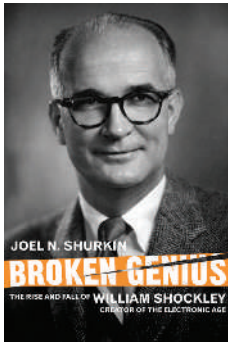


# Silicon stranger



## BROKEN GENIUS: THE RISE AND FALL OF WILLIAM SHOCKLEY, CREATOR OF THE ELECTRONIC AGE BY JOEL E. SHURKIN

Macmillan Publishers: 2006. 308 pp. \$27.95

William Shockley was the embodiment of the Silicon Valley stereotype: the smart, socially awkward engineer. Beyond smart, he was a genius. Beyond socially awkward, he was a bulldozer. And he didn't merely live in Silicon Valley. In the words of Gordon Moore, co-founder of Intel, "Shockley put the silicon in Silicon Valley".

Shockley is often credited as the inventor of the transistor. In fact, Shockley supervised the team at Bell Labs that did. He was absent for some of his team's most important breakthroughs, but the compact junction transistor, progenitor of today's transistors, was Shockley's conception.

Equally important, Shockley had a vision of what the transistor would mean for our society. In 1956, he left Bell Labs and the east coast, returning to his childhood home in the San Francisco peninsula to start the world's first dedicated semiconductor manufacturing company. He gathered outstanding research staff from across the United States and treated them with arrogance and competitiveness. Exasperated, eight core employees soon left to start Fairchild Semiconductor, which bloomed while a few miles away Shockley's withered and died. Ten years later, two of the founders of Fairchild left to form Intel.

The story of the transistor has been told before, in Michael Riordan and Lillian Hoddeson's excellent *Crystal Fire*. Joel Shurkin's *Broken Genius* focuses on Shockley. Delving into family archives, Shurkin uncovers personal details that make for a compelling biography. He tells the story chronologically — perhaps an unfortunate choice. The opening chapters on Shockley's youth and early career, dull in content and sensationalist in language, are a poor lead-in for what later becomes a fun and thought-provoking read.

The section on the Second World War, for example, could be a good reminder for today's US Congressmen. The Pentagon hired Shockley as a consultant, and the results show what can be accomplished when smart scientists are given free rein to find and solve problems. With his talent for statistics and logic, Shockley made crucial contributions; for example, he

contributed critically to breaking the German blockade of Allied shipping. He became a pioneer of Operations Research — though not, as Shurkin suggests, its sole inventor.

The last chapter of Shockley's life is morbidly fascinating. When his company failed, Shockley turned his interests to eugenics, shrilly championing a link between heredity and intelligence. He drove away friends and colleagues with his theories and his grabs for media attention. Shurkin is at his best in exploring the complexities of this period.

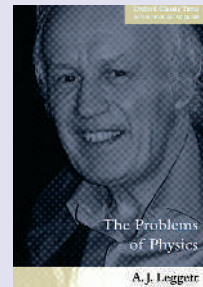
Throughout his account, Shurkin interweaves the stories of Shockley's marriages with the story of his career. As Shockley bulldozed his way to success at work, he bulldozed his family to the ground. He often struck his sons, and he announced his intention to end his marriage while his wife was undergoing treatment for uterine cancer. His second marriage played the opposite role. As the rest of the world shunned him at the end of his career, his second wife adored him, and he basked in her devotion.

Throughout the book, Shurkin seeks a breaking point in Shockley's life: an explanation for Shockley's behaviour in his last years. In truth, Shockley's tragedy was in his character all along, driving his successes as well as his failures. He was forceful and vain, and these traits helped him succeed at Bell Labs and with the US military. They also tore apart his family and crushed his company. Shockley was a gifted problem-solver, and he viewed people as problems to be solved. He could calculate wartime strategies. He could calculate strategies to manipulate the media. But he could not calculate how to interact with real people.

### Ilana and David Goldhaber–Gordon

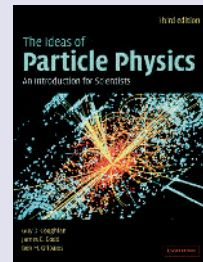
*Ilana Goldhaber–Gordon is the author of an upcoming textbook, Conceptual Biochemistry: Biochemical Approaches to Biological Questions (University Science Books). David Goldhaber–Gordon is in the Department of Physics and Center for Probing the Nanoscale, Stanford University, Stanford, California 94305–4045, USA.*

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