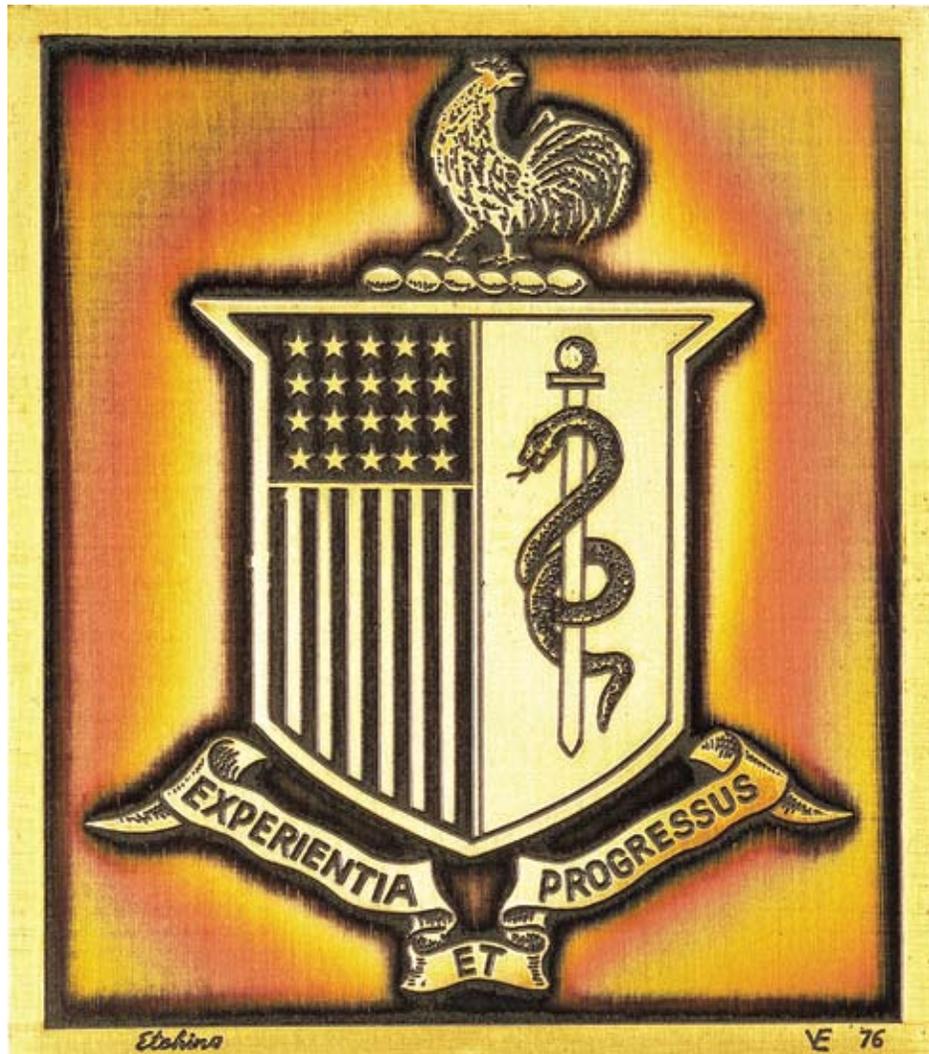

MEDICAL ASPECTS OF BIOLOGICAL WARFARE



The Coat of Arms
1818
Medical Department of the Army

A 1976 etching by Vassil Ekimov of an original color print that appeared in *The Military Surgeon*, Vol XLI, No 2, 1917

The first line of medical defense in wartime is the combat medic. Although in ancient times medics carried the caduceus into battle to signify the neutral, humanitarian nature of their tasks, they have never been immune to the perils of war. They have made the highest sacrifices to save the lives of others, and their dedication to the wounded soldier is the foundation of military medical care.

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On October 12, 2007, during a planned exercise conducted by the Aeromedical Isolation Team of the US Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland, a patient who has notionally been exposed to a biological agent is being contained in the stretcher transit isolator and being prepared for transport via helicopter to be given medical care in the biosafety level-4 containment care suite (“the slammer”).

Photograph by Bruce Maston, 2007.

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Contents

Section Editors	xi
Contributors	xiii
Peer Reviewers	xvii
Foreword by The Surgeon General	xix
Preface	xxi
1. History of Biological Weapons: From Poisoned Darts to Intentional Epidemics James W. Martin, George W. Christopher, and Edward M. Eitzen, Jr.	1
2. Food, Waterborne, and Agricultural Diseases Zygmunt F. Dembek and Edwin L. Anderson	21
3. Epidemiology of Biowarfare and Bioterrorism Zygmunt F. Dembek, Julie A. Pavlin, and Mark G. Kortepeter	39
4. Anthrax Bret K. Purcell, Patricia L. Worsham, and Arthur M. Friedlander	69
5. Plague Patricia L. Worsham, Thomas W. McGovern, Nicholas J. Vietri, and Arthur M. Friedlander	91
6. Glanders Bridget Carr Gregory and David M. Waag	121
7. Melioidosis Nicholas J. Vietri and David Deshazer	147
8. Tularemia Matthew J. Hepburn, Arthur M. Friedlander, and Zygmunt F. Dembek	167
9. Brucellosis Bret K. Purcell, David L. Hoover, and Arthur M. Friedlander	185
10. Q Fever David M. Waag	199
11. Smallpox and Related Orthopoxviruses Peter B. Jahrling, John W. Huggins, M. Sofi Ibrahim, James V. Lawler, and James W. Martin	215
12. Alphavirus Encephalitides Keith E. Steele, Douglas S. Reed, Pamela J. Glass, Mary Kate Hart, George V. Ludwig, William D. Pratt, Michael D. Parker, and Jonathan F. Smith	241
13. Viral Hemorrhagic Fevers Peter B. Jahrling, Aileen M. Marty, and Thomas W. Geisbert	271
14. Staphylococcal Enterotoxin B and Related Toxins Robert G. Ulrich, Catherine L. Wilhelmsen, and Teresa Krakauer	311

15. Ricin	323
Mark A. Poli, Chad Roy, Kermit D. Huebner, David R. Franz, and Nancy K. Jaax	
16. Botulinum Toxin	337
Zygmunt F. Dembek, Leonard A. Smith, and Janice M. Rusnak	
17. Additional Toxins of Clinical Concern	355
Kermit D. Huebner, Robert W. Wannemacher, Jr., Bradley G. Stiles, Michel R. Popoff, and Mark A. Poli	
18. Laboratory Identification of Biological Threats	391
Erik A. Henchal, George V. Ludwig, Chris A. Whitehouse, and John M. Scherer	
19. Consequence Management: The National and Local Response	415
Kermit D. Huebner and James W. Martin	
20. Medical Management of Potential Biological Casualties: A Stepwise Approach	443
Theodore J. Cieslak and George W. Christopher	
21. Medical Countermeasures	465
Janice M. Rusnak, Ellen F. Boudreau, Matthew J. Hepburn, James W. Martin, and Sina Bavari	
22. Biosafety	515
Catherine L. Wilhelmsen and Robert J. Hawley	
23. Biosurety	543
Gretchen L. Demmin	
24. Ethical and Legal Dilemmas in Biodefense Research	559
Jeffrey E. Stephenson and Arthur O. Anderson	
25. Emerging Infectious Diseases and Future Threats	579
Chris A. Whitehouse, Alan L. Schmaljohn, and Zygmunt F. Dembek	
Abbreviations and Acronyms	xxv
Index	xxix

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Foreword

Our world was dramatically altered by the terrorist attacks of September 11, 2001. This assault, the yet unsolved mailings of anthrax, and other threats oblige a renewed national attention to the threat of biological weapons. The term “warfare” is no longer limited to conventional battlefields. Now we are concerned about the more likely scenario—wanton acts of biological terrorism inflicted on unsuspecting citizens anywhere in the world.

We must counter this threat with vigilance and maximize our response to attack with our best medical practices to identify agents involved, minimize casualties, and expedite the treatment of survivors. Our Nation charges the Armed Forces to guard against bioattack—overt or covert—as well as managing recovery efforts. This new groundbreaking volume in the Textbooks of Military Medicine series, devoted to biological warfare and terrorism, responds to that charge.

Since the publication of *Medical Aspects of Chemical and Biological Warfare* more than a decade ago, the editors at Borden Institute and the respective medical leaders across the Army Medical Command concluded that this essential new information required stand-alone textbooks. This affords the specific medical hazards a more detailed assessment and attention. I believe they succeeded in that effort.

Grounded in a historical perspective, this new volume, *Medical Aspects of Biological Warfare*, addresses weaponization of biological agents. It categorizes potential agents as food, waterborne, or agricultural toxins and discusses the respective epidemiology. A description of individual agents includes recent advances in the knowledge base and the illnesses induced. The authors present familiar (anthrax, plague, smallpox) and less often discussed biotoxins (alphaviruses, staphylococcal enterotoxins) and explain methods for early agent identification. To maximize understanding, authors used case studies and research along with successful management practices, treatments, and antidotes.

The description of the practical issues related to civil defense and the inherent differences between national, state, and metropolitan priorities with regard to biosurety, quarantine, crisis management, public affairs, and legal considerations is clear. The potential dangers of emerging infectious diseases and their threat to public safety did not interfere with clear presentation of “here-and-now” risks. The editors conscientiously present the ethical aspects of preparing for scenarios that by their nature are unknowable, unethical, or unforeseen.

The publication of this volume establishes best practices in the field of biohazard management, thus making those best practices available to healthcare practitioners, policy makers, and planners, in and out of uniform. Some will challenge our release of a textbook on the topic of bioweapons—they claim it is wiser, safer, and more prudent to withhold this information in the interest of better safeguarding our citizens. We maintain that in any analysis, the strongest safeguard of a free society is the open forum and free exchange of science, ideas, and theory. Regardless of your perspective, this text is excellent and I am extremely proud of the professionals who devoted their time and talents to it.

Major General Gale S. Pollock
Acting, The Surgeon General
US Army

Washington, DC
November 2007

Preface

Medical defense against biological pathogens used in terrorism or warfare has emerged over the past decade from the workings of a few select research laboratories to an expansive undertaking by the federal government. Largely the domain of military medical defense facilities, events post-2001 have led to tremendous investments in infrastructure, public health response, and basic research to medically defend against these identified threats. The Department of Defense efforts have been eclipsed to a degree by the scope of investments by the Department of Health and Human Services and the Department of Homeland Security. One area, however, that remains critical is the need to transfer the resulting information and best medical practices to the medical practitioners. The Department of the Army has maintained a leadership role in this crucial enterprise.

The history of biological weapons use by nations and terrorist groups necessitates a high level of preparedness for uniformed healthcare providers and scientists. Much of what is understood as standards of practice served the United States well during the events related to the 2001 anthrax mailings, yet important lessons were learned from that unique experience. The continued threat of biological weapons dictates that all Department of Defense medical personnel become conversant with state-of-the art treatment for biological casualties. What may have been perceived merely as useful information in the past is now a requirement for medical providers.

The previous edition of *Medical Aspects of Chemical and Biological Warfare* in the Borden Institute's Textbooks of Military Medicine series was both innovative and much needed at the time of publication in 1997. In his foreword, then Army Surgeon General Ronald Blanck stated that "world events have conspired to increase the threat of use of chemical and biological weapons." A decade later, the complexity of the threat has increased beyond the boundaries of state-sponsored programs and to the terrorist use of novel pathogens. The need for a revised version of this work has never been greater. It is with great pride that I introduce the reader to the new edition of *Medical Aspects of Biological Warfare*. The scientists and physicians who are responsible for this text have endeavored to provide the best possible biomedical reference.

Colonel George W. Korch
Medical Service Corps, US Army
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Fort Detrick, Maryland
July 2007

The current medical system to support the US Army at war is a continuum from the forward line of troops through the continental United States; it serves as a primary source of trained replacements during the early stages of a major conflict. The system is designed to optimize the return to duty of the maximum number of trained combat soldiers at the lowest possible level. Far-forward stabilization helps to maintain the physiology of injured soldiers who are unlikely to return to duty and allows for their rapid evacuation from the battlefield without needless sacrifice of life or function.
