

Offprint from
OXFORD STUDIES
IN ANCIENT
PHILOSOPHY

EDITOR: BRAD INWOOD

VOLUME XXXVIII

SUMMER 2010

OXFORD
UNIVERSITY PRESS

2010

ALEXANDER OF APHRODISIAS ON FORM

A Discussion of Marwan Rashed, *Essentialisme*¹

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ALEXANDER OF APHRODISIAS, the most influential Aristotelian commentator of antiquity, was a native of the city of Aphrodisias in Caria (modern south-western Turkey), who was appointed to the state-endowed chair of Aristotelian philosophy in Athens in the late second–early third century.² His own philosophical profile as a Peripatetic philosopher was perceived differently in different intellectual contexts. In late antiquity the Neoplatonists in their polemic against the Peripatetics often did not distinguish between the arguments made by Aristotle and those of Alexander, so Alexander was implicitly treated as a proper Aristotelian. This attitude was particularly characteristic of the Platonists who did not believe in ‘harmony’ between Plato and Aristotle, for instance, Plotinus.³ By contrast, there were many who did believe in such a ‘harmony’: they sometimes blamed the discrepancies between Plato and Aristotle highlighted in Alexander’s works on Alexander himself. This ambivalence created the possibility for Alexander’s own philosophical profile to come across either as completely unoriginal (if his

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¹ Marwan Rashed, *Essentialisme: Alexandre d’Aphrodise entre logique, physique et cosmologie* (Berlin: de Gruyter, 2007), pp. xi+356.

² Alexander’s treatise *De fato* is written as an epistle addressed to Septimius Severus and Caracalla as emperors (164–3 Bruns), which makes the years 197–211 (of their joint reign) its likely date. He is believed to be the author of the honorary inscription recently found on the site of the ancient city of Aphrodisias, dated to the 2nd cent. (see A. Chaniotis, ‘New Inscriptions from Aphrodisias (1995–2001)’, *American Journal of Archaeology*, 108 (2004), 377–414).

³ On Plotinus’ treatment of his Peripatetic sources see e.g. H. J. Blumenthal, ‘Plotinus’ *Ennead* IV. 3. 20–21 and its Sources: Alexander, Aristotle and Others’ [*Ennead* IV. 3. 20–21], *Archiv für Geschichte der Philosophie*, 50 (1968), 254–61.

position were taken to be identical with that of Aristotle) or as confused (where his registered or perceived disagreements with Platonism were regarded as evidence of his failure to grasp the spirit of Aristotelian doctrine).

This possibility never materialized in late antiquity and the early Middle Ages (Syriac and Arabic tradition), when Alexander's work was held in high esteem as an authentic and reliable vademecum through Aristotle: no one would think of serious exegesis as a trivial task, and the honourable title of 'the Exegete' was taken from Alexander by none other than Averroes. In Latin scholasticism, by contrast, Alexander was considered to be a troublemaker within the Aristotelian tradition, because of his insistence on the soul's mortality and the theological noetics. His commentaries in many cases were superseded by more detailed Neoplatonic and Arabic commentaries and were no longer perceived as indispensable, while the controversial points of his teachings became more manifest.

The view of Alexander 'the Exegete', a dependable commentator but mediocre and eclectic thinker, became common in nineteenth-century scholarship.⁴ In many cases this view was informed by the assumption (prominent since the Thomist adaptation of Aristotelianism) that Alexander deviates from Aristotle on the question of the soul's immortality and the nature of the intellect. Most notably Paul Moraux, in his early study of Alexander's noetics, called into question Alexander's interpretation of Aristotle's concept of form, pointing out its affinities with what was regarded as a materialist trend in the post-Aristotelian Peripatos.⁵ This interpretation was largely inspired by the text at the opening of Alexander's treatise *De anima*, where the concept of form (to be used in the definition of the soul) is defined as a power supervenient on the underlying elemental mixture. Moraux's view found support with some scholars, while others drew attention to possible alternative interpretations of Alexander's position.⁶

⁴ Cf. A. Gercke, 'Alexander von Aphrodisias', *RE* ii/1 (1894), 1453–5; E. Zeller, *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*, 5th edn. (Leipzig, 1923), 816–31.

⁵ P. Moraux, *Alexandre d'Aphrodise, exégète de la noétique d'Aristote* (Liège and Paris, 1942), 30–62; cf. id., *Der Aristotelismus bei den Griechen von Andronikos bis Alexander von Aphrodisias*, vol. iii [*Aristotelismus*, iii] (Berlin, 2001), 356.

⁶ See e.g. P. L. Donini, 'L'anima e gli elementi nel *De anima* di Alessandro di Afrodisia' ['Gli elementi'], *Atti dell'Accademia delle Scienze di Torino*, 105 (1971), 61–107; P. Thillet, 'Matérialisme et théorie de l'âme et de l'intellect chez Alexandre d'Aphrodise', *Revue philosophique*, 1 (1981), 5–24; H. M. Robinson, 'Form and

More recent studies have uncovered many new dimensions in Alexander's philosophy, suggesting that Alexander's theory of form is more complex than presented by Moraux on the basis of the *De anima* passage.⁷ In particular, it has been shown that Alexander's position with regard to the problem of universals was far from standard nominalism.⁸ This raises the question of the consistency of this position and of its compatibility with Alexander's physicalism, for instance, as professed in the *De anima*. It has become increasingly clear that a critical reassessment of Alexander's theory of form is in order.

One of the difficulties of such a reassessment has to do with the state of the evidence. Alexander's work has been preserved in such a variety of genres, traditions, and languages that even setting out the givens of the problem is often riddled with controversy. In this respect the task of reconstructing Alexander's views can be compared with that of putting together a jigsaw puzzle from a set where many pieces are missing and many of those present have several duplicates that do not fully match. Under such circumstances, understanding the sources is crucial for understanding the doctrines, and vice versa.

the Immateriality of the Intellect from Aristotle to Aquinas', in H. J. Blumenthal and H. M. Robinson (eds.), *Aristotle and the Later Tradition* (OSAP suppl., 1991), 207–26.

⁷ Donini, 'Gli elementi'; R. B. Todd, *Alexander of Aphrodisias on Stoic Physics: A Study of the De mixtione with Preliminary Essays, Text, Translation and Commentary* (Leiden, 1976); R. W. Sharples (ed., trans., comm.), *Alexander of Aphrodisias on Fate* (London, 1983); K. Flannery, *Ways into the Logic of Alexander of Aphrodisias [Logic]* (Leiden, 1995); P. Accattino and P. L. Donini (trans. and comm.), *Alessandro di Afrodisia: L'anima [L'anima]* (Rome and Bari, 1996); V. Caston, 'Epiphenomenalisms Ancient and Modern' ['Epiphenomenalisms'], *Philosophical Review*, 106 (1997), 309–63; S. Fazzo, *Aporia e sistema: la materia, la forma, il divino nelle Quaestiones di Alessandro di Afrodisia [Aporia]* (Pisa, 2002); A. Rescigno (ed.), *Alessandro di Afrodisia: Commentario al De caelo di Aristotele, frammenti del primo libro* (Amsterdam, 2004); most recently: A. Rescigno (ed.), *Alessandro di Afrodisia: Commentario al De caelo di Aristotele, frammenti del secondo, terzo e quarto libro* (Amsterdam, 2008); M. Rashed (ed.), *Alexandre d'Aphrodise: commentateur d'Aristote et philosophe* (special issue of *Les Études philosophiques*, July 2008).

⁸ See A. C. Lloyd, *Form and Universal in Aristotle [Form]* (Liverpool, 1981); M. M. Tweedale, 'Alexander of Aphrodisias' Views on Universals' ['Universals'], *Phronesis*, 29 (1984), 279–303; R. W. Sharples, 'Alexander of Aphrodisias: Scholasticism and Innovation', in W. Haase (ed.), *Aufstieg und Niedergang der römischen Welt*, II.36.2 (1987), 1176–1243; A. R. Madigan, 'Alexander on Aristotle's Species and Genera as Principles', in L. Schrenk (ed.), *Aristotle in Late Antiquity* (Washington, 1994), 76–91; Moraux, *Aristotelismus*, iii; M. Bonelli, *Alessandro di Afrodisia e la metafisica come la scienza dimostrativa* (Naples, 2001).

Marwan Rashed's new book is the first monograph-length discussion of Alexander's theory of form. The author is sensitive to the problem of sources. Taking his stand against Zeller's view of Alexander as a line-by-line commentator without a sustained philosophical agenda of his own, he challenges the very assumption that the commentaries cannot be taken as evidence for Alexander's original philosophical position. He claims that commentaries often provide more insight into this philosophy than the opuscula and school treatises, where the pressure of pedagogical and expository tasks occasionally leads to simplifications.⁹

In his discussion of the central problem, Rashed makes use of relevant texts taken from all over the Alexandrian corpus, including commentaries and school treatises, authentic works and testimonia, in Greek and in Arabic. Many of these texts are little known and some only recently discovered. One particularly important discovery seems to be that of the Byzantine scholia in MS Paris. Suppl. Gr. 643, which, Rashed argues, are excerpted from Alexander's lost *Physics* commentary.¹⁰ Rashed appends a number of new annotated translations into French, with many valuable textual and exegetical suggestions. However, the main goal of the book is not the study of the texts as such, but of Alexander's tackling of the tension between the individual substance and substance-form in Aristotle's metaphysics.

In recent work on Aristotle this tension gave rise to two basic interpretative positions with respect to form (each represented by a range of different more nuanced versions): substantialist and attributivist. According to the substantialist view, form is the winner of the substancehood contest of *Metaph. Z 3*, and hylomorphic compound is substance only in a derivative sense. According to the attributivist view, an individual substance is substance in the primary sense, and form is substantial by virtue of being a property of substance, a property which has explanatory (if not ontological) priority within the hylomorphic compound.¹¹

This dichotomy is relevant to Rashed's project and plays an important role in his methodology. To some extent this is justified

⁹ *Essentialisme*, 3–4.

¹⁰ An edition of the fragments is forthcoming as M. Rashed (ed., trans., comm.), *Alexandre d'Aphrodise: Commentaire perdu à la 'Physique' d'Aristote (livres IV–VIII). Les Scholies byzantines* (Berlin, 2010).

¹¹ For a summary of both positions, with arguments *pro* and *contra*, see e.g. H. Granger, *Aristotle's Idea of the Soul [Soul]* (Dordrecht, 1997).

by the history of the question: those scholars who suspected Alexander of materialist leanings thought that he reduced the concept of form to that of property, often doubting that he was prepared to argue for its causal efficacy as such. Rashed, on the basis of his study of the corpus of writings from Alexander's circle, comes to the contrary conclusion, namely, that the concept of form has for Alexander ontological priority in a strong sense.¹² Reconstruction of both exegetical and polemical contexts of Alexander's position, thus understood, is an important and innovative part of his argument.

In his introduction Rashed distinguishes not two, but three possible lines of interpretation with respect to the hylomorphic theory of form within Aristotelianism, which he describes as three kinds of *conceptualism*, using the vocabulary of medieval debates on universals.¹³ According to *abstract conceptualism*, the substantiality of form is due to its being the structural aspect of substance laden with explanatory priority with respect to substancehood. In the terminology used in Anglo-American discussions, this is close to the substantialist view of form as an abstract 'thing-property'.¹⁴ *Concrete conceptualism* treats form as substance in so far as it inheres in a hylomorphic compound which is substance in an unqualified sense and imparts its substancehood to form as its property. This corresponds to the 'attributivist' view in Anglo-American discussions; Rashed sometimes uses the term 'predicativist', which seems to have the same reference.

Rashed calls the third position *analogical conceptualism*, pointing out the source for this position in Aristotle's discussion of the law of proportion (*to analogon*) in *Post. An.* 1. 5, 'when there is nothing higher we can take from the particular case, or when there is but it covers the objects of different forms'.¹⁵ Rashed outlines the

¹² He does not discuss the view according to which form for Alexander is a property endowed with causal efficacy, defended recently by Victor Caston, who regards Alexander's position as being continuous with that of Andronicus ('Epiphenomenalisms', 347–53).

¹³ The choice of the term is never explained, but presumably on this view Platonism offers a realist theory of form, while Aristotelian hylomorphic form is taken to be a conceptualist counterpart of the Platonic separate Form.

¹⁴ Cf. Granger, *Soul*, 57–8.

¹⁵ In *Post. An.* 1. 5, 74^a17–25; cf. also 2. 17, 99^a1–16. Rashed discussed the relevance of this concept of analogy in Aristotle's study of nature, specifically in his biology, in M. Rashed (ed.), *Aristote: De la génération et corruption* (Paris, 2005), cxliii–cclxvii.

gist of this position as follows: it is impossible to identify substance intuitively except by means of analogy.¹⁶ We may notice that the notion of ‘intuitive identification’ does seem to contain an ambiguity. It could mean (a) a pre-theoretical identification at the level described by Aristotle as ‘what is best known to us’, i.e. relating in a consistent way our appearance and its meaning in which a semantic category is implicit but not theoretically articulated: e.g. ‘this [kind of being] is a dog’, ‘that [kind of thing] is an elephant’, etc. The relevant concept of substance here will be expressed always only by the competent use of the instantiating concepts. Alternatively, intuitive identification of substance could mean (b) an interpretation of a particular *theory* of substance, setting ‘what is best known in itself’ in correspondence with some observable features of the sensible world. In case (a) the claim made above on behalf of analogical conceptualism will mean that as a pre-theoretical stance it can always be supplemented by a theory of substance (e.g. that substance is form or an individual). In case (b) this claim will mean that any metaphysical theory of substance on the epistemic level is in need of a theory of analogy in order to identify substances or substantial features (there being no other access to identifying the *kath’ hēmas* counterparts of the theoretical concept of *ousia*).

Rashed’s citation from Peter Simons suggests that he has in mind meaning (a).¹⁷ Rashed’s discussion of analogy apparently presupposes meaning (b). In the case of abstract conceptualism, with its theory of substance as form and structure, the underlying analogy would be understood in a strict mathematical sense, as in the case of the laws of proportion holding of numbers, lengths, squares, and other kinds of magnitude. In biology, the strict analogy exists between the organs that fulfil the same function in two different kinds of living being: the unity of function translates into the analogy between the supporting structures. In the case of concrete conceptualism, with its theory of substance as individual, in the extreme case there can be no strict unity of function across the species but only similarity, with a weaker sense of analogy. Perhaps Rashed assumes that the two kinds of analogy, (a) and (b) (pre-

¹⁶ *Essentialisme*, 4–6.

¹⁷ *Essentialisme*, 4 n. 15: ‘The essential attributes of an object are not, so to speak, a brute fact about it as a particular; an object has the essential properties it has in virtue of being the *kind* of object it is.’

theoretical and theory-driven), must somehow converge;¹⁸ but he does not seem to say so.

Ultimately, it seems that only the naive pre-theoretical ‘analogical conceptualism’ can be listed as a third conceptualist position alongside the other two, possessing the status of ‘folk ontology’ with its implicit robust semantics. As soon as an attempt is made to articulate the analogy more precisely, it will be reduced either to a ‘strict analogy’ in the case of abstract conceptualism or to the ‘loose analogy’ (similarity) in the case of concrete conceptualism. In the former case, the role of analogy as a method of interpreting a philosophical theory makes it relatively independent of the content of this theory. This method tells us exactly which structures, entities, processes instantiate the concept of form of our chosen theory. It is conceivable that the same theory of form could be subject to differing interpretations depending on the scope and application of analogy. In fact, Rashed argues that this is precisely what happens in Alexander’s reading of Aristotle: Aristotle’s ‘abstract conceptualism’ is preserved but supplied with a new semantics, extending the original scope of Aristotle’s hylomorphic theory from biology to the whole of cosmology.

Rashed argues that both philosophical options of the ‘abstract’ and ‘concrete’ conceptualism go back to the earliest readers of Aristotle’s metaphysics, and are already envisaged as alternative theoretical options in Theophrastus’ *aporiai* concerning the first principles in the *Metaphysics*.¹⁹

This analysis is relevant to Rashed’s project because he is assuming that the two main extreme views on form with which Alexander is critically engaged in his work are Platonism and the ‘concrete’ conceptualism of earlier Peripatetics. While for Platonism forms have separate existence of their own, on the latter view form is a quality that characterizes a composite substance; this quality becomes ‘substantial’ only by virtue of modifying the composite substance which is substance proper. Rashed suggests that ‘concrete conceptualism’ evolved as a reaction of Andronicus of Rhodes and his circle (first century BC) against a more radically materialist interpretation of Aristotle by earlier Peripatetics (such as

¹⁸ Thus, an analogy ‘fish : gills :: mammal : lungs’ is justified by a theory of breathing, but is to some extent accessible to an observer who is a competent speaker even if lacking formal exposure to such a theory.

¹⁹ This is Rashed’s interpretation of Theophrastus’ *Metaph.* 4^a2–9, a notoriously difficult text (*Essentialisme*, 6–11).

Dicaearchus).²⁰ Rashed gives special attention to Andronicus' contemporary and colleague Boethus of Sidon. In his lost commentary on the *Categories*, known to us mainly through Simplicius, Boethus apparently defended a strong version of 'attributivism' or 'concrete substantialism', arguing that out of the three 'hylomorphic' candidates for substancehood—form, matter, and composite—only the last two fit the criteria of substancehood set out by Aristotle in this work.²¹

Rashed believes that Alexander does have a coherent programme of philosophical exegesis based on the reading of Aristotle he calls essentialist. This essentialist reading presupposes a commitment to the following doctrinal positions:

(1) *eidōs* is a unique place of being and unity, i.e. of *reality*; (2) an individual does not add to it anything that *is* in a true sense; (3) the genus *is* to the extent that it is constitutive of the *eidōs*; (4) the analogy is only a way of enquiry; (5) the specific definition coincides with the hylomorphic definition.²²

This essentialism with respect to species corresponds to the 'abstract conceptualism' with respect to form. The latter does involve a certain amount of reshaping for Aristotle's overall philosophical project. The most notable feature of this reshaping, according to Rashed, is the shift of metaphysical interest from the problems of biology based on the morphology of species, to the logical justification of hylomorphic analysis and its uniform application in physics, cosmology, and theology.²³ It is a commonplace in modern scholarship that Aristotle's best examples of substances are living organisms and that his hylomorphic theory gets somewhat fuzzier when taken outside this focus. Rashed suggests that Alexander's innovative step consists in extending the domain of analogical interpretation (corresponding to the 'abstract conceptualist' reading of Aristotle's metaphysics of form) from the morphology of species to the system of the world as a whole. This does involve further changes of his metaphysical map. Living beings do not lose their

²⁰ For a new edition of the fragments and a collection of critical assessments, see W. W. Fortenbaugh and E. Schütrumpf (eds.), *Dicaearchus of Messana: Text, Translation, and Discussion* (New Brunswick, 2001).

²¹ ap. Simpl. *In Categ.* 78. 4–20 Kalbfleisch. Reconstruction of Boethus' position is still largely an outstanding task: the major desideratum is a collection and critical edition of the fragments.

²² Rashed, *Essentialisme*, 31.

²³ *Ibid.* 27–30. That Alexander is moving away from biology towards general physics is noted by Donini, 'Gli elementi', 81–2.

status of paradigmatic substances, but all the areas that used to be fuzzy on the biologically oriented reading of Aristotle will have to be articulated with full precision in terms of hylomorphic theory. Alexander's version of Aristotle's theory of substance presupposes its application to the elements, the sensible compounds, heavenly bodies, and the first unmoved mover, with a detailed study of relations between all these classes.

The book is divided into three parts, signalled in the title: the first offers a study of the logic of *eidos*, the second of its physics, and the third of cosmology. I shall discuss each of them in the three sections which follow and conclude with some methodological remarks.

I

The first part of the book, 'The Logic of *Eidos*', takes up nearly half of its length and is devoted to the reconstruction of Alexander's interpretation of form in the conceptual framework of the *Organon*, particularly the *Categories*, which seems to have been the point of departure for the predicativist interpretation of form-substance by Andronicus and Boethus (a position which corresponds to Rashed's 'concrete conceptualism').

In a number of texts Alexander speaks of form as a *part* of a hylomorphic composite substance,²⁴ perhaps in accordance with the common formula in the Peripatetic tradition. The difference of Alexander's position from that of Andronicus and his circle has to do with his understanding of the thesis 'parts of substances are substances'. This thesis allows of two readings: either (i) parts of substances are substances by virtue of being parts of a substance, or (ii) it is the composite that acquires substantiality by being made of the parts which are substances proper. Alexander apparently favours the second reading: form is the principle of substancehood in a composite rather than vice versa.

Investigating the source of this position, Rashed turns to Alexander's treatment of the *differentia specifica*. In *Cat.* 2, introducing the two parameters for his preliminary ontological classification, 'being said of a subject' and 'being in a subject', Aristotle defines the latter as 'that which, being present in something not as a part, cannot exist separately from the thing it is in' (*Cat.* 2, 1^a24–5). This de-

²⁴ Alex. Aphr. *Quaest.* 1. 17; 1. 26; 1. 8; *Mantissa* 5 (*Essentialisme*, 44–52).

scription seems to leave room for the definition of ‘being present in something as its part’, as a special logical status not covered by the original fourfold division of the metaontological types.²⁵ Rashed undertakes to show that Alexander in his exegesis might give this role to the differentia construed as form.²⁶ Much of this suggestion is based on the analysis of a little-known text entitled *De differentiis (Fī al-Fuṣūl)* preserved only in Arabic. The text consists of two relatively self-contained discussions which Rashed designates as *diff. I* and *diff. II*. It has to be noted that Rashed’s is the first definitive study of the composition and argument of this text.²⁷

In *diff. II* Alexander discusses the categorial status of *differentia specifica* and its logical and semantic relations with genus and species.²⁸ The Aristotelian tradition before Alexander apparently discussed the problem of the categorial affiliation of differentia: does it, or does it not, belong to the category of the genus it modifies? Both possible answers are laden with further difficulties. If it does, that means that the genus is predicated of the differentia, which is counter-intuitive and in conflict with Aristotle’s views on this matter.²⁹ If it does not, then there is a question: how exactly is it related to the categories? Alexander draws a distinction

²⁵ Borrowing an expression from Michael Wedin, *Aristotle’s Theory of Substance: The Categories and Metaphysics Zeta* (Oxford, 2000), 38 and *passim*. The types are: (i) ‘said of something and being in something’, (ii) ‘said of something but not being in something’, (iii) ‘not said of something but being in something’, and (iv) ‘not said of something and not being in something’, and distinguishing accordingly the four categorial types: (i) ‘said of something and being in something’, (ii) ‘said of something but not being in something’, (iii) ‘not said of something but being in something’, and (iv) ‘not said of something and not being in something’ (*Cat.* 2, 1^a25^b–9).

²⁶ *Quaest.* 1. 8; 1. 17; 1. 26. Rashed suspects that this development might already be to some extent present in Boethus’ interpretation of the differentiae.

²⁷ The version in MS Zāhiriyya 4871 (first published by A. Badawi, *Aristū ‘inda al-‘Arab* (Cairo, 1947); French translation in Badawi, *La Transmission de la philosophie grecque au monde arabe* (Paris, 1968)) contains both discussions, while MS Huseyin Çelebi 823 contains only the discussion corresponding to *diff. II*. This shorter version has been published by A. Dietrich, ‘Die arabische Version einer unbekanntenen Schrift des Alexander von Aphrodisias über die *Differentia specifica*’, *Nachrichten der Akademie der Wissenschaften in Göttingen*, phil.-hist. Kl. (1964), 85–148 (with German translation and reconstruction of the Greek text). The text has been discussed in F. A. J. de Haas, *John Philoponus’ New Definition of Prime Matter* (Leiden, 1997), 211–19, and J. Barnes (trans. and comm.), *Porphyry: Introduction* (Oxford, 2003), 352–4; cf. R. R. K. Sorabji, *The Philosophy of the Commentators 200–600 A.D.: A Sourcebook*, vols. i–iii [*Sourcebook*, i–iii] (London, 2004), iii. 112–16.

²⁸ Cf. Arist. *Cat.* 3^a21^b–9.

²⁹ *Top.* 4. 2, 122^b20–4; cf. Alex. Aphr. *In Metaph.* 205. 10–206. 6 Hayduck; Rashed, *Essentialisme*, 68.

between the 'free' and 'bound' state of differentia, i.e. between the differentia taken *per se* and the differentia in its differentiating role with respect to a genus. Differentia *per se* is a pure 'form without matter', not existent in this state but merely thinkable, and as such does not have any uniform categorial affiliation (can come from any of the ten categories). Differentia combined with a genus in a definition, while in this combination, shares the categorial status of the genus and is predicated synonymously of the species which is being defined by this combination.³⁰ Thus, the differentiae of a genus 'living being' (e.g. 'biped', 'winged', 'clawed', etc.), although in their free state not predicated synonymously of living beings, are substances in their 'bound state', 'for substance, because it is the genus of "living being", preserves the same nature in the same way in both composites and their constituents, i.e. form and matter, incorporeal and corporeal substance'.³¹ The primary differentiae in each of the ten highest genera present a special case in that they are described as belonging to the categories defined by these genera. For instance, 'continuous' is both a differentia with respect to the genus quantity and a quantity.³² This analysis is important because it sheds new light on Alexander's interpretation of Aristotle's hylomorphic theory. Alexander's thesis that form is not in matter as in a subject has been well appreciated in scholarly discussions,³³ but there was no clarity with regard to situating the hylomorphic form within the Aristotelian metaontological grid of *Cat. 2*. Rashed's discussion shows that according to Alexander 'differentia' has its own status with respect to this grid and, moreover, is somehow equivalent to hylomorphic form.³⁴

The latter move might suggest some kind of equivalence between genus and matter, but as Rashed explains, there is no symmetrical one-to-one correspondence between a hylomorphic structure and a definitional schema *per genus et differentiam*. *Genus*, on whose constitutive precedence in definitional analysis Alexander insists, is to be understood in the intensional rather than extensional sense of a class. Rashed draws attention to two short Arabic treatises,³⁵ where

³⁰ *Diff. II* [6'](c) (Rashed, *Essentialisme*, 59).

³¹ Rashed, *Essentialisme*, 75–6.

³² *Diff. II* [8bis]–[8bis'] (*Essentialisme*, 62).

³³ On *Mantissa* 5 and related *quaestiones* see J. Ellis, 'Alexander's Defence of Aristotle's Categories', *Phronesis*, 39 (1994), 69–89; R. W. Sharples (trans.), *Alexander of Aphrodisias: Supplement to On the Soul* (London, 2004), 61–72.

³⁴ *Diff. II* [11]–[11']; cf. *In Metaph.* 205. 10–206. 6 Hayduck; *Essentialisme*, 75–9.

³⁵ An Arabic version of the lost Greek treatise *Against Xenocrates* and a medieval

Alexander attacks the view according to which genus is ontologically dependent on species in the same way as the whole is dependent on its constituent parts, arguing that the priority of genus over species is not based on mereological completeness of the inclusion: the genus 'animal' will still be predicated of the species 'man' even if all species other than 'man' are non-existent; what matters is the 'intension' rather than the 'extension' of the genus concept.

In the Greek *Quaestio* 2. 28, 'Matter is Not a Genus',³⁶ Alexander points out the relevant affinities between matter and genus but also produces a series of arguments to register a fundamental asymmetry between genus as a logical universal and matter as a sort of physical universal (universally convertible physical principle).³⁷ This asymmetry accounts for the difference between the two mechanisms of specification in definitional and hylomorphic analysis, respectively. The dependence between the two, if any, is not direct, i.e. although the ultimate *definiendum* of the definition *per genus et differentiam* is a hylomorphic substance made up of form and matter, the scope of *differentia specifica* as a logical tool cannot be simply identical with that of a matching hylomorphic form.³⁸

Arabic summary of the text, lost in both Greek and Arabic, *Against Those Who Claim that Genera are Composed of Species*. Full translation and discussion at *Essentialisme*, 89–94; cf. also M. Rashed, 'Priorité du γένος ou du εἶδος entre Andronicos et Alexandre: vestiges arabes et grecs inédits', *Arabic Sciences and Philosophy*, 14 (2004), 9–63.

³⁶ French translation and discussion by Rashed, *Essentialisme*, 94–104, English translation in R. W. Sharples (trans.), *Alexander of Aphrodisias: Quaestiones 1. 1–2. 15* [*Quaestiones* 1] (London, 1992).

³⁷ 77. 32–78. 2 Bruns: 'Being common to many things', 'being by nature prior to those things to which they are common', and 'taking on differences by combination of some species or form with them'.

³⁸ On this distinction in Aristotle see M. Frede, 'The Definition of Sensible Substances in Met. Z', in D. Devereux and P. Pellegrin (eds.), *Biologie, logique et métaphysique chez Aristote* (Paris, 1990), 113–29 at 127–9. The Aristotelian texts of Z 12 and H 6 have been a subject of discussion not mentioned by Rashed (A. C. Lloyd, 'Genus, Species and Ordered Series in Aristotle' ['Series'], *Phronesis*, 7 (1962), 67–90; R. Rorty, 'Genus as Matter: A Reading of *Metaphysics Z–H*', in E. N. Lee, A. P. D. Mourelatos, and R. M. Rorty (eds.), *Exegesis and Argument: Studies in Greek Philosophy Presented to Gregory Vlastos* (*Phronesis*, suppl. 1, 1973), 393–420; M. Grene, 'Is Genus to Species as Matter to Form? Aristotle and Taxonomy' ['Genus'], *Synthese*, 28 (1974), 51–69). It is interesting to note that the discussion elicited the full range of interpretations of the parallel, from 'genus literally is matter and differentia form' (Lloyd) to much more restricted readings in Grene and Balme (see Grene, 'Genus', 68 n. 10), where the parallel is treated as no more than a convenient analogy with respect to the 'common points' along the lines specified by Alexander.

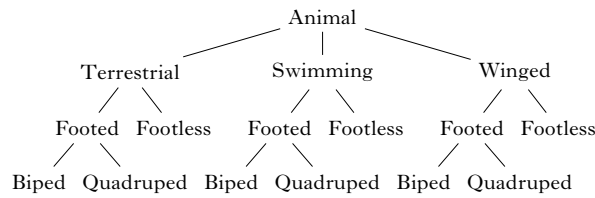


FIG. 1. Differentia 'biped' used univocally in three different genera ('Terrestrial', 'Swimming', and 'Winged')

The logical autonomy of differentia with respect to genera is the subject of the argument in *diff. I*, where Alexander discusses the question whether or not the same differentia can be subsumed by two different and not mutually subordinate genera. This text appears to be Alexander's defence of his (lost) commentary on *Cat.* 3 (1^b16–24) against the objection raised by an anonymous Peripatetic critic. In these lines Aristotle points out that the specifying differentiae of such different genera (e.g. 'animal' and 'knowledge') should also be different in kind. Alexander's commentary apparently contained an amendment to this statement based on the case where the genera in question, although lacking any mutual subordination, are both subordinate to the higher genus, e.g. 'terrestrial' and 'winged' animal subordinate to 'animal' (see Figure 1). In this case, the differentia 'biped' will be applied univocally to all kinds, even though its reference in each case will be fixed by different hylo-morphic forms (e.g. 'bird feet' and 'human feet'). According to the anonymous critic of Alexander, the differentia 'biped' in Alexander's counter-example in both cases modifies not the genera 'terrestrial' and 'winged', but the differentia 'footed', which in turn modifies directly the common genus 'animal'.³⁹ Alexander provides a logical objection to this criticism, pointing out that the differentia of the higher genus cannot differentiate the subordinate genus, so the critic's solution does not after all preserve the univocity of differentiae across the species. Importantly, he objects to a purely instrumentalist view of differentiae taken by the critic: they are not just arbitrary rules of division, but have to be selected and applied in accordance with the logic of natural kinds subject to analysis. Rashed's outline of the contemporary and near contemporary de-

³⁹ 'Footed' and 'footless' are differentiae which divide exhaustively the genus 'animal'. Rashed translates *hayawān* (ζῷον) as 'living being' (*vivant*); but the example (footedness) probably requires 'animal'.

bates underlying this polemic is most interesting, showing, among other things, that Alexander is not accepting the view of his teacher Herminus according to which the differentiae in the case under discussion ('biped' said of humans and chickens) are different 'in kind' (*eidei*, 1^b16), while being generically identical.

Alexander defends the logical autonomy of specific differentia as an element of definition in order to preserve the ontological priority of form-substance in fixing the reference of this definition. Any other scenario can undermine this priority. If a definition is an outcome of a classic division procedure, then the boundaries between kinds may be blurred (both 'man' and 'pale man' could become objects of definition). To avoid this, one has to start with proper natural kinds. On the other hand, if specific difference simply depends on its species, then species (the class which consists of individual chickens) acquires ontological priority over its essence ('what it is to be a chicken')—a position close to Rashed's 'concrete conceptualism'. It is important to point out that Alexander develops an argument to resist this view, because one of the traditional scholarly assumptions about Alexander's theory of form is that it construes form as a quality or property of a composite substance.⁴⁰ Rashed shows that there are reasons to believe that Alexander is aware of this position and does not take it.

This analysis highlights a special problem that arises in the case of the four elements (earth, fire, air, water). Alexander, differently from Aristotle, treats these 'simple bodies' as composite substances constituted by matter (the prime matter) and form (a complex structure including a pair of primary qualities—hot or cold plus moist or dry—and a corresponding type of natural movement—upward (light) or downward (heavy)). Alexander generally describes the formal constituents (hot, cold, etc.) as differentiae, but in some texts speaks of them as qualities, which might suggest that he is unstable in his essentialism and occasionally leans towards a 'predicative' interpretation of elemental qualities as qualifications of substance rather than substantial constituents.⁴¹ Rashed shows that, contrary to what might appear, Alexander is consistent with the approach he takes in *diff. II*. While the differentia in the logically unbound state 'as a "pure form"' can be a quality, its ontological status in a construct state *qua* differentia is determined

⁴⁰ Moraux, *Aristotelismus*, iii. 9–10; Caston, 'Epiphenomenalisms', 347–53.

⁴¹ Rashed cites *In Top.* 113. 22–7, 421. 15–18, 444. 4–7, 451. 15–18 Wallies.

by the genus with which it is predicated synonymously. Thus, when the four elemental qualities function as differentiae they are constituents of an elemental form and substances. When they are non-essential attributes, they refer to the properties of a composite substance and are qualities (cf. the meaning of 'hot' in 'hot tea' and 'hot' as an attribute of the simple body 'fire').

The case of the elements shows that the logical analysis of the differentia specifica is more than just an *ad hoc* solution of the particular exegetical problem: the very way in which Alexander solves it reflects his concern about the impact of the chosen logical analysis on the parts of the system where this logic is applied. The unity of definition by genus and differentia (established in the way described above) does impose certain constraints on reference, the type of object the definition will pick up. It has to refer not to any value from the extension of a given predicate, but to the aspect of the object which satisfies the intension of the definitional account. This aspect, on the proposed view, is form-substance of the hylomorphic compound. Thus, at the definitional level, we find the priority of genus (natural kind) modified by the specific difference with an independent intension (which can be applied in this meaning, unequivocally, across genera). At the level of 'hylomorphic' analysis, we find the priority of form-substance with respect to composite. Using the description given by Kevin Flannery to another of Alexander's logical theories, one could here too characterize Alexander's analysis as *subtle*,⁴² and Rashed's discussion brings out this subtlety very well.

II

The second part of the volume, 'The Physics of *eidōs*', is devoted to the analysis of the role of differentia in the constitution of the hylomorphic substance. As we have seen, Alexander established the special logical status of differentia on the basis of Aristotle's description of inherence ('being in') in *Cat.* 2 as 'being in something not as a part'.⁴³ Rashed points out the special, non-mereological meaning of 'part' assigned to the differentia in Alexander's analysis. Alexander seems to be drawing on the authority of *Top.* 6. 6, 145^a3–12, where Aristotle distinguishes between a property (*pathos*) and a differentia (*diaphora*): intensifying the property or affection may lead to

⁴² *Logic*, xxiii.

⁴³ See p. 219 above.

the destruction of a substance, whereas intensifying its differentia (if indeed possible), on the contrary, preserves the substance. The commentary on *Topics* 6 attributed to Alexander elaborates on a distinction between the specific differentia and the property, which is neither substantial nor completing.⁴⁴ It is important to see that the ‘completing’ function of differentia with respect to substance has to do with its logical role as well as its relation to hylomorphic *eidos*.

In his lost commentary on *Physics* 4, Alexander revised the Aristotelian list of meanings of ‘being in’, distinguishing between the inherence of an attribute in a substance and that of form in matter.⁴⁵ Rashed spells out the latter meaning of inherence in terms of necessary condition: that form is present in this matter means that this form requires this kind of matter.⁴⁶ This interpretation does to some extent normalize Alexander’s analysis of inherence, bringing it into agreement with the mainstream of modern Aristotelian scholarship, where material cause is taken to operate under the constraint of hypothetical necessity imposed on material process by form with regard to the final cause.⁴⁷

But Rashed draws attention to some features of Alexander’s theory of matter which take it beyond the standard Aristotelian account, such as the doctrine of ‘heavenly matter’ different in kind from the sublunary matter, the substrate of generation.⁴⁸ Heavenly matter is permanent and inseparable from its form. But it is still possible to treat it as satisfying a logical requirement imposed by form. The difficulty Alexander deals with is that if the heavenly and the sublunary matter are both lacking qualities, then the difference between these two types of matter cannot be expressed in terms of qualities.⁴⁹ Alexander argues that the two types of matter differ not qualitatively but in respect of essence expressed by means of a diffe-

⁴⁴ Alex. Aphr. *In Top.* 455. 6–19 Wallies.

⁴⁵ ap. Simpl. *In Phys.* 569. 9–12 Diels; cf. discussion in Blumenthal, ‘*Ennead* IV. 3. 20–21’.

⁴⁶ *Essentialisme*, 183–90.

⁴⁷ See e.g. J. Cooper, ‘Hypothetical Necessity and Natural Teleology’, in A. Gott-helf and J. Lennox (eds.), *Philosophical Issues in Aristotle’s Biology* (Cambridge, 1987), 243–74.

⁴⁸ See Alex. Aphr. *Quaest.* 1. 10 and 1. 15; discussion in Fazzo, *Aporia*, 113–38.

⁴⁹ This argument will be used by Philoponus and later Neoplatonic writers to eliminate altogether the notion of heavenly matter distinct from sublunary. See A. Falcon, ‘A Late Ancient Discussion of Celestial Motion: PSI XIV 1400’, *Studi e testi per il Corpus dei papiri filosofici greci e latini*, 4 (2003), 129–41.

rentia. This is also an instance where differentia and essence pick up the features of the cosmos as a whole, redefining the terms of ‘analogy’ in a way that goes beyond the scope of standard hylomorphic theory with living beings as paradigmatic substances.⁵⁰

Alexander’s commentary on *Physics* 1 would be very important for understanding his reading of Aristotelian hylomorphism. Rashed suggests that having adopted the Eudemean alignment of the ‘causes, principles, and elements’ with the four types of explanation (‘elements’ corresponding to matter, ‘principles’ to the moving cause, and ‘causes’ to form and end), Alexander goes on to consider the relation between this triad and the principles of change introduced in *Physics* 1—form, matter, and privation—and makes form subsume the roles of final and moving cause. In his analysis, Rashed seems to take it for granted that the *eidōs* of the ‘replacement’ theory of change is identical with the hylomorphic form, although the scheme ‘form–substrate–privation’ is designed to cover all kinds of change, and in fact substantial change is a special rather than a straightforward case (cf. *Phys.* 5. 1, 225^a7–^b5). According to *Phys.* 1. 7–9, it is matter that persists through change, while form can be replaced by its privation and vice versa. The idea that for Alexander accidental changes should be grounded in the substantial structure seems intuitively right, but I wonder whether there is more to be said about the exact way this grounding works to accommodate the non-substantial concept of *eidōs*.⁵¹

Alexander’s criticism of Boethus’ concept of matter is particularly interesting because it has to do with the description of matter as ‘qualityless’ and ‘formless’ (*apoiōs, aneideōs*) which is not familiar from any of the extant texts of Aristotle, but present in the school tradition, and to which both Alexander and Boethus are apparently committed.⁵² Boethus, commenting on *Physics* 1. 7, distinguishes between ‘matter’ and the ‘underlying’ (*hupokeimenon*). ‘Matter’ has neither form nor shape and is described as such in terms of what will come to be; when it acquires form, it becomes the ‘underlying’

⁵⁰ *Essentialisme*, 190.

⁵¹ It is likely that Alexander’s discussion of the things best known to us and best known in themselves is relevant here.

⁵² This description of matter is more familiar from Stoic sources (*SVF* i. 85, 493; ii. 300, 301, 318, 320, 326, 380; iii Arch. 12). On the other hand, it is found also in Alexander himself (*DA.* 4. 1–2; 17. 17; 18. 2–4 Bruns; *De mixt.* 226. 15 Bruns; *Mant.* 104. 19; 113. 33; 115. 12; 124. 7–8 Bruns; *Quaest.* 27, 4. 22; 52. 20–53. 26; 60. 27 Bruns) and in late Peripatetic doxography ([Ar. Did.] *Phys. fragm.* 2, 3).

or the substrate of an existing thing.⁵³ Rashed suggests that for Boethus, formless and unqualified matter has physical existence as such, and that Alexander objects to this that the formless matter in question is just a modal aspect of any material substance, not an entity on its own, the main thrust of his objection being that matter always exists with some qualification.⁵⁴ This suggestion, while not unfeasible, especially in its conclusions, does raise some questions in its interpretative part. It is not clear that Boethus himself attributed separate existence to the Peripatetic prime matter.⁵⁵ Even the Stoics, who treated their *ousia* (a counterpart of prime matter) as corporeal, did not think of its existence as separate from either a qualified composite or the active principle.⁵⁶ It is more likely that separate existence of the prime matter is derived by Alexander as an implausible consequence of Boethus' failure to draw a distinction between the prime matter and the antecedent matter.⁵⁷ The purpose of Alexander's correction, then, would be to reintroduce this distinction, thus doing justice to Aristotle's analysis and at the same time more clearly integrating prime matter into the discussion of change in *Physics* 1. 7.⁵⁸ The antecedent matter is 'privative' in a specific way.⁵⁹ The prime matter is purely 'negative' with respect to any qualification, including privations. *Quaest.* 2. 7 could be read as supplying a metaphysical rationale for this interpretation: prime matter is pure potentiality, which is why it should be kept separate as a principle of change.

⁵³ ap. Simpl. *In Phys.* 211. 3–23 Diels; cf. Them. *In Phys.* 26. 11–27. 12 Schenkl.

⁵⁴ *Essentialisme*, 202.

⁵⁵ I assume that separate existence is what Rashed means by 'physical existence': otherwise there is no conflict with Alexander's own view.

⁵⁶ Cf. *SVF* i. 85, 87, 88; ii. 306, 311, 325, 396, 397.

⁵⁷ Perhaps taking the privative prefix in *ἀποιος ἀνείδεος* as referring to Aristotle's privation and associating it with the traditional description of prime matter.

⁵⁸ Boethus' contrast between the antecedent matter understood as prime matter and the matter of a composite could be inspired by the Stoic distinction between the *οὐσία* and *ἔλη*, but we need not commit him to the Stoic view of prime matter as body. The term *ποιόν* in Themistius' report should probably be taken as referring to a composite substance, in the Stoic sense of 'the qualified' (not to the *εἶδος*, as Rashed suggests). That would still be in line with Boethus' 'predicative' treatment of quality as a qualifying aspect of a thing. Alexander's criticism, on my interpretation, would be in agreement with those texts in which he distinguishes privation and negation (using matter and form as examples) and draws a parallel between 'privative' matter and potentiality in the analysis of coming to be. Cf. *In An. Pr.* 400. 25–37 Wallies; *In Metaph.* 380. 11–25 Hayduck; discussion in *Essentialisme*, 205–14.

⁵⁹ It corresponds to what Rashed describes in his analysis as *matière-en-vue-de*.

Rashed suggests that Alexander is thinking of prime matter as a non-being by proxy, citing two passages from his commentary on the *Prior Analytics*: (1) in his commentary on *Pr. An.* 1. 46, explaining the difference between the meaning of two negative sentences ‘S is not P’ and ‘S is *a* not-P’, Alexander indicates that while in the latter case there are semantic constraints on a subject of the sentence (‘S is a non-white’ means that S is of some other colour), in the former case there is no such constraint, so much so that the subject can be non-existent. Rashed thinks that ‘non-existent’ could refer to matter, and it is along the lines of this suggestion that he also interprets the discussion that follows (2), where Alexander argues against the Stoic interpretation of Aristotle’s ‘S is (not) P’ as ‘S exists and is (not) P’, pointing out that the existential clause in the analysis is unjustified.⁶⁰ Alexander’s example is the sentence ‘The house is being built’, which is meaningful and can be true, but is not equivalent to ‘the house exists and it is being built’. Rashed argues that this example shows that Alexander’s objection to the Stoic (Russell-style) analysis of Aristotle’s copula sentence is based on his belief that the matter of the house is non-existent.⁶¹ While the idea that matter *qua* pure potentiality is verging on non-existence does not sound implausible, particularly in aporetic contexts, I do not think it is likely to figure as a straightforward example of a non-existent entity in the logical context, precisely because there is more to it than just non-existence. In argument (1) above Alexander is probably thinking of a standard logical example of a non-existent object, such as a goat-stag.⁶² It is not altogether impossible that he might also think of matter in the same way, but this does not trivially follow from either the principle or the attested examples. In argument (2) it seems that what does not exist, and makes unnecessary the introduction of the existential clause in the analysis of copula, is a complete house, a composite of matter and form. It is doubtful that Alexander would construe his counter-example as ‘the matter of the house does not exist and the house is being built’. That is certainly not true of the antecedent matter, and by Alexander’s lights that would not be true even of the prime matter which in his system has the role of the hylomorphic

⁶⁰ *In An. Pr.* 402. 36–403. 11 Wallies.

⁶¹ *Essentialisme*, 208–11.

⁶² Cf. *In An. Pr.* 368. 34–370. 4 Wallies, where ‘non-existent’ is predicated of goat-stag. For other examples, see Sorabji, *Sourcebook*, iii. 283–92.

substrate of the four elements and as such not only exists but is substance.⁶³

Rashed devotes the last chapter of his discussion of the physics of *eidos* to the ‘analyticity of relation between form and matter’. In the school treatise *Quaestio* 1. 26 Alexander asks whether form is in matter *per se* or *per accidens*,⁶⁴ and having gone through the implausible consequences of each alternative arising for the standard meaning, introduces a different meaning of *per se* drawing on Aristotle’s analysis at *Post. An.* 1. 4.⁶⁵ Aristotle distinguishes four types of *per se*, of which only the first two are discussed by Alexander:

- (i) B is said of A *per se* if B is a part of the account of A’s being (Rashed calls this kind *k’h-1*, from *kath’ heauto*). Examples: triangles and lines, lines and points.⁶⁶
- (ii) A is said *per se* of B if B is a part of the account of A’s essence (this is *k’h-2*). Examples: straight and circular are said *per se* of line, odd and even of number.⁶⁷

Alexander compares (ii) (= *k’h-2*) to a relation between matter and enmattered form (form being like ‘odd’ or ‘even’ to matter being like ‘number’), and illustrates it with the case of soul and ensouled body, where body stands for matter and soul for form.⁶⁸ Relevant features of *k’h-2* are first, that A is not a part of B’s essence, and second, as Alexander points out, that

in defining each of them [i.e. odd and even number] *we make use of ‘number’ in the definition of them*, saying that odd number is [number] divided into unequal [parts], even number [number] divided into equal parts. For

⁶³ After all, as Rashed himself points out, Alexander, differently from the Stoics, treats his incorporeal entities as existent (*ōvta*). But prime matter is one of them (cf. *DA* 5. 18–6. 2 Bruns).

⁶⁴ 41. 20–43. 17 Bruns; translation in Sharples, *Quaestiones* 1, 86–90.

⁶⁵ Moraux publishes a part of his solution as fragment 8 in his reconstruction of Alexander’s commentary on the *Posterior Analytics* (P. Moraux, *Le Commentaire d’Alexandre d’Aphrodise aux Seconds Analytiques d’Aristote* [Commentaire] (Berlin, 1979), 17–19).

⁶⁶ Cf. a modern interpretation by M. Ferejohn, *The Origins of Aristotelian Science* (New Haven, 1991), 92–108. See next note.

⁶⁷ The difficulty of finding clear examples illustrating the types of sentence corresponding respectively to these two types of predication has been pointed out by modern commentators. Ferejohn takes this discussion as Aristotle’s elaboration on the distinction between ‘being said of’ and ‘being in’ drawn in *Categories* 2, whose goal is to accommodate the differentia which ostensibly ‘inheres’ in the genus, but cannot be treated as a standard case of ‘inherence’.

⁶⁸ *Quaest.* 1. 26, 42. 25–43. 17 Bruns.

it seems that in the account of enmattered form, too, there is employed the matter in which it is. For the account of every enmattered thing is according to its form—for it is according to this that it has its essence—but it is none the less *necessary for it also to mention the matter*. (42. 29–43. 3 Bruns, trans. Sharples, emphasis added)

Rashed argues that the second meaning of *per se* (*k'h-2*) makes an appearance in Alexander's commentary on *Post. An.* 2. 8.⁶⁹ Aristotle argues that in the case when what a thing is (*ti esti*) is distinct from the *explanans* (*aition*) of its existence, its definition, although it cannot be demonstrated, can still become known with the help of demonstration.⁷⁰ Thus, if we assume the eclipse (A), the screening by the earth (B), and the moon (C), then the scientific demonstration of the cause of lunar eclipse (B(A), C(B) ⊢ C(A))⁷¹ can exhibit the components of a definition of the eclipse (the moon being screened by the earth). Similarly, assuming cloud (C), thunder (A), extinction of fire (B), we can recover the definition of thunder (extinction of fire in the clouds) from the minor and major premisses of the deduction. In those cases where the *explanans* is not distinct from what a thing is, a similar operation does not amount to a demonstration. Thus, we can deductively show that human being is animal using as the middle term 'ensouled perceiving substance': since 'ensouled perceiving substance' is the same as 'animal', this is not a real demonstration (93^a14–15).

Rashed hypothesizes that Alexander uses the *k'h-1* type of *per se* predication in the premisses of the improper demonstrations (as above) when he wants to illustrate the cases where what a thing is coincides with the *explanans* of its existence (using as an example 'man is a rational mortal substance'), and reserves the 'hylomorphic' type of account (*k'h-2*) for the cases where what a thing is is distinct from the *explanans*. Thus, in Aristotle's demonstration of the cause of thunder, 'thunder is_F the extinction of the fire' is a formal definition of thunder; 'thunder is_M the noise in the clouds' is its material defi-

⁶⁹ Alex. Aphr. ap. Eustrat. 126. 2–127. 4 Hayduck (fr. 49 Moraux). Alexander's lost commentary is known to us through quotations in the 12th-cent. commentary by Eustratius on the second book of the *Posterior Analytics* and the anonymous paraphrase of the whole treatise. Fragments have been published in Moraux, *Commentaire*.

⁷⁰ *Post. An.* 2. 9, 93^b21–8. For different interpretations of Aristotle's project see W. Detel (trans. and comm.), *Aristoteles: Analytica Posteriora* (Berlin, 1993), ii. 625–35; M. Mignucci (ed.), *Aristotele: Analitici secondi (Organon IV)* (Bari, 2007), 266–73.

⁷¹ B(A) stands for 'B is predicated of A', ⊢ for 'therefore'.

inition; the complete recovered definition will be: 'thunder is noise in the clouds caused by the extinction of fire'. Rashed suggests that this use could shed light on Alexander's analysis of the logical structure of hylomorphic (*k'h-2*) definition of the soul. On his view, the formal definition of human soul must be 'being rationally ensouled'; its material definition: 'an organic body rationally ensouled'; and a complete definition: 'an organic body rationally ensouled by being rationally ensouled'.⁷²

This reconstruction does not seem entirely convincing. First, there is no evidence that Alexander takes the Aristotelian distinction between the two types of entity (having 'whatness' accounts respectively identical with and distinct from their *explanantia*) to coincide with the distinction between the two types of *per se* predication (*k'h-1* and *k'h-2*). Surely, the odd number (example from *Quaest.* 1. 26) is identical with the 'number divided into unequal parts', so by Alexander's standards should belong to the first Aristotelian class, despite the difference of the type of predication.

Secondly, the formula of soul's definition sounds a bit odd: Alexander would most probably not define soul just as 'body', in either material or formal definition, but would include the 'first actuality'.⁷³ In fact, a relevant analysis of Aristotle's definition of the soul is found in the school treatise *Quaestio* 2. 8 (not used by Rashed), a reply to the critics who said Aristotle's definition of soul ('the actuality of the body potentially having life') was circular.⁷⁴ One of Alexander's responses consists in taking the first definition in *De anima* 2. 1 ('the actuality of the body which has life potentially') as pre-theoretical, posited 'for discovery' (this corresponds to 'material definition'), and the second one ('the first actuality of a natural organic body') as a proper theoretical ('formal') definition.⁷⁵ Differently from what is suggested by Rashed, both pre-theoretical and theoretical definitions apparently have a reference to 'body' (i.e. the 'matter' of *Quaest.* 1. 26). The resulting theoretical definition is

⁷² *Essentialisme*, 230.

⁷³ Ibid.: 'La définition formelle d'une âme, humaine par exemple, sera "animation rationnelle"; sa définition matérielle sera "corps organique animé rationnellement"; sa définition complète: "corps organique animé rationnellement par une animation rationnelle".' I am not sure whether this discrepancy with Alexander's analyses attested elsewhere is deliberate or an oversight. If we are talking about the definition of human being rather than the soul, then it is not clear why we should use *k'h-2*-style definition at all, since it is supposed to define the term ('soul') which will not appear as a separate term in the recovered definition of the human being.

⁷⁴ *Quaest.* 2. 8, 54. 3–6 Bruns.

⁷⁵ *Quaest.* 2. 8, 53. 6–11 Bruns.

not recovered from a demonstration, but obtained by an equivalent substitution of a theoretical term into a pre-theoretical definition.⁷⁶

The task of Alexander's 'physics of *eidos*', on the view presented by Rashed, consists in showing how the account of form as a function of definition is borne out by the principles of the study of nature. Rashed is right to draw attention to *Quaest.* 1. 26, where Alexander's hylomorphic interpretation of *k'h-2* is striking, but I think there is more to be said on the subject. In fact, there are several notorious problems raised by Alexander with regard to the 'hylomorphic' definition of the soul that deserve discussion in this context (including the problem of the perceived 'homonymy' of the Aristotelian definition of the soul in *De anima* 2. 1, the taxonomy of the P-series as opposed to the classification by genus and species).⁷⁷ I feel that Rashed's general mistrust of Alexander's *De anima* kept him from more active engagement with Alexander's discussion of the difficulties of Aristotle's theory of the soul (hylomorphic form *par excellence*).⁷⁸

III

The third part of the book is devoted to the role of form-substance in Alexander's system of cosmology. In the space of less than a hundred pages Rashed provides a survey of a whole range of questions, including the eternity of species, the universals, the eternity of the cosmos as a whole and its constituents, the propagation of form through the species, the role of divine power, the intellect. Most of these questions have been discussed in recent work on Alexander: Rashed's goal in this section of the book is to show that 'form-substance', in the interpretation of 'abstract conceptualism', is the hinge of Alexander's cosmological system.

Thus, Rashed argues that Alexander's ascription of eternity to

⁷⁶ Alexander uses the technical term *μεταλαμβάνειν* (54. 8 Bruns) for this operation.

⁷⁷ Some of these problems have been discussed in the literature. See M. de Corte, 'La définition aristotélicienne de l'âme', *Revue thomiste*, 39 (1939), 460–508; Lloyd, 'Series'. Rashed mentions *Quaest.* 11 in the context of the problem of universals under the 'cosmological' rubric, but it is also quite closely related to the problem of the adequacy of Aristotle's definition of the soul (paradigmatic hylomorphic form).

⁷⁸ Rashed thinks Alexander's *De anima* is a simplified summary of Aristotle's doctrines, not representative of his own 'master' interpretation of Aristotle's theory (see e.g. *Essentialisme*, 37).

form is his innovative contribution to the Aristotelian doctrine of the eternity of species, where originally the emphasis was on the eternal recurrence of the individuals as instantiations of *eidos* rather than *eidos* itself.⁷⁹ Rashed quotes two arguments for the eternity of form from the lost commentary on *Physics* 1. 7. The first is a reply to a difficulty: if the form is perishable it cannot be the principle of change. Alexander's solution is to distinguish between the numerical and specific perishability of form: enmattered form is perishable numerically, but not *eidei*, which could mean 'in form', but also (perhaps more likely) 'in species'. The second points out that what is perishable is the composite of form and matter, while form and matter as such do not perish.⁸⁰ Rashed condemns these arguments as weak, presumably because they do not draw a clear enough distinction between form and species, and finds better evidence for Alexander's views on the subject in his commentary on *Metaphysics B*, where the proof of the eternity of form spells out the idea that the form in question is the one that plays the role of the productive cause (*to poiētikon*) in the process of change, and the fact that it is similar to the form that is produced in this process (*to poioumenon*) indicates that form is somehow antecedent in *any* process of change, thus having the 'eternal' status as the principle of the process.⁸¹ The view of form as a quality, along the lines of the 'concrete' substantialism, would make the eternity of form dependent on the eternity of the process of individual recurrence. Rashed argues that Alexander does not take this route in his account.⁸²

Rashed is right to draw attention to the methodological pressure for Alexander to provide a metaphysical ground for the form as an object of science, as well as to a tension between Alexander's commitment to the eternity of form and his account of the form of a sensible composite, which is often not explicitly integrated with this thesis.⁸³ The assessment of Alexander's solution in response to this pressure may turn out to be controversial. According to Rashed, Alexander's analysis of form as the principle of change presupposes the notion of form as a dynamic entity, something he calls 'linear flow' (*flux linéaire*), referring apparently to the principal

⁷⁹ *Essentialisme*, 238.

⁸⁰ ap. Simpl. *In Phys.* 234. 11–19, 23–8 Diels.

⁸¹ *In Metaph.* 214. 26–215. 18 Hayduck.

⁸² *Essentialisme*, 240–2.

⁸³ *Ibid.* 242; cf. P. Accattino, 'Generazione dell'anima in Alessandro di Afrodizia, *De anima*, 2. 10–11. 13?', *Phronesis*, 40 (1995), 182–201; cf. nn. 7, 8 above and n. 100 below.

role of form in the transmission of the structural characteristics of biological species in the process of reproduction. According to Rashed, Alexander treats other meanings of form in Aristotle, such as form-configuration (shape)⁸⁴ and an individual form (*atomon eidos*),⁸⁵ as derivative aspects of the form-flow which is the system of maintenance and propagation of a certain natural kind driven by internal teleological dynamics. In support of his reconstruction, Rashed cites Alexander's *De anima*, where qualitative aspects of the elemental form are indeed distinguished from its dynamic aspect (natural kinetic propensity or natural motion).⁸⁶ But the case of the elements is only good to illustrate Alexander's tendency to use the hylomorphic analysis all the way to the bottom, something Aristotle was sometimes reluctant to do. It can hardly work as an explanation of the biological mechanism of propagation, since (as Rashed well appreciates elsewhere) it is the natural power of moving upwards or downwards that is described by Alexander as 'supervenient' upon the pair of primary qualities, not vice versa.⁸⁷

The treatise *On Providence* preserved only in Arabic reveals a further aspect of relation between the hylomorphic form and the form construed in terms of genus and species (*via differentia specifica*): while hylomorphic form has priority over species in the system of metaphysics (in the way in which the intension-meaning of a concept has precedence over its extension), in theology it is the species understood as a succession of individuals endowed with a certain form that is the main object of nature and divine providence operating in the global teleological system.⁸⁸ Rashed notes, in agreement with recent work on Alexander's theology, that the purpose of the doctrine is ultimately architectonic rather than theological in a proper sense.⁸⁹

⁸⁴ Cf. *In Metaph.* 417. 12–14 Hayduck; ap. Simplicius. *In Phys.* 538. 14–19 Diels.

⁸⁵ e.g. ap. Philop. *In GC* 314. 22 Vitelli (my reference—I.K.)

⁸⁶ Alex. Aphr. *DA* 5. 4–9 Bruns.

⁸⁷ Assuming the elemental qualities can be construed as 'configurational' form. Cf. the passage cited in the previous note. Alexander is certainly well aware that according to Aristotle, weight and lightness are neither active nor passive (*GC* 2. 2, 329^b20–4), whereas the individual form which is the moving cause of animal generation has to act upon the matter (*menses*) in the embryogenesis (*GA* 2. 1). In his account of the hierarchy of natural kinds, animate and inanimate composites belong to different tiers (cf. *Quaest.* 2. 15).

⁸⁸ Rashed cites *Prov.* 87. 5–91. 4 Ruland. Cf. also *Quaest.* 3. 5.

⁸⁹ *Essentialisme*, 254; cf. C. Genequand (ed. and trans.), *Alexander of Aphrodisias: On the Cosmos* (Leiden, 2001), 6–16; R. W. Sharples, 'Aristotelian Theology after

Rashed's section on universals has the subtitle 'a false problem': that is how it should appear in the light of what has been said about the relations between form and species. Otherwise, the problem has been taken as genuine in many quarters, and not undeservedly so. Particularly important in this respect is the school treatise *Quaest.* 1. 11a, where Alexander draws a distinction between the extensional and intensional concepts of species, arguing for the ontological priority of essence over the species taken as a class. Thus the concept 'human being' is meaningful if and only if there is at least one instance of a natural kind it refers to. Earlier discussions of this text (with which Rashed is largely in agreement) drew attention to the fact that this position is verging on realism, even if it is not a traditional realism in that it does not postulate the separate existence of universal concepts.⁹⁰ In his discussion of *Quaest.* 1. 3, 'Of what things there are definitions',⁹¹ Rashed points out that according to Alexander, the object of definition, such as 'terrestrial biped animal' is a thing present in each human being rather than participated in by many individuals. The reason why the objects of definition are called 'concepts' is that we need to use conceptualization in order to separate this content from its concomitants which do not belong to it *per se*. The role of *eidōs* in Alexander's cosmology is shown to be consistent with this position with regard to the universals. In a way, the eternity of form as a cosmic function should be a sufficient proof for its universality as a conceptual function.⁹²

Alexander is concerned with outlining the relation between the first principle of the cosmos and the intracosmic processes in terms of the theory of motion or change, the approach which Rashed labels as 'mechanism', not to be confused with, but perhaps deliberately suggestive of, the method of early modern science. Rashed is clearly interested in the broad methodological import of this approach, whose origin he finds already in Theophrastus' *Metaphysics* 9^b16–10^a21, the text sometimes taken to be a criticism of Aristotle's doctrine of prime mover or its hypothetical extreme

Aristotle' ['Theology'], in D. Frede and A. Laks (eds.), *Traditions of Theology: Studies in Hellenistic Theology, its Background and Aftermath* (Leiden, 2002), 43–55.

⁹⁰ Lloyd, *Form*, 49–61; Tweedale 'Universals'; most recently R. W. Sharples, 'Alexander of Aphrodisias on Universals: Two Problematic Texts', *Phronesis*, 50 (2005), 43–55 at 51–4.

⁹¹ French translation at *Essentialisme*, 257–8; English translation in Sharples, *Quaestiones* 1, 24–6.

⁹² *Essentialisme*, 259.

version. Rashed argues, convincingly, that the whole argument should be read as a rationale for the methodological restriction on reification of certain analytical concepts in the analysis of the first mover. On analogy with the Ockham's 'razor' principle, we could call it a 'methodological razor'. This is the point of the parallel between the study of life and astronomy. Just as biology (or, generically, physics) studies the soul only to the extent to which it is expressed in the activities of a living being, so the theory of the universe as a whole should study the activity of the first principle (the first unmoved mover) on the basis of its effects on the first moved, i.e. the motion of the first heaven.⁹³

In his commentary on *Physics* 8. 1 and in several school texts, Alexander reproduces Aristotle's arguments for the eternity of motion and the existence of the first unmoved mover in the form of *analysis*,⁹⁴ which he clearly distinguishes from demonstration. The order of demonstration is from causes to effects (middle term showing the 'cause', or explanation). In 'analytical' reasoning (as opposed to 'demonstrative' in a technical Aristotelian sense), each new thesis reconstructs the conditions under which the truth of the thesis posited at the previous step is preserved. The *analysis* is not equivalent to an explanation of the dependence in question. Rashed suggests that this distinction is drawn by Alexander in response to Galen's criticisms of Aristotle's arguments in his lost treatise *On Demonstration* (*Peri apodeixeōs*).⁹⁵

This methodological point has important consequences for the cosmological aspect of the theory of form because it underlines the following crucial difference between the sublunary and heavenly souls.⁹⁶ Sublunary living beings are not self-movers: all soul-induced sublunary motion has as its ultimate cause the motion of

⁹³ Rashed cites two parallel texts, *Phys.* 8. 1, 252^a32–^b5, and *GA* 2. 6, 742^b17–35, as the Aristotelian sources for this discussion (*Essentialisme*, 268).

⁹⁴ Cf. also *Quaest.* 1. 1, 4. 4–7.

⁹⁵ For testimonia and fragments see I. von Müller, 'Über Galens Werk vom wissenschaftlichen Beweis', *Abhandlungen der philosophisch-philologischen Classe der Königlichen Bayerischen Akademie der Wissenschaften*, 20 (1897), 403–78. A new critical edition of the fragments is in preparation by Marwan Rashed and Riccardo Chiaradonna (see R. Chiaradonna, 'Le Traité de Galien *Sur la démonstration* et sa postérité tardo-antique', in R. Chiaradonna and F. Trabattoni (eds.), *Physics and Philosophy of Nature in Greek Neoplatonism: Proceedings of the European Science Foundation Exploratory Workshop (Il Ciocco, Castelvecchio Pascoli, June 22–24, 2006)* (Leiden, 2008), 43–77).

⁹⁶ *Essentialisme*, 276 n. 742 (quoting a scholion on *Phys.* 8. 6, 250^b6, from MS Par. Suppl. Gr. 643, fo. 137^v).

the whole universe. The motion initiated by heavenly soul-movers is uninterrupted and can be sufficiently described on its own terms, without any reference to the sublunary change it causes. Both types of motion have their respective prime movers: in the case of heavenly bodies it is, ultimately, the first unmoved mover. In the case of sublunary things, the role of the eternal first mover is played by the 'first moved', i.e. the sphere of the fixed stars. Alexander says that this first mover is responsible not just for the motion but also for the being of the sublunary things.⁹⁷ Rashed suggests we should take this to mean that the first heaven causes the material conditions *in which these beings could come to self-realization*. This he calls Alexander's 'mechanist thesis'. The 'thesis' leaves open a question as to the exact force of the italicized relative clause. As we know or may anticipate, Alexander does not subscribe to the 'designer' view of providence (except as a metaphor).⁹⁸ Yet, on this interpretation, there clearly is a teleological commitment of some sort.

Exploring the nature of this commitment, Rashed turns to the physical model of transmission (*diadochē*) used by Alexander to explain the eternity of form *qua* form. There are several texts by Alexander in which various natural processes are described as a transmission of an effect through an appropriate medium.⁹⁹ In his commentary on *Physics* 2. 3¹⁰⁰ Alexander uses an Aristotelian account of animal generation (in *GA* 2. 1) to argue that nature's operation is irrational. He likens embryogenesis to the process guided and triggered by puppet-masters, where the object of guidance is the form-to-be and the method of triggering involves the production of a physical copy of the existing form *qua* form. Differently from most modern commentators on this text, who emphasize the species-immanent character of operation of the threefold cause (formal, ef-

⁹⁷ *Essentialisme*, 277 n. 748 (quoting a scholion on *Phys.* 8. 6, 259^a5–6, from MS Par. Suppl. Gr. 643, fo. 137^v).

⁹⁸ Cf. *Quaest.* 2. 22, 68. 20–69. 32 Bruns.

⁹⁹ In *Meteor.* 18. 17–19. 9 Hayduck; *De mixt.* 225. 27–226. 8 Bruns; cf. Arist. *DA* 2. 8 and *De sensu* 2.

¹⁰⁰ As reported by Simplicius in *Phys.* 310. 25–311. 36 Diels. This passage has been much discussed: P. Accattino, 'Alessandro di Afrodisia e la trasmissione della forma nella riproduzione animale', *Atti dell'Accademia delle Scienze di Torino*, 122 (1988), 79–94; R. W. Sharples, 'Species, Form and Inheritance: Aristotle and After', in A. Gotthelf (ed.), *Aristotle on Nature and Living Things* (Pittsburgh, 1985), 117–28; I. Kupreeva, 'Qualities and Bodies: Alexander against the Stoics', *Oxford Studies in Ancient Philosophy*, 25 (2003), 297–344 at 328–30; D. Henry, 'Embryological Models in Ancient Philosophy', *Phronesis*, 52 (2005), 2–42.

ficient, and final), Rashed insists on the dependence of this process on the higher-order external causes, ultimately on the motion of the first heaven. Heavenly motion plays the role of the mechanical puppet-master that maintains the process in constant motion. The reasons behind Rashed's interpretation are systematic rather than purely text-based: if we assume that the puppet-master is the immanent cause informing the enmattered series from within, our series is not protected from being disrupted by contingency. To avoid this consequence, a permanent external factor is needed. The eternity of form is preserved through the permanent succession of the individuals within the species, but this succession has as its condition the eternity of heavenly rotation, whose influence also plays its part in 'informing' the material processes in the sublunary world. Rashed's analysis draws attention to the cosmic dimension of the permanent recurrence within the species, but it is not clear to me that the interpretation of the 'puppet-master' (presumably principle rather than condition) as heavenly motion is consistent with Rashed's own analysis, whereby this motion provides conditions rather than being an immanent principle of a specific form-driven succession of individuals in the sublunary cosmos.

Investigating further the nature of the cosmic nexus between the heavens and the sublunary world, Rashed offers a new interpretation of Alexander's *Quaestio* 2. 3, devoted to the question of the nature of the power produced by the motion of the divine body in the sublunary cosmos. Rashed suggests that this text should be read as a comment on *GA* 2. 3, 736^b29–737^a12, a well-known, controversial discussion of the nature of seminal fluid, which Aristotle likens to the body 'other, and more divine, than the so-called elements', whose constitution accounts for the presence of the 'divine' power of intellect in rational animals. Rashed offers a non-literal interpretation of 'divine body' as the gentle and fine-textured 'heavenly fire' distinct from the conventional fire that burns, a distinction drawn by Aristotle and known to Alexander.¹⁰¹

Quaestio 2. 3 is a famously difficult text.¹⁰² The question proper is: 'What is the power that comes to be, from the movement of the

¹⁰¹ Rashed might have used the passage from *Mantissa* 5, where the distinction between the two types of fire does seem to imply some kind of difference between the types of matter involved (120. 17–26 Bruns).

¹⁰² Annotated English translation by Sharples in *Quaestiones* 1, 93–8; discussions by P. Moraux, 'Alexander von Aphrodisias *Quaest.* 2. 3', *Hermes*, 95 (1967), 159–69; Sharples, 'Theology', 29; Fazzo, *Aporia*, 175–212; I. Kupreeva, 'Stoic Themes in

divine body, in the body adjacent to it which is mortal and subject to coming-to-be?’ (trans. Sharples). The exposition of the problem does use the language and imagery of transmission: the body adjacent to the divine body is the spherical layer of pure fire. If it receives divine power from the motion of the heavens, it would possibly transmit it to the lower layers and all the bodies would have a share of it. Of the two solutions presented in the *quaestio*, the first suggests that the divine power accrues to the simple bodies (the four elements) when they have already been formed, and exercises its perfecting influence over the suitable proportion of purely physical (‘soul-less’) components to produce a certain psychic propensity. The mixture of the physical components is important: this ‘power and soul’ does not come to be in matter which is unsuitable. The second solution, possibly preferred by Alexander, is that the divine power contributes to the very process of the elemental generation. Divine qualities imparted to the elemental world can be construed in a physicalist way as special (physical) states of physical qualities, such as rarefaction, purity, and generally states of greater activity.¹⁰³ The purest and most active kind of mixture, which is the appropriate seat of intellect, is thus ‘divine’ because it shares some characteristics with the most divine elemental layer rather than on account of its non-physical (non-natural) character. So its presence in sub-lunary animals is not a breach in the physicalist agenda of the *GA*, nor is it a concession to a reductionist view of soul as derivative from some kind of elemental mixture. We should treat the divine power as contributing to the material conditions for an irreducible natural kind, namely specific soul.

Rashed’s analysis of *Quaest. 2. 3* gives us a very attractive non-reductionist reading of Alexander’s physicalism. In this he follows some of the tendencies of recent Alexander scholarship.¹⁰⁴ It is perhaps worth pointing out that this solution does not immediately make redundant the explanations of natural substances traditionally sought in Aristotelian physics. As Rashed himself indicates, the problem Alexander deals with here has to do with elucidating the dependency relations between the cosmic realms by showing how

Peripatetic Sources?’, in R. Salles (ed.), *God and Cosmos in Stoicism* (Oxford, 2009), 135–70 at 161–4.

¹⁰³ Cf. also *Prov.* 88–92 Ruland, cited as a parallel in Sharples, *Quaestiones* 1, 98 n. 315 (not mentioned by Rashed).

¹⁰⁴ *Essentialisme*, 290, following Accattino and Donini, *L’anima*, 19 and 24.

the 'upper' cosmos sets the conditions of operation for all natural kinds in the sublunary cosmos. This procedure is different from the explanation proper, although it does bring out some basic assumptions valid in all types of explanation (in terms of the Aristotelian four causes). On this view, the physicalist account of sublunary soul in terms of its material constitution (a function of heavenly motion) is compatible with the hylomorphic account in terms of the actuality of a living body because the former is not a standard materialist account but a part of a broader theoretical framework whose task is to exhibit the way in which two different parts of the cosmos work together. Beyond the agenda of global teleology, there is still a story to be told about how the elemental properties thus generated are relevant in the specific natural design of a living organism which has all those functions of nutrition, growth, reproduction, walking and talking, etc. This is an explanation of a different level.

Rashed seems to suggest that on Alexander's view, the soul taken as one of the cosmic principles does not need a special cosmological explanation as such, apart from an account of its material substrate, which is a part of the account of the material conditions of its realization within the cosmos. This view of the soul would indeed be an extrapolation from Aristotle's concept, and it is not clear that Alexander does have it in mind when discussing the parts of the universe as a whole. One could see how a Platonist reader might translate some of Alexander's ambivalent theses concerning both soul and matter into a consistently Platonist idiom of world-soul, but it would be premature to see that tendency in Alexander himself: if anything, he is trying to resist it.¹⁰⁵

In his final chapter, 'Abstract Conceptualism and the System of the World', Rashed takes stock of some of the problems with Alexander's theory of form, discussing what he describes as the 'paradox of providence': for both Aristotle and Alexander, teleological explanation is based on finding the end and the means, yet nature does not have conscious goals. The two theses are potentially in conflict:¹⁰⁶

¹⁰⁵ In the Aristotelian system the concept of soul is 'split' between the two different parts of the cosmos, and Alexander apparently observes this rule: in the *De anima*, having discussed the animal soul, he says that 'soul' is also used of heavenly bodies, but this use is homonymous (*DA* 26. 28–30 Bruns). Cf *Quaest.* 1. 10 and 1. 15 and the discussion of heavenly matter at p. 226 above.

¹⁰⁶ Rashed (*Essentialisme*, 295) rightly points out the role of contemporary schools

- (i) natural design does not involve rational agency (nature operates without reason (*alogōs*);
- (ii) nature does nothing in vain.

The solution as reconstructed by Rashed consists in taking ‘reason’, which is denied to nature in (i), to refer to deliberation, which is not immune to fallacy, as opposed to infallible rational desire such as the one that accounts for the motion of heavenly bodies.¹⁰⁷ This distinction is not directly drawn in any of the texts, but Rashed thinks it is implicit in Alexander’s discussion of the problem of the permanent speed of heavenly bodies with regard to the principle according to which ‘everything that moves can move faster and slower’, in *Phys.* 6. 2 (323^b21–2). Alexander suggests that since Aristotle speaks about the possibility of variation, he does not deny this possibility to heavenly motion as well. On the other hand, because heavenly bodies move not out of necessity but voluntarily, their commitment to regular motion at a permanent speed should be compared to the actions of a good person, who while having a possibility to act badly, still always chooses to act well.¹⁰⁸ On this basis, Rashed suggests that just as a good person does not really deliberate whether or not to act badly, despite the fact of his or her acting with reason (*viz.* on the basis of rational will), so heavenly bodies do not deliberate about their motion, although they are endowed with a heavenly equivalent of rational will which translates into a stable kinetic disposition. The same kind of state would characterize nature in the sublunary processes, but the stability of its disposition is constantly checked by the intrinsic instability of any material being (thing, process, or agency). In this way, nature still does nothing in vain and does not act ‘rationally’ in the sense of deliberation, but only informs matter with the equivalent of rational desire. The breaches of this natural rationality are due to matter: that is where the deliberation proper can arise.

Aristotle treats deliberation as the process of reasoning which calculates the means needed for achieving a goal.¹⁰⁹ In terms of a purely psychological theory of action, there is no need to question

(Stoic and Epicurean, both of which, in two different ways, linked teleology with rationality immanent in natural processes) in the perception that these theses conflict.

¹⁰⁷ *Essentialisme*, 299.

¹⁰⁸ *ap. Simplic. In Phys.* 941. 21–942. 2 Diels; cf. Moraux, *Aristotelismus*, iii. 165.

¹⁰⁹ *NE* 3. 2, 1111^b26–30, 1113^b9–14. Rashed seems to connect practical reasoning with the presence of irrational desire, ‘concupiscence’ (*Essentialisme*, 299).

the ethical motives (good or bad) behind such reasoning: it is sufficient that there be an apparent good to motivate the process of deliberation.¹¹⁰ In *Metaphysics Z 7*, notably, Aristotle explains the causal mechanism of generation using the analogy of a craftsman's calculation of means leading towards the goal. The two kinds of production, rational and non-rational, have a parallel structure, involving a goal and a stepwise search for means which continues until hitting upon the first component that needs no further change and is sufficient to start the process of production. The non-rational (spontaneous) process, although not mediated by the form in the soul of the craftsman, follows the same order as the rational.¹¹¹ It seems that if we are to eliminate deliberation, we should do it more discriminatingly: some of its features, most importantly the analogue of finding the means, are present in nature, and it is not clear that Alexander would want us to get rid of them in the case of heavenly bodies. In that sense one could say that heavenly bodies are in fact deliberating all the time, calculating their trajectories even, but since they are fully rational they never err in their calculations, always getting it right.

The final section of the book, 'Gradation of Truth and Being', is devoted to the 'degrees of being' interpretation of Alexander's cosmology. Rashed argues that it is possible to show the correlation between intellect and definition as its proper object within the system of the cosmos understood as an ontological hierarchy. The difficulty which needs to be resolved is this: the object of definition proper, according to Aristotle, does not contain any reference to matter. In the case of hylomorphic form, however, some reference to matter is inevitable, as we have seen. In order to resolve it, Rashed undertakes to show that Alexander's theory has room to accommodate a 'looser' form of definition, which can contain reference to matter. He argues that Alexander does speak of degrees of truth in the sense of degrees of being, and develops a hierarchy of forms which inhabit different cosmological strata. Alexander does occasionally use the word *eidos* to refer to the divine intellect and the mover(s) of the heavenly spheres: these are pure forms, which are not at all enmattered and perhaps should even be included in the class of primary substances on the *Categories* classification, because they satisfy the criteria set out in *Cat. 2*.¹¹² As objects of thought,

¹¹⁰ *NE* 3. 4.

¹¹¹ *Metaph. Z 7*, 1032^b21–9.

¹¹² Although, I should mention, they do not possess all the proper attributes of

such *eidē* can be present as terms within identity sentences ('*a* is the same as *a*'). The second stratum includes forms that inhere in the heavenly matter: here thought can operate with normal predication (S is P), presumably S standing for the type of form which possesses numerical eternity. The third stratum includes hylomorphic forms: the appropriate logical form of thinking about these forms *qua* forms is 'F necessitates M', where M stands for hylomorphic matter. Overall, however, the concept of 'form' is used in the three cases by way of 'strict' analogy,¹¹³ so the system is indeed abstract conceptualism, because the concept of form is used univocally in all three cases and because form is responsible for the substantiality of the three types of being it characterizes.

IV

Marwan Rashed's new book is an extremely interesting and helpful reconstruction of Alexander's position in the debates around Aristotle's concept of form. Alexander's position has itself been a subject of ongoing scholarly debate for more than half a century. This is the first book-length argument showing that Alexander's view of form is not 'materialist', nor 'attributivist', but more in line with 'substantialism' or what Rashed calls 'abstract conceptualism'. This is an important result. Although similar views have been expressed in a number of articles, recent and less recent, the most comprehensive and definitive treatment of Alexander's philosophy to date (in the posthumous volume of Paul Moraux) attributes to him the view that form is quality (on the basis of both the *Categories* and *De anima*). It is all the more important, therefore, that Rashed's discussion of Alexander's reading of hylomorphic theory of form takes the *Organon* as a point of departure. He is quite right to emphasize the importance of Alexander's dialogue with his (often anonymous) predecessors in the Peripatos, showing clearly that much more work needs to be done on these obscurer periods in the history of the school (both the post-Hellenistic and the Hellenistic Peripatos).

The material on *differentia specifica* is most important for understanding substance from the set of *Cat.* 5: they cannot receive opposites (at least not without a special pleading for 'possibility').

¹¹³ See p. 217 above.

standing the way Alexander thought of inscribing the doctrine of form in the metaontological and ontological project of the *Categories*. Rashed's argument, showing that Alexander's approach is formulated as a carefully stated antithesis to the metaphysics of individual substance ('concrete conceptualism') developed on the basis of *Categories*-centred interpretation of the corpus, is convincing. The reconstruction of *Fī al-Fuṣūl* is solid and valuable, making both the text and its argument accessible to the wider scholarly community.

Rashed's introduction of analogy into the discussion of the way Alexander applies hylomorphic analysis in different parts of the Aristotelian system is both innovative and promising, particularly as an expository method. The question to what extent this shift in the scope of analogy, from biology of species to cosmology as a whole, is a product of Alexander's conscious decision, rather than tendencies within the school which were already present in the work of his predecessors, is not directly addressed by Rashed, although the role he gives to Theophrastus in a number of discussions suggests a good deal of continuity in the post-Aristotelian Peripatetic agenda.

Rashed is right to insist on the special role of the genre of Aristotelian commentary as the main source for Alexander's original philosophical ideas. Recent work on Alexander has been mostly concentrated on the opuscula and school treatises, and much remains to be done on the commentaries. On the other hand, it would be wrong to write off the opuscula and school treatises on account of their pedagogical goals. Even when the exposition is adjusted to such goals, it does not necessarily by the same token distort the doctrine. After all, the more advanced analysis is supposed to build on the foundation laid down in such introductions, which does presuppose doctrinal continuity. Furthermore, the school treatises show that Alexander tends to go back to his commentaries in the classroom, sometimes elaborating on the solutions given in the commentary, and sometimes coming up with revised or altogether different solutions.¹¹⁴ In order to understand the logic of his discussion of a particular topic, it is important to take into account the whole body of his work.

¹¹⁴ An example of such elaboration is given by Rashed himself, in his discussion of *Diff. I*. One example of a solution different from the one presented in the commentary is *Quaest. 2. 22*.

Rashed's book has one more dimension which will probably be appreciated by readers of Plotinus: it gives us an idea of the extent to which Plotinus' dialogue with the Peripatetics is shaped by post-Aristotelian, and particularly Alexander's, interpretation of Aristotle's metaphysics of form. Although references to Plotinus are only occasional, the book is a very helpful preliminary for understanding the parallels as well as the discrepancies between the systems of Alexander and Plotinus.

Some parts of Rashed's book (some of Part 2 and most of Part 3) are written in large strokes, possibly deliberately. They provide a useful outline of the way things might cohere in Alexander's system as reconstructed, and while sketching the solutions to many traditional problems, allow the reader to ask many new questions. Rashed's book breaks new ground in Alexander studies. It does not make easy reading, but will certainly be rewarding to specialists in many areas of ancient philosophy, not just students of Alexander.

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