



Chemical and Biological Defense

CBIAC
Information Analysis Center

Newsletter

Winter 2002

Volume 3 Number 1

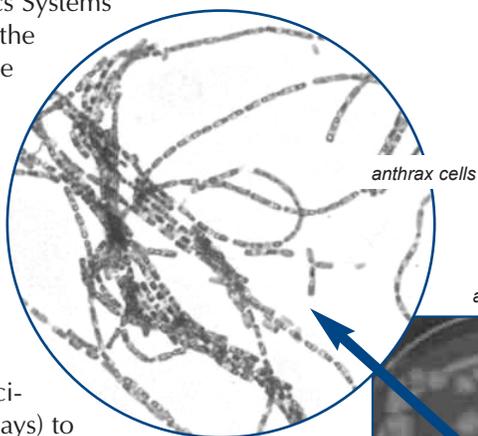
A U.S. Department of Defense Information Analysis Center sponsored by the Defense Information Systems Agency, **Defense Technical Information Center**

USAMRIID Meets the Demand for Anthrax Sample Evaluation¹

In the wake of events following the September 11, 2001 terrorist attacks on the World Trade Center and the Pentagon came another assault: anthrax contamination from letters containing *Bacillus anthracis* mailed through the U.S. Postal Service. The United States Army Medical Research Institute of Infectious Diseases (USAMRIID), the Department of Defense's lead laboratory for medical aspects of biological warfare defense², at Fort Detrick, Maryland, helped to answer the repeated question, "Is it anthrax?"

The Special Pathogens Sample Test Laboratory (SPSTL) at USAMRIID met the challenge of evaluating the hundreds of anthrax samples that arrived each day. Col. Erik Henchal, chief of the Diagnostics Systems Division, coordinated the teams as they made the adjustments required for the laboratory to handle the influx of hundreds of samples a day. From September 11, 2001 until January 22, 2002, the Diagnostic Systems Division processed 14,449 specimens (over 50,000 assays) to support environmental surveillance in the National Capitol Region, FBI investigations and consequence remediation of federal office buildings.

It was the vision and efforts of Cols. Ernest Takafuji and Dave Franz, two former USAMRIID commanders, and Dr. Carol Linden, director of the Medical Chemical Biological Defense Research Program, that, during the 1990's, created the lab that has helped federal officials, especially the U.S. Capitol Incident Team, determine the presence of *Bacillus anthracis* in samples taken from letters, magazines, clothing, swabs-even car parts.



anthrax cells



anthrax culture

Photos by Steven Ferendo, USAMRIID.

Col. Henchal, a USAMRIID veteran since 1992, helped organize the division that focuses on new medical diagnostics for the highest priority bioterrorism threat agents, like anthrax. The lab's typical customers include the FBI, the Biological Arms Control Treaty Office, the Joint Program Office for Biological Defense, and the Secret Service. The lab honed its skills testing samples collected by these organizations from political conventions, NATO meetings and the State of the Union addresses.



COL Erik Henchal reviewing analytical results.

Photo by Steven Ferendo, USAMRIID.

These experiences made the laboratory a logical choice to receive the multitude of samples generated since the attacks on the World Trade Center and the Pentagon. Before September 11, 2001, six people worked in the SPSTL. After the crisis, practically the entire 60-person Diagnostic Systems

Division became dedicated to testing the onslaught of samples. The division also had to borrow people from USAMRIID's other research areas as well as the Walter Reed Army Institute of Research and put them on teams to provide 24-hour support. In October, the one-time crew of a half dozen workers swelled to 82

people. Henchal coordinated the lab teams as they made the required adjustments to handle the increased demand for sample evaluation.



The **Chemical Warfare/Chemical and Biological Defense Information Analysis Center (CBIAC)** is a Department of Defense (DoD)-sponsored Information Analysis Center (IAC) operated by Battelle Memorial Institute and administered by the Defense Information Systems Agency (DISA), Defense Technical Information Center (DTIC) under the DoD IAC Program Office (Contract No. SPO700-00-D-3180). The CBIAC is supported by Horne Engineering Services, Inc., Innovative Emergency Management, Inc., MTS Technologies, Inc., QuickSilver Analytics, Inc., and SciTech, Inc. Contact the CBIAC Contracting Officer's Technical Representative (COTR) at:

CDR USA SBCCOM
Edgewood Chemical Biological Center
ATTN: AMSSB-RRT-OM (CBIAC COTR)
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424

U.S. Government agencies and private industry under contract to the U.S. Government can contact the CBIAC for information products and services. CBIAC services also extend to all state and local governments and the first responder community, to include local emergency planners, firefighters, medics and law enforcement personnel.

The CBIAC is located in Building E3330, Room 150, Aberdeen Proving Ground - Edgewood Area, Maryland 21010. For further information or assistance, visit or contact the CBIAC.

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URL: <http://www.cbic.apgea.army.mil/>



TABLE OF CONTENTS

Winer 2002	Volume 3	Number 1
Feature Story: USAMRIID Meets the Demand for Anthrax Sample Evaluation		1
Renowned USAMRICD Scientist Retires		3
Contract Awards		4
New CBIAC Information Resources		5
Calendar of Events		6
New CBIAC Products		7
In the News		9
CBIAC User Survey		12

The CBIAC Newsletter, a quarterly publication of the CBIAC, is a public release, unlimited distribution forum for chemical and biological defense information. It is distributed in hardcopy format and posted in Portable Document Format (PDF) on the CBIAC Homepage.

The CBIAC welcomes unsolicited articles on topics that fall within its mission scope. All articles submitted for publication consideration must be cleared for public release prior to submission. The CBIAC reserves the right to reject or edit submissions. For each issue, articles must be received by the following dates: Winter (First Quarter) - November 1st; Spring (Second Quarter) - February 1st; Summer (Third Quarter) - May 1st; Fall (Fourth Quarter) - August 1st.

All paid advertisements and articles are subject to the review and approval of the CBIAC COTR prior to publication. The appearance of an advertisement or article in the *CBIAC Newsletter* does not constitute endorsement by the DoD or the CBIAC.

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Renowned USAMRICD Scientist Retires

By Cindy Kronman, PAO, USAMRICD

"Ask Clarence." Around the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), this was frequently the advice from one member of the scientific staff to another. Questions about chemical reactions? Looking for a chemical not available anywhere else? Trying to identify a chemical by its structure? "Ask Clarence."

Just as the ancient Greeks sought out the oracle for answers, the scientific staff journeyed to USAMRICD's "tin pan alley" to seek knowledge and information from Dr. Clarence Broomfield.

In September, however, USAMRICD reluctantly gave up its oracle. Broomfield, a world-renowned expert in the development of medical countermeasures to chemical warfare agents, retired after 39 years as a research chemist for the Army at the Edgewood Area of Aberdeen Proving Ground.

Over the years Broomfield was a pioneer in the study of enzyme structure by spin labeling, the study of receptors by ligand binding, and the isolation of acetylcholinesterase by affinity chromatography.

At the time of his retirement, Broomfield was directing efforts to develop a new nerve agent hydrolyzing enzyme by protein engineering techniques. The goal of these studies is to design enzyme molecules that will detoxify the nerve agent either by destroying the agent in the circulation or by physically removing the agent before it reaches its site of toxicity.

Broomfield and other scientists have shown that these bioscavengers can protect against nerve agent intoxication, and research efforts continue toward developing an FDA-approved enzyme product that could be used as a pretreatment against nerve agent poisoning.

As a result of his research efforts, Broomfield has authored or coauthored over 150 abstracts, technical reports, journal articles and book chapters.

The current and former members of the Institute's staff, as well as friends and family members, gathered to say farewell and to pay tribute to his accomplishments in, and contributions to, the medical chemical defense program. He was honored with many remembrances and gifts of appreciation, including a bound volume of all his publications as well as a booklet of email greetings from colleagues around the world.

"Clarence's contributions to ICD and to science are not just limited to chemical warfare agents," remarked USAMRICD's commander, Col. James Romano. "His work has allowed a much better understanding of the cholinesterase family of

enzymes. His pioneering research into the structure activity relationships of both acetylcholinesterase and butyrylcholinesterase has not only led to future preventive and therapeutic measures for nerve agents, but also contributed to revolutionary treatments for Alzheimer's disease and other central nervous system diseases affecting cognition."



Dr. Clarence Broomfield was one of the Army's principal scientists working to develop a bioscavenger pretreatment against exposure to the chemical warfare nerve agents.

A native of Mount Morris, Michigan, Broomfield earned his BS in chemistry from the University of Michigan in 1953. Then, aided by a National Science Foundation Fellowship, he attended Michigan State University and earned his Ph.D. in chemistry with a concentration in biochemistry. Upon graduating in 1958, he accepted a post-doctoral position at Cornell University and received a National Institutes of Health Postdoctoral Fellowship.

In 1962 Broomfield accepted a position in the Medical Division of Edgewood Arsenal, where he was assigned to the Colloid Branch of the Chemical Research and Development Laboratory and went to work isolating neurotoxins from cobra venoms. This work led to a prize-winning presentation at a science conference and a nomination for Maryland Young Scientist of the Year. He also developed suspension systems in which toxins and enzymes are both physically and chemically stable and worked on methods to stabilize proteins in storage and in suspension.

In 1967 he was asked to become the chief of a new Protein Chemistry Branch in the Biomedical Laboratory, the predecessor of the USAMRICD. Here, he began work on acetylcholinesterase and on an enzyme that hydrolyzes organophosphorus nerve agents. At about the same time a major effort was begun in the Protein Chemistry Branch to develop a vaccine against nerve agents, an initiative that eventually evolved into the concept of protection by scavengers that is being pursued currently.

Broomfield is a member of the American Society of Biochemists and Molecular Biologists, the American Chemical Society, The New York Academy of Sciences and Sigma Xi, and is listed in American Men and Women of Science and Who's Who in Science and Technology.

He is the recipient of numerous awards, including performance awards, the Commander's Medal for Civilian Service and the Department of the Army Research and Development Achievement Award in 1999. Most recently he was a Mackenzie fellow awardee of the Australia government, and he conducted research in Australia in the first quarter of 2001.

Photo courtesy of USAMRICD

CONTRACT AWARDS • *By Mary Frances Tracy*

Chemical And Biological Mask And Similar Replacement Parts

Mine Safety Appliance Company
 Defense Products Department
 Murrysville, PA 15668
 \$1,246,297. October 6, 2001
 By U.S. Naval Inventory Control Point, Philadelphia, PA

Bio-Surveillance System for Advanced Medical Readiness

Veridan Systems Division Inc.
 1400 Key Boulevard, Suite 700
 Arlington, VA 22209
 \$3,464,002. October 12, 2001
 By U.S. Air Force Research Laboratory, Rome, NY

Aircrewman's Cape: Chemical Protective

Seal-tite Bag Company
 4324 Tachawanna Street
 Philadelphia, PA 19124-4090
 \$25,500. October 12, 2001
 By Defense Personnel Support Center, Philadelphia, PA

M34A1 Soil Sampling Kit

Trutech Inc.
 680 Elton Street
 Riverhead, NY 11901-2535
 \$30,003. October 23, 2001
 By U.S. Army Tank-Automotive & Armaments Command,
 Rock Island, IL

Hazardous Material Absorbent Pad

Safe-Tech Solutions, LLC
 4754 East Flamingo Road, Suite 372
 Las Vegas, NV 89121
 \$27,320. October 29, 2001
 By Defense General Supply Center, Richmond, VA

Folding Mask Assembly, Quick Don

Scott Aviation
 225 Erie Street
 Lancaster, NY 14086-9502
 \$454,940. October 30, 2001
 By Defense General Supply Center, Richmond, VA

Decontaminating Agent, STB

Waite RM Company
 2100 Embarcadero, No. 203
 Oakland, CA 94606
 \$84,677. November 8, 2001
 By Defense General Supply Center, Richmond, VA

Force Protection Requirements

Newport News Shipbuilding
 Newport News, VA
 \$8,336,000. November 16, 2001
 By Naval Sea Systems Command, Washington, DC

Protective Equipment Decontaminating Container

Slate Enterprises, Inc.
 2923 Saturn Street, Suite C
 Brea, CA 92821-6260
 \$74,300. November 28, 2001
 By Defense Industrial Supply Center, Philadelphia, PA

Smallpox Vaccine

Acambis Inc. & subcontractor Baxter International, Inc.
 \$428,000,000. November 28, 2001
 By U.S. Department of Health and Human Services,
 Washington, DC

Face Piece Chemical/Biological Mask Kits

Mine Safety Appliances
 Murrysville, PA
 \$13,440,000. November 30, 2001
 By Warner Robins Air Logistics Center,
 Robins Air Force Base, GA

Absorbent Spill Kit

Safe-Tech Solutions, LLC
 4754 East Flamingo Road, Suite 372
 Las Vegas, NV 89121
 \$29,850. December 4, 2001
 By Defense General Supply Center, Richmond, VA

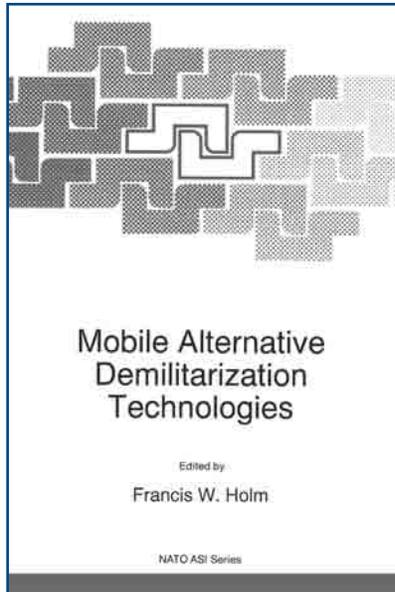
Destruction of Chemical Warfare Material - Multiple Task Orders

- 1.) Teledyne Brown Engineering
 300 Sparkman Drive
 Huntsville, AL 35807
 - 2.) Washington Demilitarization Company
 2231 Crystal Drive, Suite 301
 Arlington, VA 22202
 - 3.) Parsons Infrastructure & Technology Group
 100 W. Walnut Street
 Pasadena, CA 91124
 - 4.) Stone & Webster, Inc.
 100 Technology Center Drive
 Stoughton, MA 02072
- \$100,000 (minimum) to \$300,000,000 (maximum) within 60 months.
 By U.S. Army Operations Support Center, Rock Island, IL

New CBIAC Information Resources • By Richard M. Gilman

Books

Holm, Francis W., ed. **Mobile Alternative Demilitarization Technologies**. Dordrecht: Kluwer Academic Publishers, 1997.



Chemical demilitarization topics receiving chapter-length treatment in this book include cryofracture as a mobile demilitarization technology, solvated electron technology, sodium chemical demilitarization technology, the Silver II electrochemical oxidation process, hydrothermal oxidation technology and "plasmachemical destruction of chemical weapons."

Includes numerous photos, diagrams, tables and an index.

CB-178101

ISBN 0-7923-4591-6

Kluwer Academic Publishers Order Department

P.O. Box 358, Accord Station

Hingham, MA 02018-0358

Tel (781) 871-6600

Fax (781) 871-6528

Layne, Scott P., Tony J. Beugelsdijk and C. Kumar N. Patel, eds. **Firepower in the Lab: Automation in the Fight Against Infectious Diseases and Bioterrorism**. Washington, D.C.: Joseph Henry Press, 2001.

"Today's world poses a triple threat to the American population: infectious diseases, contamination of food and water, and bioattacks, biowarfare, or bioterrorism. At least 17 countries are producing weapons of mass destruction using viruses, bacteria, or their toxins. AIDS, E. coli contamination, drug-resistant tuberculosis, and virulent flu strains are perhaps the best known of a host of disease threats. What these dangers have in common is the amount of data required to achieve solutions; in some cases, as much as a petabit (1 followed by 15 zeros) of data is required to study large numbers of samples from widespread locations.

Firepower in the Lab examines how the nation can combat this triple threat by improving our ability to detect, measure, and monitor harmful biological agents. It explores the potential of today's exciting new laboratory automation and com-

puter technologies as well as the emerging tools of molecular biology--how we can generate and analyze more data quickly and reduce human hands-on involvement, which inevitably introduces errors." (Publisher's promotional summary)

Includes numerous diagrams, two appendices and an index.

CB-183522

ISBN 0-309-06849-5

Joseph Henry Press

c/o National Academy Press

Box 285, 2101 Constitution Ave., N.W.

Washington, D.C. 20055

Phone: 1-(800)-624-6242

Fax: (202)-334-3313

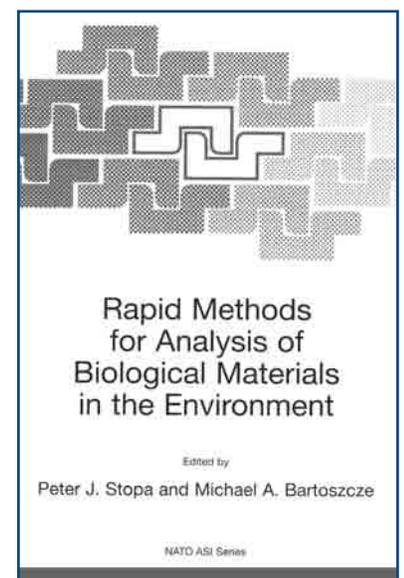
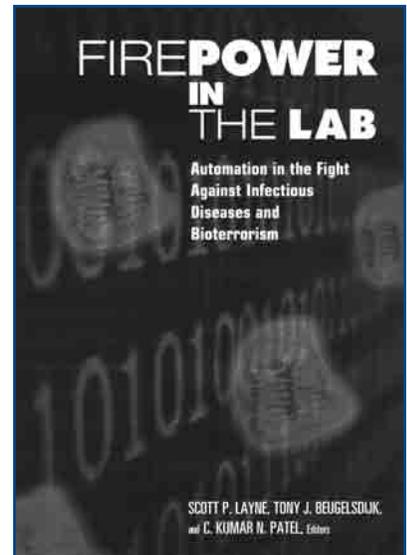
Peter J. Stopa and Michael A. Bartoszcz, eds. **Rapid Methods for Analysis of Biological Materials in the Environment**. Dordrecht: Kluwer Academic Publishers, 2000.

Topics receiving chapter-length treatment in this book include technologies for monitoring the BWC, "Dormancy in Non-Sporulating Bacteria: Its Significance for Environmental Monitoring,"

"Luminometric Methods in Biological Detection," "Capillary

Electrophoresis/Nucleic Acid Probe Identification of Biological Warfare Agent Simulants," "Field Applications of Flow Cytometry," the measurement of biological aerosols, the use of PCR assays for identifying biological agents, and

"Measurement of Biological Aerosol with a Fluorescent Aerodynamic Particle Sizer..."



CALENDAR OF EVENTS

The CBIAC highlights conferences, symposia, meetings, exhibitions and workshops of interest to the CBD community both on our website and in every issue of our newsletter. If you would like to have a CBD-related event posted on the CBIAC Calendar of Events, submit the pertinent information via email to cbiac@battelle.org. Due to space limitations, the CBIAC will accept submissions on a first-come, first-served basis and reserves the right to reject submissions. For a more extensive list of events, [visit our website at http://www.cbiac.apgea.army.mil/](http://www.cbiac.apgea.army.mil/).

April 3-4, 2002

TechTrends 2002 (#2950)

Baltimore Convention Center
Baltimore, Maryland
POC: NDIA

Phone: 703.522.1820 • Fax: 703.522.1885

<http://www.ndia.org/events/brochure/2950>

April 7-10, 2002

The Techno - Security Conference

Wyndham Myrtle Beach Resort
Myrtle Beach, SC
info@TheTrainingCo.com
<http://www.thetrainingco.com>

April 9-11, 2002

BioDefense Mobilization Conference

Westin Hotel
Seattle, Washington
<http://www.bio-defense.org>

April 14-18, 2002

DTIC 2002 Annual Users Meeting and Training Conference

DoubleTree Crystal City Hotel
Arlington, VA
POC: DTIC Conference Coordinator
Phone: 703.767.8226 • DSN: 427.8226
Fax: 703.767.8228 • DSN: 427.8228
confinfo@dtic.mil
<http://www.dtic.mil/dtic/annualconf/>

April 15-16, 2002

Conference on Chemical and Biological Defense (Needs, Initiatives, and Challenges)

Washington DC
Co-sponsors: American Institute of Engineers and the Society for Computer Simulation, International
POC: Technology Training Corporation
Phone: 310.563.1223

April 15-19, 2002

COURSE: In House Field Management of Chemical and Biological Casualties (FCBC)

Aberdeen Proving Ground, MD
POC: Chemical Casualty Care Division, USAMRICD
Phone: 410.436.2230/3393 • DSN 584.2230/3393
Fax: 410.436.3086 • DSN 584.3086
ccc@apg.amedd.army.mil
<http://ccc.apgea.army.mil/>

April 15-19, 2002 (see web site for additional dates)

COURSE: Weapons of Mass Destruction Installation Emergency Responder Training Course (WMD IERTC)

U.S. Army Chemical School
Ft. Leonard Wood, MO
POC: U.S. Army Chemical School
Phone: 573.596.0131 ext. 6-2452
Fax: 573.596.2479

<http://www.wood.army.mil/cmtd/wmd/wmd-iertc.htm>

April 16-18, 2002

DTIRP 2002 National Seminar: Safeguarding Equities: The Arms Control Challenge in the 21st Century

Fairfax, VA
POC: DTRA DTIRP Outreach Program • dtirpoutreach@dtra.mil
Phone: 800.419.2899 or 703.810.4073 • Fax: 703.810.4060
<http://dtirp.dtra.mil>

April 23-25, 2002

Strike, Land Attack & Air Defense (SLAAD) Annual Symposium (#2100)

Johns Hopkins University Applied Physics Lab's Kossiakoff Conference Center
Laurel, MD
POC: NDIA
Phone: 703.522.1820 • Fax: 703.522.1885
<http://www.ndia.org/events/brochure/2100>

April 28-May 3, 2002

CBMTS IV

AC-Laboratory, Spiez
Spiez, Switzerland
POC: ASA • asa@maine.rr.com
Phone: 207.829.6376 • Fax: 207.829.3040
<http://www.asanltr.com>

May 4-10, 2002

COURSE: In-House Medical Management of Chemical and Biological Casualties (MCBC) #6H-F26

USAMRICD, Aberdeen Proving Ground, Maryland and USAMRIID, Fort Detrick, Maryland
(Advance registration required)
POC: Chemical Casualty Care Division, USAMRICD
Phone: 410.436.2230/3393 • DSN: 584.2230/3393
Fax: 410.436.3086 • Fax DSN: 584.3086
ccc@apg.amedd.army.mil
<http://ccc.apgea.army.mil>

NEW CBIAC PRODUCTS

Critical Reviews

Code	Title	Price	Distribution Limitation/Classification
CR-01-04 NEW	Joint Service Chemical and Biological Science and Technology Base Program in Decontamination	\$45.00	U.S. Federal Government Agencies and their Contractors; Unclassified
CR-01-03 NEW	Air Purification Technologies	\$25.00	U.S. Federal Government Agencies and their Contractors; Unclassified
CR-00-02	Critical Review on Anti-Crop Biological Agents and Associated Technologies	\$25.00	U.S. Federal Government Agencies and their Contractors Only; Unclassified
CR-00-01	Chemical Biological/Smoke Modeling and Simulation (M&S) Newsletter Compilation	\$75.00	U.S. Government Agencies and their M&S Contractors; Unclassified
CR-99-10	Wide Area Decontamination: CB Decontamination Technologies Equipment and Project	\$60.00	Unlimited; Unclassified
CR-99-09	Determination of Optimum Sorbent Material for Collection and Air Desorption of Chemical Warfare Agents	\$20.00	Unlimited; Unclassified
CR-98-08	Demilitarization Technologies for Biological and Toxin Weapons	\$25.00	U.S. Federal Government Agencies Only; Unclassified
CR-98-07	Critical Review on the Y2K Millennium Bug: A Chemical and Biological Defense Community Perspective	\$15.00	Unlimited; Unclassified
CR-98-06	The Emergency Responder's Ability to Detect Chemical Agents, Critical Review/Technology Assessment	\$15.00	U.S. Federal Government Agencies, their Approved Contractors, and State and Local Government Agencies; Unclassified
CR-98-05	Critical Review of Surface Sampling Technologies for Volatilizing Liquid Chemical Agents	\$25.00	Unlimited; Unclassified
CR-98-04	Critical Review of Non-Lethal Grenade Technologies and Lethality Evaluation Criteria	\$25.00	Unlimited; Unclassified
CR-96-03	Critical Review of Sources of Chemical and Physical Properties Data for Militarily Significant Compounds	\$60.00	U.S. Government Agencies Only; Unclassified
CR-95-02	A Critical Review of Sources of Spectral Data for Militarily Significant Compounds	\$20.00	U.S. DoD, U.S. Federal Agencies and DoD Contractors Only; Unclassified
CR-95-01	A Critical Review of Nuclear, Biological and Chemical Contamination Survivability (NBCCS)	\$20.00	Unlimited; Unclassified

Databases, Databooks, Handbooks, and Others

DBK-99-02	Susceptibility of Aircraft Materials to Chemical Warfare Agents (Reprint)	\$125.00	U.S. Federal Government Agencies and their Contractors; Unclassified
DBK-95-01	Chemical Defense Materials Databook	\$10.00	U.S. DoD and their Contractors; EXPORT CONTROLLED; Unclassified
DB-97-01	Physiological and Psychological Effects of the Nuclear, Biological, and Chemical Environment and Sustained Operations on System	\$60.00	U.S. Department of Defense and their Contractors; Unclassified
HB-00-01	BACWORTH Encyclopedia	\$175.00	U.S. Federal Government Agencies Only; EXPORT CONTROLLED; For Official Use Only
HB-99-03	CB Terminology Handbook	\$75.00	Limited Distribution; Unclassified
HB-95-02	Worldwide Chemical Detection Equipment Handbook	\$150.00	Unlimited; Unclassified
HB-92-01	Worldwide NBC Mask Handbook	\$75.00	Unlimited; Unclassified

New CBIAC Products *cont.*

Databases, Databooks, Handbooks, and Others *cont.*

HBS-98-03	Mask & Detection Handbooks (Set of 2)	\$200.00	Unlimited; Unclassified
PR-95-02	Proceedings of the CB Medical Treatment Symposium: An Exploration of Present Capabilities and Future Requirements for Chemical	\$49.00	Unlimited; Unclassified
SIMKIT-96-01	Chemical Warfare Agent Simulation Training Kit	\$150.00	Unlimited; Unclassified

State-of-the-Art Reports

NEW	SOAR-01-04	Weapons of Mass Destruction Level III Antiterrorism Training	\$15.00	U.S. Federal Government Agencies and their Contractors; Unclassified
	SOAR-01-03	Respirator Encumbrance Model	\$125.00	U.S. Federal Government Agencies and their Contractors; Unclassified
	SOAR-00-02	Weapons of Mass Destruction Force Protection Joint Service Training	\$95.00	U.S. Federal Government Agencies and their Contractors; State and Local Government Agencies; Unclassified
	SOAR-00-01	Medical NBC Battlebook	\$5.00	Unlimited; Unclassified
	SOAR-99-13	CB Decontamination Market Survey and Tool	\$95.00	U.S. Federal Government Agencies and their Contractors; EXPORT CONTROLLED; Unclassified
	SOAR-99-12	CBR-D Curricular Materials (CD-ROM)	\$75.00	U.S. Federal Government Agencies and their Contractors; EXPORT CONTROLLED; Unclassified
	SOAR-99-11	Disaster Preparedness Operation Specialist Curricular Materials (CD-ROM)	\$75.00	U.S. Federal Government Agencies and their Contractors; EXPORT CONTROLLED; Unclassified
	SOAR-99-10	Tactical NBC Information Tool (CD-ROM)	\$95.00	U.S. Federal Government Agencies ONLY; Unclassified
	SOAR-98-09	State-of-the-Art Report on the Technical Approach Options for Indoor Air Modeling	\$75.00	Unlimited; Unclassified
	SOAR-98-08	CINC NBC Information Tool (CD-ROM)	\$95.00	U.S. Federal Government Agencies ONLY; Unclassified
	SOAR-98-07	Disaster Preparedness Operation Specialist (DPO) Computer Aided Instruction (CD-ROM)	\$125.00	U.S. Federal Government Agencies and their Contractors; EXPORT CONTROLLED; Unclassified
	SOAR-98-06	CBR-D Computer Aided Instruction (CD-ROM)	\$125.00	U.S. Federal Government Agencies and their Contractors; EXPORT CONTROLLED; Unclassified
	SOAR-98-05	Assessment of Chemical Detection Equipment for HAZMAT Responders	\$75.00	U.S. Federal Government Agencies and their Contractors; State and Local Government Agencies; Unclassified
	SOAR-98-04	State-of-the-Art Report on the Australia Group Chemicals	\$75.00	Unlimited; Unclassified
	SOAR-97-03	An Overview of U.S. Chemical and Biological Defensive Equipment	\$95.00	Unlimited; Unclassified
	SOAR-95-02	State-of-the-Art Report on Biodetection Technologies	\$60.00	U.S. Department of Defense and their Contractors; EXPORT CONTROLLED; Unclassified

**To order CBIAC Products online, visit our website at:
<http://www.cbiac.apgea.army.mil> and select the interactive
 Product Request Form.**

IN THE NEWS • By Mary Frances Tracy

Secretary Rumsfeld Designates Commanders for Homeland Defense

News Release from the United States Department of Defense No. 542-01 • October 26, 2001

<http://www.defenselink.mil/news/releases.html>

Secretary of Defense Donald H. Rumsfeld today announced that U.S. military commanders are being provided additional authorities to defend the United States homeland, its states, territories, trusts and commonwealths. As previously announced, Secretary of the Army Thomas White is DoD's executive agent for Homeland Defense and will coordinate the department's efforts with the White House's Office of Homeland Security. The commander of U.S. Joint Forces Command in Norfolk, VA, has been placed in charge of the land and maritime defense of the continental United States, as well as providing military assistance to civil authorities. The commander of the North American Aerospace Defense command (NORAD), in Colorado Springs, CO, has been placed in charge of aerospace defense. U.S. Space Command in Colorado Springs, CO, will provide support in the area of computer network operations while U.S. Pacific Command, Camp H.M. Smith, Hawaii, and U.S. Southern Command in Miami, FL, are responsible for their respective geographic areas of responsibility. The Department of Defense will continue to support local and state officials, as well as federal agencies, to combat terrorism in our country. Today's decision allows additional detailed planning and training to occur that will increase our military's ability to respond more effectively and quickly to requests from civil authorities.

He Routed Smallpox, Now Tackles Bioterror

Stolberg, Sheryl Gay • November 18, 2001

<http://www.nytimes.com/2001/11/18>

D.A. Henderson is internationally known as the man that wiped smallpox off the face of the earth and made the world safe from one of its deadliest scourges. Recently, he has accepted the position as the director of the new Office of Public Health Preparedness. As director, he has been challenged with preparing the U.S. for a germ attack.

Turner's Foundation to Spend Millions to Fight Bioterrorism

Miller, Judith • November 25, 2001

<http://www.nytimes.com/2001/11/25>

Ted Turner has taken on the challenge of reducing the threat of biological weapons. Mr. Turner and Sam Nunn, former Democratic senator from Georgia, founded the Nuclear Threat Initiative in January 2001, but spurred by recent events, have expanded the initial role from combating threats posed only by nuclear weapons to increasing spending aimed at deterring bioterrorism and the threat of germ weapons. Approximately one third of the estimated \$50 million in grants will be spent on combating bioweapons and bioterrorism. One grant will finance collaborative efforts with former Soviet scientists and American scientists so the Soviet scientists can find peaceful employment.

Detecting Bioterrorism: Moving up the technology agenda – sensors that sniff out bioagents and software that fingers epidemics

Talbot, David • November 30, 2001

<http://ehostvgw5.epnet.com/fulltext.asp?resultSetId=R0000000&hitNum=3&booleanTerm>

The Department of Defense (DoD) has been concentrating on the detection of biological agents. In the event of a bioterrorism attack, the DoD is looking to technology for the desired detection capability. To provide the needed detection, this article reports on the most current technology in bioterrorism.

Genome Offers 'Fingerprint' for Anthrax

Broad, William J. • November 29, 2001

<http://www.nytimes.com/2001/11/28/>

Scientists at the Institute for Genomic Research in Rockville, MD, have decoded the genome of the anthrax bacterium and are sharing their findings with law enforcement officials. The scientists are hopeful that the advance will aid in diagnosis and treatment of the disease. Also, the advance may allow law enforcement officials to go to the labs in North America that possess the microbe, subpoena samples and see if any match the anthrax used in the attacks around the U.S. and determine the original site of the deadly pathogen.

US Developing Chemical Attack Sensor for Subways

Soares, Claire • October 1, 2001

http://dailynews.yahoo.com/hlx/nm/20010927/hl/attack_2.html

PROTECT—Program for Response Options and Technology Enhancements for Chemical/Biological Terrorism—is the initiative set to develop a revolutionary system for detecting chemical attacks in subway stations. The Department of Energy has invested \$6.45 million since 1998 in the initiative. The system would detect and identify toxic chemicals, map contaminated zones and predict directions in which the hazardous gases might spread so emergency crews could redirect trains and passengers.

Additional CBD News in Print and on the Web

The ASA Newsletter; Issue Number 86; October 26, 2001

Biological Diseases/Chemical Agents

<http://www.bt.cdc.gov/agent/Agentlist.asp>

Basic Information on Building Protection

<http://www2.sbcom.army.mil/buildingpro/basic/>

Sandia to provide one-stop terrorism readiness help to communities through NIJ virtual center

<http://www.sandia.gov/media/NewsRel/NR2000/ccfp.htm>

New Info. Resources *cont.*

Includes numerous diagrams, illustrations and tables.

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Documents from the Web

Dennis, David T. **Tularemia as a Biological Weapon—Medical and Public Health Management.** JAMA—Journal of the American Medical Association. Vol. 285, No. 21 (June 6, 2001), pp. 2763-2773.

<http://jama.ama-assn.org/issues/v285n21/full/jst10001.html> or
<http://www.hopkins-biodefense.org/pages/library/published.html>

“A weapon using airborne tularemia would likely result 3 to 5 days later in an outbreak of acute, undifferentiated febrile illness with incipient pneumonia, pleuritis, and hilar lymphadenopathy. Specific epidemiological, clinical, and microbiological findings should lead to early suspicion of intentional tularemia in an alert health system; laboratory confirmation of agent could be delayed. Without treatment, the clinical course could progress to respiratory failure, shock, and death. Prompt treatment with streptomycin, gentamicin, doxycycline, or ciprofloxacin is recommended. Prophylactic use of doxycycline or ciprofloxacin may be useful in the early postexposure period.” (Conclusion)

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 JAMA
 American Medical Association
 P.O. Box 10946
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TRW Systems & Information Technology Group. **Biological Detection System Technologies Technology and Industrial Base Study: A Primer on Biological Detection Technologies.** National Technologies Technology and Industrial Base Organization: Rock Island, IL, 2001. Available from Graylit Network website at <http://graylit.osti.gov>. Select “DTIC Report Collection” and do a title or keyword search.

“The study addresses technological maturity, level of use, utility, and viability of aerosol biological agent detection technologies for point detection applications. Based on information received prior to December 1, 2000, the study team assessed the state-of-the-art and future trends of the detection system

technologies and the supporting industrial base, as well as the ability of industry to meet future military defense requirements. The study investigates biological detection technologies from technological, policy, financial, and effectiveness points of view and develops conclusions regarding the status of those technologies from each of these perspectives. The study also looks at the current defense systems, and an examination of the emerging government research and development trends.” (Abstract Summary)

CB-179776
 North American Technology & Industrial Base Organization
 U.S. Army AMSAA
 Rock Island, IL 61229

United States General Accounting Office. **Bioterrorism: Federal Research and Preparedness Activities.** September 2001. Washington, D.C: GAO, 2001.
<http://www.gao.gov>. See “Special Collections - Terrorism”.

“Because of the concerns about bioterrorism, the Public Health Improvement Act of 2000 (P.L. 106-505, sec. 102) mandates that we describe federal activities related to the public health and medical consequences of a bioterrorist attack against the civilian population. We are therefore providing information on (1) federal activities and funding related to the public health and medical consequences of a bioterrorist attack against the civilian population, (2) how these activities are coordinated among federal agencies and where there are any shortcomings in the current coordination structure, and (3) existing evaluations of the effectiveness of these activities in preparing state and local authorities.”
 (Letter to Congressional Committees, p. 2)

Includes nineteen appendices. Focus on the bioterrorism research and preparedness activities of particular government departments.

CB-184041
 U.S. General Accounting Office
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“USAMRIID Meets” *cont.*

As the numbers of incoming samples swelled, USAMRIID Commander Col. Edward Eitzen devoted more lab space for the effort, and U.S. Army Medical Research and Materiel Command Commanding General Maj. Gen. John Parker ensured that Henchal had the staff he needed to succeed. The modest lab was originally set up to handle 10 samples a month. Throughout September the number of samples continued to grow to dozens a day. After cases of anthrax occurred in Florida and New York, and the October 15 discovery of an anthrax-laced letter sent to Senator Tom Daschle, the lab’s incoming samples surged to more than 250 a day. At its peak, the lab received more than 700 samples a day.

Ms. Cindy Allan evaluating microbiology plates for the presence of anthrax organisms.

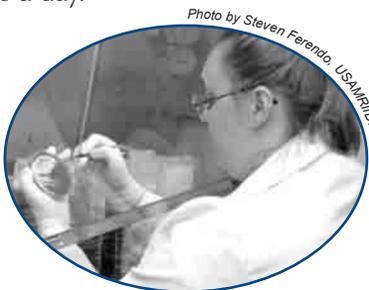


Photo by Steven Ferendo, USAMRIID.

Ms. Aubrey Harbaugh setting up sensitive and specific immunodiagnostic assays for the detection of toxins.



Photo by Steven Ferendo, USAMRIID.

To accommodate the influx of samples, the laboratory set up three independently operating sample analysis teams. Each can process more than 100 samples during a 12-hour shift. During the peak of the crisis, the branch was clocking in more than 3,800 manhours a week. Once a sample arrives by courier, FBI agent, National Guard personnel or Fed Ex, an assembly line starts. The inprocessing section receives the sample, records data and performs initial risk assessment and sends it to a special processing team to purify and concentrate the sample to prepare it for analysis. The immunodiagnostics group then looks at antigen markers in the sample, while the gene amplification group looks at genetic markers. A data quality control group tracks information on samples, and a team of technical writers report the results.



Photo courtesy of USAMRIID.

USAMRIID researchers and technicians worked around-the-clock testing anthrax samples.

Unlike field labs, one person can’t shepherd a sample through the diagnostic process, but a senior scientist integrates data emerging from the four groups. The entire process, from receiving the sample to writing the final report, can take from one to three weeks. However, Henchal reports positive results to customers immediately in a preliminary report.

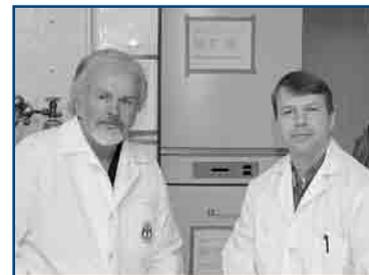


Photo by Steven Ferendo, USAMRIID.

Dr. John Ezzell (left) and Dr. Jeff Teska (right) technical supervisors of the SPSTL in the laboratory.

The lab’s customers demand preliminary results within 14 to 18 hours, Henchal said. Experienced researchers from the Special Pathogens Branch, such as Drs. John Ezzell and Jeff Teska, can perform a risk assessment to determine if the sample is a credible threat in an hour. If they believe it’s credible, the team starts analyzing the sample and can produce a preliminary result in about six hours.

A bacterial culture "the gold standard for confirmation," takes at least 24 hours. The lab’s policy is to hold it for 48 hours. Once they’re processed, samples are stored in USAMRIID’s refrigerators until the customers provide the lab with additional instructions.

Customers weren’t the only ones wanting answers. Senators, congressmen and generals also wanted to know researchers’ results on a minute-to-minute basis. The high visibility of their results reinforced the lab’s goal of providing quality results. The lab doesn’t rely on a single technology to do identification. It uses three overlapping approaches to identify agents to give results of the highest quality. If there is a positive sample, the customer is called as soon as possible.

The price of testing is high. Although the FBI and Joint Program Office on Biological Warfare have contributed money, the cost per sample runs several hundred dollars. Researchers and technicians have handled the challenge well, playing an important role in the fight against bioterrorism.

References:

- 1) This article is an edited version of an article by Karen Fleming-Michael, staff writer for the **Fort Detrick Standard** that appeared in the paper’s November 29, 2001 issue. The original article and graphics were provided by Chuck Dasey, PAO, USAMRMC. Additional graphics were provided by Karen Fleming-Michael.
- 2) For further information about USAMRIID, visit their website at <http://www.usamriid.army.mil/>.

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