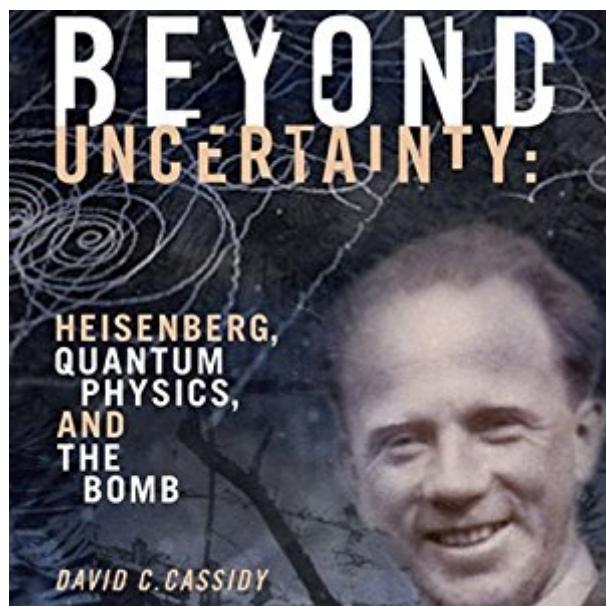


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Beyond Uncertainty: Heisenberg, Quantum Physics, And The Bomb



Synopsis

In 1992, David C. Cassidy's groundbreaking biography of Werner Heisenberg, *Uncertainty*, was published to resounding acclaim from scholars and critics. Michael Frayn, in the playbill of the Broadway production of *Copenhagen*, referred to it as one of his main sources and "the standard work in English". Richard Rhodes (*The Making of the Atom Bomb*) called it "the definitive biography of a great and tragic physicist", and the *Los Angeles Times* praised it as an "important book". Cassidy has sifted the record and brilliantly detailed Heisenberg's actions." No book that has appeared since has rivaled *Uncertainty*, now out of print, for its depth and rich detail of the life, times, and science of this brilliant and controversial figure of 20th-century physics. Since the fall of the Soviet Union, long-suppressed information has emerged on Heisenberg's role in the Nazi atomic bomb project. In *Beyond Uncertainty*, Cassidy interprets this and other previously unknown material within the context of his vast research and tackles the vexing questions of a scientist's personal responsibility and guilt when serving an abhorrent military regime.

Book Information

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Customer Reviews

The term "uncertainty" entered the realm of physics and captivated philosophers as well. "Uncertainty" is interwoven with its developer Werner Heisenberg's life in which the term is so ironic and apropos. Other books about Heisenberg, an award winning play by Frayn etc. keep the topic intriguing. This book is an excellent biography that unfolds the myriad contradictions in Heisenberg's behavior as a dedicated German flitting through the Nazi era and who became a focal point for "what

is responsibility" and who "behaved well" and who did not. The record on Heisenberg is not conclusive but the detail in which Cassidy presents Heisenberg's life and works makes for captivating reading: it is thorough, fair and as clear as uncertainty allows on Heisenberg and other participants in this era. If you want a discussion of "uncertainty" in the technical sense (for it is a quantifiable thing) you will not find it here; you will get good general coverage of the physics but the book is primarily a very well researched and unbiased assessment of the life of its subject and of his behavior during his deep involvement with twentieth century physics and with his colleagues and acquaintances in Nazi Germany (and with Bohr, Goudsmith and others who were not in Germany.)

Beyond Uncertainty is a book that introduces you to ALL the Brains in the "Uranium Club." Heisenberg was just one of several great minds that Germany in the 1920's & 30's generated. You are lead down the path of Nazi-ism in a gentle way and you can imagine your family caught in such a trap...actually the whole Hitler thing comes into focus, not just as American views of Germany in the 1930's. In 1939 Heisenberg shows up at German Army HQ in his little corporal's uniform, ready to do his part. The General in charge says "Heisenberg, oh My... we know you are Nobel Lauriat, now go down in the basement with the other physicists and start working on the Uranium Problem..... But there is lots more. I bought the paperback at the retail price. Worth it if you are a WW II buff or a physicist bomb buff.....

Beyond Uncertainty: Heisenberg, Quantum Physics, and the Bomb David C. Cassidy Bellevue Literary Press, NY, 2009 David Cassidy has written what surely must be the definitive work on Werner Heisenberg. He clearly likes the subject, as this is his second book on the same person! The previous one: "Uncertainty: The life and science of Werner Heisenberg" appeared in 1991. The present book draws on more material, has a wider scope, and at least on the subject of the German nuclear-weapon program draws conclusions that would appear to this reviewer as beyond contention. After a brilliant career, the Nobel Prize in physics at the age of 31 (in 1932), Heisenberg was faced with the onset of the Nazi regime. His love of his country and culture meant that he refused to leave Germany. He never joined the Nazi party, but was faced with living, and working, with the regime. Cassidy finds this the most fascinating aspect of Heisenberg, and it is difficult to disagree. Many of Heisenberg's actions appear difficult to comprehend with the advantage of hindsight; for example, the famous visit to Niels Bohr in 1941 (the subject of Michael Frayn's wonderful play) is covered in length. We also (since 2002) have the advantage of the Bohr archives to set the record straight on this visit. Cassidy puts them in perspective with what Heisenberg had to

suffer at the hands of not only the regime, but also the German clique (led by Nobel Laureates Stark & Lenard) who promoted "Aryan Physics". Specifically, they tried to eliminate all references to Einstein and relativity, and, just for good measure, quantum mechanics as well. Heisenberg's work was inextricably tied into both concepts, and he was vigorously attacked. Cleared in 1937 by the personnel intervention of Heinrich Himmler (whose mother knew Heisenberg's), Heisenberg was greatly relieved, and came to have confidence in his judgment about the regime. He was terribly mistaken. With the discovery of fission at the end of 1938, Heisenberg, like most other physicists, became involved. He went on to head the main German effort to develop a nuclear threat. As explained by Cassidy, this was not successful due to competing efforts sponsored by different parts of the regime, as well as a lack of leadership and clear scientific, and technical, drive. Conditions in war-time Germany, especially after the start of Allied bombing, were, of course, much more difficult than in the US, but there were no great moral discussions. The notion (the infamous "lesart") that the Germans did not develop the bomb because they did not want to is nonsense. Cassidy destroys this myth, as others have before, especially the Farm Hall tapes (edited by Bernstein and published in 1996). The German program was blighted by mistakes, both in physics and technology, and they never even got a reactor operating, which Fermi did for the Allies in Chicago in 1942. After the war Heisenberg used his considerable prestige to help rebuild both Germany and physics. In this, he deserves praise. Physics, as expected, had moved on, and he never made any lasting contribution after the war, but his legacy in physics is assured. Heisenberg was a brilliant physicist, and a man who knew right from wrong. Of all the senior German physicists who stayed in Germany during this dreadful time, only Max von Laue seems to have steered a path through the rocks - he chose not to collaborate at all with the regime. Heisenberg's great error was to believe that he could somehow steer between the moral conflicts of the Nazi regime. He was to learn, to his cost, that if one sups with the devil, take a long spoon. Heisenberg's was not nearly long enough. David Cassidy has captured this conflict in a brilliant book and I do not expect him to produce a third biography.

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