engage in retrospective self-assessment so that they do not repeat the same mistakes. Within months of the 2001 anthrax attacks, the CDC convened a working group to assess its response to threat and to make recommendations for handling future bioterrorism. CDC officials openly acknowledged that they had been insufficiently prepared for the anthrax attacks. They began a public dialog with outside clinicians and public health officials about what could be learned from the attacks and how they were handled.<sup>179</sup>

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<sup>175</sup> See THOMAS E. RICKS, *FIASCO: THE AMERICAN MILITARY ADVENTURE IN IRAQ* 193, 212, 222, 253, 256 (2006).

<sup>176</sup> See generally Amy K. Donahue & Robert V. Tuohy, *Lessons We Don’t Learn: A Study of the Lessons of Disasters, Why We Repeat Them, and How We Can Learn Them*, 2 *Homeland Security Affairs*, issue 2, at 3 (2006), <http://www.hsaj.org> (last visited March 10, 2009).

<sup>177</sup> See, e.g., PETER SENGE, *THE DANCE OF CHANGE: THE CHALLENGES TO SUSTAINING MOMENTUM IN LEARNING ORGANIZATIONS* (1999); PETER SENGE, *THE FIFTH DISCIPLINE: THE ART AND PRACTICE OF THE LEARNING ORGANIZATION* (1990).

<sup>178</sup> See, e.g., Nick Gould, *The Learning Organization and Reflective Practice: the Emergence of a Concept*, in *SOCIAL WORK, CRITICAL REFLECTION AND THE LEARNING ORGANIZATION* 1, 1 (Nick Gould & Mark Baldwin eds., 2004).

<sup>179</sup> See, e.g., James M. Hughes & Julie Louise Gerberding, *Anthrax Bioterrorism: Lessons Learned and Future Directions*, 8 *EMERGING INFECTIOUS DISEASES* 1013 (2002).

The Department of Justice has nothing even remotely resembling the institutionalized “lessons learned” processes of the military services, nor even the CDC’s less formalized tradition of searching self-criticism. That is not to say that DOJ doesn’t engage in self-monitoring and self-criticism. It does, but only in a much more limited way.

The two principal vehicles for self-monitoring and self-criticism are the Office of Professional Responsibility (OPR) and the Office of the Inspector General (OIG). OPR’s core charge is to investigate allegations of professional misconduct involving DOJ attorneys. It also investigates allegations of misconduct by law enforcement personnel when they are related to allegations of professional misconduct by DOJ lawyers. OPR only investigates when there is an allegation, it only investigates when the allegation is of misconduct, and it only investigates when the alleged misconduct is of a particular type, involving professional misconduct by a Department lawyer. And when it *does* investigate, OPR’s mission is to conclude whether there has been misconduct to recommend disciplinary action where appropriate—not to draw lessons about how to avoid similar problems in the future.

OIG is a larger organization with a more expansive mandate. It has a staff of more than 400 agents, auditors, inspectors, attorneys, and support personnel, and an annual budget close to \$75 million. And its mandate is much broader than OPR’s. OIG’s mission is to detect and deter not only misconduct but also waste, abuse, and inefficiency in DOJ. So OIG not only investigates alleged misconduct and abuse of power, but also audits and inspects Department programs for efficiency and effectiveness. But OIG has no statutory jurisdiction to review actions of DOJ lawyers in their professional capacities as lawyers; that is OPR’s job. And OIG does not generally look prospectively for broad lessons about investigative strategy and tactics. Instead, it looks retrospectively for misconduct, abuse, or gross mismanagement. Here are some examples of things the OIG has investigated: the mistaken fingerprint match that caused the Oregon lawyer Brandon Mayfield to be wrongly implicated in the Madrid train bombings of 2004; the FBI’s fatal shooting of the Puerto Rican fugitive Filiberto Ojeda Rios in 2005; allegations that former AG Alberto Gonzales mishandled classified documents while in office; allegations of civil rights abuses in the implementation of the PATRIOT Act; and—in conjunction with OPR—reports of politicized hiring at DOJ and improprieties associated with the removal of nine U.S. Attorneys in 2006.

Here are the kinds of questions that OIG does *not* investigate—and that no one else at DOJ seems responsible for asking: What missteps did DOJ make in investigating the anthrax mailings? Were there warning signs that should have been heeded that the Department was focusing too much attention on Steven Hatfill and not enough attention on Bruce Ivins? Were there better ways of

dealing with the special problems that arose because the scientists whose help DOJ needed were also, necessarily, suspects in the case? Was the investigation staffed and supervised in a way that made sense? Should DOJ have coordinated its work in a different manner with the work of public health agencies? Did the Department use the resources of organized science—the NAS, for example—in the most effective manner possible? Were the public comments of FBI and DOJ officials, particularly about Steven Hatfill, helpful and fair? In short, what lessons can the Department learn from its experience in the anthrax investigation? What will help the next time it investigates a bioterror attack or other criminal activity that uses advanced science and technology?

One alternative to internal DOJ consideration of questions like this is external review by the General Accounting Office (GAO). The GAO routinely assesses the performance of government agencies and asks how they could do better in the future. It reviewed, for example, the response of the Postal Service to the anthrax mailings. That review concluded with a series of recommendations for improving the Service's guidelines and procedures for reacting to an emergency.<sup>180</sup> In fact, GAO frequently reviews aspects of DOJ's performance.<sup>181</sup> These outside reviews are valuable, but they should supplement rather than substitute for internal after action reviews. Outside reviewers, precisely because of their outside perspective, will often see strengths and faults that people inside the Justice Department do not. Also, because of their status as outsiders, they can sometimes prove more effective at creating pressure for organizational change.<sup>182</sup> Conversely, though, lawyers, agents and staff who have participated in a complex investigation or prosecution will often be more aware of missed opportunities, hidden successes, and narrowly averted disasters that outside reviewers may not perceive. And outside reviews cannot serve one of the most important functions of an internal, "lessons learned" procedure: building institutional habits of self-criticism, self-reflection, and continued self-improvement.

Let us provide another example of the kind of reflective, institutionalized learning that is missing at DOJ. The FBI, and presumably the criminal divisions at Main Justice and at U.S. Attorneys' offices around the country, are now gearing up for what will almost certainly be a wave of criminal investigations and

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<sup>180</sup> U.S. GEN. ACCOUNTING OFFICE, U.S. POSTAL SERVICE: BETTER GUIDANCE IS NEEDED TO ENSURE AN APPROPRIATE RESPONSE TO ANTHRAX CONTAMINATION (2004).

<sup>181</sup> See, e.g., U.S. GEN. ACCOUNTING OFFICE, MAJOR MANAGEMENT CHALLENGES AND PROGRAM RISKS: DEPARTMENT OF JUSTICE (2003); U.S. GEN. ACCOUNTING OFFICE, DEPARTMENT OF JUSTICE: STATUS OF ACHIEVING KEY OUTCOMES AND ADDRESSING MAJOR MANAGEMENT CHALLENGES (2001); U.S. GEN. ACCOUNTING OFFICE, JUSTICE DEPARTMENT: COORDINATION BETWEEN DEA AND THE FBI (1990); U.S. GEN. ACCOUNTING OFFICE, INVESTIGATION OF ALLEGED NAZI WAR CRIMINALS RESIDING IN THE UNITED STATES BY THE IMMIGRATION AND NATURALIZATION SERVICE, DEPARTMENT OF JUSTICE (1977).

<sup>182</sup> See Donahue & Tuohy, *supra* note 176, at 12.

prosecutions in response to the massive credit collapse that triggered the current financial crisis. We can expect to see a lot of high-profile investigations, and probably prosecutions, for large-scale mortgage fraud and related wrongdoing.

The Department has been here before. In the late 1980s and early 1990s, for example, 747 savings and loan associations failed in the United States, costing the taxpayers well over \$100 billion dollars. There was a massive effort to investigate and prosecute individuals whose wrongdoing contributed to the collapse. The results were mixed. Prosecutors won some notable convictions, but some of those victories were reversed on appeal. Many cases were never brought, and some illegally obtained assets were never recovered.

As far as we know, there are no documents anywhere at the Department of Justice summarizing the lessons of the S&L investigations and prosecutions. And few if any of the lawyers and investigators who worked on those cases remain at DOJ today. Those lessons have been lost. They are unavailable to the prosecutors and agents who will be handling the next big round of financial fraud cases. So are the lessons from, say, the Enron investigation. DOJ lacks any institutionalized process for learning from its mistakes.

Plainly, there are special difficulties in carrying out after-the-fact, self-critical analysis in an agency that is regularly in court, defending its conduct. Moreover, DOJ has constitutional and statutory obligations to turn over to defense attorneys any material that could help to exculpate the individuals the agency is prosecuting. Beyond the tactical concerns about self-criticism later being thrown back at the Department in court, meaningful after action reviews may clash with the culture of the Justice Department. Prosecutors feel they cannot admit in court that mistakes were made in the investigation of a case; that would doom their case with the jury. They may be disinclined to admit it even to other prosecutors. Over time they may become disinclined to admit it to themselves. In the end, though, these habits may merely underscore the need for formalized self-criticism within DOJ.

If DOJ wanted to institutionalize self-criticism and self-reflection, it would face a series of questions. Who should carry out the after action reviews: the prosecutors and agents involved in the case, or a specialized office in the Department of Justice—maybe OIG, or maybe some new unit? Should the reviews be made public? What sort of cases, or sets of cases, should generate these reviews? When should they be carried out: after indictment, after trial, after the appeals, or at some other time? And how should the lessons be organized, retained, and disseminated?

We do not pretend to have the answers to those questions. To a great extent, we think those questions would themselves have to be answered over time, and the answers would have to be revised in light of ongoing experience. But here are some initial thoughts.

Responsibility for the lessons learned process should be divided, ideally, between the line prosecutors, the line agents, and some special office within DOJ responsible for facilitating and coordinating the process. This office should also generalize, organize, and disseminate lessons learned, and it should insure they are incorporated as appropriate in training programs.<sup>183</sup> The special office should not be OPR or OIG, because it is important to keep the lessons learned process separate from any disciplinary process. The whole point here is not to place blame but to learn.<sup>184</sup> That process will be difficult enough to insert into DOJ even if does not involve offices responsible for investigating and reporting on misconduct and gross failures of supervision.

The decision whether to make a “lessons learned” review public will probably have to be made on a case-by-case basis, much as it currently is at the Center for Army Lessons Learned. This is also the current practice of the OIG with regard to its reports. There are great advantages to publicity. It tends to encourage analysis that is more rigorous and painstaking, and it allows for a dialog with people outside the agency. But there disadvantages, too. Some material will be classified and impossible to discuss publicly. And in many cases confidentiality may encourage a more candid and reflective discussion of mistakes.

Regarding what and when to review, we would suggest keeping in mind two themes from the management literature on “learning organizations.” The first is the importance of learning from near misses as well as from mistakes that actually wound up mattering.<sup>185</sup> The second is to gather lessons as quickly as possible, before prosecutors and agents polish the mistakes out of their war stories.<sup>186</sup> The same thing happens with real war stories, as the Center for Army Lessons Learned is well aware. In the words of two military historians, “[O]n the actual day of battle naked truths may be picked up for the asking. But by the following morning they have already begun to get into their uniforms.”<sup>187</sup>

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<sup>183</sup> On the latter theme, see Donahue & Tuohy, *supra* note 176. Too often, they conclude, lessons identified in after action reviews are “not really *learned*,” either because the lessons are ignored, or because they remain “isolated and perishable, rather than generalized and institutionalized.” *Id.* at 3.

<sup>184</sup> *See, e.g., id.* at 12-13.

<sup>185</sup> *See, e.g.,* KARL E. WEICK & KATHLEEN M. SUTCLIFF, *MANAGING THE UNEXPECTED: ASSURING HIGH PERFORMANCE IN AN AGE OF COMPLEXITY* 56, 59, 165 (2001); Donahue & Tuohy, *supra* note 176, at 13.

<sup>186</sup> WEICK & SUTCLIFF, *supra* note 185, at 57-58.

<sup>187</sup> *Id.* at 58 (quoting ELIOT A. COHEN & JOHN GOOCH, *MILITARY MISFORTUNES: THE ANATOMY OF FAILURE IN WAR* 44 (1990)).

## CONCLUSION

The transition from the Justice Department of President George W. Bush to the Justice Department of President Barack Obama provided an occasion for widespread reflection, both inside and outside the government, about the policies and management of DOJ. Most of that reflection has focused on policies and management practices adopted over the past eight years—policies and practices that in many ways were departures from the Department’s previous traditions.

The anthrax investigation suggests the need to reflect, as well, on certain deficiencies at the Department of Justice that predate the Bush Administration: the Department’s underdeveloped interface with organized science, its insufficient preparation for criminal investigations that intersect with public health responses, and its lack of formalized processes for institutional learning. These deficiencies are as important to remedy as the Department’s better known failures over the past eight years—for example, the widely criticized moves away from professionalism and toward politicization. And they may be related. Failing to draw effectively on scientific expertise, much like failing to draw effectively on legal or investigative expertise, leaves an organization at risk for amateurism. And an organization that takes no time to learn from its mistakes is an organization that is vulnerable to believing that there is nothing *to* learn—that its work is not really that complicated, and that the real question is not how well the work is done but whose agenda it supports.