

The development of optics

Man kind has speculated about vision and light since antiquity. Plato thought that the eye emitted particles that made objects visible. Pythagoras thought that objects projected light particles into the eye. Aristotle thought that its particles moved through waves from the objects to the eye. It was not until the 17th century that "light was laid" on its physical properties.

LIGHT DEBATE

The nature of light was long discussed among scientists. Isaac Newton (1642-1727) believed light were composed of particles that moved in straight lines. However, later ideas and evidence proved the wave like nature of light beams. Among them, the diffraction observed by Francesco Grimaldi (1665), the suggestion of Christiaan Huygens to compare light to a mechanical wave in physical environment, the experiment of the "double slit" by Thomas Young in 1801 and the equations by James Maxwell in 1864, that classified light among electromagnetic waves.

LIGHT AS A WAVE

Christiaan Huygens (1629-1695) was a Dutch astronomer and mathematician. He proposed that light is a wave phenomenon. He also proposed that light waves travel in straight lines.



When going through the two slits, the light from a narrow source is diffracted or scattered following a pattern.

WHITE RAY
A narrow colour spectrum is reflected on the surface in front of the window. Red, orange, yellow, green, blue, indigo and violet.

WAVING ENERGY
Huygens, Wolf and Fresnel concluded that light has dual properties. It spreads like a wave but also like particles of energy "quanta".

SPECTRAL LIGHT

Newton used the new philosophy to understand the world: observing, testing and thinking. In this way, towards 1666, he was able to prove that light, that was considered white, was really made up of coloured lights that deviated their trajectory in different angles. By reflecting them passing through a crystal prism, in 1671, Newton gave it the name of "light spectrum".

TELESCOPE
As part of his studies on the nature of light, Newton also invented a kind of reflector telescope.

PRISM
Thought in a flash, the triangular structure of crystal splits white light into a band of colours.

EXPERIMENT
He isolated each of the colours by making small holes on the screen.

DID YOU KNOW Documents
Newton personally drew all the details of his experiment in a diagram.

LIGHT SOURCE
Natural light comes through a small hole in the window of the room where Newton had his laboratory.

The Theory Of Optics

Siddappa N.Byrareddy



The Theory Of Optics:

The Theory of Optics Paul Drude,1901 **The Theory of Optics** Paul Drude,1902 **An Introduction to the Theory of Optics** Sir Arthur Schuster,1924 **The Theory of Optics** Paul Drude,2015-06-04 Excerpt from The Theory of Optics There does not exist to day in the English language a general advanced text upon Optics which embodies the important advances in both theory and experiment which have been made within the last decade Preston s Theory of Light is at present the only general text upon Optics in English Satisfactory as this work is for the purposes of the general student it approaches the subject from the historical standpoint and contains no fundamental development of some of the important theories which are fast becoming the basis of modern optics Thus it touches but slightly upon the theory of optical instruments a branch of optics which has received at the hands of Abbe and his followers a most extensive and beautiful development it gives a most meagre presentation of the electromagnetic theory a theory which has recently been brought into particular prominence by the work of Lorentz Zeeman and others and it contains no discussion whatever of the application of the laws of thermodynamics to the study of radiation The book by Heath the last edition of which appeared in 1895 well supplies the lack in the field of Geometrical Optics and Basset's Treatise on Physical Optics 1892 is a valuable and advanced presentation of many aspects of the wave theory About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books Find more at www.forgottenbooks.com This book is a reproduction of an important historical work Forgotten Books uses state of the art technology to digitally reconstruct the work preserving the original format whilst repairing imperfections present in the aged copy In rare cases an imperfection in the original such as a blemish or missing page may be replicated in our edition We do however repair the vast majority of imperfections successfully any imperfections that remain are intentionally left to preserve the state of such historical works **INTRODUCTION TO THE THEORY OF OPTICS** ARTHUR. SCHUSTER,2018 *The Theory of Optics* Charles Riborg Mann,Robert Andrews Millikan,Paul Drude,2023-07-18 This classic text provides a comprehensive overview of the principles of optics and their applications It covers the properties and behavior of light the nature of lenses and mirrors and the principles of spectroscopy and polarization It also includes discussions of the wave theory of light and the nature of electromagnetic radiation Aimed at advanced students and researchers in physics and engineering this book provides a solid foundation in the fundamental principles of optics and their practical applications This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it This work is in the public domain in the United States of America and possibly other nations Within the United States you may freely copy and distribute this work as no entity individual or corporate has a copyright on the body of the work Scholars believe and we concur that this work is important enough to be preserved reproduced and made generally available to the public We appreciate your support of the preservation process and thank you for being an important part of keeping this knowledge alive and relevant **The Theory of Optics (Classic**

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