

MAR09-2008-007870

Abstract for an Invited Paper
for the MAR09 Meeting of
the American Physical Society

From Bell Labs to Silicon Valley: A Saga of Technology Transfer, 1954-1961

MICHAEL RIORDAN, UC Santa Cruz

Although Bell Telephone Laboratories invented the transistor and developed most of the associated semiconductor technology, the integrated circuit or microchip emerged elsewhere—at Texas Instruments and Fairchild Semiconductor Company. I recount how the silicon technology required to make microchips possible was first developed at Bell Labs in the mid-1950s. Much of it reached the San Francisco Bay Area when transistor pioneer William Shockley left Bell Labs in 1955 to establish the Shockley Semiconductor Laboratory in Mountain View, hiring a team of engineers and scientists to develop and manufacture transistors and related semiconductor devices. But eight of them—including Gordon Moore and Robert Noyce, eventually the co-founders of Intel—resigned en masse in September 1957 to start Fairchild, bringing with them the scientific and technological expertise they had acquired and further developed at Shockley’s firm. This event marked the birth of Silicon Valley, both technologically and culturally. By March 1961 the company was marketing its Micrologic integrated circuits, the first commercial silicon microchips, based on the planar processing technique developed at Fairchild by Jean Hoerni.