

## FOR ADDITIONAL READING

Daniel M. Albert, Diane D. Edwards, eds. *The History of Ophthalmology*.  
Cambridge: Blackwell Science, 1996.

David C. Lindberg. *Theories of Vision from Al-Kindi to Kepler*.  
Chicago: University of Chicago Press, 1976.

Abdelhamid I. Sabra. *Theories of Light from Descartes to Newton*.  
Cambridge: Cambridge University Press, 1981.

Charles Singer, E. J. Holmyard, A.R. Hall, Trevor I. Williams, eds. *A History of Technology, Volume III. From the Renaissance to the Industrial Revolution c 1500 – c 1750*.  
New York: Oxford University Press, 1957.

Nancy G. Siraisi. *Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice*. Chicago: University of Chicago Press, 1990.

Nicolas J. Wade. *A Natural History of Vision*. Cambridge, MA: MIT Press, 1998.

## ACKNOWLEDGMENTS

The Sheridan Libraries are grateful to the Wilmer Eye Institute for lending the works from the William Holland Wilmer Rare Book Collection for this exhibition. Special thanks to Mike Piorunski, librarian at the Friedenwald-Romano Library of the Wilmer Eye Institute, for his assistance.

## CURATOR

Richard Semba, Associate Professor of Ophthalmology  
The Johns Hopkins University School of Medicine

A member of the Wilmer Eye Institute faculty since 1987, Dr. Semba became aware of the Wilmer collection through his research in the history of medicine. He is also a bibliophile and collector, and is preparing a full catalog of the William Holland Wilmer Rare Book Collection.

Dr. Semba has published articles on the history of medicine and is currently working on a history of vitamin A deficiency, the leading cause of blindness in children. He is author of *Handbook of Nutrition and Ophthalmology* (Humana Press, forthcoming 2006) and co-editor of *Nutrition and Health in Developing Countries* (Humana Press, 2001).

Dr. Semba will present a Gallery Talk on April 10, 5 – 7 pm

## SHERIDAN LIBRARIES EXHIBITION PROGRAM COMMITTEE

Pamela Higgins, *Chair, Exhibition Program Committee*

John A. Buchtel, *Curator of Rare Books*

Linda Claremon, *Associate Director of Development*

Eliza Hill, *Library Assistant*

Sonja K. Jordan-Mowery, *Joseph Ruzicka & Marie Ruzicka*

*Feldmann Director of Preservation*

Donald Juedes, *Librarian for Art History, Classics, and Philosophy*

Sue Vazakas, *Science and Engineering Librarian*

## EXHIBITION STAFF

Martha Edgerton, *Conservator*

Lena Warren, *Conservator*

Will Kirk, *Photographer, Homewood Imaging and Photographic Services*

Design: *Johns Hopkins Design and Publications*



Anatomy of the eye, from Eyn neues hochnutzliches Büchlin, a principal Renaissance text on the eye by Leonhart Fuchs, 1539.

# A PERFECT VISION:

*The Rare Book Collection  
of William Holland Wilmer*



JOHNS HOPKINS  
UNIVERSITY



The George Peabody Library dates from the founding of the Peabody Institute in 1857. The 300,000-volume collection includes books dating from the 15th century, with particular strength in the 19th century. Notable holdings also include American, British, and European history and literature, works on architecture and the decorative arts, the history of science, classical literature in Latin and Greek, and an extensive collection of maps, atlases, and other works on exploration and travel.

The Peabody Library is one of the university's Sheridan Libraries, which also include the Milton S. Eisenhower Library and its special collections at the Albert D. Hutzler Reading Room and the John Work Garrett Library.

17 East Mt. Vernon Place, Baltimore, Maryland 21202 410.659.8179  
[www.georgepeabodylibrary.jhu.edu](http://www.georgepeabodylibrary.jhu.edu)

Exhibition Gallery Hours: Monday – Saturday, 9 am – 5 pm; Sunday, noon – 5 pm

Library Hours: Tuesday – Friday, 9 am – 5 pm

Saturday, 9 am – 1 pm

Sunday & Monday, closed

For nearly three-quarters of a century, a superb collection of rare books on astronomy, medicine, optics, and ophthalmology has lain hidden in vaults in the Wilmer Eye Institute. William Holland Wilmer, preeminent physician and founder of the eye institute at Johns Hopkins, was also a passionate bibliophile who amassed this extraordinary collection during the 1920s and 1930s.

*A Perfect Vision* is the first public exhibition of selected works from this collection of more than 400 volumes tracing the medical and scientific discoveries that ultimately led to the understanding of vision and the modern era of the treatment and prevention of eye diseases.



William Holland Wilmer, 1910

This exhibition features works dating from the 15th through the 18th centuries, arranged into seven overarching themes—astronomy, early medical teaching, optics, theories of vision, color, ophthalmology, and spectacles.

Born in Powhatan County, Virginia, in 1863, William Holland Wilmer studied at the University of Virginia and received his medical degree in 1885. After two years of graduate study in ophthalmology in New York and Europe, he trained with Emil Gruening, one of the most eminent ophthalmologists in the United States.

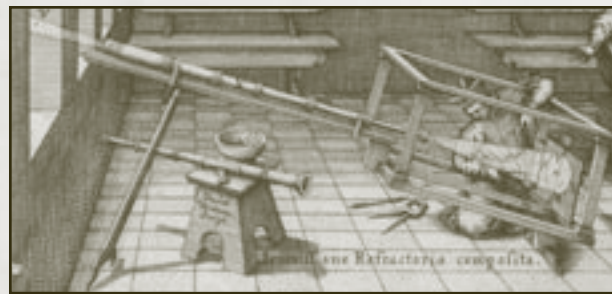
Internationally renowned as a clinician and administrator, Wilmer left an exclusive private practice in Washington, D.C., at the age of 61 to come to Baltimore. A group of grateful patients had collected funds intended for a new eye institute and, together with the Rockefeller Foundation and the Commonwealth Fund, raised approximately \$4 million to establish the Wilmer Ophthalmological Institute at Johns Hopkins in 1925. Under Wilmer's guidance, the first full-time university department of ophthalmology in the United States was established.

Wilmer was a quiet and meticulous bibliophile, who compiled detailed financial records and letters to document the growth of his collection. He remained a professor of ophthalmology and director of the Institute until his retirement in 1934 at the age of 70. Wilmer died in 1936, and bequeathed his extraordinary collection to the Institute that bears his name.

## ASTRONOMY

Works on astronomy form an important foundation of Wilmer's collection, as early scientists observed the heavens with the unaided eye, using astrolabes, armillary spheres, and sextants. Following the invention of the telescope in the early 17th century, scientists were able to see farther and with greater accuracy, and their observations challenged religious ideas regarding the unchanging and immutable nature of the heavens.

Galileo Galilei observed that Jupiter had its own satellites, and Johannes Kepler established rules for elliptical orbits of the planets. Many controversies flared during this period, including



Detail of a helioscope from Rosa ursina, by Christoph Scheiner, 1630.

a bitter dispute over the discovery of sunspots between Jesuit astronomer Christoph Scheiner and Galileo.

## EARLY MEDICAL TEACHING



During the late Middle Ages, medicine began to rise as an academic discipline, with faculties of medicine appearing first in the oldest universities in Italy, France, the Iberian Peninsula, and England.

The major centers of medical studies were Bologna, Montpellier, and Paris. Medicine was one of three higher faculties in the medieval university (with law and theology), and students were expected to have a certain level of competence in astronomy and astrology. The Galenic tradition of humors (blood, phlegm, bile, and black bile) dominated teaching for many centuries.

Copper plate engraving of skeletal muscle by Bartolomeo Eustachi, in *Tabulae Anatomicae*, 1722.

## EVOLUTION OF OPTICS

Mirrors and lenses were used to study reflection and refraction (bending of light as it passes from one transparent medium to another). Isaac Newton constructed the first optical reflecting telescope in 1668. Scientists attempted to explain the theory of the rainbow, the camera lucida, the nature of light, and the use of lenses and mirrors in puzzles and entertainment.



Venetian nobleman Daniele Barbaro provided a detailed description of the camera obscura (*camera* room; *obscura* dark), an optical device in which an image can be projected in a darkened room by placing a lens up to the window. In his treatise, *Of Perfect Vision*, Chérubin d'Orléans, a Capuchin friar, described his invention, a binocular telescope.

Device used for measuring heights from *Pantometria*, by Leonard Digges, 1591.

## THEORIES OF VISION



Johannes Kepler's revolutionary theory of the retinal image was published in *Ad Vitellionem paralipomena*, 1604.

Since antiquity, scholars had sought to discover the basis for vision and “how” people were able to see. One of the main theories of vision during the late Middle Ages was developed by Galen, who believed that the lens was the principal organ of vision of the eye.

Alhazen (A.D. 965–1040), the most important figure in the history of optics between antiquity and the 17th century, established a point-to-point correspondence between the object and the image and distinguished between the image and its perception by the brain in his *De aspectibus*. *De aspectibus* inspired further work by Roger Bacon, Witelo, John Pecham, Francesco Maurolico, and Giambattista della Porta, all of whom are represented in this exhibition. Johannes Kepler established the modern basis for vision in 1604 when he determined that the retina in the back of the eye, not the lens, was the principal organ of vision.

## THE NATURE OF COLOR

According to Plato, colors were produced by the meeting of the “visual fire” emitted by the eye and the stream of corpuscles emitted by the object. Aristotle held that colors resulted from different combinations of light and shade, and this theory persisted until the Renaissance.

Isaac Newton showed that light from the sun could produce a spectrum of colors from red through violet, and he devised a simple color wheel in *Opticks*. Michel Chevreul, director of Gobelins, the French national tapestry workshop, proposed a 72-part color circle with almost 15,000 tones. Chevreul discovered that the intensity and vigor of colors depended upon the neighboring colors. His work, *On the Law of Simultaneous Contrast of Colors*, influenced the neo-impressionist painters Georges Seurat, Paul Signac, and Camille Pissarro.

## ORIGINS OF OPHTHALMOLOGY



Early practitioners of ophthalmology were surgeons, who had lower status than medical physicians and academicians. During the Renaissance, books on the eye by Leonhart Fuchs, George Bartisch, and Jacques Guillemeau established a basis for the study of diseases of the eye. One of the most famous ophthalmologists was Georg Joseph Beer in Vienna, who trained an influential generation of ophthalmologists.

The era of modern ophthalmology was marked by the introduction of the ophthalmoscope by Hermann von Helmholtz in 1850. This instrument allowed clinicians to view the posterior part of the eye including the retina, heralding a large leap in knowledge about eye diseases.

Treatment for a cross-eyed man, in *Ophthalmodouleia* by George Bartisch, 1583.

## SPECTACLES

The origin of spectacles remains obscure. In Europe, the earliest references to spectacles come from Italy in the 13th century. Marco Polo (c. 1254–1324) observed that older people in China used lenses for reading, which suggests that spectacle use in China antedated its appearance in Italy. Early eyeglasses were made from beryl, a smoke-colored stone, or quartz. By the early 14th century, eyeglasses were made from glass, with the best lens produced in the glass-making center of Venice.

Following the invention of movable type by Johann Gutenberg in the mid-15th century, printed books became more widely available. Guilds of opticians were established in France, the Netherlands, Germany, and England, enabling the mass production of inexpensive spectacles.



Wilmer collected spectacles and instruments that demonstrated the growth and refinement of optic devices to improve human vision.

Woodcut illustration of grinding lenses, from *L'occhiale all'occhio dioptrico a pratica*, by Carlo Antonio Manzini, 1660.