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[Home](#) • [About Us](#) • [History](#) • [Famous Cases & Criminals](#) • [Anthrax - Amerithrax](#) • [Science Briefing](#)

Science Briefing on the Anthrax Investigation

Opening Statement by Dr. Vahid Majidi

08/18/08

Good afternoon ladies and gentlemen. I am Vahid Majidi, the Assistant Director responsible for the FBI's Weapons of Mass Destruction Directorate. I would like to start today's session with a brief opening statement and define the scope of our roundtable discussion.

After nearly seven years of investigation we have developed a body of powerful evidence that allows us to conclude that we have identified the origin and the perpetrator of the 2001 bacillus anthracis mailings.

The attribution process and identification of a specific perpetrator relies on the confluence of intelligence, investigative, and forensic information. It is the forensic information that determined the source of the 2001 bacillus anthracis mailings to be derived from a unique pool of spore preparations known as RMR-1029 that was maintained at U.S. Army Medical Research Institute for Infectious Diseases, Fort Detrick, Maryland (USAMRIID). While there were countless investigative hours spent narrowing the field of suspects, we are here today to focus on the scientific aspects of this case.

First of all, let me dispel some frequently repeated erroneous information. For example:

- There were no intentional additives combined with the bacillus anthracis spores to make them any more dispersible.
- The purity of samples obtained from the four letters (Hart and Russell Senate office, and NBC and New York post offices in New York) were sufficiently different, which allowed us to conclude that at least two different bacillus anthracis batches were prepared from the original RMR-1029. This indicates that aliquots of the RMR-1029 were removed and cultured in at least two separate batches to produce the materials used in the mailings.

The FBI began this complex investigation by coordinating analyses of the spore powders contained in the 2001 bacillus anthracis mailings. We enlisted the help of many biodefense experts to assist our examinations, including those who had previously developed tests to differentiate strains of bacillus anthracis and identify the spores in the letters as the "Ames strain."

Other analytical strategies were employed to target the chemical and elemental profiles of the spore powders. Specific techniques included scanning and transmission electron microscopy, energy dispersive X-ray analysis, carbon-dating by accelerator mass spectrometry, and inductively coupled plasma-optical emission and mass spectrometry.

Additional scientists from the Department of Defense and the Centers for Disease Control examined the spore materials and it was determined that there were many phenotypic variants within the samples.

With generous support by both the National Institutes of Health, the National Science Foundation and other government agencies, FBI scientists worked with The Institute for Genomic Research to determine if genetic mutations were responsible for the altered appearance of the variants found in the bacillus anthracis letters. Several genetic mutants were discovered in these studies.

FBI microbiologists contracted the assistance of several laboratories to develop highly specific assays to detect four specific genetic mutations found in the bacillus anthracis letters.

The mutation detection assays were validated and used by the FBI Laboratory to examine the repository of bacillus anthracis Ames that was collected through the course of the investigation.

This unprecedented scientific approach allowed the FBI to identify potential sources of the bacillus anthracis used to produce the 2001 spore powders.

Through a comprehensive analytical approach, the investigators were provided with validated scientific data which linked the material used in the 2001 attacks to material from USAMRIID identified as RMR-1029.

It is important to emphasize that the science used in this case is highly validated and well accepted throughout the scientific community. The novelty is in the application of these techniques for forensic microbiology.

Today, I am very confident that the significant lessons learned from the 2001 bacillus anthracis case have been rigorously evaluated by the FBI and appropriate actions have been taken to safeguard the American public. The FBI Laboratory has revolutionized the approach to nontraditional forensic samples and has developed robust capabilities to collect and examine evidence containing biological, chemical, radiological or nuclear materials. We have developed a strong partnership with the U.S. government laboratory complex, public health system, private industry and academia to significantly enhance our capabilities dealing with future investigations. The creation of the Weapons of Mass Destruction Directorate is another example of

Famous Cases by Category

Terrorism

- 9/11 Investigation
- Anthrax/Amerithrax
- Beltway Snipers: Part 1 | Part 2
- East African Embassy bombings
- Eric Rudolph: Part 1 | Part 2
- Millennium Plot/Ahmed Ressaym
- Oklahoma City bombing
- Palmer Raids
- Pan Am 103 bombing
- Unabomber
- USS Cole Bombing
- Wall Street bombing 1920
- Weather Underground bombings
- World Trade Center bombing 1993
- Fawaz Younis

Counterintelligence/Espionage

- Aldrich Ames
- Alger Hiss
- Atom Spy Case/Rosenbergs
- Black Tom 1916 bombing
- Duquesne Spy Ring
- Espionage in the Defense Industry
- Hollow Nickel/Rudolph Abel
- Iva Toguri d'Aquino and "Tokyo Rose"
- Maksim Martynov
- Nazi Saboteurs and George Dasch
- ND-98: Case of the Long Island Double Agent
- Pearl Harbor Spy
- Robert Hanssen
- Thwarted Sabotage in Zambia
- Vasilli Zubilin
- Velvalee Dickinson, the "Doll Woman"
- Vonsiatsky Espionage
- Year of the Spy (1985)

Cyber Crime

- Operation Innocent Images

Public Corruption

- ABCAM
- Operation Greylord
- Operation Illwind
- Tennessee Waltz
- William Jefferson

Civil Rights

- Baptist Street Church bombing
- Emmett Till
- Medgar Evers
- Mississippi Burning
- KKK series

Organized Crime/Gangsters

- Al Capone
- Barker/Karpis Gang
- Bonnie and Clyde
- Joe Pistone, Undercover Agent
- John Dillinger
- John Gotti
- Kansas City Massacre/"Pretty Boy" Floyd
- Lester Gillis ("Baby Face" Nelson)
- "Machine Gun" Kelly
- Roger "The Terrible" Touhy
- The Brady Gang
- The Fur Dressers case

White-Collar Crime

- Enron
- Hurricane Katrina Fraud
- Operation Senior Sentinel
- Operation Stolen Dreams

Violent Crime/Major Thefts/Bank Robberies

the FBI's progressive approach focusing on prevention as well as investigation of all issues involving chemical, biological, radiological and nuclear materials.

Please note that there were many dedicated individuals, including prosecutors, scientists, investigators, analysts, and support personnel that worked on this case.

Finally, I am asking you to understand that this is the first step toward broader dissemination of the scientific information surrounding this case. Additional information will be available through peer reviewed publications and I ask you to please respect the integrity of this process. In fact, several research projects related to the FBI's investigation have already resulted in peer reviewed publications and we will provide you with that list. Additional publications will be available for peer review as more information from the investigation is released.

Before we open the floor for questions and answers session, we would like to introduce you to our distinguished panel. Today, we have with us a small group of individuals representing the large cadre of non-Bureau scientists that helped us chart and navigate our scientific path through this unprecedented case. In the near future, after we work through each non-disclosure agreement and privacy issues, we will release the names of those key individuals who tirelessly worked with us on the 2001 bacillus anthracis mailings.

To my left is the current FBI Laboratory Director, Dr. Chris Hassell. Dr. Hassell will introduce our panel members.

Professor Paul Keim

Professor Paul Keim is Regents Professor of Biology and holds the Cowden Endowed Chair in Microbiology at Northern Arizona University. He is also Director of the Pathogen Genomics Division at the Translational Genomics Research Institute. His research focuses on molecular genetics for a wide variety of organisms, including bacteria, fungi, plants and animals. His work in support of the FBI included identification of the spore powders as the Ames strain of the anthrax bacillus.

Dr. James Burans

Dr. James Burans is currently the Associate Laboratory Director of National BioForensic Analysis Center (NBFAC). He has been in the forefront of development of diagnostic assay techniques to identify and characterize biological threat agents. He led several of the Scientific Working Groups that were assembled from the National Academy of Sciences, National Laboratories and other Federal R&D facilities.

Dr. Rita Colwell

Dr. Rita Colwell is currently Distinguished Professor both at the University of Maryland, College Park, as well as at the Johns Hopkins University Bloomberg School of Public Health, and she is also Senior Advisor to Canon U.S. Life Science Inc. From 1998 to 2004, she served as Director of the National Science Foundation, which provided funding for much of the genetic sequencing efforts in support of the FBI investigation. She has served as president of the American Association for the Advancement of Science, the American Society for Microbiology, and she is a member of the National Academy of Sciences. In July 2007, she received the National Medal of Science.

Professor Claire Fraser-Liggett

Professor Claire Fraser-Liggett is a Professor of Medicine and Director of the newly created Institute for Genome Sciences at the School of Medicine, University of Maryland in Baltimore, Maryland. She was previously the President and Director of The Institute for Genomic Research (TIGR), where she led teams that sequenced the genomes of several microbial organisms, including important human and animal pathogens. TIGR performed genetic sequence analysis in support of the anthrax investigation.

Dr. Jacques Ravel

Dr. Jacques Ravel is an associate professor of microbiology and a member of the Institute for Genome Sciences at the University of Maryland School of Medicine, and also was formerly with The Institute for Genomic Research. His research focuses on the application of microbial genomics to several key areas, including microbial genome sequence comparative analyses, with a special emphasis on human microbial pathogens, including *Bacillus anthracis*. His work included genetic sequence analysis and characterization of genetic mutants in support of the FBI investigation.

Dr. Joseph Michael

Dr. Michael is a Distinguished Member of the Technical Staff at Sandia National Laboratories in Albuquerque, New Mexico. He currently works in the Materials Characterization Department of the Materials Science Center where he develops and applies electron and ion microscopy to the characterization of materials. Dr. Michael is a coauthor of the leading textbook on Scanning Electron Microscopy. He assisted with elemental analysis, electron microscopy of the samples, and with development of strategies for analysis of chemical/physical characteristics of the spore powders.

- Brinks Robbery
- Charles Ross Kidnapping
- D.B. Cooper Hijacking
- Durkin - Murder of an FBI Agent
- Greenlease Kidnapping
- Jack Gilbert Graham
- James Edward Testerman
- John Elgin Johnson
- Jonestown
- Joseph Edward Earlywine
- Judge Vance murder
- Krupp Diamond Theft
- Lindbergh Kidnapping
- Murder and Mayhem in the Osage Hills
- Nussbaum and Wilcoxson
- Patty Hearst
- Richard Floyd McCoy, Jr.
- The Black Dahlia
- Weinberger Kidnapping
- Weyerhaeuser Kidnapping

Ten Most Wanted

- Billie Austin Bryant
- Gerhard Arthur Puff
- Willie Sutton