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Global Security EngagementWireless InternetThe Next Arms RaceHigh Performance Scientific And Engineering ComputingThe Future of the Army's Civilian WorkforceThe Effects of Atomic WeaponsThe Fukushima Daiichi AccidentCongestion Charging Mechanisms for RoadsThe Sacred Books of the Old TestamentCareer Development for the Department of Defense Security Cooperation WorkforceThe Effects of Nuclear WeaponsUsamriid's Medical Management of Biological Casualties HandbookAssessing the Effectiveness of the International Counterproliferation ProgramProceedings of the International Conference on Social Modeling and Simulation, plus Econophysics Colloquium 2014Quantum Effects in BiologyMolecular Basis of ResilienceReducing Environmental Cancer RiskChina's Nuclear Force ModernizationFinding and Fixing Vulnerabilities in Information SystemsThe Other Side of Arms ControlEngineering with Nuclear ExplosivesCommerce Business DailyPenn State Alumni DirectoryPublications Stocked by the Marine Corps (indexed by Distribution).The History of Polybius the MegalopolitanMeasuring Cooperative Biological Engagement Program (CBEP) PerformanceBooks in Print SupplementThe Revenge of the MeliansThreats to Food and Water Chain InfrastructureEquine VirusesOne Health and ZoonosesSensor Systems for Biological Agent AttacksRadiological Safety Aspects of the Operation of Electron Linear AcceleratorsResearch on Health Effects of Low-Level Ionizing Radiation ExposureThe Resources of Nation, a Series of EssaysMedical Aspects of Biological Warfare, 2eIntegrating Clinical Research into Epidemic ResponseMaterials Research to Meet 21st-Century Defense NeedsNuclear War Survival SkillsCapabilities for Joint Analysis in the Department of Defense

Global Security Engagement

"Prepared for the Defense Threat Reduction Agency."

Wireless Internet

Over the last ten years, there has been growing concern about potential biological attacks on the nationâ€™s population and its military facilities. It is now possible to detect such attacks quickly enough to permit treatment of potential victims prior to the onset of symptoms. The capability to â€œdetect to warnâ€, that is in time to take action to minimize human exposure, however, is still lacking. To help achieve such a capability, the Defense Threat Reduction Agency (DTRA) asked the National Research Council (NRC) to assess the development path for â€œdetect to warnâ€ sensors systems. This report presents the results of this assessment including analysis of scenarios for protecting facilities, sensor requirements, and detection technologies and systems. Findings and recommendations are provided for the most probable path to achieve a detect-to-warn capability and potential technological breakthroughs that could accelerate its attainment.

The Next Arms Race

A product of the Quadrennial Def. Rev. (QDR) Working Group. Assesses the future security environment to the year 2025. Deepens knowledge of asymmetric threats (AT) to the U.S. both at home and abroad, given their potential appeal to likely adversaries in view of America's conventional military superiority. The issues posed by AT should occupy a more prominent place in defense strategy and force planning. Provides a conceptual framework for thinking about AT, offering an approach to determining which threats should receive the greatest attention from defense planners, and suggesting steps that the Nation should take to address them.

High Performance Scientific And Engineering Computing

Reflecting the critical threat posed by biological warfare and terrorism in a post 9-11 world, Medical Aspects of Biological Warfare, 2e, addresses the weaponization of biological agents, categorizing potential agents as food, waterborne, or agricultural agents or toxins, and discusses their respective epidemiology. Recent advances in biomedical knowledge are presented that include descriptions of individual agents and the illnesses induced. Authors discuss biotoxins and explain methods for early identification for anthrax, plague, smallpox, alphaviruses, and staphylococcal enterotoxins. Case studies and research on successful management practices, treatments, and antidotes are also included. Contains updated and revised material since previous, 2007 edition.(Previous Print Hardcover ISBN: 9780160797316; eBook: 9780160872389) Related products: More published products by The Borden Institute, U.S. Army Medical Department (AMEDD) are here: https://bookstore.gpo.gov/agency/army-medical-department-amedd Arms & Weapons collection is available here: https://bookstore.gpo.gov/catalog/arms-weapons Click here to find resources about Hazardous Materials (HAZMAT & CBRNE). Find more Physician References and Medical Handbooks here: https://bookstore.gpo.gov/catalog/physician-references-medical-handbooks

The Future of the Army's Civilian Workforce

Understanding an organization's reliance on information systems and how to mitigate the vulnerabilities of these systems can be an intimidating challenge--especially when considering less well-known weaknesses or even unknown vulnerabilities that have not yet been exploited. The authors introduce the Vulnerability Assessment and Mitigation methodology, a six-step process that uses a top-down approach to protect against future threats and system failures while mitigating current and past threats and weaknesses.

The Effects of Atomic Weapons

Explores the role of quantum mechanics in biology for advanced undergraduate and graduate students in physics, biology and chemistry.

The Fukushima Daiichi Accident

Though overall cancer incidence and mortality have continued to decline in recent years, cancer continues to devastate the lives of far too many Americans. In 2009 alone, 1.5 million American men, women, and children were diagnosed with cancer, and 562,000 died from the disease. There is a growing body of evidence linking environmental exposures to cancer. The Pres. Cancer Panel dedicated its 2008¿2009 activities to examining the impact of environmental factors on cancer risk. The Panel considered industrial, occupational, and agricultural exposures as well as exposures related to medical practice, military activities, modern lifestyles, and natural sources. This report presents the Panel¿s recommend. to mitigate or eliminate these barriers. Illus.

Congestion Charging Mechanisms for Roads

The Sacred Books of the Old Testament

Career Development for the Department of Defense Security Cooperation Workforce

With most of the world's advanced economies now stuck in recession; Western support for defense cuts and nuclear disarmament increasing; and a major emerging Asian power at odds with its neighbors and the United States; it is tempting to think our times are about to rhyme with a decade of similar woes—the disorderly 1930s.Might we again be drifting toward some new form of mortal national combat? Or, will our future more likely ape the near-half-century that defined the Cold War—a period in which tensions between competing states ebbed and flowed but peace mostly prevailed by dint of nuclear mutual fear and loathing?The short answer is, nobody knows. This much, however, is clear: The strategic military competitions of the next 2 decades will be unlike any the world has yet seen. Assuming U.S., Chinese, Russian, Israeli, Indian, French, British, and Pakistani strategic forces continue to be modernized and America and Russia continue to reduce their strategic nuclear deployments, the next arms race will be run by a much larger number of contestants—with highly destructive strategic capabilities far more closely matched and capable of being quickly enlarged than in any other previous period in history.

The Effects of Nuclear Weapons

Relations between Washington and Beijing improved swiftly in the wake of the 9/11 terrorist attacks, especially in comparison to the nadir that had been reached during the April 2001 EP-3 incident. This new tide of cooperation has included counterterrorism initiatives, regional partnership in such complex situations as Afghanistan and North Korea, and even some modest agreement on the importance of maintaining the status quo with respect to Taiwan's status. A strong foundation for this strategic cooperation is, of course, a burgeoning trade relationship, which received a further boost from China's entry into the World Trade Organization in November 2001. In 2003, trade between the United States and China amounted to $191.7 billion, up 23.2 percent from 2002. Remarkably, the total for 2003 was more than double the figure for 1998. The United States is China's second most important trading partner nation (Japan is first). Many reasonable strategists, observing this data, consider armed conflict between Washington and Beijing impossible, given the economic losses that both would incur almost immediately. Unfortunately, history has not been kind to the school of theorizing, known as commercial liberalism, which holds that economic interdependence prevents conflict. Indeed, the belligerent powers prior to both world wars had achieved impressive levels of economic interdependence.

Usamriid's Medical Management of Biological Casualties Handbook

Assessing the Effectiveness of the International Counterproliferation Program

This study informs the development of career models for the Department of Defense security cooperation workforce. It assesses potential requirements for competencies and experience and identifies potential job families within the workforce.

Proceedings of the International Conference on Social Modeling and Simulation, plus Econophysics Colloquium 2014

To help the Army participate in planned reductions in the DoD civilian workforce, the authors examined how the Army might manage supply to meet projected demand for civilian employees over the next several years under a range of scenarios.

Quantum Effects in Biology

A field-tested guide to surviving a nuclear attack, written by a revered civil defense expert. This edition of Cresson H. Kearny’s iconic Nuclear War Survival Skills (originally published in 1979), updated by Kearny himself in 1987 and again in

2001, offers expert advice for ensuring your family’s safety should the worst come to pass. Chock-full of practical instructions and preventative measures, Nuclear War Survival Skills is based on years of meticulous scientific research conducted by Oak Ridge National Laboratory. Featuring a new introduction by ex-Navy SEAL Don Mann, this book also includes: instructions for six different fallout shelters, myths and facts about the dangers of nuclear weapons, tips for maintaining an adequate food and water supply, a foreword by “the father of the hydrogen bomb,” physicist Dr. Edward Teller, and an “About the Author” note by Eugene P. Wigner, physicist and Nobel Laureate. Written at a time when global tensions were at their peak, Nuclear War Survival Skills remains relevant in the dangerous age in which we now live.

Molecular Basis of Resilience

Reducing Environmental Cancer Risk

China's Nuclear Force Modernization

This report stems from a congressional request for an independent report about the U.S. Department of Defense s capabilities for joint analysis and ways to improve them. Congressional concerns largely involved the activity called support for strategic analysis (SSA) and whether to revise it. The report recommends making fundamental revisions to the overall planning construct to which SSA contributes."

Finding and Fixing Vulnerabilities in Information Systems

The Other Side of Arms Control

In Douglas Adams' book 'Hitchhiker's Guide to the Galaxy', hyper-intelligent beings reached a point in their existence where they wanted to understand the purpose of their own existence and the universe. They built a supercomputer, called Deep Thought, and upon completion, they asked it for the answer to the ultimate question of life, the universe and everything else. The computer worked for several millennia on the answers to all these questions. When the day arrived for hyper-intelligent beings the to receive the answer, they were stunned, shocked and disappointed to hear that the answer was simply 42. The still open questions to scientists and engineers are typically much sim pler and consequently the answers are more reasonable. Furthermore, because human beings are too impatient and not ready to wait for such a long pe riod,

high-performance computing techniques have been developed, leading to much faster answers. Based on these developments in the last two decades, scientific and engineering computing has evolved to a key technology which plays an important role in determining, or at least shaping, future research and development activities in many branches of industry. Development work has been going on all over the world resulting in numerical methods that are now available for simulations that were not foreseeable some years ago. However, these days the availability of supercomputers with Teraflop perfor mance supports extensive computations with technical relevance. A new age of engineering has started.

Engineering with Nuclear Explosives

This book constitutes the refereed post-conference proceedings of the 12th International Conference on Wireless Internet, WiCON 2019, held in TaiChung, Taiwan, in November 2019. The 39 full papers were selected from 79 submissions and are grouped into the following topics: Ad hoc and sensor network, artificial intelligence, security and blockchain, internet of things, wireless internet, services and applications.

Commerce Business Daily

Penn State Alumni Directory

How does the Soviet Union view the costs and benefits of nuclear arms control? What factors motivate Soviet negotiations with the Western world on this crucial issue? And what, precisely, does the Soviet Union hope to accomplish through nuclear arms control? Originally published in 1988, The Other Side of Arms Control provides an in-depth examination of this too infrequently discussed aspect of the arms race and the ongoing negotiations to halt it. In The Other Side of Arms Control, Alan B. Sherr argues that the time is now right for significant substantive progress to be made on nuclear arms control: the Soviet leadership under Mikhail Gorbachev has demonstrated greater flexibility and willingness to compromise on a number of difficult issues, including verification. But more important, circumstances within and outside the Soviet Union now make progress on arms control crucial to Soviet political and economic goals as well as foreign policy objectives. Written in accessible, nontechnical language, The Other Side of Arms Control will be of historical interest to students, teachers, policymakers, and others concerned with the future of nuclear arms control.

Publications Stocked by the Marine Corps (indexed by Distribution).

The History of Polybius the Megalopolitan

Supplies basic summary and treatment information quickly for the health care provider on the front lines. Provides concise supplemental reading material to assist in education of biological casualty management. Edge indexed.

Measuring Cooperative Biological Engagement Program (CBEP) Performance

Includes authors, titles, subjects.

Books in Print Supplement

The Revenge of the Melians

This report describes a project to develop a comprehensive evaluation framework for the Cooperative Biological Engagement Program and recommends metrics for assessing and communicating progress toward the program s goals."

Threats to Food and Water Chain Infrastructure

The 2014â€"2015 Ebola epidemic in western Africa was the longest and most deadly Ebola epidemic in history, resulting in 28,616 cases and 11,310 deaths in Guinea, Liberia, and Sierra Leone. The Ebola virus has been known since 1976, when two separate outbreaks were identified in the Democratic Republic of Congo (then Zaire) and South Sudan (then Sudan). However, because all Ebola outbreaks prior to that in West Africa in 2014â€"2015 were relatively isolated and of short duration, little was known about how to best manage patients to improve survival, and there were no approved therapeutics or vaccines. When the World Heath Organization declared the 2014-2015 epidemic a public health emergency of international concern in August 2014, several teams began conducting formal clinical trials in the Ebola affected countries during the outbreak. Integrating Clinical Research into Epidemic Response: The Ebola Experience assesses the value of the clinical trials held during the 2014â€"2015 epidemic and makes recommendations about how the conduct of trials could be improved in the context of a future international emerging or re-emerging infectious disease events.

Equine Viruses

vi of a large number of people due to the enormous quantities of radioactive material that would be required to reach high

levels of contamination in mass-produced or distributed supplies. Although, based on data presented at the Workshop concerning the more than 30,000 missing radioactive sources all over the word, the radioactive contamination of food or water is also a scenario that must be taken seriously into consideration. During the last two decades there have been several emerging hazards linked to animal diseases or originating in animal products for example: Avian Influenza (AI), Bovine Spongiform Encephalopathy (BSE), West Nile Fever, Severe Acute Respiratory Syndrome (SARS), and Ebola virus. All these diseases or events directly or indirectly affect food security and/or food safety. Approximately 75% of all emerging diseases are zoonotic by either an association with animal populations or an evolution of the disease in a- mals making it possible to move from animal species to humans. Participants were presented the primary results of the ongoing NATO- SPS Pilot Study on “Food Chain Security”. These results focused mainly on (i) an overview of the food system; (ii) prevention, surveillance and detection systems and (iii) response system. The importance of issues such as: vuln- ability assessments, risk communication in risk analysis, risk perception, traceability, preparedness – awareness, communication, have to be cons- ered when working on food chain security.

One Health and Zoonoses

The Fukushima Daiichi Accident consists of a Report by the IAEA Director General and five technical volumes. It is the result of an extensive international collaborative effort involving five working groups with about 180 experts from 42 Member States with and without nuclear power programmes and several international bodies. It provides a description of the accident and its causes, evolution and consequences, based on the evaluation of data and information from a large number of sources available at the time of writing. The Fukushima Daiichi Accident will be of use to national authorities, international organizations, nuclear regulatory bodies, nuclear power plant operating organizations, designers of nuclear facilities and other experts in matters relating to nuclear power, as well as the wider public. The set contains six printed parts and five supplementary CD-ROMs.

Sensor Systems for Biological Agent Attacks

The government's first Cooperative Threat Reduction (CTR) programs were created in 1991 to eliminate the former Soviet Union's nuclear, chemical, and other weapons and prevent their proliferation. The programs have accomplished a great deal: deactivating thousands of nuclear warheads, neutralizing chemical weapons, converting weapons facilities for peaceful use, and redirecting the work of former weapons scientists and engineers, among other efforts. Originally designed to deal with immediate post-Cold War challenges, the programs must be expanded to other regions and fundamentally redesigned as an active tool of foreign policy that can address contemporary threats from groups that are that are agile, networked, and adaptable. As requested by Congress, Global Security Engagement proposes how this goal can best be

achieved. To meet the magnitude of new security challenges, particularly at the nexus of weapons of mass destruction and terrorism, Global Security Engagement recommends a new, more flexible, and responsive model that will draw on a broader range of partners than current programs have. The White House, working across the Executive Branch and with Congress, must lead this effort.

Radiological Safety Aspects of the Operation of Electron Linear Accelerators

In order to achieve the revolutionary new defense capabilities offered by materials science and engineering, innovative management to reduce the risks associated with translating research results will be needed along with the R&D. While payoff is expected to be high from the promising areas of materials research, many of the benefits are likely to be evolutionary. Nevertheless, failure to invest in more speculative areas of research could lead to undesired technological surprises. Basic research in physics, chemistry, biology, and materials science will provide the seeds for potentially revolutionary technologies later in the 21st century.

Research on Health Effects of Low-Level Ionizing Radiation Exposure

The Resources of Nation, a Series of Essays

The One Health concept recognizes that the health of humans, animals, and their ecosystems are interconnected, and that a coordinated, collaborative, multidisciplinary, and cross-sectoral approach is necessary to fully understand and respond to potential or existing risks that originate at the animal–human–ecosystems interfaces. Thus, the One Health concept represents a holistic vision for addressing some of the complex challenges that threaten human and animal health, food safety, and the environments in which diseases flourish. There are many examples showing how the health of humans is related to the health of animals and the environment. Diseases shared between humans and animals are zoonoses. Some zoonoses have been known for many years, whereas others have emerged suddenly and unexpectedly. Over 70% of all new emerging diseases over the past few decades have been zoonoses that have emerged from wildlife, most often from bats, rodents, or birds. Examples of zoonoses are many and varied, ranging from rabies to bovine tuberculosis, and from Japanese encephalitis to SARS. Clearly, a One Health approach is essential for understanding their ecology, and for outbreak response and the development of control strategies. However, the One Health concept and approach is much broader than zoonoses; it extends to including antimicrobial resistance, food safety, and environmental health and, consequently, impacts on global health security, economic wellbeing, and international trade. It is this breadth of One Health that connects the papers in this Special Issue.

Medical Aspects of Biological Warfare, 2e

Integrating Clinical Research into Epidemic Response

The Food and Agriculture Organization of the United Nations has recently estimated that the world equid population exceeds 110 million. Working equids (horses, ponies, donkeys, and mules) remain essential to ensure the livelihood of poor communities around the world. In many developed countries, the equine industry has significant economical weight, with around 7 million horses in Europe alone. The close relationship between humans and equids and the fact that the athlete horse is the terrestrial mammal that travels the most worldwide after humans are important elements to consider in the transmission of pathogens and diseases, amongst equids and to other species. The potential effect of climate change on vector ecology and vector-borne diseases is also of concern for both human and animal health. In this Special Issue, we intend to explore our understanding of a panel of equine viruses, looking at their pathogenicity, their importance in terms of welfare and potential association with diseases, their economic importance and impact on performance, and how their identification can be helped by new technologies and methods.

Materials Research to Meet 21st-Century Defense Needs

It is probably only a matter of time before we witness the next event in which large numbers of people are exposed to ionizing radiation. In the past, planning a response to such an occurrence would have likely focused on the management of casualties from high-dose exposure. However, more recently, a different threat has come to the fore: accidental (through a containment breach in a nuclear power plant, for example) or intentional (via a "dirty bomb") releases of radioactivity resulting in low-dose exposure to a population. The magnitude of the health risks arising from low-dose radiation exposure is uncertain, and this uncertainty has significant economic implications for public health decision making. "Research on Health Effects of Low-Level Ionizing Radiation Exposure" examines recent scientific knowledge about the human effects of exposure to low-dose radiation from medical, occupational, and environmental ionizing-radiation sources. This report is intended to provide advice to the Armed Forces Radiobiology Research Institute (AFRRI) about its role in low-dose radiation health effects research. The report identifies current research directions in radiobiological science and assesses how AFRRI programs are advancing research along these directions. The recommendations of "Research on Health Effects of Low-Level Ionizing Radiation Exposure" will provide guidance for AFRRI to build on its strengths and advance its mission while contributing to the body of scientific knowledge on the health effects of exposure to low-dose ionizing radiation.

Nuclear War Survival Skills

The proceedings of the international conference “SMSEC2014”, a joint conference of the first “Social Modeling and Simulations” and the 10th “Econophysics Colloquium”, held in Kobe in November 2014 with 174 participants, are gathered herein. Cutting edge scientific researches on various social phenomena are reviewed. New methods for analysis of big data such as financial markets, automobile traffics, epidemic spreading, world-trades and social media communications are provided to clarify complex interaction and distributions underlying in these social phenomena. Robustness and fragility of social systems are discussed based on agent models and complex network models. Techniques about high performance computers are introduced for simulation of complicated social phenomena. Readers will feel the researchers minds that deep and quantitative understanding will make it possible to realize comprehensive simulations of our whole society in the near future, which will contribute to wide fields of industry also to scientific policy decision.

Capabilities for Joint Analysis in the Department of Defense

This book illuminates mechanisms of resilience. Threats and defense systems lead to adaptive changes in gene expression. Environmental conditions may dampen adaptive responses at the level of RNA expression. The first seven chapters elaborate threats to human health. Human populations spontaneously invade niche boundaries exposing us to threats that drive the resilience process. Emerging RNA viruses are a significant threat to human health. Antiviral drugs are reviewed and how viral genomes respond to the environment driving genome sequence plasticity. Limitations in predicting the human outcome are described in “nonlinear anomalies.” An example includes medical countermeasures for Ebola and Marburg viruses under the “Animal Rule.” Bacterial infections and a review of antibacterial drugs and bacterial resilience mediated by horizontal gene transfer follow. Chapter 6 shifts focus to cancer and discovery of novel therapeutics for leukemia. The spontaneous resolution of AML in children with Down syndrome highlights human resilience. Chapter 7 explores chemicals in the environment. Examples of chemical carcinogenesis illustrate how chemicals disrupt genomes. Historic research ignored RNA damage from chemically induced nucleic acid damage. The emergence of important forms of RNA and their possible role in resilience is proposed. Chapters 8-10 discuss threat recognition and defense systems responding to improve resilience. Chapter 8 describes the immune response as a threat recognition system and response via diverse RNA expression. Oligonucleotides designed to suppress specific RNA to manipulate the immune response including exon-skipping strategies are described. Threat recognition and response by the cytochrome P450 enzymes parallels immune responses. The author proposes metabolic clearance of small molecules is a companion to the immune system. Chapter 10 highlights RNA diversity expressed from a single gene. Molecular Resilience lists paths to RNA transcriptome plasticity forms the molecular basis for resilience. Chapter 11 is an account of ExonDys 51, an approved drug for the treatment of Duchenne muscular dystrophy. Chapter 12 addresses the question “what informs molecular mechanisms of resilience?” that drives the limits to adaptation and boundaries for molecular resilience. He speculates that radical oxygen, epigenetic modifications, and ligands to nuclear hormone receptors play critical roles in regulating

molecular resilience.