

Chapter 1

Introduction: The Study and Reception of Aristotle's *Parva naturalia*



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1 This Volume

The thirteen essays that make up the bulk of this volume all began as papers or comments on papers presented at the first *Representation and Reality* conference in Gothenburg on 6–8 June 2014 (“Cross-Cultural Dialogues: The *Parva naturalia* in Greek, Arabic and Latin Aristotelianism”).¹ They are perhaps most straightforwardly read as accounts of so many episodes in the history of the ancient and medieval reception of a classical philosophical work, Aristotle's *Parva naturalia*. By and large, they can also be read as inquiries into different passages in the development of a specific theme (psycho-physiology, for want of a better term) in the history of ancient and medieval philosophy. For in ancient and medieval times, the reception of classical philosophical works, not least Aristotle's, was part of the daily business of philosophers, not historians. Each of these accounts (or inquiries) presents original research designed to widen and deepen our understanding of the episode in hand.

The contributors to the volume, all recognized experts in their respective fields, were not assigned specific topics for treatment according to any systematic plan; instead, some of them were invited to submit original papers on topics selected at their own discretion and on the basis of their own expertise, whereas others were asked to comment on one or another of these papers. As a result, certain episodes in the history of the reception of the *Parva naturalia*—typically ones considered by

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contemporary scholars to be of particular significance—will be found to have captured the attention of more than one contributor; others, alas, are only touched upon in passing or not at all. For the benefit of those readers who legitimately wonder how one or another of these episodes connects with the rest (and what the missing episodes were all about), the following introduction attempts to provide a skeletal outline of the study and reception of the *Parva naturalia* through the ages, with the bibliographical references necessary for putting flesh on the bones also regarding those parts of the story which are not directly addressed in any of the thirteen essays.

2 Aristotle's *Parva naturalia*²

Aristotle's *De sensu et sensibilibus* is prefaced with a statement of the relation between the preceding discussion “of the soul as such and of each of its faculties” (evidently the *De anima*) and the following inquiry, the purpose of which is to establish which functions (πράξεις)³ are peculiar to some and which are common to all animals and other living (and thus ensouled) creatures. In this inquiry, Aristotle says, the results of the preceding discussion must be assumed. This is how the new inquiry begins:

It is clear that the main attributes of animals, both those that are common [to all] and those that are peculiar [to some], are common to the soul and the body, for instance, sense perception, memory, spiritedness, appetite and desire in general, and besides these pleasure and pain. Indeed, these belong to practically all animals. But besides them certain attributes are common to all things that partake of life, while others [belong only to] some among the animals. It so happens that the principal among these attributes constitute four pairs of opposites, namely: wakefulness and sleep, youth and old age, inhalation and exhalation, life and death. We must examine what each of these attributes is and which are the causes of their occurrence. But it is also the task of a natural philosopher to discern the first principles of health and disease, since neither health nor disease can exist in things that are bereft of life. This is why pretty much the vast majority of natural philosophers end up in the study of medicine, whereas those among the physicians who pursue their art in a more philosophical way take the study of nature as their starting-point (*Sens.* 436a6–b1).⁴

By and large, the programme of study set out in this passage is implemented over the next nine (or eight, if 7a and 7b in the list below are taken together as one) treatises in our standard editions of the *corpus aristotelicum*. The English and Latin titles of these treatises used in the present volume are as follows:

²For general overviews of the *Parva naturalia*, see Ross (1955, 1–68); Düring (1966, 560–571); Morel (2000, 9–60). For discussions of their unity, scope and character, see Kahn (1966); Lloyd (1992); van der Eijk (1994, 68–87, 1997); Morel (2006, 2007, 71–89); Johansen (2006); Sassi (2014). See also King (2001, 34–73), which is particularly focused on the theory of nutrition occupying centre stage in *Parva nat.* 7a–8.

³For the concept, see *De part. an.* 1.5, 645b14–646a4, which lends little support to Alexander's contention (*In De sensu* 4.5–6, echoed by Ross 1906, 123–124) that the term is used “properly” for rational activity. See also Morel (2000, 19–23).

⁴Unless otherwise stated, all translations are my own.

1. On sense perception and sense objects (*De sensu et sensibilibus*, 436a1–449b3);
2. On memory and recollection (*De memoria et reminiscentia*, 449b3–453b11);
3. On sleep and waking (*De somno et vigilia*, 453b11–458a32);
4. On dreams (*De insomniis*, 458a33–462b11);
5. On prophecy in sleep (*De divinatione per somnum*, 462b12–464b18);
6. On longevity and shortness of life (*De longitudine et brevitate vitae*, 464b19–467b9);
- 7a. On youth and old age (*De juventute et senectute*) and (7b) On life and death (*De vita et morte*, 467b10–470b5);
8. On respiration (*De respiratione*, 470b6–480b30).

Various degrees of interconnection between the several treatises are suggested by the existence of a number of transitional passages and cross-references, which also lend partial support to the relative order established in our standard editions.⁵ Especially, each of the series 3–5 and 7a–8 is introduced and concluded as a single inquiry with several parts (*Somn.* 453b11–24; *Div.* 464b16–18; *Juv.* 467b10–12; *Resp.* 480b21–22). This is also how these two series were mostly treated in the later tradition. In the ancient catalogue of Aristotle's works composed, perhaps, in the fourth century CE, by an otherwise unknown Ptolemy (surnamed al-Gharīb, “the stranger,” in some Arabic sources), the treatises in the list above are entered as one book on sense perception and sense objects (presumably = 1), one book on memory and sleep (presumably = 2–5),⁶ one book on the longevity and shortness of life of animals (presumably = 6) and one book on life and death (presumably = 7a–8).⁷ Similarly, the Byzantine commentator Michael of Ephesus (early 12th cent.) seems to have conceived of treatises 2–5, 6 and 7a–8 as three separate but closely related works (*In Parva nat.* 149.8–12; cf. Wendland 1903b, v nn1–2). Indeed, each of the series 3–5 and 6–8 is practically always transmitted *en bloc* in the Greek manuscripts, and with only a couple of exceptions this is also true of the extended series 2–5.⁸ Treatises 3–5 were also invariably treated and referred to as a single work in the Latin Middle Ages. In this period, however, the other treatises were not so strongly bonded. For instance, the *De memoria* in the “old translation” (see below)

⁵For discussions of the final paragraph of the *De divinatione* and the two prefaces to the *De longitudine*, see Rashed (2004, 193–194 and 197–201). That Aristotle at some point conceived of the whole series of treatises as a continuous work is suggested by his occasional (*De part. an.* 2.10, 656a27–29; *De gen. an.* 5.2, 781a20–23) references to his work “on sense perception” for a more detailed discussion of the role of the heart as the centre of sense perception, which might possibly be to *Sens.* 2, 439a1–4 or *Somn.* 2, 455b34–456a24, but more probably to *Juv.* 3–4, 469a10–b6, although admittedly both the *De somno* passage and the *De juventute* one also refer to previous discussions. Note also the reference to a work in which things “have been determined about sense perception and sleep” at *De part. an.* 2.7, 653a19–20.

⁶Alexander of Aphrodisias, *In Meteor.* 3.36–37 and 4.4–5 also speaks of “On memory and sleep and divination in sleep” as one work.

⁷For a discussion of Ptolemy's catalogue plus an edition and German/Greek translation based on all extant witnesses (including MS Ayasofya 4833, largely neglected in earlier discussions), see Hein (1985, 388–439).

⁸On the MS tradition of the *Parva nat.*, see Siwek (1963).

was partly circulated separately and sometimes even regarded as the final section of the *De anima* (Brumberg-Chaumont 2010, 128–129). Thomas Aquinas, who used the “new translation,” on the other hand, considered the *De memoria* to be the second part of the *De sensu* (Gauthier 1985, 1*–2*). Likewise, treatise 6 in the “old translation” (confusingly entitled *De vita et morte*) was frequently detached from treatises 7a–8, which had only very limited circulation (see further below, Sect. 5).

As for the collection as a whole (1–8), all the treatises included were manifestly thought of as so many parts of a single general inquiry as early as the early third century CE, when Alexander of Aphrodisias correlated all of them except the *De insomniis* (albeit not in the standard order) with the programme of study outlined by Aristotle in the *De sensu* passage quoted above (Alexander, *In De sensu* 5.1–9; 5.28–29; 5.31–6.7; 6.16–19).⁹ In the manuscript tradition, they were mostly transmitted as a set, if not as a series. Of the fifty Greek manuscripts examined by Siwek (1963, esp. xvii–xviii), which range from the tenth to the fifteenth century, thirty contain all of the *Parva naturalia*, but only rarely in immediate sequence exactly as they are arranged in our standard editions. As a rule the *De motu animalium* (and occasionally other treatises) is inserted between treatise 5 and treatise 6. Marwan Rashed (2004, esp. 192–193) has pointed out that while two of the exceptions to this rule are apparently the private copies of learned men, and thus, he argues, susceptible to “restructuring,” the remainder are Renaissance manuscripts, supposedly executed under the influence of Western practices; he concludes that there is no support in the ancient Greek manuscript tradition for the standard order without the *De motu animalium*.¹⁰ One may object that it is not entirely clear what Western practices are supposed to have induced the fifteenth-century Greek copyists to omit the *De motu animalium*. In the so-called “corpus vetustius” of Latin translations of Aristotle’s works on natural philosophy (and sometimes including the *Metaphysics*) compiled, perhaps, in England between 1214 and c. 1230 (Burnett 1996, 36–38), *Parva naturalia* 1–6 are almost always included, but, apart from treatises 3–5, in no special order. *Parva naturalia* 7a–8, however, are not part of this corpus (cf. Burnett 1996, 47–50). The “corpus recentius,” which superseded it from the 1260s, frequently exhibits the whole collection in the standard order, after the *De anima* and before the “zoological” writings, but usually inserts, after the pattern of the Greek tradition, the *De motu animalium* between treatise 5 and 6.¹¹ — The designation *Parva naturalia* seems to have been first used by Giles of Rome (c. 1245–1316).¹²

⁹At *In De sensu* 4.8–17, Alexander announces that the activities common to all or most animals will be discussed before those peculiar to some, and seems to place the *Hist. an.* between the two discussions.

¹⁰The two learned mss are Laur. Plut. 87,20 and Par. Suppl. gr. 314. A few descendants of Par. Suppl. gr. 314 also exhibit the same order, namely Vat. Urb. gr. 37, Par. gr. 2032 and Par. gr. 1860. For their stemmatics relative to *Sens.* and *Mem.*, see Bloch (2008b, 10–16).

¹¹On the two medieval corpora, see Dod (1982, 50–52).

¹²As noted by Freudenthal (1869, 81 n1). Much earlier, however, they were collectively (albeit loosely) referred to as the “parvi libri” connected with the *De anima* (see, e.g., the texts by Richard Rufus of Cornwall and Henry of Renham quoted in Köhler 1999, 262 n34).

Assuming on this and similar evidence that there is some kind of internal unity and external demarcation to the *Parva naturalia* as a whole, what does it consist in? Do all the treatises study the same unique subject matter, or at least the same unique aspects of the same subject matter? It is clear, Aristotle says in the quoted passage, that the main attributes of animals are “common to the soul and the body.” It is sometimes put forward that such attributes are what the *Parva naturalia* set out to study and that their being common to the soul and the body is what distinguishes them from the subject matter of other treatises, notably the *De anima*. The passage from the *De anima* to the *Parva naturalia*, according to at least some proponents of this view, leads from psychology proper, with an emphasis on formal aspects (the soul is after all the form of a living organism), to “psycho-physiology,” with more attention devoted to material aspects (and an increasing ratio of physiology from treatises 1–5 to treatises 6–8). Thus the *Parva naturalia* would also serve as a preparation for the “zoological” treatises, that is, *De partibus animalium*, *De generatione animalium*, *De incessu animalium*, *De motu animalium*, and perhaps also the *Historia animalium*.¹³ Since it is unclear how an attribute can be “common” to two entities which are not substantially distinct, this view is also at the heart of the now possibly defunct hypothesis that the *Parva naturalia* represent an earlier, more dualist (or “instrumentalist”), stage in the development of Aristotle’s psychology.¹⁴

Should we, then, think of the *Parva naturalia* as Aristotle’s inquiry into such attributes as are common to the soul and the body? I have my doubts. In the sequel to the quoted passage from the *De sensu*, Aristotle proceeds to explain that the reason it is clear that all the listed attributes are common to the soul and the body is that they all occur “either together with or through sense perception” (436b3–4)—by which he apparently means that they are at least existentially dependent on sense perception—and “sense perception comes to be in the soul through the body” (436b6–7). This seems to be true of most but not all attributes in Aristotle’s first list, which belong exclusively to animals. Leaving aside sense perception itself, memory as well as spiritedness, appetite and desire in general are at least indirectly dependent on it by being essentially correlated with objects of the *phantasia* (*phantasmata*), since such objects are directly dependent on it. With pleasure (and presumably pain), however, this is not necessarily the case, since Aristotle allows that there are intellectual pleasures, which are correlated with intelligible objects, and these are not directly dependent on sense perception.¹⁵ So the invocation of sense perception

¹³A pronounced exponent of this view is Freudenthal (1869), but see already Albert the Great, *De sompno et vigilia* 1.1.1 (Borgnet 1890, 122a).

¹⁴Put forward in Ross (1955, 3–18), against Nuyens (1948, 161–170; 250–256), who argued that *Parva nat.* 7–8 belong to a transitional phase (“l’instrumentisme mécaniste”) between the Platonic dualism of Aristotle’s youth and the mature hylomorphism of *Parva nat.* 1–5 as well as the *De an. Parva nat.* 6 “est déjà très proche de cette dernière période” (1948, 170). For discussion, see Morel (2006, 2007, 71–89). See also below, p. 35. For a qualified defence of a developmental interpretation of the relationship between the *De an.* and the *Parva nat.*, see Menn (2002).

¹⁵Moreover, Aristotle denies that pleasure is itself perceptible (*Eth. Nic.* VII 12, 1153a12–15). It has been argued (Bostock 1988, esp. 269–272) that he could not have done so unless he held that pleasure is itself a kind of perception or intellection, depending on the type of pleasure. If this is

is not sufficient to prove that the main attributes of animals, enumerated in Aristotle's first list, are common to the soul and the body.

When it comes to the four pairs of opposites in the second list, what we might request is not proof of their belonging to the body as well as to the soul, but rather of their belonging to the soul as well as to the body. Again, such proof would be at hand if they could all be shown to occur "either together with or through sense perception." But this is clearly impossible. To be sure, it is in Aristotle's view unqualifiedly true that the first pair of opposites, namely, wakefulness and sleep, is (at least) existentially dependent on sense perception—although his demonstration of this comes only in the *De somno et vigilia*. As for youth, old age, life and death, however, this can hold at best only for a proper subset of those creatures to which these attributes belong, namely, again, for animals. For, as Aristotle himself has just pointed out (436b11–12), some attributes belong to all living creatures without exception, and therefore also to plants. It would seem to be as the principal among these attributes that youth, old age, life and death are adduced. But plants do not have sense perception. It is true that the remaining two opposites, inhalation and exhalation, do not belong to plants, and not even to all animals (436b12), but again, it is dubious whether they are in any way dependent on sense perception (cf. Freudenthal 1869, 82 n4).

In sum, Aristotle does not seem to do a very good job of convincing us that those attributes of animals (and plants) that are the subject matter of the *Parva naturalia* are common to the soul and the body. Admittedly, there are certain discrepancies between the lists of attributes in the first chapter of the *De sensu* and the actual contents of the rest of the *Parva naturalia*. None of the treatises in the collection deals, for instance, with the subjects of desire, pleasure and pain.¹⁶ We shall come back to desire in a moment.¹⁷ The absence, however, of a study of pleasure and pain in the *Parva naturalia* might be taken to reinforce the case for those who argue that their subject matter are attributes common to the soul and the body, since, as we have seen, not all pleasure (and presumably not all pain) is necessarily among those attributes. One may note in this connection the way that these two attributes are pre-

true, intellectual pleasure must presumably be a kind of intellection and could only be dependent on sense perception to the extent that "no intellection takes place without an image," that is, to the extent that *all* psychic activity is common to the soul and the body. Conversely, however, Aristotle does seem to accept that there can be no faculty of sense perception without the faculty of pleasure and pain (*De an.* 2.2, 413b21–24).

¹⁶Nor does any of the treatises contain any sustained discussion of the principles of medicine (with *Sens.* 463a 17–b1 cf. *Resp.* 480b21–30), although it has been suggested that Aristotle may have been referring to the *De longitudine* (Johansen 2006, 141; Sassi 2014, 266) or the *De juventute* and the *De respiratione* (van der Eijk and Hulskamp 2010, 65 with n61). Alexander of Aphrodisias (*In De sensu* 6.19–20) is of the opinion that "if [these treatises] were ever written they have not survived."

¹⁷Nussbaum (1978, 9) thinks the mention of a study of desire "probably ... refers to the *MA* treatment" (see below for the relation of the *De motu an.* to the *Parva nat.*). Van der Eijk (1994, 69 n67) also entertains this possibility. Morel (2007, 30) considers it an interesting hypothesis, "mais difficile à confirmer." Alexander of Aphrodisias (*In De sensu* 5.24–25) simply assumes that most of the attributes mentioned here have already been sufficiently dealt with in the *De anima*.

sented as a sort of addendum to the first list. Conversely, there are other attributes of animals which are undoubtedly common to the soul and the body, such as sexual activity and locomotion, which are treated, if not in the *Parva naturalia*, at least in the “zoological” works (especially *De generatione animalium* and *De incessu animalium*), without being mentioned in the first chapter of the *De sensu*.¹⁸

Aristotle says on one occasion in the *De anima* (3.10, 433b19–21) that the instrument by which desire moves the animal should be studied “in connection with the functions common to body and soul.” Since no such study is carried out in the *Parva naturalia*, it has been thought that he must have in mind one of the “zoological” works, most likely the *De motu animalium*.¹⁹ But if the functions common to body and soul are specifically studied in the *Parva naturalia*, this raises the question whether the *De motu animalium* (and perhaps other “zoological” works) may originally have belonged to this collection.²⁰ In the Greek manuscripts, as we have seen, this work almost invariably follows *Parva nat.* 2–5. In some of them the *De divinatione* ends with the announcement of the *De motu animalium* (464b18a, marked as an interpolation by Ross but retained by Siwek). Michael of Ephesus was also of the opinion that the natural position of the *De motu animalium* is after treatise 5 (and before treatise 6), since, as he said, impulse and desire, which are causes of animal movement, follow *phantasia*, a prominent theme in treatises 2–5 (*In De an. mot.* 103.2–14; cf. 129.4–5).²¹ His opinion, if not his stated reason for it, was shared by

¹⁸Cf. the similar list of attributes common to “many different kinds” of animal in *Part. an.* 1.1, 639a19–22, which includes “sleep, inhalation, growth, decay, death and besides these all those remaining affections and conditions that are of such a kind.” I am grateful to Pavel Gregoric for drawing my attention to this passage.

¹⁹There is a detailed comparison between the following “summary” (*De an.* 3.10, 433b21–30) and the contents of the *De motu an.* in Nussbaum (1978, 9).

²⁰See Nussbaum (1978, 9–10 and n27); van der Eijk (1994, 69–70 n67); Rashed (2004); Johansen (2006, 141 n4); Morel (2007, 26–31).

²¹*Pace* Barthélemy Saint-Hilaire (1847, 237). It is not so clear where Michael thought the remaining “zoological” works, on which he also commented, belonged. He insists—on good Aristotelian authority (cf. *De part. an.* 4.14, 697b27–30; *De gen. an.* 715a1–18)—that the *De gen. an.* “is naturally continuous with” the *De part. an.*, so much so that it forms its second part ([Philoponus], *In De gen. an.*, 1.3–3.11, esp. 3.5–10). He makes no other express statement on the position of the *De part. an.*, *De gen. an.* and *De inc. an.* relative to each other or to the rest of the works, and the use of tenses in cross-references in his commentaries on these works is not consistent, except that *Parva nat.* 2–5 are always referred to in a historical (or the perfect) tense and *Parva nat.* 6–8 are always referred to in the future tense. This might seem to speak in favour of a position immediately after the *De mot. an.* for the *De part. an.*, *De gen. an.* and *De inc. an.* Unfortunately, however, the commentary on the *De somno* refers back to both *De gen. an.* and *De part. an.* (and both back and forward to the *De motu an.*). The manuscripts of Michael’s commentaries are of little help, since they exhibit a variety of different selections and sequences. Perhaps, then, the order in which this whole series of commentaries is enumerated at the end of *In Parva nat.* (149.8–12) should be taken to reflect Michael’s opinion of the natural order of the relevant Aristotelian works (and not only the order in which the commentaries happened to be composed, as Wendland argued [1903b, v]), with the one adjustment that the *De gen. an.*, which is mentioned immediately after (Wendland on the basis of Vat. gr. 2199) or before (all other MSS) the *De motu an.*, should be adjoined to the *De part. an.* The resulting sequence would be: *De part. an.*, *De gen. an.*, *De inc. an.*, [*De an.*, *De sens.*,] *Parva nat.* 2–5, *De motu an.*, *Parva nat.* 6–8. Aristotle’s authorization (*De inc. an.* 19, 714b22–23)

several Latin medieval commentators from the mid-thirteenth century onwards (see De Leemans 2010). And, as we have already seen, it corresponds to the order usually followed in the “corpus recentius.”²²

So the fact that Aristotle seems to locate his study of the functions common to body and soul to the *De motu animalium* rather than to the *Parva naturalia* as we know them is in itself no obstacle to thinking that this study belongs to the *Parva naturalia*. And it may of course well be the case that the *Parva naturalia* study attributes that are in fact common to the soul and the body, even if Aristotle’s argument falls conspicuously short of proving that they are. But it seems reasonable to take the perfunctoriness of Aristotle’s argument as an indication that, even if these attributes are in fact common to the soul and the body, it is not *because* they are common to the soul and the body that they are studied in the *Parva naturalia*.

An even stronger indication to the same effect is provided by the following consideration. One problematic feature of the view that Aristotle in the *Parva naturalia* turns his attention to attributes that are common to the soul and the body is that it seems to presuppose that Aristotle in the *De anima* focuses on attributes that are not common to the soul and the body, but rather peculiar to the soul. But he does not. Firstly, because he does not deal (at least not in a programmatic fashion) with *attributes* of the soul in the *De anima*. He deals, as he says in the first lines of the *De sensu* (436a1–2), “with the soul as such and with each of its faculties.” Secondly, because he also does not deal (at least not in a programmatic fashion) with any psychic *faculty* not connected to a body there. The reason for this is that the *De anima*

for placing *De an.* after the *De inc. an.* is duly noted by Michael (*In De inc. an.* 170.33–34). Morel’s statement (2007, 28–29) that “l’ordre de ce dernier [sc. Michael’s commentary on the *Parva nat.*] est originairement le suivant: *De Mem.*, *De Som.*, *De Ins.*, *De Div.*, *MA.*, *De Long.*, *De Juv.*, *De Vit.*, *De Resp.*, *IA*” seems only to reproduce the order of the Aldine edition (1527) as cited by Preus (1981, 67). It should be noted that the order in which these treatises were paraphrased by George Pachymeres (see below), who certainly used Michael’s commentaries, is the following: *De part. an.*, *De inc. an.*, *De an.*, *Parva nat.* 1–5, *De motu an.*, *Parva nat.* 6–8, *De gen. an.* (Pappa 2008, 8*–10*). Of course, this is also very close to the order suggested by the brief recapitulation at the end of the *De motu an.* (11, 704a3–b3: *De part. an.*, *De an.*, *Sens.*, *Somm.*, *Mem.*, *De motu an.*, *De gen. an.*), which may be a later addition to the text (so Nussbaum 1978, 10). Compare the famous note prefixed to William of Moerbeke’s translation of the *De part. an.*, in which the following order is proposed: *De part. an.*, *De inc. an.*, *De an.*, *Parva nat.* 1–5, *De motu an.*, *De gen. an.*, *De alimento et augmento animalium*, *De operationibus et passionibus et moribus animalium*, *Parva nat.* 6–8, *De sanitate et egritudine*. Brams (1992, 549–551) argued forcefully in favour of the hypothesis that the note is a translation of a Greek scholion.

²²Rashed (2004) makes a pretty persuasive case (although he fails to engage with David Balme’s arguments in favour of a late relative date for the *Hist. an.*, for which see Lennox 1996) for thinking that Aristotle’s corpus of biological treatises developed in four steps, at first comprising only *Hist. an.*, *De part. an.* 2–4 and *De gen. an.*, subsequently to be expanded by the insertion of *De inc. an.* and *De an.* between *De part. an.* 4 and *De gen. an.* as well as the prefixation of *De part. an.* 1 to the whole corpus. In a third step, *Parva nat.* 1–8 were added after *De an.* and the lost *De plantis* after *De gen. an.*, and finally the *De motu an.* was inserted after *Parva nat.* 5 at the same time as *Parva nat.* 6–8 were relocated to the end of the corpus. On this view, Aristotle’s own final—hylo-morphist—recension of the biological corpus would contain the following works in the following order: *De part. an.* 1, *Hist. an.*, *De part. an.* 2–4, *De inc. an.*, *De an.*, *Parva nat.* 1–5, *De motu an.*, *De gen. an.*, *De plantis*, *Parva nat.* 6–8.

is a work on natural philosophy, and for the purposes of natural philosophy the soul is defined as the form, or actuality, of a living organism. Consequently any psychic activity or passivity, in so far as it falls within the domain of natural philosophy, necessarily involves a living organism. It may reasonably be objected that there is an exception, namely intellectual thought (τὸ νοεῖν, νόησις), which Aristotle does believe is unconnected to any bodily organ (*De an.* 3.4, 429a22–27). But if it is true, as Aristotle seems to think it is, that all intellectual thought in humans involves *phantasmata* (which are dependent on sense perception), then even the faculty of thought (νοῦς) in humans is inextricably bound up with the body (see *De an.* 1.1, 403a3–b19; 3.7, 431a14–17; 3.8, 432a3–10; *Mem.* 1, 449b30–450a9).

“The soul as such” is only conceptually separate from the body, in the sense that the psychic activities can be placed within brackets in a discussion of the faculties that enable them. But the activities themselves are always common to the soul and the body. That the *De anima* studies “the soul as such” only means that it studies *in abstracto* the faculties (or “parts”) which enable those activities (and affections) that constitute the subject matter of the *Parva naturalia* (as well as of most of the “zoological” treatises). It is true that these faculties “enable” the activities and affections of living organisms in more than one way: they are their efficient as well as formal and final causes (*De an.* 2.4, 415b8–27). On the other hand, the faculties cannot be actualized without bodily organs. What is more, even an abstract study of the faculties of the soul must to some extent involve preliminary investigations into the activities of the soul, for the faculties can only be distinguished by reference to the activities (activities are prior in definition), and thus “the attributes contribute a great deal to the knowledge of the essence” (*De an.* 1.1, 402b21–22). As far as natural philosophy is concerned, these activities are common to the soul and the body. If there are any activities that are peculiar to the soul, the study of these belongs to a different science altogether. Strictly speaking, it does not even fall within the scope of the *De anima* to discuss whatever faculties might enable such activities. Indeed, Aristotle is notoriously vague, in the *De anima*, about whether such a faculty even exists or not. The upshot is that the *Parva naturalia* do not study the attributes they study because these are common to the soul and the body (although they are), but because they are attributes of the soul.

One must go to the first paragraph of the *De anima* to see the significance of the remark, in the *De sensu*, about common attributes (402a7–10):

Our aim is to grasp and recognize its [sc. the soul’s] nature and essence, and after that all the attributes it has, some of which are considered to be affections peculiar to the soul and some, on the other hand, to belong also to the animals on account of the soul.

This syllabus *in nuce* mentions the subject matter both of the *De anima*—nature and essence of the soul—and the *Parva naturalia*—attributes of the soul.²³ What comes

²³ It is instructive to compare the questions proposed for discussion in the introduction to Alexander of Aphrodisias’ *De anima*, which, as Caston points out (2012, 71 n3), “are modelled on those with which Arist. begins his *DA*”: “The task I have set myself is to say, concerning the [kind of] soul that belongs to a body subjected to generation and destruction, what its essence is as well as which and how many its faculties are and what their difference is vis-à-vis one another” (1.1–3). Alexander’s

next is the received opinion—the *endoxon*—about these attributes: some are peculiar to the soul, others belong to the animal as a whole. In the first chapter of the *De sensu*, following upon the study of the soul's nature and essence in the *De anima*, Aristotle is in a position to correct this *endoxon*: it is now clear that the attributes of the soul are—at least so far as natural philosophy is concerned—common to the soul and the body. These attributes—the soul's activities and affections—are the subject matter of the following inquiry, which will inevitably spend a great deal of time investigating the corporeal conditions for their occurrence (their material causes).

This being said, it must be conceded that Aristotle's treatment of the attributes of the soul is not particularly systematic. This has probably contributed to the popularity of another view, namely, that the *Parva naturalia* consist of a series of appendices to the *De anima*.²⁴ Thus *De sensu* 2–5 has been thought to fill in the blanks of *De anima* 2.6–11 with discussions of the objects and organs of sight, taste and smell—although touch and hearing are virtually passed over in silence²⁵—whereas the *De memoria* and the treatises on sleep and dreams could be taken to supplement the accounts of the common sense and *phantasia* in *De anima* 3.2–3—although many aspects of these psychic faculties remain obscure (for an attempt at a systematic account of Aristotle's theory of the common sense, see GIUSEPPE FEOLA's contribution to this volume, Chap. 2). Again, if Aristotle's focus in the *Parva naturalia* is on psychic activities and affections, this explains why he does not proceed faculty by faculty, as in the *De anima*, but it cannot, of course, excuse the omission of important psychic activities.

In sum, there is admittedly little to gain by reducing the *De anima* to a propaedeutics to the *Parva naturalia* and the treatises that we call “zoological.” Form, after all, has a much stronger claim, in Aristotle's view, to be the primary substance than the compound of form and matter does. But there is certainly plenty to lose by embracing the opposite extreme and writing off the *Parva naturalia* as a mere appendix to the *De anima*.²⁶

failure, also noted by Caston (*ibid.*), to mention the attributes of the soul can be easily accounted for by his different agenda: he is only interested in expounding Aristotle's doctrines of soul as they are presented in the *De anima* (cf. 2.4–9). The inquiries pursued in the *Parva naturalia* are not part of this project.

²⁴This view dates back at least to Barthélemy Saint-Hilaire (1847, i).

²⁵Cf. *Sens.* 4, 440b27–28, marked as an interpolation in Ross' edition: “About sound and voice we have spoken earlier, in the *De anima*” It has been suggested, not implausibly, by Burnyeat (2004), that parts of the discussions of sound and tangible objects in *De an.* 2.8 and 2.11 were originally contained in the *De sensu*.

²⁶I should perhaps emphasize that even if it is correct, as I have suggested, that the subject matter of the *Parva naturalia* is not just a proper subset of psychic activities, namely those that also involve a body, but any kind of psychic activity that falls within the domain of natural philosophy (which all necessarily involve a body), it does not follow that Aristotle denies the possibility of any psychic activity exercised in separation from a living organism, for there may be a kind of soul that does not belong to nature (as affirmed in *De part. an.* 1.1, 641a32–b10). Still, no inquiry by Aristotle into this kind of psychic activity has been handed down and none is mentioned in the ancient lists of his works.

The debate over the subject matter of the *De anima*, the *Parva naturalia* and Aristotle's "zoological" works was simmering throughout Antiquity and the Middle Ages, occasionally reaching boiling point, most notably, perhaps, in the late thirteenth century (see de Boer 2013, 71–91). The view I have outlined above is not, I think, at fundamental variance with that in Alexander of Aphrodisias' commentary on the *De sensu et sensibilibus* (early third cent.), even though Alexander tends to say that the *Parva naturalia* are concerned with the activities of ensouled creatures rather than with those of the soul (*In De sensu* 3.4–6; 4.8–14; 5.1–3).²⁷ At *De sensu* 1, 436a2–4, Aristotle says, in literal translation, that "the next thing is to investigate, concerning animals and all things that possess life, which of their actions are peculiar and which are common."²⁸ In the light of what has been argued above the natural way of interpreting this would be that Aristotle announces a passage, within the framework of biology (and more generally of natural philosophy), from the study of the soul's essence to the study of its attributes. Alexander, however, is eager to stress that the new inquiry launched by Aristotle is one about animals (as well as other ensouled creatures), apparently in response to some unnamed opponents who denied that *Parva naturalia* 1–5 belonged to the study of animals (*In De sensu* 5.1–19). To this end, he repeatedly paraphrases Aristotle—by separating the governing clause of the sentence in which Aristotle declares his intention from the indirect question it governs—as saying "the study that follows that of the soul is that of animals and all ensouled creatures as well as of their activities, both those that are common and those that are peculiar to each species of them" (*In De sensu* 2.7–10; cf. 3.3–6; 3.17–20; 4.8–9; 5.3–4).²⁹ This obviously indicates that Alexander thought there are close links between the *Parva naturalia* and the "zoological" works. But it does not mean that he takes the subject matter of the *Parva naturalia* to be something else than the activities of the soul. On the contrary: what Aristotle is doing, according to Alexander, when he says that the activities of animals and other ensouled creatures are practically all common to the soul and the body, is providing an explanation as to why it is reasonable for someone discussing the activities of the soul to discuss the activities of animals and other ensouled creatures (*In De sensu* 2.11–15). The implication seems to be that on Alexander's view the *Parva naturalia* continue that part of the study of natural philosophy which deals with soul by turning from the essential properties of the souls of animals and plants, that is to say, their faculties, which have already been dealt with in the *De anima*, to their attributes, that is to say, their activities and affections.

²⁷ Alexander's commentary was edited by Wendland (1901). English translation in Towey (2000).

²⁸ ... ἐχόμενον ἐστὶ ποιήσασθαι τὴν ἐπίσκεψιν περὶ τῶν ζώων καὶ τῶν ζωῶν ἐχόντων ἅπαντων, τίνες εἰσὶν ἴδια καὶ τίνες κοινὰ πράξεις αὐτῶν.

²⁹ In this, English translators of Aristotle have followed Alexander. Ross (1906): "the next thing to do is to consider animals and all things possessed of life and to discover which activities are specific and which they have in common." Hett (1935): "our next task is to consider animals and all things possessed of life, and to discover what are their peculiar and what are their common activities." Beare and Barnes (1984): "we must next make a survey of animals and all living things, in order to ascertain what functions are peculiar, and what functions are common, to them."

3 Reception in Late Antiquity and Byzantium³⁰

Aristotelian philosophy in general, and natural philosophy in particular, suffered relative neglect in the Hellenistic era. Some minor works in the *corpus aristotelicum* that develop aspects of the study of the attributes of the soul (mainly physiological and physical ones) derive from the earlier part of this period, namely *De spiritu*, *De coloribus*, *De audibilibus* and some of the *Problemata*.³¹ Traces of Aristotle's theories of sleep and dreams in these and other Hellenistic works are uncovered in van der Eijk and Hulskamp (2010, 54–61). More remarkably, the *Parva naturalia* do not seem to have been on the syllabus of any philosophy schools in Late Antiquity either, this time in stark contrast to other Aristotelian works on natural philosophy.³² Apart from Alexander of Aphrodisias' extant commentary on the *De sensu* (see above), highlighted in KATERINA IERODIAKONOU's and PAVEL GREGORIC's contributions to this volume (chs 4 and 5), and Aspasius' lost commentary on the same work (referred to by Alexander, *In De sensu* 10.1–2),³³ there is no evidence that any ancient commentary was ever written on any of the treatises included in the collection.³⁴ In fact, with one notable exception, of which I will soon say more, they are only very sporadically referenced in the rather substantial philosophical literature surviving from the period dominated by the Neoplatonic schools of Rome, Alexandria and Athens (ca 250–600).³⁵ The situation is similar with the “zoologi-

³⁰For a general overview of the history of reception and influence of the *Parva naturalia* in antiquity, see Morel (2003).

³¹On the *De spiritu* and the *Problemata* as well as a few other Hellenistic works, see Sharples (2006). On the *De spiritu*, see also the translation with introduction and commentary by Bos and Ferwerda (2008), who are inclined to accept it as a genuine work by Aristotle, and, most recently, Gregoric and Lewis (2015), who present a raft of terminological as well as doctrinal evidence against its Aristotelian authorship, and Lewis and Gregoric (2015), who suggest a date in the early third century BCE. On the *De coloribus* and the *De audibilibus*, which deal mainly with the physical substrata of the relevant sense objects, see Gottschalk (1964, 1968); Papari (2013).

³²A useful discussion is found in Hadot (1990, 85–90), although, as noted below, I disagree with her about the status of the *De anima* according to Olympiodorus.

³³Alexander also once refers to previous commentators on the *De sensu* in the plural (*In De sensu* 82.16–17), but this need not be taken to imply that there were more than the one by Aspasius (cf. Moraux 1984, 244–246).

³⁴The paraphrases edited by Wendland in CAG 5.6 and alternately ascribed to Themistius and Sophonias (fl. c. 1285) in the manuscript tradition are now universally held to be the work of the latter author (although Morel 2003, 369 and Di Martino 2003, 377 mistakenly attribute them to Themistius). When Alexander refers, at *De anima* 69.19–20, to “another work” in which the distinction between memory and recollection has already been made, he might have in mind a commentary by himself on the *De memoria et reminiscentia*; and if so, he might have written commentaries on all of the *Parva naturalia* (thus Todd 1976, 15 n71), but there is no other evidence to corroborate this tenuous inference.

³⁵For examples of the use of the *Parva naturalia* in the late antique exegesis of the *De anima*, see van der Eijk and Hulskamp (2010, esp. 61–65: some references in other late antique commentaries on Aristotle are briefly discussed *ibid.* 50; for the passage in Ps.-Simplicius, *In De an.* 291.22–41, cf. also Steel's notes [Steel and Ritups 2013, 179 nn346–347]). For Porphyry's (*fr.* 255F) and Plotinus' (*Enn.* 4.3.25–32 and 4.6.3) responses to the *De memoria*, see King (2010).

cal” works.³⁶ The *De anima*, in contrast, was assiduously studied: witness the four commentaries that have been wholly or partly preserved from the period between the fourth and sixth centuries (Themistius, Philoponus, Ps.-Simplicius, Ps.-Philoponus).

A clue to the reason for this situation is offered by a comparison of the three ancient commentators on the *Meteorology* whose works have survived: Alexander of Aphrodisias (early third cent.), John Philoponus (commentary on book 1 only, dated c. 530–35) and Olympiodorus (commentary dated a few years after 565). In the first chapter of the *Meteorology*, Aristotle suggests that his whole course of natural philosophy will be “practically” brought to completion once the *Physics*, the *De caelo*, the *De generatione et corruptione* and the study in hand have been followed by accounts, “in accordance with the method that guides us, of animals and plants, in general and separately” (1.1, 339a6–8). Alexander (*In Meteor.* 3.32–4.11) understands this as a reference to the whole series of works including the *De anima*, the *Parva naturalia* and the “zoological” treatises: some of these are “general” in the sense of dealing with all kinds of animals and some treat specifically with one kind of animal, namely human beings.³⁷ Philoponus (*In Meteor.* 9.12–18) follows Alexander in all this,³⁸ except that he mentions the “zoological” treatises before the *De anima* rather than after the *Parva naturalia* (and furthermore disagrees with Alexander’s interpretation of the phrase “the method that guides us,” τὸν ὑφ’ ἡμῶν τρόπον).³⁹ However, the fact that Alexander mentions the “zoological” treatises last is hardly of any significance, since he ends the commentary by proposing that the next work in order is the *De partibus animalium* (*In Meteor.* 227.18–22).⁴⁰

Olympiodorus (*In Meteor.* 3.34–4.15; cf. 14.8–20) takes a different approach. He distinguishes between, on the one hand, works on the souls of plants and (non-

³⁶The commentary on the *De gen. an.* edited by Hayduck in *CAG* 14.3 and ascribed to John Philoponus in the first printed edition (Venice, 1526) is really the work of Michael of Ephesus (see Hayduck 1903, iii–iv).

³⁷A list of “all” Aristotelian “works on animals” in the 13th-century MS Hierosol. Patr. 106 (ed. Wendland 1901, xix) enumerates *De part. an.*, *De inc. an.*, *De gen. an.*, *Long.*, *Juv.*, *Vit.*, *Mem.*, *Somn.*, *Div.*, *De motu an.* (so includes neither the *De anima* nor the *De sensu*, but all the other *Parva nat.*, assuming that the *Insomn.* is counted as part of the *Somn.*).

³⁸In his *Physics* commentary (2.6–12), Philoponus explains, instead, that of those works that contribute to the study of animals, some focus on animals as wholes (*Hist. an.*) and some on certain parts (*De part. an.*, *De motu an.*, *De somno*, *De vita* and further the *De anima*).

³⁹According to Alexander it is the same method as in the preceding works, that is, one which combines an empirical inquiry into the facts with a demonstrative account of the causes of these facts. Philoponus (*In Meteor.* 9.3–12) prefers to think that Aristotle is referring to the “moderate and philosophical method” applied in the *Meteorology* for things “to some of which we have found no answer, whereas we have some kind of grasp of others” (*Meteor.* 1.1, 339a2–3). Olympiodorus, on the other hand (*In Meteor.* 14.8–15), takes Aristotle simply to say in a somewhat redundant fashion that his discussion will be both general and specific.

⁴⁰Philoponus (*In De an.* 10.11–12), on the other hand, thinks that the *De part. an.* (or perhaps only its first book) immediately precedes the *De an.* Alexander’s and Philoponus’ views are of course both perfectly compatible with the sequence suggested at *De motu an.* 11, 704a3–b3 (see n21 above).

human) animals and, on the other, the *De anima*. The former include (at least some of) the “zoological” works and the *Parva naturalia*; these are what remains, after the *Meteorology*, of Aristotle’s course of natural philosophy. The *De anima*, on the other hand, is not primarily a work on natural philosophy but on “theology.” The classification of the *De anima* within the framework of Aristotle’s division of scientific knowledge was a problem that exercised the Neoplatonists (see Blumenthal 1996, 73–89), if not, perhaps, to the extent that it was later to exercise the medieval and Renaissance schoolmen. In *De partibus animalium* 1.1 (641a32–b10), Aristotle had explained that it cannot fall within the purview of natural philosophy to study all soul, lest it fall within its purview to study everything, since on the one hand sense perception and perceptible objects and on the other hand intellect and intelligible objects are correlatives, and the study of correlatives belongs to one and the same science (and everything is either perceptible or intelligible).⁴¹ Ps.-Simplicius (*In De an.* 2.2–4.11) quotes this passage in full and infers from the fact that intellect is discussed in the *De anima* that the latter study, in conformity with its subject matter, straddles the divide between natural philosophy and theology. In the same spirit, Olympiodorus compares the *De anima* to an amphibious animal (*In Meteor.* 4.5–6). But whereas Ps.-Simplicius thinks it is mainly to do with natural philosophy, Olympiodorus, as noted, ascribes to it a predominantly theological purpose. This purpose, however, he says (*In Meteor.* 3.34–4.15), does not preclude Aristotle from also discussing natural philosophy in it (any more than he was precluded from discussing theology in the eighth book of the *Physics*),⁴² which is why Aristotle says that the course of natural philosophy will be only “practically” finished after the accounts of animals and plants.⁴³ So, too, Philoponus, in his *De anima* commentary, construes Aristotle’s express statement that “it is the natural philosopher’s task to study the soul, either all soul or the above described” (403a27–28) to mean that it is the natural philosopher’s task to discuss the kind of soul that is “not without matter,” but the first philosopher’s to discuss “immaterial and intellectual souls”: the words “all soul” have been added since “the consummate natural philosopher elevates himself also to the transcendent causes of natural things” (*In De an.* 55.8–20). Accordingly, when Aristotle says, in the first lines of the *De anima*, that “knowledge (ἡ γνῶσις) of the soul is held to contribute to all truth but especially to nature”

⁴¹This passage was to have considerable impact on the Renaissance debate over the nature of Aristotelian psychology: see Bakker (2007).

⁴²The last point is also made by Philoponus, *In De an.* 20.31–21.6 (cf. 55.14–17; 261.32–35), “for having set out the natural causes the consummate natural philosopher must also rise to the transcendent ones.”

⁴³Olympiodorus expressly says that the whole course comprises six inquiries. The *Meteorology* itself is the fourth in order (*In Meteor.* 4.1–5). Hadot (1990, 86 n108a) is probably right in omitting, with the best MS, τούτέστι in line 4.4, but this does not mean that Olympiodorus says that the *Meteorology* precedes the study of the soul as well as those of plants and animals. Rather, τῶν περὶ ψυχῆς (ibid.) should be taken as the partitive genitive with τῆς Περι φυτῶν καὶ τῆς Περι ζώων. As Olympiodorus’ editor Stüve noted (cf. his apparatus ad loc.), τὰ περὶ ψυχῆς must have a more general sense here, corresponding to ὅσαι περὶ ἐμψύχων αὐτῶ εἰσι γεγραμμένα at 1.12–13. ἡ Περι ψυχῆς [sc. πραγμатеῖα] (4.5; 4.7; 4.11; 4.12) is the *De anima*.

(402a4–6), Philoponus explains that this is because the soul is already an object of theology and ethics and its study therefore cannot properly be said to *contribute* (συμβάλλεσθαι) to these sciences as it does to natural philosophy (*In De an.* 24.33–25.30).

For the Neoplatonists, then, the *De anima* is a transitional work. It represents the beginning of the ascent from the study of the natural world to that of the divine realm. To say that it would have been awkward for them to continue their natural philosophy courses by expatiating on the attributes of animals and plants rather than proceed to mathematics and metaphysics is probably an understatement. In so far as they wished to lecture on zoology and botany they would have had to do so before the *De anima*. But the *Parva naturalia*, as we have seen, presuppose the *De anima*. Easier, then, perhaps, to dispense with them altogether.⁴⁴

I mentioned that there is a notable exception to the general lack of attention paid to the *Parva naturalia* in this period. This is provided by Priscian of Lydia's *Solutiones ad Chosroem*, a series of replies to questions on natural philosophy supposedly asked by the Sassanian Emperor (who would have had the opportunity during the Athenian Neoplatonists' sojourn at Ctesiphon in 531–532).⁴⁵ For his discussion of the nature of sleep and dreams in chapters 2–3 of this work, Priscian makes liberal use of *Parva naturalia* 3–5 (and probably also draws on a lost work on sleep by Theophrastus). The *Solutiones ad Chosroem* survive only in a Latin translation, done, according to some, in the sixth or seventh century, but according to others, and I think more plausibly, in the milieu around John Scotus Eriugena (c. 800–c. 877).⁴⁶ Their influence on early medieval philosophy seems negligible, but a number of excerpts, including some from chapters 2–3, are found in the *Speculum maius*, a widely used encyclopedia compiled by Vincent of Beauvais (final version c. 1258).⁴⁷

The first proper commentaries on most of the *Parva naturalia* and the “zoological” treatises were written only in the early twelfth century, when—apparently at the behest of the princess and historian Anna Komnene—various gaps in the Greek secondary literature on Aristotle were filled, in this case as in several others by

⁴⁴For a slightly different interpretation of the material discussed in the last three paragraphs, see TRIZIO's contribution to this volume (ch. 9).

⁴⁵The *Solutiones* were edited by Bywater in *Supplementum aristotelicum* 1.2 (Berlin, 1886). They are briefly discussed and summarized in De Haas (2010). An annotated English translation is now available in Huby & al. (2016). On the exile of the Neoplatonists and its background, see Cameron (2016, 205–246).

⁴⁶The work is preserved in two Carolingian manuscripts, both in the Bibliothèque nationale de France: lat. 13386 and lat. 2684. On these and for arguments in favour of the later date of translation, see d'Alverny (1977).

⁴⁷*Speculum naturale* 26 (*De somno et vigilia*), chs 8, 10, 32 and 63, consist wholly or partly of passages from Priscian's *Solutiones*; otherwise the book is almost exclusively based on Albert the Great's *De homine* and John of La Rochelle's *Summa de anima*. There are other excerpts from *Solutiones* 2–3 in *Speculum naturale* 23, ch. 68 and *Speculum doctrinale* 17, ch. 177. On Vincent's treatment of sleep and dreams and its sources, see Kruger (1992, 99–115). On the *fortuna* of Priscian's *Solutiones* in general, see Schmitt (1976); on that of chaps 2–3 in particular, see Ricklin (1998, 86–100).

Michael of Ephesus. The only work in the collection not to be attended to by Michael was the *De sensu*, obviously because Alexander's commentary was still available. MICHELE TRIZIO's contribution to the present volume (ch. 9) examines the sources quarried by Michael and other Middle Byzantine authors in the absence of ancient precedents, while PÉTER LAUTNER takes a closer look at Michael's understanding of the common sense (ch. 3).

Michael's commentaries may not have left a very significant mark on the Arabic and Latin philosophical traditions within the chronological scope of this volume: they were not translated into Latin until the mid-sixteenth century,⁴⁸ although Anthony Preus has argued (1981, 14–21), on the basis of interpretative similarities, that material from Michael's commentaries may have reached Albert the Great and others by way of William of Moerbeke's translations of the *Parva naturalia* (see below, Sec. 5). What is clear is, as Preus also pointed out (1981, 22), that Niccolò Leonico Tomeo (1456–1531), despite professing to rely more on his own ingenuity than on previous commentators, drew heavily on Michael for his influential commentaries on the whole *Parva naturalia* (first printed in Venice 1523) as well as the *De motu animalium* and *De incessu animalium*, even before the Latin translations appeared.⁴⁹ Tomeo's commentary on the *De memoria* is briefly discussed by ROBERTO LO PRESTI in the concluding chapter of this volume. Moreover, the influence of Michael's commentaries on the later Byzantine tradition is pervasive. The four Greek paraphrases of the *Parva naturalia* that saw the light of day in the period from the late thirteenth to the mid-fifteenth century are all highly derivative, directly or indirectly, of Alexander's and Michael's works. These are by Sophonias (fl. c. 1296);⁵⁰ George Pachymeres (1242–c. 1310);⁵¹ Theodore Metochites (1270–1332);⁵² and George Scholarios (1400–c. 1473).⁵³

⁴⁸The commentaries on *Parva nat.* 7, 6 and 5 were translated by Conrad Gesner (ed. Basel: Bartholomaeus Westheimer, 1541: on this book, see <<http://www.ub.unibas.ch/cmsdata/spezialkataloge/gg/higg0133.html>>); those on *Parva nat.* 2–6, 7b, 7a and 8, as well as Michael's commentaries on the *De motu an.* and *De inc. an.*, were translated by Evangelista Lungus Asulanus (ed. Venice: Girolamo Scoto, 1552).

⁴⁹On Tomeo's commentaries, especially the unfinished one on the *De partibus animalium*, see also Perfetti (2000, 65–83).

⁵⁰Sophonias' paraphrase (= Ps.-Themistius) covers *Parva nat.* 2–5. Edition in Wendland (1903a).

⁵¹Pachymeres' "hybrid paraphrase," which covers *Parva nat.* 1–5, *De mot. an.*, *Parva nat.* 6–8 (see above n21) makes up book 8 of a compendium entitled *Philosophia*. This part of the *Philosophia* is still unedited except for the section on the *De divinatione* in JOHN DEMETRACOPOULOS' contribution to the present volume (ch. 12, 302–307).

⁵²Metochites' paraphrase covers *Parva nat.* 1–8, but not in the standard order. Printed editions are available for the part on the *De somno*, by Drossaart Lulofs (1943), for the part on the *De memoria*, by Bloch (2005), and for the part on the *De divinatione*, by DEMETRACOPOULOS in this volume (ch. 12, 292–297). The *editio princeps* of Metochites' paraphrase of the *De anima* is being prepared for publication in the series *Commentaria in Aristotelem Graeca et Byzantina* (BBAW, De Gruyter) by myself.

⁵³Scholarios' work is mainly an epitome of Metochites' paraphrases. Full (but unreliable) edition in Jugie & al. (1936). The part on the *De divinatione* has been reedited by DEMETRACOPOULOS for this volume (ch. 12, 298–302).

As is shown by JOHN DEMETRACOPOULOS in his contribution to the present volume (ch. 12), one issue concerning which neither Pachymeres nor Scholarios were satisfied with either Aristotle's discussion or Michael's comments was that of divination by means of divine inspiration. They both saw fit to correct Aristotle in a supplementary note to their respective paraphrases: it is noteworthy that neither tried to father his own view on the Philosopher (Scholarios being, however, prepared to excuse Aristotle's mistakes, seeing that the truth had not yet been fully revealed in his times). Scholarios was aided in his mission to set things right by his knowledge of Thomas Aquinas and also, DEMETRACOPOULOS argues, of Albert the Great.

4 Arabic and Hebrew Reception⁵⁴

As amply demonstrated by ROTRAUD HANSBERGER's, OLGA LIZZINI's and EMMA GANNAGÉ's contributions to the present volume (chs 6–8), the late Byzantine interest in divination was shared with the Arabic reception of the *Parva naturalia* from its very earliest stages onwards. Aristotle's argument against the possibility of God-sent dreams lacks traction in both the Byzantine and the Islamic worlds for the very same reason: far from considering it an absurdity that God should send veridical dreams to anybody but the wisest, Christians and Muslims alike were prone to agree with George Pachymeres that "it is no wonder if [the dreamers] are ordinary people, for the less they participate in human wisdom, the more they are shaped by the divine" (quoted from DEMETRACOPOULOS, ch. 12, 305). Conversely, as LIZZINI writes (ch. 8, 150): "the reason why revelation and veridical dreams can come to ordinary people is, in the Arabic-Islamic tradition to which Avicenna belongs, precisely that they are sent by God."

This interest looms especially large in the *Kitāb al-Ḥiss wa-l-maḥsūs* ("Book on sense perception and the perceived"), an early-to-mid-ninth-century adaptation of *Parva naturalia* 1–6, which purports to be a translation of Aristotle's works, but "is, in fact, characterised far more by Neoplatonic and Galenic than by Aristotelian ideas" (Hansberger 2010, 143). Various features (*inter alia*, excerpts from the Arabic translation of Plotinus, *Enn.* 4.6) point to a provenance in the circle of scholars around Al-Kindī (800–870) (Hansberger 2010, 150). Before the discovery, in 1985, of a seventeenth-century witness to most of the original text in the Rampur Raza Library, the work was exclusively known through Averroes' epitome (see below) and a few extracts in other authors.⁵⁵ Despite its many obscurities, it does seem to tend strongly towards a separation of memory from sense perception à la Plotinus, and in its encephalocentrism as well as in many of the details concerning

⁵⁴ For an overview of the Arabic reception of the *Parva nat.*, see Di Martino (2003).

⁵⁵ Before Pines (1974), it was not even fully understood that Averroes' paraphrase was based on an adaptation (or, as Pines put it, a different recension) of Aristotle's text. The Rampur codex was discovered by Hans Daiber. A full critical edition is being prepared by Rotraud Hansberger.

the location of soul faculties in the brain it is clearly indebted to Greek medical literature. But it also introduces concepts and ideas with no equivalents in the Greek tradition, such as the protean *ma'nā*—glossed by HANSBERGER in the present context as “cognitive content”—later to be redeveloped by Avicenna and translated in the Latin Middle Ages as *intentio*.

In the years after the discovery of the Rampur codex, it has become increasingly clear how significant the later influence of the *Kitāb al-Ḥiss wa-l-maḥsūs* was, especially on theories of dreaming and prophecy. Much work remains to be done, but reflections of its ideas have been detected in the works of Al-Fārābī (c. 878–c. 950), Avicenna (Ibn Sīnā, c. 980–1037) and Avempace (Ibn Bājjā, c. 1095–1138), to name but a few especially illustrious users (Hansberger 2010, 158–160). For some brief notes on its *fortuna* in Jewish thinkers from Isaac Israeli (c. 855–955) to Moses ibn Ezra (c. 1060–c. 1139) and beyond, see Kahana-Smilansky (2012).

Apparently for lack of an accurate translation of Aristotle's genuine treatises, the *Kitāb al-Ḥiss wa-l-maḥsūs* was in its turn epitomized by Averroes (Ibn Rushd, 1126–1198; epitome completed January 1170; ed. Blumberg 1972). In 1254, Averroes' epitome was translated into Hebrew by Moses ibn Tibbon, and this translation was in time (1324) supplied with a commentary by the prodigious Jewish polymath Levi ben Gershom (Gersonides, 1288–1344). For the reception of Averroes' epitome in a couple of Renaissance authors (Julius Caesar Scaliger and Gianfrancesco Pico della Mirandola), see Gignoni (2013, 180–186).

5 Latin Medieval Reception⁵⁶

Through Michael Scot's translation (c. 1230) of Averroes' epitome (ed. Shields 1949), the contents of the *Kitāb al-Ḥiss wa-l-maḥsūs* were also introduced into the Latin-speaking world.⁵⁷ Most of those concepts and ideas that had been added to Aristotle's account, notably those of *intentiones* and the complex of internal senses, were already familiar in Western Europe through the writings of Avicenna, whose authority on matters of the soul rivalled that of Aristotle's in the late twelfth and early thirteenth centuries.

All the same, the discrepancies between the *Parva naturalia* and Averroes' epitome were bound to cause discomfiture to those who undertook to teach and comment on the former, as Aristotle's works on natural philosophy rose to ascendancy in the course of the thirteenth century. The so-called “old translation” (*translatio vetus*) of *Parva naturalia* 2–8 was executed in the second to third quarters of the twelfth century by James of Venice (2, 6–8) and another, unknown, translator (3–5).

⁵⁶For a general overview of the history of reception and influence of the *Parva nat.* in the Latin Middle Ages, see De Leemans (2011) and, specifically for the *De memoria*, Bloch (2007, 137–228).

⁵⁷Another translation (or perhaps a revision of Michael's translation), the so-called *Versio Parisina*, survives in a single manuscript copy (ed. Shields 1949).

That of the *De sensu* is later, perhaps the work of Nicolaus Graecus, an assistant to Robert Grosseteste (c. 1175–1253) (thus Bloch 2008a). In the third quarter of the thirteenth century, William of Moerbeke made a “new translation” (*translatio nova*), which, at least in part, seems really to consist in a revision of the *vetus*. William also translated Alexander of Aphrodisias’ commentary on the *De sensu* (ed. Thurot 1875).

References and quotations in authors such as Alfred of Sareshel (died after 1220) testify to the spread and use of the *translatio vetus* around the turn of the twelfth century (see Ricklin 1998, 365–378). On the other hand, it has been shown by Gudrun Vuillemin-Diem (2003, 35–66) that the excerpts and paraphrases from *Parva naturalia* 3–5 in the preserved fragments of David of Dinant’s *Quaternuli* (consigned to the flames in 1210) must be the author’s own translations made directly from the Greek. In fact, besides Aristotle’s well-known advocacy of the pernicious doctrine of the eternity of the world, what so outraged the authorities in Paris that they banned the teaching of Aristotelian natural philosophy and metaphysics in 1210 and again in 1215 may have been precisely the fact that Aristotle took such a dim view of the possibility of God-sent dreams: at least that is what we are led to believe by a notice written by Roger Bacon in his old age.⁵⁸

Alfred of Sareshel may even have written commentaries on *Parva naturalia* 3–6 (see Burnett 1996, 32; Ricklin 1998, 362–366; 378). But the earliest extant Latin commentaries are either those by Adam of Buckfield, master of arts at Oxford (dated before c. 1244, according to Brumberg-Chaumont 2010, 122), or those preserved anonymously in the Erfurt codex Ampl. 4° 312 (copied in Oxford c. 1240, according to Wood 2003, 29–41), both of which cover treatises 1–6.⁵⁹ The influence of Buckfield’s commentaries was enduring enough to be still felt in Thomas Aquinas’s commentaries on the *De sensu* and the *De memoria*. Buckfield is otherwise known to have been highly reliant on Averroes as a commentator, but his commentaries on the *Parva naturalia* seem to constitute an exception: the one on the *De sensu* relegates all references to Averroes to excursuses, while the one on the *De memoria* mentions the Andalusian commentator but once, and then only to misrepresent his words (Brumberg-Chaumont 2010, 133–136). It is a natural suspicion that this unexpected lack of consideration for Averroes’ epitome is due to difficulties encountered in trying to harmonize its contents with those of Aristotle’s treatises. The commentary on the *De sensu* by Buckfield’s fellow Oxonian Roger Bacon may date from the latter’s stint at Paris in the 1240s. In that case, it is a rare testimony to the continued teaching of Aristotelian natural philosophy in the French capital during

⁵⁸“Tarde vero venit aliquid de philosophia Aristotelis in usum latinorum, quia naturalis philosophia eius et *Metaphysica* et commentaria Averrois et aliorum similiter his temporibus nostris translata sunt. Et Parisius excommunicabantur ante annum Domini 1237 propter aeternitatem mundi et temporis, et propter librum *De divinatione somniorum*, qui est tertius *De somno et vigilia*, et propter multa alia erronee translata” (Roger Bacon, *Compendium studii theologiae* 1.2 [14], in Maloney 1988, 46).

⁵⁹It has been plausibly suggested that the absence of early Latin commentaries on *Parva naturalia* 7–8 is due to the precedent set by Averroes’ epitome (Brumberg-Chaumont 2010, 128).

the first four decades after the proscriptions (and to the benefits of the free movement of academics in Europe—including Britain).⁶⁰

The leading role of English masters in the development of natural philosophy in the first half of the thirteenth century is underscored by the presence of the so-called Oxford gloss in a number of manuscript witnesses to the “corpus vetustius.” This is a collection of marginal and interlinear scholia drawing from various sources, but primarily from Buckfield’s commentaries, and first assembled, in all likelihood, in the schools of Oxford in the mid-thirteenth century.⁶¹ The “corpus vetustius” was the main vehicle of dissemination of the *translatio vetus*: as we have seen (Sect. 2), it only included *Parva naturalia* 1–6.

Perhaps the most ambitious commentaries on the *translatio vetus* were those by Albert the Great (1254–1257), enhanced by first-order treatises from Albert’s own pen on the topics covered in the remaining *Parva naturalia* (including the movement of animals).⁶² In this volume, Albert’s commentary on the *De somno et vigilia* (i.e. *Parva nat.* 3–5) is subject to examination by SILVIA DONATI (ch. 10), who also compares it with Buckfield’s on the same works. Albert, too, discusses Averroes and other Arabic philosophers in excursions. But, as DONATI shows, he “also derives the conceptual framework within which he develops his exposition of the text from the Arabic philosophers” (ch. 10, 173). And he had already drawn extensively on both the *translatio vetus* and Averroes’ epitome for his *De homine* (early 1240s: on this work, see Hasse 2008).

The *translatio nova*—and no doubt the requirement to study all of Aristotle’s natural philosophy, introduced at the Arts Faculty of Paris in 1255—ushered in a period of intensified interest in the *Parva naturalia*, which were now generally treated as a connected series including treatises 7–8 as well as the *De motu animalium* and the *De incessu animalium*. René Antoine Gauthier suggested (1985, p. 4 ad Prohemium II. 38–54) that the switch, advocated by Robert Kilwardby, Albert the Great and Thomas Aquinas, from an arrangement in which all the “zoological” works precede to one in which they follow the *De anima* and the *Parva naturalia* was encouraged by Alexander of Aphrodisias’ adherence to the latter arrangement in his recently translated *De sensu* commentary.

But apart from the fact that Alexander does not really seem to think that all the “zoological” works are posterior to the *Parva naturalia* in the order of study,⁶³ there

⁶⁰ Other natural philosophy commentaries originating in Paris in the 1230s–40s may include, aside from Bacon’s own question commentaries on the *Physics*, ?Richard Rufus of Cornwall on the *Physics*, *De generatione et corruptione* and *De anima* as well as ?Peter of Spain on the *De anima*, *De sensu* and “*De vita et morte*” (= *De longitudine*), but the authorship and date of all these works are debated (for Richard Rufus see Wood 2009, for Peter see Meirinhos 2001).

⁶¹ For the gloss on the *De sensu*, see Galle (2008); for that on the *De memoria*, see Brumberg-Chaumont (2010). See also Long (2013, 13–14).

⁶² On Albert’s commentaries, see Donati (2012).

⁶³ As noted above (p. 13), Alexander says in his commentary on the *Meteor.* that the next work after this is the *De part. an.*, so he must have thought that the *De part. an.* should precede the *De anima*. Gauthier’s interpretation (ibid.) of the words “et post hunc de propriis operationibus uniuscuiusque speciei animalium dicit” in Moerbeke’s translation of Alexander’s commentary (ed. Thurot 1875,

were clearly more systematic considerations in favour of such a rearrangement. Thirteenth- and fourteenth-century commentators on the *De anima* were routinely faced with the challenge of determining whether the subject matter of the work under discussion was the soul—as might be expected from its title—or the ensouled body—as might seem to follow from its classification as a work on natural philosophy (see Köhler 2000, 352–368). At the same time, the specific inquiries pursued in the *Parva naturalia* were generally considered to be “subalternate” to the science embodied in the *De anima*, that is, to be so related to it that its first principles could be carried over to them, because their subject matter was, although distinct, “in some [relevant] respect the same,” as Aristotle had said (*An. post.* 1.7, 75b8–9). Consequently, depending on how the subject matter of the *De anima* was understood, the *Parva naturalia* would be conceived of as dealing either with the activities and affections of the soul or with the activities and affections of the ensouled body. The majority view was that they deal with the activities and affections of the soul. But since the soul has three main faculties, the different treatises included in the *Parva naturalia* could be further divided according as they dealt with the activities and affections of the sensitive soul (usually 1–5, *De motu an.* and *De inc. an.*) or those of the vegetative soul (usually 6–8: for details, see Köhler 2000, 368–383). A variant is Thomas Aquinas’ division into treatises relating to the vital (6–8), motive (*De motu an.* and *De inc. an.*) and sensitive (1–5) functions of the soul (*Sententia libri De sensu et sensato*, Prohemium 83–113). Given that the activities and affections of the soul are common to the soul and the body, it would seem only natural, then, to postpone the investigation of those bodies that are distinguished by being informed, respectively, by both a sensitive and a vegetative soul and by a vegetative soul only, until after these souls have been thoroughly understood.⁶⁴

During this period commentaries proliferated, both exhaustive “literal” ones and more selective question commentaries. The vast majority of these remain unedited, but one of the goals of *Representation and Reality* (see above, Sect. 1) is to mitigate this situation: thus the commentaries on the *De somno et vigilia* (including the *De insomniis* and the *De divinatione*) by Geoffrey of Aspill (question commentary dated 1260–65), James of Douai (combined literal and question commentary dated c. 1270), Simon of Faversham (question commentary dated c. 1280) and Walter Burley (literal commentary dated 1300–1306) have appeared in critical editions by Sten Ebbesen (2013, 2014, 2015) and Christina Thomsen Thörnqvist (2014) over the last few years. With the possible exception of Aspill, these are all based on the *translatio nova*: it is notable that Douai also quotes from Alexander of Aphrodisias’ *In De sensu*. Averroes’ epitome is still authoritative for all these commentators; so

11.3–4: cf. Alexander, *In De sensu* 4.12–13) as referring to the *De part. an.* and the *De gen. an.* is clearly mistaken, at least so far as the *De part. an.* is concerned.

⁶⁴One might suspect that the universal practice of dealing with the activities and affections of the sensitive soul before those of the vegetative soul (and with animals before plants) rested solely on the fact that the *De sensu* was evidently conceived of by Aristotle as the first treatise in the series, but commentators such as Albert the Great and Thomas Aquinas went out of their way to justify the standard order (see De Leemans 2010, 204–205; 210–212).

is Albert the Great's commentary, for all except Aspoll again. Faversham's and Burley's commentaries are closely related: since the latter work was composed when both men were resident in Oxford it is a natural enough suspicion that it is dependent on the former, but this remains to be ascertained.

By far the most well-known commentaries based on the *translatio nova* are those of Thomas Aquinas on *Parva naturalia* 1–2 (ed. Gauthier 1985). Peter of Auvergne's literal commentaries on *Parva naturalia* 3–8 and the *De motu animalium* were apparently intended to supplement these (De Leemans 2000, 283; 298–299). While Peter seems to have relied on both the old and the new translations for his literal commentaries (see Dunne 2002, secs 16–32), his question commentaries on *Parva naturalia* 1–6 may be based solely on the old translation (thus Bloch 2007, 207–211, concerning the *Quaestiones in De memoria*).

Two other commentators from this fertile period deserve to be singled out for special mention. The first is John of Jandun (c. 1285–1328), “prince of the Averroists,” whose question commentaries on *Parva naturalia* 1–8 plus the *De motu animalium* (composed in 1309) maintained their popularity throughout the Late Middle Ages and the Renaissance, especially at the universities of northern Italy. Far from regurgitating bits and pieces of Averroes' compendium of the *Kitāb al-Ḥiss wa-l-maḥsūs*, Jandun drew on his vast knowledge of both Aristotle's and the Andalusian commentator's works and in addition made intelligent use of Alexander of Aphrodisias' *In De sensu*, for example in his solutions to the puzzles about the capacity of primary bodies to act and be acted upon (see Brenet 2010) and the nature of potential sensibles (see Robert 2014), raised by Aristotle's remarks at *Sens.* 4, 441b7–15, and *Sens.* 6, 445b20–446a20, respectively. For the transmission of Jandun's commentaries, see De Leemans (2000, 316–322).

The second fourteenth-century commentator I would like to mention is John Buridan (1295/1300–1358/1361), “the most influential philosopher of the later fourteenth century,” according to *The Cambridge History of Medieval Philosophy* (Pasnau 2010, 2: 902), who wrote both literal and question commentaries on the whole *Parva naturalia* (see Michael 1985, 736–780). A legendary figure since his own lifetime, Buridan has attracted much serious attention from historians of philosophy and science over the last hundred years, first for his physics (impetus theory), later for his logic and in more recent times also for his natural and moral psychology, especially his theory of free will. It might seem astonishing in view of this that there are virtually no scholarly discussions of his *Parva naturalia* commentaries (for a couple of exceptions, see Sobol 2001 and Grellard 2010), until it is realized that the question commentaries are only available in a Renaissance edition (by George Lokert, Paris 1516) and the literal ones have never been committed to the press. — More medieval commentaries are discussed in De Leemans (2011). See also the list in De Raedemaeker (1965). A comprehensive catalogue of Latin medieval question commentaries on *Parva naturalia* 1–5 has recently been published by Sten Ebbesen, Christina Thomsen Thörnqvist and Véronique Decaix (2016) on behalf of *Representation and Reality*.

One can try to measure the impact of a philosophical work in a given period by counting manuscripts or printed editions, commentaries, and manuscripts or printed

editions of commentaries. We are all familiar with the pitfalls of bibliometrics. A more laborious but ultimately perhaps more accurate method is to assess the degree to which the content of the philosophical work permeates discussions relating to its subject matter in works which are not commentaries on it. In chapter 11 of the present volume, MARTIN PICKAVÉ examines some such discussions of the nature of sleep in authors of the late thirteenth century (Henry of Ghent, Richard of Middleton, Thomas Aquinas, Peter of Tarentaise and Peter John Olivi), with special reference to the question of whether sleep is, as Aristotle seems to have held (*Insomn.* 1, 458b15–25; 3, 461b30–462a8; 462a27–31), compatible with intellectual (although not with perceptual) activity.

6 Renaissance Reception

After a new curriculum was introduced at Paris in 1366, *Parva naturalia* 7–8 were again displaced from the focus of attention. According to De Leemans (2011), late fourteenth- and fifteenth-century commentaries on the *Parva naturalia* largely divide into two groups. Those in the first group deal only with treatises 1–6: many of these seem to be connected to the teaching activities at Paris. Those in the second group are characterized, on the one hand, by similarities with respect to content and, on the other, by the fact that they are all based neither on the *translatio vetus* nor on the *nova* but on a compendium of Aristotle's natural philosophy by the otherwise unknown late fourteenth- or early fifteenth-century German Dominican Johannes Kro(n)sbein (see De Leemans 2000, 341–360). The commentaries in the second group are for the most part anonymous, except one, which is attributed on the flyleaf of the only manuscript (Erfurt, Ampl. 2° 334) to Marsilius of Inghen (c. 1340–1396). While this attribution is dubious, Marsilius is acknowledged as the author of another series of (question) commentaries on the whole *Parva naturalia*.

Aristotle had said in the first chapter of the *De sensu* that “the majority of natural philosophers end up in the study of medicine, whereas those among the physicians who pursue their art in a more philosophical way take the study of nature as their starting-point” (436a19–b1). In the Renaissance universities of northern Italy, this observation, often invoked in support of the subalternation of medicine to natural philosophy, crystallized into a motto: “*ubi desinit physicus, ibi medicus incipit.*”⁶⁵ The unusually close ties that were forged between natural philosophy and medicine

⁶⁵ The debate about the relationship between natural philosophy and medicine had of course begun centuries earlier: see French (2000), who quotes (ibid., 78) the following version of the above-quoted motto from the Oxford gloss: “ubi naturales terminant ibi incipiunt medici ut dicitur in libro de sensu et sensato.” The version quoted in the text above seems to have been first formulated by Simone Simoni (see below). For this and a general discussion of attitudes to medicine in natural philosophers and to natural philosophy in physicians of the sixteenth century, see Schmitt (1985).

in this educational setting, where theology was of minor importance, tended to further the study of psychology in general and psycho-physiology in particular.⁶⁶

As Padua became, in the late fifteenth century, a leading centre of Aristotelian studies with a heavy emphasis on natural philosophy, Averroes retained—and even reinforced—his position as the foremost commentator on Aristotle, in spite of all the clamour caused by his notorious view that the intellective soul is one and the same in all human beings (see Hasse 2007, 115–121). His position was perhaps bolstered by the enduring popularity, mentioned above, of the commentaries of John of Jandun. One may also note (as pointed out by Hasse 2007, 121–125) that Avicenna’s theory of prophecy enjoyed a relatively favourable reception at the hands of some north Italian philosophers in the late fifteenth and early sixteenth centuries, including the most celebrated and controversial of them all, Pietro Pomponazzi (1462–1525). At the same time, new impulses came from the rediscovery of hitherto unknown Greek commentaries. It was in this period that Philoponus’ and Ps.-Simplicius’ commentaries on the *De anima*—as well as Alexander of Aphrodisias’ work by the same name—were first disseminated in the West, in printed editions both of the Greek originals and of Latin translations.⁶⁷ Especially Ps.-Simplicius left a definitive mark, not least on Marcantonio Genua, first ordinary professor of natural philosophy at Padua from 1531 until his death in 1563, who became known as the leader of the “Simpliciani.”⁶⁸

As regards the *Parva naturalia*, I have already mentioned that Michael of Ephesus’ commentaries were translated in the mid-sixteenth century and partly integrated, even before that date, into the works of Niccolò Leonico Tomeo, who held the newly created position for teaching Aristotle’s natural philosophy from the Greek text in Padua between 1497 and 1509. Latin versions of George Pachymeres’ compendium of Aristotelian philosophy and Theodore Metochites’ paraphrases of Aristotle’s works on natural philosophy were also printed in the sixteenth century, but practically nothing is known about their reception.⁶⁹ The Renaissance *fortuna* of

⁶⁶On the teaching of natural philosophy at Padua, see Grendler (2002, 267–313). On Paduan psychology, see Kärkkäinen and Lagerlund (2009, 36–45).

⁶⁷A translation of Alexander, *De anima* by Girolamo Donato was first printed at Brescia in 1495. Themistius’ paraphrase of the *De anima* also appeared in a new translation by Ermolao Barbaro (Treviso, 1481). A Greek edition of both these texts by Vittore Trincavelli was published at Venice in 1534. On Donato’s translation, see Bonelli (2011/2012). On the reception of Alexander’s psychology in the period, see Kessler (2011, 24–81). The first printed Greek texts of Alexander’s commentary on the *De sensu* and Ps.-Simplicius’ commentary on the *De anima* were edited by Francesco Torresano (Venice, 1527); a Latin translation of Ps.-Simplicius’ commentary by Giovanni Faseolo was published at Venice in 1543. Philoponus’ commentary on *De anima* 1–2 with Ps.-Philoponus on *De anima* 3 was printed in a Greek edition by Trincavelli at Venice in 1535 and in Latin translation at Venice in 1547.

⁶⁸On Genua and other “Simpliciani,” see Spruit (1995, 159–184). On the reception of Simplicius in the Renaissance, see Steel and Ritups (2013, 28–30). On the reception both of Simplicius and of Themistius, see also Mahoney (1982).

⁶⁹Gentien Hervet’s translation of Metochites’ paraphrases saw three editions in 1559, 1562 (both Basel: Nicolaus Brylinger) and 1614 (Ravenna: press unknown). Philipp Bech’s translation of Pachymeres’ compendium appeared in Basel (Hieronimus Froben and Nicolaus Episcopius) in 1560.

the Byzantine literature is touched upon in JOHN MONFASANI's contribution to this volume (ch. 13), where our attention is also drawn to the remarkable spurt of interest in translating the *Parva naturalia* into Latin in the years around 1520. Of the five known translations that saw the light in the Renaissance, four date from between 1518 and 1523, including one by Tomeo.

The new conditions under which Aristotelian scholarship was carried out in the sixteenth century—the widespread knowledge of Greek, the access to most of the earlier Aristotelian literature written in Greek, Arabic and Latin, as well as the orientation along the requirements of medicine rather than theology—have all helped shape the commentaries on the *De memoria* studied in ROBERTO LO PRESTI's contribution to this volume (ch. 14). Besides the one by Tomeo, these are a late work by Pomponazzi's erstwhile rival and adversary at Padua, the renegade "Averroist" Agostino Nifo (first edition Venice 1523); an equally late work by Pomponazzi's reluctant ally, the Dominican theologian Crisostomo Javelli (first edition Venice 1531); a commentary by the somewhat obscure Bolognese professor Bernardino Crippa (first edition Bologna 1567); an early work by the then professor of philosophy and medicine at Geneva, Simone Simoni (first edition Geneva 1566); and an annotated paraphrase by Antonio Scaino (first edition Venice 1599), earlier in his career a clergyman at the court of Alfonso II d'Este in Ferrara and perhaps best known in our time for having authored the first book on tennis.

Katharine Park has argued that sixteenth-century psychology, as practised by natural philosophers, is characterized by "an impulse to favour simpler and more physiological explanations," which propelled "Renaissance thinkers further and further from the psychological thought of the thirteenth and fourteenth centuries and moved them in the direction of seventeenth-century writers such as Descartes and Hobbes" (1988, 477).⁷⁰ She ascribes this impulse partly to a humanist concern to purify Aristotelian doctrine of the "accretions and interpolations introduced by medieval commentators" (1988, 479). Its effects, she suggests, are shown in the increasing tendency to adopt (invoking the methodology of Ockham or Buridan) the view that the differences between the various activities of the soul are due neither to real nor to formal distinctions within the soul but to observable differences in the anatomy of the bodily organs through which these activities are carried out. As a result, "it became commonplace for commentators on *De anima* and other writers in the Aristotelian tradition—even the most conservative—to introduce arguments based on anatomical information into treatments of the organic soul" (Park 1988, 482).

The so-called *Cursus Conimbricensis*, a five-volume set of Aristotelian textbooks (for the genre, see Schmitt 1988) first published by the Jesuit College of Arts at the University of Coimbra between 1592 and 1606 and subsequently in over a

⁷⁰An overview of relatively recent literature on late scholasticism and its relationship to early modern philosophy is found in Edwards (2007). See also the brief but magisterial account of the "intellectual setting" for the emergence of early modern philosophy in Menn (2003). For a comparison of Aristotelian and Cartesian psychology, see Alanen (2009). On Descartes and the *Conimbricenses*, see Des Chene (2000).

hundred editions world-wide,⁷¹ would seem to be a case in point. Volume 2, part 2 contains commentaries on *Parva naturalia* 2–8, chiefly the work of Emmanuel de Goes (1592). The contents of the *De sensu* are covered in a supplement (*Tractatio aliquot problematum ad quinque sensus spectantium*, by Cosmas de Magalhães) to the commentary on the *De anima* (vol. 4, 1598).⁷² In addition, however, the *De anima* commentary itself, also mainly by de Goes, includes discussions of the anatomy of the sense organs and other physiological details from Andreas Vesalius' *De humani corporis fabrica* and a host of other sources, in apparent violation of a rule in the 1591 Jesuit college regulations that, during the course on the *De anima*,

in the second book, when the sense organs are discussed, the philosopher should not digress into anatomy and such topics, which belong to the domain of the physicians. Instead he should add, if he has the time, the *Parva naturalia*.⁷³

It is clear that the Conimbricenses shared their penchant for bringing physiology to bear on their discussions of the *De anima* with the authors of other textbooks of the era, such as the fellow Jesuit Girolamo Dandini's *De corpore animato* (Paris 1610), the digressive nature of which has been admirably demonstrated by Michael Edwards (2008). The other side of the coin is that most sixteenth- and seventeenth-century textbooks, even the Carmelite *Cursus Complutensis* (five volumes, Alcalá, Madrid and Paris 1624–1640), seem to have dispensed with any specific sections devoted to the *Parva naturalia*. It is unclear to what extent the physiological tendency in these Catholic works responds to the precedent set by Protestant authors, notably Philipp Melanchthon, whose commentary on the *De anima* (1540) swerves so far in this direction that it should perhaps be classified as a work on anthropology rather than psychology. It was later revised to take into account Vesalius' work (*Liber de anima recognitus*, 1552).⁷⁴

7 Post-Renaissance Reception

In the perspective of Cartesian mind-body dualism, the principles of Aristotelian psychology are bound to seem arbitrary, not to say bizarre.⁷⁵ Gary Hatfield has described (1995) how “the science of the soul” in the eighteenth century ceded the

⁷¹On the early 17th-century Chinese adaptations of the *Cursus Conimbricensis* by Francesco Sambiasi, Giulio Alenio and others, see Shen (2005).

⁷²For a general account of the Coimbra commentary on the *De anima*, see de Carvalho (2006).

⁷³“In secundo libro, expositis sensoriiis, non digrediatu[r] philosophus in Anatomiam et caetera, quae medicorum sunt. Addat potius, si vacat, parva Naturalia” (Lukács 1986, 280). The last sentence was omitted in the 1599 regulations (Lukács 1986, 398). On the inclusion of anatomical themes in Jesuit commentaries on the *De anima* and other psychological texts, see Edwards (2012, esp. 55–66). For an attempt at resolving the apparent tension between the rule and the practice, see Sander (2014).

⁷⁴On Melanchthon's works on the soul, see Kusakawa (1995, 75–123).

⁷⁵The following quotation from Beare (1894, 1–2), later Regius Professor of Greek at Trinity College Dublin, the author of a learned monograph on ancient theories of perception and the man

stage to other types of “psychology,” *Erfahrungsseelenlehre* and Associationism, which focused on the empirical study of the contents of human consciousness and (in the case of Associationism) the formulation of laws that govern the relations between these contents.⁷⁶ The term “psycho-physiology,” which belongs in this theoretical context, properly denotes the study of the means of interaction between body and mind. To be sure, Aristotle’s “zoological” writings continued to draw admiration from many systematic biologists from Georges-Louis Leclerc de Buffon to Georges Cuvier and Richard Owen, until the theory of evolution irrevocably shifted the perspective.⁷⁷ But the study of the *De anima* and the *Parva naturalia* had fallen into virtual desuetude as early as the latter half of the seventeenth century. How limited the understanding of these texts was in the eighteenth century can be gauged from the treatment they received at the hands of the early historians of philosophy, all of whom shared a marked tendency to read Aristotle in the light of contemporary philosophical concerns. Not unexpectedly, the treatment in Jakob Brucker’s pioneering *Historia critica philosophiae* (first edition in 1742–1744) leaves the most to be desired, whereas the situation is somewhat ameliorated in the later works of Dietrich Tiedemann, Johann Gottlieb Buhle and Wilhelm Gottlieb Tennemann.⁷⁸ By the 1830s, however, Aristotelian psychology would return with a vengeance.⁷⁹ The impetus came from three different sources.

behind the Oxford Translation of *Parva nat.* 1–5, may be taken as indicative of the power of the Cartesian spell over the interpretation of Aristotelian psychology in the modern era: “ψυχή was for him [sc. Aristotle] the principle of life as well as of mind. Accordingly, his work was intended to cover the whole ground now divided between Biology, Physiology, and Psychology. As was to be expected, this dual view of ψυχή, as principle of life (vegetable or animal), and as principle of mind in all its manifestations, proved fatal to his attempt at a systematic treatment of his subject. From the outset of the *De Anima* a tendency may be observed on his part to pursue now one, now the other, of two more and more divergent lines, the first leading him to Metaphysics, the second to Physiology. For a while he struggles against this tendency, but in the end yields, more or less completely, to the metaphysical bias. In *De An.* III. we find him largely engaged, and with all the fervour of a ‘First Philosopher,’ in speculating on the subject of a ‘voûς which thinks itself’—the crowning conception of his Metaphysics. Having, in the *De Anima*, dwelt with preponderating interest on the *mental* side of ψυχή he declares (*De Sensu, ad. init.*) that, while the conclusions there attained must be allowed to stand, he will now occupy himself solely, or chiefly, with its *physical* side.”

⁷⁶On the large and complex issue of the “birth of psychology,” see also the monographs by Mengal (2005) and Vidal (2006).

⁷⁷On the 18th–19th-century debate over the extent to which Aristotle was really a systematic taxonomist, see Meyer (1855, 36–86). See also Gotthelf (2012, 261–292). For an “episodic history” of the development of the philosophy of biology from Aristotle to Darwin and beyond, see Grene and Depew (2004). On the reception of Aristotle in 19th–20th-century biology, see also Hünemörder (1987).

⁷⁸See Brucker (1766–1767, 1: 820–826); Tiedemann (1791–1797, 2: 299–328); Buhle (1796–1804, 2: 375–407); Tennemann (1798–1819, 3: 176–211). Cf. also the (sometimes excessively) critical surveys in Petersen (1913, 124–130, 1921, 420–424). See also Ferrarin (2001, 396–405).

⁷⁹Cf. the first sentence of Eugen Rolfes’ preface to his study of Aristotle’s concept of soul, written with the benefit of sixty-odd years’ hindsight: “Seitdem in den dreißiger Jahren durch die Bemühungen Trendelenburgs und anderer das Studium der aristotelischen Philosophie in Deutschland einen neuen Aufschwung erhielt, war es besonders die aristotelische Psychologie, die dauernd die Forschung in Anspruch nahm und in einer Reihe von Schriften, teils vollständig, teils einzelnen Seiten nach, zur Darstellung gelangte” (1896, 1).

First, from the lecterns of academic philosophy. Georg Wilhelm Friedrich Hegel famously stated, in his *Vorlesungen über die Geschichte der Philosophie* (1805–1830), that “in recent times no other philosophy has been so much offended against as this [sc. the Aristotelian], and to no other ancient philosopher so many apologies are owed as to Aristotle.”⁸⁰ This was his excuse for dwelling on Aristotle, “among the men of old, the one that most deserves to be studied,” for well over a hundred pages (or more than five hours at normal reading speed), including twenty pages on Aristotle’s psychology (*De anima*)—in spite of the time constraints.⁸¹ In the introduction to the third part of the *Enzyklopädie der philosophischen Wissenschaften* (3rd ed. 1830), the Philosophy of Spirit, Hegel declares that

Aristotle’s books on the soul as well as his treatises on its specific aspects and conditions are for this reason still the most outstanding work—or the only one of speculative interest—on this subject matter. The essential purpose of a philosophy of the spirit can only be to reintroduce the concept into the cognition of the spirit and thereby also to reopen the meaning of these Aristotelian books.⁸²

The extent to which Hegel’s anthropology and psychology in the *Encyclopedia* are in fact inspired not only by the *De anima* but also by *Parva naturalia* 3–4 (which the Berlin professor understood as partly empirical, partly speculative, “physiology”: *Werke* 19: 169), has been shown by Alfredo Ferrarin (2001, 262–283).⁸³

Second, there seems to have been a wary admiration for Aristotelian physiology on the part of some of the practitioners of the nascent modern discipline. For instance, Johannes Müller, who refers sporadically to Aristotle in his groundbreaking *Handbuch der Physiologie des Menschen* (1833–1840)—he quotes, for instance,

⁸⁰“In dieser Darlegung des Hauptinhalts der Aristotelischen Philosophie bin ich weitläufiger gewesen, teils der Wichtigkeit der Sache selbst (es ist eigener Inhalt) [wegen], teils weil in der Tat an keiner Philosophie sich die neuere Zeit so vergangen hat als an ihr und keinem der alten Philosophen so viel abzubitten ist als Aristoteles. Aristoteles ist, wenn einer, für einen der Lehrer des Menschengeschlechts anzusehen; sein Begriff ist in alle Sphären des Bewußtseins eingedrungen, und diese Vereinzelung in der Bestimmung durch den Begriff, da sie gleichfalls notwendig ist, enthält in jeder Sphäre die tiefsten richtigen Gedanken. Aristoteles – um die *äußere Geschichte seiner Philosophie* im allgemeinen hier zu antizipieren – ist daher viele Jahrhunderte lang ununterbrochen der Träger der Bildung des Denkens gewesen” (Hegel, *Werke* 19: 241–242).

⁸¹Cf. *Werke* 19: 131: “[D]ie Ausführlichkeit, die Aristoteles verdient kann ich ihm leider nicht gewähren.” On Hegel’s lectures on the *De anima*, see Weiss (1969); Ferrarin (2001, 246–247); on his general portrayal of Aristotle in the *Vorlesungen*, see also Ferrarin (2009, 295–301). On Hegel’s importance for the reassessment of Aristotle’s role in the history of philosophy, see also Forster (2012, 885–886), who writes: “It was in large part thanks to Hegel’s perception of great value in Aristotle’s philosophy that subsequent nineteenth-century historians of philosophy likewise saw it as valuable and devoted much attention to it.”

⁸²“Die Bücher des *Aristoteles* über die Seele mit seinen Abhandlungen über besondere Seiten und Zustände derselben sind deswegen noch immer das vorzüglichste oder einzige Werk von spekulativem Interesse über diesen Gegenstand. Der wesentliche Zweck einer Philosophie des Geistes kann nur der sein, den Begriff in die Erkenntnis des Geistes wieder einzuführen, damit auch den Sinn jener Aristotelischen Bücher wieder aufzuschließen” (*Werke* 10: 9).

⁸³For a recent favourable assessment of Hegel’s interpretation of Aristotle’s theory of perception as compared to those of contemporary scholars, see Hahmann (2015). On the question of how much Hegel’s notion of spirit (*Geist*) owes to Aristotle (not so much), see Forster (2011).

De anima 2.2, 413b22–24, in support of his view that the soul, albeit present throughout the living body, is not itself a compound (1840, 506)—also contributed to the historiography of the field by appending a German version of the *De insomniis*, a work he declared to be “in the true sense physiological” and to “contain essentially the correct explanation” of dreaming, to his early study of visual imagination (1826, 107–117).⁸⁴ Another important work on Aristotelian physiology—including the physiology of sense perception—from the period is the much-cited “Υλη ἀνθρωπίνη by a precociously young Ludwig Philippson (1831).⁸⁵ I cannot linger over the Aristotelian affinities of nineteenth-century physiologists here: let me simply note that the existence in 1837 of at least one author on psychology (Karl Alexander von Reichlin-Meldegg) who, without being either a Hegelian or a classical scholar and without so much as referring to Aristotle in the relevant context, “will,” in Max Dessoir’s words (1912, 208), “tolerate no opposition between the soul and the forces of animal life, but sees in the soul ‘the ground of life in a definite human individuality, [of a life] which bears the two-fold, interpenetrating character of animality and rationality’,” and whose “psychology aims therefore, like that of the Greeks, to trace the bodily and mental development of man,”⁸⁶ suggests that there were more complex factors at work behind the return of Aristotelian psychology than the combination of Hegel’s influence and the prevalence of “historicism.”⁸⁷

This is not to deny that—third, but not least—the breakthrough of a stringent methodology for the study of history, and especially the advances made in classical philology, was a factor of crucial importance.⁸⁸ In 1817, acting on a proposal by

⁸⁴Quotations from Müller (1826, vii): “Die beigefügte Aristotelische Urkunde über den Traum, in näherer Beziehung zu unserem Gegenstande, schien in manchem Betracht wichtig, um allgemeiner bekannt zu werden. Wenn sie neben manchen dem Zeitalter zufallenden Irrthümern nur Andeutungen enthält, so ist die Untersuchung doch im eigentlichen Sinn physiologisch und enthält allerdings die im wesentlichen richtige Erklärung.” Cf. Müller (1840, 257): “Die Erklärung [sc. des Aristoteles] der Phantasmen als innerer Sinneswirkungen ist ganz dem heutigen Standpuncte der Wissenschaft angemessen.”

⁸⁵Note also Karl Zell’s edition of the *De longitudine et brevitate vitae* with Latin translation and notes plus an appendix by August Schultze with contemporary estimates of the lifespans of different animals (1826).

⁸⁶Dessoir is quoting from von Reichlin-Meldegg’s definitions of psychology as “die Wissenschaft von der Seele des Menschen, d.h. von dem letzten Grunde der körperlichen und geistigen Entwicklungen des Menschen, in wiefern dieser Grund aus diesen Entwicklungen erkennbar ist, und den allgemeinen Gesetzen dieser Entwicklungen” (1837, 32) and of the human soul as “der Grund des den sich wechselseitig durchdringenden Charakter der Animalität und Vernunftanlage an sich tragenden Lebens in einer bestimmten menschlichen Individualität” (1837, 30).

⁸⁷It was not only in Germany that Aristotelian psychology was being linked to contemporary scientific and philosophical concerns. A relevant British example is William Hamilton’s exposition of *De memoria* 2, 451b10–452b6 and 453a4–14, with translation of the Aristotelian text as well as Sophonias’ paraphrase, in the “Supplementary Dissertations” of his edition of the works of Thomas Reid (1846, 889–910), which was intended to “render justice to” Aristotle as the true author of the theory of the association of ideas. Hamilton also credited the Stagirite, not with inventing, but at least with consistently upholding the distinction between primary and secondary qualities (*ibid.* 826–830).

⁸⁸For the philological background to the “Aristotelian revival,” see Thouard (2009).

Friedrich Schleiermacher, the Royal Prussian Academy of Sciences resolved to commission a state-of-the-art critical edition of Aristotle's collected works.⁸⁹ The result, produced by Immanuel Bekker with the assistance of Christian August Brandis (who was personally responsible for the supplement volume containing excerpts from the ancient commentaries), was a milestone in Aristotelian scholarship, which, even if most of the editions of individual works have long been superseded, still provides a frame of reference for citations of the *corpus aristotelicum*. It was completed, so far as the Aristotelian texts are concerned, in 1831: Brandis' supplement appeared in 1836.⁹⁰

Empowered by the new methodology, the history of philosophy came to occupy an increasingly central position in the philosophy curriculum, especially at German universities (see Schneider 1999, 91–119). The output of printed works is staggering: one survey lists more than three hundred diachronic accounts published in German, French and English from 1810 to 1900, several of them in multivolume sets and some in multiple revised editions (Schneider 1999, 317–355). The first of these to offer a detailed and reliable account of Aristotle's psychology, based on close readings both of the *De anima* and the *Parva naturalia*, is Brandis' *Handbuch der Geschichte der griechisch-römischen Philosophie* (1835–1866).⁹¹ Brandis could benefit not only from Bekker's edition and his own extensive studies of the Greek commentary tradition but also from the recent edition-cum-commentary of the *De anima* by his younger friend and colleague Adolf Trendelenburg (Jena, 1833).⁹²

Trendelenburg's is indeed the name most closely associated with the mid-nineteenth-century "Aristotelian revival."⁹³ Much of the motivation for this revival stemmed from the perception of a failure on the part of academic speculative philosophy, especially as embodied by Hegelian dialectic, to provide a unitary theoretical framework for both the exact and the empirical sciences. Trendelenburg, widely influential as a teacher and administrator at the Berlin university, sought to rectify the situation, in his *Logische Untersuchungen* (1840), by elaborating a "theory of science" which would steer clear of the Scylla of materialism as well as the Charybdis of subjectivism.⁹⁴ It would follow the

⁸⁹ Schleiermacher was no expert on Aristotle, and not very sympathetically disposed, as is amply demonstrated by his 1812 lectures on the history of philosophy, posthumously edited by Heinrich Ritter (Schleiermacher 1839, 113–121), on which see Menn (2010, 97 n7).

⁹⁰ On Bekker and his edition, see Schröder (2009).

⁹¹ Vols 2.1, 2.2 and 3.1 on Aristotle appeared in 1853, 1857 and 1860. *Parva nat.* 1–5 (and to a lesser extent 6–8) are systematically treated (and extensively paraphrased) as a complement to the *De anima* (2.2: 1103–1124 [sense perception]; 2.2: 1143–1148 [physiology of sense perception etc.]; 2.2: 1148–1153 [memory and recollection]; 2.2: 1153–1163 [sleep and dreams]; 2.2: 1189–1203 [unity and structure of the *Parva nat.*]).

⁹² Brandis' later *Geschichte der Entwicklungen der griechischen Philosophie* (vol. 1, 1862) is dedicated to Trendelenburg. In turn, Trendelenburg gave the memorial address for Brandis on Leibniz Day (the yearly ceremonial meeting of the Royal Prussian Academy of Sciences) 1868.

⁹³ For general discussions of the "Aristotelian revival," see the papers collected in Thouard (2004). See also Fugali (2011).

⁹⁴ "Auf diesem Wege wird ein Realismus gegründet, der nicht in Materialismus ausschlagen kann;

organic worldview, which was founded in [the works of] Plato and Aristotle ... and which must develop and gradually perfect itself through increasingly deeper investigation both of its fundamental concepts and its particular aspects—and in interaction with the objective sciences.⁹⁵

Trendelenburg's theory of science attempts to solve the problem of the possibility of knowledge by recourse to a metaphysics of movement, where movement is the first principle of both the external world of being and the internal world of cognition, which is forced into development by the presence, in both worlds, of purpose. The soul is defined, with explicit reference to Aristotle, as "an idea of purpose actualizing itself."⁹⁶ It is the end product of nature and the starting point of the life of moral action.⁹⁷ Trendelenburg's inquiries into the soul, "not ... as an isolated object but ... in its organic context," in his unpublished lectures on psychology (1840–1870), are briefly discussed in Fugali (2009, 181–190). That he took an interest in the physiology of sense perception is shown in an additional chapter to the second edition of *Logische Untersuchungen* (1862, 2: 478–485), where he concedes that recent experimental work in the field (he cites titles by Charles Bell, Johannes Müller and Hermann von Helmholtz) may appear to lend support to subjectivism, but insists that the construction of external objects—which are accessible to science—is only forced by natural sensory stimulation.⁹⁸ In the third edition he even responded to the challenge of Darwinism (1870, 2: 79–93n). But he never dealt specifically with the *Parva naturalia*.

Trendelenburg's most famous student, Franz Brentano, never dealt specifically with the *Parva naturalia* either, although it should be noted that the account of Aristotelian psychology in his second *Habilitationsschrift* (1867) draws as freely on them as on the *De anima*. As is well known, Brentano later claimed Aristotelian heritage for his conception of the "intentional inexistence" of mental objects (1874, 1: 115–116 with n3), which admittedly comes across today as being perhaps more inspired by medieval Aristotelianism than by Aristotle's own doctrines.⁹⁹ His enthu-

denn seine Bestimmungen gehen durch den inneren Zweck vom Gedanken im Grunde der Dinge aus; und ein Idealismus, der nicht Subjektivismus werden kann, denn er begründet sich durch eine dem Denken und Sein gemeinsame Thätigkeit, welche in der Erscheinung den zwingenden Anweisungen des Gegebenen folgt" (Trendelenburg 1862, 2: 488).

⁹⁵"... in der organischen Weltanschauung, welche sich in Plato und Aristoteles gründete, sich von ihnen her fortsetzte und sich in tieferer Untersuchung der Grundbegriffe sowie der einzelnen Seiten und in Wechselwirkung mit den realen Wissenschaften ausbilden und nach und nach vollenden muss" (Trendelenburg 1862, 1: ix).

⁹⁶"Der Zweck wird als innerer Zweck zum individuirenden Princip der Wesen und die Seele ist ein sich verwirklichender Zweckgedanke" (Trendelenburg 1870, 2: 534 and *passim*; invocation of Aristotle's definition *ibid.* 2: 97).

⁹⁷On Trendelenburg's psychology, see Hoffmann (1892?); Petersen (1913, 79–86); Fugali (2000, 71–77); Fugali (2009). On his Aristotelianism and its historical context, see Petersen (1913, 119–162); Beiser (2013, 16–59).

⁹⁸On the epistemological debates in the field of tension between empirical psychology and philosophical rationalism in the early 19th century, see Sachs-Hombach (1993, 145–193).

⁹⁹On the Aristotelianism of Brentano's psychology and its relationship to Trendelenburg and the "Aristotelian revival," see Albertazzi (2006, 43–82); Fugali (2009, 190–202); Tassone (2012, 38–74).

siasm for the medieval schoolmen had been stoked by his studies with Franz Jakob Clemens in Münster (“the first German philosopher to take up again the strands of medieval philosophy,” according to Brentano’s friend Georg von Hertling, quoted in Albertazzi 2006, 12). The Catholic Church was an important patron of Aristotelian and scholastic studies in the period, especially after Thomism was proclaimed, in the encyclical *Aeterni Patris* (1879), to be the philosophy most conformable to its teachings. Many of those who wrote on Aristotle’s psychology in the latter half of the nineteenth century did so from a Thomist perspective, like Vincenz Knauer, Aloïs van Weddingen, Herman Schell, Eugen Rolfes, Clemens Baeumker and Armand Thiéry. Clemens Baeumker in particular went on to play a seminal role in opening the field of medieval philosophy to historical research, at a time when Protestant philosophers still often viewed the subject matter with suspicion.¹⁰⁰ — A first survey of the material related to the Arabic and Hebrew reception of the *Parva naturalia* was carried out by Moritz Steinschneider in 1883.

Brentano’s frequent consultation of the *Parva naturalia* illustrates a general phenomenon. Studies of Aristotle’s psychology in this period had a systematic—rather than a developmental—approach and tended, as a matter of course, to use the *Parva naturalia* (at least treatises 1–4) as a supplement to the *De anima*, especially in their discussions of sense perception, the common sense and *phantasia*. This is true of such disparate works as Waddington-Kastus (1848), Beck (1860), Kampe (1870), Schell (1873), Baeumker (1877), Neuhaeuser (1878), Barco (1881), Schieboldt (1882), Chaignet (1883), Siebeck (1884), Knauer (1885) and Poppelreuter (1892), as well as of the treatments in various histories of philosophy, of which Eduard Zeller’s (1846: 473–503, 1862: 370–468, 1879: 479–607) deserves to be singled out (besides Brandis) as particularly important.¹⁰¹ There was no shortage of such studies, all aspiring to a better historical understanding of its subject; as a creative force in the development of modern theories, however, Aristotelian psychology was probably exhausted after Trendelenburg, Brentano and Neoscholasticism—or so one might have thought before the controversy over whether or not “an Aristotelian philosophy of mind is still credible” erupted in the 1980s (see below).¹⁰²

Works that concentrate specifically on the contents of the *Parva naturalia* are fewer and further between. The only three separate publications from the latter half of the nineteenth century with such an exclusive focus that I am aware of are a brief study from 1879 of Aristotle’s theory of memory and the association of ideas by

¹⁰⁰ Let me quote, as an example of the kind of condescension to which philosophers of the period could stoop, Conrad Hermann (1874, 245): “Der unbedingtsten Verehrung erfreute sich Aristoteles im Mittelalter zur Zeit der Scholastik; allerdings war es hier mehr nur sein Name als der Gehalt seiner Lehre, welcher das Object einer blinden Vergötterung bildete.”

¹⁰¹ On Schell’s, Baeumker’s and Neuhaeuser’s works, see Block (1964); on Neuhaeuser’s, see also Webb (1982).

¹⁰² It is not clear to me what Buchheim, Flashar and King have in mind (it could be Neoscholastic psychology) when they claim that “[g]eschichtlich gesehen wird Aristoteles’ Psychologie spätestens seit Ende des 19. Jhs. und besonders dank Brentanos Auseinandersetzung mit ihr wieder rezipiert” (2003, xvi).

Julius Ziaja (who also published, in 1887, an annotated translation of *De sensu* 1–3, 439b18 and, in 1896, an equally brief study of Aristotle's theory of light);¹⁰³ a forty-page précis of the whole collection in the *Programm des königlich-kaiserlichen Obergymnasiums* in Prague for 1881 by an otherwise unknown Johann Schmidt; and a brief and breezy essay on the psycho-physiology of dreams by the Belgian priest and experimental psychologist Armand Thiéry (1896). Jakob Freudenthal's important 1869 paper, to which I have already referred, is more philologically than philosophically orientated. The same is true of his 1889 paper, which proposes an emendation of *De memoria* 2, 452a19–24. His doctoral dissertation (1863) is a study of Aristotle's use of the term φαντασία in both the *De anima* and the *Parva naturalia*.

An outlier must be mentioned here: George Henry Lewes. In a fascinating book on Aristotle's scientific writings (which “are almost unknown in England,” according to the author: 1864, viii), Lewes devotes a chapter each to the *De anima*, the *De sensu* and the rest of the *Parva naturalia*. Since there were no English translations of the latter works, or at least no accessible and reliable ones (see below), it is only to be expected that most of these chapters are taken up by paraphrase.

Vernacular translations did begin to appear, however, in the second quarter of the nineteenth century, and first in German. Johannes Müller (see above) was probably unaware of the recent publication of annotated translations not only of the *De insomniis* but also of the *De memoria*, *De somno* and *De divinatione per somnum* by a certain Ernst Hepner (1825).¹⁰⁴ He did, however, base his own translation on the almost equally recent edition of the Greek text of *Parva naturalia* 3–5—which improved upon those already existing by adopting a random scattering of variant readings from the Byzantine commentaries and other sources—by Wilhelm Adolf Becker (1823). Later German translations include those by F. A. Kreutz (1847) and Hermann Bender (1873?). The first French rendering of the *Parva naturalia* was published in the second volume of Jules Barthélemy Saint-Hilaire's *Psychologie d'Aristote* (1846–1847). There was no full English translation before the one by William Alexander Hammond (1902), although the indefatigable Thomas Taylor's paraphrases of all of Aristotle's works obviously contain ones of both the *De anima* and the *Parva naturalia* (vol. 6, 1808).¹⁰⁵

Barthélemy Saint-Hilaire's and Hammond's works are both comprehensive presentations of Aristotle's psychology, which enclose the translations of the *De anima* as well as the *Parva naturalia* in lengthy introductions and (especially in the case of Barthélemy Saint-Hilaire) scholarly annotations. Hammond's stated purpose was “to make easily accessible to English scholars the scientific content of these

¹⁰³ I have not seen the 1879 work; according to Busche (2001, 64 n119) it is “theoretically idiosyncratic but rich in material.”

¹⁰⁴ The *De anima* was translated into German as early as 1794, by Michael Wenzel Voigt, a Kantian, and again in 1829 by the Hegelian Christian Hermann Weisse.

¹⁰⁵ The first English translation of the *De anima* after Thomas Taylor's was by Charles Collier (1855), followed by that of Edwin Wallace (1882). For a general presentation (with some omissions) of 19th-century editions and translations of Aristotle, see Hecquet-Devienne (2004a, b).

Aristotelian treatises, and thereby to facilitate inquiry into the history of philosophical and psychological ideas” (1902, ix). Stimulus to such inquiry was also provided by a number of other works on the *Parva naturalia* published in English around the turn of the nineteenth century: these include William Ogle’s translation of *Parva naturalia* 6–8 with introduction and notes (1897) and George Robert Thomson Ross’ text and translation of *Parva naturalia* 1–2 with introduction and commentary (1906). The latter year also saw the publication of John Beare’s *Greek Theories of Elementary Cognition from Alcmaeon to Aristotle* and Robert Drew Hicks’ monumental *De anima* edition with translation, introduction and over 400 fine-printed pages of notes. In his preface, Hicks acknowledges his debt to “the researches of the last quarter of a century,” especially the editions of Adolf Torstrik (1862) and Wilhelm Biehl (1884), but does not mention his most immediate and obvious predecessor, Georges Rodier, whose edition with French translation and notes in two hefty volumes appeared in 1900. Both Hicks and Rodier drew liberally on the Greek commentators, whose works had now been made available in the Royal Prussian Academy’s 23-volume series *Commentaria in Aristotelem Graeca* (1882–1909). In addition, Hicks made frequent use of Giacomo Zabarella’s commentary (through which, he said, he had “made some slight acquaintance with the Latin schoolmen”: 1906, vii–viii). In 1908 the Oxford Translation was launched, under the editorship of John Alexander Smith and William David Ross: the first instalment consisted of Beare’s and (G. R. T.) Ross’ translations of the *Parva naturalia*.¹⁰⁶

In spite of this stimulus, the inquiry seems to have soon lost momentum, at least as far as the *Parva naturalia* are concerned. Between c. 1910 and c. 1970, scarcely more than a handful of dissertations and papers were published on particular aspects of their content (e.g. Enders 1924; Kucharski 1954; Cantin 1955; Block 1960). The few general studies of Aristotelian psychology that take the *Parva naturalia* into consideration all adhere to the old-fashioned systematic approach, regardless of significantly different aims and results. Thus Siwek (1930) is a Neoscholastic pleading for a solution to the problem of mental causation that escapes the difficulties besetting “interactionism” and “parallelism”; Cassirer (1932) is an offshoot of the German nineteenth-century tradition focused on the *De anima* but resorting to the *Parva naturalia* for its chapter on imagination (108–121); whereas Shute (1941) is a truly original attempt to make contemporary sense of Aristotelian psychology as the study of the principles in organisms that govern their physical and behavioural interaction with their environment. Here it is mainly for the sections on memory and reminiscence (112–115) and sleeping and waking (115–118) that the *Parva naturalia* are drawn upon.

But if the content of the *Parva naturalia* attracted only moderate interest during this period, the same cannot be said of their text and transmission. The Didot edition that was published a couple of decades after Bekker’s (vol. 3, 1854) is little more than a wipe-over of its predecessor (with a new Latin translation). But the one by Wilhelm Biehl (1898), although it makes use of the same manuscripts as Bekker’s,

¹⁰⁶ Published as a separate fascicle of vol. 3. Publication of the whole volume was delayed until 1931.

nevertheless marks a step forward by ordering these into two families and consulting the Greek commentaries (of which, however, only Alexander's on the *De sensu* could have any significant value, and this was not yet available in a critical edition: see Wendland 1902).¹⁰⁷ The state of the text was further improved by occasional textual criticism by scholars such as Franz Susemihl (1885), Ingram Bywater (1888, 67–68, 1903, 242–244), John Beare (1894, 1899, 1900), Karl Eduard Bitterauf (1900) and Paul Wendland (1902). But above all it was Aurel Förster's (1938), Hendrik Joan Drossaart Lulofs', René Mugnier's (1952) and Paweł Siwek's (1961) work on the textual tradition—direct as well as indirect—that resulted in a number of new editions of individual treatises (*Parva nat.* 1–2 in Förster 1942; *Parva nat.* 3 in Drossaart Lulofs 1943; *Parva nat.* 4–5 in Drossaart Lulofs 1947) as well as of the whole collection (Mugnier 1953, with French translation; Ross 1955, with valuable notes and introduction; Siwek 1963, with Latin translation). Translations from the period include, in German, Rolfes (1924) and Gohlke (1947); in English, Hett (1935); in French, Tricot (1951). Later work (including translations) on the *Parva naturalia* is usually based on Ross' text, sometimes on Siwek's (see van der Eijk 1994, 94–95).

Part of the explanation for the waning interest in the content of the *Parva naturalia* may lie in a changed approach to Aristotelian studies in general. We have seen that in the nineteenth century these treatises were mostly valued as supplementary source texts for systematic accounts of Aristotle's theory of the soul. But in the early twentieth century the assumption that Aristotle's thought could be accurately captured in systematic accounts was challenged by the “developmental thesis” put forward to widespread acclaim by Werner Jaeger (1912, 1923) and first applied to Aristotle's works on natural philosophy by Paul Gohlke (1924). If, for instance, the *Parva naturalia* represent, in part (as argued by Nuyens 1939 and 1948) or as a whole (as argued by Ross 1955, 15–18), an earlier phase in Aristotle's thinking about the soul (or indeed, as argued by Bloch 1961, a later one), their relevance for understanding the doctrines of the *De anima* is unclear.¹⁰⁸ On a more general level, the “developmental thesis” added impetus to an already ongoing philologization of Aristotelian studies.

But the pendulum has swung. Over the last half century, several new translations of individual treatises have appeared, often supplied with lengthy introductions and commentaries, dealing to varying degrees with philosophical as well as philological problems, notably Richard Sorabji's (1972, 2nd ed. 2004) English translation of treatise 2; David Gallop's (1990, 2nd ed. 1996) English translation of treatises 3–5; Jackie Pigeaud's (1995) French translation of treatise 5; Philip van der Eijk's (1994) German translation of treatises 4–5; and Richard King's (2004) German and David Bloch's (2007) English translation of treatise 2. Bloch's translation is based on an entirely new text, the groundwork for which is laid out in Bloch (2004) and

¹⁰⁷ The importance of treating even Alexander's testimony with caution has been stressed by Bloch (2003).

¹⁰⁸ See e.g. Slakey (1961, 481–482): “[*De sensu* 436b6–7, *De mem.* 450a27–29 and *De somno* 454a7–11] do not agree with the *De Anima* as I have interpreted it, and they probably belong to an earlier stage in Aristotle's thinking about soul and body.”

(2008b).¹⁰⁹ Over the last five years, Italian translations with introductions and notes have appeared of treatise 1 (Cosenza 2013, with a full discussion of the whole collection in vol. 1) and treatises 6–8 (Repici 2017). Relatively recent annotated translations of the whole collection include a German one by Eugen Dönt (1997) and a French one by Pierre-Marie Morel (2000).

In addition, a small number of booklength studies of individual treatises have been produced, such as Wijzenbeek-Wijler (1978) on treatises 3–4 and King (2001) on treatises 6–7. More importantly, however, systematic treatments of themes in Aristotelian psychology (mostly sense perception) factoring in the *Parva naturalia* are again *comme il faut*: among the most noteworthy specimens of the genre are Modrak (1987); Everson (1997); Johansen (1997, 2012); Gregoric (2007); Herzberg (2011); Marmodoro (2014). There would be little point in listing even a selection of all the individual articles on subjects related to the *Parva naturalia* published in this period, but two collections of papers stand out as being of utmost importance, namely Lloyd and Owen (1978) and Oksenberg Rorty and Nussbaum (1992).

The pendulum swung, in part, no doubt, as a mechanical function of the growth of academic writing and publishing, but also, I think, for more subject-specific reasons. I would like to mention three. First, the fact that it has proved, in practice and perhaps in principle, impossible to establish a clear-cut chronology of Aristotle's works has reduced the urgency of the developmental issue and opened the door to systematic studies of Aristotelian psychology again. It is not coincidental that in some of the first post-Jaegerian works to rely again on the *Parva naturalia* for rounding out the doctrines of the *De anima*, namely Kahn (1966) and Lefèvre (1972), this interpretative manoeuvre is carried out in open defiance of developmentalism.

Second, the reappraisal of Aristotle's "zoological" works in the 1980s and 1990s, spearheaded by David M. Balme and carried on by such scholars as Wolfgang Kullmann, G. E. R. Lloyd, Allan Gotthelf and James G. Lennox, is likely to have prevailed upon the scholarly community to look at Aristotle's psychology with a fresh pair of eyes, sensitive to the implications of the fact that it is embedded in biology.¹¹⁰

Third, and most importantly, Aristotelian hylomorphism has once again emerged, in the eyes of some philosophers, as "a happy alternative to materialist reductionism on the one hand, Cartesian dualism on the other" (Nussbaum and Putnam 1992, 27). To be sure, there has been considerable debate about the exact description of Aristotle's psychological hylomorphism: those philosophers who think of it as a happy alternative have all maintained that it amounts to some sort of non-reductive materialism which offers a way of accounting for mental phenomena as comfortably situated in the natural world, but have not been able to agree between them-

¹⁰⁹ A study of the textual transmission of the *De insomniis* is found in Escobar (1990).

¹¹⁰ For a discussion of some contributions to the study of Aristotelian biology in the 1990s, see Grene (2000). Many of the most important contributions are collected in Gotthelf (1985); Gotthelf and Lennox (1987); Kullmann and Föllinger (1997); Mouracade (2008); Gotthelf (2012). For an overview see Lennox (2006, 2014).

selves whether it is most accurately labelled as functionalism, supervenience theory or emergentism; others, however, have insisted that it entails some form of dualism or vitalism, in which case it would seem to be of little use to contemporary philosophy of mind, and we would be well advised to follow Myles Burnyeat's recommendation and "junk it" (1992, 26).

This controversy has mainly played out in discussions of Aristotle's theory of sense perception as "that which is capable of receiving the perceptible forms without their matter" (*De an.* 2.12, 424a17–19), where various positions on a spectrum ranging from "literalism" to "spiritualism" have been ascribed to Aristotle,¹¹¹ where "literalism" is the view that the reception of perceptible qualities crucially involves the physical alteration of the sense organs, and "spiritualism" is the view that the "reception" of perceptible qualities is only mental (or "cognitive," as the ancient commentators would say), and thus involves no physical alteration of the sense organs (although a certain physical make-up of the respective sense organ is a necessary condition for sense perception to occur). An intermediate view, according to which the sense organs do not receive the perceptible qualities as such but are modified in the same proportions, has been defended by a number of scholars, most fully by Caston (2005, with references to earlier accounts at 247 n7; see also the overview in Caston 2006, 317–330).¹¹²

Somewhat crudely put, then, on a literalist reading, Aristotle's theory of sense perception involves an account of different types of physical change as well as of different psychic activities: it does not reduce the one to the other, but pays close attention to their interrelations (although exactly how these interrelations are defined may be debatable). On a spiritualist reading, Aristotle's theory simply assumes that there are physical entities endowed with consciousness: sense perception is accounted for exclusively as a psychic activity. Which seems to disqualify the theory for serious consideration by contemporary philosophers of mind.¹¹³ However that may be, I think it is fair to say that the controversy has been chiefly to do with the correct interpretation of Aristotle. Obviously, with so much disagreement over the features of Aristotle's theory, it is not so easy to adjudicate what sort of contemporary theory of mind should qualify as "Aristotelian." It remains to be seen whether any such theory with an impact comparable to that of Trendelenburg's or Brentano's will be forthcoming.

¹¹¹Strictly speaking, "literalism" and "spiritualism" are presumably the names of two opposed interpretations of Aristotle's view, but by metonymy the terms have come to signify also the views ascribed to Aristotle by these two opposed interpretations.

¹¹²To the literature referenced in these works, add Charles (2009) and Caston (2009).

¹¹³In the present context it is interesting to note that whereas one party to the controversy has invoked the preface to the *De sensu* in support of their claim that sense perception (being common to the soul and the body) must be accounted for in terms of both physical change and psychic activity (Nussbaum and Putnam 1992, 41–42), their opponents have tried to recruit John Philoponus, Thomas Aquinas and Franz Brentano for the cause of spiritualism (Burnyeat 1992, 18). Thomas' solidarity with the cause was called into question by Nussbaum and Putnam (1992, 53–55).

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