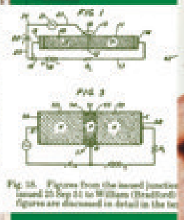
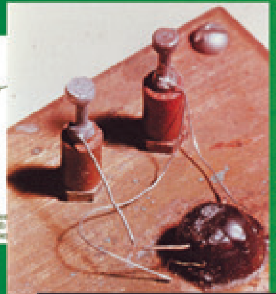
The Birthplace of Silicon Valley

The Legacy of Shockley Labs

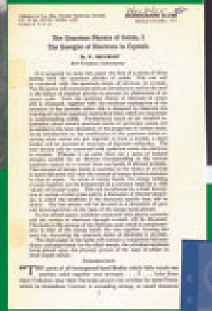
Invention of the Transistor

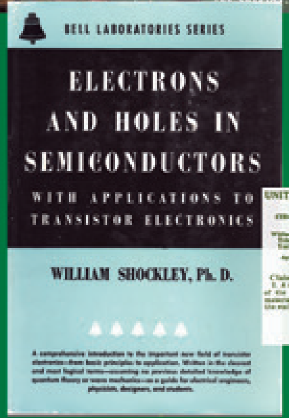
The discovery of the transistor at Bell Telephone Labs in 1947 was one of the greatest inventions of the 20th century. The transistor replaced bulky vacuum tubes and formed the basis of today's high-tech society. Credit for the invention is shared by the team of William Shockley, Walter Brattain and John Bardeen. The point contact transistor was discovered serendipitously by Brattain and Bardeen in December of that year. While this device proved the principle of a transistor, it was not something that could be produced in volume. In January 1948, Shockley devised an improved version called the junction transistor, which could be manufactured uniformly and reliably. This device eventually became the basis for all future transistors.

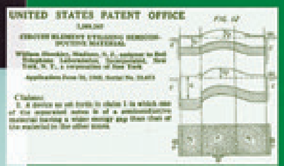


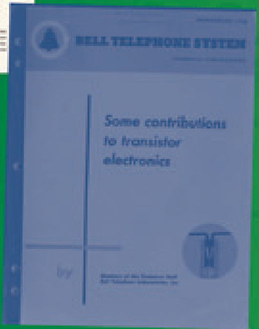


William Shockley (left), co-inventor of the transistor, with Lee de Forest, inventor of the vacuum tube.

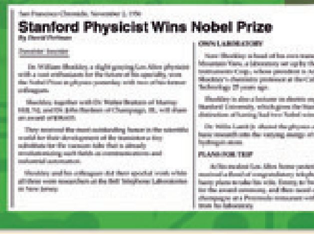








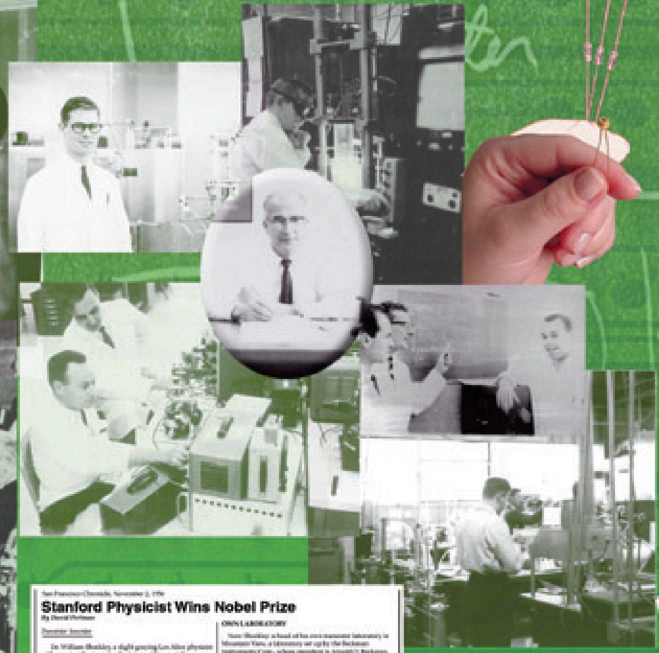
Electronics Lab Planned By Beckman



Stanford Physicist Wins Nobel Prize

Putting the Silicon in Silicon Valley

In 1955 William Shockley formed a new company dedicated to silicon transistor development and manufacturing. He secured financing from Arnold Beckman, the founder of Beckman Instruments. The Shockley Semiconductor Laboratory, at 391 San Antonio Road, Mountain View, was officially launched in February 1956. Shockley recruited what he called "hot" minds in science and technology to work for him. They included Robert Noyce, Gordon Moore, Jean Hoerni and Jay Last. In November 1956 Shockley, Brattain and Bardeen were named co-recipients of the Nobel Prize in Physics, recognizing their work on the transistor 10 years earlier. Meanwhile, Shockley's management style did not sit well with many of his lab staff. Discontent grew among the ranks, and they openly disagreed with his decision to switch the focus of R&D to a device called the 4-layer diode.

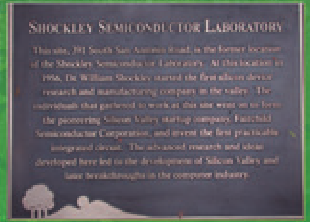


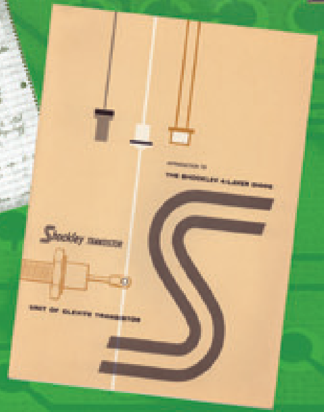
SITE OF FIRST SILICON DEVICE AND RESEARCH MANUFACTURING COMPANY IN SILICON VALLEY. THE RESEARCH CONDUCTED HERE LED TO THE DEVELOPMENT OF THE SILICON VALLEY. 1956

Mrs. Emmy Shockley (standing) attends the ceremony to unveil the commemorative plaque in front of 391 San Antonio Road.

The 4-Layer Diode

On September 18, 1957, a group of eight employees, led by Robert Noyce, resigned from Shockley Labs to establish Fairchild Semiconductor. Shockley hired new recruits, mostly from Europe, and pushed ahead with the 4-layer diode. In 1958 the company was renamed Shockley Transistor Corporation. Soon after, commercial production of 4-layer diodes began. However, the market Shockley envisioned for the new device did not materialize. In April 1960, Beckman sold the operation to Clevite Corporation. Shockley continued as a consultant until the business was sold to ITT in 1965. Although Shockley Labs was never a commercial success, it was the genesis for future semiconductor start ups in Silicon Valley.





William B. Shockley, 79, Creator Of Transistor and Theory on Race

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