

How Much Optics did Medieval and Renaissance Scholars Know?

David C. Lindberg

*Department of the History of Science, University of Wisconsin, Madison, WI 53706
Phone 608-238-0422; Fax 608-238-9515; E-mail: dclindbe@wisc.edu*

Abstract: Widespread myths about the ignorance and intellectual stagnation of medieval Europe, along with equally widespread myths about the Scientific Revolution of the 15th and 17th-centuries as the birth of serious science, have left the impression that medieval optical knowledge was thin to nonexistent. This lecture will explore the level of medieval optical knowledge up to the year 1600 and beyond.

©2003 Optical Society of America

OCIS codes: (000.2850) History and philosophy; (000.5920) Science and society

The science of optics was not created in the 15th or 17th century. By that time it had undergone steady development from its Greek origins 2,000 years earlier. The itinerary that took this optical tradition from ancient Greece, through medieval Islam, to medieval Christian Europe, crossing both geographical and linguistic boundaries (with little loss en route), makes a remarkable story. Along the way, this optical tradition gained clarity, sophistication, and theoretical scope. And in the 17th century it served as teacher of the great optical scientists of the early modern period. Johannes Kepler, in his great optical text of 1602, acknowledged his debt to this tradition not only explicitly, but also by adopting nearly all of its fundamental assumptions. He solved a central problem in visual theory that had stumped his medieval predecessors, but without repudiating their achievement. It is no stretch of the historical record to identify Kepler as the culminating figure of this 2,000-year old tradition. This lecture will trace the remarkable history of optics from its Greek beginnings to Kepler, thereby offering an account of the state of optical knowledge about the year 1700.