

# EFFECTS OF ATOMIC RADIATION

A HALF-CENTURY OF STUDIES  
FROM HIROSHIMA AND NAGASAKI



WILLIAM J. SCHULL

# Effects Of Atomic Radiation A Half Century Of Studies From Hiroshima And Nagasaki

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## **Effects Of Atomic Radiation A Half Century Of Studies From Hiroshima And Nagasaki:**

Effects of Atomic Radiation William J. Schull, 1995-09-08 Presenting a monumental achievement 50 years of data cataloging the immediate long term and hereditary effects of atomic radiation on the survivors of the Hiroshima and Nagasaki bombs Authored by one of the key members of the Atomic Bomb Casualty Commission founded in 1947 this unique work documents the critical findings and conclusions of the longest ongoing medical study in history it will surely become the foundation for all future investigations and standards regarding the bioeffects of ionizing radiation In my opinion Dr Schull has written a very interesting and accurate account of the atomic bomb follow up program in Japan He writes extremely well with areas of his particular scientific interest described in great detail He also describes events and the social implications in a manner that has broad general appeal Stuart C Finch MD University of Medicine and Dentistry of New Jersey A history of the Hiroshima Nagasaki study is badly needed I was very happy to hear that Jack Schull was working on such a project and it is an understatement to say that I am anxious to see it published Seymour Jablon PhD Bethesda Maryland Rarely in the history of a program will one have a nearly 50 year account from an eyewitness and major participant beginning with the program s onset to the present Jack s book offers the reader this extraordinary insight into the birth and development of the study of the A bomb survivors Moreover he has served on all major national and international commissions dealing with radiation protection and risk assessment and he interweaves the Japanese studies into the radiation risk issues in a way that few if any other contemporary scientists can Seymour Abrahamson PhD Radiation Effects Research Foundation On August 6 and 9 1945 the only atomic bombs ever used in warfare were dropped on the Japanese cities of Hiroshima and Nagasaki The destruction and death caused by those bombings presented the world with a vivid portrait of the dangers of the atomic age However the thousands of bomb survivors have given scientists a massive firsthand perspective on the bioeffects of radioactivity It is the study of these survivors that forms the foundation of the modern understanding of the immediate long term and hereditary consequences of exposure to ionizing radiation Effects of Atomic Radiation A Half Century of Studies from Hiroshima and Nagasaki is the definitive account of the methods findings and conclusions of the 50 year study on the survivors of the atomic bomb blasts It is a truly monumental work surveying a colossal body of data to offer a comprehensive unified and authoritative summary of not only the scientific study itself but the personal social and political factors that have shaped the investigation from its inception The book goes beyond the simple compilation of facts giving the reader unique insight into this unprecedented research project and exploring the complex web of subjective perceptions and fears that color popular national and even scientific views of radiation exposure in moderate and extreme cases Authored by Dr William J Schull perhaps the single most influential scientist involved in the studies this book conveys both his authority and sensitivity Dr Schull arrived in Japan in 1949 and was instrumental in the development of the Atomic Bomb Casualty Commission Since then he has been one of the driving forces behind the largest medical follow up study ever undertaken His

years spent working directly with bomb survivors imbue his narrative with a compelling personal history and his service on numerous national and international committees studying ionizing radiation give him a broad authoritative perspective on the implications of the ABCC's work. *Effects of Atomic Radiation: A Half Century of Studies from Hiroshima and Nagasaki* is first and foremost a scientific work summarizing the core findings of the definitive study on radiation exposure while throughout the book the author provides personal accounts that illustrate the human dimensions of the bombings. In a world where nuclear power is increasing and exposure to radiation is a daily occurrence this book is essential reading for all scientists associated with public private or governmental institutions that set standards of acceptability for exposure.

**Under the Radar** Ellen Leopold, 2009 In *Under the Radar* Ellen Leopold shows how nearly every aspect of our understanding and discussion of cancer bears the imprint of its Cold War entanglement. The current biases toward individual rather than corporate responsibility for rising incidence rates, research that promotes treatment rather than prevention and therapies that can be patented and marketed all reflect a largely hidden history shaped by the Cold War. Even the language we use to describe the disease such as the guiding metaphor for treatment, fight fire with fire, can be traced back to the middle of the twentieth century.

**Permissible Dose: A History of Radiation Protection in the Twentieth Century** J Samuel Walker, 2018-08 This scholarly text focuses on the role of U.S. federal agencies in radiation safety and the evolution of radiation protection regulations. It traces how the principles and practices of radiation protection have changed over time in response to scientific and political developments. The primary purpose is to provide a foundation to the historical background to provide adequate protection against the hazards of radiation to workers exposed in their jobs and to the general public. Portions of this text include Controversy over regulating medical radiation, Regulating medical uses of radiation, Exploration of some radiation hazards, EPA's revised occupational standards, The Clean Air Act amendments and more. Related products: Other products produced by the U.S. Nuclear Regulatory Commission can be found here <https://bookstore.gpo.gov/agency/nuclear-regulatory-commission-nrc>. Nuclear Power Radiation resources collection is available here <https://bookstore.gpo.gov/catalog/nuclear-power-radiation>.

**Environmental and Chemical Toxins and Psychiatric Illness** James S. Brown, 2008-08-13 During the past 60 years the number of chemical disasters worldwide from military, occupational and environmental sources has risen at an alarming rate. The profound controversy surrounding many chemicals makes objective analysis nearly impossible. Yet now more than ever with the daily exposure to a wide range of chemicals and the increased threat of chemical terrorism it is critical that we understand the role of chemicals in causing psychiatric illness. Unlike related books this remarkable reference is intended specifically for psychiatric applications and is thus the definitive sourcebook for the many professionals called on to respond to these events. This work stands alone as the first on this topic to be written by a psychiatrist and the first to bring together the military, occupational and environmental exposures causing psychiatric illness including multiple chemical sensitivities, mass hysteria, radiation exposures, community stress reactions and Gulf War and

other syndromes Unique highlights include A summary of the reported psychiatric symptoms attributed to each chemical class chemical weapons pesticides fumigants metals solvents gases PCBs Agent Orange and other miscellaneous chemicals in tables for easy reference We use personal care products take prescription drugs pump gasoline drink alcohol and spray insecticides as part of our everyday lives Yet rarely do we realize that significant exposures to the chemicals described in this book many of which we are exposed to in daily activities can damage the central nervous system causing psychiatric illness A comprehensive bibliography in every chapter of all the important material in English language medical journals and books that has appeared on this subject since the late 19th century These bibliographies cover everything from the first published reports of the dangers of carbon disulfide in the French rubber industry dangers that American medicine ignored for years through more recent large scale chemical exposures that have serious long term consequences e g Love Canal The latest information about terrorist and military uses of chemical weapons of critical relevance in psychiatry today from World War I combatants exposed to chlorine phosgene mustard gas arsenic and cyanide to the first organophosphate or nerve gases such as tabun and sarin developed by the Germans before and during World War II and used by Iraq in the Gulf War and by a religious cult in the terrorist subway attacks in Tokyo and Matsumoto Japan Quite simply this book is a must have for psychiatric and medical professionals everywhere with extended appeal among laypersons such as environmental consumer advocates attorneys insurance professionals industrial hygienists disaster planners and medical librarians **Imperial**

**Japan's World War Two** Werner Gruhl, 2017-07-12 Gruhl's narrative makes clear why Japan's World War II aggression still touches deep emotions with East Asians and Western ex prisoners of war and why there is justifiable sensitivity to the way modern Japan has dealt with this legacy Knowledge of the enormity of Japan's total war is also necessary to assess the United States and her allies policies toward Japan and their reactions to its actions extending from Manchuria in 1931 to Hiroshima in 1945 Gruhl takes the view that World War II started in 1931 when Japan crowded and poor in raw materials but with a sense of military invincibility saw empire as her salvation and invaded China Japan's imperial regime had volatile ambitions but limited resources thus encouraging them to unleash a particularly brutal offensive against the peoples of Asia and surrounding ocean islands Their 1931 to 1945 invasions and policies further added to Asia's pre war woes particularly in China by badly disrupting marginal economies leading to famines and epidemics Altogether the victims of Japan's World War Two aggression took many forms and were massive in number Gruhl offers a survey and synthesis of the historical literature and documentation statistical data as well as personal interviews and first hand accounts to provide a comprehensive overview analysis The sequence of diplomatic and military events leading to Pearl Harbor as well as those leading to the U S decision to drop the atom bomb are explored here as well as Japan's war crimes and postwar revisionist apologist views regarding them This book will be of intense interest to Asian specialists and those concerned with human rights issues in a historical context **Managerial Epidemiology: Cases and Concepts, Fourth Edition** Steven T. Fleming, 2020-09-28

The COVID 19 pandemic threw the world into turmoil and exposed a cascade of vulnerabilities. One of the many lessons learned from this pandemic is that epidemiological principles must be applied to manage healthcare services and control disease in populations. *Managerial Epidemiology: Cases and Concepts* provides a comprehensive introduction to epidemiology and its use in healthcare management. Extensively revised, this edition demonstrates through 64 real world case studies and numerous examples how the tools and principles of epidemiology can help managers make better informed decisions. Updates include two new chapters on population health and confounding bias and effect modification; new cases focused on relevant healthcare management issues such as health risk factors and capitation rates; a completely rewritten chapter on epidemiology and financial management; heavily revised chapters on case control studies, cohort studies, randomized clinical trials, infectious disease epidemiology, mortality and risk adjustment, and cost effectiveness analysis; a sharper focus on healthcare acquired infections; and greater emphasis on needs assessment and healthcare planning. The book's case studies are presented in three levels. In chapter cases, and answer guides form an integral component of the book's learning process. End of chapter cases provide additional exercises for practical application with answers supplied at the back of the book so that students can self quiz. In the book's final section, in depth capstone cases offer an opportunity for reviewing and synthesizing material from specific chapters. Today more than ever healthcare administrators must use the information provided by epidemiological methods to optimally manage interventions, treatments, and healthcare services that affect the health of populations.

**Health Consequences of Service During the Persian Gulf War** Committee to Review the Health Consequences of Service During the Persian Gulf War, Medical Follow-up Agency, Institute of Medicine, 1996-10-24. In January 1995 the Institute of Medicine released a preliminary report containing initial findings and recommendations on the federal government's response to reports by some veterans and their families that they were suffering from illnesses related to military service in the Persian Gulf War. The committee was asked to review the government's means of collecting and maintaining information for assessing the health consequences of military service and to recommend improvements and epidemiological studies if warranted. This new volume reflects an additional year of study by the committee and the full results of its three year effort.

**Blown to Hell** Walter Pincus, 2023-04-06. A Pulitzer Prize winning journalist exposes the sixty seven US nuclear tests in the Marshall Islands that decimated a people and their land. The most important place in American nuclear history are the Marshall Islands, an idyllic Pacific paradise that served as the staging ground for over sixty US nuclear tests. It was here from 1946 to 1958 that America perfected the weapon that preserved the peace of the post war years. It was here with the 1954 Castle Bravo test over Bikini Atoll that America executed its largest nuclear detonation, a thousand times more powerful than Hiroshima. And it was here that a native people became unwilling test subjects in the first large scale study of nuclear radiation fallout when the ashes rained down on powerless villagers contaminating the land they loved and forever changing a way of life. In *Blown to Hell*, Pulitzer Prize winning journalist Walter Pincus tells for the first time

the tragic story of the Marshallese people caught in the crosshairs of American nuclear testing From John Anjain a local magistrate of Rongelap Atoll who loses more than most to the radiation exposed crew of the Japanese fishing boat the Lucky Dragon to Dr Robert Conard a Navy physician who realized the dangers facing the islanders and attempted to help them to the Washington power brokers trying to keep the unthinkable fallout from public view Blown to Hell tells the human story of America's nuclear testing program Displaced from the only homes they had known the native tribes that inhabited the serene Pacific atolls for millennia before they became ground zero for America's first thermonuclear detonations returned to homes despoiled by radiation if they were lucky enough to return at all Others were ripped from their ancestral lands and shuttled to new islands with little regard for how the new environment supported their way of life and little acknowledgement of all they left behind But not even the disruptive relocations allowed the islanders to escape the fallout Praise for Blown to Hell A shocking account of the destruction wrought by atomic bomb testing in the Marshall Islands from 1946 to 1958 Pincus makes a persuasive case that in seeking a more powerful weapon for warfare the U S unleashed death in several forms on peaceful Marshall Island people Readers will be appalled Publishers Weekly For more than half a century Walter Pincus has been among our greatest reporters and most persistent truth tellers Blown to Hell is a story worthy of his talents infuriating heart breaking and utterly riveting Rick Atkinson Pulitzer Prize winning author of The Liberation Trilogy **The Five Series**

**Study** Institute of Medicine, Medical Follow-up Agency, Committee to Study the Mortality of Military Personnel Present at Atmospheric Tests of Nuclear Weapons, Heather O'Maonaigh, Harriet Crawford, William F. Page, Susan Thaul, 2000-04-02 More than 200 000 U S military personnel participated in atmospheric nuclear weapons tests between 1945 and the 1963 Limited Nuclear Test Ban Treaty Questions persist such as whether that test participation is associated with the timing and causes of death among those individuals This is the report of a mortality study of the approximately 70 000 soldiers sailors and airmen who participated in at least one of five selected U S nuclear weapons test series<sup>1</sup> in the 1950s and nearly 65 000 comparable nonparticipants the referents The investigation described in this report based on more than 5 million person years of mortality follow up represents one of the largest cohort studies of military veterans ever conducted **Potential**

**Radiation Exposure in Military Operations** Institute of Medicine, Committee on Battlefield Radiation Exposure Criteria, 1999-05-24 In 1996 NATO issued guidance for the exposure of military personnel to radiation doses different from occupational dose levels but not high enough to cause acute health effects and in doing so set policy in a new arena Scientific and technological developments now permit small groups or individuals to use or threaten to use destructive devices nuclear biological chemical and cyber based weaponry among others targeted anywhere in the world Political developments such as the loss of political balance once afforded by competing superpowers have increased the focus on regional and subregional disputes What doctrine should guide decisionmaking regarding the potential exposure of troops to radiation in this changed theater of military operations In 1995 the Office of the U S Army Surgeon General asked the Medical Follow up Agency of the

Institute of Medicine to provide advice This report is the final product of the Committee on Battlefield Radiation Exposure Criteria convened for that purpose In its 1997 interim report Evaluation of Radiation Exposure Guidance for Military Operations the committee addressed the technical aspects of the NATO directive In this final report the committee reiterates that discussion and places it in an ethical context

**International Perspectives on Democratization and Peace** Narayanan Ganesan,2020-10-26 This book examines the concept of peace and the relevance of historical and contextual factors that contribute to peaceful coexistence of people and dives into a deep examination of how democracy furthers peace especially in conflict prone countries Seven case studies illustrate the impact of democratization on transformation and prevention

**Energy Justice** Elena V. Shabliy,Martha J. Crawford,Dmitry Kurochkin,2022-03-19 This book offers an insight into climate change mitigation and adaptation strategies and discusses energy justice issues within this framework The concepts of sustainability and sustainable development have become popular among local communities international policymakers and researchers In addition to these important topics themes such as climate justice environmental justice global energy justice ecological justice sustainable justice and procedural justice remain attractive to scholars and researchers internationally In this book scholars elaborate on various responses to human induced climate change calling for action mitigation and adaptation and encouraging further thorough analysis and research in the field

*Children and Pollution* Colleen F. Moore,2009-04-08 Traces the debates around six key pollutants lead mercury noise pesticides ionizing radiation and dioxins and PCB s Provides an overview of the history of each pollutant research findings and the scientific and regulatory controversies surrounding it From publisher description

*Children and Pollution* Colleen F. Moore,2009-04-08 How does pollution impact our daily quality of life What are the effects of pollution on children s development Why do industry and environmental experts disagree about what levels of pollutants are safe In this clearly written book Moore traces the debates around five key pollutants lead mercury noise pesticides and dioxins and PCBs and provides an overview of the history of each pollutant basic research findings and the scientific and regulatory controversies surrounding it Moore focuses in particular on the impact of these pollutants on children s psychological development their intellectual functioning behavior and emotional states Only by understanding the impact of pollution can we prevent future negative effects on quality of life and even pollution disasters from occurring This volume will be of great interest to parents child health care experts public health officials regulators and health and environmental advocates

**An Evaluation of Radiation Exposure Guidance for Military Operations** Institute of Medicine,1997-10-28

**Principles and Methods of Toxicology** A. Wallace Hayes,2007-09-25 Founded on the paradox that all things are poisons and the difference between poison and remedy is quantity the determination of safe dosage forms the base and focus of modern toxicology In order to make a sound determination there must be a working knowledge of the biologic mechanisms involved and of the methods employed to define these mechanis

*Taming The Rays* Geoff Meggitt,2017-12-31 A history of developments in the uses of



radioactivity and ionising radiation in the last century and the measures used to protect people from harmful effects The sources of radiation exposure covered include medical uses nuclear power generation and natural ones such as that from radon The book traces the evolution of our understanding of the effects of radiation on the human body particularly those leading to cancer and hereditary diseases One of the key challenges for practitioners was constructing manageable frameworks for evaluating these effects so that there could be effective control and regulation The book emphasises the international nature of these efforts and the need to change approaches as more data became available after the Second World War For the second edition the opportunity has been taken to revise the citation system and make some correction but the major change is the addition of two new Chapters one on nuclear criticality safety and the other on nuclear safety assessment

**Silent Scourge : Children, Pollution, and Why Scientists Disagree** Madison Colleen F. Moore Professor of Psychology University of Wisconsin, 2003-03-20 How does pollution impact our daily quality of life What are the effects of pollution on children's development Why do industry and environmental experts disagree about what levels of pollutants are safe In this clearly written book Moore traces the debates around five key pollutants lead mercury noise pesticides and dioxins and PCBs and provides an overview of the history of each pollutant basic research findings and the scientific and regulatory controversies surrounding it Moore focuses in particular on the impact of these pollutants on children's psychological development their intellectual functioning behavior and emotional states Only by understanding the impact of pollution can we prevent future negative effects on quality of life and even pollution disasters from occurring

**Designs for Life** Soraya de Chadarevian, 2002-05-30 An important study on the making of molecular biology and its cultural contexts

**Ultrasonography in Obstetrics and Gynecology E-Book** Peter W. Callen, 2011-10-17 Make optimal use of the latest diagnostic and interventional ultrasound applications in your practice This new edition of the world's best selling reference on obstetric and gynecologic ultrasound guides you through all of the newest ultrasound technologies enabling you to diagnose problems accurately The entire book has been radically updated by many new contributors to reflect all of the most recent advances including greatly expanded information on 3 D ultrasound and the latest generation of ultrasound scanners as well as significantly increased discussions of gynecologic ultrasound What's more over 2 400 digital quality images 1 050 in full color capture the characteristic appearance of a full range of ultrasound findings and a new full color format makes reference easier than ever The result is an essential purchase for everyone who uses ultrasound for fetal and gynecologic diagnosis and treatment Get dependable guidance on any clinical issue or challenge by consulting the world's most popular trusted reference on ob gyn ultrasound Obtain optimal results by applying the masterful expertise of world renowned authority Peter W Callen MD as well as a care of other top specialists on the diagnostic and interventional applications of ultrasound Make optimal use of all of the latest developments including 3 D ultrasound the use of the latest generation of ultrasound scanners the growing role of ultrasound in gynecologic imaging Diagnose with confidence by comparing your

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