

# A Manuscript of Euclid's *De Speculis*: A Latin Text of MS 98.22 of the Archivo y Biblioteca Capitulares de la Catedral, Toledo

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## Introduction

*De speculis* is a Latin translation of Euclid's *Catoptrica* which was translated into Latin probably in Sicily in the mid-twelfth century. The large number of extant manuscripts of *De speculis*, of which at least 52 MSS are known, indicates its wide circulation in the Middle Ages.<sup>1</sup>

I published in 1992 a book which contains three different versions of Euclid's *De speculis*: the original Latin translation made from Greek text (Text I, 18 MSS) and (2) the paraphrased Latin versions made from Text I (Text II, 5 MSS and Text III, 1 MS).<sup>2</sup> During my stay at University of Wisconsin-Madison in 1996–97, I have had an opportunity to examine seven additional manuscripts which were new to me and to reconsider *De speculis*' textual tradition.<sup>3</sup>

Of seven additional manuscripts, the Toledo manuscript which is reproduced here with English translation on facing pages deserves special attention in some important points. Before turning to the points, however, it is beneficial to make some short comments on the Greek original itself. Scholars have doubted the authenticity of the *Catoptrica*. However, recent work by Knorr, Jones, and myself verifies its authenticity.<sup>4</sup> The work seemed to have a lot of false assertions and deficiencies

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<sup>1</sup>In the number of extant manuscripts, *De speculis* is only second to the most popular textbook on optics, Pecham's *Perspectiva Communis*. As for the manuscript information, see David C. Lindberg, *A Catalogue of Medieval and Renaissance Optical Manuscripts*, Toronto, 1975.

<sup>2</sup>Ken'ichi Takahashi, *The Medieval Latin Traditions of Euclid's Catoptrica: A Critical Edition of De speculis with an Introduction, English Translation and Commentary*, Kyushu University Press, 1992.

<sup>3</sup>I would like to express my gratitude to Prof. Lindberg, University of Wisconsin-Madison, USA for providing me with a number of microfilm copies of *De speculis*.

<sup>4</sup>Wilbur R. Knorr, "Archimedes and the Pseudo-Euclidean *Catoptrics*: Early Stages in the Ancient Geometric Theory of Mirrors," in *Archives internationales d'histoire des sciences*, vol. 35 (1985), pp. 28–105; Alexander Jones, "On Some Borrowed and Misunderstood Problems in Greek *Catoptrics*," in *Centaurus*, vol. 30 (1987), pp. 1–17; Ken'ichi Takahashi, *op. cit.*, pp. 13–33.