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Finding Noyce's Notebook

When Leslie Berlin started digging into the history of Silicon Valley for her Stanford University Ph.D. thesis, she resolved to read Robert Noyce's biography as a way of following the growth of the Valley's semiconductor industry. Only problem was, there was no full-length biography of Noyce. So she decided to write one herself.

THE EVIDENCE: [Leslie Berlin holds a copy of Robert Noyce's surprising 1956 lab notes that describe the tunnel diode.](#)



Familiar though she was with Noyce's many achievements, she was still stunned when she came across a transcript of a 1979 speech at Intel Corp. in which Noyce claimed to have conceived the tunnel diode at about the same time as Leo Esaki, the scientist who won the Nobel Prize for that invention.

As Berlin describes in "Robert Noyce and the Tunnel Diode," Noyce had sketched out the idea in two pages of a lab notebook in 1956, while he was at the Shockley Semiconductor Laboratory, soon before he left to help establish Fairchild Semiconductor. But sometime after this transition, he apparently copied those two pages from the Shockley lab notebook, which disappeared long ago.

Sure enough, Berlin found the copied pages tucked into the front of one of Noyce's Fairchild notebooks. She had known where this notebook was, but the company that safeguards it (which has refused to be identified) wouldn't let researchers access it. Her lucky break came while interviewing for her book one of the cofounders of Fairchild, who helped her get access to the notebook.

It has been a "detective hunt" for Berlin, and she certainly seems to have played the part of Sherlock Holmes well. She finished her thesis in 2001 on 14 August, coincidentally the exact date of Noyce's 1953 Ph.D. thesis and his 1956 lab notes. She is now a visiting scholar in Stanford's history department.

PHOTO: RICK DODD