


Bridging the ‘Visible’ and the ‘Invisible’ in the Work of Albertus Magnus

Aristotelian *symbola* and Their Role in Natural, Theological, and Meteorological Phenomena

Contact

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Abstract During the 13th century, the relation between macrocosm and microcosm was a topic which attracted the interest of many medieval scholars. In this context, medieval philosophers were scrutinising ways of bridging the ‘visible’ and the ‘invisible’ in order to come up with a cogent explanation of the various natural and meteorological phenomena that were noticed in the natural world. The Aristotelian *symbola* (“counterparts”) offered a means of bringing the two realms of reality together and provided a sufficient exegetical tool which could account for the influence of invisible procedures in the visible world. One of the most important commentators of the Aristotelian corpus in the 13th century was Albertus Magnus, who commented on Aristotle’s ‘De generatione et corruptione’ and, therefore, became well aware of the Aristotelian doctrine of *symbola*. This paper aims to offer a first account of the use of the Aristotelian *symbola* in the work of Albert and show how the Dominican master employed them so as to explain various natural, theological, and meteorological phenomena.

Keywords Albertus Magnus; Elements; Meteorology; Natural World; *symbola*

1 Introduction

The Latin medieval world became acquainted with Aristotle's works on natural philosophy after the Arabic translations of the 12th century.¹ These translations gave great impetus to the study of Aristotle during the 13th century and led many medieval scholars to comment upon the work of the Stagirite. Among these scholars, one finds the personage of Albertus Magnus (d. 1280), who greatly contributed to the diffusion of Aristotle's thought by commenting on the entirety of his corpus. Albert began commenting on Aristotle's natural works a bit after his Parisian stay around 1251.² Albert commented on 'Meteorologica' between 1254–1257;³ however, a bit earlier (1251–1254), he had already commented on the Aristotelian 'De generatione et corruptione', the book where Aristotle treated *symbola* and their relation to both elements and matter. Albert showed great interest in the function of *symbola* and, thus, has used them extensively in order to explain how the macrocosm relates to the microcosm and how visible reality and phenomena could be explicated through the use of the 'invisible' *symbola*.

This paper aims to describe how *symbola* are used in Albert's 'Meteorica' in order to explicate natural phenomena and processes. With this aim, I will firstly introduce the theory of *symbola* as it appears in the second book of Aristotle's 'De generatione et corruptione' and explain how it pertains to elements and their transmutation. Subsequently, I will show how the aforementioned theory was conceived and presented by Albert in his commentary on the 'De generatione et corruptione' and then I will present how Albert's use of *symbola* extends to his theological works like the 'Quaestiones' and the 'De incarnatione'. In this way, it will be argued that the Dominican master conceived of natural philosophy and theology as two fields of knowledge, where the former could offer explanatory solutions to the latter. Lastly, in the final part of my paper, I will concentrate on Albert's 'Meteorica' and the instances where *symbola* appear and are used by Albert as exegetical tools of certain meteorological phenomena.

2 The Role of *symbola* in Aristotle's 'De generatione et corruptione'

In addition to Aristotle, the ancient Greek word σύμβολον (*symbolon*, "counterpart") has been used within a philosophical context by other philosophical schools. It was the Pythagoreans who used the term *symbola* or *acusmata* ("things heard")

1 Burnett 2005.

2 Albertus Magnus Institut 2011, p. 28.

3 Weisheipl 1980a.

in order to denote a set of oral moral rules which permeated the 'Pythagorean life'. It is quite dubious whether these rules were actually formulated by the founder of the school, Pythagoras, or whether they were just oral precepts which gradually accrued as the school progressed.⁴ Regardless, the Pythagorean *symbola* contributed to the establishment of a morally ritualised life whose main aim was to transform and morally improve a person.⁵

Turning to Aristotle, the term *symbola* is used within a totally different philosophical context. Aristotle refers to them in his 'De generatione et corruptione', a work probably written after 'De caelo' and before 'Meteorologica'. In the 'De generatione' Aristotle describes the changes of natural bodies in the sublunar world. According to the Stagirite, all bodies of the sublunar world consist of the four well-known elements, that is, fire, air, earth, and water. These interact and change through their qualities, that is, hot, dry, cold, and wet.⁶ In this regard, the 'De generatione' seeks to account for the generation and 'death' of the sublunar cosmos, meaning how elements associate and dissociate with each other, how they mix, how they augment, and how they change in terms of qualities. Within this conceptual framework, Aristotle discusses the function of *symbola* in the fourth chapter of the second book of the 'De generatione'.

In this chapter, Aristotle aims to settle two things: on the one hand, whether an element can be produced by each one of the other three; and, on the other, the way in which this can be accomplished. Thus, Aristotle presents three mechanisms which describe how easily and fast an element can come to be out of the other three. Of these mechanisms, the first one is of interest to us because it entails the use of *symbola* and the role they play in elemental transmutation.⁷ Aristotle describes the function of the first mechanism as follows:

For as many as have counterparts (*symbola*) relative to one another, the change of these will be quick, but as many as do not have them, it will be slow, because it is easier for one to change than for many. For example, out of fire there will be air when one quality changes (for if the former was hot and dry, the latter hot and wet, the result if dry should be overcome by wet will be air); again, out of air there will be water if hot should be overcome by cold (for the former is hot and wet, the latter cold and wet, so that when hot changes there will be

4 Philip 1966, pp. 146 f.

5 Burkert 1972, pp. 166–192; Gemelli Marciano 2014, pp. 133–135.

6 Grant 2007, pp. 37–42.

7 For the sake of brevity, I will only refer to the first mechanism. For a description of the other two and for a critique of all three mechanisms, see Scharle 2022, pp. 79–104, and Kozier 2013, pp. 195–224.

water). Also, in the same manner, out of water earth and out of earth fire; for both have counterparts relative to both. For water is wet and cold, and earth cold and dry, so that when wet is overcome there will be earth. And again, since fire is dry and hot, and earth cold and dry, if cold is destroyed, fire will be out of earth. Therefore, it is clear both that generation for the simple bodies will be in a circle and that this manner of change is easiest because the counterparts (*symbola*) are present in consecutive simple bodies.⁸

In this excerpt Aristotle discusses a cycle of elemental transmutations which is easy and fast due to the presence of counterparts, that is, *symbola* within the elements. Aristotle seems to place great importance on the role of *symbola* in the process of elemental transmutation, since the absence of them implies another procedure which is slower. Subsequently, Aristotle becomes more explicit, explaining how this mechanism works and providing examples to clarify the procedure. The whole mechanism is based on a ‘one-quality change’, and this change is concerned with contraries. To explain further, as Aristotle notes, fire (which is hot and dry) may be changed to air (which is hot and wet), if the ‘wet’ quality will prevail over the ‘dry’ one. This may happen because the ‘hot’ quality acts as a *symbolon*, that is, a shared quality or a counterpart which permits the transition from fire to air. In a similar manner, air (hot and wet) may become water (cold and wet), provided that the cold quality prevails again over the hot one, and finally, water (cold and wet) will become earth (cold and dry) on the grounds that the dry quality will dominate over the wet one. From these examples, the role of *symbola* in the whole mechanism has become apparent: it is due to them that the first mechanism is fast and easy, and it is also due to them that an element may be produced by each one of the other three, albeit in a cyclical way.

However, the analysis above raises the question of why Aristotle chose to use the word *symbolon* in order to denote a shared quality. The accounts of Harold H. JOACHIM and Christopher F. WILLIAMS provide us with fruitful answers to this question. According to JOACHIM, the ancient Greek word σύμβολα (*symbola*) denoted two pieces of a bone or a coin that were broken and shared by two parties which were under a certain contract or settlement.⁹ Hence, Aristotle adopted the word in order to show that a quality can act as ‘a part of a whole’. Likewise, WILLIAMS in his commentary on the Aristotelian work renders the same meaning for *symbola* as JOACHIM does, and he justifies his translation of the word *symbola* as ‘counterparts’: for WILLIAMS, the two pieces of bone or coin which are broken and shared between

8 Aristotle: *De generatione et corruptione* II, 4, 331a23–b4, transl. Joachim, p. 43. Translation taken from Scharle 2022, p. 82.

9 Aristotle: *De generatione et corruptione*, transl. Joachim, pp. 220 f.

two parties can be seen as counterparts which prove the relation and association of party A with party B.¹⁰ In this sense, one can find 'counterpart qualities' among elements, and thus the hotness of fire has its counterpart in the hotness of air.

In the rest of the chapter, Aristotle addresses and deals with instances of elemental transmutation where *symbola* are not present and which, therefore, are more difficult and slower. Yet it is worth noting that Aristotle closes the chapter by referring to an impossible transmutation, that is, a transmutation which entails the destruction of one of the two qualities of which an element consists.¹¹ Aristotle's final account once again highlights—albeit indirectly—the importance of *symbola* in the procedure of elemental transmutation, since he stresses that the destruction of the *symbolon*—the hotness—in both fire and air does not leave a way for the opposites (dry and wet) to interact with each other and transmute. As a result, *symbola* are presented in Aristotelian natural philosophy as key building blocks for accounting for transmutations and changes that occur in the realm of the sublunar world. Their importance, as will shortly be shown, was well received and gauged by a significant medieval scholar: Albertus Magnus.

3 The Reception and Use of *symbola* in the Work of Albertus Magnus

Albert is a key figure of the 13th century and well known for his contributions to theology and philosophy alike.¹² Albert was sent to Padua in 1223 to study the liberal arts; a couple of decades later, he went to Paris and became master of theology in 1245. From a very early point in his career, Albert had an interest in Aristotelian philosophy. In particular, it seems that he had his first exposure to Aristotelianism during his stay in Padua, and this exposure eventually culminated in his academic activity in Paris. This was quite audacious for young Albert, considering that Aristotelian natural philosophy was banned in 1210, 1215, and 1231.¹³ As has already been stated, Albert started commenting upon Aristotelian natural philosophy around 1251, and it is in his 'Physics' that he explains his intention behind this activity: the Dominican master wanted to make his brethren of the Dominican order familiar with Aristotle's thought and, therefore, undertook the task of commenting on all the works of Aristotle.¹⁴ However, Albert took a critical

10 Aristotle: *De generatione et corruptione*, transl. Williams, p. 162.

11 Aristotle: *De generatione et corruptione* II, 4, 331b26–332a2, transl. Joachim, p. 44.

12 For recent accounts on Albertus Magnus' life and work, see Resnick and Kitchell 2022 and Möhle 2015.

13 Steenberghen 1955.

14 Albertus Magnus: *Physica* I, tr. 1, cap. 1, p. 1: *Intentio nostra in scientia naturali est satisfacere pro nostra possibilitate fratribus ordinis nostri.*

approach towards Aristotle, since there are many excerpts in his work where he criticises the Greek philosopher by saying that if one is to accept that Aristotle is not a god, then one has to admit that Aristotle is likely to err in certain matters, like all humans.¹⁵ That said, Albert should not be regarded as a slavish adherent of Aristotle, since there are some Aristotelian doctrines which were not taken for granted by the German philosopher. Finally, before delving into the ‘De generatione’, a few words on Albert and how he conceives of the relation between natural philosophy and theology. As James WEISHEIPL has already noted, Albert favoured the acquisition of philosophical knowledge because he considered it a preliminary to theology.¹⁶ This remark can be easily justified through the study of natural philosophy in the work of the Dominican master, since there are many instances where natural philosophy is used as an explanatory tool of theological issues.¹⁷ As we will see in another chapter, Albert uses the doctrine of *symbola* in the same way in order to explicate matters connected to theology.

3.1 The Aristotelian *symbola* in Albertus Magnus’ ‘De generatione et corruptione’

Aristotle’s ‘De generatione’ became known to the Latin medieval scholars through three main translations: on the one hand, we have a Latin translation of the Aristotelian text from Arabic, and on the other, we have two Latin ones from Greek. The Arabic–Latin translation was made by Gerard of Cremona (d. 1187) in the 12th century, who used in turn the Arabic translation of Ḥunayn ibn Ishāq (d. 260/873). As far as concerns the Greek–Latin translations, the first one (*translatio vetus*) was made by Burgundio of Pisa (d. 1193) and the second one (*translatio nova*) by William of Moerbeke (d. 1286)—both of them in the 13th century.¹⁸ However, in addition to these translations, the ‘De generatione’ of Aristotle could be found in other sources, like the middle commentary of Averroes (d. 595/1198) and the *florilegia*.¹⁹ From all these texts, Burgundio’s translation and Averroes’ commentary seem to have mostly proliferated and, thus, became the major source for any scholar who wanted to deal with Aristotle’s ‘De generatione’.

15 Ibid. VIII, tr. 1, cap. 14, p. 578: *Et ad illum nos dicimus, quod qui credit Aristotelem fuisse deum, ille debet credere, quod numquam erravit. Si autem credit ipsum esse hominem, tunc procul dubio errare potuit sicut et nos.*

16 Weisheipl 1980b, p. 40.

17 A recent example can be found in Rinotas 2022a.

18 Leemans 2011, pp. 27–31.

19 Caroti 2011, p. 427.

Albert also relied on Burgundio's translation and Averroes' commentary in order to create his own commentary of the Aristotelian text.²⁰ That said, Albert's commentary on Aristotle's 'De generatione' should be understood as a paraphrase of the original Aristotelian text that is enriched with the opinions of other philosophers and personal opinions and digressions from Albert, which aim to further clarify the Aristotelian text and discuss it through the lens of other philosophers, like Averroes and Avicenna (d. 428/1037). Albert treats the topic of *symbola* in the second tractate of the second book of his commentary on the 'De generatione' and the discussion extends from Chapter 2 until Chapter 8.²¹ It is in the second chapter that Albert provides us with a clear account of *symbola*, in terms of their use and role in elemental transmutation. Albert exposes Aristotle's doctrine on *symbola*, according to which an element is easily and quickly transmuted to another if there is a *symbolum, hoc est convenientiam in altera qualitate* between them. On the contrary, the absence of a *symbolum* makes the transmutation slow.²² Then, Albert goes on to present Aristotle's example of transmuting fire to air. Namely, fire is warm and dry (*calidum et siccum*) and air is warm and wet (*calidum et umidum*), and therefore, fire will become air if the quality of wet dominates the dry one, while air will become fire if the opposite happens.²³ However, it should be stressed that Aristotle does not explicitly admit that the reverse procedure might take place, that is, the transmutation of air to fire; and this is something that has triggered a scholarly debate. For instance, Mary Louise GILL seems to accept this possibility, whereas Mary KRIZAN objects to it.²⁴ Albert accepts the possibility of a reverse transmutation, but this idea is not repeated at the end of the chapter where the Dominican master summarises the doctrine of *symbola*. There, Albert admits that cyclical transmutation of elements is possible and easy due to the appearance of

20 Draelants 2011, pp. 139f. See also the editorial note of Hossfeld's edition of Albertus Magnus: *De generatione et corruptione*, pp. i–xxiv.

21 It should be mentioned that Albert's 'De generatione' has attracted little scholarly attention and that, in the few existing papers, *symbola* have not been discussed or referred to. For instance, Caroti 1998 focuses on such matters as the notion of *fluxus, inchoatio formae, et materia*, while Hossfeld 1976 is largely a panorama and synopsis of the content of Albert's commentary. Hossfeld gives a very brief discussion of the chapters dedicated to *symbola* but without making any reference to them.

22 Albertus Magnus: *De generatione et corruptione* II, tr. 2, cap. 2, p. 186: *Quaecumque enim habent symbolum ad invicem, hoc est convenientiam in altera qualitate, horum velox est ad invicem transmutatio. Quaecumque autem non habent ad invicem symbolum, sed disconveniunt in utraque qualitate, horum transmutatio ad invicem tarda est, et hoc est ideo, quia facilius est transmutare unum quam duo.*

23 *Ibid.*, p. 187: *Verbi gratia ex igne quidem erit aër, altera qualitate transmutata; ignis enim est corpus calidum et siccum, aër autem est corpus calidum et umidum. Quapropter si vincatur siccum ab umido, ignis erit aër, si autem e converso umidum vincatur a sicco, ex aëre erit ignis.*

24 Gill 1989, p. 71, and Krizan 2013, pp. 198–200.

symbola.²⁵ In the next chapters, Albert discusses several questions pertaining to *symbola*, like the possibility of having an elemental transmutation without an apparent *symbolum* involved or the generation of a third element from the union of two others. Likewise, Albert treats philosophical topics connected to the four known elements, like the proposition that the medium between two elements cannot be an element and that the elements themselves cannot serve as *subjectum* during an elemental transmutation. Due to lack of space, it is not possible to see these topics in detail, but what we should keep in mind is the fact that Albert has indeed placed great importance on the doctrine of *symbola*, something that will become more apparent in the way he used them throughout his work.

3.2 The Use of *symbola* in Other Works of Albertus Magnus

The doctrine of *symbola* does not appear for the first time in the commentary of the ‘De generatione’. Actually, there is plenty of evidence that supports the view that Albert was aware of *symbola* a long time before he started commenting upon the Aristotelian corpus. The Latin expression *habentium symbolum facilius est transmutatio ad invicem* appears quite often in the work of the Dominican master, and it signifies the use of *symbola* either as an explanatory or argumentative means of clarifying an aspect of a given matter. In what follows, I will adduce some examples which show how Albert used *symbola* in different works of his corpus.²⁶

As I have already mentioned, Albert shows knowledge of the Aristotelian *symbola* from an early stage of his academic career. In particular, he uses them in his early ‘De incarnatione’ and in his commentary on the ‘Sententiae’ of Peter Lombard (d. 1160), two works that were written between 1242–1248.²⁷ In these works, the Dominican master uses the aforementioned Aristotelian doctrine in order to speak about theological subjects. In the ‘De incarnatione’ Albert poses the question of “whether an angel is unitable (*unibilis*)” and in his dealing with this question he evokes the Aristotelian *symbola* in order to argue that an angel is unitable with God. Albert’s argument runs as follows: firstly, he states that the more things seem to be similar to each other, the more they seem to be unitable. Then he backs up this proposition by evoking the Aristotelian *symbola*; thus, the things that share a

25 Albertus Magnus: De generatione et corruptione II, tr. 2, cap. 2, p. 187: *Quapropter manifestum est, quod elementorum habentium symbolum ad invicem est in circuitu generatio, quia ex igne aër et ex aëre aqua et ex aqua terra et ex terra ignis, et hic modus transmutationis est facilis, quia illis elementis quae sunt deinceps in loco, est symbolum in altera qualitate.*

26 It should be noted that Ps.-Dionysius also uses the notion of *symbola* in his work, and therefore, Albert refers to the Ps.-Dionysian *symbola* in his commentary. Even though I am aware of this episode, I am unable to pursue this line of inquiry in the present article.

27 Albertus Magnus Institut 2011, p. 28.

symbolum (a similarity, in this case) have an easier transition to each other. Finally, Albert admits that an angel is more similar to God than a human and, therefore, is more likely to be unitable to Him.²⁸ After that, Albert presents some theses contra before settling the matter by saying that an angel is not unitable. Turning to the commentary on the 'Sententiae' of Peter Lombard, Albert treats one more theological matter by evoking the doctrine of *symbola*. Specifically, in the third book, Albert poses the question of whether the flesh of Christ was created by the most unstained bloods (*an caro Christi fuerit ex purissimis sanguinibus*). As usual, Albert firsts adopts a pro thesis and continues with a rebuttal on the subject. Thus, it is in the contra thesis that Albert evokes *symbola* as an argumentative tool in order to argue that Christ's flesh may have come from flesh instead of blood. The argument runs as follows: flesh seems to be closer to flesh than to blood, and things that have a *symbolum* tend to unite more easily. Thus, it is more agreeable to accept that Christ's flesh came from flesh rather than from blood.²⁹ Albert settles this question by saying that Christ's flesh came from blood on the grounds that blood is the power of the entire body and not flesh. These two excerpts that have been adduced bear a small difference which is worth mentioning: in the text of the 'De incarnatione' Albert's standard expression of *symbola* is concerned with *transitus*, whereas in the excerpt of the 'Sententiae', the Dominican master speaks of *unio*. This difference in vocabulary could be explained by the fact that Albert's usage of *symbola* aims to create an analogy concerning how two 'similar' things may communicate with each other rather than to strictly apply the theory of *symbola* to a case. In this regard, Albert's use of *symbola* may seem a bit loose, since the Dominican master puts more weight on the meaning he wants to convey and not on applicability of the theory.³⁰

However, Albert uses the Aristotelian *symbola* in other cases, too, which seem more pertinent to natural matters.³¹ Such a case is found in his 'De mineralibus'

28 Albertus Magnus: De incarnatione, tr. 3, q. 2, a. 2, p. 196: *Quod angelus sit unibilis, videtur, quia quanto aliqua sunt similia, tanto magis unibilia. Unde etiam dicit Philosophus, quod habentium symbolum facilius est transitus. Sed angelus similior est deo quam homo; angelus enim immediate iuxta deum est, sicut dicit Augustinus in libro confessionum. Ergo angelus est unibilior homine.*

29 Albertus Magnus: Super III Sententiarum, dist. 3, art. 19, vol. 28, p. 59b: *Praeterea, Vicinior est caro ad carnem quam caro ad sanguinem, vel e converso: sed habentium symbolum facilius est unio: ergo congruentius fuit assumere ex carne quam ex sanguine. Sed si hoc dicatur, tunc etiam oportuit sumere ex ossibus ossa, ex nervis nervos, et sic de aliis.*

30 This suggestion may seem more plausible in its validity if one takes into account other instances where *symbola* appear. For instance, in Albertus Magnus: Super Ethica II, tr. 1, cap. 7, p. 159b, and Albertus Magnus: De corpore domini, dist. 3, tr. 1, cap. 6, p. 261a, we meet the different version *habentium enim symbolum facilius est transmutatio* which agrees with the context that it is put within.

31 For instance, see Albertus Magnus: De nutrimento et et nutrito, tr.1, cap.1, p. 3; Quaestiones super de animalibus IX, q. 8–10, p. 207; Metaphysica X, tr. 2, cap. 6, p.449; De somno et vigilia III, tr. 2, cap. 8, p. 205b etc.

where *symbola* are mentioned by the Dominican master as an argument for the possibility of alchemical transmutation. Albert's 'De mineralibus' was written between 1254–1257 and contains many of his thoughts concerning alchemy. In the scholarly bibliography, it has been established that Albert was open to the possibility of alchemical transmutation, but the sources that were used to explore in this direction did not take into account the role of *symbola*.³² As we will see, the Aristotelian *symbola* are employed by Albert in a way that provides a further argument in favour of the possibility of alchemical transmutation. In the sixth chapter of the second tractate of the third book of the 'De mineralibus', Albert argues that there can be cyclical production of metals from each other. At the beginning of the chapter, the Dominican master admits that the material of metals is closely related, due to the fact that they have a common property in it (*symbolum*) and, thus, their transmutation is cyclical and easy. As Albert affirms, this knowledge is attested in the 'De generatione' and therefore, he establishes an immediate connection between the two texts.³³ At first glance, Albert appears to make only allusions towards the possibility of alchemical transmutation, but his intentions are further clarified at the end of the chapter, where he speaks within an alchemical context and asserts that alchemists may bring about a cyclical production of metals due to *symbola*.³⁴

It has become apparent that *symbola* are an important subject in the work of Albert that goes beyond the commentary of the 'De generatione'. Albert uses them to treat both theological and natural-philosophical matters, and thus, it is worth investigating how he employs them in the context of his 'Meteora'.

32 Kibre 1980; Halleux 1982. For a more recent account on Albert's alchemy, see Rinotas 2022b.

33 Albertus Magnus: De mineralibus III, tr. 2, cap. 6, p. 81b: *His autem adjiciendum est, commune omnibus metallis esse, quod propinqua est valde materia eorum. Scimus autem ex his quae in scientia Peri geneleos determinata sunt, quod inter habentia symbolum in materia et virtutibus et potentiis naturalibus, facilis est transmutatio ad invicem. Propter quod et multorum Philosophorum, quorum tamen pater est Hermes Trismegistus, qui Propheta Philosophorum vocatur, assertio est, circularem esse metallorum generationem, et ex se invicem, sicut et circularis est generatio elementorum: quod etiam mihi videtur verissimum.*

34 Ibid.: *Artificum autem experimentum est quod faciunt alchimici qui, si unam speciem metalli cum natura operantur, deducunt in aliam, quemadmodum dictum est. Sic igitur non est improbabile circularem ex se invicem esse generationem metallorum, et hoc solum metallum est proprium inter elementa et commixta. Sed non lateat nos quod in omnibus quae circulares ex se invicem habent generationes, facilior est transitus eorum quae in pluribus habent convenientiam: propter hoc etiam ex argento facilius fit aurum quam ex alio metallo: non enim mutari oportet in ipso nisi colorem et pondus, et haec de facili fiunt: compacta enim substantia magis adhaeret pro certo pondus diminuto aqueo et aucto bono citrino sulphure consequenter variabitur color: hic autem modus est et in aliis.*

4 The Use of *symbola* in Albertus Magnus' 'Meteorora'

There is an epistemic relation between Aristotle's 'De generatione' and his 'Meteorologica'. At the beginning of the latter work, the Stagirite describes the subjects of natural philosophy that have been covered in the previous works and then posits the 'Meteorologica' within this framework by stating what is about to be discussed.³⁵ In this regard, one could say that the elemental theory which is analysed in the 'De generatione' serves as a conceptual *subiectum* of the things that will be discussed in the 'Meteorologica', and thus, a strong connection between the two texts is established.³⁶ The Latin medieval scholars came in contact with Aristotle's 'Meteorologica' through the Arabic translations of the 12th century. Particularly, the first three books of this Aristotelian work were translated from Arabic into Latin by Gerard of Cremona, while the fourth book was translated from Ancient Greek into Latin by Henricus Aristippus (d. 1162) in 1157 and added to the already existing translation of Gerard.³⁷ Albert's commentary on 'Meteorologica' was created between 1254–1257, and, as Paul HOSSFELD informs us, Albert availed himself of both translations in his commentary.³⁸ Once again, Albert's commentary on 'Meteorologica' is a paraphrase of the original Aristotelian text that contains digressions and personal opinions of the Dominican master as well as the opinions of other philosophers.

In Albert's 'Meteorora'—as it is commonly known—one may find some references to *symbola*, which are used in turn as exegetical tools for accounting for certain meteorological and other natural phenomena. In what follows, there will be a short exposé of some cases where *symbola* are evoked. The first instance is found in the third chapter of the fourth tractate of the first book, where Albert examines why terrestrial vapour goes higher than aqueous vapour. At the beginning of his examination, Albert puts the problem into perspective by showing its apparent 'anomaly'. Namely, aqueous vapour should be ascending higher than terrestrial because water is lighter than earth; because aqueous humidity is more rarefied than terrestrial substance; and finally, because aqueous humidity contributes to the maintenance of heat.³⁹ Albert explains this discrepancy by

35 Aristotle: *Meteorologica* I, 1, 338a20–339a, pp. 4 f.

36 Ducos 2011, p. 176.

37 Newman 2004, pp. 43 f.

38 Hossfeld 2001, p. 413.

39 Albertus Magnus: *Meteorora* I, tr. 4, cap. 3, p. 35: *Scias etiam quod licet aqua levior sit quam terra et humidum aqueum magis sit rarefactibile quam substantia terrestris sitque humidum aqueum magis alimentum praestans calori et ideo videatur his tribus de causis altius debere ascendere, tamen oppositum accidit in vapore sicco calido, qui altius ascendit quam vapor calidus et humidus ...*

providing four solutions, of which the third is concerned with *symbola*. For the Dominican master, the key notion for settling this problem is the element of fire, which could offer a plausible and logical solution, since it is the lightest of all four elements. In light of this, Albert argues that terrestrial vapour is more prone to preserve *calor inflammans* than aqueous vapour is, due to the fact that the former has a *symbolum* that allows such a thing.⁴⁰ To explain further, *calor inflammans* is associated with the element of fire (which bears, in turn, the qualities of dry and hot), while terrestrial vapour is also associated with the element of earth (which has the qualities of dry and cold). In contrast, aqueous humidity is connected to cold and wet, and thus, there is no apparent *symbolum* with fire, which has—as we just saw—the opposite qualities. As a result, the dry quality acts as a *symbolum* between terrestrial vapour and *calor inflammans*, and the maintenance of the latter explains terrestrial vapour’s tendency to go higher.

In another instance, in the second chapter of the third tractate of the second book, Albert instigates a digression which deals with the question of whether water would cover earth at any time. In answering this question, Albert provides three arguments, of which the third involves the theory of *symbola*. In the first argument, the Dominican master adopts the exegetical scheme of convex–concave in order to argue that elements fit in with each other in the manner in which the convex does with the concave.⁴¹ This argument seems to be of Aristotelian inspiration, since, as Athanase PAPADOPOULOS informs us, the Greek philosopher uses the aforementioned couple often in his work, albeit in a metaphorical way most of the time.⁴² Thus, it is likely that Albert was inspired by Aristotle as far as concerns the usage of the convex–concave scheme. In his second argument, Albert argues that water tends to cover earth because, otherwise, unnecessary things would be left in nature. Finally, in his third argument the Dominican master puts *symbola* in the game. According to Albert, when two elements do not have a *symbolum* in common, then they are connected by means of a third one, which acts as a medium. That said, earth, which has the qualities of dry and cold, does not have a *symbolum* in common with air, which has the qualities of hot and wet; thus, they need water, whose qualities of

40 Ibid.: *Tertia causa est propter symbolum, quod siccum terrestre habet ad inflammationem ignis, quod non habet humidum aqueum, et ideo calor inflammans magis conservatur in terrestri quam in aqueo.*

41 Ibid. II, tr. 3, cap. 2, p. 83: *quia nos videmus ordinem elementorum ita quod semper convexum unius est in concavo alterius per totum circulum rotunditatis suae. Sicut enim convexum ignis est in concavo orbis lunae et convexum aëris est in concavo ignis, sic etiam hoc modo convexum aquae erit in concavo aëris et convexum terrae erit in concavo aquae. Ergo ubique aqua de sua natura operit terram. Quod autem naturale est, aliquando fuit. Ergo terra aliquando fuit cooperta aquis.*

42 Papadopoulos 2019, pp. 147–149.

cold and wet can act as *symbola* for binding earth and air.⁴³ In this regard, Albert argues that earth is covered by water because the latter may act as a way of connecting the realm of earth with that of air. The Dominican master does not offer any explanation for why such a thing could be a desideratum. However, a plausible answer is easy to figure out if one takes into account the physics of the sublunar world. As we have already said, the sublunar world consists of the four elements, and every change that occurs in it is based on the elements' interactions. *Symbola* have a crucial role to play in this procedure, since their appearance guarantee an *easy* and *fast* transition from one element to another. In light of this, Albert deems the existence of water between air and earth a contributing factor to the facilitation of elemental procedures, given that water provides the necessary *symbola* in order for the mechanics of elemental change to take place.

In the twenty-first chapter of the third tractate of the fourth book of 'Meteorae', Albert compares flammable (*flammabilia*) and vaporous (*vaporativa*) substances and provides an explanation for how it is possible for some vaporous substances to be flammable. In his effort to explicate the phenomenon, Albert makes use of the theory of *symbola*. Albert argues that flammable vapours contain the element of earth, and thus, the quality of dryness can be united in turn with fire. In this regard, the quality of dryness acts as a *symbolum* between flammable vapour and fire, and thus, flammable vapour's dryness can be turned to fire if dryness is made hot by ignited heat.⁴⁴ In a similar way, Albert uses *symbola* in order to speak about the matter of things. Thus, the things which have water as their matter tend to be colder (*frigidiora*), while the things that are of earth and air tend to be hotter (*calidiora*) due to their *symbolum* with fire.⁴⁵ Once again, Albert implies here the dry quality which, if it gets heated, tends towards fire and, therefore, heat.

43 Albertus Magnus: *Meteora* II, tr. 3, cap. 2, p. 83: *Amplius, quaecumque duo elementa non habent symbolum, illa colligantur per unum medium, quod habet symbolum cum utroque. Sed terra et aër nullum habent symbolum. Oportet ergo quod ubique colligentur per mediam aquam, quae habet symbolum cum utroque. Et ita iterum videtur quod secundum naturam terra ubique debeat esse aquis cooperta.*

44 *Ibid.* IV, tr. 3, cap. 21, p. 288: *Per se autem flammabilia sunt illa vaporativa, quae magis habent terrae et sunt sicca, sicut diximus in praecedentibus. Illa enim propter abundantiam materiae sunt sicca et in sicco conveniunt cum igne. Et ideo cum habentium symbolum facilius sit transmutatio, si siccum calefiat calore ignito, continue erit ignis et sic fit flamma in vapore fumoso terrestri succenso.*

45 *Ibid.* IV, tr. 4, cap. 7, p. 298: *Est tamen adhuc in istis magna diversitas, quoniam licet omnia, quorum materia est terra vel aqua, per essentiam illius materiae sint frigida, tamen frigidiora sunt per naturam materiae, quorum materia est aqua, quam quorum materia est terra. Et hoc contingit propter hoc quod calido ignis plus contrariatur aqua quam terra. Unde in quibus materia est terrea vel aërea, propter symbolum, quod habent cum igne, sunt calidiora.*

5 Conclusion

This short study has attempted to present a ‘story of *symbola*’, a term which is apparently rich in philosophical connotations. Aristotle’s sublunar cosmos was heavily dependent on elements and their interactions, and thus, the Stagirite initiated the doctrine of *symbola* in order to speak about and justify the changes that occur in the aforesaid realm. In this way, the Aristotelian *symbola* render themselves as strong exegetical tools that could be used for accounting for natural phenomena that were based on elemental procedures. The exegetical power of *symbola* was overly understood and taken advantage of by Albert, one of the most eminent commentators of Aristotle in the Middle Ages. The Dominican master displays an excellent knowledge of the Aristotelian doctrine, and he goes one step further in its use by applying it to the explanation and justification of matters pertaining to theology. As a result, *symbola* become a powerful argumentative weapon in the arsenal of Albert, who shows in turn a clear tendency to use natural philosophy as an explanatory tool for referring to such obscure fields of knowledge as that of alchemy.

Finally, turning to Albert’s use of *symbola* in his ‘*Meteora*’, there are some conclusions that can be safely inferred. In principle, Albert confirms the epistemic relation that exists between the ‘*De generatione et corruptione*’ and the ‘*Meteora*’, since the former serves as a conceptual *subiectum* for the latter. In this regard, the elemental theory of *symbola* equipped the Dominican master with the appropriate terminology to argue for the ascendance of the terrestrial vapours, the covering of earth by water, and the flammability of vapours. However, the most important thing is that the theory of *symbola* allowed Albert to argue for phenomena which are both of external and internal character. To explain further, the Aristotelian theory of *symbola* on the one hand gave Albert the opportunity to open the ‘black box’ of terrestrial and flammable vapours and explain their hidden mechanics concerning their manifested behaviour while, on the other hand, allowing Albert to argue why nature appears the way it does and thus explain the external manifestation of water to cover earth.

As a final note, it should be highlighted that Albert’s treatment of *symbola* could be deemed the ‘opening of the floodgate’ for a more thorough and extended study on the matter, a proposal which is further supported by the great number of medieval commentaries on Aristotle’s ‘*De generatione et corruptione*’ and the great number of medieval scholars who have dealt with it.⁴⁶

⁴⁶ The present essay is part of the research project ‘Itineraries of Philosophy and Science from Baghdad to Florence: Albert the Great, his Sources and his Legacies’ (2023-2025), financed by the Italian Ministry of University and Research (PRIN 2022, 20225LFCMZ), in the framework of the PNRR M4C2 financed by the European Union - Next Generation EU.

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