

Weedn, MD, JD, of the Armed Forces Institute of Pathology, described advances in DNA technology which enable rapid and highly specific identification of biological material. Craig Venter of the Institute for Genomics Research then depicted the progress in sequencing and identifying the genetic material of numerous organisms, from the simple to the complex. Allen Northrup of Lawrence Livermore National Laboratory described progress in DNA diagnostics. Lennie Klevan of Life Technologies, one of the conference sponsors, discussed techniques of genetic amplification such as the polymerase chain reaction (PCR), which can increase the amount of available genetic material from a sample. Abel de la Rosa of Digene Diagnostics then described a technique of signal amplification which can detect minute traces of DNA without the need to use PCR.

The final panel attacked the question of "Network Building: Technology Integration, Coordination, Management and Training." Robert E. Shope, MD, professor of Pathology, Microbiology, and Immunology at the University of Texas Medical Center, Galveston, chaired this session. Dr. Shope, one of the giants of virology, and a foremost expert on insect-transmitted viruses, recapped the needs for research, training, and personnel. Eugene Boostrom, MD, of the World Bank then described a number of health monitoring programs run by the World Bank in the context of developing a surveillance network. Michael Snyder, an economist with the Fogarty International Center of the National Institutes of Health, closed with a discussion of economic impacts of infectious diseases and the savings a global surveillance network could realize.

Not if, but when

The impression of the conference was that we are ill prepared for a real problem, due to lack of resources and poor coordination of the resources we have. The need for an entity to coordinate diverse governmental and private capabilities is obvious. Recent events such as the Tokyo gas attack, the Oklahoma City bombing, and the crash of TWA flight 800 tell us a terrorist bioattack is a question of when and not if. Malcolm Dando, in *Biological Warfare in the 21st Century* (Brassey's, London: 1995), cites a series of studies that indicate biological agents have a mass casualty potential much closer to nuclear weapons than chemical agents. Kathleen Bailey estimates that only five people and \$100,000 would be needed to produce enough of a single agent to make a formidable biological weapon. When we consider the hundreds of thousands of dollars the Aum cult spent on research materials and facilities (according to testimony before the Senate Permanent Subcommittee on Investigations hearings on "Global Proliferation of Weapons of Mass Destruction"), the implications are not comforting. One ray of hope is that GenCon was able to assemble this diverse group to focus on the problem. On the other hand, there are indications that the FBI, counting on dissension within the Defense Department, is moving to consolidate any such network under its control.

Book Review

Fictional, but true account of bioterror

by John Grauerholz, MD

Death for Cause

by K.C. Bailey

Meerkat Publications, Livermore, Calif., 1995
284 pages, paperbound, \$12

The author, an expert on the proliferation of weapons of mass destruction, has worked in the U.S. Department of State, the U.S. Arms Control and Disarmament Agency, and Lawrence Livermore National Laboratory. The book, which could also be called "Mission All Too Possible," describes three young scientists infected with terminal environmentalism, who, to further their cause, devise a series of biological weapons which they deploy to force the U.S. government and the Vatican to adopt radical changes in environmental and birth control policies.

Who would do this sort of thing? A RAND Corp. study on "Terrorists and the Potential Use of Biological Weapons" reported:

"Therefore, it is virtually impossible to 'predict' which terrorist groups are most likely to embark upon biological terrorist attacks. However, we can identify some basic characteristics that would make certain types of groups more likely than others to experiment with these weapons.

"One important characteristic is a perception by the members of a group that biological weapons would not create a backlash among the group's supporters. Thus, nationalistic groups such as the IRA and E.T.A.—which at times have engaged in bombings and shootings that claimed the lives of innocent civilians—would most likely find the possible repercussions of biological weapons too risky. These types of groups depend upon the support—political, logistical, and financial—of significant segments of the population that may not necessarily approve of a group's violent tactics, even though they support its political and territorial objectives.

"Terrorist groups that could conceivably initiate an attack with biological weapons would thus probably exhibit

the following characteristics:

- “A general, undefined constituency whose possible reaction to a biological-weapons attack does not concern the terrorist group.
- “Demonstration of a certain degree of sophistication in weaponry or tactics.
- “A willingness to take risks.

“Several terrorist groups can be described as having amorphous constituencies for which concern about a public backlash would not be likely to deter the use of biological weapons. The Japanese Red Army (JRA), for example, whose goals and objectives include vague notions about world revolution, would not be likely to feel any constraints. . . .”

Not penny-ante terrorists

The terrorists in this case see themselves as saving the world from doom. Compared to the future of the planet, what are a few thousand lives? As Marcie, one of the terrorists, says, responding to objections raised by her brother and fellow terrorist, “Listen, Marc, I am getting tired of this self-righteous attitude of yours. We have been over this repeatedly and you have agreed that our mission is the most important cause in the world today. A common terrorist thinks that their political objective of ruling this or that puny little country is worthwhile. The Irish Republican Army thinks it is justified in killing people just so they can rule one end of an island that is only a speck of land on the map. The same is true of the Basques in Spain or the Tamils in Sri Lanka. All the terrorists, in fact. They are after their own petty parochial interests. We aren’t like them. We are not trying to rule anything or kick anybody out of anywhere. We do have a loftier goal and we are better than they. We are trying to save the planet. And what we do will benefit everyone, not just some group with a gangster mentality.”

Most biowarfare scenarios involve agents designed to kill or disable people, but this one opens with a plant attack. Exploiting the genetic uniformity of many of our food crops, the terrorists breed a virulent form of wheat stem rust, capable of overcoming the inbred resistance of American wheat, and spray it on a Kansas wheat field. Before this, they had sent a videotape to the FBI demanding that the President stop subsidies to farmers using organophosphate pesticides.

Naming themselves “South First,” while actually being Americans working at a research laboratory in Canada, they confuse the FBI anti-terror people into believing they are South American terrorists. Having a ten-year-old Mexican boy reading their demands in Spanish on the video helps foster the illusion.

Even more terrifying than their actions, which kill hundreds of people, is the bureaucratic response to the threat. The author, having obviously sat in on her share of inter-agency meetings, describes the inter-agency rivalries and intra-agency backstabbing in several all-too-believable scenes.

A non-fictional example, is what happened with Presidential Decision Directive 39, which provides for response by the FBI and Federal Emergency Management Agency (FEMA) to assist local officials in the event of a biowarfare incident. Commenting on a field exercise, code named “Mirage Gold,” carried out under PDD 39, FEMA reported:

“Serious problems concerning interagency cooperation and coordination and especially the ‘pass off’ from the FBI to FEMA became obvious early in the exercise. For example, the FEMA ‘After Action’ report notes the following:

“‘First, there was a lack of understanding by the lead agency (the FBI) regarding the concept of consequence management and how it would apply to the situation depicted in the exercise scenario. Second, there was an apparent belief by the FBI that tactical and technical operations to deal with the incident could be performed in relative isolation from local officials as well as the media. . . .’”

Commenting on the same exercise, the Department of Energy noted:

“The FBI conducted exercise operations in ‘imperial fashion,’ failing to communicate or coordinate with other agencies. The Bureau did not utilize the Joint Operations Center . . . [and] they provided little information regarding their portion of the play. . . . The FBI SAC [Special Agent in Charge] stated explicitly that he did not want a full-time DOE liaison at the FBI Command Post or Joint Operations Center.”

Bureaucratic wrangling

In Bailey’s novel, the FBI agent in charge of the case gets his information on the potential of biological anti-crop weapons from a professor at Kansas State University. His information and insights into the case are smothered by higher-ups playing power and turf games. Ultimately he is driven to suicide.

The terrorists meanwhile demand a Mexican bishop renounce the Vatican position on birth control and abortion. When the Bishop doesn’t comply, in part because he was unaware of their demand, they poison a bunch of soup pots at a festival with botulinum toxin and kill over 300 people. The FBI decides this is a natural occurrence.

South First’s plans begin to unravel when the group’s leader is seduced by a rabidly anti-Palestinian Israeli woman who absconds with several containers of anthrax originally destined for the Vienna subway system. What follows, I will leave to those who read the book: It is a real page-turner.

Dr. Bailey did her literary homework before she started writing. She creates a set of believable characters and sets them in conflict. In doing this, she provides a useful profile of the type of terrorists who would resort to the use of biological weapons and a frightening view of the bureaucratic blind spots that would allow them to succeed.

The book is a good read as fiction, and a frightening look at what could become fact at any moment.