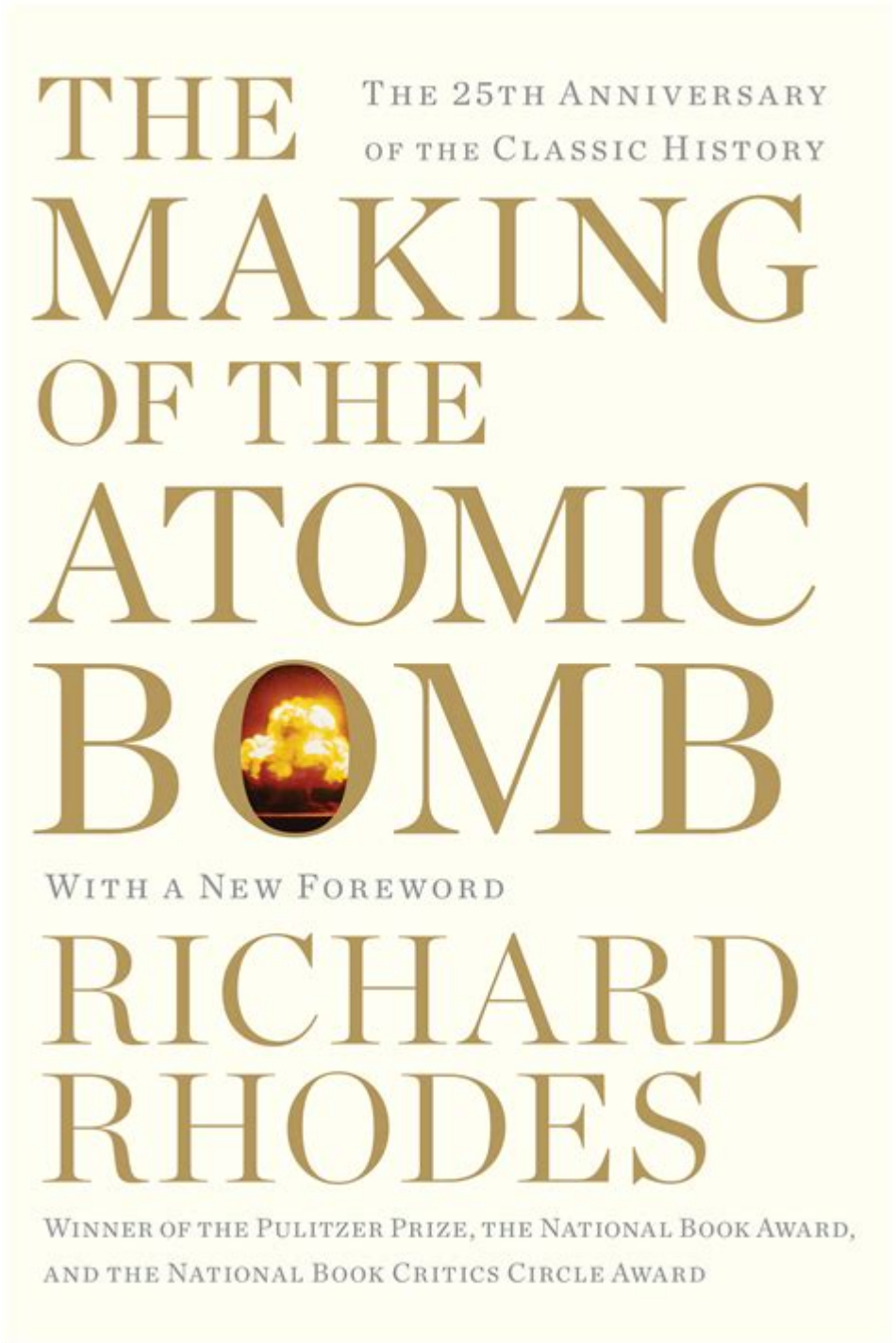
The Making Of The Atomic Bomb



The Making of the Atomic Bomb: A Race Against Time and Conscience

The chilling flash, the devastating mushroom cloud – the atomic bombings of Hiroshima and Nagasaki remain etched in our collective memory as symbols of unprecedented destruction. But the

story behind these events, the frantic race to create the atomic bomb during World War II, is a complex tapestry woven with scientific brilliance, political maneuvering, and profound ethical dilemmas. This post delves into the intricate process of the atomic bomb's creation, exploring the key players, scientific breakthroughs, and the lasting legacy of this pivotal moment in history.

The Scientific Genesis: From Theory to Reality

The Manhattan Project, the code name for the top-secret American effort to develop the atomic bomb, wasn't born overnight. Decades of scientific groundwork laid the foundation. Albert Einstein's famous letter to President Roosevelt, warning of the potential for German atomic weapons development, triggered the initial push. This wasn't just about winning the war; it was about preventing a potential Nazi atomic monopoly that could have reshaped the world order irrevocably.

The Chain Reaction: Understanding Nuclear Fission

The core scientific principle underpinning the bomb was nuclear fission – the splitting of atomic nuclei, releasing enormous amounts of energy. Scientists like Enrico Fermi, a pioneer in nuclear physics, played crucial roles in understanding and harnessing this process. Fermi's work on controlled chain reactions was paramount in paving the way for the creation of a self-sustaining nuclear explosion. His experiments at the University of Chicago's squash court, where the first self-sustaining nuclear chain reaction was achieved, mark a pivotal moment in this history.

Uranium Enrichment: A Herculean Task

Creating a bomb required highly enriched uranium, a process that proved incredibly challenging. The Manhattan Project involved building massive facilities – like Oak Ridge, Tennessee – dedicated to separating the fissile uranium-235 isotope from the more abundant uranium-238. This involved technological feats that pushed the boundaries of engineering and industrial production during wartime.

The Plutonium Path: A Parallel Pursuit

Simultaneously, the Manhattan Project pursued another path to create a nuclear weapon using plutonium. Plutonium, a synthetic element, is also fissile and offered an alternative route to weaponization. The Hanford Site in Washington state was constructed to produce plutonium on an unprecedented scale, using massive reactors and chemical separation plants. This represented a different set of engineering challenges, further demonstrating the scale and ambition of the project.

The Trinity Test: A Momentous Decision

Before the bombs were used against Japan, the Trinity test, conducted in New Mexico in July 1945,

provided the crucial, albeit terrifying, proof of concept. The successful detonation of the first atomic bomb shattered the desert landscape and irrevocably altered the course of human history. The sheer power unleashed confirmed the devastating potential of the weapon, solidifying the decision to use it in the war effort.

The Moral Dilemma: Weighing Lives and Consequences

The decision to use the atomic bombs on Hiroshima and Nagasaki remains fiercely debated. Proponents argued that it saved countless lives by avoiding a protracted and bloody invasion of Japan. Critics contend that the immense civilian casualties were unacceptable, and that alternative strategies, such as a demonstration explosion, should have been explored. This ethical debate continues to this day, highlighting the profound moral implications of scientific advancements and the weight of wartime decisions.

Legacy of the Atomic Bomb: Shaping the Modern World

The creation of the atomic bomb marked a profound turning point. It ushered in the nuclear age, transforming geopolitical landscapes and forever altering the nature of warfare. The fear of nuclear annihilation shaped international relations for decades, leading to the Cold War arms race and the ongoing efforts toward nuclear non-proliferation. The legacy of the Manhattan Project is a complex and multifaceted one, forcing us to confront the power of scientific discovery and the ethical responsibilities that come with it.

Conclusion:

The making of the atomic bomb was a monumental undertaking, driven by the urgency of World War II and fueled by groundbreaking scientific discoveries. The story is one of scientific triumph, technological innovation, and profound ethical complexities. Understanding this history is crucial for navigating the challenges and opportunities of the nuclear age and promoting a future where such destructive power is used responsibly, or ideally, not at all.

FAQs:

1. What was the role of Los Alamos National Laboratory in the Manhattan Project? Los Alamos was the central research and development site where the actual bomb designs were created and refined. It brought together leading physicists and engineers from around the world.

2. Who were some of the key scientists involved beyond Fermi and Einstein? Robert Oppenheimer, often called the "father of the atomic bomb," led the Los Alamos laboratory. Other significant figures included Richard Feynman, Edward Teller, and Niels Bohr.

3. What were the different designs of the atomic bombs used in Japan? Hiroshima was bombed with

a "Little Boy" gun-type uranium bomb, while Nagasaki was targeted with a "Fat Man" implosion-type plutonium bomb.

4. What long-term health effects resulted from the atomic bombings? The bombings caused immediate death and injury to tens of thousands, but also led to long-term health consequences, including cancer and genetic mutations, that continue to impact survivors and their descendants.

5. What international treaties and organizations exist to control nuclear weapons? The Nuclear Non-Proliferation Treaty (NPT) is a cornerstone of international efforts to prevent the spread of nuclear weapons. The International Atomic Energy Agency (IAEA) monitors nuclear activities globally.

the making of the atomic bomb: *The Making of the Atomic Bomb* Richard Rhodes, 2012-09-18 **Winner of the Pulitzer Prize, the National Book Award, and the National Book Critics Circle Award** The definitive history of nuclear weapons—from the turn-of-the-century discovery of nuclear energy to J. Robert Oppenheimer and the Manhattan Project—this epic work details the science, the people, and the sociopolitical realities that led to the development of the atomic bomb. This sweeping account begins in the 19th century, with the discovery of nuclear fission, and continues to World War Two and the Americans' race to beat Hitler's Nazis. That competition launched the Manhattan Project and the nearly overnight construction of a vast military-industrial complex that culminated in the fateful dropping of the first bombs on Hiroshima and Nagasaki. Reading like a character-driven suspense novel, the book introduces the players in this saga of physics, politics, and human psychology—from FDR and Einstein to the visionary scientists who pioneered quantum theory and the application of thermonuclear fission, including Planck, Szilard, Bohr, Oppenheimer, Fermi, Teller, Meitner, von Neumann, and Lawrence. From nuclear power's earliest foreshadowing in the work of H.G. Wells to the bright glare of Trinity at Alamogordo and the arms race of the Cold War, this dread invention forever changed the course of human history, and The Making of The Atomic Bomb provides a panoramic backdrop for that story. Richard Rhodes's ability to craft compelling biographical portraits is matched only by his rigorous scholarship. Told in rich human, political, and scientific detail that any reader can follow, The Making of the Atomic Bomb is a thought-provoking and masterful work.

the making of the atomic bomb: *Dark Sun* Richard Rhodes, 2012-09-18 Here, for the first time, in a brilliant, panoramic portrait by the Pulitzer Prize-winning author of The Making of the Atomic Bomb, is the definitive, often shocking story of the politics and the science behind the development of the hydrogen bomb and the birth of the Cold War. Based on secret files in the United States and the former Soviet Union, this monumental work of history discloses how and why the United States decided to create the bomb that would dominate world politics for more than forty years.

the making of the atomic bomb: Manhattan Project: The Untold Story of the Making of the Atomic Bomb Stephane Groueff, 2023-12-13 "Groueff, a Paris-Match reporter, was sponsored by The Reader's Digest to write this prodigious account of the multiple efforts which went into the creation of the first atomic bomb between 1942 and 1945. The book is a history of the men involved, mainly; and Groves, the military commander, is obviously the author's hero. Reading like the account of a hurdle race, the book charges into a discussion of a problem, then 'finds' and describes the man who bested it. Thus are described the building of Oak Ridge, Fermi's atomic pile, the electromagnetic process, the crises over the barrier and the valves for the gaseous diffusion process, the last-minute decisions concerning the implosion process with plutonium. Groueff does convey well a scene of fantastic activity, where different solutions to one problem were worked on simultaneously, where industrial equipment came before scientific results were known, where the 'impossible' was achieved — in time. The material is fascinating, and the scientific information is well presented... [an] excellent overall view of a monumental project." — Kirkus "Groueff has for the

first time given due recognition to some of the minor figures, particularly engineers and technicians, and has preserved in his pages much information that would otherwise perish with the participants or lie forever buried in the archives." — Kendall Birr, The American Historical Review "Groueff... covers the Manhattan Project from its beginning in 1942 to the bombing of Hiroshima... [he] concentrates on the engineering and industrial effort that went into producing the first atomic weapons... The result is a popular but responsible account, episodic in structure, rich in detail and human interest... for the first time a book aimed at the mass market gives engineers and industrialists their due. It is a great story of the almost incredibly complex task of translating theory into industrial and military reality." — Oscar E. Anderson, Jr., Science "So intriguing in fact and in style is the text of the narrative of this book that, once begun, it cannot be put down until the end... In these pages the names and roles of some of the world's greatest scientists and engineers unfold in thrilling parade, with Dr. Vannevar Bush the leader. These men of vast knowledge and ability unite with the commercial managers and their companies mobilized by the hundreds for the construction and operation of the many facilities involved." — Leo A. Codd, Ordnance "Excellent... maintains a high degree of exciting suspense." — Washington Star "A fascinating account of a stupendous effort." — Chicago Tribune

the making of the atomic bomb: *Bomb (Graphic Novel)* Steve Sheinkin, 2023-01-24 A riveting graphic novel adaptation of the award-winning nonfiction book, Bomb—the fascinating and frightening true story of the creation behind the most destructive force that birthed the arms race and the Cold War. In December of 1938, a chemist in a German laboratory made a shocking discovery: When placed next to radioactive material, a Uranium atom split in two. That simple discovery launched a scientific race that spanned three continents. In Great Britain and the United States, Soviet spies worked their way into the scientific community; in Norway, a commando force slipped behind enemy lines to attack German heavy-water manufacturing; and deep in the desert, one brilliant group of scientists, led by father of the atomic bomb J. Robert Oppenheimer, was hidden away at a remote site at Los Alamos. This is the story of the plotting, the risk-taking, the deceit, and genius that created the world's most formidable weapon. This is the story of the atomic bomb. New York Times bestselling author Steve Sheinkin's award-winning nonfiction book is now available reimagined in the graphic novel format. Full color illustrations from Nick Bertozzi are detailed and enriched with the nonfiction expertise Nick brings to the story as a beloved artist, comic book writer, and commercial illustrator who has written a couple of his own historical graphic novels, including Shackleton and Lewis & Clark. Accessible, gripping, and educational, this new edition of Bomb is perfect for young readers and adults alike. Praise for Bomb (2012): "This superb and exciting work of nonfiction would be a fine tonic for any jaded adolescent who thinks history is 'boring.' It's also an excellent primer for adult readers who may have forgotten, or never learned, the remarkable story of how nuclear weaponry was first imagined, invented and deployed—and of how an international arms race began well before there was such a thing as an atomic bomb." —The Wall Street Journal "This is edge-of-the seat material that will resonate with YAs who clamor for true spy stories, and it will undoubtedly engross a cross-market audience of adults who dozed through the World War II unit in high school." —The Bulletin (starred review) Also by Steve Sheinkin: Fallout: Spies, Superbombs, and the Ultimate Cold War Showdown The Port Chicago 50: Disaster, Mutiny, and the Fight for Civil Rights Undefeated: Jim Thorpe and the Carlisle Indian School Football Team Most Dangerous: Daniel Ellsberg and the Secret History of the Vietnam War Born to Fly: The First Women's Air Race Across America The Notorious Benedict Arnold: A True Story of Adventure, Heroism & Treachery Which Way to the Wild West?: Everything Your Schoolbooks Didn't Tell You About Westward Expansion King George: What Was His Problem?: Everything Your Schoolbooks Didn't Tell You About the American Revolution Two Miserable Presidents: Everything Your Schoolbooks Didn't Tell You About the Civil War

the making of the atomic bomb: The Manhattan Project Francis George Gosling, 1999 A history of the origins and development of the American atomic bomb program during WWII. Begins with the scientific developments of the pre-war years. Details the role of the U.S. government in

conducting a secret, nationwide enterprise that took science from the laboratory and into combat with an entirely new type of weapon. Concludes with a discussion of the immediate postwar period, the debate over the Atomic Energy Act of 1946, and the founding of the Atomic Energy Commission. Chapters: the Einstein letter; physics background, 1919-1939; early government support; the atomic bomb and American strategy; and the Manhattan district in peacetime. Illustrated.

the making of the atomic bomb: *The Manhattan Project* Cynthia C. Kelly, 2020-07-07 On the seventy-fifth anniversary of the first atomic bomb, discover new reflections on the Manhattan Project from President Barack Obama, hibakusha (survivors), and the modern-day mayors of Hiroshima and Nagasaki. The creation of the atomic bomb during World War II, codenamed the Manhattan Project, was one of the most significant and clandestine scientific undertakings of the 20th century. It forever changed the nature of war and cast a shadow over civilization. Born out of a small research program that began in 1939, the Manhattan Project would eventually employ nearly 600,000 people and cost about $2 billon ($28.5 billion in 2020) -- all while operating under a shroud of complete secrecy. On the 75th anniversary of this profoundly crucial moment in history, this newest edition of The Manhattan Project is updated with writings and reflections from the past decade and a half. This groundbreaking collection of essays, articles, documents, and excerpts from histories, biographies, plays, novels, letters, and oral histories remains the most comprehensive collection of primary source material of the atomic bomb.

the making of the atomic bomb: Twilight of the Bombs Richard Rhodes, 2011-09-06 The final volume in Richard Rhodes's prizewinning history of nuclear weapons offers the first comprehensive narrative of the challenges faced in the post-Cold War age. The past twenty years have transformed our relationship with nuclear weapons drastically. With extraordinary depth of knowledge and understanding, Richard Rhodes makes clear how the five original nuclear powers--Russia, Great Britain, France, China, and especially the United States--have struggled with new realities. He reveals the real reasons George W. Bush chose to fight a second war in Iraq, assesses the emerging threat of nuclear terrorism, and offers advice on how our complicated relationships with North Korea and South Asia should evolve. Finally, he imagines what a post-nuclear world might look like, as only he can.

the making of the atomic bomb: The Manhattan Project Al Cimino, 2015-07-14 The ramifications of the Manhattan Project are still with us to this day. The atomic bombs that came out of it brought an end to the war in the Pacific, but at a heavy loss of life in Japan and the opening of a Pandora's box that has tested international relations. This book traces the history of the Manhattan Project, from the first glimmerings of the possibility of such a catastrophic weapon to the aftermath of the bombings of Hiroshima and Nagasaki. It profiles the architects of the bomb and how they tried to reconcile their personal feelings with their ambition as scientists. It looks at the role of the politicians and it includes first-hand accounts of those who experienced the effects of the bombings.

the making of the atomic bomb: *The Making of the Atom Bomb* Victoria Sherrow, 2000 Discusses various topics connected to the production of the atom bomb, including the development of nuclear energy, work on atomic weapons at the Los Alamos and other sites, and the decision to use the first atomic bomb during World War II.

the making of the atomic bomb: Remembering the Manhattan Project Cynthia C. Kelly, 2005-01-27 During World War II, nations raced to construct the worldOCOs first nuclear weapon that would determine the future of the world. The Manhattan Project, one of the most significant achievements of the 20th century, was the culmination of AmericaOCOs war effort. Today, although the issue of nuclear weapons frequently dominates world politics, few are aware of the history behind its development. Part I of this book, comprised of papers from the Atomic Heritage FoundationOCOs Symposium on the Manhattan Project, recounts the history of this remarkable effort and reflects upon its legacy. Most of the original structures of the Manhattan Project have been inaccessible to the public and in recent years, have been stripped of their equipment and slated for demolition. Part II proposes a strategy for preserving these historical artifacts for the public and future generations.

the making of the atomic bomb: *The Apocalypse Factory: Plutonium and the Making of the Atomic Age* Steve Olson, 2020-07-28 A thrilling narrative of scientific triumph, decades of secrecy, and the unimaginable destruction wrought by the creation of the atomic bomb. It began with plutonium, the first element ever manufactured in quantity by humans. Fearing that the Germans would be the first to weaponize the atom, the United States marshaled brilliant minds and seemingly inexhaustible bodies to find a way to create a nuclear chain reaction of inconceivable explosive power. In a matter of months, the Hanford nuclear facility was built to produce and weaponize the enigmatic and deadly new material that would fuel atomic bombs. In the desert of eastern Washington State, far from prying eyes, scientists Glenn Seaborg, Enrico Fermi, and many thousands of others—the physicists, engineers, laborers, and support staff at the facility—manufactured plutonium for the bomb dropped on Nagasaki, and for the bombs in the current American nuclear arsenal, enabling the construction of weapons with the potential to end human civilization. With his characteristic blend of scientific clarity and storytelling, Steve Olson asks why Hanford has been largely overlooked in histories of the Manhattan Project and the Cold War. Olson, who grew up just twenty miles from Hanford's B Reactor, recounts how a small Washington town played host to some of the most influential scientists and engineers in American history as they sought to create the substance at the core of the most destructive weapons ever created. The Apocalypse Factory offers a new generation this dramatic story of human achievement and, ultimately, of lethal hubris.

the making of the atomic bomb: The Atomic Bomb and the End of World War II Herbert Feis, 2015-03-08 This book discusses the decision to use the atomic bomb. Libraries and scholars will find it a necessary adjunct to their other studies by Pulitzer-Prize author Herbert Feis on World War II. Originally published in 1966. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

the making of the atomic bomb: Atomic Salvation Tom Lewis, 2020-07-20 A thought-provoking analysis of the bombing of Hiroshima and Nagasaki—and what might have happened if conventional weapons were used instead. It has always been a difficult concept to stomach—that the atomic bombs dropped on Hiroshima and Nagasaki in 1945, causing such horrific suffering and destruction, also brought about peace. Attitudes toward the event have changed through the years, from grateful relief that World War II was ended to widespread condemnation of the United States. Atomic Salvation investigates the full situation—examining documents from both Japanese and Allied sources, but also using in-depth analysis to extend beyond the mere recounting of statistics. It charts the full extent of the possible casualties on both sides had a conventional assault akin to D-Day gone ahead against Japan. The work is not concerned solely with the military necessity to use the bombs; it also investigates why that necessity has been increasingly challenged over the successive decades. Controversially, the book demonstrates that Japan would have suffered far greater casualties—likely around 28 million—if the nation had been attacked in the manner by which Germany was defeated: by amphibious assault, artillery and air attacks preceding infantry insertion, and finally by subduing the last of the defenders of the enemy capital. It also investigates the enormous political pressure placed on America as a result of their military situation. The Truman administration had little choice but to use the new weapon given the more than a million deaths that Allied forces would undoubtedly have suffered through conventional assault. By chartingreaction to the bombings over time, Atomic Salvation shows that there has been relentless pressure on the world to condemn what at the time was seen as the best, and only, military solution to end the conflict. Never has such an exhaustive analysis been made of the necessity behind bringing World War II to a halt.

the making of the atomic bomb: Atomic Bomb: The Story of the Manhattan Project Bruce

Cameron Reed, 2015-06-01 This volume, prepared by an acknowledged expert on the Manhattan Project, gives a concise, fast-paced account of all major aspects of the project at a level accessible to an undergraduate college or advanced high-school student familiar with some basic concepts of energy, atomic structure, and isotopes. The text describes the underlying scientific discoveries that made nuclear weapons possible, how the project was organized, the daunting challenges faced and overcome in obtaining fissile uranium and plutonium, and in designing workable bombs, the dramatic Trinity test carried out in the desert of southern New Mexico in July 1945, and the bombings of Hiroshima and Nagasaki.

the making of the atomic bomb: Pandora's Keepers Brian Van DeMark, 2003-06-01 There Were Nine of Them: men with the names Oppenheimer, Teller, Fermi, Bohr, Lawrence, Bethe, Rabi, Szilard, and Compton-brilliant men who believed in science and who saw before anyone else did the awesome workings of an invisible world. They came from many places, some fleeing Nazism in Europe, others quietly slipping out of university teaching jobs, all gathering in secret wartime laboratories to create the world's first atomic bomb. At one such place hidden away in the mountains of northern New Mexico-Los Alamos-they would crack the secret of the nuclear chain reaction and construct a device that incinerated a city and melted its victims so thoroughly that the only thing left was their scorched outlines on the sidewalks. During the war, few of the atomic scientists questioned the wisdom of their desperate endeavor. But afterward, they were forced to deal with the sobering legacy of their creation. Some were haunted by the dead of Hiroshima and Nagasaki and would become anti-nuclear weapons activists; others would go on to build bigger and even deadlier bombs. Some would remain friends; others would become bitter rivals and enemies. In explaining their lives and their struggles, Brian VanDeMark superbly illuminates the ways in which these brilliant and sensitive men came to terms with their horrific creation. The result is spectacular history and a moral investigation of the highest order.

the making of the atomic bomb: The Girls of Atomic City Denise Kiernan, 2014-03-11 This is the story of the young women of Oak Ridge, Tennessee, who unwittingly played a crucial role in one of the most significant moments in U.S. history. The Tennessee town of Oak Ridge was created from scratch in 1942. One of the Manhattan Project's secret cities. All knew something big was happening at Oak Ridge, but few could piece together the true nature of their work until the bomb Little Boy was dropped over Hiroshima, Japan, and the secret was out. The reverberations from their work there, work they did not fully understand at the time, are still being felt today.

the making of the atomic bomb: Hiroshima John Hersey, 2020-06-23 Hiroshima is the story of six people—a clerk, a widowed seamstress, a physician, a Methodist minister, a young surgeon, and a German Catholic priest—who lived through the greatest single manmade disaster in history. In vivid and indelible prose, Pulitzer Prize–winner John Hersey traces the stories of these half-dozen individuals from 8:15 a.m. on August 6, 1945, when Hiroshima was destroyed by the first atomic bomb ever dropped on a city, through the hours and days that followed. Almost four decades after the original publication of this celebrated book, Hersey went back to Hiroshima in search of the people whose stories he had told, and his account of what he discovered is now the eloquent and moving final chapter of Hiroshima.

the making of the atomic bomb: *The Making of the Atomic Bomb* Richard Rhodes, 1986 Details the making of the atomic bomb. Includes diagrams and pictures documenting people and places.

the making of the atomic bomb: The Bomb Howard Zinn, 2010-08-01 As a World War II combat soldier, Howard Zinn took part in the aerial bombing of Royan, France. Two decades later, he was invited to visit Hiroshima and meet survivors of the atomic attack. In this short and powerful book, Zinn offers his deep personal reflections and political analysis of these events, their consequences, and the profound influence they had in transforming him from an order-taking combat soldier to one of our greatest anti-authoritarian, antiwar historians. This book was finalized just prior to Zinn's passing in January 2010, and is published on the sixty-fifth anniversary of the bombing of Hiroshima. Simultaneous publication this August in the U.S. and Japan commemorates

the 65th anniversary of the USA's two atomic bombings of Japan by calling for the abolition of all nuclear weapons and an end to war as an acceptable solution to human conflict. Zinn writes with an enthusiasm rarely encountered in the leaden prose of academic history …—New York Times Book Review This collection of essays is a great book for anybody who wants to be better informed about history, regardless of their political point of view.—O, The Oprah Magazine Zinn collects here almost three dozen brief, passionate essays … Readers seeking to break out of their ideological comfort zones will find much to ponder here.—Publishers Weekly A bomb is highly impersonal. The dropper can kill hundreds, and never see any of them. The Bomb is the memoir of Howard Zinn, a bomber in World War II who dropped bombs along the French countryside while campaigning against Germany. After learning of Hiroshima and Nagasaki, Zinn now speaks out against the use of bombs and what it can do to warfare. Thoughtful and full of stories of an old soldier who regrets what he has done, The Bomb is a fine posthumous release that shares much of the lost wisdom of World War II.—James A. Cox, The Midwest Book Review Throughout his academic career, his popular writings and work as an activist Zinn consistently, and often successfully, threw a wrench in the works of the US war machine. He may be gone, but through his powerful and passionate body of work—of which The Bomb is an excellent introduction—thousands of others will be educated and inspired to work for a more humane and peaceful world.—Ian Sinclair, Morning Star The path that Howard Zinn walked—from bombardier to activist—gives hope that each of us can move from clinical detachment to ardent commitment, from violence to nonviolence.—Frida Berrigan, WIN Magazine Howard Zinn (1922 –2010) was raised in a working-class family in Brooklyn, and flew bombing missions for the United States in World War II, an experience he now points to in shaping his opposition to war. Under the GI Bill he went to college and received his Ph.D. from Columbia University. In 1956, he became a professor at Spelman College in Atlanta, a school for black women, where he soon became involved in the civil rights movement, which he participated in as an adviser to the Student Nonviolent Coordinating Committee (SNCC) and chronicled, in his book SNCC: The New Abolitionists. Zinn collaborated with historian Staughton Lynd and mentored a young student named Alice Walker. When he was fired in 1963 for insubordination related to his protest work, he moved to Boston University, where he became a leading critic of the Vietnam War. In his liftetime, Zinn received the Thomas Merton Award, the Eugene V. Debs Award, the Upton Sinclair Award, and the Lannan Literary Award. He is perhaps best known for A People's History of the United States. City Lights Booksellers and Publishers previously published his essay collection A Power Governments Cannot Suppress.

the making of the atomic bomb: Countdown 1945 Chris Wallace, 2020-06-09 The #1 national bestselling “riveting” (The New York Times), “propulsive” (Time) behind-the-scenes account “that reads like a tense thriller” (The Washington Post) of the 116 days leading up to the American attack on Hiroshima by veteran journalist and anchor of Fox News Sunday, Chris Wallace. April 12, 1945: After years of bloody conflict in Europe and the Pacific, America is stunned by news of President Franklin D. Roosevelt’s death. In an instant, Vice President Harry Truman, who has been kept out of war planning and knows nothing of the top-secret Manhattan Project to develop the world’s first atomic bomb, must assume command of a nation at war on multiple continents—and confront one of the most consequential decisions in history. Countdown 1945 tells the gripping true story of the turbulent days, weeks, and months to follow, leading up to August 6, 1945, when Truman gives the order to drop the bomb on Hiroshima. In Countdown 1945, Chris Wallace, the veteran journalist and anchor of Fox News Sunday, takes readers inside the minds of the iconic and elusive figures who join the quest for the bomb, each for different reasons: the legendary Albert Einstein, who eventually calls his vocal support for the atomic bomb “the one great mistake in my life”; lead researcher J. Robert “Oppie” Oppenheimer and the Soviet spies who secretly infiltrate his team; the fiercely competitive pilots of the plane selected to drop the bomb; and many more. Perhaps most of all, Countdown 1945 is the story of an untested new president confronting a decision that he knows will change the world forever. But more than a book about the atomic bomb, Countdown 1945 is also an unforgettable account of the lives of ordinary American and Japanese

civilians in wartime—from “Calutron Girls” like Ruth Sisson in Oak Ridge, Tennessee, to ten-year-old Hiroshima resident Hideko Tamura, who survives the blast at ground zero but loses her mother and later immigrates to the United States, where she lives to this day—as well as American soldiers fighting in the Pacific, waiting in fear for the order to launch a possible invasion of Japan. Told with vigor, intelligence, and humanity, Countdown 1945 is the definitive account of one of the most significant moments in history.

the making of the atomic bomb: Prompt and Utter Destruction J. Samuel Walker, 2016

the making of the atomic bomb: Building The H Bomb: A Personal History Kenneth W Ford, 2015-03-25 In this engaging scientific memoir, Kenneth Ford recounts the time when, in his mid-twenties, he was a member of the team that designed and built the first hydrogen bomb. He worked with — and relaxed with — scientific giants of that time such as Edward Teller, Enrico Fermi, Stan Ulam, John von Neumann, and John Wheeler, and here offers illuminating insights into the personalities, the strengths, and the quirks of these men. Well known for his ability to explain physics to nonspecialists, Ford also brings to life the physics of fission and fusion and provides a brief history of nuclear science from the discovery of radioactivity in 1896 to the ten-megaton explosion of “Mike” that obliterated a Pacific Island in 1952.Ford worked at both Los Alamos and Princeton's Project Matterhorn, and brings out Matterhorn's major, but previously unheralded contribution to the development of the H bomb. Outside the lab, he drove a battered Chevrolet around New Mexico, a bantam motorcycle across the country, and a British roadster around New Jersey. Part of the charm of Ford's book is the way in which he leavens his well-researched descriptions of the scientific work with brief tales of his life away from weapons.

the making of the atomic bomb: Restricted Data Alex Wellerstein, 2021-04-09 Nuclear weapons, since their conception, have been the subject of secrecy. In the months after the dropping of the atomic bombs on Hiroshima and Nagasaki, the American scientific establishment, the American government, and the American public all wrestled with what was called the problem of secrecy, wondering not only whether secrecy was appropriate and effective as a means of controlling this new technology but also whether it was compatible with the country's core values. Out of a messy context of propaganda, confusion, spy scares, and the grave counsel of competing groups of scientists, what historian Alex Wellerstein calls a new regime of secrecy was put into place. It was unlike any other previous or since. Nuclear secrets were given their own unique legal designation in American law (restricted data), one that operates differently than all other forms of national security classification and exists to this day. Drawing on massive amounts of declassified files, including records released by the government for the first time at the author's request, Restricted Data is a narrative account of nuclear secrecy and the tensions and uncertainty that built as the Cold War continued. In the US, both science and democracy are pitted against nuclear secrecy, and this makes its history uniquely compelling and timely--

the making of the atomic bomb: Arsenals of Folly Richard Rhodes, 2008-11-04 Pulitzer Prize-winning author Richard Rhodes delivers a riveting account of the nuclear arms race and the Cold War. In the Reagan-Gorbachev era, the United States and the Soviet Union came within minutes of nuclear war, until Gorbachev boldly launched a campaign to eliminate nuclear weapons, setting the stage for the 1986 Reykjavik summit and the incredible events that followed. In this thrilling, authoritative narrative, Richard Rhodes draws on personal interviews with both Soviet and U.S. participants and a wealth of new documentation to unravel the compelling, shocking story behind this monumental time in human history—its beginnings, its nearly chilling consequences, and its effects on global politics today.

the making of the atomic bomb: Fallout Lesley M.M. Blume, 2020-08-04 A NEW YORK TIMES NOTABLE BOOK OF 2020 New York Times bestselling author Lesley M.M. Blume reveals how one courageous American reporter uncovered one of the deadliest cover-ups of the 20th century—the true effects of the atom bomb—potentially saving millions of lives. Just days after the United States decimated Hiroshima and Nagasaki with nuclear bombs, the Japanese surrendered unconditionally. But even before the surrender, the US government and military had begun a secret

propaganda and information suppression campaign to hide the devastating nature of these experimental weapons. The cover-up intensified as Occupation forces closed the atomic cities to Allied reporters, preventing leaks about the horrific long-term effects of radiation which would kill thousands during the months after the blast. For nearly a year the cover-up worked—until New Yorker journalist John Hersey got into Hiroshima and managed to report the truth to the world. As Hersey and his editors prepared his article for publication, they kept the story secret—even from most of their New Yorker colleagues. When the magazine published “Hiroshima” in August 1946, it became an instant global sensation, and inspired pervasive horror about the hellish new threat that America had unleashed. Since 1945, no nuclear weapons have ever been deployed in war partly because Hersey alerted the world to their true, devastating impact. This knowledge has remained among the greatest deterrents to using them since the end of World War II. Released on the 75th anniversary of the Hiroshima bombing, Fallout is an engrossing detective story, as well as an important piece of hidden history that shows how one heroic scoop saved—and can still save—the world.

the making of the atomic bomb: The Bastard Brigade Sam Kean, 2019-07-09 From New York Times bestselling author Sam Kean comes the gripping, untold story of a renegade group of scientists and spies determined to keep Adolf Hitler from obtaining the ultimate prize: a nuclear bomb. Scientists have always kept secrets. But rarely have the secrets been as vital as they were during World War II. In the middle of building an atomic bomb, the leaders of the Manhattan Project were alarmed to learn that Nazi Germany was far outpacing the Allies in nuclear weapons research. Hitler, with just a few pounds of uranium, would have the capability to reverse the entire D-Day operation and conquer Europe. So they assembled a rough and motley crew of geniuses -- dubbed the Alsos Mission -- and sent them careening into Axis territory to spy on, sabotage, and even assassinate members of Nazi Germany's feared Uranium Club. The details of the mission rival the finest spy thriller, but what makes this story sing is the incredible cast of characters -- both heroes and rogues alike -- including: Moe Bergm, the major league catcher who abandoned the game for a career as a multilingual international spy; the strangest fellow to ever play professional baseball. Werner Heisenberg, the Nobel Prize-winning physicist credited as the discoverer of quantum mechanics; a key contributor to the Nazi's atomic bomb project and the primary target of the Alsos mission. Colonel Boris Pash, a high school science teacher and veteran of the Russian Revolution who fled the Soviet Union with a deep disdain for Communists and who later led the Alsos mission. Joe Kennedy Jr., the charismatic, thrill-seeking older brother of JFK whose need for adventure led him to volunteer for the most dangerous missions the Navy had to offer. Samuel Goudsmit, a washed-up physics prodigy who spent his life hunting Nazi scientists -- and his parents, who had been swept into a concentration camp -- across the globe. Irène and Frederic Joliot-Curie, a physics Nobel-Prize winning power couple who used their unassuming status as scientists to become active members of the resistance. Thrust into the dark world of international espionage, these scientists and soldiers played a vital and largely untold role in turning back one of the darkest tides in human history.

the making of the atomic bomb: Fallout Peter Watson, 2018-09-20 Between December 1943 and August 1944, Franklin Delano Roosevelt and Winston Churchill ignited the Cold War, a superpower rivalry that would dominate the world over half a century, by building an atomic bomb and excluding their Russian allies. Peter Watson tells the pulse-pounding story of how two atomic physicists tried to counter this in two very different ways. While Niels Bohr sought to convince President Roosevelt and Prime Minister Churchill to share their nuclear knowledge with Joseph Stalin, nuclear scientist Klaus Fuchs, a German Communist emigre to Britain, was leaking atomic secrets to the Soviets in a rival attempt to ensure parity between the superpowers. Neither succeeded in preventing the World War II allies from unleashing the atom bomb on the world. Fallout proves that the atomic bomb was not needed, and was made as a result of a series of flawed decisions. The Americans did not tell the UK that the atomic research was compromised by Soviet spies; the British did not tell the Americans that in 1943 they knew for sure that Germany did not

have a nuclear bomb program. Neither country admitted to the scientists developing the bomb that it would never be used to counter the (non-existent) German nuclear threat. Had the scientists known, many of them would have refused to complete work on the bomb. This story shows how politicians fatally failed to understand the nature of atomic science and, in so doing, exposed the world needlessly to great danger, a danger that is still very much with us.

the making of the atomic bomb: Genius in the Shadows William Lanouette, 2013-09-01 Well-known names such as Albert Einstein, Enrico Fermi, J. Robert Oppenheimer, and Edward Teller are usually those that surround the creation of the atom bomb. One name that is rarely mentioned is Leo Szilard, known in scientific circles as “father of the atom bomb.” The man who first developed the idea of harnessing energy from nuclear chain reactions, he is curiously buried with barely a trace in the history of this well-known and controversial topic. Born in Hungary and educated in Berlin, he escaped Hitler’s Germany in 1933 and that first year developed his concept of nuclear chain reactions. In order to prevent Nazi scientists from stealing his ideas, he kept his theories secret, until he and Albert Einstein pressed the US government to research atomic reactions and designed the first nuclear reactor. Though he started his career out lobbying for civilian control of atomic energy, he concluded it with founding, in 1962, the first political action committee for arms control, the Council for a Livable World. Besides his career in atomic energy, he also studied biology and sparked ideas that won others the Nobel Prize. The Salk Institute for Biological Studies in La Jolla, California, where Szilard spent his final days, was developed from his concepts to blend science and social issues.

the making of the atomic bomb: Trinity: A Graphic History of the First Atomic Bomb Jonathan Fetter-Vorm, 2023-11-14 Trinity, the debut graphic book by Jonathan Fetter-Vorm, depicts the dramatic history of the race to build and the decision to drop the first atomic bomb in World War Two—with a focus on the brilliant, enigmatic scientist, J. Robert Oppenheimer. Succeeds as both a graphic primer and a philosophical meditation. —Kirkus Reviews (starred review) This sweeping historical narrative traces the spark of invention from the laboratories of nineteenth-century Europe to the massive industrial and scientific efforts of the Manhattan Project, and even transports the reader into a nuclear reaction—into the splitting atoms themselves. The power of the atom was harnessed in a top-secret government compound in Los Alamos, New Mexico, by a group of brilliant scientists led by the enigmatic wunderkind J. Robert Oppenheimer. Focused from the start on the monumentally difficult task of building an atomic weapon, these men and women soon began to wrestle with the moral implications of actually succeeding. When they detonated the first bomb at a test site code-named Trinity, they recognized that they had irreversibly thrust the world into a new and terrifying age. With powerful renderings of WWII's catastrophic events at Hiroshima and Nagasaki, Fetter-Vorm unflinchingly chronicles the far-reaching political, environmental, and psychological effects of this new invention. Informative and thought-provoking, Trinity is the ideal introduction to one of the most significant events in history.

the making of the atomic bomb: The Making of the Indian Atomic Bomb Itty Abraham, 1998-09 In 1974 India exploded an atomic device. In May 1998 the new BJP Government exploded several more, encountering in the process domestic plaudits but international condemnation and a nuclear arms race in South Asia. This book is the first serious historical account of the development of nuclear power in India and of how the bomb came to be made. The author questions orthodox interpretations implying that it was a product of the Indo-Pakistani conflict. Instead, he suggests that the explosions had nothing to do with national security as conventionally understood. Instead he demonstrates the linkages that existed between the two apparently separate discourses of national security and national development, and explores their common underlying basis in postcolonial states. The result is a remarkable book that breaks new ground in integrating comparative politics, international relations and cultural studies.

the making of the atomic bomb: Atomic Habits James Clear, 2018-10-16 The #1 New York Times bestseller. Over 20 million copies sold! Translated into 60+ languages! Tiny Changes, Remarkable Results No matter your goals, Atomic Habits offers a proven framework for

improving--every day. James Clear, one of the world's leading experts on habit formation, reveals practical strategies that will teach you exactly how to form good habits, break bad ones, and master the tiny behaviors that lead to remarkable results. If you're having trouble changing your habits, the problem isn't you. The problem is your system. Bad habits repeat themselves again and again not because you don't want to change, but because you have the wrong system for change. You do not rise to the level of your goals. You fall to the level of your systems. Here, you'll get a proven system that can take you to new heights. Clear is known for his ability to distill complex topics into simple behaviors that can be easily applied to daily life and work. Here, he draws on the most proven ideas from biology, psychology, and neuroscience to create an easy-to-understand guide for making good habits inevitable and bad habits impossible. Along the way, readers will be inspired and entertained with true stories from Olympic gold medalists, award-winning artists, business leaders, life-saving physicians, and star comedians who have used the science of small habits to master their craft and vault to the top of their field. Learn how to: make time for new habits (even when life gets crazy); overcome a lack of motivation and willpower; design your environment to make success easier; get back on track when you fall off course; ...and much more. Atomic Habits will reshape the way you think about progress and success, and give you the tools and strategies you need to transform your habits--whether you are a team looking to win a championship, an organization hoping to redefine an industry, or simply an individual who wishes to quit smoking, lose weight, reduce stress, or achieve any other goal.

the making of the atomic bomb: The Atomic West Bruce W. Hevly, John M. Findlay, 2011-12-01 The Manhattan Project—the World War II race to produce an atomic bomb—transformed the entire country in myriad ways, but it did not affect each region equally. Acting on an enduring perception of the American West as an “empty” place, the U.S. government located a disproportionate number of nuclear facilities—particularly the ones most likely to spread pollution—in western states. The Manhattan Project manufactured plutonium at Hanford, Washington; designed and assembled bombs at Los Alamos, New Mexico; and detonated the world’s first atomic bomb at Alamagordo, New Mexico, on June 16, 1945. In the years that followed the war, the U.S. Atomic Energy Commission selected additional western sites for its work. Many westerners initially welcomed the atom. Like federal officials, they, too, regarded their region as “empty,” or underdeveloped. Facilities to make, test, and base atomic weapons, sites to store nuclear waste, and even nuclear power plants were regarded as assets. By the 1960s and 1970s, however, regional attitudes began to change. At a variety of locales, ranging from Eskimo Alaska to Mormon Utah, westerners devoted themselves to resisting the atom and its effects on their environments and communities. Just as the atomic age had dawned in the American West, so its artificial sun began to set there. The Atomic West brings together contributions from several disciplines to explore the impact on the West of the development of atomic power from wartime secrecy and initial postwar enthusiasm to public doubts and protest in the 1970s and 1980s. An impressive example of the benefits of interdisciplinary studies on complex topics, The Atomic West advances our understanding of both regional history and the history of science, and does so with human communities as a significant focal point. The book will be of special interest to students and experts on the American West, environmental history, and the history of science and technology.

the making of the atomic bomb: U.S. History P. Scott Corbett, Volker Janssen, John M. Lund, Todd Pfannestiel, Sylvie Waskiewicz, Paul Vickery, 2024-09-10 U.S. History is designed to meet the scope and sequence requirements of most introductory courses. The text provides a balanced approach to U.S. history, considering the people, events, and ideas that have shaped the United States from both the top down (politics, economics, diplomacy) and bottom up (eyewitness accounts, lived experience). U.S. History covers key forces that form the American experience, with particular attention to issues of race, class, and gender.

the making of the atomic bomb: Oppenheimer and the Manhattan Project Cynthia C. Kelly, 2006 2004 marked the centennial of the birth of J Robert Oppenheimer, and brought historians and scholars, former students, nuclear physicists, and politicians together to celebrate

this event. Oppenheimer's life and work became central to 20th century history as he spearheaded the development of the atomic bomb that ended World War II. This book provides a spectrum of interpretations of Oppenheimer's life and scientific achievements. It approaches the extraordinary scientist and teacher from many perspectives, chronicling the years from his boyhood through his role as director of the Los Alamos National Laboratory and afterwards. The book also discusses Oppenheimer's connection to New Mexico, which hosted two of the Manhattan Project's most crucial sites, and addresses his lasting impact on contemporary science, international politics, and the postwar age.

the making of the atomic bomb: Hiroshima Nagasaki Paul Ham, 2014-08-05 A history and analysis of the WWII nuclear bombings of Japan from “a master of engrossing and exciting narrative” (Los Angeles Review of Books). In this harrowing history of the Hiroshima and Nagasaki bombings, Paul Ham argues against the use of nuclear weapons, drawing on extensive research and hundreds of interviews to prove that the bombings had little impact on the eventual outcome of the Pacific War. More than 100,000 people were killed instantly by the atomic bombs, mostly women, children, and the elderly. Many hundreds of thousands more succumbed to their horrific injuries later, or slowly perished of radiation-related sickness. Yet American leaders claimed the bombs were “our least abhorrent choice” —and still today most people believe they ended the Pacific War and saved millions of American and Japanese lives. In this gripping narrative, Ham demonstrates convincingly that misunderstandings and nationalist fury on both sides led to the use of the bombs. Ham also gives powerful witness to its destruction through the eyes of eighty survivors, from twelve-year-olds forced to work in war factories to wives and children who faced the holocaust alone. Hiroshima Nagasaki presents the grisly unadorned truth about the bombings, blurred for so long by postwar propaganda, and transforms our understanding of one of the defining events of the twentieth century. Praise for Hiroshima Nagasaki “Moral anger drives Mr. Ham . . . Ordinary Japanese, Mr. Ham believes, were less emperor-worshiping fanatics than victims of an authoritarian elite that prolonged the war with no regard for their hardships.” —The Wall Street Journal “Ham presents a forceful argument that the bombing was excessive and unjustified. . . . In this sweeping and comprehensive history, Ham details the geopolitical considerations and huge egos behind evolving theories of warfare. . . . But most powerful are the eyewitness accounts of 80 survivors, ordinary people caught up in the events of war.” —Booklist (starred review)

the making of the atomic bomb: Picturing the Bomb Rachel Fermi, Esther Samra, 1995 The compelling photographs from the Manhattan Project, by turns specific, abstract, dramatic, and surreal, offer a multifaceted look at history. Photographs of landscapes and of construction, of scientific experiments and their results, are framed against official portraits and casual snapshots.

the making of the atomic bomb: Visions Of Technology Richard Rhodes, 2012-09-18 Technology was the blessing and the bane of the twentieth century. Human life span nearly doubled in the West, but in no century were more human beings killed by new technologies of war. Improvements in agriculture now feed increasing billions, but pesticides and chemicals threaten to poison the earth. Does technology improve us or diminish us? Enslave us or make us free? With this first-ever collection of the essential twentieth-century writings on technology, Pulitzer Prize-winning historian Richard Rhodes explores the optimism, ambivalence, and wrongheaded judgments with which Americans have faced an ever-shifting world. Visions of Technology collects writings on events from the Great Exposition of 1900 and the invention of the telegraph to the advent of genetic counseling and the defeat of Garry Kasparov by IBM's chess-playing computer, Deep Blue. Its gems of opinion and history include Henry Ford on the horseless carriage, Robert Caro on the transformation of New York City, J. Robert Oppenheimer on science and war, Loretta Lynn on the Pill and much more. Together, they chronicle an unprecedented century of change.

the making of the atomic bomb: Atomic Tragedy Sean L. Malloy, 2008

the making of the atomic bomb: The Children of Atomic Bomb Survivors National Research Council, Division on Earth and Life Studies, Commission on Life Sciences, 1991-02-01 Do persons exposed to radiation suffer genetic effects that threaten their yet-to-be-born children?

Researchers are concluding that the genetic risks of radiation are less than previously thought. This finding is explored in this volume about the children of atomic bomb survivors in Hiroshima and Nagasakiâ€the population that can provide the greatest insight into this critical issue. Assembled here for the first time are papers representing more than 40 years of research. These documents reveal key results related to radiation's effects on pregnancy termination, sex ratio, congenital defects, and early mortality of children. Edited by two of the principal architects of the studies, J. V. Neel and W. J. Schull, the volume also offers an important comparison with studies of the genetic effects of radiation on mice. The wealth of technical details will be immediately useful to geneticists and other specialists. Policymakers will be interested in the overall conclusions and discussion of future studies.

the making of the atomic bomb: *Brotherhood of the Bomb* Gregg Herken, 2013-08-13 “The scientists who made the nuclear bomb are the focus of this detailed, engrossing history of one of the greatest scientific discoveries of the 20th century.” —Publishers Weekly The story of the twentieth century is largely the story of the power of science and technology. Within that story is the incredible tale of the human conflict between Robert Oppenheimer, Ernest Lawrence, and Edward Teller—the scientists most responsible for the advent of weapons of mass destruction. The story of these three men, builders of the atomic and hydrogen bombs, is fundamentally about loyalty—to country, to science, and to each other—and about the wrenching choices that had to be made when these allegiances came into conflict. In Brotherhood of the Bomb, Gregg Herken gives us the behind-the-scenes account based upon a decade of research, interviews, and newly released Freedom of Information Act and Russian documents.

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the act of a person or thing that makes, produces, etc.:[uncountable] the making of dresses. Usually, makings. [plural] the qualities necessary to develop into or become something: has the …

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