

The Aims of *Perspectiva* in 1360s Paris: Investigating Texts Written in the Hand of Reimbotus de Castro*

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Introduction: Perspectivist Compendia as Books of Knowledge

A modern reader of medieval optical treatises often faces demanding multidisciplinary texts. Philosophically detailed explanations of the nature and propagation of light and physiologically and psychologically sophisticated accounts of the functions of the bodily organs involved in receiv-

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ing and processing visual information are interwoven with geometrically rigorous demonstrations of numerous workings of light, from image formation in various types of mirrors to atmospheric phenomena such as the rainbow. Medieval optics (*perspectiva*) is a highly sophisticated and technical body of knowledge, and one would expect that only the most intelligent medieval minds in just a few universities were able to master this discipline. The very high number of extant manuscripts, however, suggests that optical science was quite popular, and not the exclusive domain of a small group of university scholars. This paper aims to investigate how *perspectiva* was received and utilised by less prominent scholars, to wit those operating both in universities and at noble courts. Scrutinising the codices written and owned by one representative of these medieval intellectuals, the paper investigates which handbooks they used, which scholarly tools they employed, and which aims they pursued while trying to cope with and master this complicated science.

The gradual assimilation of Greek and Arab optics in thirteenth-century Latin Europe evinces a significant effort to make optical science more accessible to a broader audience. Alhacen's *De aspectibus*, the most comprehensive Arabic treatise on optics, was already translated into Latin by the early thirteenth century.¹ However, with its seven long-winded books and highly technical style, it demands a very skilful reader educated in advanced geometry. Besides that, its long chapters and “the uninterrupted flow of conjectures, proofs, and experimental demonstrations”² do not make *De aspectibus* a particularly reader-friendly or easily searchable work. It is also sometimes dense and unclear due to the translation. It comes as no surprise that there is almost no evidence of the use of Alhacen in the decades after his translation, except for rare references to some of his theses.³ Euclid's *De visu* and *De speculis* – concise, brief, and narrowly focussed on selected issues of geometrical optics –

¹ On the Latin translation of *De aspectibus*, see Alhacen's *Theory of Visual Perception. A Critical Edition, with English Translation and Commentary, of the First Three Books of Alhacen's 'De aspectibus'*, ed. A.M. SMITH, 2 vols. (Philadelphia, 2001), pp. XIX-XXIV; see also A.M. SMITH, *From Sight to Light: The Passage from Ancient to Modern Optics* (Chicago; London, 2015), pp. 242-245.

² ‘*Witelonis Perspectivae liber quintus*’ = Book V of Witelo's *Perspectiva: An English Translation with Introduction and Commentary and Latin Edition of the First Catoptrical Book of Witelo's Perspectiva*, ed. A.M. SMITH (Wrocław, 1983), p. 45.

³ See L. LIČKA, “The visual process: Immediate or successive? Approaches to the extra-mission postulate in 13th century theories of vision”, in: *Medieval Perceptual Puzzles: Theories of Perception in the 13th and 14th Centuries*, ed. E. BĂLTUȚĂ (Leiden, 2020), pp. 73-110, at p. 88.

remained the only optical texts actually used and cited by Latin scholars in these decades.

The situation changed in the 1260s with Roger Bacon. His *Perspectiva* (integrated into his *Opus maius* as its fifth book) is a very skilful compilation of optical treatises (drawing mainly on Alhacen) and of the Aristotelian philosophy of vision. It includes a rhetorically powerful exhortation to study optical science. Nevertheless, it is somewhat narrative and thus not *prima facie* suitable as a textbook. In the early 1270s, soon after Bacon's *Perspectiva*, another rendering of Alhacen was elaborated by the Polish mathematician Witelo. In contrast to Bacon's narrative style and philosophical affinities, Witelo's style is strictly Euclidian: the whole of optical knowledge is divided into particular propositions deduced from definitions and postulates, and demonstrated geometrically. His *Perspectiva* is half as long again as Alhacen's *De aspectibus* and provides a truly comprehensive and easily searchable text, if not a particularly concise one. Bacon's Franciscan confrère John Peckham successfully pursued similar educational purposes: his *Perspectiva communis*, written in the late 1270s and inspired by both Bacon and Witelo,⁴ is a succinct exposition of the science of optics,⁵ encapsulating all the important optical tenets in 162 propositions with demonstrations.⁶ It soon became the main textbook for teaching optics at universities.

These four optical treatises represent the most important medieval books of optical knowledge. All of them aspire to cover the entire discipline, but each has its own interests, intended audience, and difficulty of exposition. Alhacen and Witelo are rather theoretical and geometrical books, focussed mainly on the workings of light and sight, while Bacon and Peckham also stressed the connection of optics to (Aristotelian) psychology. Witelo and Peckham (and also Bacon, but in other parts of his *Opus maius*) likewise deal with some me-

⁴ On the relationships between Bacon's, Peckham's, and Witelo's optical texts and their dating, see D.C. LINDBERG, "Lines of influence in thirteenth-century optics: Bacon, Witelo, and Peckham", *Speculum* 46.1 (1971), pp. 66-83, and also SMITH, *From Sight to Light*, pp. 260-275.

⁵ As Peckham himself promises in the prologue, he wants to confine optical doctrine into "concise summaries": "*sententias [perspectivae] magnis deductas ambagibus in conclusiva compendia coartabo*" (John Peckham, *Perspectiva communis*, in: *John Peckham and the Science of Optics*, ed. D.C. LINDBERG (Madison, 1970), *proemium*, p. 60).

⁶ Working on the revised version of the *Perspectiva*, Peckham added five more propositions to his text. However, this version is extant in a single manuscript and thus most likely did not have any significant impact on medieval thought. On the relationship of both versions, see *John Peckham*, ed. LINDBERG, pp. 21-24.

teorological and astronomical phenomena, which are somewhat marginalised in Alhacen's *De aspectibus*.

As the manuscript dissemination shows, all these texts were very popular (see Table 1): 148 manuscript copies survive of just these four major optical texts.

	Extant copies		% of fragmentary copies	Total
	Entire text	Fragments / excerpts		
Alhacen, <i>De aspectibus</i>	14	6	43%	20
Roger Bacon, <i>Perspectiva</i>	35	4	11%	39
John Peckham, <i>Perspectiva communis</i>	51	13	25%	64
Witelo, <i>Perspectiva</i>	16	9	56%	25
Total:				148

Table 1: Extant manuscript numbers based on Lindberg's catalogue.⁷

Generally, it is that the longer and more complicated a treatise is, the less it was disseminated (or, the more often it was abbreviated). As complex and demanding scientific treatises, Alhacen and Witelo were less popular and often abbreviated or excerpted. Bacon's and Peckham's texts are intended rather to mediate information about light, sight, and optical phenomena for a broader educated audience, that is, not only for the actual practitioners of *perspectiva* but also for university students and learned members of religious orders and the courts of nobility. Peckham's *Perspectiva communis* was the most popular book of optical knowledge. As it teaches optics in a way accessible even to beginners, it soon became a textbook used for teaching the discipline at the faculties of arts of medieval universities, where *perspectiva* was taught together with other mathematical disciplines, such as geometry and astronomy.⁸

⁷ D.C. LINDBERG, *A Catalogue of Medieval and Renaissance Optical Manuscripts* (Toronto, 1975). Since the publication of Lindberg's catalogue in 1975, many manuscript collections have been catalogued anew and new copies of optical texts have been identified. I am preparing addenda to Lindberg's catalogue.

⁸ For *perspectiva* in the late medieval university curriculum, see D.C. LINDBERG, *Theories of Vision from al-Kindi to Kepler* (Chicago, 1976), pp. 120-121. Surprisingly, teaching optics is better documented at newly founded universities in Central Europe than in the better-known wes-

However, as A. Mark Smith, a leading historian of optics, says in a recent study, “there is precious little evidence to tell us how or at what level the discipline of optics was taught”.⁹ Peckham’s *Perspectiva communis* was apparently the most popular textbook of optics. But that popularity hides several questions. Did all lecturers cover all its contents with equal scrutiny? Did they inquire about the geometrical aspects of light propagation or instead emphasise the philosophy and psychology of visual experience? Was optics taught as a quadrivial discipline or as an appendix to Aristotelian natural philosophy? Furthermore, there is a lack of information about *why* so many medieval scholars were interested in the discipline. And we are also almost entirely ignorant about knowledge of optics outside universities.

This study contributes to these issues by providing a case study of a particular scholar’s attitude toward optics. The scholar in question is the fourteenth-century intellectual Reimbotus Eberhardi de Castro (born probably in the Rhineland, fl. 1350s-1370s), who is best known as a personal physician to Charles IV, Holy Roman emperor and king of Bohemia. Reimbot’s codices, some of which were copied by him personally, are extant and kept in the Vatican’s Bibliotheca Palatina today. The focus here is restricted to MS Pal. lat. 1380, a manuscript containing many quadrivial works, among them two texts on *perspectiva*. These two texts, written in Reimbot’s hand in 1360s Paris, are studied here for the first time. As will be argued, the first text seems to be Reimbot’s *reportatio* of Paris lectures on Peckham’s *Perspectiva communis*, perhaps the earliest evidence of the use of Peckham as an authoritative text in university lectures. The second text is Reimbot’s redaction of an optical textbook with the incipit *Perspectiva cum sit una*, hitherto unnoticed by historians of optics, which epitomises Peckham’s already concise *Perspectiva communis*. Thus, *Perspectiva cum sit una*, probably composed at Oxford University in the early fourteenth century, represents a fifth medieval book of optical knowledge and is the most compact of the group.

tern centres of learning. See, e.g. L. LIČKA, “Studying and discussing optics at the Prague Faculty of Arts: Optical topics and authorities in Prague quodlibets and John of Borotín’s *Quaestio* on extramission”, in: *Studying the Arts in Late Medieval Bohemia: Production, Reception and Transmission of Knowledge*, ed. O. PAVLIČEK (Turnhout, 2021), pp. 251-303, at pp. 253-249, for Prague and G. ROSIŃSKA, *Optyka w XV wieku: Między nauką średniowieczną a nowożytną – Fifteenth-Century Optics: Between Medieval and Modern Science* (Wrocław, 1986), pp. 51-109, for Cracow.

⁹ A.M. SMITH, “The roots and routes of optical lore in the later Middle Ages and Renaissance”, in: *Perspective as Practice: Renaissance Cultures of Optics*, ed. S. DUPRÉ (Turnhout, 2019), pp. 241-258, at p. 244.

Finally, this paper presents a possible reason why optics was attractive for medieval intellectuals who were members of both scholarly and courtly communities, like Reimbot. It is argued that a closer reading of the optical works in Reimbot's codex and their codicological context reveals that medieval optics, being useful for astronomical observations, could have played the role of an auxiliary discipline for astrology and astrological medicine. The prevailing narrative about medieval optics tends to accentuate its contribution to the philosophy of vision.¹⁰ Although it has been pointed out that some passages of medieval pivotal optical treatises deal with the postulate of celestial influence (the fundamental notion of medieval astrology),¹¹ the complex disciplinary connections between optics and astronomy / astrology have not yet been disentangled. The present text aspires to preliminarily address the issue more systematically and to use Reimbot's codices as new evidence.

1. Reimbotus de Castro and his Codices

Who was this assiduous copyist of scientific texts, Reimbotus de Castro? Besides several autobiographical notes in his codices, the only extant documentation for his life is formed by letters addressed to the papal office requesting various prebends for Reimbot, written either by Reimbot himself or by emperor Charles on Reimbot's behalf. Nothing is known about the date of his birth or the place of his studies. In the earliest documents, from the 1350s, he has the titles of a master of arts and doctor of medicine. Several points of Reimbot's professional life can be reconstructed thanks to Ludwig Schuba and Milada Říhová.¹² Reimbot served as a physician to queen Anne of Bavaria (the

¹⁰ See especially LINDBERG, *Theories of Vision*, pp. 18-146, but also SMITH, *From Sight to Light*, pp. 155-277. Admittedly, there are also papers investigating medieval optics as a study of light-related phenomena; see, e.g. C. PANTI, "The theological use of science in Robert Grosseteste and Adam Marsh according to Roger Bacon: The case study of the rainbow", in: *Robert Grosseteste and the Pursuit of Religious and Scientific Knowledge in the Middle Ages*, ed. J.P. CUNNINGHAM and M. HOCKNULL (Cham, 2016), pp. 143-163.

¹¹ See, e.g. J.D. NORTH, "Celestial influence – The major premiss of astrology", in: *Astrologi hallucinati: Stars and the End of the World in Luther's Time*, ed. P. ZAMBELLI (Berlin and New York, 1986), pp. 45-100, at pp. 63-73, and K.H. TACHAU, "Et maxime visus, cuius species venit ad stellas et ad quem species stellarum veniunt: 'Perspectiva' and 'Astrologia' in late medieval thought", *Micrologus* 5 (1997), pp. 201-224, at pp. 218-224.

¹² L. SCHUBA, "Reimbotus de Castro, Leibarzt Kaiser Karls IV. und Scholastikus an St. German vor den Toren der Stadt Speyer (Vat. Pal. Lat. 1349)", *Miscellanea Bibliothecae Apostolicae*