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# INSIDER DIVERSION

PROFILING THE ANTHRAX ATTACKS

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## SUMMARY

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The attacker's access to weaponization technology, virulent cultures and immunization is strongly indicative of an "insider" diversion from a government program by an idiosyncratic terrorist. This means the most probable and productive pool of suspects are people who were employed in weapons research.

The individual or group responsible for these crimes has the following characteristics:

- Had access to anthrax weaponization technology.
- Had access to Ames strain anthrax cultures originating at USAMRIID.
- Was vaccinated for anthrax.
- Used good biological containment facilities during the purification and weaponization.

This combination of characteristics drastically reduces the potential pool of suspects, particularly if all the crimes contributing to the anthrax attacks were committed by a single individual. The known characteristics of the attacker strongly suggest he was employed in a weapons-related facility. The number of facilities where biological weapons research is conducted is small. Likewise, the number of personnel who received anthrax immunization is traceable through personnel records. This picture of the attacker is admittedly speculative, but it provides a clear investigative strategy of locating and interviewing a manageable pool of potential suspects. It also provides the most obvious and uncomplicated picture of the attacker without dragging in unwarranted or speculative assumptions.

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## FOUR CRIMES, NOT ONE

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The anthrax-by-mail attacks are the culmination of a *series* of distinct crimes. Any prosecution for these attacks will have to address at least four criminal acts. Examining these crimes individually may reveal a pattern of events which will lead to the perpetrator. There are four separate and distinct groups of crimes required to use anthrax as a weapon:

1. The diversion of the weaponization technology.
2. The diversion of the anthrax culture.
3. The production of weaponized anthrax.
4. The delivery of the anthrax to commit murder.

The three preliminary crimes have received remarkably little attention in the media. The three preliminary crimes are probably more fertile grounds for developing leads than working backwards from the targets of the attacks. The overlap between the four crimes must home in on the perpetrators. The public almost certainly has valuable information regarding the preliminary crimes, if they only knew what was significant. However, since they have not been adequately educated about what constitutes suspicious circumstances, they are unlikely to spontaneously come forward with leads which will help identify the culprits. Any adverse consequences of publicizing the full profile are substantially smaller than the risk of potential mass casualty attacks.

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## THE TECHNOLOGY DIVERSION

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The technique for preparing weaponized anthrax is a closely guarded military secret. It is not something that can be easily discovered by trial and error, nor is it information which can be pieced together from open sources. The published facts suggest the technology was diverted from a weapons-related project, probably in the last seven years. While it is possible that the attacker(s) obtained the technology and critical materials from outside of the United States, the available information about the weaponization process used in the attacks indicates the technology diversion probably took place within the U.S. and involves information originating from government-operated or -sponsored facilities. In December, the White House and the FBI made vague statements acknowledging domestic involvement in the attacks.

In the November 2000 issue of the National Domestic Preparedness Office newsletter, Col. William C. Patrick III (ret.), the former chief of the military bioweapons production program stated the knowledge necessary to create charge-suppressed aerosol powders “rests with me and possibly two other people from the old program.” This statement is now known to be false. Small quantities of weaponized anthrax have been routinely produced at Dugway Proving Grounds for many years. At the time Mr. Patrick briefed the FBI he knew of these activities, since he had provided Dugway with information about older weaponization processes. A more accurate estimate of the number of people with access to Ames, technical knowledge and the ability to use it is in the dozens.

There are not a large number of facilities in the U.S. engaged in biological weaponization research. The various government facilities like Dugway Proving Ground, Los Alamos National Laboratories, Nevada Test Site, Pine Bluff and Fort Detrick and quasi-civilian facilities like Battelle Laboratories have been mentioned in public reports. Similarly, there are reports of bio-weapons programs within intelligence agencies using civilian contractors. The recent revelations about Project Jefferson, Project BACHUS and Project Clear Vision show weapons-related programs are currently underway, sometimes without oversight by Congress and the Executive Branch.

Former and present personnel engaged in anthrax weapons research should be identified, located and interviewed. Investigative teams should include technically-oriented personnel with experience in the biological weapons field, arms control or biological weapons intelligence. Nine months into the investigation, it has become clear the FBI has experienced great difficulty in mobilizing adequate technical expertise to assist the investigation. According to several biological warfare experts, the FBI was reluctant to use their services until they had been investigated for possible complicity in the attacks, an indication the FBI had not developed an adequate pool of expert advisors, despite being involved in biological investigations since the mid-1990s.

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## THE DIVERSION OF ANTHRAX CULTURE

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The specific Ames strain of anthrax used in the attacks is not widely available. Highly sensitive DNA testing using both genomic sequencing and polymerase chain reaction have positively identified the anthrax used in the attacks as originating at the USAMRIID facilities at Ft. Detrick. The results of these tests were available to the investigation sometime in February or early March, though the publication of the scientific findings was delayed for several months. Several non-military facilities possessing virulent anthrax have been mentioned in the media, including the University of Utah, the University of Texas, the University of Louisiana, Northern Arizona University and the FDA biolevel-3 labs at Plum Island, as well as the private BioPort facility in Lansing, Michigan, where vaccine is produced under contract to the Department of Defense. Many of the non-military facilities employ

personnel previously employed in weapons research. There probably are other facilities in the U.S. where the weaponization process was known or studied. Subpoenas have been issued for samples of anthrax from some research facilities.

According to the *Washington Post*, approximately two dozen facilities in the U.S. possess this strain. This number is enormously smaller than was first assumed. Earlier reports had falsely claimed over 150 facilities in the U.S. possess cultures of the strain used in the attacks. The revised number increases the likelihood of a link between the technology diversion and the diversion of the anthrax culture. Given the simplicity and ease of single-cell culture techniques, the diversion could be as simple as concealing a single swab.

The attacker's success at obtaining a virulent culture favored for weapons-related research deserves attention in pursuing the investigation. The diversion of anthrax culture, combined with the diversion of the weaponization technology and the probable immunization of the person or persons producing the material used in the attacks makes it likely that these three factors are related to each other.

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### THE PRODUCTION OF WEAPONIZED ANTHRAX

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As early as late October, sufficient information about the anthrax used in the attack has been publicly available to reconstruct many of the steps the attacker followed. In very broad outlines, the stages are 1) obtaining a pure culture of the Ames strain which originated at USAMRIID; 2) growing a quantity of live vegetative cell anthrax and then forcing it to turn into dormant spores; 3) separating the spores from the vegetative cells and other fermentation products; 4) drying the purified spores into a fine powder. The entire process requires very considerable technical expertise and specialized knowledge. The first two stages are hazardous, but not unusually so. Living anthrax bacteria are dangerous pathogens, but can be contained by normal biological procedures. Once the bacteria forms spores, the material is extremely hazardous to work with. The process of purifying and drying the spores involves dangerous procedures requiring extraordinary care to keep the material contained. [See attached diagram., "How the Anthrax was made"]

The recovered anthrax powder has differed in particle size. The New York material is larger and only skin infections were associated with this material. The Florida and Senate material was finer, more readily aerosolized and reportedly possessed anti-static and secondary aerosol characteristics. Epidemiological evidence indicates the New York and Florida letters were mailed at the same time. Taken together with information about the production process, it appears likely there was only one batch of anthrax, but it varied in particle size and purity. If this is the case, the sequence of filling the envelopes was probably New York, Florida, Senate.

The differing physical characteristics and very small amounts contained in the letters strongly suggest that the New York and Senate samples was produced as a single batch. The variation in particle size and contamination by vegetative cells may be due to the natural process of particles separating by size and the fact the sporulation was incomplete. The relatively low sporulation shown by the vegetative cell contamination contrasts with the sophistication of the weaponization process, an interesting feature worthy of further investigation.

The use of chemical additives during the weaponization process was confirmed by Major General John Parker at a series of Homeland Security press conferences in late October and early November. The formulation of these additives is known to the investigators from Energy Dispersive Spectroscopy (EDS) testing performed on the Daschle sample. The use of these additives is the

most significant clue to come to light so far. The particular combination of additives is a military secret and dramatically restricts the suspect pool. The access to Ames strain is relatively broad compared to the technical knowledge of specific weaponization methods.

Once weaponized as a dry powder, anthrax is remarkably stable. The amount of time between the 9/11 jetliner attacks and the first mailing of the anthrax in mid-October is too short to accomplish all of the steps outlined above. It is a reasonable inference the attacker's initial crimes occurred before the 9/11 attacks, perhaps years earlier. It is possible that the material used in the attacks was already produced and in storage long before the attacks. To date, no information regarding the time-frame of the anthrax production has emerged from the investigation. If such evidence exists, it will be most likely to come from the New York Post material.

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### THE ATTACKER'S SAFETY PRECAUTIONS

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The production location has demonstrated adequate containment facilities. There are no known incidents of infections related to the attacker's production processes. Considering the extent of the cross-contamination through the postal system and the mysterious death of Kathy Nguyen in New York, this suggests a high degree of competence on the part of the person or persons involved in the weaponization process. The FBI's success in constructing an expedient containment facility for handling the quarantined mail containing the Leahy letter demonstrates the degree of care necessary to prevent accidental exposure.

The people or person producing and handling the anthrax must take prophylactic measures to prevent their accidental infection by contamination. Antibiotics and immunization provide differing degrees and periods of protection. Taking large doses of antibiotics over an extended period of time may lead to drug reactions and provides less than 90% protection against infection.

The use of antibiotics as a prophylactic measure is risky and limited in duration. The more likely alternative is the attacker(s) were immunized against anthrax within the last year, at least in regards to filling the letters. As noted above in the sections about the criminal diversion of the weaponization technology and the Ames culture, the suspects may have worked in a research facility which handles anthrax. If so, they may also have been immunized against anthrax. Anthrax vaccination provides protection for a limited period of time and annual booster shots are required to maintain maximum immunity.

The FBI has recently announced it will polygraph approximately 200 past and present employees at Ft. Detrick and Dugway Proving Ground who received anthrax immunizations. If the intent is to polygraph all personnel in contact with anthrax research in the recent past, the number is too small. Before the Gulf War, the reported total U.S. consumption of anthrax vaccine was about 500 doses per year, almost entirely by research personnel. This consumption indicates a pool of 2-300 people at that time, assuming an average tenure of five years. After the Gulf War, the amount of research expanded, as indicated by increased budget figures. The particle size of the attacker's anthrax suggests a drying process reportedly not researched by the U.S. until sometime during or after 1994, extending the window of investigation back at least seven years. Assuming 20% annual turnover in personnel, one arrives at the conclusion of less than 100 people having access to the Ames strain at any particular time. It is also apparent the polygraphing is not comprehensive of all immunized research personnel, much less civilian contractors.

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## CONCLUSIONS

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The series of criminal acts involved in the anthrax letter attacks, the contents of the letters and the sequence of targets suggest the anthrax attacker:

- Was employed at some time at a facility possessing the technical information necessary to prepare weaponized anthrax;
- Received anthrax immunization in the course of employment;
- Had access to the Ames strain of anthrax and
- Had a well-contained production facility for making weaponized anthrax.

The diversion of biological weapon technology and culture material points to a possible breach in security. If, as published reports suggest, the technology used to prepare the weaponized anthrax used in the recent attacks is consistent with the favored weaponization technology closely held by the U.S. government, this is a serious problem. First of all, the facts suggest the penetration of a facility or program which should be highly secure. Secondly, the attacks constitute a serious proliferation issue. Thirdly, the consequences to U.S. domestic and foreign security policy initiatives have already been severe, as demonstrated by the U.S. announcement of its intent to unilaterally withdraw from the Biological and Toxin Weapons Convention (BWC).

The withdrawal of the U.S. from the BWC is tantamount to an admission that biological weapons research programs continue to operate in the U.S. It should be further noted that the U.S. withdrawal from the convention severely restricts U.S. participation in multilateral investigations of other countries' biological warfare programs.

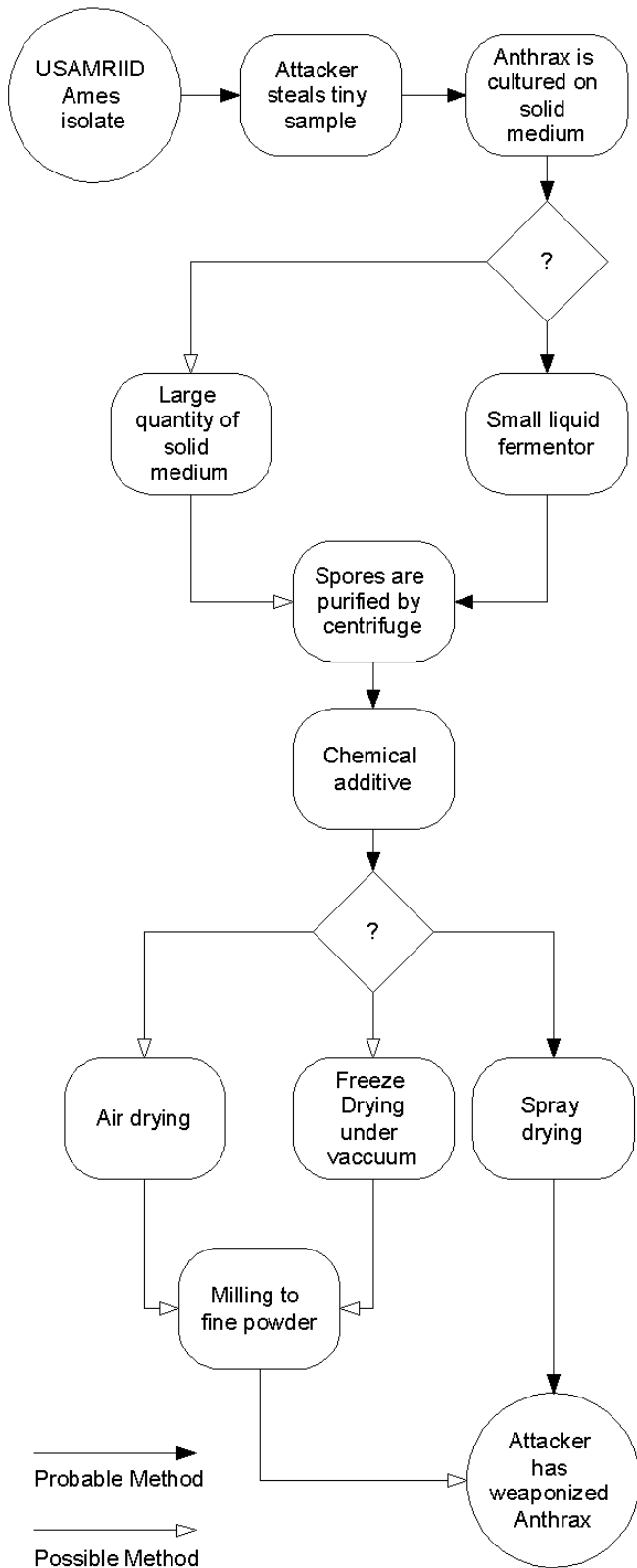
The purpose of the attacker was to demonstrate capability, rather than to inflict mass or catastrophic casualties. It appears the attacker's supply of weaponized anthrax was limited and he sought to maximize the financial and psychological impact of the attacks. The attacker's assumed lack of continued access to production, while something to be devoutly wished, does not lessen the risk of attacks in the future. Only the apprehension of the attacker can resolve the danger.

It has been stated that the tactics of enclosing warnings in the letters shows the attacker did not intend to commit murder. This is nonsense. The death of Robert Stevens was public knowledge before the Senate letters were mailed. The attacker knew full well that he was placing large numbers of people in deadly peril and acknowledged this in the text of the Senate letters. As Brian Jenkins has famously noted, "terrorists want a lot of people watching, not a lot of people dead." The letter tactics were chosen to maximize the scope of the terrorism, not to limit or avoid casualties.

The longer the period between attacks, the greater the opportunity for the attacker to scale up production or transfer the stolen technology. While there is not a clear indication that the attacker(s) seek mass or catastrophic levels of casualties, the longer he or they remain free, the greater the risk of further attacks becomes and the greater the potential magnitude of those attacks. The longer this case goes unsolved, the more the risks increase.

The available open source evidence strongly suggests that the attacker had access to specific weaponization technology, Ames anthrax culture from USAMRIID and probably immunization against anthrax. The one place where all three of these factors originate is a U.S. weapons-related research facility. If, as seems very likely, the anthrax attacks resulted from criminal activity inside government weapons programs, the anthrax attacks are the most serious theft of secrets since Klaus Fuchs stole nuclear weapons plans from the Manhattan Project.

# HOW THE ANTHRAX WAS MADE



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First, the attacker must obtain the Ames strain and successfully grow a pure colony, probably in petri dishes.

The next step is to grow a large quantity of pure anthrax bacteria. Either solid or liquid growth media would leave residue detectable by EDS under an electron microscope. The FBI almost certainly has this information, but it has not been disclosed.

Next, the living bacteria must be forced to go dormant and form spores. The NY samples were mostly dead vegetative cells, showing the attacker was unable to cause complete sporulation.

The spores are then separated from the dead vegetative cells by centrifuge, a complex and dangerous process. The attacker only got partial separation, with significant contamination by dead vegetative cells.

Chemical additives are unique to the weaponization process. They have no use other than biological weapons. The FBI knows the composition of the additive and probably knows which domestic weapons labs possessed the formula used by the attacker. This is the most highly restricted information and strongest clue to narrowing the suspect pool.

The wet spore slurry from the centrifuge must be dried into a powder. There are three possible routes. The Daschle anthrax reportedly lacks milling debris, which may rule out two of the processes.

The Leahy sample reportedly contains some individually coated spores, which increases the likelihood that a spray drying process was used. Spray-drying apparatus is at least six feet tall to allow adequate time for the powder to fall through a column of heated air. Spray drying is not normally performed in most biological laboratories. However, spray drying equipment is neither terribly expensive, nor hard to make from commonly available parts.

The drying process used by the attacker is almost certainly known to the FBI, since each process leaves distinct patterns on the final product.

Producing the anthrax is a difficult and technically demanding process. The initial stages, from the theft of the sample to the preparation of the wet spore slurry with chemical additives, could be done without attracting attention of casual observers. The centrifuging and later stages are extremely hazardous. The drying and weaponization stage would be difficult to disguise or explain.