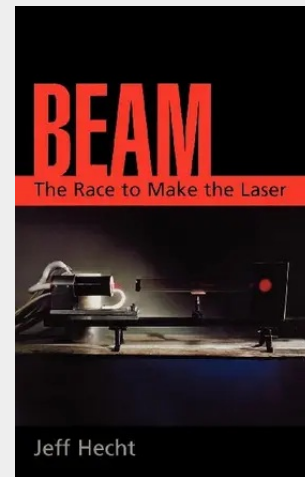


Beam

The Race to Make the Laser

In 1954, Charles Townes invented the laser's microwave cousin, the maser. The next logical step was to extend the same physical principles to the shorter wavelengths of light, but the idea did not catch fire until October 1957, when Townes asked Gordon Gould about Gould's research on using light to excite thallium atoms. Each took the idea and ran with it. The independent-minded Gould sought the fortune of an independent inventor; the professorial Townes sought the fame of scientific recognition. Townes enlisted the help of his brother-in-law, Arthur Schawlow, and got Bell Labs into the race. Gould turned his ideas into a patent application and a million-dollar defense contract. They soon had company. Ali Javan, one of Townes's former students, began pulling 90-hour weeks at Bell Labs with colleague Bill Bennett. And far away in California a bright young physicist named Ted Maiman became a very dark horse in the race. While Schawlow proclaimed that ruby could never make a laser, Maiman slowly convinced himself it would. As others struggled with recalcitrant equipment and military secrecy, Maiman built a tiny and elegant device that fit in the palm of his hand. His ruby laser worked the first time he tried it, on May 16, 1960, but afterwards he had to battle for acceptance as the man who made the first laser. Beam is a fascinating tale of a remarkable and powerful invention that has become a symbol of modern technology.

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