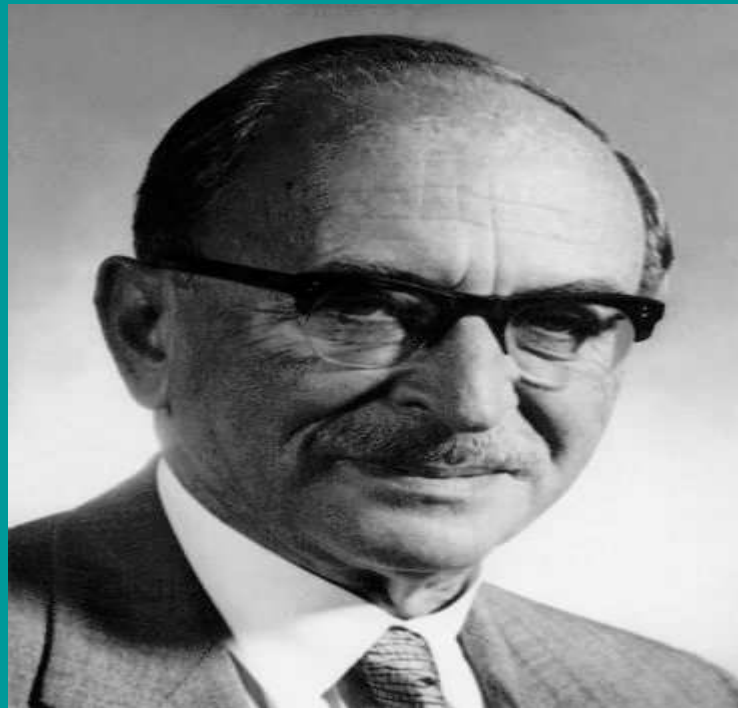


Dennis Gabor (1900-1979)



Dennis Gabor (original Hungarian name: Gábor Dénes), was a Hungarian electrical engineer and inventor, most notable for inventing holography, for which he later received the Nobel Prize in Physics.



Biography

Dennis Gabor studied at the Technical University of Budapest and, in Germany, at the Charlottenburg Technical University in Berlin, now known as the Technical University of Berlin. At the start of his career, he analyzed the properties of high voltage electric transmission lines by using cathode-beam oscillographs, which led to his interest in electron optics. Studying the fundamental processes of the oscillograph, Gabor was led to other electron-beam devices such as electron microscopes and TV tubes. He eventually wrote his Ph.D. thesis concerning the cathode ray tube in 1927, and worked on plasma lamps.

Having fled from Nazi Germany in 1933, Gabor was invited to Britain to work at the development department of the British Thomson-Houston company in Rugby, Warwickshire. During his time in Rugby, he met Marjorie Butler, and they married in 1936. It was while working at British Thomson-Houston that he invented holography, in 1947. Gabor's research focused on electron optics, which led him to the invention of holography. The basic idea was that for perfect optical imaging, the total of all the information has to be used; not only the amplitude, as in usual optical imaging, but also the phase. In this manner a complete holo-spatial picture can be obtained. Gabor published his theories of optical imaging and holography in a series of papers between 1946 and 1951.

Gabor also researched how human beings communicate and hear; the result of his investigations was the theory of granular synthesis, although Greek composer Iannis Xenakis claimed that he was actually the first inventor of this synthesis technique. At the time Gabor developed holography, coherent light sources were not available, so the theory had to wait more than a decade until its first practical applications were realized, though he experimented with a heavily filtered light source. The invention in 1960 of the laser, the first coherent light source, was followed by the first hologram, in 1963, after which holography became commercially available.

In 1948 Gabor moved from Rugby to Imperial College London, and in 1958 became professor of Applied Physics until his retirement in 1967. While spending much of his retirement in Italy, he remained connected with Imperial College as a Senior Research Fellow and also became Staff Scientist of CBS Laboratories, in Stamford, Connecticut; there, he collaborated with his life-long friend, CBS Labs' president Dr. Peter C. Goldmark in many new schemes of communication and display. He developed an interest in social analysis and published in 1972. Gabor wrote, "The best way to predict the future is to invent it."

Following the rapid development of lasers and a wide variety of holographic applications (e.g. art, information storage, recognition of patterns), Gabor achieved acknowledged success and worldwide attention during his lifetime. He received numerous awards besides the Nobel Prize. The International Society for Optical Engineering (SPIE) presents its *Dennis Gabor award* annually, "in recognition of outstanding accomplishments in diffractive wavefront technologies, especially those which further the development of holography and metrology applications."

The NOVOFER Foundation of the Hungarian Academy of Sciences annually presents its *International Dennis Gabor Award*, for young scientists researching in the fields of physics and applied technology.

Awards

- 1956 - Fellow of the Royal Society
- 1964 - Honorary Member of the Hungarian Academy of Sciences
- 1964 - D.Sc., University of London
- 1967 - Young Medal and Prize, for distinguished research in the field of optics
- 1967 - Columbus Award of the International Institute for Communications, Genoa
- 1968 - Albert Michelson Medal of The Franklin Institute, Philadelphia
- 1968 - Rumford Medal of the Royal Society
- 1970 - Honorary Doctorate, University of Southampton
- 1970 - Medal of Honor of the Institute of Electrical and Electronics Engineers
- 1970 - Commander of the Order of the British Empire (CBE)
- 1971 - Nobel Prize in Physics, for his invention and development of the holographic method
- 1971 - Honorary Doctorate, Delft University of Technology
- 1971 - Prix Holweck of the Société Française de Physique
- Dennis-Gabor Strasse in Potsdam is named in his honor and is the location of the Potsdamer Centrum für Technologie