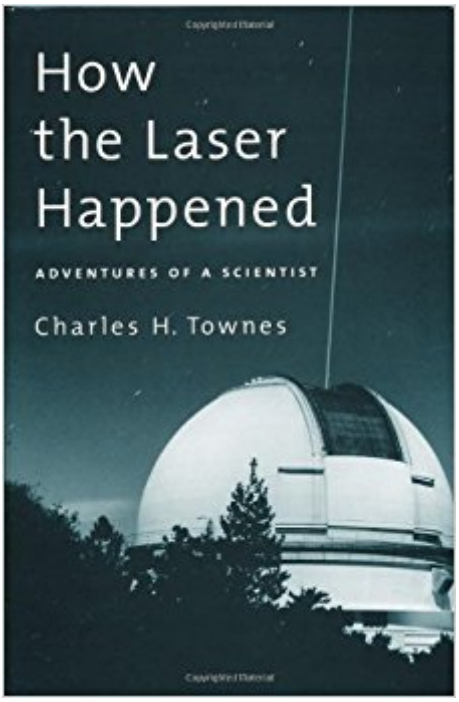
How The Laser Happened: Adventures Of A Scientist



Synopsis

In How the Laser Happened, Nobel laureate Charles Townes provides a highly personal look at some of the leading events in twentieth-century physics. Townes was inventor of the maser, of which the laser is one example; an originator of spectroscopy using microwaves; and a pioneer in the study of gas clouds in galaxies and around stars. Throughout his career he has also been deeply engaged with issues outside of academic research. He worked on applied research projects for Bell Labs; served on the board of directors for General Motors; and devoted extensive effort to advising the government on science, policy, and defense. This memoir traces his multifaceted career from its beginnings on the family farm in South Carolina. Spanning decades of ground-breaking research, the book provides a hands-on description of how working scientists and inventors get their ideas. It also gives a behind-the-scenes look at the scientific community, showing how scientists respond to new ideas and how they approach a variety of issues, from priority and patents to the social and political implications of their work. In addition, Townes touches on the sociology of science, uncovering some of the traditions and values that are invisible to an outsider. A towering and energetic figure, Townes has explored or pioneered most of the roles available to the modern scientist. In addition to fundamental research, he was actively involved in the practical uses of the laser and in the court cases to defend the patent rights. He was a founding member of the Jasons, an influential group of scientists that independently advises the government on defense policy, and he played an active part in scientific decisions and policies from the Truman through the Reagan administration. This lively memoir, packed with first-hand accounts and historical anecdotes, is an invaluable resource for anyone interested in the history of science and an inspiring example for students considering scientific careers.

Book Information

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Customer Reviews

"Filled with personal anecdotes that provide insight into an immensely original thinker and scientist of enormous energy and prolific output....[Includes] a fascinating account of the patent disputes surrounding the maser and laser....[Provides] an inspiring case history of how an outstanding physicist got started and went on to do great science."--Steven Chu, cowinner of the 1997 Nobel Prize for Physics, in Physics Today"Nobel prize winning physicist Charles Townes invites the reader to enjoy a delightful peek into the mind of a scientific inventor. In How the Laser Happened(1999) Townes describes his career and accomplishments and other imaginative endeavors. This personal and readable autobiography humanizes science and provides an inspiring portrait of a career in scientific exploration and invention."--Science & Theology News"An engaging human story, intertwined with a first-hand account of some of the twentieth century's most significant inventions and discoveries. Fine reading for anyone interested in science, scientists, or the roles they play in our fast-changing world." --Arno Penzias, Nobel Laureate in Physics and former Chief Scientist of Bell Labs"In this exciting book, Charles Townes recounts how masers and lasers first appeared in his life and how they accompanied him throughout his scientific career. The book reveals the life of an outstanding scientist deeply engaged in his research, and shows how a scientific career can be shaped by encounters, discussions, and interactions with colleagues, and by periods of solitary thinking and a commitment to independent work. The book is also a perfect illustration of the importance of basic science: when the laser was invented, no one expected it would have such dramatic applications." --Claude Cohen-Tannoudji, Professor of Atomic and Molecular Physics at the College de France in Paris and winner of the 1997 Nobel Prize in Physics"In this book one of the greatest scientists of the twentieth century tells the story of his life, discoveries, and inventions, which include the maser and the laser. Charles Townes's pioneering research in microwave spectroscopy produced a wealth of new information on molecules and even on the masses of atoms and the structure of their nuclei. These studies also made it possible to discover and understand spectra of molecules in space and near astronomical objects like stars. They helped to provide compelling evidence for a giant black hole at the center of our galaxy. Townes also tells of his involvement in advising the government and of the problems of trying to give unbiased scientific advice in a political atmosphere. In all, a fascinating story of science and the people who discover it.

The book is hard to put down." --Arthur Schawlow, Nobel Laureate in Physics and Emeritus Professor at Stanford University"No one thing has changed our lives more--and promises to continue to do so--than the laser. Its applications, already too numerous to list, include CD read-outs, grocery store check-outs, medical imaging, and myriad industrial and military uses. The story of how the laser came about--the background, the physics, the sociology, and the personalities involved--are all told in this well-written and delightful book by one of the most important scientists of the century." --Andrew Sessler, Senior Scientist at the Lawrence Berkeley Laboratory and past President of the American Physical Society"Charles Townes has written a superb and exciting book. Over and above the wonderful story of the laser is a fascinating and honest autobiography of a true scientist who has made profound contributions to science, technology, and, as an advisor, to industry and government." --Marvin L. Goldberger, Dean, UCSD Natural Sciences, and President Emeritus of the California Institute of Technology"The 1964 Nobel Prized in Physics was awarded to Townes with Nikolai Basov and Alexander Prokhorov for 'fundamental work in quantum electronics which led to the production of oscillators and amplifiers according to the maser-laser principle.' The first maser was made to work by Townes in 1954, using ammonia to produce coherent microwave radiation. This led various groups to consider how to produce an oscillator operating in the visible part of the spectrum, as was ultimately achieved in 1960; the progenitor of the now ubiquitous laser. . . . This autobiography teaches one man's lesson from the life of science: 'Throughout my career I have had to convince others, including sponsors, to let me keep following my own instincts and interests. Very often, this pays off.' And, 'A good scientist ... must rely mainly and often stubbornly on his own judgment.'"--American Scientist"'In the early days of the laser, people kidded me that it was a solution looking for a problem,' remarked Charles H. Townes, member of the faculty of the University of California at Berkeley. In 1964, Townes shared the Nobel Prize in Physics with Soviet scientists Alexander Prokhorov and Nicolai Basov for fundamental work in quantum electronics, which led to the construction of oscillators and amplifiers based on the maser-laser principle. . . . In Townes's view, the unexpected richness of the laser's history in science and engineering points up a vital lesson: 'As a society, we must be sure we don't focus all efforts just on things we are sure will pay off economically. We need to devote some resources to exploring things that may revolutionize our understanding. We must continually emphasize that, and take the risk. . . .'"--IEEE Spectrum"In this delightful book, Nobel Laureate Charles Townes provides a highly personal look at some of the leading events in twentieth century physics. Townes was the co-inventor of the maser, the forerunner of the laser, and a pioneer of the study of gas clouds in inter-stellar space where natural masers and lasers were discovered. These

memoirs trace his career from the beginnings on the family farm in South Carolina to his Nobel prize and beyond. There is fascinating material on Townes' interaction with other scientists and scientific managers and also about his long association with Bell Laboratories. We also learn about the trials and tribulations about getting a patent and the subsequent litigation that seems almost inevitable when large sums of money are at stake. This is a fascinating book and so well written that this reviewer read it from cover to cover in only two sittings."--Annals of Nuclear Energy

Charles Townes is one of the leading figures in twentieth-century physics, intentor of the maser, co-inventor of the laser, and a pioneer in microwave spectroscopy for molecular and nuclear physics and in the use of radio and infrared spectroscopic techniques for astronomy. A Nobel laureate, Townes was also one of the first academic scientists to accept a full-time position advising the Executive Branch during the Cold War, and was founder of the Jasons, an influential group of scientists independently advising the government. He also served on the Board of General Motors.

A real pearl of a book! Highly reccomended, especially to young engineers. It provides an excellent historical example of the difference between patented inventions and scientific discoveries.

A wonderful foray into the world of scientific research during the "golden period" after World War II. Townes gives the reader a glimpse into the insatiable curiosity of a genius and an affable one at that.

Nice history of Charles Townes and all the science that was going on during that time period. Worth reading.

to have the insight and education is important, but without the on going curiosity we will not move forward. Townes shows just how important this is and how it led to the maser, laser and beyond.

Very interesting but could include more diagrams.

Easy to read, fascinating technology at the time of its infancy

Husband loves it

Amazing!

How the Laser Happened: Adventures of a Scientist American National Standard for Safe Use of Lasers: ANSI Z136.1-2000 (ANSI (Laser Institute of America)) (ANSI (Laser Institute of America)) (ANSI (Laser Institute of America)) Laser Moose and Rabbit Boy (Laser Moose and Rabbit Boy series, Book 1) Laser Moose and Rabbit Boy: Disco Fever (Laser Moose and Rabbit Boy series, Book IEC/TR 60825-3 Ed. 1.0 b:1995, Safety of laser products - Part 3: Guidance for laser displays and shows NEW! PICOSURE MEDICAL LASER TATTOO REMOVAL SYSTEM: FINALLY A NO B.S. GUIDE TO THE WORLD'S NEWEST/LATEST MEDICAL LASER TATTOO REMOVAL SYSTEM Regenerative Laser Pain Therapy: Low-Level-Laser-Therapy Laser Interaction and Related Plasma Phenomena (Laser Interaction & Related Plasma Phenomena) Sound (Tabletop Scientist) (Tabletop Scientist) It Happened in Rocky Mountain National Park (It Happened In Series) What Really Happened in Medieval Times: A Collection of Historical Biographies (What Really Happened... Book 2) Whatever Happened to 'Eureka'?: Whatever Happened to 'Eureka'? Cartoons on Science Brave Genius: A Scientist, a Philosopher, and Their Daring Adventures from the French Resistance to the Nobel Prize Emerald Labyrinth: A Scientist's Adventures in the Jungles of the Congo Back to the Future in the Caves of Kaua'i: A Scientist's Adventures in the Dark Pocket Adventures Aruba, Bonaire & Curacao (Pocket Adventures) (Pocket Adventures) (Adventure Guide to Aruba, Bonaire & Curacao (Pocket)) Cruise Ship Job In 14 Days: The Laser Strategy for Next Generation Applying Excimer Laser Lithography (SPIE Press Monograph Vol. PM03) Mighty Mito: Power Up Your Mitochondria for Boundless Energy, Laser Sharp Mental Focus and a Powerful Vibrant Body Halloween Laser-Cut Plastic Stencils (Dover Stencils)