# Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939-1956

*David Holloway*
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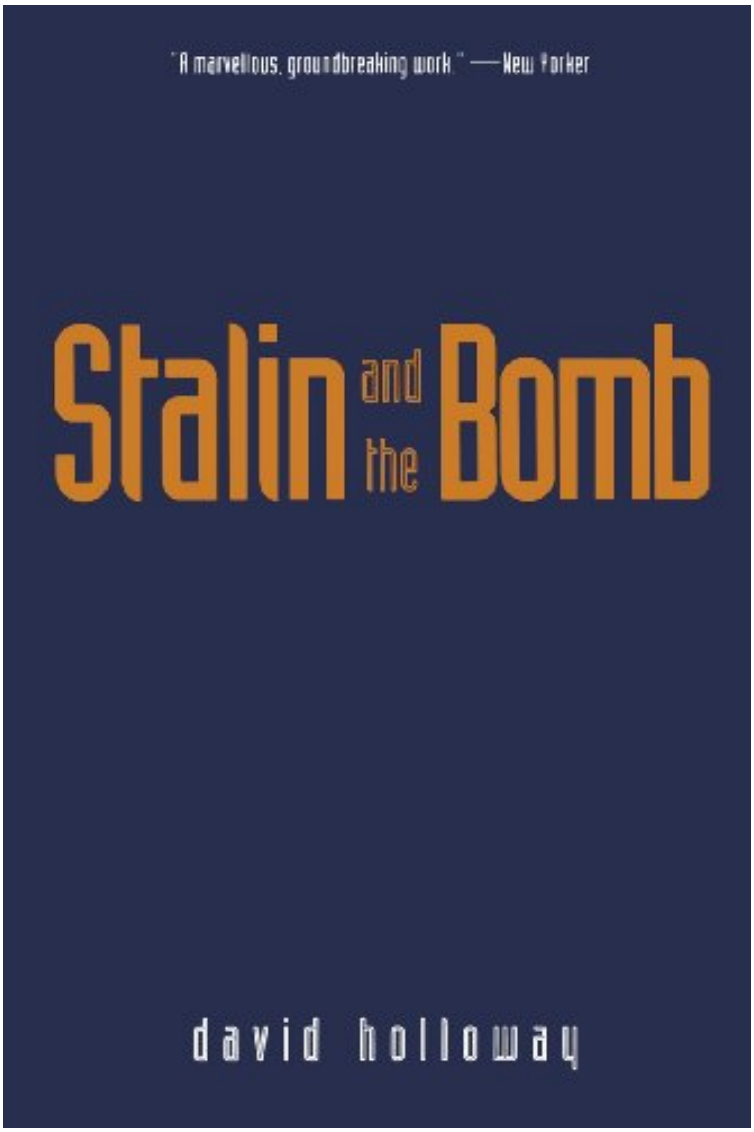




#1107520 in Books 1996-03-27Ingredients: Example IngredientsOriginal language:EnglishPDF # 1 9.21 x 1.02 x 6.14l, 1.53 #File Name: 0300066643480 pages | File size: 31.Mb

**David Holloway : Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939-1956** before purchasing it in order to gage whether or not it would be worth my time, and all praised Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939-1956:

0 of 0 people found the following review helpful. I just finished it today. A very interesting read ...By olderguysruleI just finished it today. A very interesting read. Probably more emphasis on the political than the technology aspects. Ya

read this book and those by Richard Rhodes and it makes one wonder how the U.S and the USSR avoided atomic warfare in the decades after WW2.2 of 3 people found the following review helpful. Full of useful info on the Cold War well beyond the bomb itself.By John DesmondI teach a course in "Strategic Weapons and Arms Control" and found lots of new data here. The author goes into a bit too much detail (for me) on the science of nuclear weapons, but his discussion of the impact of the bomb on the world scene is first rate. One issue is that he discounts the testimony of former Soviet intel officer Sudoplatov that Robert Oppenheimer, among others, was a witting source of information for the Soviets on the bomb program, but he does not provide any evidence for his assumption.15 of 15 people found the following review helpful. Intriguing Analysis of a Hidden EpisodeBy G. W. ThielmanDavid Holloway, a professor at Stanford, has published an intriguing history of Soviet nuclear weapons development in _Stalin_and_the_Bomb_. This volume interweaves two main themes--the technical difficulties in designing and fabricating nuclear weapons, and the political motivations commanding these efforts along with their strategic implications.Many of the major participants are familiar to readers of Soviet history, such as Stalin, Beria, Molotov and Khrushchev. However, the important actors in this drama were the technical experts who created these engines of destruction on behalf of their masters. Many prominent scientists labored to provide the theoretical and experimental support demanded by Stalin for rapid industrialization, laying the groundwork for the tremendous infrastructure needed to duplicate the achievements of the Manhattan Project years later. Research in radioactivity eventually led to the first spontaneous fission experiment in 1940, but this did not attract attention in the West, where restrictions began for publication on nuclear physics.Work on fission continued during the war, but the lack of uranium prevented much advancement. Holloway, in examining the directives during this period, found priorities unchanged following the Potsdam meeting, in contrast to the subsequent demand for uranium production after Hiroshima. He attributes Stalin's casual reaction to Truman's mention of a new weapon to skepticism regarding its importance. But the bomb as a colossal reality, not merely as an intelligence phantom, presented Stalin with a new strategic contention. His response was to show resolve in the face of anticipated intimidation coupled with orders to develop this technology independently. However, he only recognized the bomb as an instrument of Anglo-American policy, and refused to consider it militarily decisive in any potential conflict. When challenging US policy over Berlin, for example, Stalin carefully applied pressure while keeping his options open and took care not to escalate tensions beyond retraction.The achievement of creating an atomic bomb, given the devastating post-war depravation of the Soviet Union can be credited primarily to Igor Kurchatov, the scientific director of the nuclear project from 1942 until his death in 1960. Kurchatov was a well respected figure in Soviet physics, but he also provided a methodical and systematic orchestration to a project with many difficult sundry en-gineering obstacles to overcome, not to mention the menacing oversight by Beria, head of the NKVD. Although awarded privileged status in the post-war Soviet Union, the scientists recognized their position as predicated on successful completion of this task.The primary obstacle remained the inadequate supply of uranium metal until 1948 when the first production reactor was built. Uranium isotope separation and plutonium precipitation were tackled with indus-trial vigor. The gaseous diffusion facility, modeled on the Oak Ridge plant involved particular engineering difficulties to be solved before uranium enrichment could proceed. Yulii Khariton, director of the secret nu-clear research laboratory Arzamas-16, led the study on the physics of detonation. Implosion was needed to compress the plutonium a few microseconds in order to start the chain reaction. Their first atom bomb was exploded August 1949 at Semipalatinsk with a yield of 20 kilotons of TNT. Thus the Soviet Union joined the nuclear club.While espionage yielded useful information at the West's expense, Holloway argues that Klaus Fuchs saved the Soviets only about a year or two by giving dimensions of the plutonium implosion design. He compares the first Soviet atom bomb explosion in 1949 with the first British demonstration in 1952 despite much closer collaboration with the Americans than anything obtained clandestinely by their Soviet counterparts. Holloway also contends that the contribution by captured Germans was comparatively minor and sped the project by only a few weeks or months--principally in the area of processing uranium.While the bomb was being developed, Stalin initiated orders on delivery systems--bombers by Vladimir Myasishchev and rockets by Sergei Korolev. In Stalin's view, another war was inevitable within two decades, and the atomic bomb would serve as merely another policy instrument. After he died in March 1953, his successors embarked on a less confrontational rapproachement with the West.After the Soviets demonstrated their ability to create weapons based on nuclear fission, Truman decided to pursue the hydrogen bomb, because there was no indication that Stalin would reciprocate a policy of restraint. After some false starts, a method to use X-ray compression from fission to implode the thermonuclear charge was discovered, enabling a yield limited only by the quantity of nuclear fuel. The Mike test in November 1952 verified this concept with an ungainly 60-ton refrigerated assembly. Meanwhile, the Russians embarked on fusion independently. A young physicist, Andrei Sakarov began work in 1948 and joined the Arzamas-16 facility, developing the "Layer Cake" which resembled the boosted fission weapon, before advancing on the two-stage Super. The first thermonuclear bomb was exploded in August 1953, and apparently alarmed Kurchatov, being 20 times more power-ful than the first Soviet fission bomb four years earlier. In November 1955, the first two-stage thermonuclear bomb with a yield of 1.6 megatons was exploded.The first Soviet fusion explosion produced a profound change in the attitudes of politburo members about the same time that Americans realized that this new weapon represented a far more potent destructive force than the

fission variety. In the aftermath of this revelation, a more conciliatory "peaceful coexistence" doctrine began to develop. Khrushchev's increased dialog with western leaders also facilitated long dormant communication between Soviet physicists and their colleagues beyond the Iron Curtain. Kurchatov's visit in 1956 was well received at Harwell, the British power station. From this small privileged enclave, a civilizing influence was nurtured within a totalitarian society. Eventually, Sakarov went beyond the usual misgivings of Soviet society to become a dissident and human rights advocate._Stalin_ concludes that the arms race between the two blocks was contingent solely on Stalin's intentions. Holloway believes that in the post-war years the bomb probably restrained the use of force but also made Stalin less cooperative to avoid seeming weak.The book is not without flaws--some identifications to the KGB presumably belong to NKVD, the American arsenal in June 1946 lists a grossly exces-sive nine atom bombs taken from the _Bulletin of_Atomic_Scientists_ compared to _The Winning_Weapon_ by Gregg Herken which identified a single partially disassembled weapon in the inventory in January 1947, and an annoying transliteration of two Cyrillic characters as "ia" and "iu" instead of "ya" and "yu" as more conventionally employed. Otherwise, _Stalin_ is a tremendous addition to our knowledge of Russian capabilities in physics instigated by a repressive regime at the dawn of the nuclear age.

For forty years the Soviet-American nuclear arms race dominated world politics, yet the Soviet nuclear establishment was shrouded in secrecy. Now that the Cold War is over and the Soviet Union has collapsed, it is possible to answer questions that have intrigued policymakers and the public for years. How did the Soviet Union build its atomic and hydrogen bombs? What role did espionage play? How did the American atomic monopoly affect Stalin's foreign policy? What was the relationship between Soviet nuclear scientists and the country's political leaders? This spellbinding book answers these questions by tracing the history of Soviet nuclear policy from developments in physics in the 1920s to the testing of the hydrogen bomb and the emergence of nuclear deterrence in the mid-1950s.In engrossing detail, David Holloway tells how Stalin launched a crash atomic program only after the Americans bombed Hiroshima and showed that the bomb could be built; how the information handed over to the Soviets by Klaus Fuchs helped in the creation of their first bomb; how the scientific intelligentsia, which included such men as Andrei Sakharov, interacted with the police apparatus headed by the suspicious and menacing Lavrentii Beria; what steps Stalin took to counter U.S. atomic diplomacy; how the nuclear project saved Soviet physics and enabled it to survive as an island of intellectual autonomy in a totalitarian society; and what happened when, after Stalin's death, Soviet scientists argued that a nuclear war might extinguish all life on earth.This magisterial history throws light on Soviet policy at the height of the Cold War, illuminates a central but hitherto secret element of the Stalinist system, and puts into perspective the tragic legacy of this program today—environmental damage, a vast network of institutes and factories, and a huge stockpile of unwanted weapons.

From Publishers WeeklyTracing the development of nuclear power in Stalinist Russia, Holloway examines such topics as the role of espionage and the relationships between scientists and politicians. 