

Arsenals of Folly

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*THE MAKING OF THE NUCLEAR ARMS RACE.

By Richard Rhodes

Knopf. 386 pp.

When Richard Rhodes's *The Making of the Atomic Bomb* appeared in 1986, it was widely and rightly recognized as a masterpiece of historical writing. Its genre is that of the chronicle written soon enough after the events in question to convey their atmosphere and the feelings they stirred yet distant enough to permit dispassionate analysis. (Thucydides' *The Peloponnesian War* was perhaps the first great work of this kind; Hannah Arendt's *The Origins of Totalitarianism* is a more recent example). *The Making of the Atomic Bomb* also sits on the very narrow shelf of books that, by some alchemy not easily understood, grasp the dread but notoriously human truth of the nuclear danger. A few other books on that shelf—to offer a nonexclusive and no doubt opinionated listing—are John Hersey's *Hiroshima*, Michihiko Hachiya's *Hiroshima Diary*, Robert Jay Lifton's *Death in Life* (among other works of his, including his recent *Superpower Syndrome*), Gar Alperovitz's *The Decision to Drop the Atomic Bomb and the Architecture of an American Myth* and Martin Sherwin and Kai Bird's recent biography of Robert Oppenheimer, *American Prometheus*.

Rhodes made several stylistic and structural decisions that proved indispensable to the stature of his book. In the first place, he turned his historical microscope up to a power at which the actions and personalities of his cast of characters were made visible to the reader. A forbidding subject—the Manhattan Project and the scientific discoveries that made it possible—became a tapestry of individual lives. The British scientist Ernest Rutherford, pioneer of the landscape within the atom; the ineffable Hungarian scientist and persistent nuclear disarmament Leo Szilard, who persuaded Einstein to write Roosevelt in 1939 recommending that he start a nuclear-weapon program (an act Szilard later regretted); Oppenheimer, who seemed to combine the personalities of a dozen people in one skin; the great physicist Niels Bohr, as wise in the ways of the new politics required by the bomb as he was in the elementary new physical principles that had made it possible—all these people and dozens of others spring to life in Rhodes's pages. And thanks to the same immersion in detail, as well as Rhodes's talent for explicating science to the layperson, the stories of scientific discoveries—from Bohr's unfolding of the structure of the atom to George Kistiakowsky's solution to the problem of imploding the plutonium core of history's first atomic bomb—become absorbing, suspenseful dramas. It turns out to be quite remarkable how much science one can understand without being a scientist.

In the second place, Rhodes casts his historical net wide, sweeping in events that at first thought might seem distant from the goings-on at Los Alamos, where the bomb was being put together in the early 1940s. These events include Hitler's murderous rage at Jews (not long after World War I, he expressed his view that if only 12,000-15,000 Jews were "held under poison gas," Germany's problems would end); the Munich negotiations of 1938; the attack on Pearl Harbor; the Nazi invasion of the Soviet Union in June 1941 and the Soviet counterattack in

December of that year; the deliberate annihilation by firebombing of German cities ("INTENTION: to destroy Hamburg," read Most Secret Operation Order no. 173, and the intention was fulfilled); and the grisly battle for Okinawa, in which thousands of Okinawans were persuaded by the authorities to commit suicide by plunging off cliffs.

These collateral events are illuminating as the broad context in which the first decisions regarding the bomb were taken. But they also serve an equally important narrative purpose. From its very beginnings, the bomb, like some malign, invisible deity, has repelled the direct gaze of human beings. In this special circumstance, Rhodes's collateral stories provide an oblique path to the central matter, walking the readers up to the edge of the abyss, even if they cannot look directly in. For the horrors of twentieth-century war and totalitarian rule were the moral and political steppingstones to atomic destruction as much as twentieth-century developments in physics were the scientific steppingstones to the invention of the device. The earlier, somewhat more comprehensible horrors acclimate the reader, so that by the time Rhodes describes the results on the ground at Hiroshima and Nagasaki (humankind's only experience of atomic destruction) readers are better prepared to absorb these unspeakable scenes—scenes that, for all their horror, are only the tiniest corner of the ones that would unfold in a full-scale nuclear holocaust.

With the publication in 1995 of Rhodes's *Dark Sun*, which recounts the birth of the hydrogen bomb, and now, of *Arsenals of Folly*, it's clear that Rhodes has been shouldering into view a project even more ambitious than *The Making of the Atomic Bomb*: a history that's nothing less than a portrait of the nuclear age. (A fourth and perhaps final volume is promised.) No other writer has undertaken such a project, and it is doubtful that any other writer could accomplish it if he were to try. Every age finds the writers it needs, and the nuclear age has found Richard Rhodes.

The Making of the Atomic Bomb had the literary advantage of covering events that formed an obvious, self-contained story, with a clear beginning (the scientific discoveries that made the bomb possible), middle (the actual "making" by the team at Los Alamos) and end (the bombings of Hiroshima and Nagasaki). However, if, like Rhodes, one looks at this tightly connected series of events from a wider angle of vision, it becomes clear that they span two distinct ages: the age of world war, lasting from 1914 to 1945, and the nuclear age, from 1945 to the indefinite future. The line dividing the two is sharp because the revolutionary changes the bomb was to bring in its wake would rule out any further world war. (You could try it, but no one could win, for all would die.) The overlap of the two ages was short indeed, amounting to less than a month: the first atomic bomb was tested on July 16, 1945, in the New Mexico desert; the second was used on Hiroshima on August 6, the third on Nagasaki on August 9; and Japan signaled its readiness to surrender on August 14.

It was not inevitable that the making of the bomb would arrive in time to conclude the war. Nothing stops people from imagining that the scientists, who raced to complete the bomb in time to use it against Japan, might have required another year or two, in which case the bomb would have arrived in a world at peace. There probably would have been no occasion to use one to destroy a city.

More important for the future, no impression could have been created that the bomb had ended a great war. The very unity of the story-spanning the transition from invention to use-created an appearance that the new weapon might not be so different from old ones: Like the U-boat, or the tank, or the B-29, the bomb seemed to be one more weapon for war. This picture of the bomb as a war-winning weapon was destined to become the most persistent illusion of the nuclear age and the greatest of all the obstacles to ending nuclear danger.

Rhodes, for one, has no traffic with this illusion. On the contrary, he seizes upon a completely opposite understanding of the nature of the bomb suggested by Niels Bohr, whom he quotes as saying, "We are in an entirely new situation that cannot be solved by war." Instead of being a weapon of war, the bomb was the nemesis of warring great powers. As Rhodes explains, Bohr saw

all the way to the present, when a menacing standoff has been achieved and maintained for decades without formal agreement. He wondered if the war-weary statesmen of the day, taught the consequences of his revelation, could be induced to forestall those consequences, to adjourn the game when the stalemate revealed itself rather than illogically to play out the menacing later moves.

After finishing *The Making of the Atomic Bomb*, Rhodes plunged into the new age, writing *Dark Sun*. The events recounted precluded the book from having the satisfying unity of its predecessor. For one thing, there was most fortunately to be no use of the H-bomb, much less of the whole infernal arsenal, to provide a natural conclusion to the book. (Of course, such an event likely would have finished off the book's writer, in which case there would have been no book at all.) For another, in 1949, the Soviet Union tested its first atomic bomb, demonstrating that the "secret" of the bomb could not be kept. The new age was to be opened. With the Soviet test and the arrival of the H-bomb, the nuclear story became less a specific chain of linked events in a single country and more like a mist spreading across the world, as the nuclear know-how passed from mind to mind and country to country (in the process later called "proliferation"), all the while haunting the minds of its first superpower possessors with a nervous insecurity and bottomless dread that they could neither quite face up to nor shake off.

In the face of these difficulties, Rhodes's modus operandi still serves him well. Again he tells individual stories; again he conducts the layman through scientific thickets in vigorous, lucid, compressed prose; again he casts his historical net wide. He tells the stories of the Soviet program to acquire the bomb (obtusely, Stalin, his mind clouded by the conventional wisdom of ideology, failed to understand the revolutionary import of the new weapon until it was used on Hiroshima); the growth of the American Strategic Air Command under Gen. Curtis LeMay; the debates among officials in the American government over whether to build the H-bomb, which many of them knew to be "genocidal"; the twisted and deranged security hearings that barred Robert Oppenheimer, the scientific leader of the A-bomb project, from access to H-bomb secrets.

Drawing on this material, he deepens the lesson he began to draw in *The Making of the Atomic Bomb*. Science had not created a weapon for war. Rather,

fission introduced a singularity into the human world—a deep new reality, a region where the old rules of war no longer applied. The region of nuclear singularity enlarged across the decades, sweeping war away at its shock front until today it excludes all but civil wars and limited conventional wars.

Arsenals of Folly has no new bomb or other technical discovery to organize it, but it still has a center of gravity: the decades-long technical, bureaucratic and, above all, political struggle over the composition, size and ultimate disposition of the preposterously gigantic American and Soviet arsenals (65,000 thermonuclear bombs at their peak). Inasmuch as part of this story is the modestly successful effort, beginning in the late 1960s, to rein in the nuclear buildup, Rhodes turns in this volume from the making of the bomb to its unmaking, a task that has proven more difficult for those dedicated to it.

The struggle proceeded on two fronts. One was the civilian and military bureaucracies of the United States and the Soviet Union. Rhodes shows more vividly than anyone has before that, within the cold war between the superpowers, there was an even colder war being fought among factions within the nuclear establishments in Washington and Moscow. George Shultz and other American officials tell Rhodes that these internal battles were more viciously contested than any with the Soviet Union.

On the one side were the hawks, persistently seeking to enlarge nuclear arsenals. In the United States, they were heirs to Hiroshima: the image of the bomb as a war winner set the stage for the rise of a postwar school of thought based on the conviction that nuclear war, like conventional war, could be fought and won. Its members believed that "Victory Is Possible," in the words of the title of an article written by two Reagan advisers, Keith Payne and Colin Gray, and they fought tenaciously for American nuclear superiority without end. For them, the idea that nuclear arms were not usable military instruments was anathema. In the words, quoted by Rhodes, of one of their number, the Harvard historian Richard Pipes, who became Reagan's National Security Adviser on Russian affairs, those who disagreed with the war-fighting school were "no more prepared to take seriously the proposition that nuclear weapons might be effective instruments of warfare than to waste time proving that the earth is not flat."

On the other side of the bureaucratic struggle were the disarmers and arms controllers—to speak comparatively, they were nuclear doves—who did indeed regard any notion that nuclear war could be won as a flat-earth sort of proposition. They took their stand on a factual foundation succinctly stated by Jerome Wiesner, President Kennedy's science adviser, who later became president of MIT.

For most cities it is reasonable to equate one bomb and one city. I would say 50 bombs, properly placed, would probably put a society out of business, and 300 such in each of the two countries leading the arms race would destroy their civilizations.

Curiously, after about 1960, when a debate raged over the usefulness of civil defense shelters in a nuclear war, the nuclear-war fighters did not attempt to rebut Wiesner's assessment, based as it was on proven facts regarding the destructive capacities of nuclear weapons. Instead, their point of attack was a series of allegations that the Soviet Union was ahead and therefore the United

States needed to catch up. "Threat inflation" became their stock in trade. The allegations included the false charge that there was a "missile gap" in the late 1950s (there was one, but it overwhelmingly favored the United States) and repeated misleading charges in the '70s that the Soviet Union had gained a dangerous superiority (the truth was that the United States had the upper hand in some categories, such as the number of warheads, while the Soviets had it in others, such as the number of land-based missiles).

In the background of these debates was the less-discussed question of whether superiority in numbers mattered at all in a world in which Wiesner's 300 warheads could destroy any country's civilization. The war fighters resorted to a complicated argument: even if it were true that, say, the 30,000th warhead would only make the rubble bounce for the hundredth time (if there was any rubble left at that point), superiority was still important for "psychological" reasons. Nuclear bombs, in this view, were chiefly "political" weapons, and if people thought superiority was important, then their belief made it so. This belief was not held only by the war fighters; almost all nuclear strategists subscribed to a version of it. Strangely, it apparently never occurred to them that if a widespread false impression- a delusion-was the problem, then the solution might be not to bow to it, thus confirming it, but to dispel it, through statements, arguments and public education of all kinds.

The nuclear doves, of course, held that if a nuclear war would end civilization, it could not be won. In addition, they argued that once overkill had been obtained, any further buildup would be redundant; therefore, agreements bringing verified mutual reductions made sense. Each side in the debate had some successes: for the hawks, it was the gigantic arsenals themselves; for the doves, it was the web of arms control treaties-the atmospheric Test Ban Treaty, the Nuclear Nonproliferation Treaty, the first and second Strategic Arms Limitations Talks.

The second front on which the struggle over the cold war arsenals took place was that of heads of state. In *Arsenals of Folly*, Rhodes concentrates almost all his attention at this level on Reagan and Gorbachev, and he devotes several chapters to the evolution of their views, beginning with their boyhood years. He is right to do so because they brought something entirely new to the official debate. Traveling along their separate routes, both had somehow escaped the limitations of the war-within-a-war raging in their bureaucracies. Both were nuclear abolitionists. The paradoxes involved in this development, when superadded to the contradictions of conventional nuclear policy, are mind-boggling. How did a man of democratic and nonviolent bent like Gorbachev rise to the apex of a system as brutal as the Soviet Union's-and then propose full nuclear disarmament? How did Ronald Reagan, whose Administration gathered into one place the greatest number of nuclear war fighters ever assembled, arrive at the doves' conclusion, announced by him before the Japanese Diet in 1983, that "a nuclear war cannot be won and must never be fought"-and also champion full disarmament? The unbearable tragedy is that when the two leaders came within a hair's breadth of agreeing to proceed to their common goal at their summit meeting in Reykjavik, Iceland, in 1986, the enterprise was tripped up by

misleading advice from some of the very war fighters whose premises Reagan had rejected.

That tale, which in Rhodes's hands reads like a first-class mystery story, is too complex to reprise here. Suffice it to note that not only was Reagan an unlikely nuclear abolitionist but, guided by a visceral revulsion against nuclear weapons, he may have been unwilling to launch nuclear retaliation even if the United States were attacked with nuclear weapons first. Rhodes quotes Reagan's adviser on Soviet affairs, Jack Matlock Jr. :

I think deep down he doubted that, even if the United States was struck, that he could bring himself to strike another country with [nuclear weapons]. He could never hint, but I sort of sensed [that].

Amazingly, Gorbachev was of like mind. According to the Russian historian Vladislav Zubok, Gorbachev once participated in a war game simulating an American attack on the Soviet Union, but, when the critical moment came, balked. Later, Gorbachev stated in an interview:

From the central control panel came the signal: missiles are flying towards our country, make a decision. Minute after minute passes, information pours in. I have to give the command for a strike of retaliation.... I said: "I will not press the button even for training purposes."

As Rhodes embarks on his fourth volume, he approaches the present moment, or whatever it will be when he finishes the book. History has yet to disclose the end of the epic he has committed himself to write. *Arsenals of Folly* gives plenty of cause for gloom, but also reasons not to abandon hope. Were the leaders of the two superpowers of that time not only fervent nuclear abolitionists but nuclear pacifists as well, as Matlock and Zubok suggest? If these reports are correct, they leave half a century of strategic calculation, all of which has depended on the certitude of nuclear retaliation, a shambles. They suggest that a radical rethinking of the conventional wisdom regarding nuclear arms is not only decades overdue but also possible. □□□

[Source : The Nation]