Aristotle

De Anima

Translated
With Introduction and Notes
By

C. D. C. Reeve

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Preface

Readers of the *De Anima* in translation find themselves in territory whose apparent familiarity is often deceptive and inimical to proper understanding. Even what the *De Anima* is about is not quite the soul as we think of it. A worthwhile translation must try to compensate for this deceptive familiarity without producing too much potentially alienating distance and strangeness in its place. Accuracy and consistency are essential to achieving this goal, obviously, but so too are extensive annotation and commentary. Some of this can consist, as it does here, of texts selected from other works by Aristotle himself, so that, while traveling through the region of the Aristotelian world the *De Anima* describes, the reader can also travel through other regions of it, acquiring an ever widening and deepening grasp on the whole picture—something that is crucial, in my view, to understanding any part of it adequately or perhaps at all. But much commentary must simply be explanatory, clarificatory, and interpretative.

To make the journey as convenient as a journey through a work as difficult as the *De Anima* can be, footnotes and glossary entries are replaced by sequentially numbered endnotes, so that the information most needed at each juncture is available in a single place. The non-sequential reader, interested in a particular passage, will find in the Index a detailed guide to places where focused discussion of a term or notion occurs. The Introduction describes the book that lies ahead, explaining what it is about, what it is trying to do, and how it goes about doing it. It is not a comprehensive discussion of all the important topics the *De Anima* contains, nor an attempt to situate Aristotle's thought in the history of psychology and the philosophy of mind more generally. Nor is it, I should add, an expression of scholarly consensus on the issues it does discuss—insofar as such a thing exists—but my own take on them. The same goes for many of the more interpretative notes. They are a place to start, not a place to finish—a first step in the vast dialectical enterprise of coming to understand Aristotle for oneself. It is a reader willing to undertake this task that Aristotle requires and most rewards and that I have most had in mind.

I have benefited from the work of previous translators, especially David Hamlyn, J. A. Smith, and (though it appeared too late for me to use systematically) Christopher Shields. The translations in the Ancient Commentators on Aristotle Series of Philoponus, Simplicius, and Themistius

were also most helpful, as were the commentaries of those ancient writers themselves, as well as the more recent ones of R. D. Hicks, Ronald Polansky, and David Ross.

I thank David Riesbeck for his careful line reading and for his many useful comments, suggestions, and corrections.

I renew my thanks to ΔΚΕ, the first fraternity in the United States to endow a professorial chair, and to the University of North Carolina for awarding it to me. The generous research funds, among other things, that the endowment makes available each year have allowed me to travel to conferences and to acquire books, computers, and other research materials and assistance, without which my work would have been much more difficult.

Abbreviations

Aristotle

Citations of Aristotle's works are made to Immanuel Bekker, *Aristotelis Opera* (Berlin: 1831 [1970]), in the canonical form of abbreviated title, book number (when the work is divided into books), chapter number, page number, column letter, and line number. In the case of the *De Anima*, however, the abbreviated title is usually omitted. A * indicates a work whose authenticity has been seriously questioned. The abbreviations used are as follows:

APo.	*Posterior Analytics*
APr.	*Prior Analytics*
Cael.	*De Caelo (On the Heavens)*
Cat.	*Categories*
DA	*De Anima (On the Soul)*
Div. Somn.	*On Divination in Sleep* (Ross)
EE	*Eudemian Ethics*
Fr.	*Fragments* (Rose)
GA	*Generation of Animals*
GC	*On Generation and Corruption* (Joachim)
HA	*History of Animals* (Balme)
IA	*Progression of Animals (De Incessu Animalium)*
Insomn.	*On Dreams* (Ross)
Int.	*De Interpretatione*
Juv.	*On Youth and Old Age, Life and Death, and Respiration* (Ross)
Long.	*On Length and Shortness of Life* (Ross)
MA	*Movement of Animals* (Nussbaum)
MM	*Magna Moralia** (Susemihl)

Mem.	*On Memory* (Ross)
Met.	*Metaphysics*
Mete.	*Meteorology*
NE	*Nicomachean Ethics*
PA	*Parts of Animals*
Ph.	*Physics*
Po.	*Poetics*
Pol.	*Politics*
Protr.	*Protrepticus* (Düring)
Rh.	*Rhetoric*
SE	*Sophistical Refutations*
Sens.	*Sense and Sensibilia*
Somn.	*On Sleep*
Top.	*Topics*

I cite and translate the *Oxford Classical Texts* (OCT) editions of these works, where available, otherwise Bekker or the editions noted:

Balme, D., *Aristotle: Historia Animalium* (Cambridge, 2002).

Düring, I., *Aristotle's Protrepticus: An Attempt at Reconstruction* (Göteborg, 1961).

Joachim, H., *Aristotle on Coming to Be and Passing Away* (Oxford, 1926).

Nussbaum, M., *Aristotle's De Motu Animalium: Text with Translation, Commentary, and Interpretative Essays* (Princeton, 1978).

Rose, V., *Aristotelis Fragmenta* 3rd ed. (Leipzig, 1886).

Ross, D., *Aristotle Parva Naturalia* (Oxford, 1955).

Susemihl, F., *Aristotelis Magna Moralia* (Leipzig, 1883).

Plato

Chrm.	*Charmides*
Crat.	*Cratylus*
Euthphr.	*Euthyphro*
Lg.	*Laws*

Phd.	*Phaedo*
Phdr.	*Phaedrus*
Prm.	*Parmenides*
Rep.	*Republic*
Smp.	*Symposium*
Sph.	*Sophist*
Tht.	*Theaetetus*
Ti.	*Timaeus*

Translations of Plato in the notes are based on those in J. M. Cooper, ed., *Plato: Complete Works* (Indianapolis, 1997).

Other Abbreviations

Barnes = J. Barnes, *The Complete Works of Aristotle: The Revised Oxford Translation* (Princeton, 1984).

Dooley = W. E. Dooley, S. J., tr. *Alexander of Aphrodisias, On Aristotle's Metaphysics 1* (Ithaca, 1989); *Alexander of Aphrodisias, On Aristotle's Metaphysics 5* (Ithaca, 1993).

DK = H. Diels and W. Kranz, eds. *Die Fragmente der Vorsokratiker*, 6th ed. (Berlin, 1951).

DL = Diogenes Laertius, *Lives of Eminent Philosophers*, ed. T. Dorandi (Cambridge, 2013).

Hamlyn = D. W. Hamlyn, *Aristotle's De Anima Books II and III (with Certain Passages from Book I)* (Oxford, 1968).

Hicks = R. Hicks, *Aristotle De Anima with Translation, Introduction, and Notes* (Cambridge, 1907).

Isnardi = M. Isnardi Parente and T. Dorandi, *Senocrate e Ermodoro, Testimonianze e Frammenti* (Pisa, 2012).

Jannone = A. Jannone and E. Barbotin, *Aristotle: De L'Âme* (Paris, 2009).

Nussbaum = M. Nussbaum, "The Text of Aristotle's *De Anima*," in M. Nussbaum and A. Rorty (eds.) *Essays on Aristotle's De Anima* (Oxford, 1992), pp. 1–6.

OCT = D. Ross, *Aristotelis De Anima* (Oxford, 1956).

Polansky = R. Polansky, *Aristotle's De Anima* (Cambridge, 2007).

R^3 = V. Rose, *Aristotelis Fragmenta* 3rd ed. (Leipzig, 1886).

Ross = D. Ross, *Aristotle De Anima: Edited, with Introduction and Commentary* (Oxford, 1961).

Shields = C. Shields, *Aristotle De Anima* (Oxford, 2016).

Tarán = L. Tarán, *Speusippus of Athens* (Leiden, 1981).

TEGP = D. Graham, *The Texts of Early Greek Philosophy: The Complete Fragments and Selected Testimonies of the Major Presocratics* (Cambridge, 2010).

van der Eijk = P. van der Eijk, *Philoponus: On Aristotle's On the Soul 1.3–5* (Ithaca, 2005).

Introduction

Life and Works

Aristotle was born in 384 BC to a well-off family living in the small town of Stagira in northern Greece. His father, Nicomachus, who died while Aristotle was still quite young, was allegedly doctor to King Amyntas of Macedon. His mother, Phaestis, was wealthy in her own right. When Aristotle was seventeen his guardian, Proxenus, sent him to study at Plato's Academy in Athens. He remained there for twenty years, initially as a student, eventually as a researcher and teacher. When Plato died in 347, leaving the Academy in the hands of his nephew, Speusippus, Aristotle left Athens for Assos in Asia Minor, where the ruler, Hermias, was a patron of philosophy. He married Hermias' niece, Pythias, and had a daughter by her, also named Pythias. Three years later, in 345, after Hermias had been killed by the Persians, Aristotle moved to Mytilene on the island of Lesbos, where he met Theophrastus, who was to become his best student and closest colleague.

In 343 Aristotle seems to have been invited by Philip of Macedon to be tutor to the latter's thirteen-year-old son, Alexander, later called "the Great." In 335 Aristotle returned to Athens and founded his own institute, the Lyceum. While he was there his wife died and he established a relationship with Herpyllis, also a native of Stagira. Their son Nicomachus was named for Aristotle's father, and the *Nicomachean Ethics* may, in turn, have been named for him or transcribed by him. In 323 Alexander the Great died, with the result that anti-Macedonian feeling in Athens grew stronger. Perhaps threatened with a formal charge of impiety (*NE* X 7 $1177^{b}33$), Aristotle left for Chalcis in Euboea, where he died twelve months later, in 322, at the age of sixty-two.

Legend has it that Aristotle had slender calves, small eyes, spoke with a lisp, and was "conspicuous by his attire, his rings, and the cut of his hair." His will reveals that he had a sizable estate, a domestic partner, two children, a considerable library, and a large circle of friends. In it Aristotle asks his executors to take special care of Herpyllis. He directs that his slaves be freed "when they come of age" and that the bones of his wife, Pythias, be mixed with his "as she instructed."

Although the surviving writings of Aristotle occupy almost 2,500 tightly printed pages in English, most of them are not works polished for publication but sometimes incomplete lecture notes and working papers. This accounts for some, though not all, of their legendary difficulty. It is unfair to complain, as a Platonist opponent did, that Aristotle "escapes refutation by clothing a perplexing subject in obscure language, using darkness like a squid to make himself hard to catch," but there is darkness and obscurity enough for anyone, even if none of it is intentional. There is also a staggering breadth and depth of intellect. Aristotle made fundamental contributions to a vast range of disciplines, including logic, metaphysics, epistemology, psychology, ethics, politics, rhetoric, aesthetics, zoology, biology, physics, and philosophical and political history. When Dante called him "the master of those who know," he was scarcely exaggerating.

The De Anima *and Its Subject-Matter*

One thing we might mean by *De Anima* is the Greek we now find inscribed on the pages that make up David Ross' Oxford Classical Text (OCT), first published in 1956, which is the basis of the present translation. This is the descendant of texts derived—via manuscripts copied in the Byzantine period (from the tenth to the fifteenth centuries AD)—from manuscripts that derive from the edition of Aristotle's works produced by Andronicus of Rhodes in the first century BC. Ross' edition, like most other modern editions, records in the textual apparatus at the bottom of the page various manuscript readings alternative to the one he prints in the body of his text.* In some cases, I have preferred one of these readings and have indicated so in the notes. Divisions of the text into books and chapters are the work of editors, not of Aristotle himself. Also present in Ross' text are the page numbers of Bekker, *Aristotelis Opera*. These appear here in the margins of the printed version and enclosed in | | in the electronic one. Occasional material in square brackets [ ] in the text is my addition.

The second thing we might mean, and are perhaps more likely to mean, by the *De Anima* is the work itself—that more abstract thing that is embodied in a good Greek text and (ideally) in any translation of it. And about its subject-matter at least it is possible to be brief—it deals with *psuchê* (Latin: *anima*; English: "soul"), which is the principle of vegetable and animal life and also (in one of its forms) of divine eternal life, and so deals too with various life processes, such as increase and decrease, growth and withering,

*Brief discussions of the text of *De Anima* can be found in Nussbaum and in Shields, xlv–xlvii.

animal movement and action, and the desires that cause it, as well as with perception and cognition. It is at once a contribution to biology, then, to psychology, and to theology. To see how and why it can be a contribution to all three—to see why to Aristotle these seem to comprise a single object of study—we need to start a bit further back than *De Anima* itself does, with an exploration of the place of *psuchê* or soul in nature more generally.

The Soul and Its Place in Nature

According to Aristotle we find in nature an apparently continuous scale of beings, in which animate beings—beings with souls—differ only very slightly from inanimate ones in their level of formation:

> Nature proceeds from the inanimate to the animals by such small steps that, because of the continuity, we fail to see to which the boundary and the middle between them belongs. For the first kind (*genos*) of thing after the inanimate is the plant kind, and, among these, one differs from another in seeming to have a greater share of life; but the whole kind, in comparison with the other inanimate bodies, appears almost as animate, while in comparison with the animal kind it appears inanimate. The change from plants to animals is continuous, as we said before. (*HA* VIII 1 $588^{b}4$–12)

The sublunary elements (earth, water, air, fire) aside, the simplest beings on this scale are homoeomerous or uniform stuffs, such as wood, olive oil, flesh, and bone, whose parts have the same account as the whole (*GC* I 1 $314^{a}20$, 10 $328^{a}10$–12). These are constituted out of the elements in some ratio, when the productive capacities or potentialities (hot, cold) in the elements master the corresponding passive ones (dry, moist):

> We must describe the operations of the productive capacities and the forms taken by the passive ones. First, unconditional coming to be in general and natural change and the corresponding natural passing-away are the function of these productive capacities; and these processes occur in plants, animals, and their parts. Unconditional natural coming to be is a change produced by these capacities, when present in the right ratio, in the underlying matter of a natural thing, and this is determined by the passive capacities we mentioned. The hot and the cold cause the thing to come to be when they master the matter. (*Mete.* IV 1 $378^{b}26$–$379^{a}1$)

The fundamental form of such mastery is concoction (*pepsis*), which is responsible for producing a uniform stuff, and for preserving its nature thereafter:

> Concoction is a completion effected by a thing's own natural heat from the corresponding passive capacities, these being definitive of the matter proper to the thing. For when a thing has been concocted it has been completed and brought into being. Moreover, the starting-point of the completion is its own proper heat. . . . The end of the process of concoction is the thing's nature—but nature in the sense of form, that is, substance. . . . Concoction, then, is what everything undergoes when its matter—that is, its moisture—is mastered; for this is what is given definition by the thing's natural heat, and as long as the defining ratio exists in it, it possesses its nature. (*Mete*. IV 2 $379^{b}18$–35)

Natural heat is thus *formative* heat—the principle in nature partly responsible for the coming to be and preservation of hylomorphic (matter-form) compounds.

Uniform stuffs, as minimally formed, have a low level of such heat. As form is added, so that stuffs come to constitute the structural parts of animals (such as hands and eyes), and these to constitute whole animals of different degrees of complexity, natural heat increases: "the more complete animals are those that are hotter in nature and more fluid—that is, not earthy" (*GA* II 1 $732^{b}31$–32). Such animals more completely pass on their form to offspring ($733^{a}33$–$^{b}2$). Since human beings are the most complete or most perfect animals (II 4 $737^{b}26$–27), they are also hottest and most estimable:

> All animals with lungs breathe. . . . The reason some have this part, and why those having it need to breathe, is that the more estimable of the animals are hottest; for at the same time their soul must have been made more estimable, since they have a more estimable nature than the cold ones. Hence too . . . that animal in which the blood in the lung is purest and most plentiful is the most upright, namely, man. The reason he alone has his upper part directed to the upper part of the universe is that he possesses such a part. (*Juv.* 13 $477^{a}13$–23)

Although male and female human beings both have formative heat, its level is not the same in each. This is revealed by the different roles played by their respective seminal products—seed (*sperma*, *gonê*) in the case of

males, menses (*katamênia*) in that of females—in reproduction: "what the male contributes to generation is the form and the efficient cause, while the female contributes the material" (*GA* I 20 729^{a}9–11).

What seed does to menses to form it into a fetus is likened to what a carpenter does to wood to make it into a piece of furniture:

> Nothing comes away from the carpenter to the matter of the timbers, nor is there any part of the craft of carpentry in the product, but the shape and the form are produced from the carpenter through the movement in the matter. And his soul in which the form is and his scientific knowledge move his hands or some other part in a movement of a particular sort, different when the product is different, the same when it is the same, and the hands move the instruments and the instruments move the matter. Similarly, the male's nature, in those that emit seed, uses the seed as an instrument containing actual movements, just as in craft productions the instruments are in movement; for the movement of the craft is in a way in them. (*GA* I 22 730^{b}11–23)

In the way that the movement of the carpenter's hands has its source in the form of the product present in his soul, the movement in the seed has its source in a form—namely, that of the male progenitor. Hence the very same formal constituents exemplified as potentialities in his form are exemplified as movements in his seed, guaranteeing that these movements are (at least to begin with) formally identical to the potentialities that transmit them: "When seed comes into the uterus it causes the female's menses to take shape and moves it in the same movement in which it itself is moving" (*GA* II 3 737^{a}20–22). Were this not so, their transmission to seed could not result in the transmission of the male's form to the offspring.

What enables the transmission of such movements to seed is that they are present in the male's blood—where, encoded in formative heat, they are responsible for the preservation of his form—and that seed itself is a very concentrated or concocted blood product:

> In blooded animals, blood is the final form of the nourishment . . . and since seed too is a residue from nourishment, that is, from its final form, surely it follows that seed will be either blood or something analogous to it or something constituted out of these. Every one of the parts of the animal is constituted out of blood as it becomes concocted and somehow divided into portions. . . . Therefore, seed is evidently a residue from that nourishment which is a type of blood—that

> which is finally distributed to the parts. This is why seed has great potentiality . . . and why it is reasonable that offspring should resemble their parents. For that which goes to all the parts [namely, blood] resembles what is left over [seed]. Hence the seed of the hand or of the face or of the whole animal is in an undifferentiated way a hand, or a face, or a whole animal—that is, what each of the latter is actually, such the seed is potentially. (*GA* I 9 $726^{b}1$–18)

When the male's formal movements are transmitted by concoction to menses, therefore, they first initiate the formation of the fetal heart. Once the heart is formed, the fetus then grows automatically, drawing its nourishment from its mother through the umbilicus, and in the process transmitting formative movements via the blood to the other developing parts (II 1 $735^{a}12$–26).

Menses is also a type of seed—"seed that is not pure, but needs working on" (*GA* I 20 $728^{a}26$–27). For a female's formative heat is cooler than a male's, and so cannot complete the final stage of forming or concocting menses into pure seed (I 20 $728^{a}18$–21). Nonetheless, a female can concoct her menses (or the seminal residue in it) to within that last stage of becoming pure seed, so that for each actual movement in seed, there is a corresponding potential movements stemming from the female form (IV 3 $768^{a}11$–14). While menses has the potentiality to move in such a way as to become a fetus, therefore, it cannot do so until it is set moving by seed, since "so far as things formed by nature or by human craft are concerned, the formation of what is potentially is brought about by what is actually" (II 1 $734^{a}29$–31).

Just which movements will underlie the offspring's form—whether, for example, it will be male or female—depends on the interaction between the movements in the seed and the potential movements in the menses (*GA* IV 3 $768^{b}5$–12). If a male movement is transmitted successfully to the menses, the offspring will have the corresponding component of the male form. If it fails to be transmitted, it may be wholly resisted, in which case it is replaced by the opposing movement in the menses, or resisted to a lesser degree, with different consequences in each case (*GA* IV 3 $768^{a}7$–9, $768^{b}7$–8).

While seed, as a concocted blood product, is a very purified type of nourishment, its vital heat, in which its formative movements are encoded, is of a quite special sort:

> The potentiality of all soul seems to be associated with a body different from and more divine than the so-called elements. . . .

> For within the seed of everything there is present that which makes the seeds be fertile, the so-called hot. This is not fire or that sort of potentiality, but the *pneuma* enclosed within the seed and within the foamy part—more precisely, the nature in the *pneuma*, which is analogous to the element that constitutes the stars. (*GA* II 3 $736^{b}29$–$737^{a}1$)

Characterized as "connate" (*sumphuton*), because it is not drawn in from outside but generated and maintained inside the body (*PA* II 2 $648^{a}36$–$649^{b}8$), it is the sort of *pneuma* that plays a fundamental role in nourishment and reproduction (*GA* II 6 $741^{b}37$–$742^{a}16$). The reproductive system, indeed, is in many ways simply a means of transmitting the form-preserving digestive system (of which blood and the heart are parts) into new matter, thereby initiating the formation of a new self-maintaining creature. That is why both functions are assigned to the *threptikon* or nutritive part of the soul (*DA* II 4 $416^{a}19$–20, $416^{b}11$–12).

Although many natural beings (for example, inanimate ones) do not preserve their form by means of nourishment, or transmit it by means of sexual reproduction, *pneuma* has a fundamental role to play in their existence too:

> Democritus omitted to mention the for-the-sake-of-which [or final cause], and so thought that all the things that nature uses are due to necessity. And they are. At the same time, however, they are for the sake of something, that is, for the sake of what is in each case better. Thus nothing prevents the teeth from being formed and lost in the way he says, but it doesn't happen because of these, but because of the end. The [things he cites] are causes in the sense of being movers, instruments, and matter, since it is reasonable, indeed, for nature to make most things using *pneuma* as instrument. For just as some things have many uses where the crafts are concerned—for example, the hammer and the anvil in blacksmithing—so does *pneuma* in those constituted by nature. (*GA* V 8 $789^{b}2$–12)

Yet despite its manifest importance, no focused discussion of *pneuma* occurs in Aristotle's extant works. This makes it difficult to determine his views with confidence. But by piecing together what he does say, a reasonably clear picture emerges.

From its role in embryology alone, for example, we can see that *pneuma* transmits movement by being itself in movement. The role accorded to it in animal movement confirms this fact:

> [*Pneuma*] is evidently well disposed by nature to impart movement and supply strength. At all events, the functions of movement are pushing and pulling, so that its instrument (*organon*) must be capable of expanding and contracting. And this is just the nature of *pneuma,* since it contracts and expands without constraint, and is able to pull and push for the same reason. (*MA* 10 703^{a}18–23)

Moreover, because the movements it imparts are formative, they must be complex and various—able, as geneticists now put it, to *code for* all of an animal's parts. Since movements are "either in a circle or in a straight line or in a combination of the two" (*Ph.* VIII 8 261^{b}28–29), all the complex movements *pneuma* can produce must be some such combination. What makes this possible is that by actively expanding and contracting, and so pushing and pulling, it can cause not just rectilinear but also circular movements: "Spinning in a circle is a compound of pushing and pulling, since what causes something to spin must be pushing one part of it and pulling another, for it draws one part away from itself and another part toward itself" (*Ph.* VII 2 244^{a}2–4). Hence all movements—rectilinear, circular, or a combination of the two—can be caused by *pneuma* (*DA* III 10 433^{b}25–26).

Initially *pneuma* is assigned a role in the transmission of form to uncontroversially animate beings. However, its role gets expanded to explain other phenomena, such as transparency:

> For it is not insofar as something is water or insofar as it is air that it is visible, but because there is a certain nature in it that is the same in both of them and in the [eternal] body above. (*DA* II 7 418^{b}7–9)

> What we call transparent is not something special to air, or water, or any other of the bodies usually called transparent, but is a common nature or potentiality present in these, and in all other bodies in a greater or lesser degree, and does not exist separately. (*Sens.* 3 439^{a}21–23)

Then, because *pneuma* is soul-transmitting, soul is to some extent itself attributed to anything in which *pneuma* is present: "in water *pneuma* is present, and in all *pneuma* there is soul-involving [= formative] heat (*thermotêta psuchikên*), so that in a way all things are full of soul" (*GA* III 11 762^{a}18–21). When "the capacity of all soul" is associated with "the nature in the *pneuma* that is analogous to the element that constitutes the stars," then, the point of analogy is that the nature in question is both transparent and—as itself in

movement—an appropriate transmitter of soul and life. For the element that constitutes the stars, which is ether (*aithêr*) or primary body (*sôma prôton*), is a body "different from and additional to the elemental ones met with here, more divine than, and prior to, all of them" (*Cael.* I 2 269^{a}30–32), and is both transparent and in eternal circular movement (I 3 270^{a}12–^{b}25). Hence *pneuma* is a "body more divine than the so-called elements," because it is analogous to ether, which is in fact more divine than they.

The fact that soul is transmitted in this way has consequences for what a soul is. Female menses is a complex structure of potentialities to move in certain ways. As such, it is lifeless and soulless—unmoving. When the pneuma-imbued male seed enters it and causes ongoing movements within it, the resulting embryo acquires nutritive soul (*GA* II 3 736^{a}35–36). Hence the seed has the *capacity* to take in nourishment and grow when it is in a functioning female uterus where menses are available to it. And because it does Aristotle can define soul of every sort—whether nutritive or perceptive or rational—as "the first actualization (*entelecheia*) of a natural body that has life potentially" (*DA* II 1 412^{a}27–28) or, more expansively, as "the first actualization of a natural instrumental body" (412^{b}5–6). For a first potentiality is like the capacity someone has to learn Greek. When that capacity is actualized through the acquisition of the ability to speak Greek, that is its *first* actuality—the first stage in the actualization of the capacity. The acquired capacity he now has to exercise his acquired ability in actively speaking Greek is a second potentiality—a second stage in the development of the original first potentiality. Actualizing that second potentiality in actively speaking, in turn, is a *second* actualization (II 5 417^{a}21–29) or activity (*energeia*) (III 4 429^{b}6–7). Thus in a mature animal the potentiality for nourishment and growth is always possessed as a *first* actualization as long as the animal is alive. It is only in the seed from which it develops that nutritive soul is present as a *first* potential: "It is not what has lost its soul that is potentially such as to live, but what has it. The seed and the fruit are potentially bodies of this sort" (II 1 412^{b}26–27).

Pneuma is the vitalizing factor, the one that brings life and soul into the right sort of body, equipping it with the starting-points of the various life or soul functions. In the case of seed, the right sort of body is a natural one with parts that can serve as instruments of nourishment and growth. In the case of potentialities, such as the potentiality to walk, whose actualization requires feet as instruments, the natural instrumental body in which they can be present must obviously be of a different sort from seed. Similarly, to have sight as a first actualization, a body needs to have functional eyes. And what makes an eye functional, what makes it a living eye, is that it is vitalized by *pneuma*. For that to be possible, however, the eye must be part of the vitalized body of an autonomously functioning whole animal—one in whose blood *pneuma* reaches to all the various functional parts.

Hence it is not *pneuma* that is the instrumental body of perceptual soul but the right sort of pneumaticized body. That is why soul can also be defined as the "form of a natural body that has life potentially" (II 1 $412^{a}19$–21). If the life in question is simply vegetative life, the requisite type of body may be that of a seed, and its form, once it is planted and begins to grow, may be the structure of informing movements that code for nourishment and growth. If the life is that of perception, the requisite body must contain a structure of such movements that is correspondingly more complex.

Immortal Soul

To the account of soul as "form of a natural body that has life potentially," the understanding (*nous*) is an intriguing exception, since it is unique among the human soul's activities in having no sublunary bodily correlate: "bodily activity is in no way associated with its activity" (*GA* II 3 $736^{b}28$–29; also *DA* II 1 $413^{a}6$–7). The puzzle immediately arises of how what is without such a correlate can develop in a fetus as a result of movements in the *pneuma* contained in male seed:

> We must make clear whether that which is constituted in the female takes over anything from that which enters, or nothing; concerning soul, for example, in virtue of which it is called an animal. . . whether it is present within the seed and the fetus or not, and where it comes from. . . . It is plain enough that seed and fetus have nutritive soul. . . but as they develop they also have the perceptual soul in virtue of which they are animal. For they do not become simultaneously animal and man, or animal and horse, and so on; for the end is the last thing to be produced, and the end of each animal's coming to be is what is special to it. That is why, where understanding is concerned, it is a very great puzzle as to when and how and from where it is acquired by those who share this starting-point, and we must try hard to grasp its resolution according to our abilities and to the extent possible. (*GA* II 3 $736^{a}27$–$^{b}8$)

The reason it is such a puzzle is that the various psychological functions can be present as capacities or potentialities in seed or fetus in only a certain number of ways:

> [1] Either they must all be produced in the menses without existing there beforehand, or they must all preexist, or some

> must, but not others; and [2] they must be produced in the matter [that is, the menses] either without having entered in the male's seed, or having come from there; and [3] in the male they must either all be produced [in the seed] from outside it, or none from outside, or some but not others. That they cannot all be present beforehand is clear from the following. [4] All starting-points whose activity is bodily are clearly unable to be present without body (for example, walking without feet). [5] And hence they cannot enter [the seed] from outside. For they can neither enter by themselves, not being separate, nor enter in as the starting-points of an already formed body; for the seed is a residue produced by a change in the nutriment. [6] It remains then that understanding alone enters additionally from outside and alone is divine; for bodily activity is in no way associated with its activity. (*GA* II 3 736^{b}15–29)

Here [1] concerns the menses and what it contributes to the fetus; [2] concerns the seed and what it contributes; and [3] concerns the male progenitor and what he contributes to the seed. And the line of descent, as we know, is from formative movements in the *pneuma* contained in the male progenitor's blood to his seed, from seed to menses, and so to fetus. [4] restricts our attention to starting-points of psychological functions whose active varieties are bodily, in that they require bodily organs, as walking requires feet and seeing requires eyes. [5] tells us the two conditions under which these could enter something "from the outside." This signals, as [3] makes clear, that the something they enter is the male seed. [5] then shows that the starting-points cannot meet either of the conditions: they cannot enter by themselves, apart from body, because they are not separate from it; they cannot enter the body of the seed as the starting-points of an already formed body, because seed, as a residue produced by nutriment, does not contain things like feet and other bodily parts. On the other hand, [6] because bodily activity is in no way associated with the activity of understanding, understanding does enter the male seed from outside. That is the picture.

Just how understanding manages to enter the seed from outside, however, is left unexplained. All that we are told is that in embryogenesis it is transmitted along with the seed yet separate from it:

> Consider now the body of the seed, in and with which is emitted the starting-point of soul, part of which is separate from the body and belongs to those beings in which something divine is included (and this is what is called understanding), while the other is not separate from the body. (*GA* II 3 737^{a}7–11)

As a result of being transmitted in this way, however, the understanding "seems to be born in us as a sort of substance, and not to pass away" (*DA* I 4 408^{b}18–25) and to be "perhaps something divine" (408^{b}29). Moreover, it is "in substance an activity," and so is not "sometimes understanding and at other times not," but rather of all the elements in the human soul "it alone is immortal and eternal" (III 5 430^{a}18–23). These characteristics make it reasonable to suppose that understanding is transmitted along with the male seed as movements in *ether* that code for it. The following description of ether makes the supposition all but certain:

> It is reasonable to assume that ether is incapable of coming to be, passing away, and of growth or alteration, because everything that comes to be does so from a contrary and some underlying subject into a contrary by the action of a contrary, as we said in our initial accounts [in *Ph.* I 7–9]. The movements of contraries, however, are contraries. So if there cannot be a contrary to this body, because there cannot even be a movement contrary to movement in a circle, nature seems to have rightly exempted what was to be incapable of coming to be and passing away from contraries, since it is in contrary things that coming to be and passing away occur. Again, everything that grows does so as a result of something of the same kind being added to it and dissolving into matter. There is nothing, however, from which ether comes to be. Yet if it is non-growing and incapable of passing away, the same line of thought leads us to suppose that it is also unalterable. For alteration is change with respect to quality, and qualitative states and dispositions, such as health and disease, do not come to be without changes in affection. All natural [sublunary] bodies, however, that change with respect to an affection admit, we see, of growth and decrease. . . . Hence if the body that moves in a circle cannot admit of growth or decrease, it is reasonable to suppose that it is also unalterable. (*Cael.* I 3 270^{a}12–35)

Were understanding coded for by anything other than the circular movements in ether, then, it seems that it could not itself be immortal, eternal, or ever active.

Ether itself, to be sure, is a bit hard to get a handle on, since it seems, for one thing, to be a sort of perpetual motion machine—something that by its very essence cannot stop moving or run out of steam. At the same time, though, it is fairly clearly something material. Hence the understanding, which is coded for by its movements, while it can come apart from earth, water, air, and fire, cannot ever become wholly disembodied. Its entry into

the male seed in embryogenesis, then, is not a case of a ghost entering a machine, but—to continue the metaphor—of one kind of machine entering another. This lessens the mystery that understanding seemed to present us with even if it does not dispel it altogether.

The Science of Soul

Because the science S to which *De Anima* is a contribution deals with souls—animators—in general, it deals also with the animators of plants, namely, nutritive soul (discussed in II 4). This marks one difference between S and what we call psychology—one way in which S is aligned more closely with biology or botany. Moreover, Aristotle himself acknowledges that S is a divided or bipartite science:

> There is a puzzle too about the affections of the soul, as to whether they are all also shared by what has the soul or whether there is also some affection that is special to the soul itself. For it is necessary to attain [a resolution of] this, but it is not easy. It appears that in most cases, though, the soul is neither affected by nor does it act without the body—for example, being angry, being confident, having an appetite for things, perceiving in general—whereas understanding seems to be most of all special to the soul. . . . The affections of the soul—spiritedness, mild-mannerdness, fear, pity, confidence, and, further, joy, loving, and hating—would all seem to involve the body, since at the same time as these the body is affected in a certain way. . . . If this is so, however, it is clear that the affections of the soul are enmattered accounts. So their definitions will be of this sort, for example: "Being angry is a sort of movement of such-and-such a sort of body, or of a part or a capacity, as a result of something for the sake of that." And this is why it already belongs to the natural scientist to get a theoretical grasp on the soul, either all soul or this sort of soul. (*DA* I 1 $403^{a}3$–28; also *Met*. VI 1 $1025^{b}25$–$1026^{a}30$)

Thus on the one hand S deals with affections of the soul that involve the body in the way indicated and on the other it deals with other attributes of the soul—if there are any—that do not involve it. These, if actually separable from the body—the body ultimately composed of earth, water, air, and fire—are the provenance not of natural science but of primary philosophy (*DA* $403^{b}15$–16).

What, then, is primary philosophy or primary science? The following passages tell us in no uncertain terms:

> Natural science is concerned with things inseparable but not immovable, while certain parts of mathematics are concerned with things immovable and not separable but as in matter. The primary science, by contrast, is concerned with things that are both separable and immovable. Now all causes are necessarily eternal, and these most of all. For they are the causes of the divine beings that are perceptible. There must, then, be three theoretical philosophies, mathematical, natural, and theological, since it is quite clear that if the divine belongs anywhere, it belongs in a nature of this sort. (*Met*. VI 1 $1026^{a}13$–19)

> Natural science is concerned with things that have a starting-point of movement within themselves. Mathematics, on the other hand, is theoretical and is a science of things that remain the same, but they are not separable. Concerned with things that are separable, therefore, and immovable, there is a science distinct from both of these, if indeed there is some substance of that sort (I mean separable and immovable), which is just what we shall try to show. And if indeed there is a nature of this sort among beings, there is where the divine too would surely be, and this would be the primary and most controlling starting-point. Accordingly, it is clear that there are three kinds (*genos*) of theoretical sciences—natural, mathematical, and theological. (*Met*. XI 7 $1064^{a}30$–$^{b}3$)

Thus the science that deals with the separable affections of soul—if any—is theology. But that there are such affections, though conditional in the passages we are now looking at, is something we already know Aristotle takes to be a fact, since with the activity of the understanding "bodily activity is in no way associated" (*GA* II 3 $736^{b}28$–29). Moreover that these affections should belong to the understanding and be the provenance of theology is no real surprise, either, since "the understanding is something divine" (*NE* X 7 $1177^{b}30$).

Turn back to S—Aristotle's science of soul. S has its feet in botany and its head in theology. And while the feet disconnect it from psychology, the head connects it to religious conceptions of the soul as something that can survive the death of the body—an idea Aristotle himself countenances:

> The understanding, on the other hand, seems to be born in us as a sort of substance, and not to pass away. For if it could pass

> away it would most of all be due to the feebleness of old age, whereas, as things stand, it is like what happens in the case of the perceptual organs. For if an old man could get such-and-such a sort of eye, he would see as well as even a young one. So old age is not due to the soul's being affected in a certain way but, rather, what the soul is in, as in the case of drunkenness and disease. And in particular understanding and contemplating are extinguished because something else within passes away, but the understanding itself is unaffectable. But thinking and loving or hating are not affections of the understanding but of what has it, insofar as it has it. That is why when that passes away it neither remembers nor loves. For they were not affections of it, but of what is common, which has passed away. But the understanding is perhaps something divine and is unaffectable. (*DA* I 4 $408^{b}18$–25)

But just as understanding enters the developing fetus not as a ghost entering a machine but as ether moving in ways that code for it, so, at the death of the body composed of earth, water, fire, and air, it presumably exits in the same way. Death does not, then, herald the absolute disembodiment of the understanding, just its loss of one sort of body—the sort that makes the soul also a suitable subject for a natural science.

What a Human Being Is

An *anthrôpos* in the most general sense is a human being of either sex, whereas an *anêr*, by contrast, is specifically a male human being—a man. The associated adjective *anthrôpinos*, while it can certainly mean "human," often seems to mean something more like "*merely* human":

> We should not, however, in accord with the makers of proverbs, "think human things (*anthrôpina*), since you are human" or "think mortal things, since you are mortal" but, rather, we should as far as possible immortalize, and do everything to live in accord with the element in us that is most excellent. (*NE* X 7 $1177^{b}31$–33)

Anthrôpikos (also "human") sometimes has similar connotations:

> Happiest, but in a secondary way, is the life in accord with the other virtue, since the activities in accord with it are human (*anthrôpikai*). . . . Indeed, some of them even seem to arise

> from the body. . . . But the virtues of the composite [of soul and body] are human (*anthrôpikai*). So too, then, are both the life and the happiness that is in accord with them. The virtue of understanding [= theoretical wisdom], though, is separated. (*NE* X 8 1178^{a}9–22)

Indeed, even *anthrôpos* itself is sometimes used to refer to the whole human animal, sometimes to the human element in human beings by contrast with the divine one:

> But such a [contemplative] life would be more excellent than one in accord with the human element (*anthrôpon*), since it is not insofar as he is a human being (*anthrôpos*) that someone will live a life like that but insofar as he has some divine element (*theion ti*) in him, and to the degree that this element is superior to the composite, to that degree will its activity also be superior to that in accord with the other sort of virtue. (*NE* X 7 1177^{b}26–29)

But *anthrôpos* is equally well used to refer to that divine element, since it is what makes human beings distinctively human:

> Of those pleasures that seem to be decent, however, which sort or which particular one should we say is characteristic of a human being? Or isn't this clear from the corresponding activities, since the pleasures are entailed by these? So whether the activities of a complete and blessed man are one or more than one, the pleasures that complete these will be said to be characteristically human (*anthrôpou*) pleasures in the full sense, and the rest will be so in a secondary or many-times-removed way, as are the activities. (*NE* X 5 1176^{a}24–29)

Here the pleasures that are characteristically human are those not of the body, since many of these we share with wild beasts, but of the soul, especially the understanding:

> We think that pleasure must be mixed in with happiness, and the most pleasant of the activities in accord with virtue is agreed to be the one in accord with theoretical wisdom. (*NE* X 7 1177^{a}22–25)

Thus when we ask what a human being is, we need to be clear about what the target of our question is.

It is at this point that we come face to face with an initially quite puzzling doctrine:

> [1] But just as a city too or any other complex system, seems to be most of all (*malist'*) its most controlling part, so also does a human being. (*NE* IX 8 1168^{b}31–33)

> [2] It would seem too that each person actually *is* this, if indeed it is the controlling and better element. So it would be strange if he were to choose not his own life but that of something else. Moreover, what we said before will fit now as well. For what properly belongs to each thing by nature is best and most pleasant for each of them. For each human being, then, the life in accord with understanding is so too, if indeed this most of all is a human being. Hence, this life will also be happiest. (*NE* X 7 1178^{a}2–8; also *Protr*. B58–70)

[1] tells us that a human being is *malista* ("most of all") its most controlling element, which [2] identifies with the divine element in him—understanding. Moreover [2] goes further in one dimension, since it drops the adverb *malista*, and speaks of a human being simply as being—as being one and the same as—his understanding. At the same time, it is more tentative about this identity—"if indeed it is the controlling and better element"—and in the end restores the adverb: "if indeed this most of all is a human being."

Now it is certainly true that we cannot make much sense of one thing being most of all one and the same as another if this means that it has a very high degree, or the highest degree, of numerical identity to it. For numerical identity, like existence, does not come in degrees; things either exist or they don't and are either one and the same as each other or they aren't. However, the fact that [1] mentions a city as an example of the sort of complex system that is most of all its most controlling element gives us a way to understand it in more familiar and less apparently paradoxical terms.

In *Politics* III 6, Aristotle squarely states that "the governing body controls the city everywhere, and the constitution is the governing body" (1278^{b}10–11). What is revealing about this statement is that, like [1–2], it mentions the notion of control, which is itself characterized in terms of degree: "most controlling" in [1] and "controls the city everywhere (*pantachou*)." And the reason it is revealing is this:

> [3] A person is called "self-controlled" or "lacking in self-control" depending on whether or not his understanding is in

> control, on the supposition that this is what each person *is*, and it is actions involving reason that people seem most of all to do themselves and to do voluntarily. So it is clear enough that this part is what each person is or is most of all and that a decent person likes this part most. (*NE* X 8 $1168^{b}34$–$1169^{a}2$)
>
> [4] Just as in the whole it is the [primary] god, so it is too in us. For the divine constituent in us [= understanding or reason] in a way does all the moving. Of reason, however, the starting-point is not reason, but something superior. But what besides the [primary] god is superior to both scientific knowledge and understanding, since virtue [of character] is an instrument of understanding? (*EE* VIII 2 $1248^{a}25$–29)

Without going into all the details involved in interpreting [4], we can see that together with [3] it licenses us to understand [1–2] as a doctrine that is as much about control as it is about identity.

When contemporary philosophers try to understand human agency, they often find themselves wanting to distinguish actions that originate in—or have their causal source in—the agent from actions that stem from the agent's "real self" or "will" or what the agent "identifies" with. A reforming smoker, for example, may succumb to temptation and exhibit lack of self-control by smoking a cigarette, without thereby returning to being a smoker. Why? Because that action stems from a desire that is no longer a part of his true self, no longer part of his will or what he identifies with. However precisely we are best to understand the psychology of agency that makes these distinctions fully intelligible, it is attractive to see Aristotle as making an early contribution to it, since this allows us to make good sense of [1–2]. For on this way of looking at things degrees of identity have no place in them. We are most of all our understanding because our understanding is our "true self"—the source of those actions that are most our own, that we most identify with. Our psychology, then, is in one way that of our understanding, in another that of the complex human being of which it is a part, and in another still that of the essentially embodied soul that to a certain extent we share with plants and animals.

Aristotelian Sciences

We have spoken of S as a "science" of soul and seen that it divides into two parts—one natural, the other theological. To have a handy way to refer to these, let us call one *natural psychology*, the other *theological psychology*,

and the two collectively simply *psychology*. The question we must now address is what exactly it means to say that these things are sciences.

When science receives its focused discussion in the *Nicomachean Ethics*, Aristotle is explicit that if we are "to speak in an exact way and not be guided by mere similarities" (VI 3 1139^{b}19), we should not call anything a science unless it deals with eternal, entirely exceptionless facts about universals that are wholly necessary and do not at all admit of being otherwise (1139^{b}20–21). Since he is here explicitly epitomizing his more detailed discussion of science in the *Posterior Analytics* (1139^{b}27), we should take the latter too as primarily a discussion of science in the exact sense, which it calls *epistêmê haplôs*—unconditional scientific knowledge. It follows—and we should acknowledge this—that only the strictly theoretical sciences are sciences in the exact sense. Hence even if theological psychology is such a science, natural psychology is not one, and so psychology as a whole is not one either.

Having said that, however, we must also register the fact that Aristotle himself mostly does not speak in the exact way but instead persistently refers to bodies of knowledge other than the strictly theoretical sciences as *epistêmai*. His usual division of the *epistêmai* into theological, mathematical, and natural is a dramatic case in point. But so too is his use of the term *epistêmê,* for example within the *De Anima*, where we first encounter it in the shape of the *natural* scientist (I 1 403^{a}28). Even boxing and wrestling are *epistêmai* (*Cat*. 10^{b}3–4).

The interesting question, therefore, is not whether psychology is a science, since the answer to that is obvious: it is not a science if we are being absolutely exact about the matter, but it is a science if we allow ourselves to be guided by the similarities between it and the strictly theoretical sciences—or by Aristotle's own general use of the term *epistêmê*, on the assumption that he himself was guided by these. The interesting question is, what are these similarities? Just how like a canonical or theoretical science is psychology?

An Aristotelian science of any sort (*DA* II 1 412^{a}10n), including a theoretical one, is a state of the soul, not a body of propositions in a textbook—although the state does involve having an affirmational grasp on a set of true propositions (*NE* VI 3 1139^{b}14–16). Some of these propositions are indemonstrable starting-points, which are or are expressed in definitions, and others are theorems demonstrable from these starting-points. We can have scientific knowledge only of the theorems, since—exactly speaking—"what is scientifically known is demonstrable" (*NE* 6 1140^{b}35). Yet—in what is clearly another lapse from exact speaking—Aristotle characterizes "the most exact of the sciences," which is theoretical wisdom (*sophia*), as also involving a grasp by understanding (*nous*) of the truth where the starting-points themselves are concerned (*NE* 7 1141^{a}16–18). He does the same thing in the *Metaphysics,* where theoretical wisdom is the *epistêmê* that provides "a

theoretical grasp on the primary starting-points and causes"—among which are included "the good or the for-the-sake-of-which" (*NE* I 2 $982^{b}7$–10). Indeed, the grasp we have of such starting-points must result in their being "better known" than the theorems we demonstrate from them if we are to have any scientific knowledge of the exact sort at all (*NE* VI 3 $1139^{b}34$).

How like that is psychology? Are there starting-points here too and theorems demonstrable from them? We might think this is an easy question to answer. After all, *De Anima* seems not to include any demonstrations whatsoever. For a demonstration is, among other things, a deductively valid argument that is syllogistic in form, and deductions of any sort are scarcely to be found in it. This is also a problem with the vast majority of Aristotle's works, even those that are usually classed as "scientific treatises"—for example, *Meteorology* and *Parts of Animals*. For none of them seems to fit the description of a science as developed in the *Posterior Analytics*. People have certainly tried to find elements of demonstration and axiomatic structure in these treatises, but the results are somewhat underwhelming. In large part, this is because the search is misconceived from the outset.

If we think of a science in the exact sense as consisting exclusively of what is demonstrable, as we have seen that Aristotle himself sometimes does, we will be right to conclude that a treatise without demonstrations in it cannot be scientific. But if, as he also does, we include knowledge of starting-points as parts of science, we will not be right, since a treatise could contribute to a science not by demonstrating anything but by arguing to the starting-points themselves—an enterprise that could not possibly consist of demonstrations from those starting-points, since these would be circular. Arguments leading *from* starting-points and arguments leading *to* starting-points are different (*NE* I 4 $1095^{a}30$–32), we are invited not to forget, just as we are told that soul is a starting-point of living things (*DA* I 1 $402^{a}5$–6), that a major goal of the *De Anima* is "to get a theoretical grasp on, and to know, both the nature of the soul and its substance, and then on all the coincidents belonging to it" ($402^{a}7$–8). We might reasonably infer, then, that *De Anima* contributes to psychology precisely by developing the correct definition of its starting-points, without which no demonstrative science of it can exist. The same idea might be employed in the case of many of Aristotle's other treatises. They too, we might suppose, are scientific in just this sense.

Dialectic, Induction, and Scientific Starting-Points

In our investigation of starting-points, "we must," Aristotle says, "start from things known *to us*" (*NE* I 4 $1095^{b}3$–4). For the sake of clarity, let us call these *raw starting-points*. These are the ones we start from when we

are arguing to *explanatory scientific starting-points*. It is important not to confuse the two. In the case of the various special sciences the *explanatory starting-points* include, in particular, definitions that specify the genus and differentiae of the real (as opposed to nominal) universal essences of the beings with which the science deals (*APo*. II 10 $93^{b}29$–$94^{a}19$). Since scientific definitions must be apt starting-points of demonstrations, this implies, Aristotle thinks, that the "extremes and the middle terms must come from the same genus" (I 7 $75^{b}10$–11). As a result a single canonical science must deal with a single genus (I 28 $87^{a}38$–39).

To reach these definitions from raw starting-points, however, we first have to have the raw starting-points ready to hand. Aristotle is clear about this, as he is indeed about what is supposed to happen next:

> The method (*hodos*) is the same in all cases, in philosophy as well as in the crafts or any sort of learning whatsoever. For one must observe for both terms what belongs to them and what they belong to, and be supplied with as many of these terms as possible, and one must investigate them by means of the three terms [in a syllogism], in one way when refuting, in another way when establishing something. When it is in accord with truth, it must be from the terms that are catalogued (*diagegramenôn*) as truly belonging, but in dialectical deductions it must be from premises that are in accord with [reputable] belief. . . . Most of the starting-points, however, are special to each science. That is why experience must provide us with the starting-points where each is concerned—I mean, for example, that experience in astronomy must do so in the case of astronomical science. For when the appearances had been adequately grasped, the demonstrations in astronomy were found in the way we described. And it is the same way where any other craft or science whatsoever is concerned. Hence if what belongs to each thing has been grasped, at that point we can readily exhibit the demonstrations. For if nothing that truly belongs to the relevant things has been omitted from the collection, then concerning everything, if a demonstration of it exists we will be able to find it and give the demonstration, and if it is by nature indemonstrable, we will be able to make that evident. (*APr.* I 30 $46^{a}3$–27)

Once we have a catalogue of the *raw starting-points*, then, the demonstrative explanation of them from explanatory scientific starting-points is supposedly fairly routine. We should not, however, demand "the cause [or explanation] in all cases alike. Rather, in some it will be adequate if the fact

that they are so has been correctly shown (*deiknunai*) as it is indeed where starting-points are concerned" (*NE* I 8 1098[a]33–[b]2). But what exactly is it to show a starting-point correctly or adequately?

In the following text Aristotle provides one possible answer:

> Dialectic is useful in the philosophical sciences because the capacity to go through the puzzles on both sides of a question will make it easier to discern what is true and what is false in each. Furthermore, dialectic is useful in relation to the primary [starting-points] (*ta prota*) in each science. For it is impossible to say anything about these based on the starting points properly belonging to the science in question, since these starting-points are, of all of them, the primary ones, and it is through reputable beliefs (*endoxa*) about each that it is necessary to discuss them. This, though, is a task special to, or most characteristic of, dialectic. For because of its ability to examine (*exetastikê*), it has a route toward the starting-points of all methods of inquiry. (*Top.* I 2 101[a]34–[b]4)

And this is repeated almost word for word in the *Physics* with reference to the concept of place, which is a natural scientific starting-point:

> We must try to make our investigation in such a way that the what-it-is is given an account of, so that the puzzles are resolved, the things that are believed to belong to place will in fact belong to it, and furthermore, so that the cause of the difficulty and of the puzzles concerning it will be evident, since this is the best way of showing each thing. (IV 4 211[a]7–11)

Prima facie, then, the *De Anima* should correctly show the explanatory starting-points of the science of psychology (natural and theological) going through puzzles and solving these by appeal to reputable beliefs. But before we rush to the *De Anima* to see whether that is what we do find, we need to be clearer about what exactly we should be looking for.

Dialectic is recognizably a descendant of the Socratic elenchus, which famously begins with a question like this: *Ti esti to kalon?* What is the noble? The respondent, sometimes after a bit of nudging, comes up with a universal definition, what is noble is what all the gods love, or whatever it might be (I adapt a well-known answer from Plato's *Euthyphro*). Socrates then puts this definition to the test by drawing attention to some things that seem true to the respondent himself but which conflict with his definition. The puzzle or *aporia* that results from this conflict then remains

for the respondent to try to solve, usually by reformulating or rejecting his definition. Aristotle understood this process in terms that show its relationship to his own:

> Socrates, on the other hand, busied himself about the virtues of character, and in connection with them was the first to inquire about universal definition. . . . It was reasonable, though, that Socrates was inquiring about the what-it-is. For he was inquiring in order to deduce, and the what-it-is is a starting-point of deductions. For at that time there was not yet the strength in dialectic that enables people, and separately from the what-it-is, to investigate contraries, and whether the same science is a science of contraries. For there are two things that may be fairly ascribed to Socrates—inductive arguments and universal definition, both of which are concerned with a starting-point of scientific knowledge. (*Met.* XIII 4 $1078^{b}17$–30; also I 6 $987^{b}1$–4)

In Plato too dialectic is primarily concerned with scientific starting-points, such as those of mathematics, and seems to consist in some sort of elenchus-like process of reformulating definitions in the face of conflicting evidence so as to render them puzzle free (*Rep.* VII 532a1–533d1). Aristotle can reasonably be seen, then, as continuing a line of thought about dialectic, while contributing greatly to its exploration, systemization, and elaboration in works such as *Topics* and *Sophistical Refutations*.

Consider now the respondent's first answer, his first definition: what is noble is what the gods love. Although it is soon shown to be incorrect, there is something quite remarkable about its very existence. Through experience shaped by acculturation and habituation involving the learning of a natural language, the respondent is confident that he can say what nobility is. He has learned to apply the word "noble" to particular people, actions, and so on correctly enough to pass muster as knowing its meaning, knowing how to use it. From these particular cases he has reached a putative universal, something the particular cases have in common. But when he tries to define that universal in words, he gets it wrong, as Socrates shows. Here is Aristotle registering the significance of this:

> The things that are knowable and primary for particular groups of people are often only slightly knowable and have little or nothing of the being in them. Nonetheless, beginning from things that are poorly known but known to ourselves, we must try to know the ones that are wholly knowable, proceeding, as has just been said, through the former. (*Met.* VII 3 $1029^{b}8$–12)

The route by which the respondent reaches the universal that he is unable to define correctly is what Aristotle calls induction (*epagôgê*). This begins with (1) perception of particulars, which leads to (2) retention of perceptual contents in memory, and, when many such contents have been retained, to (3) an experience, so that for the first time "there is a universal in the soul" (*APo.* II 19 100^{a}3–16). The universal reached at stage (3), which is the one the respondent reaches, is described as "indefinite" and "better known by perception" (*Ph.* I 1 184^{a}22–25). It is the sort of universal, often quite complex, that constitutes a nominal essence corresponding to the nominal definition or meaning of a general term. Finally, (4) from experience come craft knowledge and scientific knowledge, when "from many intelligible objects arising from experience one universal supposition about similar objects is produced" (*Met.* I 1 981^{a}5–7).

The nominal (or analytic, meaning-based) definition of the general term "thunder," for example, might pick out the universal *loud noise in the clouds*. When science investigates the things that have this nominal essence, it may find that they also have a real essence or nature in terms of which their other features can be scientifically explained:

> Since a definition is said to be an account of what something is, it is evident that one sort will be an account of what its name, or some other name-like account, signifies—for example, what triangle signifies. . . . Another sort of definition is an account that makes clear why it exists. So the former sort signifies something but does not show it, whereas the latter will evidently be like a demonstration of what it is, differing in arrangement from a demonstration. For there is a difference between saying why it thunders and saying what thunder is. In the first case you will say: because fire is being extinguished in the clouds. And what is thunder? The loud noise of fire being extinguished in the clouds. Hence the same account is given in different ways. In one way it is a continuous demonstration, in the other a definition. Further, a definition of thunder is a noise in the clouds, and this is a conclusion of the demonstration of what it is. The definition of an immediate item, though, is an indemonstrable positing (*thesis*) of what it is. (*APo.* II 10 93^{b}29–94^{a}10; compare *DA* II 2 413^{a}13–20)

A real (or synthetic, fact-based) definition, which analyzes this real essence into its "elements and starting-points" (*Ph.* I 1 184^{a}23), which will be definable but indemonstrable within the science, makes intrinsically clear what the nominal definition made clear only to us by enabling us to recognize

instances of thunder in a fairly—but imperfectly—reliably way. As a result, thunder itself, now clearly a natural and not just a conventional kind, becomes better known not just to us but entirely or unconditionally. These analyzed universals, which are the sort reached at stage (4), are the ones suited to serve as starting-points of the sciences and crafts: "experienced people know the that but do not know the why, whereas craftsmen know the why, that is, the cause" (*Met.* I 1 $981^{a}28$–30).

Socrates too, we see, wanted definitions that were not just empirically adequate but also explanatory: in telling Euthyphro what he wants in the case of piety, he says that he is seeking "the form itself *in virtue of which* all the pieties are pieties" (*Euthphr*. 6d10–11). That is why he rejects the definition of piety as being what all the gods love. This definition is in one way correct, presumably, in that if something is pious it is necessarily loved by the gods and vice versa, but it isn't explanatory, since it doesn't tell us what it is about pious things that makes all the gods love them, and so does not identify the form in virtue of which they are pious (9e–11b).

Let us go back. We wanted to know what was involved in showing a scientific starting-point. We were told how we could *not* do this, namely, by demonstrating it from scientific starting-points. Next we learned that dialectic had a route to it from reputable beliefs. At the same time, we were told that induction had a route to it as well—something the *Nicomachean Ethics* also tells us: "we get a theoretical grasp of some starting-points through induction, some through perception, some through some sort of habituation, and others through other means" (I 7 $1098^{b}3$–4). This suggests that induction and dialectic are in some way or other the same process.

What shows a Socratic respondent to be wrong is an example that his definition does not fit. The presentation of the example might be quite indirect, however. It might take quite a bit of stage setting, elicited by the asking of many questions, to bring out a puzzle. But if it does succeed in doing so, it shows that the universal grasped by the respondent and the definition of it produced by him are not entirely or unconditionally knowable and that his state is not one of clear-eyed understanding:

> A puzzle in thought makes manifest a knot in the subject matter. For insofar as thought is puzzled it is like people who are tied up, since in both cases it is impossible to move forward. That is why we must get a theoretical grasp on all the difficulties beforehand, both for these reasons and because those who inquire without first going through the puzzles are like people who do not know where they have to go. And, in addition, a person [who has not already grasped the puzzles] does not even know whether he has found what he is inquiring into. For to

> someone like that the end is not clear, whereas to a person who has already grasped the puzzles it is clear. (*Met.* II 1 995^{a}30–^{b}2)

But lack of such clear-eyed understanding of a scientific starting-point has serious downstream consequences:

> If we are to have scientific knowledge through demonstration,. . . we must know the starting-points better and be better convinced of them than of what is being shown, but we must also not find anything more convincing or better known among things opposed to the starting-points from which a contrary mistaken conclusion may be deduced, since someone who has unconditional scientific knowledge must be incapable of being persuaded out of it. (*APo.* I 2 72^{a}37–^{b}4)

If dialectical examination brings to light a puzzle in a respondent's thought about a scientific starting-point, then, he cannot have any unconditional scientific knowledge even of what he may well be able to demonstrate correctly from it. Contrariwise, if dialectical examination brings to light no such puzzle, he apparently does have clear-eyed understanding, and his route to what he can demonstrate is free of obstacles.

At the heart of dialectic, as Aristotle understands it, is the dialectical deduction (*dialektikos sullogismos*). This is the argument lying behind the questioner's questions, partly dictating their order and content and partly determining the strategy of his examination. In the following passage it is defined and contrasted with two relevant others:

> Dialectical arguments are those that deduce from reputable beliefs in a way that reaches a contradiction; peirastic arguments are those that deduce from those beliefs of the respondent that anyone must know (*eidenai*) who pretends to possess scientific knowledge. . . ; contentious (*eristikos*) arguments are those that deduce or appear to deduce from what appear to be reputable beliefs but are not really such. (*SE* 2 165^{b}3–8)

If we think of dialectical deductions in this way, a dialectician, in contrast to a contender, is an honest questioner, appealing to genuinely reputable beliefs and employing valid deductions. "Contenders and sophists use the same arguments," Aristotle says, "but not to achieve the same goal. . . . If the goal is apparent victory, the argument is contentious; if it is apparent wisdom, sophistic" (11 171^{b}27–29). Nonetheless, he does also use the term *dialektikê* as the name for the craft that honest dialecticians and sophists

both use: "In dialectic a sophist is so called in virtue of his deliberate choice, and a dialectician is so called not in virtue of his deliberate choice, but in virtue of the capacity he has" (*Rh.* I 1 1355^{b}20–21). If dialectic is understood in this way, a dialectician who deliberately chooses to employ contentious arguments is a sophist (I 1 1355^{a}24–^{b}7).* We need to be careful, therefore, to distinguish *honest dialectic* from what we may call *plain dialectic*, which—like all crafts—can be used for good or ill (*NE* V 1 1129^{a}13–17).

The canonical occasion for the practice of the Socratic elenchus, obviously, is the examination of someone else. But there is nothing to prevent a person from practicing it on himself: "How could you think," Socrates asks Critias, "that I would refute you for any reason other than the one for which I would refute myself, fearing lest I might inadvertently think I know something when I don't know it?" (*Chrm.* 166c7–d2). Dialectic is no different in this regard:

> But the philosopher, who is investigating by himself, does not care whether, though the things through which his deduction proceeds are true and knowable, the answerer does not concede them, because they are close to what was proposed at the start, and he foresees what is going to result, but rather is presumably eager for his claims to be as knowable and as close to it as possible. For it is from things of this sort that scientific deductions proceed. (*Top.* VIII 1 155^{b}10–16)

What we are to imagine, then, is that the philosopher surveys the raw scientific starting-points, constructing detailed catalogues of these. He then tries to formulate definitions of the various universals involved in them that seem to be candidate scientific starting-points, testing these against the raw scientific starting-points by trying to construct demonstrations from them. But these definitions will often be no more than partial: the philosopher is only on his way to complete definitional starting-points, just as the demonstrations will often be no more than proto or nascent demonstrations. The often rudimentary demonstrations that we find in Aristotle's scientific treatises are surely parts of this process of arguing *to* not *from* starting-points. We argue to these in part by seeing whether or to what extent we could demonstrate from them.

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*Compare: "There are some things that cannot be put in only one genus—for example, the cheat and the slanderer. For neither the one with the deliberate choice to do it but without the capacity, nor the one with the capacity but not the deliberate choice, is a slanderer or a cheat, but rather the one with both" (*Top.* IV 5 126^{b}8–11).

So: First, we have the important distinction between dialectic proper, which includes the use of what appear to be deductions from what appear to be reputable beliefs, and honest dialectic, which uses only genuine deductions from genuine reputable beliefs. Second, we have the equally important distinction between the use of dialectic in examining a potentially hostile respondent and its use by the philosopher in a perhaps private pursuit of the truth. Third, we have an important contrast between honest dialectical premises and philosophical ones or scientific ones: honest dialectical premises are reputable beliefs; philosophical and scientific premises must be true and knowable. Fourth, we have two apparently equivalent routes to scientific starting-points, one inductive, which starts from *raw starting-points*, and the other dialectic, which starts from reputable beliefs.

According to the official definition, reputable beliefs are "things that are believed by everyone, by the majority, or by the wise—either by all of them, or by most, or by the most well known and most reputable" (*Top*. I 1 $100^{b}21$–23). Just as the scientist should have a catalogue of scientific truths ready to hand from which to select the premises of his demonstrations, so a dialectician ought also to select premises "from arguments that have been written down and produce catalogues (*diagraphas*) of them concerning each kind of subject, putting them under separate headings—for example, 'Concerned with good,' 'Concerned with life'" (*Top.* I 14 $105^{b}12$–15).

Clearly, then, there will be considerable overlap between the scientist's catalogue of raw starting-points and the honest dialectician's catalogue of reputable beliefs. For, first, things that are believed by reputably wise people are themselves reputable beliefs, and, second, any respondent would accept "the beliefs of those who have investigated the subjects in question—for example, on a question of medicine he will agree with a doctor, and on a question of geometry with a geometer" (*Top*. I 10 $104^{a}8$–37). The catalogues also differ, however, in that not all reputable beliefs need be true. If a proposition is a reputable belief, if it would be accepted by all or most people, it is everything an honest dialectician could ask for in a premise, since his goal is simply this: to show by honest deductions that a definition offered by any respondent whatsoever conflicts—if it does—with other beliefs the respondent has. That is why having a complete or fairly complete catalogue of reputable beliefs is such an important resource for a dialectician. It is because dialectic deals with things only "in relation to belief," then, and not as philosophy and science do, "in relation to truth" (I 14 $105^{b}30$–31) that it needs nothing more than reputable *beliefs*.

Nonetheless, the fact that all or most people believe something leads us "to trust it as something in accord with experience" (*Div. Somn.* 1 $426^{b}14$–16), and—since human beings "are naturally adequate as regards the truth and for the most part happen upon it" (*Rh*. I 1 $1355^{a}15$–17)—as containing

some truth. That is why, having catalogued some of the things that people believe happiness to be, Aristotle writes: "Some of these views are held by many and are of long standing, while others are held by a few reputable men. And it is not reasonable to suppose that either group is entirely wrong, but rather that they are right on one point at least or even on most of them" (*NE* I 8 $1098^{b}27$–29). Later he generalizes the claim: "things that seem to be so to everyone, these, we say, *are*" (X 2 $1172^{b}36$–$1173^{a}1$). Raw starting-points are just that—raw. But when refined some shred of truth is likely to be found in them. So likely, indeed, that if none is found, this will itself be a surprising fact needing to be explained: "when a reasonable explanation is given of why an untrue view appears true, this makes us more convinced of the true view" (VII 14 $1154^{a}24$–25). It is the grain of truth enclosed in a reputable belief that a philosopher or scientist is interested in, then, not in the general acceptability of the surrounding husk, much of which he may discard.

The process of refinement in the case of a candidate explanatory starting-point is that of testing a definition of it against reputable beliefs. This may result in the definition being accepted as it stands or in its being altered or modified: when a definition is non-perspicuous, Aristotle tells us at *Top.* VI 13 $151^{b}7$–8, it must be "corrected and reconfigured (*sundiorthôsanta kai suschêmatisanta*)," until it is made clear. The same process applies to the reputable beliefs themselves, since they may conflict not only with the definition but also with each other. Again, this may result in their being modified, often by uncovering ambiguities within them or in the argument supporting them, or by drawing distinctions that uncover complexities in these, or they may be rejected entirely, provided that their appearance of truth is explained away.

The canonical occasion for the use of honest dialectic, as of the Socratic elenchus and plain dialectic, is the examination of a respondent. The relevant premises for the questioner to use, therefore, are the reputable beliefs in his catalogue that his respondent will accept. Just how wide this set of beliefs is in a given case depends naturally on how accessible to untrained respondents the subject matter is on which he is being examined. We may all have some beliefs about thunder and other phenomena readily perceptible to everyone and which are—for that very reason—reputable. But about fundamental explanatory notions in an esoteric science we may have none at all.

When a scientist is investigating by himself the class of premises he will select from is the catalogue of *all* the raw starting-points of his science, despite a natural human inclination to do otherwise:

> Yet . . . people seem to inquire up to a certain point, but not as far as it is possible to take the puzzle. It is what we are all inclined to do, to make our inquiry not with an eye to the thing itself but with an eye to the person who says things that contradict him.

> For even a person inquiring on his own continues up to the point at which he is no longer able to contradict himself. That is why a person who is going to inquire correctly should be able to raise objections to a position by using objections that are special to the relevant genus, and this will be when he has acquired a theoretical grasp of all the differentiae. (*Cael.* II 13 $294^{b}6$–13)

Hence a scientist will want to err on the side of excess, adding any reputable belief that appears to have any relevance whatsoever to his catalogue. When he formulates definitions of candidate scientific starting-points from which he thinks he can demonstrate the raw ones, he must then examine himself to see whether he really does have the scientific knowledge of it that he thinks he does. If he is investigating together with fellow scientists, others may examine him: we all do better with the aid of co-workers (*NE* X 7 $1177^{a}34$). What he is doing is using honest dialectic on himself or having it used on him. But this, we see, is little different from the final stage—stage (4)—of the induction we looked at earlier. Induction, as we might put it, is in its final stage (possibly self-directed) honest dialectic.

In a famous and much debated passage, Aristotle writes:

> We must, as in the other cases, set out the things that appear to be so, and first go through the puzzles, and, in that way, show preferably all the reputable beliefs about these ways of being affected, or, if not all of them, then most of them and the ones with the most authority. For if the objections are resolved and the reputable beliefs are left standing, that would be an adequate showing. (*NE* VII 1 $1145^{b}2$–7)

The specific topic of the comment is "these ways of being affected," which are self-control and its lack as well as resilience and softness. Some people think that it applies only to this topic and should not be generalized, even though "as in the other cases" surely suggests a wider scope. And, as we can now see that scope is in fact entirely general, since it describes the honest dialectical or inductive route to the starting-points of *all* the sciences and methods of inquiry, with *tithenai ta phainomena* ("setting out the things that appear to be so") describing the initial phase in which the raw starting-points are collected and catalogued.

Earlier we asked whether the *De Anima* took a route like this to the starting-points of psychology. Now that we know what exactly it is we are asking, we are in a better position to see what the answer is, but also to see that it is yes.

De Anima

Book I

I 1

402ª1 Supposing that knowing to be a noble and an estimable thing, and one sort more so than another either in virtue of its exactness or by being about better and more wondrous things.[1] On both these grounds we may quite reasonably place the study of soul in the first rank. It seems too that to truth as a whole, knowledge of the soul makes a great contribution, especially with respect to nature, since the soul is as it were a starting-point of living things.[2]

And we are inquiring to get a theoretical grasp on, and to know, both the nature of the soul and its substance, and then on all the coincidents belonging to it—some of which seem to be special attributes of the soul, whereas others seem to belong because of it to living things as well.[3]

But in every way and altogether it is most difficult to attain any conviction concerning it. For, since the inquiry is also common to many other things, I mean the one about the substance and the what-it-is, it might perhaps seem to someone that a single method of inquiry is appropriate where all the things whose substance we wish to know are concerned, just as there is in fact demonstration of the coincidental special attributes, so that we should inquire [using] this method of inquiry.[4] If, however, there is no single and common method of inquiry concerning the what-it-is, our undertaking will be yet more difficult, since it will be necessary in each case to find out what the way [to inquire] is. But even if it is evident that it is demonstration or division or some other method of inquiry, there will still be much puzzlement and much variability as to what to base our inquiry on.[5] For distinct things—for example, numbers and planes—have distinct starting-points.

[P1] First of all, presumably, it is necessary to determine in which of the genera the soul belongs and what it is—I mean whether it is a this something and a substance or a quality, a quantity, or in some other of the categories that have been distinguished.[6] [P2] Further, whether it is one of those beings that are potentially or whether it is rather a sort of actuality.[7] For this makes no small difference. [P3] Also, we must 402ᵇ1 investigate whether it has parts or is partless, and [P4] whether all souls are of the same form, and [P5] if not, whether they differ in species (*eidos*) or in genus (*genos*).[8] For, as things stand, people who speak

and inquire about the soul seem to investigate the human soul alone. [P6] And we must be careful not to neglect to consider whether there is one account of the soul, as of animal, or whether there is a distinct account of each (for example, of horse, dog, human, god)—animal, the universal, being either nothing or posterior.[9] And similarly if there is any other common thing predicated.[10]

[P7] Further, if there are not many [sorts of] souls but rather [one sort of soul with] many parts, should we inquire into the whole soul or its parts? Again, it is difficult to determine which of the parts are naturally distinct from each other, and whether we should inquire into the parts first or their functions—for example, understanding or *the* understanding, perceiving or the perceptual part, and similarly in the other cases.[11] [P8] And if the functions come first, again a puzzle might be raised about whether we should inquire into the corresponding objects before these—for example, the perceptible object before the part that can perceive, and the intelligible object before the understanding part.[12]

It seems, though, that the knowledge of the what-it-is is not only useful for getting a theoretical grasp on the causes of the coincidents connected to the substances (as in mathematics knowing what the straight is and what the curved is, or what a line is and what a plane is, is useful for seeing how many right angles the angles are equal to), but also, conversely, knowing these coincidents contributes in great part to knowing the what-it-is.[13] For when we can give an account of all or most of these coincidents that is in accord with what appears so, we will then be able to speak best about the substance.[14] For the starting-point of all demonstration is the what-it-is, so that insofar as definitions [of it] do not lead us to know the coincidents, or fail even to facilitate a likely conjecture about [how to demonstrate] them, it is clear that they have all been stated in a dialectical and empty way.[15]

[P9] There is a puzzle too about the affections of the soul, as to whether they are all also shared by what has the soul or whether there is also some affection that is special to the soul itself.[16] For it is necessary to attain [a resolution of] this, but it is not easy. It appears that in most cases, though, the soul is neither affected by nor does it act without the body—for example, being angry, being confident, having an appetite for things, perceiving in general—whereas understanding seems to be most of all special to the soul.[17] Yet if it too is a sort of imagination, or does not exist without imagination, it would not be possible even for it to exist without a body.[18]

If, then, some function or affection of the soul is special to it, it will be possible for it to be separated. But if there is nothing special to it,

it will not be separable, but will be like the straight, to which, insofar as it is straight, many coincidents belong—for example, it will touch a bronze sphere at a point, although, if separated, the straight will not touch it in this way.[19] In fact, it is inseparable, since it always involves some body.

So too the affections of the soul—spiritedness, mild-mannerdness, fear, pity, confidence, and, further, joy, loving, and hating—would all seem to involve the body, since at the same time as these the body is affected in a certain way.[20] This is evidenced by the fact that sometimes, though strong and vivid affections take place in us, we are not provoked or frightened, whereas at other times we are moved by small and faint ones, as when the body is aroused (*orga[i]*) and its condition is like when someone is angry (*orgizatai*). It is yet more evident that this is so. For sometimes, though nothing frightening is occurring, people come to have the affections of a frightened person.

If this is so, however, it is clear that the affections of the soul are enmattered accounts.[21] So their definitions will be of this sort, for example: "Being angry is a sort of movement of such-and-such a sort of body, or of a part or a capacity, as a result of this for the sake of that."[22] And this is why it already belongs to the natural scientist to get a theoretical grasp on the soul, either all soul or this sort of soul.[23]

But a natural scientist and a dialectician would define each of these differently—for example, what anger is. For a dialectician it is a desire for retaliation or something like that, whereas for a natural scientist it is a boiling of the blood and hot stuff around the heart.[24] Of these, the natural scientist gives the matter, whereas the dialectician gives the form and the account. For this is the account of the thing, although it must be in matter of such-and-such a sort if it is to exist. And so of a house the account is this, that it is a shelter to prevent destruction by winds, rain, and heat. But one person will say that it is stones, bricks, and timbers, and another that it is the form in them for the sake of these other things.

Which of these people, then, is the natural scientist? Is it the one concerned with the matter but ignorant of the account, or the one concerned with the account alone? Or is it rather the one concerned with what is composed of both? Who, then, is each of the others? Or is there not someone who is concerned with the affections of the matter that are not separable and insofar as they are not separable? Or is the natural scientist rather the one who is concerned with everything that is a function or affection of this sort of body and this sort of matter?[25] And isn't anything not of this sort the concern of someone else, in some cases a craftsman, if there happens to be one, such as a builder or a doctor? And aren't those things that are not separable, but are

considered insofar as they are not affections of this sort of body and in abstraction from it, the concern of the mathematician?[26] And insofar as they are separate, that of the primary philosopher?[27]

But let us return to where our account began. We were saying that the affections of the soul are—at any rate, insofar as they are like spiritedness and fear—inseparable in this way from the natural matter of the living things to which they belong, and not in the way that line and plane are.

I 2

In our investigation concerning the soul it is necessary to go through the puzzles from which we must become free as we proceed and at the same time to collect the beliefs of those of our predecessors who declared any views on the subject, so that we may take what is correct in what they say, and, if anything is incorrect, guard against it.[28]

A starting-point of our inquiry is to set out the things that seem most of all to belong in accord with nature to the soul. What is animate, then, seems to differ from what is inanimate most of all in two regards—moving and also perceiving. And these are pretty much the two characteristics of soul that have been handed down to us by our predecessors. For some say that what causes movement is most of all and primarily soul. And thinking that what was not itself in movement could not possibly move something else, they took the soul to be a thing that is in movement.

That is what led Democritus to say that the soul is a sort of fire.[29] For the shapes and atoms are unlimited and those that are spherical he says are fire and soul—which are like the so-called motes in the air that appear in the sunbeams that come through our windows.[30] The aggregate of such seeds, he says (and likewise Leucippus), are the elements of the whole of nature, while those of them that are spherical are the soul, because being of such a shape they are especially capable of moving through everything and—being themselves moving—of moving the rest, on the supposition that the soul is what imparts movement to animals.[31] That is why, too, they make breathing the defining mark of being alive.[32] For when the surrounding air compresses their bodies it squeezes out those atomic shapes which, because they are never at rest themselves, impart movement to animals. Then aid comes from outside by the entry of other similar atoms in breathing. For these prevent the squeezing out of those that are already inside, helping to counteract what is doing the compressing and solidifying. And life continues just so long as they are capable of doing this.[33]

toward one thing), belief is the number of the plane, and perception that of the solid.[42] For the numbers, though they are the Forms themselves and the starting-points, are nevertheless generated from the elements.[43] And some things are discerned by understanding, others by scientific knowledge, others by belief, others by perception—and the numbers are the Forms of these.[44]

On the other hand, since the soul seemed to be both capable of moving things and, in the aforementioned way, capable of knowledge, some thinkers generated it from a combination of both and declared the soul to be a self-moving number.[45]

People differ with each other, however, about the starting-points, about what sort they are and how many they are, especially those who make them corporeal with those who make them incorporeal, and these with those who mix them and draw their starting-points from both differ.[46] They also differ as to their number. For some speak of one, others of a plurality. And they consequently differ too in the accounts they give of the soul. For they quite reasonably took it that the nature capable of causing movement must be among the primary things. This is what led some to believe that it is fire. For fire is the most fine-grained and most incorporeal of the elements, and furthermore is moved and also moves other things in a direct way.[47]

Democritus has more subtly explained each of these [characteristics of soul].[48] For soul and understanding are [for him] the same thing, and this is among the primary and indivisible bodies, and its capacity to move things is due to the smallness of its particles and their shape. But of the shapes, the most easily moved, he says, is the spherical, and both the understanding and fire are such.

Anaxagoras, while seeming to speak of soul and understanding as distinct, as we said earlier, treats them both as a single nature, except that he regards understanding above all as the *starting-point* of everything.[49] At any rate, he says that it alone of the beings is simple, unmixed, and pure.[50] And he assigns both knowing and causing movement to the same starting-point, when he says that understanding set the universe moving.[51]

Thales, too, to judge from what is recounted about him, seems to have taken the soul to be something capable of moving things, if indeed he said that a magnet has a soul because it moves iron.[52]

Diogenes, however, as well as some other people, took the soul to be air, thinking that of all things air is composed of the smallest particles and is a starting-point. And this is why the soul knows and moves things—knowing them insofar as it is a primary thing from which the rest derive, and moving them insofar as its particles are the smallest.[53]

Index of Terms

Note: Page numbers omit the initial 4, so that 02^{a}–35^{b} = 402^{a}–435^{b}. References are typically to key doctrines or discussions in the text and, when in bold, in the associated notes.