Who invented the computer? Well, as they say, "success has a thousand fathers." Claims have been made for Charles Babbage, who constructed a machine to solve polynomial equations in the 1840s; Alan Turing, who demonstrated (100 years later) that instructions could be stored like data and supplied details about circuit design, hardware units and machine code; Konrad Zuse, the designer of "Plankalkül," the first programming language, whose computer prototypes, built in his parents' Berlin basement, were destroyed by Allied bombs; J. Presper Eckert and John Mauchley, who built ENIAC (Electronic Numerical Integrator and Computer) for the U.S. Army during World War II; and John von Neumann, whose EDVAC (Electronic Discrete Variable Automatic Computer) Report laid out computer theory and architecture in 1945.

Jane Smiley, a prolific writer of fiction and nonfiction, makes the case for John Atanasoff. The son of a Bulgarian immigrant and a descendant of early settlers in Connecticut, Atanasoff was a precocious student who became a professor of physics at Iowa State College. Before the U.S. entered World War II, he conceived the idea for a machine that could solve large systems of linear equations, built it in a basement on campus, but never patented the device. In 1973, Judge Earl Larson declared that Eckert and Mauchley derived from Atanasoff the invention of the automatic electronic digital computer claimed in their ENIAC patent.

Smiley manages, without apparent effort, to sort out the contributions of each computing pioneer, explain complicated ideas clearly, and retain a compelling narrative. Genius, she reminds us, is a social phenomenon.

"Stimulated by everything from the slide rule he got from his father to methods of house construction," Atanasoff thrived on interaction with students and colleagues, using conversations as "a springboard." He had a talent, not always in evidence among the others, to formulate specific questions - and then use available materials to come up with the best available solution.

World War II, Smiley suggests, played a pivotal role in the invention of the computer. Had the United States not entered the conflict, Atanasoff would have been in Ames, Iowa - not working for the Naval Ordnance Lab in Washington, D.C. - and would have seen to it that his patent application was filed. His machine would not have been dismantled and discarded.

More generally, according to Smiley, the war provided funds for theoretical and practical work related to computers and brought great minds together. In 1939, after Germany invaded Poland, Turing was recruited by the English government to help break the Nazi's Enigma Code. He joined Tommy Flowers, an engineer, who conceived and built Colossus, an apparatus that could determine what the German machines were doing and how they worked. Colossus was crucial to Turing's conception of computing.

And yet, the government requirement of secrecy took a toll. Unable to put Colossus on his resume, Powers could not even get a job in computing when the world ended. And ENIAC security was not lifted until 1946.

Would the computer as we know it have been invented without Atanasoff? The need to solve complex mathematical problems, at first, related to the hydrogen bomb, Smiley acknowledges, would have created a market for "a calculating solution." But, she asks us to remember, John Atanasoff did invent a computer. His machine has been superseded, but "the concepts he had have not been surpassed."

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THE MAN WHO INVENTED THE COMPUTER

The Biography of John Atanasoff, Digital Pioneer

By Jane Smiley

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Return to Story