Complexio in the Late-Medieval Latin
De animalibus

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Abstract

By focusing on the concept of ‘complexion’ in the major medieval Latin commentaries on Aristotle's so-called De animalibus, this paper identifies and analyzes a case of the use of the concept of ‘complexion’ outside the medical context or, more precisely, at the intersection of natural philosophy and medicine. The preliminary survey undertaken in this paper suggests that ‘complexion’ was a key concept of the De animalibus tradition, i.e., the principle used to explain, in a unified manner, the issues at stake in the medieval scientia de animalibus. The paper further reflects on the reasons why the notion of ‘complexion’ could have served as an organizational principle of the themes treated in the De animalibus commentaries and on the role that the earliest medieval commentaries on the De animalibus themselves could have played in shaping some of the prominent features of the medieval conceptualization of ‘complexion.’

Keywords

complexio – De animalibus – natural philosophy – medicine
1 Introduction

Scholarship has traditionally focused on the centrality of the notion of ‘complexion’ to medieval and Renaissance medicine. Yet little attention has been devoted to use of the notion of ‘complexion’ in fields beyond medicine or to how this concept created intersections between medicine and other fields.\(^1\) One of the purposes of this special issue is to investigate the ways and to what extent this notion was taken up outside its main context of medicine in other fields. To contribute to this aim, the present paper offers a preliminary survey of the use of ‘complexion’ in late-medieval Latin commentaries on Aristotle’s so-called *De animalibus*. This introduction therefore briefly presents the corpus of commentaries on Aristotelian zoological works in which the concept of ‘complexion’ will be mapped in the rest of the paper.

Aristotle wrote extensively on animals, addressing this topic in *De progression animalium* (“Progression of Animals”), *De motu animalium* (“Movement of Animals”), *De partibus animalium* (“Parts of Animals”), *De generatione animalium* (“Generation of Animals”), and *Historia animalium* (“History of Animals”).\(^2\) This zoological corpus was transmitted to the Latin Middle Ages thanks especially to a translation by Michael Scot (a Latin translation made from the Greek via the Arabic).\(^3\) Another important vehicle for the transmission of the *De animalibus* doctrines to the Latin medieval world was Avicenna’s

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1 For a definition of the concept of ‘complexion,’ literature addressing the concept of ‘complexion’ in medieval and Renaissance medicine, and existing scholarship that explores ‘complexion’ *beyond* the domain of medical theory and practice, see the Introduction to this special issue.

2 On Aristotle’s works on zoology, see, amongst other contributions, Maria Michela Sassi, “I trattati di Aristotele sugli animali: nascita di una disciplina,” in *La zoologia di Aristotele e la sua ricezione, dall’ellenistica e romana alle culture medioevali*, ed. Maria Michela Sassi, Elisa Coda and Giuseppe Feola (Pisa, 2017), 14–34.

 Liber de animalibus (also known as Abbreviatio Avicennae), which was also translated into Latin by Michael Scot. A Latin translation of the De animalibus, created directly from Greek, was prepared by William of Moerbeke. While the De progressu animalium and the De motu animalium were mostly circulated as separate treatises, the Historia animalium, De partibus animalium, and De generatione animalium were grouped together as a unified corpus called De animalibus (On Animals). Like most branches of Aristotle’s philosophy upon introduction to the Latin Middle Ages, the zoological corpus was integrated with pre-existing knowledge, and it moreover had a major impact on the development of medieval science. Aristotle’s zoology contributed to shaping medieval thought through several textual genres (commentaries, questions, independent treatises, compendia and abbreviations, conclusiones, flores and auctitates, and tabulae) and was transmitted via several different epistemological

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frameworks (works of theology, natural philosophy, and medicine). In the context of the university and as far as the teaching of natural philosophy and medicine is particularly concerned, Aristotle’s zoological treatises were included among the natural-philosophical works studied in the faculties of Arts (in Paris and Oxford) and were regularly quoted within medical works, such as commentaries on Galen (although it seems that the De animalibus was neither assigned in the curriculum of the faculties of Medicine nor directly commented upon).

Overall and compared to other commentary traditions, there are relatively few medieval university commentaries on the De animalibus. Of these, only four have come down to us in complete – or nearly complete – form: in chronological order, these are a commentary by Peter of Spain, two from Albert the Great, and an anonymous commentary contained in a Vatican City manuscript, probably prepared in the fourteenth century.

The corpus attributed to Peter of Spain (thirteenth century) has been much debated, as has the question of to whom it is we are actually referring when we speak of “Peter of Spain.” The details of these debates are not strictly relevant to the purposes of this paper. Here, I simply refer to Peter of Spain as the...

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8 See Perfetti, “I libri De animalibus” and Cova, “Il corpus zoologico di Aristotele.”

9 On the other late-medieval university commentaries on the De animalibus, see the literature quoted above, in n. 6. Later in this paper (see below, n. 21), I will refer to some of these other commentaries, and specifically to Petrus Gallecus’s Liber de animalibus, ed. José Martínez Gázquez (Florence, 2000); to Johannes Vath’s Quaestiones super libro De generatione animalium, edited in Cova, “Le questioni di Giovanni Vath,” as well as to the so-called ‘Anonymus Florentinus’. As Stefano Perfetti has shown, the small number of commentaries on the zoological corpus compared to other parts of Aristotle’s natural philosophy is not in and of itself indicative of Aristotelian zoology having little influence on medieval thought, because Aristotle’s teaching on animals entered the Latin Middle Ages in several forms, not necessarily primarily linked to university commentaries; see Perfetti, “I libri De animalibus.” The dearth of commentaries on Aristotle’s works on animals is especially evident with regard to the fourteenth century; interest in these works increased in the Renaissance, thanks in part to a newer translation by Theodore of Gaza. On Aristotle’s zoology in the Renaissance, see esp. Stefano Perfetti, Aristotle’s Zoology and its Renaissance Commentators (1521–1601) (Leuven, 2003). On Theodore of Gaza’s translation, see esp. Pieter Beullens and Allan Gotthelf, “Theodore of Gaza’s Translation of Aristotle’s De animalibus: Content, Influence, and Date,” Greek, Roman, and Byzantine Studies, 47 (2007), 469–53.

author of the earliest of our commentaries, the *Quaestiones super libro De animalibus Aristotelis* contained in the manuscript Madrid, Biblioteca Nacional de España, 1877 and the manuscript Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 6758.\textsuperscript{11} This commentary seems to have been written in Siena when Peter of Spain was teaching medicine.\textsuperscript{12} Next, two extensive commentaries on the *De animalibus* are linked to Albert the Great (ca. 1200–1280): a long literal commentary on the *De animalibus* and a set of *Quaestiones super De animalibus*, which are conventionally ascribed to Albert but more precisely constitute a *reportatio* by Conrad of Austria.\textsuperscript{13} The final text that will be considered here, the anonymous commentary of the manuscript Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, contains questions (sometimes interlaced with expositions) on the three main zoological treatises of Aristotle – *Historia animalium*, *De partibus animalium*, and *De generatione animalium* – though the commentary on books III–V of the *De generatione animalium* (namely, books XVII–XIX of the *De animalibus*) is omitted in this manuscript.\textsuperscript{14} This Vatican commentary was ascribed to the fourteenth-century Parisian Master of Arts John Buridan (d. ca. 1361) in an inscription later added to the codex. Buridan's

\textsuperscript{11} On the versions and manuscripts of Peter of Spain's *De animalibus*, see the Introduction to Peter Hispanus, *Quaestiones super libro De animalibus Aristotelis*, ed. Francisca Navarro Sánchez (Farnham, 2015) 31–32, and the literature quoted there. Navarro Sánchez's edition is the one I am following in this paper.

\textsuperscript{12} Miguel de Asúa, "Medicine and Philosophy in Peter of Spain's Commentary on *De animalibus*," in Steel, Guldentops and Beullens, *Aristotle's Animals*, 189 maintains that the *Quaestiones super libro De animalibus Aristotelis* date back to Peter of Spain's teaching medicine in Siena (and not to his teaching in Paris for the faculty of Arts). Perfetti, "I libri *De animalibus*," 147 has noted that, if this is true, the commentary would represent the only known proper university commentary on the *De animalibus* written by someone while teaching medicine.


\textsuperscript{14} Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fols. 235r–31v.
authorship has been rejected by Anneliese Maier, first in 1957 and again in 1961; Maier instead suggests attribution to an unspecified “early fourteenth-century Master of Arts” inclined towards “Averroistic” positions.\textsuperscript{15}

The present paper considers the notion of ‘complexion’ in these, the only complete (or nearly complete) extant medieval university commentaries on the \textit{De animalibus}, and shows that ‘complexion’ was a key concept of that tradition. Starting from the evidence that “complexion” widely appears in these texts and was applied to a wide array of topics, I will ultimately suggest that ‘complexion’ might be considered as the principle used to explain, in a unified manner, the issues at stake in the medieval \textit{scientia de animalibus}. Further considerations will also be drawn on the reasons why this might have been the case and on the role the medieval commentaries on the \textit{De animalibus} could have played in the shaping of the main theoretical features of the notion of ‘complexion’ itself.

2 \quad \textit{Complexio} in Late-Medieval Latin Commentaries on the \textit{De animalibus}

This section presents a list of questions and chapter titles in which the word “\textit{complexio}” appears in the four (nearly) complete extant medieval commentaries on the \textit{De animalibus}.\textsuperscript{16}

\begin{thebibliography}{99}
\bibitem{Maier1957} I list here only the occurrences of ‘complexion’ in the titles – and not throughout the entire works – since this is a preliminary study. Further study might map ‘complexion’ more extensively in the four texts.
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List of questions from Peter of Spain’s *Quaestiones super libro De animalibus Aristotelis*:

*Quare homo pocius dividitur per complexionem quam aliud animal* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, I, within q. 2, 55);

*De complexione neruorum utrum sint flegmatici uel melancolici* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, III, within q. 3, 64);

*Quare complexio calida et humida et regio calida et humida sunt ad bonum in regimine sanitatis, uentus autem calidus et humidus ad malum* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, VII, within q. 2, 73);

*Utrum remota specie lactuce possit remanere complexio per quam altert* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, VII, within q. 3, 74).

*Utrum mistio elementorum sit prius secundum substantiam quam altert ratio secundum complexionem* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, XII, within q. 3, 88);

*Utrum mistio precedat complexionem misti uel complexio mistionem* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, XII, within q. 3, 88);

*Utrum secundus gradus imprimat in complexionem humanam cum sit ei equalis* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, XIII, within q. 1, 90);

*Quare complexio fluens ponitur in gradu, radicalis non ponitur* (Petrus Hispanus, *Quaestiones super libro De animalibus Aristotelis*, XIII, within q. 1, 90);

*Quidquid dicitur tale in medicina, dicitur per comparatione ad corpus humanum, ergo cum complexio humana sit elementata in secundo gradu,*

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17 The titles reported here are from the tabula librorum found on pages 53–110 of Petrus Hispanus, *Quaestiones super libro De animalibus*, ed. Navarro Sánchez. The page numbers refer to that tabula. The text is composed of general questions divided into several, mostly un-numbered sub-questions. In my list, I have indicated the question to which each sub-question belongs (e.g., “within q. 2,” etc.).

18 In the subsequent question (q. 4) of the twelfth book, yet another occurrence of “complexion” appears in the question title, but not, however, as reported in the tabula librorum: “Hic restat querere primo de complexione in corporibus superioribus, utrum scilicet sit ibi calor informatie uel effectue”; see Petrus Hispanus, *Quaestiones super libro De animalibus*, ed. Navarro Sánchez, 302.
nulla medicina erit temperata (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiii, within q. 1, 99);

Cuius complexioinis sit pinguedo (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiii, within q. 4, 92);

Queritur cuius complexioinis sit nucha sive spinalis medulla (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 1, 94);

Utrum organum tactus sit nervus uel caro uel temperamentum complexioinis (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 1, 94);

Quare tactus uiget per temperamentum in complexione, gustus autem per humidum aquosum (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 1, 94);

Quare tactus, gustus, olfatus operantur per complexionem, uisus autem et auditus per compositionem (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 1, 95);

De complexione cordis, et queritur utrum sit calidum et humidum (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 2, 95);

In qua complexione sit maior audacia (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 2, 96);

De pulmone, et primo cuius complexioinis sit (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xiv, within q. 3, 97);

Cuius complexioinis sit egestio (Petrus Hispanus, Quaestiones super libro De animalibus Aristotelis, xv, within q. 2, 100).

List of questions from the Quaestiones super De animalibus conventionally ascribed to Albert the Great:

Utrum causa similitudinis vel dissimilitudinis inter membra diversorum animalium ex complexione proveniat miscibilium vel ex parte animae (Albertus Magnus, Quaestiones super De animalibus, ii, q. 1, 109 – Aristotle, De historia animalium 1.11);

Utrum nervi sint melancholicae vel phlegmaticae complexioinis (Albertus Magnus, Quaestiones super De animalibus, iii, q. 8, 128 – Aristotle, De historia animalium 1.11);

Utrum zirbus et pinguedo sint naturaliter complexioinis calidae vel frigidae (Albertus Magnus, Quaestiones super De animalibus, xii, q. 12, 231 – Aristotle, De partibus animalium 1.11);

De complexione cordis (Albertus Magnus, Quaestiones super De animalibus, xiii, q. 1, 238 – Aristotle, De partibus animalium 1.11).
List of titles from Albert the Great’s *De animalibus*:

*De differentia piscium penes cibum suae complexioni debitum et conveniendem* (Albertus Magnus, *De animalibus*, liber VII, tract. 1, cap. 3, § 17–29, 502–508);

*Liber XII qui est de causa membrorum consimilium et dissimilium et complexione ipsorum* (Albertus Magnus, *De animalibus*, liber XII, § 1–230, 798–892);

*De differentiis complexionum et de comparatione membrorum similium ad invicem secundum complexiones* (Albertus Magnus, *De animalibus*, liber XII, capit. II, § 1–230, 798–892);

*De differentiis complexionum et de comparatione membrorum similium et dissimilium et complexione ipsorum* (Albertus Magnus, *De animalibus*, liber XII, capit. III, § 1–230, 798–892);


List of questions from the anonymous commentary on the *De animalibus* in manuscript Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164:19

*Circa secundum librum, de causa distinctio animalium, queritur primo utrum distinctio illa sit ab anima vel a complexione* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 244vb);

*Tunc de complexeione nervorum* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 253vb);

*Consequenter queritur de lacte et colore et complexeione eius* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 256vb);

*Tunc de complexeione illorum animalium sanguine carentium* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 258rb);

*Tunc de complexeione mellis et cere* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 282va);

*Circa complexeiones animalium queritur primo utrum ille complexiones sint in celo* (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 292va);

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19 This work is unedited. The transcription below is mine.
Utrum sit ponere complexionem in omnimodam equalitatem et temperamentum (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fols. 293rb–293va);
Consequenter de gradibus complexionis (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 293vb);
Consequenter querendum est de complexione membrorum consimilium (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 295ra);
De complexione medalle et nuce et cerebri (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 296vb);
Tunc de complexione cerebri (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 297vb);
Tunc de complexione cordis (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 299rb);
Sed utrum [pulmo] sit flecmatice complexionis (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 301va);
Tunc de complexione sterconis (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 304rb);
Iuxta hoc utrum mas sit rarioris complexionis (Anonymus Vaticanus, Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, fol. 306rb);

More examples of the occurrence of “complexion” can be found throughout these texts, and not only in questions with the term “complexion” in the title. The term ‘complexion,’ moreover, often appears together with a cluster of other related concepts referring to the blending of elements, qualities, and humors (mixtio, commixtio, temperamentum, etc.). “Complexion” occurs too in other medieval commentaries on (parts of) the De animalibus besides the ones

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20 Consider, for example, the reference to “complexion” at the very beginning of Albert the Great’s De animalibus, where he distinguishes between the commixtio elementorum, the complexio humorum, and the compositio membrorum; see Albertus Magnus, De animalibus, liber 1, tract. 1, cap. 1, § 1, 1. On this point, see also nn. 29 and 44 below. A search in the digital Editio Colonensis reveals seventy-six occurrences of the term “complexio” in Albert the Great’s Quaestiones super De animalibus. Other examples can be found in Peter of Spain’s De animalibus. The notion of ‘complexion’ is extensively present and lengthily discussed in the entire third question of the twelfth book of Peter of Spain’s De animalibus (Utrum mistio precedat complexionem misti vel complexio mistionem); see Petrus Hispanus, Quaestiones super libro De animalibus, ed. Navarro Sánchez, 296–301. It is also worth noting that Galen’s De complexionibus is the most-quoted Galenic work in Peter of Spain’s De animalibus; see again Petrus Hispanus, Quaestiones super libro De animalibus, 19. On the medieval reception of Galen’s De complexionibus, see Viktoria von Hoffmann’s contribution to this special issue.
considered in this paper; ideally, those other occurrences of the term should also be mapped for a more comprehensive analysis.\footnote{21 More occurrences of “complexion” in the De animalibus texts are collected in Köhler, Grundlagen, and idem, “Fächerübergreifendes Denken in der Philosophie des dreizehnten Jahrhunderts: Die Rolle der Complexio-Theorie,” in Denken im Raum des Heiligen: Festschrift für P. Ansger Paus osb, ed. Ansger Paus, Horst Bürkle and Drago Pintaric (St. Ottilien, 2007), 47–88; idem, ‘Homo animal nobilissimum’. For examples of the use of ‘complexion’ in other medieval commentaries on (parts of) the De animalibus, see, for example, the Liber de animalibus by Pedro Gallego (ca. 1200–1267) and the Quaestiones super librum De generatione animalium by Johannes Vath (thirteenth century). In Pedro Gallego, bodily complexion is identified as one of the criteria for distinguishing aquatic and terrestrial animals; see Petrus Galleus, Liber de animalibus, ed. Martínez Gáquez, 123. In Johannes Vath, human beings are described as more prudent than animals because humans have better complexions and bigger brains than animals; see Johannes Vath, Quaestiones super librum De generatione animalium, ed. Cova, 265–266. Johannes Vath also links the length of the gestation period to complexion. Gestation time, Vath explains, is not only due to the influence of the heavens but also to the complexion of the parents (ibid., 280). Vath involves complexion in his discussion on baldness as well (ibid., 286). The word “complexion” also appears frequently in the initial part of the anonymous commentary Super libros De animalibus, MS Florence, Biblioteca Nazionale Centrale, Conv. soppr. G.4.853, fol. 79v. The following sentence is particularly striking: “Nota quod in habentibus ordinem nescere est aliquid unum esse ad quod sequens ordinatur et a quo regatur. Unde ita videtur de complexione quacumque respectu virtutis” (ibid., fol. 79va). On the commentary on the De animalibus contained in this manuscript, see José Francisco Meirinhos, “Pedro Hispano (século XII),” 2 vols. (PhD thesis, Universidade do Porto, 2002), 2: 245–253.}

What the above survey demonstrates, in any case, is just how widely used was the concept of ‘complexion’ in the tradition of medieval university commentaries on the De animalibus. ‘Complexion’ is used in several books of the corpus and in relation to a wide array of topics: it is discussed as a (possible) criterion for distinguishing between humans and animals and between species of animals; it is considered in relation to the regions of the Earth and health, and is addressed in relation to mixture. The various degrees of complexion are noted, and analysis is undertaken of the complexion of uniform bodily parts, of the organs (heart, brain, nerves, and others), and of bodily products or wastes (milk, honey, wax, urine, excrements, snakes’ venom, etc.); complexion is also linked to nutrition processes, the five senses, behavior, and to the differences between males and females. The concept of ‘complexion’ in the De animalibus
commentary tradition thus seems to be enmeshed with several crucial theoretical topics related to human and animal nature and bodily function: the relationship between humans and animals, and their connections with the environment; the constitution of the body and the biological phenomena pertaining to it; normal and pathological conditions of organisms; nutrition and sensation processes; the behavioral and moral attitudes of living beings; and gender differences. This manifold and polymorphic use of the concept of ‘complexion’ reveal it to be a key concept of the medieval De animalibus commentary tradition.

What is most interesting in this respect is that at least two medieval texts – Peter of Spain’s commentary on Aristotle’s De anima22 and the set of questions on the De anima by the so-called Anonymus Giele (thirteenth century)23 – seem to identify bodily complexion as the proper object of the science treated in the De animalibus. In their reflections on the proper object of the science of the soul and comparisons of the science of the soul with other sciences, both texts claim that the science in the De animalibus focuses on bodily complexion. The quaestiones preambulae of Peter of Spain’s commentary state that while the science of the soul, as developed in the De anima, addressed the body only insofar as it was connected to the soul, the science of plants and animals (elaborated in De vegetabilibus and De animalibus) focused on the body itself. In particular, Peter of Spain writes that the De animalibus studied the animated body insofar as it is referred to its own complexion and to the disposition of its

22 Petrus Hispanus, Commentarium in librum De anima, ed. Manuel Alonso (Madrid, 1944). Let us add that the editor of this commentary calls the text Commentarium in librum De anima, which is also known by the title Quaestiones libri De anima – the same name as is given, for example, by Dag Nikolaus Hasse in Avicenna's De anima in the Latin West: the Formation of a Peripatetic Philosophy of the Soul 1600–1530 (London – Turin, 2000), 55 – and by the title Sententia cum quaestionibus in libros De anima, as found for example in Paul J.J.M. Bakker, “Petrus Trapolinus on the Nature and Place of Psychology,” in Psychology and Other Disciplines: A Case of Cross-disciplinary Interaction, ed. Paul J.J.M. Bakker, Cees Leijenhorst and Sander W. de Boer (Leiden – Boston, MA, 2012), 19 and 27. In the list of works attributed to Peter of Spain in <https://filosofia.up.pt/proj/ph/attributed_works> (accessed 1 September 2023), two titles appear with an obvious connection to the De anima: a Scientia libri De anima and a Sententia cum questionibus in libros De anima 1–11 Aristotelis. For a presentation of the two works and the doctrinal differences between them, see Hasse, Avicenna’s De anima in the Latin West, 55–60. The same webpage lists other commentaries on the De anima as linked to Peter of Spain, albeit these attributions are given either as uncertain or not authentic.

own parts. Peter of Spain further states that the animated body has three aspects – namely, the complexion of the body, the disposition of its parts, and their inception and end – and he twice maintains that this is how the animated body is studied in the *De animalibus* and *De vegetabilibus*. Moreover,
he assigns to complexion an important role in distinguishing between the science of plants and the science of animals: the body of plants is treated by a different science than the one addressing human and animal bodies, because human and animal complexions share some common principles which are not proper to plants. The claim that bodily complexion is the proper object of the De animalibus can also be found, though in a shorter and less developed way, in q. 3 of the first book of the Anonymus Giele's De anima. The disposition and complexion of the animated body is emphasized here as the subject matter of the science treated in the De animalibus.

operationum egredientium ab anima determinatarum supra ipsum. Tercium est natura operationum quas habet corpus a parte corporis et que contrahunt materiam ab eo et sic de eo in minoribus libris sicut in libro de sensu et sensato; de morte et vita; de somno et vigilia" (ibid., 88). The second statement reads as follows: "Ad secundum [satis secundam cb] rationem dicendum est quod hec scientia considerat passiones communes anime et corpori, tamen separata est ab aliis que sunt de corpore animato, quia considerant complexionem corporis et formationem eius et dispositionem suarum partium et hec non sunt communia anime et corpori, set insunt corpori solum et ideo est separatio istarum scientiarum" (ibid., 89).

26 “Tercia questio est propter quid in eadem scientia determinatur de corpore animato sensibili, humano et bruto, non autem de vegetali in eadem scientia cum aliquo istorum [...]. Solutio. Dicendum est quod corpus vegetale non determinatur cum bruto nec cum humano in eadem scientia set brutum et humanum simul. Et hoc est propter duas causas: Prima causa est quia complexio corporis bruti et humani communicant in eisdem principiis, scilicet, in carne et osse et organis. Utrumque enim habet carnem et ossa et organa formata. Vegetale autem corpus non habet hanc naturam. Et propter hoc non habet communicantiam cum corpore bruto et humano. Et ideo in eadem scientia cum illis non determinatur. Corpus autem brutum et humanum habent communicantiam physicam et ideo simul determinantur. Secunda causa est quia sicut vult [Aristoteles in libro de sensu et sensato per complexionem hominis regulatur in cognitionem complexionis animalium; quia partes hominis manifeste sunt. Set non est regulatio a animali circa complexionem complexionis partium plantarum. Nec e converso; quia non possunt partes animalium comparari ad partes plantarum. Et ita quia regulatur in cognitionem complexionis animalium per complexionem humanam, ideo in eadem scientia determinatur de complexione corporis humani et bruti et non corporis vegetalis. Et per hoc patet solutio ad rationem" (ibid., 90–91).

27 The relevant passage is found within the question titled "Utrum scientia de anima debeat esse separata a scientiis de corpore" (Anonymus Giele, Quaestiones De anima, ed. Giele, 1, q. 3, 25): "Et hoc modo Aristoteles hic in determinando de anima determinat similiter de corpore quantum ad illas dispositiones <quibus> ipsum redditur propria materia animae, sed non quantum ad omnes dispositiones corporis. Unde Aristoteles primo huius dicit quod animae quaedam sunt operationes quae non reduci possunt ad virtutes elementares, ut audire etc., sed tamen non fiunt sine corpore. Sed in libro De animalibus universaliter de omnibus dispositionibus, virtutibus et proprietatibus corporis animati <determinatur>, et in libro De plantis, scilicet ratione totius complexionis, ut cuius
From these two texts, there clearly emerges an intimate connection between the *De animalibus* and the concept of ‘complexion.’ Following these passages, it even seems that the *De animalibus* tradition takes the concept of bodily complexion as its proper epistemological object.\(^28\)

Though this claim seems to appear only sporadically in medieval texts and does not appear explicitly in medieval commentaries on the *De animalibus*, the key role of ‘complexion’ in the medieval *scientia de animalibus* is evidenced by the contents of the medieval *De animalibus* themselves. In both early passages of Albert the Great’s *De animalibus* (first book, first treatise, chapter one) and later in the text (twelfth book, first treatise, chapters one and four), for example, readers are presented with an extended reading of Aristotle’s account of the levels of bodily composition using the concept of ‘complexion.’ Albert talks about ‘complexion’ in terms of the “composition of humors,” and explicitly refers complexion to the Aristotelian uniform or homogeneous parts.\(^29\) It

\(\text{dispositionis sit oculus etc. Hoc modo autem non determinatur hic de corpore animato, sed primo modo’ (ibid., 27).}\)

\(^{28}\) The position of the *scientia de animalibus* in natural philosophy have been discussed in literature, alongside the problem of its scientific basis (e.g., the problem of whether it deals with particular cases or with universals), and the types of knowledge procedures thereby involved. See Pietro Bassiano Rossi, “Problems of Method According to Some Medieval Commentators on Book 1 of the *De partibus animalium,*” in *Erfahrung und Beweis. Die Wissenschaften von der Natur im 13. und 14. Jahrhundert*, ed. Alexander Fidora and Matthias Lutz-Bachmann (Berlin, 2007), 89–123, and idem, “Lentrata dei libri *De animalibus,*” which refers to further scholarship (esp. to the previous studies by Köhler) on the epistemological position occupied by the *scientia de animalibus* and on the nature and method of the research carried out in medieval commentaries on the *De animalibus*. The theme of the proper object of the medieval commentaries on the *De animalibus* is not treated by Rossi.

\(^{29}\) In the twelfth book of his *De animalibus*, Albert comments on Aristotle’s *De partibus animalium*, 11, 646a7–24. The Aristotelian passage reads as follows: “The nature and the number of the parts of which animals are severally composed are matters which have already been set forth in detail in the book of *Histories* about animals. We have now to inquire what are the causes that in each case have determined this composition, a subject quite distinct from that dealt with in the *Histories*. Now there are three degrees of composition; and of these the first in order, as all will allow, is composition out of what some call the elements, such as earth, air, water, fire. Perhaps, however, it would be more accurate to say composition out of the elementary forces; nor indeed out of all of these, as said elsewhere in previous treatises. For wet and dry, hot and cold, form the material of all composite bodies; and all other differences are secondary to these, such differences, that is, as heaviness or lightness, density or rarity, roughness or smoothness, and any other such properties of bodies as there may be. The second degree of composition is that by which the homogeneous parts of animals, such as bone, flesh, and the like, are constituted out of the primary substances. The third and last stage is the composition which forms the heterogeneous parts, such as face, hand, and the rest.” (Aristotle, *The Complete Works of*
is also the case, however, that complexion of the heterogeneous parts, such as the organs, is often mentioned in the two De animalibus commentaries ascribed to Albert, as well as in the other commentaries analyzed above (those of Peter of Spain and the Anonymous). In other words, although especially linked by Albert to the similar parts, the concept of ‘complexion’ seemed to have played a wider explanatory role in the medieval scientia de animalibus. Explanations in terms of ‘complexion’ were here applied also to more complex degrees of bodily composition (the organs), to entire sets of biological processes and functioning (such as nutrition, sensation, and generation), and to other topics not immediately pertaining to bodily parts themselves, such as the differences between males and females, or the discussion of the behavior of animated beings. Complexion seems to have functioned as an explanatory

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Aristotle. The Revised Oxford Translation, ed. Jonathan Barnes, 2 vols. [Princeton, NJ, 1984], 1:1005–1006). In his text, Albert follows Aristotle’s distinction of three kinds of composition: composition out of elements, composition of uniform parts, and composition of non-uniform parts. When referring to the second of these, Albert introduces the concept of ‘complexion’: ‘Secunda vero compositio facit complexionem: complexio enim, sicut in antehabitis ostensum est, est qualitas accidens ex qualitatum contrarium compositione in particulis minimis et dividentibus et alternantibus se ad invicem. Et hoc enim accidit in eius una qualitas qua complexo vocatur. Et haec compositio vocatur compositio humorum, faciens ex ipsis membra consimilia animalium quae ex humoribus generantur: et ideo ista compositio dicitur fieri ex illis membris, quae habent partes consimiles ad invicem naturaliter, sicut os, caro, nervus et huiusmodi, quoniam licet incipiat haec compositio ex humoribus, tamen quia humor non est actu pars animalis sicut est membre simile, quod ex humore generatur, melius dicitur esse compositio ista ex membris similibus.” Albertus Magnus, De animalibus, liber XII, tract. 1, cap. 1, §1, 799. Albert is here reprising the distinction between commixtio elementorum, complexio humorum, and compositio membrorum that he made at the beginning of his work: “Scientiam de animalibus secundum eam quam in principio praemisimus divisionem post scientiam de vegetabilibus in huius nostrae naturalis philosophiae calce ponemus: eo quod corpora animalium, de quibus loquimur, tam commixtione quam complexione quam etiam compositione constituiuntium commixtionem patiuntur elementorum in materia, complexionem autem sustinent humorum tam in generatione quam etiam in nutrimento: et membrorum habent compositionem ad regimen suae vitae pertinentem. Propter quod etiam ultimam partem naturarum de animalibus esse congruit, eo quod in omnibus compositione considerantur post simplicia et minus composita: eo quod minus composita sunt in magis compositis, sicut saepe ostendimus. Est enim elementorum mixtio in complexione humorum et humorum complexio in quolibet membrozor compositorum, quod ad officium et actum vitae perfectum est.” (Albertus Magnus, De animalibus, liber I, tract. 1, cap. 1, §1, 1.) For a comment on Albert the Great’s use of the concept of ‘complexion’ in the first and the twelfth books of the De animalibus, see de Asúa, “Organization of Discourse on Animals,” and idem, “War and Peace: Medicine and Natural Philosophy in Albert the Great,” in A Companion to Albert the Great: Theology, Philosophy, and the Sciences, ed. Irven Resnick (Leiden, 2013), 292–294; see also n. 41 below.
tool for different biological functions, and to account for the different levels of bodily composition, up to and including human and animal behavioral features; its applications seemed to cover the entire spectrum of biological topics Aristotelian zoology had to offer. All of which is to say that complexion worked as a key principle of the medieval *scientia de animalibus*, and a unifying principle of explanation of topics pertaining to human and animal biology.

3 Shaping the Medieval Concept of ‘Complexion’

Some attempt can now be made to explain the reasons why the notion of ‘complexion’ could have had such a fortune in the medieval *De animalibus* commentary tradition. These reasons might very easily come from the main theoretical features of the concept of ‘complexion’ itself. Scholarship has so far underlined the ‘in-between’ nature of the medieval notion of ‘complexion.’ When defining ‘complexion,’ late-medieval physicians tried to make it a concept “in between” matter and form, accident and substance, individual and species.\(^3\) This made complexion “a ductile and intermediate heuristic tool”\(^3\) to be advantageously applied in the medical domain, where the animated bodies were concerned. As something in between matter and form, accident and substance, individual and species, complexion might have been seen as a convenient concept to be


\(^3\) Criscianì, “Medici e filosofia,” 49: “Dunque la *complexio* si rivela sempre più uno strumento euristico duttile e intermedio, vicino alla forma come alla materia; connessione tra ciò che è solo corpo e quanto spetta all’anima; in grado di coinvolgere tutta la specie, ma capace di dar conto delle infinite varietà, dei concreti particolari che distinguono gli organismi di ciascun uomo. E dunque diventa il paradigma-cardine delle ricerche e degli interventi del medico.” (My translation).
used while discussing human and animal biology in a zoological domain, too. Humans and animals could here be studied not just in their formal aspect, i.e., their soul, nor only from the perspective of their physical, material, i.e., elemental, composition but exactly as animated bodies, indeed belonging to a species but, at the same time, remaining themselves relevant objects of study in their individual features. By providing an “intermediate space [...] between the homogeneous domain of the specific form and the absolutely different variety of the individual accidents,”32 the concept of ‘complexion’ could offer the De animalibus commentators with a useful epistemic tool to deal with humans and animals as hylomorphic entities, in a framework of Aristotelian natural philosophy.33 In short, the concept of ‘complexion’ clearly lent itself to being used in the scientia de animalibus.

On the other hand, the extensive use of the notion of ‘complexion’ by the De animalibus commentators could also have played its own role in shaping the medieval concept of ‘complexion’ in its theoretical features and in making the in-between trait of complexion prominent in late-medieval science. In other words, we might likely think that the medieval commentators on the De animalibus did not just borrow a ready-made notion of ‘complexion’ but actively contributed to modeling it. How ‘complexion’ turns out to be exactly described in the medieval zoological tradition of the commentaries on the De animalibus, and to what extent this description contributed to the medieval conceptualization of the concept of ‘complexion,’ are further questions that need to be addressed in the future. If we refer to the theoretical features of complexion mentioned above, and especially the definition of ‘complexion’ in relation to matter and form, accident and substance, individual and species,


33 Moreover, complexion was conceived in medieval medicine as a mutable and relational entity. Complexion of an organ, a body, or a species was considered as a highly changeable trait and was interpreted comparatively, i.e., by considering similarities and differences with other complexions. On complexion as a mutable and relational entity, see, for example, Danielle Jacquart, La médecine médiévale dans le cadre parisien: xiv−xv siècles (Paris, 1998), 391–492; Crisciani, “Medici e filosofia”; Chiara Beneduce, “John Buridan on Complexion: Natural Philosophy and Medicine in the Fourteenth Century,” in Oeconomia Corporis: The Body’s Normal and Pathological Constitution at the Intersection of Philosophy and Medicine, ed. Chiara Beneduce and Denise Vincenti (Pisa, 2018), 41–49; and Joël Chandelier’s contribution to this special issue. The conception of ‘complexion’ as a mutable, comparative and relational entity could have made it attractive to authors who had to deal with living beings, characterized by the contingency, time- and context-dependency implied in biology. For readers interested in present studies in systems biology, with its emphasis on time and contextual factors, see the contributions collected in Mario Bizzarro, ed., Systems Biology (Dordrecht, 2018).
then the medieval commentaries on the *De animalibus* overviewed in this paper can offer some insights. Peter of Spain described complexion in relation to matter and form. A relevant and extended example is found in a section of his commentary where he discusses the biological transformations implied in digestion and nutrition. The question is about what remains of lettuce once assimilated as food in the body, and especially whether a trace of lettuce’s complexion remains and whether such a trace is sufficient to alter the human body (seventh book, within q. 3). In answer, a vestige of lettuce’s complexion, capable of altering the body, is said to remain. While the lettuce is deprived of its form and, therefore, of its species, it is not deprived of its complexion, since it cannot be deprived of its matter. Lettuce’s complexion is said to be a consequence of its matter (“complexio sequitur materiam”) and is neatly distinguished from its form (from which its species derives). In a discussion about the complexion of bodily parts such as nerves in the question-commentary ascribed to Albert the Great (third book, q. 8), the author claims that nerves are cold and humid as far as matter is concerned, while they are cold and dry as far as complexion is concerned. Material and complexional aspects of nerves, here, do not overlap at all and are identified as two different perspectives from which nerves’ characteristics can be described. From an ontological point of view – to put it differently –, complexion does not collapse with matter; epistemologically, explaining bodily aspects in terms of ‘complexion’ does not coincide with explaining them in terms of ‘matter.’ While more research is needed into these developments, there is good provisional evidence to suggest that the earliest medieval *De animalibus* commentators may have given their own contributions in discussing the theoretical foundations of complexion in relation to matter and form and, ultimately, could have helped to shape that


35 Albertus Magnus, *Quaestiones super De animalibus*, 128: “Dicendum, quod nervus potest dupliciter considerari: aut ratione materiae, ex qua fit, aut ratione modi complexions. Si ratione materiae, sic nervus est frigidus et humidus, quia si esset frigidus et siccus, esset obscurus et durus ad modum terrae vel lapidis. Nunc autem nervus pervius et clarus est, quod attestatur super materiam et naturam aquae et per consequens phlegmatis. Si vero consideratur ratione modi complexioni, sic est frigidus et siccus et ideo patitur nocum mentum ab excellenti humido, ut patet in paralysisi et spasmo.”
view of complexion as positioned in that in-between status between matter and form, which has been considered an important outcome of medieval medical anthropology.\textsuperscript{36} Alongside the critique of Galen’s materialism undertaken by Thomas Aquinas (d. 1274) – wherein Aquinas claims that complexion does not coincide with the soul\textsuperscript{37} – and the late-thirteenth and fourteenth century Italian physicians’ discourse about complexion as “substantial quality” (not form, nor matter),\textsuperscript{38} the biological theories developed within the medieval scientia de animalibus under discussion could also have made their own significant contributions towards the building up of what has been called “the ontology of complexion.”\textsuperscript{39}

4 Concluding Remarks: Complexion, Medicine, and Natural Philosophy

Scholars agree that the medieval De animalibus commentary tradition was situated at the intersection of natural philosophy and medicine. Late-medieval Latin university commentaries on the De animalibus have even been referred to as “a natural meeting ground of philosophical and medical discourse within an institutional context.”\textsuperscript{40} The commentaries are in fact based on Aristotelian, natural-philosophical texts but were written with considerable reference to medical knowledge. Looking at just the four main commentaries considered in this paper, we see the clear emergence of an interplay of natural philosophy and medicine. The ability of both Peter of Spain and Albert the Great to set up a dialogue between natural philosophy and medicine has been highlighted in the scholarly literature, especially in relation to the contents of their

\textsuperscript{36} Chandelier and Robert, “Nature humaine et complexion du corps.”

\textsuperscript{37} Gabriella Zuccolin, “Tommaso d’Aquino.”

\textsuperscript{38} Chandelier and Robert, “Nature humaine et complexion du corps.”

\textsuperscript{39} Ibid., 479.

\textsuperscript{40} De Asúa, “Medicine and Philosophy,” 207. On the intersection of natural philosophy and medicine in medieval commentaries on the De animalibus, see, for example, Cova, “Il corpus zoologico di Aristotel” and the article by Gabriella Zuccolin, “Il corpo sanabile e l’embrione: Il De animalibus come punto di intersezione tra filosofia naturale e medicina,” in La medicina nel Basso Medioevo: Tradizioni e conflitti: Atti del LV convegno storico internazionale, Todi 14–16 ottobre 2018 (Spoleto, 2019), 113–134; see also the literature referring to Peter of Spain and Albert the Great in n. 41, below. In this special issue, see Tommaso Alpina's study of the connection between natural philosophy and medicine in Avicenna's Book of Animals.
De animalibus commentaries.\textsuperscript{41} Moreover, though little is known about it, the anonymous commentary on the De animalibus contained in the manuscript Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164 is a lengthy example of a work (probably) written in the context of a faculty of Arts that attempts to mix natural-philosophical and medical ideas and that discusses the consequences of the intersection of these discourses for the understanding of animal and human biology.\textsuperscript{42} Previous studies on Peter of Spain’s and Albert the Great’s De animalibus commentaries have already explicitly referred to the notion of ‘complexion’ as an example of the interaction of medical and natural-philosophical stances within the De animalibus commentary tradition. Miguel de Asúa, for instance, has pointed out that humoral theory and the concepts of ‘humors’ and ‘complexion’ – as basic medical physiology – are used throughout Peter of Spain’s treatise.\textsuperscript{43} De Asúa also underscores the fact that, though not a physician, Albert the Great deployed impressive medical knowledge in his works on animals, including the concept of ‘complexion.’ In particular, de Asúa remarks that Albert proposed a theoretical synthesis of natural-philosophical and medical ideas by refining Avicenna’s humoral and complexion theory.\textsuperscript{44}

Through my short survey of the late-medieval Latin commentaries on the De animalibus and by taking into account some other sources discussing the object of the scientia de animalibus, my aim in this paper has been to push


\textsuperscript{42} See Beneduce, “Natural Philosophy,” 241–243.


\textsuperscript{44} See esp. de Asúa, “Organization of Discourse on Animals,” 174–179, and idem, “War and Peace,” 292–294. The latter concludes that “Albert’s doctrine of the commixtio elementorum, complexio humorum, and compositio membrorum reveals his determination to provide a homogeneous discourse on the living being, able to absorb Aristotelian and Galenic explanations” (294).
the scholarship a step further, exploring the possibility that, in the entire medieval *scientia de animalibus*, the core medical concept of ‘complexion’ is applied as an explanatory tool to the whole spectrum of topics addressed in the *De animalibus* corpus, so reinforcing the idea that the notion of ‘complexion’ accounts for the overlap of natural philosophy and medicine in that tradition. The paper has also reflected on the reasons why the notion of ‘complexion’ could have served as an organizational concept of the *De animalibus* tradition. Understood as an in-between concept – between matter and form, accident and substance, individual and species – the notion was a useful one to be applied in theories about human and non-human animals, conceived, in Aristotelian hylomorphic terms, as animated bodies. Some discourses on complexion made by the earliest medieval commentators on the *De animalibus* further suggest that the late-medieval *De animalibus* tradition may itself have contributed to the shaping of some of the theoretical features of the notion of ‘complexion’ as were used in later medical and natural-philosophical theories.

Finally, in line with the main aims of the special issue in which this paper is included, the identification of ‘complexion’ as a key concept of the *De animalibus* tradition allows us to pinpoint an example of its pervasive use outside a strictly medical domain. While there is no disputing that the notion of ‘complexion’ originated in medicine, future studies may help to shed more light on the extensive and cross-disciplinary use of the concept of ‘complexion’ beyond medicine, starting from its presence in commentary traditions discussing other Aristotelian and pseudo-Aristotelian works. As it has been stated for other medical concepts, such as that of ‘radical moisture,’ more research could particularly explore whether – and to what extent – the concept of ‘complexion’ throughout the Middle Ages, was not just applied outside medicine but could also have even been modeled by contamination with other domains, especially natural philosophy.

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45 The special issue in which this paper is collected constitutes significant progress in this direction; see esp. Véronique Decaix on the tradition of the *De memoria et reminiscencia* and Joseph Ziegler on the physiognomic tradition.

the analysis related to the anonymous commentary on the *De animalibus* of the manuscript Vatican City, Biblioteca Apostolica Vaticana, Vat. Lat. 2164, was carried out thanks to a project entitled “The Anonymous Commentary on the *De animalibus* in MS Vat. Lat. 2164. Natural philosophy and Medicine in the Late Middle Ages” that was financially supported by the 2016 Notre Dame-SIEPM stipend. I am grateful to Paul Bakker, Lukáš Lička, Craig Martin, Roberto Lo Presti, Pietro B. Rossi, and Christoph Sander for their comments and help. Any mistake or infelicities that may remain, however, are entirely my own.